# 2012 CONFERENCE ABSTRACT BOOK

**Instructions**: The abstract book is sorted alphabetically by presenting author's last name.

To quickly find an abstract simply enter an ID or a presenting author's last name in the "Find" field of your Adobe reader.

**Abstract ID:** 1326493 **Presentation Type:** Breakout Presentation
**Title:** Evaluating the utility of state health department surveillance systems for monitoring climate change-related human health impacts
**Committee:** Environmental Health Sub-Committee
**Topic:** Climate change epidemiology and public health
**Keywords:** Climate change|Data/Surveillance|Evaluation

**Background:**
The New York State Department of Health (NYSDOH), funded by the CDC Climate-Ready States and Cities Initiative, evaluated Department databases to determine their utility in the development of a NYSDOH-wide surveillance system to monitor human health impacts of climate change. Such a surveillance system could be useful in advising climate change adaptation.

**Methods:**
The surveillance system evaluation followed CDC Guidelines for Evaluating Public Health Surveillance Systems. The evaluation was largely informed by an analysis of interviews with NYSDOH surveillance system managers (SSMs). Responses were tabulated using SAS v9.2. Responses of "do not know" were excluded from the denominator of the respective questions.

**Results:**
Interviews were conducted with 52 of 53 (98.1%) SSMs contacted. Relevant interview question results are presented by surveillance system attribute. Acceptability: 7/52 (13.5%) SSMs reported use of climate data. 44/52 (84.6%) reported that their database could be useful in assessing health impacts of climate change. Sensitivity: 21/51 (41.2%) SSMs indicated that some data is currently geocoded. Of the 30 SSMs reporting that data is not geocoded, 21 (70%) said that information necessary for geocoding is available in their databases. 44/50 (88.0%) indicated that dates of events are recorded and available for analysis. 37/52 (71.2%) have a system for tracking data to detect changes of interest. Representativeness: SSMs indicated that data is available, on average, for approximately 16 years. 46/52 (88.5%) databases either include information on the entire state or NYS, excluding New York City. No SSM anticipated future changes in the geographical area. According to SSMs, databases include demographic groups considered vulnerable to climate change (e.g., children, the elderly, racial/ethnic minorities, and individuals with underlying health problems). Timeliness: 27/52 (51.9%) SSMs indicated data is reported daily. 13/33 (39.4%) SSMs who responded that they track data, do so at least weekly. For SSMs using thresholds to trigger actions, 7/15 (46.7%) take action within one week of a threshold being reached. Data access: 32/47 (68.1%) SSMs require approval for others to access their data. Data-sharing agreements are in place for 26/50 (52%).

**Conclusions:**
Based on input from 52 SSMs, a potential NYSDOH-wide surveillance system for monitoring climate change-related human health impacts meets several qualities necessary for an ideal surveillance system. Additional data collection is necessary to address other system attributes. Going forward, key databases should be identified and compiled based on biological plausibility, database characteristics, and program needs, with subsequent pilot testing of the surveillance system.

---

**Presenting Author(s):**

**Danielle Abraham**
New York State Department of Health,
Albany, NY
dsa02@health.state.ny.us

**Contributing Authors**

M. Eidson, MA, DVM, DACVPM, NYSDOH; K.A. Clancy, MPH, NYSDOH; S. Lin, PhD, NYSDOH; S.M. Zansky, PhD, NYSDOH; H.A. Freed, MD, PhD, NYSDOH; G.S. Birkhead, MD, MPH, NYSDOH

**Abstract ID:** 1331880 **Presentation Type:** Poster Presentation
**Title:** BioSense Program use of healthcare utilization data for surveillance - 2011 and 2012
**Committee:** Surveillance/Informatics
**Topic:** Syndromic Surveillance and Situational awareness (incl. BioSense)
**Keywords:** Surveillance|Health care|Data/Surveillance


**Background:**
Objective: To demonstrate the use of BioSense data in routine public health surveillance activities. Background: BioSense is a near real-time all-hazards public health surveillance system designed to provide national disease detection, monitoring and health situational awareness. The system currently receives data from Non-Federal hospital emergencies departments providing chief complaint or final diagnoses data, US Department of Defense outpatient (OP) facilities and Veterans Affairs OP facilities providing final diagnoses data.

**Methods:**
Methods: The BioSense Epidemiology and Surveillance Team (BEST) conducts the following three types of public health surveillance-related activities: Syndrome-Specific Event Detection (SSED), Enhanced Surveillance (ES), and Situational Awareness (SA). SSED is conducted on specifically defined syndromes such as the Daily Anomaly Detection, which monitors 15 syndromes and 78 sub-syndromes to identify unusual geographic clusters or patterns (anomalies). The BioSense team defines ES as targeted surveillance of specific events that pose an inherent risk to public health. These events include possible treat of terrorist acts, events with large numbers in attendance, presence of high ranking dignitaries, or events with historical or political implications. BioSense conducts ES on 33 syndromes and sub-syndromes. SA is defined by the team as surveillance on unplanned emergency events such as flooding or infectious disease outbreaks that empowers CDC and state or local partners with the knowledge to make better strategic decisions. To identify clusters of patient visits of interest, we use a modified version of the early aberration reporting system (EARS) C2 statistic [1].

**Results:**
Results: In 2011, BioSense conducted 14 public health surveillance activities. 4/14 (28.5%) were SSED, 4/14 (28.5%) were ES and 6/14 (43%) were SA conducted on unplanned events such as the Japan Earthquake and Tsunami . Due to the 2012 Presidential Elections and increased need for ES of specific events, we will conduct 22 surveillance activities in 2012; 4/22 (18%) SSED (e.g., Daily Anomaly Detection), 15/22 (68%) will focus on ES on specific event (e.g., Super Bowl, Democratic and Republican National Conventions), and 3/22 (14%) will be SA surveillance on unplanned events (e.g., hurricane season and cold weather-related surveillances). In addition, BioSense will conduct surveillance on emergency events as requested by the Emergency Operations Center, state or local partners.

**Conclusions:**
Conclusions: BioSense is an adaptable electronic all-hazards public health surveillance system that can provide near real-time information during large-scale events of national significance. References: [1] Tokars JI, Burkom H, Xing J, et al. Enhancing time series detection algorithms for automated biosurveillance. Emerg Infect Dis 2009;15:533-9.


---


**Presenting Author(s):**

**Loren Akaka**
OSELS, DHI, Centers for Disease
Control and Prevention, Atlanta, GA
gng0@cdc.gov

**Contributing Authors**

Achintya N. Dey, MA, Centers for Disease Control and Prevention and Matthew R. Miller, MS, McKing Consulting Corporation

**Abstract ID:** 1321981 **Presentation Type:** Breakout Presentation
**Title:** Adult Blood Lead Epidemiology and Surveillance (ABLES) program: Annual progress report
**Committee:** Occupational Health Sub-Committee
**Topic:** Lead exposure surveillance (ABLES)
**Keywords:** Lead|Surveillance|Epidemiology

**Background:**
The Centers for Disease Control and Prevention (CDC)'s National Institute for Occupational Safety and Health (NIOSH) established the Adult Blood Lead Epidemiology and Surveillance (ABLES) program in 1987 to monitor occupational lead exposure. ABLES is a longstanding U.S. state-based surveillance effort that tracks lead exposures among adults in 41 states. NIOSH provides guidance, technical support, and funding to state health departments to build and maintain lead exposure surveillance capacity. NIOSH's contributions have strengthened state programs by providing a means for participating states to accurately measure trends in adult blood lead exposures and effectively intervene to reduce lead exposure. NIOSH, the only federal funding source for adult lead exposure surveillance, provides a total of $812,500 to 40 state ABLES programs each year. The ABLES program is also the data source for tracking the Department of Health and Human Services' Healthy People (HP) objective to reduce lead exposures in adults since 1990. The Healthy People 2020 Occupational Health and Safety objective 7 (OSH–7) is to reduce the proportion of persons who have elevated blood lead levels (BLL ? 10µ/dL) from work exposures.

**Methods:**
State ABLES programs collect adult BLL data from laboratories and health-care providers through mandatory reporting requirements. BLL reporting requirements vary among ABLES states, ranging from the reporting of all BLLs to BLLs ? 40 µg/dL. Most state ABLES programs submit data on all BLLs to NIOSH, including reports from persons whose BLL fall below the state reporting requirement. NIOSH analyses the data and disseminates findings and recommendations to stakeholders.

**Results:**
In 2011, 41 states participated in the ABLES program submitting lead exposure data at the updated case definition for an elevated blood lead level (BLL ? 10µ/dL) and conducting activities to prevent lead exposures. In the United States, 95% of BLL ?25 ?g/dL in adults is work related. Lead exposure occurs mainly in the battery manufacturing, lead and zinc ore mining, and painting and paper hanging industries. Over the last 16 years, ABLES surveillance data showed a 50% decrease in national prevalence rates of BLL ?25 ?g/dL. In 1994 the rate was 14.0 employed adults per 100,000; in 2010 the rate was reduced to 7.0. In 2010, 40 state ABLES programs reported 31,081 adults in the United States with BLLs ?10 ?g/dL; among these, 1,388 had BLLs ?40 ?g/dL, and 8,793 had BLLs ?25 ?g/dL.

**Conclusions:**
Though rates of BLL ?25 ?g/have decreased, ABLES program work is still not complete. The 31,081 adults with BLL ?10 ?g/dL reported by ABLES in 2010, indicates that lead remains a national occupational health problem, and that continued efforts to reduce lead exposures are needed. These results likely underestimate the true magnitude of adult lead exposures in the United States because BLL are often underreported

---

**Presenting Author(s):**

**Walter Alarcon**
NIOSH, Centers for Disease Control
and Prevention, Cincinnati, OH
wda7@cdc.gov

**Abstract ID:** 1321988 **Presentation Type:** Breakout Presentation
**Title:** Adult Blood Lead Epidemiology and Surveillance (ABLES) program review: Where do we go from here?
**Committee:** Occupational Health Sub-Committee
**Topic:** Lead exposure surveillance (ABLES)
**Keywords:** Lead|Surveillance|Epidemiology

**Background:**
The state-based Adult Blood Lead Epidemiology and Surveillance (ABLES) program is a network of 41 states conducting lead exposure surveillance and prevention. The National Institute for Occupational Safety and Health (NIOSH), an institute of the Centers for Disease Control and Prevention (CDC), provides guidance, technical support, and funding to state health departments to build and maintain lead exposure surveillance capacity. NIOSH, the only federal funding source for adult lead exposure surveillance, provides a total of $812,500 to 40 state ABLES programs each year.

**Methods:**
State ABLES programs collect, analyze and report lead exposure data; identify new and high-risk lead exposures; follow-up with physicians, workers and employers; target workplace for site visits where needed; provide referrals for consultation and enforcement; and target educational materials for employers and workers. NIOSH calculates national and state rates and distribution by industries and disseminates findings and recommendations to stakeholders; participates in CDC's Advisory Committee on Childhood Lead Poisoning Prevention (ACCLPP); participates in the Federal Interagency Lead-Based Paint Task Force; and collaborates with State and Federal partners and workers-affiliated organizations to reduce lead exposures.

**Results:**
These multiple state and federal activities have resulted in important progress in reducing lead exposures as described in the ABLES Annual Report.

**Conclusions:**
Despite the fact that rates of BLL ?25 ?g/dL have decreased, the ABLES program work is still not complete. In 2010, there were at least 31,081 adults with BLL ?10 ?g/dL, and 1,388 adults with BLLs ?40 ?g/dL. These findings indicate that lead remains a national occupational health problem, and that continued efforts to reduce lead exposures are needed. In this 60-minute program review session, the State ABLES Program principal investigators and the NIOSH ABLES program will discuss on strategies to improve ABLES data quality, ABLES data usage, reaching out to stakeholders, and current and future implications of program updates.

---

**Presenting Author(s):**

**Walter Alarcon**
NIOSH, Centers for Disease Control
and Prevention, Cincinnati, OH
wda7@cdc.gov

**Abstract ID:** 1367177 **Presentation Type:** Breakout Presentation
**Title:** Improving ABLES data quality open discussion
**Committee:** Occupational Health Sub-Committee
**Topic:** Lead exposure surveillance (ABLES)
**Keywords:** Lead

**Background:**
Continuous improvement in data collection is of critical importance for the ABLES program, particularly because the ABLES program adopted a new case definition which creates opportunities and challenges for ABLES programs. The ABLES Coding Committee and ABLES principal investigators will discuss about the different protocols states are using in coding their data and how to improve the process.

**Methods:**
Continuous improvement in data collection is of critical importance for the ABLES program, particularly because the ABLES program adopted a new case definition which creates opportunities and challenges for ABLES programs. The ABLES Coding Committee and ABLES principal investigators will discuss about the different protocols states are using in coding their data and how to improve the process.

**Results:**
Continuous improvement in data collection is of critical importance for the ABLES program, particularly because the ABLES program adopted a new case definition which creates opportunities and challenges for ABLES programs. The ABLES Coding Committee and ABLES principal investigators will discuss about the different protocols states are using in coding their data and how to improve the process.

**Conclusions:**
Continuous improvement in data collection is of critical importance for the ABLES program, particularly because the ABLES program adopted a new case definition which creates opportunities and challenges for ABLES programs. The ABLES Coding Committee and ABLES principal investigators will discuss about the different protocols states are using in coding their data and how to improve the process.

---

**Presenting Author(s):**

**Walter Alarcon**
Surveillance Branch / Division of
Surveillance, Hazard Evaluations and
Field Studies , National Institute for
Occupational Safety and Health ,
Cincinnati, OH
wda7@cdc.gov

**Abstract ID:** 1366722 **Presentation Type:** Breakout Presentation
**Title:** Variation in state reporting requirements: How bad is the disease and what are the options for prevention and treatment?
**Committee:** Surveillance/Informatics
**Topic:** General surveillance topics
**Keywords:** Surveillance

**Background:**
There is ample evidence that substantial jurisdictional variation in reportable condition reporting requirements exists, and that this variation creates problems for reporters, particularly those that respond to reporting requirements in multiple jurisdictions.

**Methods:**
This panel will describe the issue from various perspectives, including those of jurisdictions and reporters. We will present information about the extent and severity of the problem and the approaches reporters have taken to cope with the variation. Some disease reporting is very useful, some is designed to be innovative but is the amount of variability really useful? Thirty minutes of the session will be devoted to interaction with the audience. We will engage the audience in a discussion of the desirability and feasibility of reducing variation, and whether proposed technical developments such as the reportable conditions knowledgebase might make some types of variation more manageable.

**Results:**
Presentations may include: Panelist presenting findings from SRCA 2011 (who?) Panelist presenting findings from the Utah survey and the large lab interviews Lab representative describing the challenges they encounter and how they respond Panelist presenting the concept of the reportable condition knowledgebase and how it might address some of the issues Panelist presenting a summary and posing questions for audience discussion

**Conclusions:**
This panel will describe the issue of variation in reporting requirements from various perspectives, including those of jurisdictions and reporters.

---

**Presenting Author(s):**

**Rita Altamore**
Washington State Department of
Health, Tumwater, WA
Rita.Altamore@doh.wa.gov

**Abstract ID:** 1316180 **Presentation Type:** Poster Presentation
**Title:** Evaluating New York City's enhanced chronic hepatitis C surveillance system
**Committee:** Surveillance/Informatics
**Topic:** General surveillance topics
**Keywords:** Surveillance|Hepatitis|Evaluation


**Background:**
At the New York City Health Department, routine hepatitis C (HCV) surveillance typically includes limited patient information (date of birth, sex, and address). We enhanced surveillance for chronic HCV to better characterize this population and improve prevention programs. We evaluated this enhanced surveillance system using CDC methodology.

**Methods:**
Twenty patients were randomly selected bimonthly from all newly reported HCV patients. We administered questionnaires to clinicians and patients to collect detailed clinical and epidemiologic data. Data from 167 HCV cases diagnosed September 2009 - January 2011 were analyzed to evaluate data quality, timeliness, representativeness, and usefulness. Demographics were compared between sampled patients and all patients in routine HCV surveillance to assess representativeness and usefulness of the enhanced surveillance data. Data quality was assessed by analyzing questionnaire completion rates, comparing demographics of those who did and did not complete questionnaires, and calculating percentage of unknown data fields. Timeliness was assessed by subtracting dates of questionnaire assignment and completion. All investigators and the project coordinator were interviewed to ascertain time to conduct investigations, challenges, data uses, and suggestions for improvement.

**Results:**
Clinician questionnaires were completed for 166/167 cases: 133 (80%) by fax, 29 (17%) by chart review, and 4 (3%) by mail/phone. Patients completed 78/167 (47%) questionnaires. Median completion time was 50 days; investigations took a median of 3.5 hours. Sampled patients were similar by age, sex, and county to patients in routine surveillance. Patients who completed questionnaires were more likely to be insured (93% vs. 68%, $p<0.001$), and speak English (85% vs. 67%, $p=0.005$) than those that did not. Investigators found the protocol easy to follow. Patients' primary clinicians were difficult to locate and patients were tested in non-routine care settings; as a result, the median percentage of unknown responses was 32% (range 16%-42%). Many patients (37%) had not been tested for HCV RNA, which is needed to confirm active infection.

**Conclusions:**
The enhanced chronic HCV surveillance system is useful, because it obtains additional data that could be used to improve HCV prevention and control. The system's small sample size allowed investigators to focus on increasing clinician response rates. A weakness, however, is that clinicians provided limited information, because patients were tested in settings where they were not getting routine care and primary clinicians were difficult to locate. We will use this evaluation to educate providers about the need for RNA testing, improve surveillance protocol, reduce challenges to obtaining complete information, and design educational initiatives.


---


**Presenting Author(s):**

**Kate Altschaefl**
Bureau of Communicable Disease,
New York City Department of Health
and Mental Hygiene, Long Island City,
NY
kaltschaefl@health.nyc.gov

**Contributing Authors**

Katie Bornschlegel, MPH – NYC DOHMH Sharon Balter, MD – NYC DOHMH Emily McGibbon, MPH – NYC DOHMH

**Abstract ID:** 1315965 **Presentation Type:** Breakout Presentation
**Title:** Chemical suicide incidents in the United States
**Committee:** Environmental Health Sub-Committee
**Topic:** Surveillance and response to chemical/radiologic emergencies, including National Toxic Substance Incidents Program (NTSIP)
**Keywords:** Chemical and biological exposures|Environmental Health hazards

**Background:**
Detergent suicides involve mixing household chemicals in a confined space, and inhaling the resultant fumes. In 2008, during a 3 month period in Japan, 208 detergent suicides occurred. Similar suicides are being reported in the United States, which could be the result of directions for detergent suicides being posted on internet message boards. Mixing household chemicals can lead to the development of hydrogen sulfide or hydrogen cyanide (both chemicals can result in morbidity and mortality). These resulting poisonous gasses can pose a threat to responders and innocent bystanders.

**Methods:**
Data collected during 2006-2011 by 15 state health departments participating in the Agency for Toxic Substances and Disease Registry (ATSDR)'s two chemical surveillance systems were used to find incidents involving detergent suicides. From 2006-2009, data came from the Hazardous Substance Emergency Events Surveillance system and 2010-2011 data came from the National Toxic Substance Incidents Program. To find detergent suicides, open text fields were queried in the comment, synopsis, and contributing factors variables for the following terms: suicide, intentional, inhaled, death, die, kill, detergent, and household chemical. Descriptive analyses were performed to identify the public health impact of detergent suicides.

**Results:**
Twenty-two detergent suicide incidents or attempted suicides were reported from 2006-2011. The incidents occurred in enclosed areas (i.e., vehicles, hotel rooms, bathrooms, or other rooms in a house). A total of 31 victims were reported, 19 were suicide victims who died, one person aborted the effort and two received treatment at a hospital. One victim was a member of the general public. Eight responders were injured. Three of those responders reported having HAZMAT training and two reported wearing personal protective equipment. A total of 42 persons were decontaminated. Evacuations were reported for seven of the incidents, however only three reports indicated the number of evacuees.

**Conclusions:**
Detergent suicides can pose a threat to responders and bystanders. Educational efforts are needed to raise the awareness among responders and the public about the dangers of detergent suicides. Responders need to be able to recognize when a detergent suicide has taken place and they need to know the proper protocol to follow. Members of the public need to be able to identify detergent suicides, and the steps to take to ensure their personal safety.

---

**Presenting Author(s):**

**Ayana Anderson**
Agency for Toxic Substances and
Disease Registry, Atlanta, GA
ing9@cdc.gov

**Abstract ID:** 1324321 **Presentation Type:** Breakout Presentation
**Title:** Q fever outbreak associated with goat farms in Montana and Washington: Learning from a multi-agency and multi-disciplinary response
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Zoonoses
**Keywords:** Zoonotic disease|One Health|Veterinary Public Health

**Brief Summary:**
Coxiella burnetii is an enzootic and endemic bacterial pathogen in the United States and causative agent of Q fever. Cattle, sheep, and goats are the most common animal reservoirs, and C. burnetii is shed by infected animals. Humans typically become infected through inhalation of contaminated aerosols and dust. In 2011, C. burnetii-infected goats located on a farm in Washington State were traced to 16 additional farms in Washington, three farms in Montana, and one farm in Oregon. C. burnetii infection was demonstrated in 16 of 17 goat herds investigated. In total, 15 human cases of Q fever were identified during the investigation and were associated with exposure to five farms. Four persons were hospitalized and none died. Multidisciplinary coordination during a Q fever outbreak is essential to protecting the public's health; however, coordination of response activities can be challenging, especially during a multi-state outbreak and when competing priorities exist between animal and public health agencies.

**Key Objectives:**
We intend to host a roundtable discussion focusing on the following discussion points: 1. Detection of Q fever outbreaks or clusters via health alerts following animal cases 2. Defining the roles of animal health and public health agencies during a zoonotic disease outbreak involving farm producers 3. Interpretation of immunofluorescence antibody (IFA) test results among different laboratories 4. Public health's role regarding the neighbors of contaminated farms 5. Public health education of community members, healthcare providers, and livestock owner associations

---

**Presenting Author(s):**

**Alicia Anderson**
Centers for Disease Control and Prevention, Atlanta, GA
aha5@cdc.gov

**Nicola Marsden-Haug**
Communicable Disease Epidemiology, Washington State Department of Health, Shoreline, WA
nicola.marsden-haug@doh.wa.gov

**Contributing Authors**

Randall J. Nett, MD, MPH, CDC Career Epidemiology Field Officer, Assigned to the Montana Department of Public Health and Human Services Adam Bjork, PhD, Epidemic Intelligence Service Officer, Rickettsial Zoonoses Branch, CDC Jennifer H. McQuiston, DVM, Chief, Surveillance Epidemiology Activity, Rickettsial Zoonoses Branch, CDC

**Abstract ID:** 1326678 **Presentation Type:** Poster Presentation
**Title:** Distribution of Influenza Like Illness (ILI) by cccupation in Washington State, September 2009 – August 2010 *
**Committee:** Occupational Health Sub-Committee
**Topic:** Improving occupational health surveillance
**Keywords:** Occupational Health|Influenza surveillance|Surveillance


**Background:**
Influenza (the 'flu') is an infectious respiratory illness characterized by fever, cough, sore throat, runny nose, fatigue, and muscle aches. Flu virus transmission usually requires close proximity of an infected person to a healthy person, or contact from a contaminated surface introducing the virus into the respiratory passages of a healthy person. The impact of influenza epidemics on morbidity and mortality is considerable; and the epidemiology of pandemic influenza suggests that there will be greater impact on working age populations. Outside of health care, relatively little data are available to describe occupations where workers may be at potentially higher risk for influenza infection. Based on differences in the required level of contact between persons at work, we hypothesize that some occupations may be at increased risk for ILI. This study estimates the prevalence of influenza like illness (ILI) by occupation.

**Methods:**
Between September 2009 and August 2010 the Centers for Disease Control (CDC) included questions on ILI on the Behavioral Risk Factor Surveillance System (BRFSS). The case definition for ILI were those reporting a febrile illness within the last month accompanied by a cough and/or sore throat. Washington State included questions on their state BRFSS on occupation. Using these, descriptive statistics, ILI prevalence, and prevalence ratios by occupation were calculated.

**Results:**
There were 8,752 respondents on the WA BRFSS during that period that were currently employed in non-military occupations. The ILI prevalence for all respondents was 6.8%. In general, workers between the ages of 18-49 had a higher prevalence than those over 50 years of age, and females had higher prevalence than males. Compared to the reference group, prevalence ratios indicate lower risk of ILI in 'technicians, n.e.c.' and 'truck drivers'; and higher risk of ILI in 'janitors and cleaners' and 'secretaries'.

**Conclusions:**
Some occupations appear to have higher prevalence of ILI than others, which may be partly explained by differing levels of social contact by occupation as well as differences in contact with contaminated surfaces. Given the serious impact of the flu on the working population, prevention efforts should take occupational exposures into account. Routine collection of occupation information in BRFSS and other surveillance instruments would help in identifying occupations at higher risk for ILI and targeting resources for prevention.


---


**Presenting Author(s):**

**Naomi Anderson**
Safety and Health Assessment and
Research for Prevention, Washington
State Department of Labor and
Industries, Olympia, WA
anna235@lni.wa.gov

**Contributing Authors**

Z. Joyce Fan, PhD, Washington State Department of Labor & Industries Safety and Health Assessment and Research for Prevention. David K. Bonauto, MD, MPH, Washington State Department of Labor & Industries Safety and Health Assessment and Research for Pre

**Abstract ID:** 1318143 **Presentation Type:** Poster Presentation
**Title:** An informatics evaluation of Guam's communicable disease surveillance system
**Committee:** Surveillance/Informatics
**Topic:** Other surveillance/informatics
**Keywords:** Informatics|Evaluation|Communicable disease

**Background:**
Guam Department of Public Health and Social Services (DPHSS) is a territorial, central public health department responsible for surveillance, communicable disease control, outbreak response, outpatient care, and laboratory services. In 2006, Guam DPHSS acquired a web-based surveillance system to enhance and improve communicable disease surveillance and outbreak response. Implementation of the web-based surveillance system was not completed. In May 2011, Guam DPHSS requested CDC's assistance to characterize effectiveness and assess gaps in the existing communicable disease surveillance system to inform decision-making for implementation of an electronic surveillance system.

**Methods:**
An on-site, formative evaluation was performed in August 2011 by a joint Epi-Aid/InfoAid team to identify gaps in the current communicable disease surveillance system. Semi-structured interviews were conducted with internal and external DPHSS partners to assess data flows and processes. Assessment results were represented using a SWOT (strengths, weaknesses, opportunities, and threats) analysis across the following dimensions: information, technology, processes, objectives and values, staffing and skills, management system and structures, and other resource (ITPOSMO) dimensions.

**Results:**
SWOT analysis identified both strengths and weaknesses in the current communicable disease surveillance system. One strength identified was a clear understanding of the scope and objectives of communicable disease surveillance, response, and case management. Weaknesses of the current system included a lack of cohesive management systems, operations documentation, and epidemiology, informatics, and laboratory workforce and physical resources. External threats to the implementation of an electronic surveillance system included difficulty obtaining technical support from other regional and federal public health partners, staff turnover, and diminished financial resources. Securing access to stable funding and technical support for improvements to the existing system are identified opportunities.

**Conclusions:**
Guam's current communicable disease surveillance system allows for detection and response to disease events. However, this assessment identified gaps in the existing communicable disease surveillance system in processes, staffing and skills, and management system structure dimensions, which may complicate the introduction of an electronic communicable disease surveillance system in Guam. Recommendations are focused towards strengthening Guam DPHSS workforce and enhancing interoperability among the various siloed communicable disease surveillance systems. A comprehensive assessment of Guam's information technology infrastructure is essential to support Guam's adoption of an electronic communicable disease surveillance system that is customized to the needs of DPHSS.

---

**Presenting Author(s):**

**Olympia Anderson**
Centers for Disease Control and Prevention, Atlanta, GA
oanderson@cdc.gov

**Contributing Authors**

Emily Lankau, DVM, PhD, Centers for Disease Control and Prevention  Kirsten Buckley, MPH, DVM, Centers for Disease Control and Prevention  Erin Imada, MPH, Centers for Disease Control and Prevention  James Gillan, Guam Department of Public Health and Soc

**Abstract ID:** 1332762 **Presentation Type:** Breakout Presentation
**Title:** Concurrent diagnosis, progression and survivability of HIV/AIDS-infected patients in Houston, Texas
**Committee:** Infectious Diseases Sub-Committee
**Topic:** HIV
**Keywords:** HIV/AIDS|Local epidemiology|Data/Surveillance

**Background:**
Concurrent diagnosis of HIV/AIDS complicates treatment and increases morbidity and short-term mortality. Late diagnosis represents missed opportunity for timely initiation of care and treatment. We assessed the demographics and clinical characteristics of participants who had concurrent HIV/AIDS diagnosis and the relationship to HIV-related mortality among adults (13 years and above).

**Methods:**
A total of 2,395 prospective observational medical records obtained from Adult/Adolescent Spectrum of HIV/AIDS Disease (ASD) project conducted in Houston, Texas between 1990 and 2003 was used for this study. Concurrent HIV/AIDS diagnosis was categorized at study entry (0), 6 and 12 month(s). Kaplan-Meier survival analysis and the log-rank test were used to test univariate associations with HIV-related mortality. Cox proportional hazards regression was used to determine predictors of HIV-related death in a multivariate analysis.

**Results:**
Findings from the study indicate that 2.0%, 12.5% and 85.5% of the participants were concurrently diagnosed at 0 month, 6 months and 12 months, respectively. Males recorded a longer survival time than females with significant difference ($p<0.05$) recorded among those concurrently diagnosed at 6 months (Mean: 59 51; 95%CI: 51.6-66.5 months vs. Mean: 39.9; 95%CI: 34.3-45.4 months), while females with concurrent diagnosis at 12 months had a longer survival time than males (Mean: 70.0; 95%CI: 64.8;-75.4 months vs. Mean: 59.0; 95%CI: 56.4-61.5 months). There was no significant difference in survivability by race/ethnicity. We generally noted a significant difference ($p<0.01$) between male and female in the progression from concurrent HIV/AIDS diagnosis status to death. Age, antiretroviral use, HAART, CD4 cell counts, viral load and presence of opportunistic infections were significant ($p<0.01$) predictors of patients survivability.

**Conclusions:**
It is evident from our findings that concurrent HIV/AIDS diagnosis has a negative impact on health and that early diagnosis of HIV infection offers the opportunity to begin treatment with HAART early and can help reduce the rate of progression to AIDS and HIV/AIDS-related mortality.

---

**Presenting Author(s):**

**Raouf Arafat**
Office of Surveillance and Public
Health Preparedness, Houston
Department of Health and Human
Services, Houston, TX
Raouf.arafat@houstontx.gov

**Contributing Authors**

Osaro Mgbere PhD, MPH; Marcia Wolverton MPH; Salma Khuwaja MD, MPH, Dr.PH; James Gomez MPH; Lydwina Anderson BS Office of Surveillance and Public Health Preparedness Houston Department of Health and Human Services

**Abstract ID:** 1364206 **Presentation Type:** Breakout Presentation
**Title:** Risk factors that may contribute to death from meningococcal disease: New York City, 2000-2010
**Committee:** Student Section
**Topic:** Infectious Diseases
**Keywords:** Communicable disease|Epidemiology|Surveillance

**Background:**
Invasive meningococcal disease (IMD) is caused by the bacterium Neisseria meningitidis. When compared to national figures, New York City (NYC) rates of IMD are lower (NYC: 0.27/100,000; U.S. 39/100,000), yet NYC's case fatality rate (CFR) is markedly higher than the national rate (18% NYC, 14% U.S.). Behavioral, clinical and community level risk

**Methods:**
A case-control study of IMD-infected persons diagnosed from 2000-2010 among NYC residents was conducted. Cases were defined as death occurring within 30 days of IMD onset and confirmed by the Office of Vital Statistics death registry. Individuals who survived IMD infection served as controls. Variables found significant (? = 0.1) by univariate logistic regression and having complete data were included in a multivariable model (? = 0.05) to assess the relationship between risk factors and death from IMD.

**Results:**
There were 69 IMD deaths in the cohort (n=379). Significant univariate predictors of death include: age group 65 and older (OR: 2.33; 95% CI: 1.19, 4.59), non-Hispanic black (OR: 1.69; 95% CI: 0.93, 3.10) , serogroup C (SGC) (OR: 2.15; 95% CI: 1.25, 3.69), past medical history of a chronic illness (OR: 4.01; 95% CI: 1.73, 9.27), respiratory illness (OR: 5.68; 95% CI: 1.98, 16.24), smoking (OR: 3.63; 95% CI: 1.50, 8.79), sex with non-household members (OR: 4.33; 95% CI: 1.22, 15.32), bar patronage within 10 days of disease onset (OR: 3.03; 95% CI: 0.92, 10.03), and drug use (OR: 2.64; 95% CI: 1.00, 7.01). Zip codes where 60% or more of the population is foreign born had a protective effect against IMD-related death (OR: 0.36; 95% CI: 0.12, 1.03) as did age group 0-4 years (OR: 0.16; 95% CI: 0.04, 0.69). The multivariate model yielded significantly increased odds of death due to IMD among cases with a history of respiratory illness (OR: 6.18; 95% CI: 1.82, 20.99), chronic illness (OR: 2.55; 95% CI: 1.01, 6.44), and SGC infection (OR: 2.09; 95% CI: 1.18, 3.69). Age group 0-4 years remained protective in the model (OR: 0.20, 95% CI 0.05, 6.44). Being foreign born was no longer significant when included in a model with population density.

**Conclusions:**
Having a past medical history of either respiratory illness or chronic illness and being infected with SGC were found to increase the odds of IMD death. This association should be explored further to determine whether this is a NYC-specific phenomenon or similar to other large cities. Likewise, further studies should be undertaken to understand the mechanisms behind IMD infection, modifiable risk factors and the high CFR in NYC.

---

**Presenting Author(s):**

**Lola Arakaki**
Bureau of Communicable Disease,
New York City Department of Health
and Mental Hygiene, New York, NY
larakaki@health.nyc.gov

**Contributing Authors**

Laura Miller, M.P.H. (DOH), Arianne Ramautar (DOH), Don Weiss, M.D., M.P.H. (DOH)

**Abstract ID:** 1329733 **Presentation Type:** Breakout Presentation
**Title:** Filling the data gaps on minority health: A survey to better understand health disparities at work.
**Committee:** Occupational Health Sub-Committee
**Topic:** Occupational health disparities
**Keywords:** Health disparities|Occupational Surveillance|Research

**Background:**
The World Health Organization commissioned a report in 2008 that established work as a social determinant of health. Work related injuries and fatalities tend to cluster in lower status, more dangerous occupations and industries. Vulnerable populations, including youth workers and immigrants, are predominantly found in these jobs. Despite demographic changes, our public health data systems do not yet accurately collect race, ethnicity or language information. This system failure limits the ability of practitioners and researchers to identify, evaluate, and address health disparities in New Hampshire. Between 2000 and 2010, there was a 23% growth in the state's foreign-born population. Two of our major cities are refugee settlement sites. In order to allow public health researchers and practitioners to better identify health disparities and work towards their elimination, it is important to tailor our surveillance tools to the unique characteristics of vulnerable and hard to reach populations.

**Methods:**
As follow up to a state plan to "Reduce Health Disparities and Promote Health Equity," we developed, implemented, and analyzed data from a series of questionnaires and focus groups given to people trained in the NH Coalition of Safety and Health (COSH) worker safety and health trainings. Populations trained include union members, immigrants and refugees, and youth workers. Where it was not possible to reach out through the COSH training sessions, especially our immigrant population, we worked with state multi-cultural community organizations to assist in facilitating the survey and focus groups in different venues. The survey instruments were administered over a period of six months. The questionnaire was integrated into the NH COSH trainings, where participants could request help through the assistance of interpreters where necessary. Focus groups were facilitated by the various multi-cultural organizations in the state. Once collected, data was entered into a database by staff in the Occupational Health Surveillance Program and analyzed via NVivo software by age, gender, race, ethnicity, language, income, exposures to hazards in the workplace, knowledge of workers' compensation, access to healthcare, and perceptions of risk.

**Results:**
Preliminary analysis of 3 months of data will be presented. Results of the study will help to inform the State's priority areas of economic, social and cultural barriers to health.

**Conclusions:**
It is our goal that the data derived from this study will be used by our key stakeholders to develop interventions and prevention strategies that are better tailored to the needs of our most vulnerable workers.

---

**Presenting Author(s):**

**Karla Armenti**
New Hampshire Department of Health
and Human Services, Concord, NH
karmenti@dhhs.state.nh.us

**Contributing Authors**

Brian Mitchell, Executive Director New Hampshire Coalition for Occupational Safety & Health

**Abstract ID:** 1330959 **Presentation Type:** Breakout Presentation
**Title:** Results of a poison center data linkage project: Using proxy variables in hospital discharge data to better document underreporting of occupational poisonings
**Committee:** Occupational Health Sub-Committee
**Topic:** Underreporting: occupational injuries, illnesses, and data limitations
**Keywords:** Occupational exposure|Workplace safety|Data/Surveillance

**Background:**
Underreporting continues to be a problem in occupational health surveillance. It is difficult to ensure appropriate prevention strategies when we don't know the true burden of injuries and illnesses. Poison Center data has been useful in surveillance efforts; however, these data are not designed to be a stand-alone data source for all occupational poisonings. Linking poison center data to hospital discharge data allowed us to consider variables other than workers' compensation as payer when documenting occupational poisonings.

**Methods:**
: In collaboration with the Northern New England Poison Center (NNEPC), we linked 2005-2008 health care facility call records for work related poisonings from 26 acute care hospitals to hospital discharge data (inpatient and emergency department) for the corresponding years using deterministic linkage methods. To further increase linkage rates, the narratives, held at the NNEPC, were abstracted for relevant data, resulting in a 90% match. Once matched, each event was reviewed to identify the variables used to describe that event and to understand how they were coded compared to the outcomes of the poison center data (matching ICD-9-CM, including external cause of injury, or E Codes, and health status codes, or V Codes, to the American Association of Poison Control Centers). Of interest were those codes that fell outside the "normal" ICD poisoning codes. All possible variables were then compiled and run against the entire hospital discharge data set to determine the extent of possible work related poisonings not being coded as work related.

**Results:**
We discovered 27% of underreporting from the linked data set. Many true work-related poisonings (as determined by the data linkage) were recorded as foreign body entering the eye, conjunctivitis, or as burns, or caustic and corrosive substances. These cases were not recorded as having been a poison caused by exposure at work. Codes not typically considered poisoning codes have traditionally been left out of the analysis of work related poisonings. Our results indicate that the variables used to document occupational poisonings can be broadened to include some of these non-traditional injury/poisoning code ranges.

**Conclusions:**
This linkage project provided information on how occupational poisonings are diagnosed once they enter the hospital system. It allowed for more accurate analysis of hospital discharge data to estimate under-reporting and identified new poisoning conditions to consider. These cases would be impossible to identify as work-related cases looking solely at hospital discharge data.

---

**Presenting Author(s):**

**Karla Armenti**
New Hampshire Department of Health
and Human Services, Concord, NH
karmenti@dhhs.state.nh.us

**Contributing Authors**

David Swenson, New Hampshire Division of Public Health Services, Bureau of Disease Control, Melissa Heinen, Northern New England Poison Center, David Laflamme, New Hampshire Division of Public Health Services, Bureau of Population Health and Community

**Abstract ID:** 1330496 **Presentation Type:** Breakout Presentation
**Title:** National strategy and toolkit for National Healthcare Safety Network (NHSN) data validation, built upon state validation work
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Healthcare associated infections (HAI)|Evaluation|Epidemiologic methods

**Background:**
NHSN data are used by facilities for tracking and prevention of healthcare-associated infections (HAIs), by public health for surveillance of HAIs and prioritization of prevention program activities, and by the Centers for Medicare and Medicaid Services (CMS) to monitor and incentivize improvements in healthcare delivery. During 2011, CDC assisted CMS to adapt their existing validation infrastructure to provide for validation of several healthcare-associated infections (HAIs), and drafted a toolkit for use by NHSN group users (including state health departments) that conduct NHSN data validation activities. The foundation for this work was built upon NHSN validation approaches developed by state health departments.

**Methods:**
Review of validation protocols, tools, and reports provided by state health departments conducting NHSN data validation; consultation with CMS to harmonize surveillance definitions and methods to NHSN and optimize sampling of medical records for review within constraints of an existing CMS infrastructure; analysis of recent NHSN data to characterize variable norms (and outliers that might require investigation); and compilation and integration of validation tools (e.g.: questionnaires, planning documents and letters to hospitals) used by states to conduct validation activities.

**Results:**
Planned approaches to NHSN data validation by CMS will be discussed, and elements of the 2012 NHSN data validation toolkit for group users will be presented.

**Conclusions:**
Validation activities conducted by state health departments have provided valuable information and tools to support ongoing NHSN data validation efforts. Coordination of federal NHSN validation activities through CDC improves compatibility of approaches among federal agencies. Development of a NHSN data validation toolkit for group users provides a mechanism to standardize validation approaches used by groups (such as state health departments) conducting validation, and a framework for those just beginning validation activities. The toolkit must be a living document to accommodate new conditions and methods as they become priorities.

---

**Presenting Author(s):**

**Kathryn Arnold**
Division of Healthcare Quality
Promotion, Centers for Disease
Control and Prevention, Atlanta, GA
kea3@cdc.gov

**Contributing Authors**

Nicola Thompson PhD, CDC, Philip Ricks PhD, CDC, Dawn Sievert, PhD, CDC, Rachel Stricof MPH, CIC, CSTE

**Abstract ID:** 1324598 **Presentation Type:** Breakout Presentation
**Title:** A mentoring program to enhance state chronic disease epidemiology
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Building epidemiology capacity for CD/MCH/OrH
**Keywords:** Chronic diseases

**Background:**
Background: The percentage of state health departments with minimal chronic disease surveillance increased from 8% in 2001 to 18% in 2009 according to survey data from the Council of State and Territorial Epidemiologists (CSTE). The CSTE, Centers for Disease Control and Prevention (CDC) and the National Association of Chronic Disease Directors (NACDD) has implemented a program whereby junior-level chronic disease epidemiologists at Departments of Health receive mentoring from senior-level chronic disease epidemiologists. It is expected that with competency- and project-based mentorships lasting between six and twelve months, chronic disease epidemiology capacity at state health departments will be enhanced.

**Methods:**
Methods: In September, 2011, a CSTE, CDC, and NACDD Steering Committee matched applicants forming six mentee and mentor pairs (MMPs). Each MMP developed project designs on the basis of state needs, priorities and feasibility. Information gained from evaluation of the mentoring program the year before was used to strengthen various program components.

**Results:**
Results: Findings from last year's evaluations were useful in the design of the current mentoring cycle. MMPs designed projects with a deliverable product, each approved by the mentee's supervisor. Mentors also conducted a site visit to the mentee's health department. By January, 2012, all MMPs had defined projects and five had begun project implementation. In Mississippi, a life course model supported maternal and child health programs. The Alabama MMP evaluated the effectiveness of training workshops to improve health behavior. The project in Puerto Rico focused on interventions to reduce risk of diabetes in the workplace. In Virginia, cancer registry data was used to assess prostate cancer morbidity and mortality. The Arkansas MMP examined the relationship between hormone therapy and osteoporosis among prostate cancer patients. The Maryland MMP used data systems to evaluate priority conditions.

**Conclusions:**
Conclusion: As this competency- and project-based chronic disease epidemiology mentoring program enters another cycle from design to broader implementation, final deliverable products are expected to be completed by the fall of 2012. The MMPs enhance state chronic disease program activities. Further demonstration of usefulness of the mentoring program can help sustain mentoring program operations in the future.

---

**Presenting Author(s):**

**Donald Austin**
Public Health and Preventive
Medicine, Oregon Health and Science
University, Oregon, OR
austind@ohsu.edu

**Abstract ID:** 1326922 **Presentation Type:** Poster Presentation
**Title:** How raising rabies awareness impacted vaccination coverage among domestic pets, El Paso County, CO 2009-2011 *
**Committee:** Cross Cutting Sub-Committee
**Topic:** Translating epidemiologic data into public health actions
**Keywords:** Program evaluation|Rabies|Local epidemiology


**Background:**
Colorado has experienced a skunk rabies epidemic since 2009, including spillover infections into other species. Before 2009, the last rabid terrestrial animal in El Paso County (EPC) was a skunk in 1974. However, from 2009 to 2011 in EPC, 23 skunks, 3 foxes, 1 horse, and 1 mountain lion tested positive for skunk variant rabies. The sharp increase in skunk rabies prompted a public health campaign to raise awareness about rabies risk for domestic pets and promote pet vaccination. In early 2010, El Paso County Public Health (EPCPH) initiated a substantial campaign to educate pet owners using print, radio, and television media; veterinarian trainings; and low cost vaccination clinics. Our evaluation characterizes changes in rabies vaccination coverage among domestic pets potentially exposed to rabies prior to and after public education efforts.

**Methods:**
EPCPH intakes calls from citizens to evaluate animal bites and domestic pets potentially exposed to rabies. Phone logs from 2009-2011 were reviewed retrospectively to analyze vaccination status of pets involved in exposures to wildlife, including rabies reservoir species such as skunks. Pet rabies vaccination was classified as unvaccinated, expired vaccination, currently vaccinated, or unknown based on national recommendations. Changes in the percentage of pets in each vaccination category were compared to 2009 (baseline).

**Results:**
Analysis included 490 rabies-related inquiries to EPCPH between 2009 and 2011, of which 214 (44%) involved domestic pets potentially exposed to wildlife. From 2009-2011, the proportion of pets exposed to wildlife that had current rabies vaccination status increased significantly from 28.9% in 2009 to 55.9% in 2011 ($p<0.01$), representing a 93% improvement. Concurrently, there was a 48% decrease in unvaccinated pets, declining from 23.1% to 12.0% ($p=0.13$) in that time period. For reports received in 2011, 83% of exposed pets had at least one rabies vaccination (included pets with current and expired vaccination), as compared to only 46% of pets reported in 2009. Public Health was also more successful in obtaining vaccination records as pets with unknown status declined from 30.8% to 4.8%.

**Conclusions:**
Following an intense public and veterinarian education campaign regarding rabies risk, there was a marked increase in pets with appropriate rabies vaccination that had been reported to EPCPH because of exposure to wildlife and rabies reservoir species. A substantial decrease in unvaccinated pets was also observed. Public Health efforts at raising rabies awareness appeared to impact behavior of pet owners in terms of keeping pets up-to-date on rabies vaccination.


---


**Presenting Author(s):**

**Amanda Baker**
Communicable Disease, El Paso County Public Health, Colorado Springs, CO
amandabaker@elpasoco.com

**Contributing Authors**

Shannon A. Rowe, MPH El Paso County Public Health, Bernadette Albanese, MD, MPH, El Paso County Public Health

**Abstract ID:** 1333108 **Presentation Type:** Poster Presentation
**Title:** Corynebacteria in Maine: C. diphtheria and C. pseudodiphtheriticum
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Vaccine preventable diseases
**Keywords:** Infectious Diseases|Disease prevention|Vaccination

**Background:**
A 24 year old foreign-born female presented to an ENT surgeon with a chief complaint of difficulty breathing. She injured her nose in a fall as a child. A concretion was removed from the nasal cavity and sent to pathology for testing. C. diphtheria was isolated and reported. A 26 year old male was admitted to the hospital for a worsening sore throat not responding to empiric treatment. A pseudomembrane was noted on physical exam. Respiratory support was not required and the patient did not exhibit toxic signs or symptoms. Culture and PCR results identified a diphteroid, C. pseudodiphtheriticum.

**Methods:**
Maine Center for Disease Control and Prevention (CDC) confirmed both the diphtheria and diphtheroid isolates. The diphtheria isolate was forwarded to federal CDC for additional characterization. Suspect diphtheria case follow-up included isolation pending initiation of treatment and additional clinical and epidemiologic information. Close personal contacts were investigated by Maine CDC. Exposed healthcare personnel were investigated by the hospital's Infection Preventionist and Employee Health Nurse. Recommendations for vaccination and prophylaxis were offered. Federal CDC was consulted to review British guidelines in addition to federal CDC's guidelines. C. pseudodiphthericum case investigation was completed and disease control measures were not indicated.

**Results:**
Diphtheria was an incidental finding during routine nasal surgery. C. diphtheria belfanti, without the gene for toxin production, was reported by federal CDC. Case investigation revealed an asymptomatic carrier with surgical manipulation of the nasal cavity. One household contact tested negative for C. diphtheria by nasal-pharyngeal (N-P) culture. Both case and contact were instructed to continue their vaccination series in addition to treatment and prophylaxis. Healthcare personnel were offered N-P cultures, vaccination booster if eligible, and prophylaxis. Federal CDC guidelines focus heavily on parenteral treatment regimens and only mention erythromycin as an oral agent. British guidelines include the option for treating with newer macrolides and discuss the management of asymptomatic carriers. C. pseudodiptheriticum was isolated 9 days after case presented for medical care. Neither case was reportable to federal CDC per notifiable disease reporting rules.

**Conclusions:**
The asymptomatic carrier of C. diphtheria illustrates the importation of C. diphtheria into the Umited States from an endemic country. Clinical suspicion in addition to rapid laboratory and epidemiologic response is paramount for disease control. Clinical case management is essential and cannot rely on waiting for laboratory results. Maintaining vaccination coverage for diphtheria remains an important aspect of disease control for both healthcare workers and the general public.

---

**Presenting Author(s):**

**Lauren Ball**
Maine Center for Disease Control and
Prevention, Augusta, ME
lauren.ball@maine.gov

**Contributing Authors**

Vicki Rea RN, MPH, CIC; Kate Colby, MPH; Ann Farmer, MPH; Brian Bernier MS, MPH, CPH (ASCP); Stephen Sears MD, MPH - Maine Center for Disease Control and Prevention

**Abstract ID:** 1310053 **Presentation Type:** Roundtable Presentation
**Title:** Integrating a multimode design and raking into the Behavior Risk Factor Surveillance system, 2011.
**Committee:** Surveillance/Informatics
**Topic:** General surveillance topics
**Keywords:** Epidemiologic methods|Risk factors|Surveillance

**Brief Summary:**
The Behavioral Risk Factor Surveillance System (BRFSS) was originally conducted by using a landline telephone survey mode of data collection. To meet challenges of random-digit–dial (RDD) surveys BRFSS is integrating multiple modes of data collection to enhance validity. The survey of adults who use only cellular telephones is now conducted in parallel with ongoing, monthly landline telephone BRFSS data collection, a mail follow-up survey is being piloted to assess nonresponse bias and a web based survey is being piloted to assess overall participation in BRFSS, especially among underrepresented groups, including young adult, male, and working populations. A new weighting procedure known as raking is being introduced to improve adjustment for non-coverage and non-responses and to incorporate cell phone survey data into the landline survey data. In addition to increase the data usabilityand utility the web enable analysis tool (WEAT) is being updated to allow users to run cross tabulation and logistic regression on the web with no prior knowledge of statistical software.

**Key Objectives:**
Present on BRFSS approach to address challenges to RDD surveys and to provide an overview of the new modes of data collection, the new weighting methodology, and WEAT.

---

**Presenting Author(s):**

**Lina Balluz**
Centers for Disease Control and
Prevention, Atlanta, GA
Lballuz@cdc.gov

**Abstract ID:** 1377060 **Presentation Type:** Roundtable Presentation
**Title:** Investigation of healthcare-associated hepatitis
**Committee:**
**Topic:**
**Keywords:**

**Background:**

**Methods:**

---

**Presenting Author(s):**

**Elizabeth Bancroft**
Los Angeles County Department of Public Health, Los Angeles, CA;
ebancroft@ph.lacounty.gov

**Melissa Schaefer**
Centers for Disease Control and Prevention, Atlanta, GA;
ggj3@cdc.gov

**Abstract ID:** 1330920 **Presentation Type:** Poster Presentation
**Title:** Prevalence of obesity among DuPage County school children and adolescents, 2010-2011
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Chronic disease risk factors: tobacco, physical activity, nutrition, and obesity epidemiology
**Keywords:** Obesity|Surveillance|Epidemiology

**Background:**
The FORWARD, or Fighting Obesity Reaching healthy Weight Among Residents of DuPage, Initiative was created to promote policy, system, and environmental changes meant to help all children and families achieve and maintain a healthy lifestyle, therefore reversing the increasing trend in obesity in DuPage County. In order to make informed decisions regarding necessary changes and to establish a baseline, data had to be collected and analyzed in a systematic manner. To achieve this, FORWARD needed to establish a reliable and replicable obesity surveillance system to identify and monitor the prevalence of obesity in DuPage students. FORWARD adopted FitTrac, a web-based data collection system given to FORWARD by the DuPage County Regional Office of Education (ROE).

**Methods:**
FORWARD partnered with the ROE and DuPage public schools to conduct a survey of obesity in kindergarten, sixth and ninth grade students, based on Body Mass Index (BMI) percentile. A random sample of 50% of DuPage County's 245 public schools, stratified by grade and FORWARD region, were selected to participate. School staff provided the height, weight, sex, date of birth, and date of physical exam from the students' Illinois Child Health Examination forms, a requirement for kindergarten, sixth, and ninth graders for school attendance. These data were entered into FitTrac, where BMI and BMI percentile were calculated using the formulas from the Centers for Disease Control and Prevention's (CDC) Children's BMI Tool for Schools Excel spreadsheet.

**Results:**
Of the 126 classes selected, 96 (76%) participated, and 11,496 DuPage County kindergarten, sixth, and ninth grade students' information was collected. Overall, 31% of students were equal to or greater than the 85th BMI percentile (overweight or obese) and 15% were greater than the 95th percentile (obese). There was no significant difference in the percent of low income students among DuPage schools compared to either those selected or that participated. Compared to females, males were at a 35% increased risk for overweight or obesity ($p<0.001$) and a 14% increased risk for obesity ($p=0.0009$). Compared to kindergarten students, sixth graders had an increased risk for overweight and obesity or obesity alone (34% and 38% respectively, $p<0.001$ for both) and ninth graders had a 12% increased risk for obesity ($p=0.0217$).

**Conclusions:**
Data collected through FitTrac indicates that the prevalence of obesity among DuPage County students is comparable to state and national averages. A web-based surveillance system can be implemented to facilitate health data collection among schools. The FORWARD Initiative will continue to monitor the prevalence rate of obesity and plans to expand this system to 90% of DuPage County Schools during the 2011-2012 school year.

---

**Presenting Author(s):**

**Elizabeth Barajas**
DuPage County Health Department,
Wheaton, IL
ebarajas@dupagehealth.org

**Contributing Authors**

Kathleen Browning, MPH, DuPage County Health Department Stacey Hoferka Jensen, MPH, MSIS, DuPage County Health Department Rashmi Chugh, MD, MPH, DuPage County Health Department Deepa Handu, PhD, RD, LDN, Benedictine University David Dungan, MD, DuPage Med

**Abstract ID:** 1332410 **Presentation Type:** Poster Presentation
**Title:** Implementing and sustaining a web-based surveillance system for student absenteeism due to Influenza-like Illness (ILI)
**Committee:** Surveillance/Informatics
**Topic:** Novel surveillance methods and data sources
**Keywords:** Data collection|Surveillance|Influenza surveillance

**Background:**
Student absenteeism has been used as a proxy measure for monitoring influenza activity for several years. These syndromic surveillance systems frequently collected information only on total absenteeism for any reason. Beginning April 2009, at the time that the pandemic H1N1 strain was first identified, the DuPage County Health Department (DCHD) requested that all schools in the county submit daily ILI-symptomatic absentee data.

**Methods:**
The data collected from school staff includes student and staff absenteeism due to ILI and total absenteeism, as well as counts of those with in-school illness presentation. When data collection began in April 2009, all schools faxed information daily that was entered and analyzed the next morning. By September 2009 the system was web-based, and each school entered data that was available in real-time to the health department. From 2009 through 2011 there have been three iterative developments to improve the system. The web-based system currently has the capacity to automatically provide daily ILI and absenteeism rates for each school, weekly summary rates by municipality and for the county as a whole, and other user information.

**Results:**
At its peak during the 2009 pandemic, over 200 schools reported data daily. Participation declined in 2010 - 2011 during the non-pandemic seasons, with approximately 90 schools currently reporting daily, representing about 27% of DuPage County schools. Information is analyzed for distribution of absenteeism rates in all schools daily and is incorporated into the overall weekly influenza surveillance analysis for absenteeism due to ILI by geographic areas. Future planned analyses include applications of spatial clustering and temporal aberration detection methods.

**Conclusions:**
The school data was used to monitor influenza activity and also to respond to interventions in 2009 when absenteeism was elevated. At the end of the 2009-2010 school year, system users were given a survey to indicate their ease-of-use of the system, as well as their opinions on its value. Responses were favorable, so DCHD continued to maintain and expand the system.

---

**Presenting Author(s):**

**Elizabeth Barajas**
Communicable Disease and
Epidemiology, DuPage County Health
Department, Wheaton, IL
ebarajas@dupagehealth.org

**Contributing Authors**

Stacey Hoferka Jensen, MPH, MSIS, DuPage County Health Department

**Abstract ID:** 1333059 **Presentation Type:** Breakout Presentation
**Title:** PPOR and changing causes of infant death, Nebraska, 1979-2010
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Maternal & child health epidemiology
**Keywords:** Infant mortality|Epidemiology

**Background:**
The U.S. infant mortality rate (IMR) decreased steadily over the past century, with a flattening observed beginning in the mid-1990s. Nebraska's IMR was consistently lower than but essentially parallel to the national rate, with an abrupt rise in the early 1990s which subsided around 2003. We used the Perinatal Periods of Risk (PPOR) approach to examine whether and how changing distributions of specific causes of death contributed to these IMR shifts.

**Methods:**
PPOR is a framework for examining fetal and infant mortality based on a cross-classification of birth weight and age at death. Its four categories - "Maternal Health/Prematurity" (MHP; all fetal and infant deaths with 500-1499 gram birth weight), "Maternal Care" (MC; fetal deaths with 1500+ gram birth weight), "Newborn Care" (NC; 1500+ grams and death 0-27 days after birth), and "Infant Health" (IH; 1500+ grams and death 28-364 days after birth) are associated with different risks and preventive strategies. Data were obtained from Nebraska's linked infant birth and death file from 1979 to 2010. Cause of death data were compiled across ICD9 (1979-1998) and ICD10 (1999-2010) categories. Because fetal cause of death data are of variable quality, the MC category was not computed and fetal deaths were omitted from MHP. Analyses were performed for the entire 1979-2010 period, and separately for 1979-1992 ("Period 1"), 1993-2002 ("Period 2"), and 2003-2010 ("Period 3"). All analyses were performed in SAS 9.2.

**Results:**
Nebraska's IMR decreased from 10.3 in 1979 to 4.4 in 2010. The largest number of deaths fell in the MHP category (40.8%), followed by IH (33.2%) and NBC (25.9%). Over the 32-year period, the percentage of deaths that were in MHP increased, while NBC and IH experienced slight net decreases. When the three time periods were examined separately, the IMR tracked most strongly with the rate of deaths in MHP (r=.863) and NBC (r=.927) during Period 1, with IH (r=.750) during Period 2, and MHP (r=.795) and NBC (r=.723) during Period 3. Across all three periods, MHP was dominated by perinatal causes of death (74.9% to 81.2%), while birth defects tended to be the largest cause in NBC (53.1% to 60.7%). When birth defect deaths were examined in more detail, heart and circulatory system defects accounted for an increasing percentage of IH deaths over the three periods, but were a relatively small and stable percentage of MHP and NBC deaths.

**Conclusions:**
PPOR analysis shows that mortality did not change evenly for all infants over the 32-year period. Nationally, the stagnating IMR has been attributed to increasing numbers of small and preterm infants. However, birth defects may be an important part of the picture. Further work is examining temporal patterns in causes of death in more detail, and variations in results by infant race and ethnicity. Changing and age-differential causes of death over time have implications for both primary and secondary prevention efforts.

---

**Presenting Author(s):**

**Debora Barnes-Josiah**
Nebraska Department of Health and
Human Services , Lincoln, NE
debora.barnesjosiah@nebraska.gov

**Contributing Authors**

Carol Gilbert, MS; CityMatCH at the University of Nebraska Medical Center Jennifer Severe-Oforah, Nebraska Department of Health & Human Services

**Abstract ID:** 1322553 **Presentation Type:** Breakout Presentation
**Title:** New York State county comparison of fall-related hip fractures for older adults and number of dual-X-ray absorptiometry machines
**Committee:** Injury Control and Prevention Sub-Committee
**Topic:** Fall-related injuries
**Keywords:** Fall-related injuries|Hospital data |Epidemiology

**Background:**
As of 2008, there were over 36 million Medicare beneficiaries ages 65 and older; this figure is projected to increase to 62 million by 2025. Fractures and their complications are one of the most costly and serious clinical sequelae of the aging process. Most fractures in older adults are due, in part, to low bone mass and can result in chronic pain, disability, or death. The most serious of all fractures are hip fractures that often result in long-term functional impairment, nursing home admission, and increased mortality in the elderly population. Bone health assessment and fracture risk prediction rely on quality bone density measurement using dual-X-ray absorptiometry (DXA) which can curtail the increased cost of fractures in the older population through early detection and prevention. Therefore, the availability of DXA in counties within New York State (NYS) may be a potential indicator of future fall-related hip fractures and cost.

**Methods:**
NYS inpatient hospital discharge data were used to track the incidence of fall-related hip fractures for adults 65 years and older by county. The number of DXA machines available per county, based on state registration records for x-ray machines, was used as a potential explanatory variable for the rate of fall-related hip fractures. NY City counties were not included as information on the number of DXA machines in these counties was not available. Also excluded were counties that had less than 5 DXA machines (n=30). Linear regression analysis was used to test the relationship between population-based rates of fall-related hip fractures with the rate of DXA machines per population by county for the remaining 27 counties.

**Results:**
Annually in NYS, an average of 14,055 residents ages 65 and older are hospitalized for fall-related hip fractures; a rate of 549.3 per 100,000 residents ages 65 and older. These hospitalizations result in over $550 million in annual hospital charges. Regression analysis demonstrated an inverse relation between increasing rates of fall-related hip fractures and a higher concentration of DXA machines per population (slope of -1.8, p-value of 0.02).

**Conclusions:**
These findings demonstrate the potential positive impact of increasing the number of DXA machines can have on reducing the number of fall-related hip fractures among older adults. The increased availability of DXA screening, which costs approximately $100 per test, should decrease the costs of hip fractures to Medicare.

---

**Presenting Author(s):**

**Michael Bauer**
New York State Department of Health,
Menands, NY
mjb13@health.state.ny.us

**Contributing Authors**

Elizabeth Grubert, DrPH, University at Albany, School of Public Health, Sarah Sperry, MS, New York State Department of Health, Jeri W. Nieves, PhD, Columbia University and Helen Hayes Hospital Clinical Research Center

**Abstract ID:** 1324466 **Presentation Type:** Poster Presentation
**Title:** Access to care and its impact on health outcomes among Utah's adult asthmatic population *
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Examining social determinants of health and health disparities in CD/MCH/OrH
**Keywords:** Asthma|Barriers to care|Health insurance

**Background:**
In Utah, 8.9% of adults with asthma are currently without health insurance. An even higher percentage (12.5%) experienced a gap in health insurance coverage during the past year. This study was conducted to examine the relationship between gaps in health insurance coverage and access to asthma care, and to assess the impact on asthma outcomes including asthma attacks and emergency department visits.

**Methods:**
Questions regarding health insurance coverage, barriers to care, asthma attacks, and emergency department visits were analyzed using years 2007-2010 of the Behavioral Risk Factor Surveillance System Adult Asthma Call-back Survey. Analyses included the calculation of simple frequencies and chi-square tests of association, to examine the relationship between health insurance gaps and experiencing cost barriers to care. Logistic regression models were used to assess the odds of an asthma attack or emergency department visit for asthma, based on experiencing cost barriers to care.

**Results:**
Nearly half of asthmatic adults who experienced a gap in health insurance during the past 12 months said they were unable to see their primary care doctor or buy asthma medications when needed (41.1% and 43.0%, respectively), compared to less than 10% of those who were continuously insured. Chi-square tests of association between health insurance gaps and cost barriers to asthma care were significant ($p<.0001$). Adults with asthma who were unable to buy asthma medications when needed were nearly three times as likely to report an asthma attack during the past 12 months, compared to adults who did not experience a cost barrier to buying medications (OR 2.9 (CI 1.7-4.8). The inability to see a primary care physician or an asthma specialist when needed were also associated with experiencing an asthma attack (ORs 2.3 (CI 1.2-4.4) and 2.5 (CI 1.1-5.8), respectively). After adjusting for personal characteristics, cost barriers to care were not associated with increased likelihood of emergency department visits for asthma.

**Conclusions:**
Lack of health insurance is closely tied to experiencing cost barriers to asthma care. Inability to receive care when needed, particularly the inability to buy asthma medications, appears to increase the likelihood of experiencing an asthma attack.

---

**Presenting Author(s):**

**Celeste Beck**
Utah Department of Health, Salt Lake City, UT
celestebeck@utah.gov

**Abstract ID:** 1327250 **Presentation Type:** Breakout Presentation
**Title:** Assessment of flight attendants' exposure to Polybrominated Diphenyl Ether (PBDE) flame retardants
**Committee:** Occupational Health Sub-Committee
**Topic:** Emerging issues in occupational health
**Keywords:** Occupational exposure|Occupational Health|Biomonitoring

**Background:**
Polybrominated diphenyl ether flame retardants (PBDEs) are widely used in products including furniture foam, plastic cases and components for electronics, fabric coatings, and electrical wire insulation. Epidemiologic studies have shown that exposure to PBDEs at the levels measured in the US population may affect thyroid and reproductive hormones in adults and cause neurodevelopmental changes in children. Flight attendants are an occupational group that may be more highly exposed to PBDEs than the general public. In order to meet flammability requirements, flame retardants are used in the manufacture of seats, fabrics, and plastic components in the cabins of commercial aircraft. Studies have shown that dust specimens collected in aircraft have contained higher levels of PBDEs than those typically measured in homes, and that air travelers have elevated levels of serum PBDEs after flights. Several studies have not found elevated levels of serum PBDEs in flight attendants; however these studies were conducted with small groups of participants. The goals of this study are to assess the levels and distribution of serum PBDEs in flight attendants, to examine correlation between serum PBDE levels and occupational and environmental characteristics, and to compare flight attendants' serum PBDE levels with national serum PBDE levels.

**Methods:**
Flight attendants who were members of the Association of Flight Attendants (AFA-CWA, AFL-CIO) with at least 85 hours flight time in the previous month and who had not lived in California since 1980 were eligible to participate. A total of 24 participants were recruited during August 2010 – April 2011. Participants provided blood specimens and completed a telephone interview with questions on work history, demographics, and potential sources of exposure to PBDEs. Serum specimens were analyzed for PBDEs by the Environmental Chemistry Laboratory of the California Department of Toxic Substances Control. The flight attendants' levels were compared to serum PBDEs measured in the 2003-2004 National Health and Nutrition Examination Survey (NHANES), and correlations between participant PBDE levels and questionnaire data elements were examined.

**Results:**
The levels of serum PBDEs measured in the study participants were within the range of levels detected in the general US population. Preliminary analyses show correlations between select flight attendant job characteristics and serum PBDE levels. Analysis of results is anticipated to be complete in the first quarter of 2012.

**Conclusions:**
The results of this analysis will provide further evidence to determine whether flight attendants are occupationally exposed to PBDEs.

---

**Presenting Author(s):**

**Stella Beckman**
Occupational Health Branch,
California Department of Public
Health, Richmond, CA
stella.beckman@cdph.ca.gov

**Contributing Authors**

Dina Dobraca, MPH, California Department of Public Health Laura Fenster, PhD, California Department of Public Health Michael Lipsett, MD, California Department of Public Health Judith Murawski, MSC, CIH, Association of Flight Attendants-CWA, AFL-CIO Mary

**Abstract ID:** 1366346 **Presentation Type:** Breakout Presentation
**Title:** Quantitative validation of central line-associated bloodstream infections (CLABSI) in Oregon intensive care units (ICU) 2009
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Healthcare associated infections (HAI)|Data/Surveillance

**Background:**
Reporting of ICU CLABSIs to the National Healthcare Safety Network (NHSN) was mandated for Oregon hospitals beginning in 2009. To determine the sensitivity, specificity and predictive value positive of this reporting, we investigated ICU CLABSI reporting for 2009 events, using a design that provided quantitative information about CLABSIs.

**Methods:**
External reviewers examined medical records from all 44 Oregon hospitals reporting CLABSIs in 2009, including 76 ICU CLABSIs reported to NHSN and a systematic sample of 741 other ICU-related bacteremia episodes, and determined CLABSI status using NHSN definitions. All eligible bacteremia records were reviewed in the 37 hospitals that each had <60 episodes of ICU bacteremia during 2009. In each of the 7 hospitals that had ?60 such episodes, a random sample of 60 records of unreported ICU bacteremia was reviewed. All cases in which reviewers' determinations were discordant from those initially made by hospital staff for purposes of NHSN reporting were discussed via telephone conference with hospital staff in order to assure complete information before final adjudication, to provide case-based training, and to understand weaknesses in surveillance. An adjustment for sampling permitted an estimate of statewide ICU-CLABSI events, and calculation of sensitivity, specificity, positive and negative predictive values for ICU CLABSI surveillance.

**Results:**
Hospitals' and reviewers' initial determinations were concordant in 782 (96%) of 817 bacteremia episodes (kappa=0.77). After conference calls and final adjudication, determinations were concordant in 796 (97%). Among 27 CLABSIs identified by reviewers but not reported, final status was CLABSI in 16 (59%). Sensitivity of reporting was 60% (51%–69%) relative to un-adjudicated external review, and 72% (62%–81%) relative to adjudicated CLABSI status (P=0.07). After adjusting for sampling, validation increased the statewide ICU CLABSI rate estimate from 1.2 (0.95-1.5) to 1.5 (1.25-1.9) CLABSIs/1,000 central-line days.

**Conclusions:**
Although agreement between reporters and validators was already good, collaborative discussion of discordant determinations before adjudication helped to assure complete information and to build confidence in validation results. Discussions provided valuable case-based training opportunities and insights. Use of adjudicated CLABSI status as the reference standard generated a higher estimate of surveillance sensitivity than use of un-adjudicated external review alone. Our approach, which combined universal sampling of all facilities and either universal or random sampling of medical records, permitted estimation of the statewide ICU CLABSI rate using an adjustment for unreviewed records. The estimated statewide CLABSI rate was increased by validation during the first year of mandated reporting.

---

**Presenting Author(s):**

**Zintars Beldavs**
Public Health Division, Oregon Health Authority, Portland, OR
zintars.g.beldavs@state.or.us

**Contributing Authors**

John Y. Oh MD, MPH (1,2); Margaret C. Cunningham MPH (1); Jennifer Tujo MSN, MPA, CIC (3); Stephen W. Moore RN, MS (1); Ann R. Thomas MD, MPH (1), Paul R. Cieslak MD (1) Affiliations: 1. Public Health Division, Oregon Health Authority, Portland, OR 2. Ep

**Abstract ID:** 1315031 **Presentation Type:** Poster Presentation
**Title:** Public health response to a bat exposure on a commercial airline flight
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Zoonoses
**Keywords:** Rabies|Risk Assessment|Zoonotic disease

**Background:**
In the United States, wild mesocarnivores and bats are the major reservoirs of rabies. Although human rabies is rare, human exposures to rabid or suspect animals are common. To ascertain the likelihood of exposure to rabid animals, public health officials conduct risk assessments, which may involve one or many persons. In August 2011, a domestic flight departed from Wisconsin for Georgia. Shortly after takeoff, a bat flew through the aisle of the cabin several times and was subsequently trapped in the lavatory. The airplane returned to the airport and the bat escaped during capture efforts thus the rabies status of the bat was unknown. The Wisconsin Department of Health Services requested assistance from the Centers for Disease Control and Prevention (CDC) to investigate this event and determine whether anyone required rabies post-exposure prophylaxis.

**Methods:**
The airline provided information to locate 44 of the 50 passengers, and a press release was issued to contact the remaining passengers. CDC administered a questionnaire regarding potential contact with the bat and conducted an environmental assessment. Post-exposure prophylaxis recommendations complied with Advisory Committee on Immunization Practices guidelines.

**Results:**
CDC interviewed 45 of 50 (90%) passengers aboard the flight, the pilots and flight attendants, and 16 ground crew members associated with the flight. No one was identified as having had contact with the bat or its saliva, therefore post-exposure prophylaxis was not recommended. State and local officials conducted an inspection of the jetways and baggage handling areas of the airport and found no evidence of bat activity or infestation.

**Conclusions:**
This multistate investigation involved multiple agencies, airline and airport authorities, and media resources to determine the public health risk of exposure. Wildlife entering aircrafts may pose a potential public health risk of zoonotic disease transmission and pathogen transport, about which airline staff, the public and public health officials should be educated. Airline and airport authorities are encouraged to develop protocols for such contingencies.

---

**Presenting Author(s):**

**Teal Bell**
CSTE Applied Epidemiology
Fellowship, Centers for Disease
Control and Prevention, Atlanta, GA
kby5@cdc.gov

**Contributing Authors**

Danielle E. Buttke DVM, PhD, MPH, CPH, Health Studies Branch, Division of Environmental Hazards and Health Effects, National Center for Environmental Health, and Epidemic Intelligence Service, Centers for Disease Control and Prevention, Atlanta, Georgia

**Abstract ID:** 1326181 **Presentation Type:** Breakout Presentation
**Title:** Use of automated testing in syphilis diagnosis and its impact on surveillance ? Connecticut, 2010
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Laboratory test methods & their impact on surveillance
**Keywords:** Sexually Transmitted Diseases|Surveillance


**Background:**
Syphilis is diagnosed using two tests: a non-specific test, only positive during infection and typically used for screening, and a treponemal test for Treponema pallidum antibodies, positive for life and typically used for confirming diagnosis. However, increased use of automated treponemal tests, e.g. enzyme immunoassays (EIAs) and chemiluminescent immunoassays (CIAs), for screening has complicated diagnostic algorithms by producing discordant results and increasing the volume of tests. In Connecticut, syphilis surveillance is conducted primarily through mandatory laboratory reporting. Therefore, knowledge of how automated tests are being used, reported, and monitored is essential for accurate surveillance data used to guide public health interventions.

**Methods:**
The Connecticut Department of Public Health conducted a survey of 27 major hospital laboratories, 2 commercial laboratories, and the state laboratory to determine type of syphilis testing performed in 2010. An assessment of reporting from the commercial laboratories was also performed. Findings were used to recommend improvements to the state's syphilis surveillance system.

**Results:**
Of 30 laboratories surveyed, 28 performed syphilis testing on-site. Of these 28 laboratories, 24 performed an estimated 196,700 screening tests in 2010; 233 confirmed cases of early and latent syphilis were reported in Connecticut in 2010. Over half of laboratories, 15/28 (54%), reported only one of the minimum two tests needed to diagnose syphilis. Of the 28 laboratories that tested for syphilis, 4 used an EIA/CIA, including one high-volume commercial laboratory. The commercial laboratory confirmed results of the EIA with two manual tests; only the manual tests were reported. Of the 1,299 reportable tests performed by this laboratory in 2010, 372 (29%) were not present in the state's surveillance database. The other high volume commercial laboratory used manual screening and confirmatory tests and reported both results. Of the 1,241 reportable tests performed in 2010 by this laboratory, 693 (56%) were not present in the surveillance database.

**Conclusions:**
Uptake of automated tests in Connecticut is moderate but increasing. The volume of testing relative to yield of cases is very high. The health department must determine standard procedures for monitoring and entering reported tests. To help determine if any infectious cases have been missed, additional studies are planned to clarify if missing results were unreported or were reported and not entered because the patient was not currently infected (e.g. patients with a previous history of syphilis).


---


**Presenting Author(s):**

**Kelley Bemis**
STD Control Program, Connecticut
Department of Public Health,
Hartford, CT
kelley.bemis@ct.gov

**Contributing Authors**

Mark Lobato, MD, Division of Tuberculosis Elimination, NCHHSTP, CDC; Heidi Jenkins, BS, STD Control Program, Connecticut Department of Public Health; Lynn Sosa, MD, STD Control Program, Connecticut Department of Public Health

**Abstract ID:** 1303053 **Presentation Type:** Breakout Presentation
**Title:** Developing a multilingual questionnaire and surname list to sample Utah Pacific Islanders
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Examining social determinants of health and health disparities in CD/MCH/OrH
**Keywords:** Asian and Pacific Islander|Data/Surveillance|Obesity

**Background:**
The Utah Department of Health sought to complete a surveillance study of Utah Pacific Islanders. Utah vital records indicated significant health disparities for Pacific Islanders in infant mortality and diabetes-related death that merited investigation through a behavioral survey. However, statewide surveys did not reach a large enough sample of Pacific Islanders and were not administered in Samoan or Tongan.

**Methods:**
The authors created a surname list based on names of parents who identified themselves as Pacific Islanders on Utah birth certificates and used the surname list to sample 605 Utah Pacific Islanders. The questionnaire was developed with input of local Pacific Islanders and administered in English, Samoan and Tongan.

**Results:**
The survey generated estimates of health status among Utah Pacific Islanders with smaller confidence intervals than those derived from the Utah Behavioral Risk Factor Surveillance Survey (BRFSS), even when combining six years of BRFSS data. Standard errors were less than half the value of the BRFSS estimates in all cases. The surname survey estimated higher rates than the BRFSS for Pacific Islander diabetes, obesity, and high blood pressure. Pacific Islanders interviewed in Tongan or Samoan had higher rates of diabetes, obesity, arthritis and high blood pressure.

**Conclusions:**
This project demonstrated that a behavioral survey could be completed efficiently among Utah Pacific Islanders using a sample derived from surnames in the birth certificate database. The findings of the study suggest that surveys such as the Utah BRFSS that exclude Samoan and Tongan speakers may inaccurately estimate health status in the Pacific Islander population.

---

**Presenting Author(s):**

**April Bennett**
Utah Department of Health, Salt Lake
City, UT
aybennett@utah.gov

**Contributing Authors**

Michael Friedrichs, MS, Utah Department of Health; Lynn Startup, MPA, Utah Department of Health; Dulce Díez, MPH, Utah Department of Health

**Abstract ID:** 1323664 **Presentation Type:** Roundtable Presentation
**Title:** Lab Interoperability Cooperative: Advancing Electronic Laboratory Reporting through collaborative efforts between hospitals, vendor systems, information exchanges, and public health
**Committee:** Surveillance/Informatics
**Topic:** Electronic laboratory reporting
**Keywords:** Electronic laboratory reporting (ELR)|Electronic data |Information technology

**Brief Summary:**
This roundtable offers participants the opportunity for open informal dialog on the progress and findings of the Lab Interoperability Cooperative (LIC) and provides a multifaceted view of reportable Electronic Lab Reporting (ELR) including perspectives from Centers for Disease Control, the American Hospital Association, the College of American Pathologists and Surescripts. The session provides a broader ELR perspective focused on hospital laboratory outreach and recruitment, Logical Observation Identifiers Names and Codes (LOINC®) education, and connectivity between providers and public health. LIC findings on ELR adoption will serve as a baseline and include ELR readiness observations for hospital laboratories, laboratory information systems, health information exchange organizations, and public health. LIC representatives will share progress made towards educating 500 hospital laboratories on ELR requirements for meaningful use and connecting them to their public health jurisdictions for submission of reportable electronic laboratory results and will be available to answer questions and participate in discussions with conference participants interested in learning more about the LIC efforts.

**Key Objectives:**
Provide status of Lab Interoperative Cooperative activities and progress. Provide insight on Meaningful Use, reportable ELR readiness of stakeholders - hospital laboratories, laboratory information system vendors, and public health

---

**Presenting Author(s):**

**Jeff Benning**
Clinical Interoperability, Surescripts,
Minneapolis, MN
jeff.benning@surescripts.com

**Debra Konicek**
College of American Pathologists,
Deerfield, IL
dkonicek@cap.org

**Contributing Authors**

Anthony Burke, NASD, American Hospital Association (AHA) Laura Conn, MPH, Centers for Disease Control and Prevention (CDC)

**Abstract ID:** 1331742 **Presentation Type:** Roundtable Presentation
**Title:** Epidemic Intelligence Service (EIS) Field Assignment Roundtable Discussion
**Committee:** Cross Cutting Sub-Committee
**Topic:** Workforce Development
**Keywords:** Workforce development|Training|Epidemiology capacity

**Brief Summary:**
One of CDC's priority missions is support of state and local health departments. The EIS program has historically assigned EIS officers to state and local health departments to receive practical training in applied epidemiology and to provide service to the hosting health department. Health departments interested in hosting an EIS officer submit position descriptions for review by the EIS Field Assignments Branch and the EIS Program. EIS officers are assigned to health departments through the traditional match process at the annual EIS Conference; a limited number of assignments are also made before the conference. This discussion will cover requirements for and optimum number of EIS positions within a health department, EIS officer recruitment and selection, and the processes for and restrictions on matching.

**Key Objectives:**
Obtain input from staff epidemiologists in state and local health departments to guide best practices for EIS officer assignment

---

**Presenting Author(s):**

**Diana Bensyl**
OSELS/SEPDPO/DAS, Centers for Disease Control and Prevention, Atlanta, GA
dbensyl@cdc.gov

**Walter Daley**
OSELS/SEPDPO/DAS, Centers for Disease Control and Prevention, Atlanta, GA
wdaley@cdc.gov

**Contributing Authors**

Centers for Disease Control and Prevention Kris Bisgard, DVM, MPH Sheryl Lyss, MD, MPH Julie Magri, MD, MPH Eddie Weiss, MD, MPH

**Abstract ID:** 1322204 **Presentation Type:** Breakout Presentation

**Title:** Using National Healthcare Safety Network (NHSN) data to guide Tennessee's Multidisciplinary Advisory Group

**Committee:** Infectious Diseases Sub-Committee

**Topic:** Healthcare-associated infections

**Keywords:** Healthcare associated infections (HAI)|Public policy|Data/Surveillance

**Background:**
Tennessee's Multidisciplinary Advisory Group (MDAG) guides healthcare-associated infection (HAI) reporting for the state. The MDAG strives to require reporting of actionable data to National Healthcare Safety Network (NHSN), while aligning with federal reporting initiatives and minimizing work for infection preventionists (IPs).

**Methods:**
The MDAG met in October 2011 to revise HAI reporting requirements for 2012. State requirements through 2011 included central line-associated bloodstream infections (CLABSIs) in intensive care units (ICUs), specialty care areas (SCAs), and long-term acute-care hospitals (LTACs); surgical site infections (SSIs) for coronary artery bypass graft (CBGB/C), hip prosthesis (HPRO), and cardiac (CARD) procedures; and Clostridium difficile infection and methicillin-resistant Staphylococcus aureus bacteremia Laboratory-Identified (LabID) Events, facility-wide inpatient and in the emergency department for acute care hospitals and LTACs. Centers for Medicare and Medicaid Services (CMS) Inpatient Prospective Payment System (IPPS) made CLABSIs in ICUs reportable in 2011. Reporting of colon and abdominal hysterectomy SSIs and catheter-associated urinary tract infections in adult and pediatric ICUs will begin in January 2012. The MDAG reviewed Tennessee's quarterly NHSN standardized infection ratios (SIRs) for HAIs that are not involved in upcoming CMS requirements, including CLABSIs in SCAs (July 2010–September 2011) and SSIs related to CBGB/C (January 2009–September 2011), HPRO (July 2010–September 2011), and CARD procedures (July–September 2011). For SSIs, both the "All SSI" and the "Complex Admission/Readmission (A/R) SSI" SIRs were calculated using NHSN Analysis Output Options.

**Results:**
The CLABSI SIR for bone marrow transplant SCAs ranged between 0.34 and 1.50 (reference value=1); this SIR is unstable because only three of these units exist in Tennessee. The hematology/oncology SIR remained around 1, ranging from 0.82 to 1.16. The pediatric hematology/oncology SIR fluctuated but remained below 1, ranging from 0.14 to 0.70. Only one solid organ transplant unit exists in Tennessee, so the SIR was not calculated. The MDAG decided to remove SCA CLABSIs from the reporting requirements because none of the SCA types had a SIR that was consistently greater than 1. For SSIs, the All SSI SIR for CBGB/C procedures ranged between 0.46 and 0.86, following no consistent trend over time. The Complex A/R SSI SIR showed a similar pattern, except for a spike to SIR=1.03 in first quarter of 2011. Unlike other reportable SSIs in Tennessee, CBGB/C reporting is mandated by Tennessee statute. The MDAG decided against removing the CBGB/C mandate because it would require a legislative amendment. For HPRO procedures, the All SSI SIR ranged from 0.60 to 0.83, and the Complex A/R SSI SIR ranged from 0.46 to 0.83. Although the Complex A/R SSI SIR showed an increase over time, the MDAG decided to remove the HPRO SSI reporting requirement in 2012. Only one quarter of data was available for CARD procedures, with an All SSI SIR of 0.53 and a Complex A/R SSI SIR of 0.45. The MDAG also chose to remove CARD SSIs as reportable HAIs in 2012.

**Conclusions:**
The MDAG used NHSN data to inform state HAI reporting requirements for 2012. By removing some HAIs that did not align with CMS IPPS requirements, IPs will be better able to focus on new surveillance requirements.

---

**Presenting Author(s):**

**Brynn Berger**
Healthcare-Associated Infections Program, Tennessee Department of Health, Nashville, TN

brynn.e.berger@tn.gov

**Contributing Authors**

Thomas R. Talbot, MD, MPH, Vanderbilt University; Marion A. Kainer, MD, MPH, Tennessee Department of Health

**Abstract ID:** 1366345 **Presentation Type:** Breakout Presentation
**Title:** Targeted validation of central line-associated bloodstream infection data reported to the National Healthcare Safety Network
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Healthcare associated infections (HAI)|Data/Surveillance


**Background:**
As of 2012, 27 states and the District of Columbia require reporting of central-line associated blood stream infections (CLABSIs) to the National Healthcare Safety Network (NHSN). Additionally, facilities that wish to comply with the Centers for Medicare and Medicaid Services (CMS) Inpatient Prospective Payment System (IPPS) rule must report CLABSIs in intensive care units (ICUs). In light of public reporting and future value-based purchasing, ensuring validity of reported CLABSI data is essential. The Tennessee Department of Health (TDH) validated CLABSI data in ICUs using a targeted approach toward facility and chart selection.

**Methods:**
TDH set a goal to validate CLABSI data in at least one-third of the 78 acute-care facilities with adult/pediatric intensive care units (ICUs) and half of the 26 facilities with neonatal ICUs (NICUs) that reported CLABSI data during 1/2009–6/2010. Facilities were selected for site visits based on their ICUs' CLABSI rates in 2009. All ten facilities that had an adult/pediatric ICU with a CLABSI rate ?90th percentile (based on NHSN 2006-2008 reference data) were included in validation. Additionally, 38 facilities reported a CLABSI rate of 0 in at least one adult/pediatric ICU. Three of these facilities were selected because their standardized infection ratio (SIR) was significantly less than 1 in Tennessee's previous CLABSI report (July 2008–June 2009 data), and seven others were selected at random. Of the thirty facilities with no outlying ICUs, six were randomly chosen for validation. In NICUs, umbilical catheter-associated BSI (UCABSI) and CLABSI rates were calculated for five birth weight categories, resulting in up to ten BSI rates per NICU. The six NICUs with at least one BSI rate ?90th percentile were selected, and the seven NICUs with at least seven rates of 0 were also chosen. One facility with six rates of 0, which had a dramatic reduction in NICU CLABSI rates from 2008, was also selected. Chart selection at each facility was targeted toward BSIs that are commonly misreported, such as those caused by Candida species, coagulase-negative Staphylococcus species, and methicillin-resistant Staphylococcus aureus (MRSA).

**Results:**
Targeting facilities with high or low CLABSI rates and reviewing cases with higher potential for inaccurate reporting provided a means of detect reporting errors. Reporting issues were then communicated to IPs at all facilities in Tennessee. The overall sensitivity and specificity among adult/pediatric ICUs were 72% and 96%, respectively. In NICUs, the overall sensitivity and specificity were 84% and 98%, respectively. No facility demonstrated systematic misreporting of CLABSI events.

**Conclusions:**
Tennessee's targeted approach to validation allowed TDH to 1) identify common reporting errors and 2) ensure that facilities with high and low CLABSI rates were not systematically misclassifying CLABSI events. Sampling of facilities and blood cultures was not representative; as such, sensitivity and specificity results cannot be compared to results obtained through other validation methods.


---

**Presenting Author(s):**


**Brynn Berger**
Tennessee Department of Health,
Nashville, TN
brynn.e.berger@tn.gov


**Contributing Authors**

Matthew B. Crist, MD, MPH (1); Marion A. Kainer MD, MPH, FRACP (2)  Affiliations: 1. Acute Disease Epidemiology Section, Georgia Department of Public Health, Atlanta, GA 2. Healthcare-associated Infections Program, Communicable and Environmental Disease S

**Abstract ID:** 1322232 **Presentation Type:** Poster Presentation

**Title:** A rising tide doesn't lift all boats: Different rates of change in the central line-associated bloodstream infection standardized infection ratio among intensive care units

**Committee:** Infectious Diseases Sub-Committee

**Topic:** Healthcare-associated infections

**Keywords:** Healthcare associated infections (HAI)|Data/Surveillance|Epidemiology

**Background:**

Tennessee made central line-associated bloodstream infections (CLABSIs) reportable in adult and pediatric intensive care units (ICUs), excluding burn and trauma ICUs, in January 2008 and in neonatal ICUs (NICUs) in July 2008. Despite prevention efforts beginning in 2008, the state aggregate adult/pediatric CLABSI standardized infection ratio (SIR) did not decline steadily until the fourth quarter of 2009. Meanwhile, the NICU SIR declined throughout 2008, 2009, and 2010. We examined the adult and pediatric ICU data more closely to determine the reason for the delayed SIR reduction.

**Methods:**

We analyzed Tennessee's adult and pediatric ICU CLABSI data that were reported to the National Healthcare Safety Network (NHSN) during 2008-10. We calculated CLABSI SIRs by facility size (small vs. large), defining "small" facilities as those with ?4,000 central line-days. CLABSI SIRs were also calculated by ICU type, as defined by NHSN, and for Tennessee overall.

**Results:**

During 2008 and 2009, respectively, 19 (24%) of 78 and 19 (24%) of 79 facilities reporting CLABSIs from adult and pediatric ICUs in Tennessee were classified as "large"; in 2010, 21 (26%) of 81 reporting facilities were large facilities. From 2008 to 2009, the percentage of facilities with a CLABSI SIR greater than 1 fell from 44% to 25% among small facilities and increased from 53% to 74% among large facilities. During the same time period, major teaching hospital (MTH) medical ICUs and MTH medical-surgical ICUs were the only ICU types with SIRs that were significantly greater than 1; all other ICU types had SIRs that were not significantly different from 1. The state aggregate SIR changed very little, moving from 1.18 (95% CI: 1.05, 1.26) to 1.15 (95% CI: 1.08, 1.29); however, the median facility-specific SIR dropped from 0.93 to 0.69. From 2009 to 2010, the proportion of facilities with a CLABSI SIR greater than 1 declined from 25% to 22% among small facilities and from 74% to 19% among large facilities. The SIRs for MTH medical ICUs and for MTH medical-surgical ICUs were not significantly different from 1 in 2010; the SIR was significantly less than 1 among non-MTH medical ICUs, neurosurgical ICUs, pediatric medical-surgical ICUs, and surgical ICUs. The state SIR dropped to 0.78 (95% CI: 0.74, 0.90) in 2010, with a median facility-specific SIR of 0.45.

**Conclusions:**

Although small facilities made progress in preventing CLABSIs from 2008 through 2010, the state aggregate SIR did not decrease substantially until 2010. Data indicated that ICUs in large facilities, particularly major teaching hospitals, were driving changes to the state SIR.

---

**Presenting Author(s):**

**Brynn Berger**
Healthcare-Associated Infections Program, Tennessee Department of Health, Nashville, TN
brynn.e.berger@tn.gov

**Contributing Authors**

Marion A. Kainer, MD, MPH

**Abstract ID:** 1319859 **Presentation Type:** Poster Presentation
**Title:** Obesity in relation to lifestyle behaviors and chronic conditions among adults: 2005-2010 Texas behavioral risk factors surveillance system
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Chronic disease risk factors: tobacco, physical activity, nutrition, and obesity epidemiology
**Keywords:** Obesity|Risk factors|Chronic diseases

**Background:**
Obesity is an increasingly common and serious health challenge in Texas.5 From 11th place in 2005, Texas has moved to the 6th highest in 2010 in prevalence of obesity among adults in the U.S.3 Obesity is a major risk factor for development and progression of hypertension and diabetes2 and coronary heart disease, dyslipidemia, osteoarthritis and certain cancers.1, 4 Obesity-related costs for Texas businesses were $9.5 billion in 2009.5 This analysis aims to find the prevalence of obesity among Texans in relation to lifestyle behaviors and chronic conditions from 2005 to 2010 using Texas Behavioral Risk factor Surveillance System (BRFSS) data.6

**Methods:**
Texas BRFSS data were analyzed from 2005 to 2010. Prevalence of obesity was examined by demographics, risk behaviors and comorbidities. Data on physical activity, fruits and vegetable (F&V) and sugar-sweetened beverage (SSB) consumption, hypertension and high blood cholesterol were available in limited number of years. Surveymeans procedure was run using SAS 9.2 software.

**Results:**
Prevalence of obesity increased significantly from 27% in 2005 to 31.7% in 2010 among adults in Texas. From 2005 to 2010, the obesity prevalence increased 7.3% among Hispanics and African-Americans and 3.4% among Whites. Prevalence of obesity among inactive adults increased from 33.6% in 2005 to 41.4% in 2009 whereas among adults who met the recommended level of physical activity it changed from 23.4% in 2005 to 24.5% in 2009. In 2009, adults who ate F&V less than 5 times a day showed higher rate of obesity (30.8%) than adults who ate the recommended level of F&V (26%). In 2010, obesity was higher among adults who drank SSB two or more than times a day (35.9%) than adults who drank none (29.7%). Data from 2005 thru 2009 consistently showed that prevalence of obesity was more than double (ranging from 52.3% to 55.2%) among adults with diabetes than adults without diabetes (ranging from 24.9% to 26.9%). In 2010, 59% of adults with diabetes, 43.6% with hypertension, 41.9% with cardiovascular diseases, 37% with arthritis, 42.3% with current asthma, and 36.3% of adults with high blood cholesterol were obese.

**Conclusions:**
Obesity is consistently increasing and a critical public health issue in Texas. The prevalence of obesity is significantly higher among adult Texans engaging in risk behaviors: inactive lifestyle, do not eat recommended levels of F&V and drink SSB. Obesity coexists with chronic conditions and is highly associated with diabetes, hypertension and cardiovascular diseases.

---

**Presenting Author(s):**

**Nimisha Bhakta**
Texas Department of State Health Services, Austin, TX
nimisha.bhakta@dshs.state.tx.us

**Contributing Authors**

Lauri Kalanges, MD, MPH Director Health Promotion and Chronic Disease Prevention Section Texas Department of State Health Services

**Abstract ID:** 1326017 **Presentation Type:** Breakout Presentation
**Title:** FoodCORE: Foodborne Diseases Centers for Outbreak Response Enhancement - Improving foodborne disease outbreak response capacity in state and local health departments
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Foodborne/waterborne disease
**Keywords:** Foodborne disease|Epi / Lab capacity|Outbreak investigations

**Background:**
Each year foodborne diseases (FBD) cause illness in approximately 1 in 6 Americans, resulting in 128,000 hospitalizations and 3,000 deaths. Decreasing resources impact the ability of public health officials to identify, respond to, and control FBD outbreaks. FoodCORE was established to address gaps in FBD outbreak response by improving capacity in three core areas: laboratory, epidemiologic, and environmental health activities. FoodCORE sites build collaborative surveillance and response programs to conduct rapid, coordinated, and standardized investigations of FBD.

**Methods:**
FoodCORE sites were selected via competitive review process. Performance metrics, focusing on Salmonella, Shiga toxin-producing Escherichia coli, and Listeria (SSL), were developed based on the Council for Improving Foodborne Outbreak Response Guidelines. FoodCORE sites provide quarterly reports that are compiled by CDC FoodCORE staff.

**Results:**
There are currently seven FoodCORE sites: New York City, North Carolina, Ohio, South Carolina, Tennessee, Utah, and Wisconsin. From 10/1/2010 to 6/30/2011, data were reported for 33 metrics. A total of 5,267 SSL isolates were submitted to the public health laboratories. For all sites, an average of 96% of SSL isolates had PFGE data available (range: 85-100%). For Salmonella, the median turn-around time (TAT) for serotyping during the first two quarters (Q1/2) was 9 days (range: 6-13); this was reduced to 6 days (range: 4-10) in the third quarter (Q3). Median TAT for Salmonella PFGE results decreased from 12 days (range: 3-40) in Q1/2 to 8 days (range: 2-22) in Q3. A total of 3,875 SSL cases were reported to epidemiology staff. For all sites, interviews were attempted for an average 89% (range: 74-100%) of cases. By the end of Q3, the median days from case report to interview attempt was 1 (range: 0-2).

**Conclusions:**
FoodCORE promotes the evaluation and application of surveillance and investigation strategies to improve the detection, investigation, and control of FBD outbreaks. FoodCORE sites are implementing work plans to address gaps in FBD outbreak response. Enhanced outbreak response efforts can shorten the time it takes to identify a source of infection and pinpoint how and why contamination occurred, in order to limit additional illnesses and help prevent future FBD outbreaks.

---

**Presenting Author(s):**

**Gwen Biggerstaff**
Division of Foodborne, Waterborne, and Environmental Diseases, Outbreak Response and Prevention Branch, Centers for Disease Control and Prevention, Atlanta, GA
fke8@cdc.gov

**Contributing Authors**

Jennifer Mitchell, MPH, CHES - Centers for Disease Control and Prevention; Jennifer Wright, DVM, MPH - Centers for Diseaes Control and Prevention; FoodCORE

**Abstract ID:** 1323848 **Presentation Type:** Breakout Presentation
**Title:** Predictors of non-fatal occupational injuries among truck and bus drivers
**Committee:** Injury Control and Prevention Sub-Committee
**Topic:** Injuries resulting from motor vehicle or other transportation modes
**Keywords:** Injury|Injury prevention|Occupational Health

**Background:**
The truck and bus driving subsector faces many occupational safety and health problems. In 2004, truck drivers made up 2% of the total workforce, but accounted for 15% of fatal occupational injuries, and 8% of nonfatal occupational injuries. Given the enormity of the associated direct and indirect costs, there is need to focus on occupational safety and health in this industry. The purpose of this study was to determine predictors of non-fatal occupational non-traffic related injuries in this workforce.

**Methods:**
The study was a cross-sectional convenience self-reported survey sample of truck and bus drivers. The drivers were recruited at rest areas and truck stops. A very small percent of drivers completed the electronic format through online survey monkey. The drivers who completed the survey were compensated. The survey included questions on individual, physical, workplace and psychosocial factors. Data collected were analyzed using SAS 9.2.

**Results:**
A total of 229 drivers were recruited for the study. 116 drivers had never sustained non fatal occupational injuries while 113 have had nonfatal occupational injuries. Out of the 113 injured drivers, only the 60 drivers who reported injuries in the last 12 months were used in this analysis. The most common injuries reported were musculoskeletal strains and sprains affecting mostly upper and lower extremities. Obese drivers (BMI>30) were more likely to have injuries compared to those with normal weight OR 346 (1.04-11.50). Drivers who reported less sleep than they thought in the past 1-2 days and >3 days of the past week are more likely to report injuries than drivers without less sleep in the past week OR 3.70(1.27-10.76) and 3.21 (1.06-9.74)

**Conclusions:**
Injury prevention intervention programs are needed to reduce obesity and sleep problems that are associated with non-fatal injuries in truck and bus drivers whose function is essential to the economic vitality of the nation.

---

**Presenting Author(s):**

**Benjamin Blagogee**
Yale Occupational and Environmental
Medicine Program, Yale University
School of Medicine, New Haven, CT
gongogi@hotmail.com

**Contributing Authors**

Linda Cantley, MS Yale Occupational and Environmental Medicine Program, Yale University School of Medicine Martin Slade, MPH Yale Occupational and Environmental Medicine Program,Yale University School of Medicine Oyebode Taiwo, MD MPH, Yale Occupational

**Abstract ID:** 1332656 **Presentation Type:** Breakout Presentation
**Title:** Variability and trajectory of multiple blood lead measures among workers in different industries
**Committee:** Occupational Health Sub-Committee
**Topic:** Lead exposure surveillance (ABLES)
**Keywords:** Lead|Occupational Surveillance|Occupational Health

**Background:**
Elevated blood lead levels (BLL's) in adults is a significant public health problem. In the United States, the majority of cases are workplace-related. According to the U.S. Department of Health and Human Services, the recommended BLL among adults is less than 25 µg/dL and some states, such as California, are focusing on attaining levels in adults less than 10 µg/dL. This is in contrast to current OSHA standards for both General Industry and Construction, that allow much higher BLLs among workers with repeated exposure. Many workers who routinely handle lead have multiple BLL measures. However, there has been limited analysis of repeated BLL measures on employees despite policies to reduce BLLs, even among workers chronically exposed to lead. This study utilized the Adult Blood Lead Epidemiologic Surveillance (ABLES) database to study the BLL trajectories of workers exposed to lead and assess their intrapersonal variability over time. In addition, BLL differences and variability was also assessed between workers in the construction industry versus other industries. This study hypothesized that variability of repeated BLLs is related to the industrial sector of the worker and that more frequent BLLs measures are needed among workers in job titles and industries with highly variable exposures to properly assess their risk.

**Methods:**
This analysis included the BLLs from adults aged >=17 years and reported to NJ ABLES after year 2003. To account for the repeated measures of BLL, random effects regression models were used and the BLL trajectories were modeled using the restricted cubic spline functions. The restricted cubic spline function is a useful non-parametric method to model the non-linear relationship in regression analysis. To evaluate the difference in BLL trajectories between the construction industry versus other industries, we included the interactions of the industry type and the splines in the statistical model and evaluate such interactions for statistical significance, controlling for age and race/ethnicity.

**Results:**
This study found that BLL trajectories and intrapersonal variability did exist among different industrial groups. It is likely that the variation in BLLs was impacted by the variation in worker exposure. In addition, summary measures and trajectories of repeated BLLs on individual workers have utility in assessing risk from exposure.

**Conclusions:**
Frequency of BLL testing among workers should be linked to the variation in their exposure patterns. Workers with more variable exposure should be tested more frequently. Incorporation of BLL trajectories and summary values of multiple BLL measures should be incorporated into assessment of risk.

---

**Presenting Author(s):**

**James Blando**
Comm and Env Health, Old Dominion University, Norfolk, VA
jblando@odu.edu

**Contributing Authors**

Shou-En Lu, Ph.D., UMDNJ School of Public Health, Department of Biostatistics Yong Lin, Ph.D., UMDNJ School of Public Health, Department of Biostatistics Betsy Marshall, Ph.D., UMDNJ School of Public Health, Department of Epidemiology

**Abstract ID:** 1333183 **Presentation Type:** Breakout Presentation
**Title:** Impact of hospital security programs and workplace aggression on nurse perceptions of safety
**Committee:** Occupational Health Sub-Committee
**Topic:** Other occupational health issues
**Keywords:** Violence|Injury prevention|Occupational safety

**Background:**
The specific aim of this study was to assess how nurses' perception of their safety and violence was affected by their work environment and whether this perception correlated with their actual risk. The work environment impacts nurses' perception of their risk of violence and this perception impacts worker productivity, quality, employee retention, worker satisfaction, and their actual safety.

**Methods:**
A cross sectional survey was conducted in-person of 314 emergency department nurses, 143 psychiatric nurses, and assault data was collected from injury logs.

**Results:**
This study found that nurses in the emergency and psychiatric units differed in their perception of violence and safety. The workplace elements that led to a perception of lower risk of violence were not correlated to a lower rate of injury from violent acts. The nurses' beliefs about the adequacy of security equipment, security guards, and the frequency of verbal abuse were strongly correlated with perceived safety.

**Conclusions:**
Several factors that influence nurses' perception of their risk of violence are not well correlated with their actual risk. Managers must address workplace elements that impact nurse perceptions because this impacts quality and employee retention. They must also address factors that impact the actual risk of violence because this study showed for the first time that these may differ from perceptions.

---

**Presenting Author(s):**

**James Blando**
Comm and Env Health, Old Dominion University, Norfolk, VA
jblando@odu.edu

**Contributing Authors**

Emily O'Hagan, RN, MPH, (retired) NJ Department of Health and Senior Services Carri Casteel, Ph.D., MPH, University of North Carolina, Injury Prevention Research Center Mary-Alice Nocera, RN, MSN, Univ. of North Carolina, Injury Prevention Research Cente

**Abstract ID:** 1332679 **Presentation Type:** Breakout Presentation
**Title:** A surveillance pilot study of unintended pregnancy and contraceptive failure in three Kentucky Title X family planning clinics
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Generating and using county and local-level data for CD/MCH/OrH epidemiology
**Keywords:** Reproductive health|Women's health|MCH Epidemiology


**Background:**
The Title X Family Planning Program (FPP) is the largest provider of publicly funded contraceptives and family planning services in Kentucky. Clients are served in 173 Title X funded family planning clinics, located in all 120 counties. These clinics play a vital role in serving uninsured women. The purpose of this pilot study was to address gaps in family planning research by measuring the prevalence of unintended pregnancy and contraceptive failure among women who attend Title X clinics for emergency contraception or pregnancy tests. Data will be used as a planning tool for clinic staff to improve counseling protocols in order to offer appropriate contraceptive methods based on clients' methods and consistency of use.

**Methods:**
This pilot study was conducted in three Title X family planning clinics in Lexington, Kentucky, over a one month period. Researchers utilized a cross-sectional, self-report, survey design to measure prevalence of unintended pregnancy and contraceptive failure. Other measures of interest included access to reproductive health services, preconception health, partner influences and partner congruence, intimate partner violence and demographic characteristics. Data were analyzed using SAS 9.2.

**Results:**
A majority of women (57%) had ambivalent feelings about potential pregnancy followed by women who planned theirs (23%) and women who were not intending a pregnancy (20%). Despite the fact that only 23% of women were planning a pregnancy, nearly 60% said they would be pleased or very pleased if the pregnancy test was positive and 50% said they were hoping that the test was positive. When asked directly whether a woman was trying to get pregnant, almost three quarters of participants answered that they were not. Slightly over half of participants used condoms, followed by birth control pills, withdrawal method, and the contraceptive patch. Approximately 18% of women reported that they suspected they were pregnant due to contraceptive failure. Among women who reported birth control non-use, about one-fifth cited their reason as they 'did not think about it'.

**Conclusions:**
The complexity of pregnancy intention measurement is reflected in the current study. When asked directly, less than one-fifth of women said they were trying to get pregnant while almost three times as many said they would be pleased or very pleased if the pregnancy test results were positive. Although a majority of women were not intending a pregnancy, few reported using contraception at last sexual intercourse. Among women who used contraception, user-controlled methods were most often used which have higher rates of contraceptive failure than long-acting methods.


---


**Presenting Author(s):**

**Jenny Blase**
Kentucky Department for Public
Health, Frankfort, KY
jennifer.blase@emory.edu

**Contributing Authors**

Sarojini Kanotra, PhD, MPH, Kentucky Department for Public Health, Division of Prevention and Quality Improvement, Amanda Wilburn, MPH, Kentucky Department for Public Health, Division of Women's Health, Debra Israel, RN, Kentucky Department for Public Hea

**Abstract ID:** 1332547 **Presentation Type:** Poster Presentation
**Title:** Profile of poor survivors after diagnosis with AIDS, Texas, 1997–2005
**Committee:** Infectious Diseases Sub-Committee
**Topic:** HIV
**Keywords:** HIV/AIDS

**Background:**
Healthy People 2020 established a nationwide goal that 90.2% of all cases diagnosed with AIDS would live at least three years after diagnosis. From 1992-1996, Texas observed a large increase in the proportion of AIDS cases in the state surviving at least three years. Since 1997, no significant reductions in the proportion of poor survivors, defined as those not living at least three years after AIDS diagnosis, have been observed. This study looked to determine whether significant changes in the profile of poor survivors may provide an explanation for the stable three year survival proportion.

**Methods:**
Persons reported with HIV through non-vertical transmission and diagnosed with AIDS no earlier than 1997 and no later than 2005 were eligible for the study. All of these AIDS cases living as of December 31, 2008 were included. Cases which died prior to December 31, 2008 were included if a death document with an ICD-9 or ICD-10 code for HIV listed as the underlying or contributing cause of death was on file. Cases were grouped into cohorts based on the year of diagnosis with AIDS (1997-2005). Survival was calculated as the time from diagnosis with AIDS to death or to December 31, 2008 for living cases. Chi-square tests compared survival populations, stratified by AIDS diagnosis year, by gender, age at diagnosis, race, first CD4 t-lymphocyte count or percent (CD4), transmission mode, and diagnosis with tuberculosis.

**Results:**
There were 23,359 AIDS cases included in the proportions analysis. Stratified chi-square tests for each covariate found significant differences between the populations by age group at diagnosis for each AIDS diagnosis cohort. Significant differences were observed in at least one AIDS diagnosis year cohort for every other covariate: transmission mode (8/9 cohorts); race (7/9); tuberculosis diagnosis (4/9); first CD4 (4/9); and sex (2/9). When only analyzing poor survivors, significant differences were observed when comparing diagnosis year cohorts by race, age at diagnosis, tuberculosis diagnosis, first CD4, and transmission mode. Results from the logistic regression will be presented at a later time.

**Conclusions:**
Certain factors may decrease a person's likelihood of surviving three years after a diagnosis with AIDS. Identifying these potential factors and directing resources towards improving outcomes in these groups may help to close the gap with the national goal for survival after AIDS diagnosis.

---

**Presenting Author(s):**

**Craig Boge**
TB/HIV/STD/Viral Hepatitis Unit, Texas
Department of State Health Services,
Austin, TX
craig.boge@dshs.state.tx.us

**Contributing Authors**

Jennifer Chase, MSPH; Miranda Fanning, MPH; Rebecca Filipowicz, MPH, MS, CHES; Sharon Melville, MD, MPH

**Abstract ID:** 1332688 **Presentation Type:** Roundtable Presentation
**Title:** Opening the black box: Developing a better understanding of state workers compensation data
**Committee:** Occupational Health Sub-Committee
**Topic:** Improving occupational health surveillance
**Keywords:** Information databases|Occupational Surveillance

**Brief Summary:**
State workers compensation data are an untapped resource for state-based occupational surveillance programs. Most state workers compensation systems are governed by state law, administrative rules, and case law which complicates the cross state comparisons of injury and illness rates and complicates the comprehension of the data available. Yet, within each state, the workers compensation data likely can provide important information about occupational hazards and be used for prioritizing prevention. The goal of this presentation is to provide state-based surveillance personnel tools to better understand the WC data available within his/her state. The roundtable will present an initial set of questions, from which roundtable participants can develop an initial assessment of the injury and illness data available within their state's workers compensation system. Over time, we hope that a survey tool can be developed to better characterize the administrative components of a state workers compensation system; such characterizations can be used to assess the state workers' compensation systems fulfillment of caring for injured workers.

**Key Objectives:**
1. Identify key administrative aspects of state workers compensation data. 2. Develop questions to assess the role of employers, workers, and insurers in data reporting. 3. Understand key indicators of workers' compensation benefit adequacy and the value of state workers compensation data for occupational injury and illness surveillance.

---

**Presenting Author(s):**

**David Bonauto**
Washington State Department of
Labor and Industries, Olympia, WA
bone235@lni.wa.gov

**Abstract ID:** 1332309 **Presentation Type:** Poster Presentation
**Title:** Collaboration: The key to reducing the burden for healthcare facilities in reporting and preventing healthcare-associated infections
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Healthcare associated infections (HAI)|Collaboration

**Background:**
Healthcare facilities must abide by the requirements of various regulatory and oversight bodies, including state and federal agencies, and may belong to trade associations that focus on performance improvement initiatives for their members. Such is the case for acute care hospitals and long-term acute care (LTAC) hospitals in Tennessee, which must abide by the healthcare-associated infection (HAI) reporting requirements of the Tennessee Department of Health (TDH), the Centers for Medicare and Medicaid Services (CMS), and (for applicable projects) the Tennessee Center for Patient Safety (TCPS) of the Tennessee Hospital Association (THA) . These requirements can overlap, resulting in significant challenges for facilities and duplicative efforts for infection preventionists. significant challenges for facilities and duplicative efforts for infection preventionists. In April 2011, the U.S. Department of Health and Human Services (HHS) implemented a national Partnership for Patients initiative, which targets all forms of harm to patients. In conjunction with this initiative, THA was recently awarded a hospital engagement network contract by HHS.

**Methods:**
TDH, Qsource (the CMS subcontracted Quality Improvement Organization [QIO] for Tennessee), and TCPS have joined to form the Tennessee Partnership for Patients (Partnership). Representatives from the three entities convene on a regular basis via face-to-face meetings and conference calls to discuss patient safety issues and initiatives pertinent to the partnering organizations; the common focus is coordinating and streamlining HAI reporting requirements for acute care hospitals and LTACs. Qsource and TCPS are also represented on the TDH Multidisciplinary Advisory Group (MDAG), which meets three times per year and is responsible for setting Tennessee's HAI reporting requirements.

**Results:**
By working in a collaborative manner, TDH, Qsource, and TCPS have succeeded in reducing the HAI reporting burden for facilities. The Partnership jointly decided on the timelines and associated processes (e.g., conferring of NHSN rights by facilities) for facilities to begin reporting the jointly agreed upon HAIs into NHSN. The three entities also collaborate on educational programs and materials to prepare facilities for reporting. A useful tool developed by the Partnership is a HAI Reporting Grid that outlines—in one document— the various HAI reporting requirements of the three entities. Most recently, TDH and Qsource have partnered to co-lead the implementation of a Clostridium difficile prevention collaborative involving acute care hospitals, LTACs, and long-term care facilities.

**Conclusions:**
By effectively coordinating efforts, the Partnership has enabled healthcare facilities to adhere to the various reporting requirements of TDH, the QIO, and TCPS in the least burdensome and most coordinated manner possible. In addition, facilities benefit from the collective use of the resources and expertise of the three entities in HAI prevention and performance improvement.

---

**Presenting Author(s):**

**Ellen Borchers**
Department of Health, Tennessee
Department of Health, Nashville, TN
ellen.borchers@tn.gov

**Contributing Authors**

Marion Kainer, MD, Tennessee Department of Health

**Abstract ID:** 1326779 **Presentation Type:** Breakout Presentation
**Title:** Racial disparities of self-reported postpartum depressive symptoms among foreign born women in Oregon
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Maternal & child health epidemiology
**Keywords:** Depression|MCH Epidemiology|Health disparities

**Background:**
Postpartum depression (PPD), defined as depression up to one year after pregnancy, can have consequences for both a mother and child. Foreign born women may experience stress during the postpartum period due to feelings of isolation and adversity during acculturation. Foreign born woman may also experience difficulty discussing depressive symptoms with their provider. Stress has been linked to PPD, however, due to the 'healthy immigrant effect'; foreign born women may cope with stress differently. Our objectives are to estimate the prevalence of postpartum depressive symptoms (PDS), to investigate if racial disparities exist among foreign born women and to identify predictors of PDS. We hypothesize that foreign born women are more likely to report PDS than US-born women and that this relationship may differ by race/ethnicity.

**Methods:**
Responders to the Oregon Pregnancy Risk Assessment Monitoring System (PRAMS) from 2005-2007 were asked about PDS at 3 months postpartum, on average. We defined PDS when mothers reported that 1) she always or often felt down, depressed or hopeless and/or 2) she always or often had little interest or little pleasure in doing things after pregnancy. Navity was determined by country of birth listed on the birth certificate. We estimated adjusted odd ratios (AOR) for PDS using weighted multivariate logistic regression with SAS 9.2 survey procedures and tested for interaction by race/ethnicity.

**Results:**
Overall, 11.8% of participants reported PDS. Non-white women were significantly more likely to report PDS compared to non-Hispanic (NH) Whites (OR=1.6, 95%CI: 1.3, 2.0). The prevalence of PDS among foreign born women was 13.3% compared to 11.3% among US born women. Foreign born women were not more likely to report PDS (OR=1.2, 95%CI: 1.0, 1.5). However, after controlling for confounders, foreign born Asian women were 2.3 times more likely to report PDS (95%CI: 1.1, 5.0) than US-born NH-Whites and 1.9 (95%CI: 1.1, 3.3) times more likely than US-born Asians. Interaction with nativity was not found among other racial or ethnic groups. In the adjusted model, poverty (OR=1.5, 95%CI: 1.1, 2.2), partner-related (OR=2.4, 95%CI: 1.8, 3.2) and traumatic stress (OR=1.5, 95%CI: 1.1, 2.1) were also associated with PDS.

**Conclusions:**
Non-white women suffer from PDS disproportionately when compared to white women. Moveover, foreign born Asian women are at greater risk for depressive symptoms. Clinicians and public health professionals should provide culturally appropriate screening and treatment for high risk populations with depressive symptoms to improve the lives of mothers and children.

---

**Presenting Author(s):**

**Ashley Borin**
Multnomah County Health Department, Portland , OR
ashley.borin@multco.us

**Contributing Authors**

Aakash Jani- Multnomah County (Intern) James Gaudino, Jr. MD, MS, MPH, FACPM, Multnomah County Health Department

**Abstract ID:** 1319890 **Presentation Type:** Poster Presentation
**Title:** Surveillance evaluation of the tri-county perinatal hepatitis B virus prevention program, Oregon, 2008-2011
**Committee:** Surveillance/Informatics
**Topic:** General surveillance topics
**Keywords:** Hepatitis|Surveillance|Evaluation


**Background:**
Perinatal transmission of hepatitis B virus (HBV) is up to 95% preventable when infants are provided with proper post-exposure prophylaxis (PEP), which includes immunoglobulin (HBIG) and a complete series of timely vaccinations. Federal funding is provided to local health departments for Perinatal Hepatitis B Prevention Programs (PHBPP) that identify pregnant women with HBV and assure that infants receive PEP and post-vaccination serology testing. The Oregon Tri-County PHBPP, which includes Multnomah, Washington and Clackamas counties, has never been formally evaluated. We aim to determine how capable the PHBPP is at identifying the population of women with HBV in the tri-county area and ensuring appropriate case management and follow-up of infants?

**Methods:**
We used the updated CDC guidelines for surveillance system evaluations. PHBPP data were linked to Multnomah County birth certificates (BCs) and HBV indicators were compared to estimate PHBPP sensitivity and level of agreement between the two sources. BC data are not a gold standard for HBV reports, therefore the true sensitivity of the system remains unknown. Capture-recapture methodology was used to determine the estimated number of infants born to HBV+ women in the population. Tri-County vaccine completion and post-serology testing rates were determined for children meeting the eligible age for vaccination and testing.

**Results:**
From 2008-September 2011, the PHBPP identified 218 infants born to mothers with HBV in Multnomah County and a total of 349 in the Tri-County area. An additional 40 HBV cases were indicated by BCs but not reported to the PHBPP. This demonstrates that the PHBPP captured 79.1% of HBV cases identified by BCs. A kappa statistic determined substantial agreement (?=0.74, 95%CI 0.69-0.79) between sources. The estimated number of infants born to HBV+ mothers in Multnomah County was 276. In the Tri-County, over 96% of infants received both HBIG and initial vaccine at birth, while 78.8% of the 297 eligible infants received a complete vaccine series. Additionally, post-serology testing was completed for 75.6% of eligible children (N=234) with 62.8% completing testing within the recommended timeframe (9-15 months).

**Conclusions:**
Periodic BC surveillance should be used as an additional source for identification of infants at risk for HBV; however, BC documentation of infection may not be completely accurate and some women may have changed residence since giving birth. Although HBIG and initial vaccine rates remain high, post-vaccination serology testing and vaccine series completion show a need for improvement.


---


**Presenting Author(s):**

**Ashley Borin**
Multnomah County Health Department, Portland , OR
ashley.borin@multco.us

**Contributing Authors**

James Gaudino, MD, MS, MPH, FACPM Multnomah County Health Department Amy Sullivan, PhD, MPH Multnomah County Health Department

**Abstract ID:** 1323643 **Presentation Type:** Breakout Presentation
**Title:** Benefits of funding chronic hepatitis B and C surveillance: New York City's experience
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Viral hepatitis
**Keywords:** Viral hepatitis|Surveillance|Policy/Policy Development

**Background:**
Chronic hepatitis B and C are leading causes of severe liver disease. Surveillance for viral hepatitis can help describe the magnitude of the epidemic and determine how best to use limited public health resources. Chronic hepatitis surveillance is challenging because of high caseload, duplicate reporting, and limited funding. The NYC Health Department has received funding for hepatitis surveillance since 2001; we describe our progress.

**Methods:**
Since 2001, we have had funding for up to nine staff members dedicated primarily to hepatitis surveillance; additional in-kind staff also contributed. Beginning in 2001, DOHMH developed hepatitis surveillance databases, entered a backlog of over 40 boxes of paper reports, and created automated de-duplication procedures. In 2006, we asked a sample of patients from surveillance about hepatitis-specific needs; as a result, we began routinely mailing hepatitis information booklets to patients. Using surveillance data, we estimated the prevalence of hepatitis B, and began developing estimates for hepatitis C prevalence. In 2008, we began enhanced chronic hepatitis B and C surveillance projects wherein we conduct detailed follow-up on a sample of 20 newly-reported patients bimonthly. In 2006 and 2011 we investigated a sample of hepatitis C reports among youth.

**Results:**
In 2010, we received 94,000 hepatitis B and 83,000 hepatitis C reports; 91% were received electronically. These reports represented 10,344 persons newly reported with hepatitis B and 10,846 with hepatitis C. Our enhanced hepatitis B surveillance project showed that 56% of newly-reported persons were born in China and 67% were Asian; we also found that physicians did not vaccinate all patients against hepatitis A and did not always provide alcohol avoidance counseling. We estimated NYC's chronic hepatitis B prevalence at 1.2% for 2008. We found that 36% of persons newly-reported with hepatitis C had not been tested for hepatitis C RNA, which is needed to determine infection status. We used the surveillance data during healthcare-associated hepatitis outbreak investigations to identify new and prevalent hepatitis infections among persons seen at the healthcare facilities being investigated. We mailed 15,000 educational booklets annually to newly-reported persons. We published the biannual Hepatitis ABC Surveillance Report, and shared our findings at conferences and in peer-reviewed publications.

**Conclusions:**
Funding for chronic hepatitis surveillance in NYC has had substantial benefits. We used surveillance data and our enhanced surveillance projects to estimate prevalence, better characterize our populations, identify unmet needs among patients and clinicians, and inform the development of prevention, outreach and education activities.

---

**Presenting Author(s):**

**Katherine Bornschlegel**
New York City Department of Health
and Mental Hygiene, New York, NY
kbornsch@health.nyc.gov

**Contributing Authors**

Emily McGibbon, MPH, New York City Department of Health and Mental Hygiene Jennifer Baumgartner, MSPH, New York City Department of Health and Mental Hygiene Janette Yung, MPH, New York City Department of Health and Mental Hygiene Sharon Balter, MD, New Yo

**Abstract ID:** 1318789 **Presentation Type:** Poster Presentation
**Title:** Educational mailings for people with chronic hepatitis B or C
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Viral hepatitis
**Keywords:** Viral hepatitis|Health promotion|Chronic communicable diseases

**Background:**
Chronic hepatitis B and C are leading causes of cirrhosis, liver failure and liver cancer. Medical services and alcohol abstinence can decrease the chances of progressing to serious liver disease. Previous New York City Health Department surveys suggest that many patients want additional information about viral hepatitis and support groups. Because of the large volume of cases and limited staffing it is not possible for the health department to provide this information by telephone to all patients. To address this need, we developed educational booklets. We send booklets in bulk to stakeholders who request them and we routinely mail them to all persons newly reported with chronic hepatitis B or C. We used several approaches to evaluate our booklets.

**Methods:**
We summarized data on bulk booklet orders. To evaluate routine booklet mailings to patients, we included a one-page evaluation survey together with the booklets for a random sample of the routine mailings (500 for hepatitis B and 500 for hepatitis C). We analyzed data from a log of telephone calls from patients in response to the routine mailings. We also estimated costs.

**Results:**
Over three years, there were 663 bulk orders for a total of 124,400 hepatitis B or C booklets in eight different languages; most were from clinical care settings and community groups. We mailed 15,000 booklets/year to patients newly reported with hepatitis B or C. Response rates for our mailed evaluations were low (7 - 8%); most recipients rated the booklets as helpful or very helpful (74-83%). Two percent of recipients called the Health Department after receiving the booklet. The most frequent reasons for calling were having a health question/concern and not having been aware of the positive hepatitis test result. Among callers with hepatitis B, 2% had a concern about confidentiality, and among callers with hepatitis C, 7% had such a concern. We estimated annual non-personnel costs at $32,550.

**Conclusions:**
Despite the low response rates, we suspect the booklets have been well received. Analysis of phone call logs indicates that patients want and need information about their positive test result and hepatitis B and C in general. Confidentiality concerns were infrequent. The large number of bulk orders and the issues that people called about demonstrate the need for information in the affected communities and informed the development of educational and outreach activities for patients, clinicians and stakeholders.

---

**Presenting Author(s):**

**Katherine Bornschlegel**
New York City Department of Health
and Mental Hygiene, New York, NY
kbornsch@health.nyc.gov

**Contributing Authors**

Jennifer Baumgartner, MSPH, New York City Department of Health and Mental Hygiene Janette Yung, MPH, New York City Department of Health and Mental Hygiene Emily McGibbon, MPH, New York City Department of Health and Mental Hygiene Sharon Balter, MD, New Yo

**Abstract ID:** 1326707 **Presentation Type:** Breakout Presentation
**Title:** The first year of national surveillance for babesiosis—United States, 2011
**Committee:** Surveillance/Informatics
**Topic:** Electronic case reporting
**Keywords:** Surveillance|Vectorborne disease


**Background:**
Babesiosis is caused by intraerythrocytic parasites, which are tickborne in nature but also are transmissible via blood transfusion. In recent years, reports of tickborne and transfusion-associated cases have increased in number and geographic distribution. However, the lack of a standard case definition has hindered the ability of public health authorities to monitor and prevent cases. In this context, CSTE recommended adding babesiosis to the list of nationally notifiable conditions; surveillance using the newly established case definition began in January 2011. Health departments in the 18 states where babesiosis is an explicitly reportable condition notify the Centers for Disease Control and Prevention (CDC) of cases through the National Notifiable Diseases Surveillance System (NNDSS). In August 2011, a CDC case report form, which supplements the NNDSS core data with additional key variables (e.g., route of transmission and clinical outcome), was approved by the Office of Management and Budget.

**Methods:**
We analyzed provisional Babesia surveillance data available through NNDSS (e.g., onset date, state of residence, age, sex). The NNDSS data will be finalized by May 2012; case report forms may be completed concurrently. For these analyses, data regarding route of transmission and clinical outcome were not yet available. We combined the provisional data for confirmed and probable cases and calculated incidence rates using 2011 population data from the U.S. Census Bureau.

**Results:**
In 2011, CDC was notified of 586 Babesia cases. The case-patients' median age was 64 years (range, 0–96 years); 61% were male, 33% were female, and the sex was unknown for 6%. Among the 457 case-patients with available data, 399 (87%) had symptom onset dates during June through August. Cases were reported by 14 states; 93% (546 cases) were reported by the 7 main Babesia microti–endemic states (CT, MA, MN, NJ, NY, RI, and WI). Incidence rates by state ranged from 0.01 to 2.66 cases per 100,000 persons.

**Conclusions:**
These data underscore the need for heightened awareness of babesiosis regardless of the season or U.S. region. As national surveillance continues, the data collected using the standard case definition and report form will enable public health authorities to detect trends in the frequency and distribution of tickborne and transfusion transmission and will provide key epidemiologic perspective for developing evidence-based prevention and control measures.


---


**Presenting Author(s):**

**Elizabeth Bosserman**
Division of Parasitic Diseases and
Malaria, Centers for Disease Control
and Prevention, Atlanta, GA
EBosserman@cdc.gov

**Contributing Authors**

BL Herwaldt, MD, MPH; Division of Parasitic Diseases and Malaria, Centers for Disease Control and Prevention

**Abstract ID:** 1327616 **Presentation Type:** Breakout Presentation
**Title:** Assessment of National Public Health Laboratory Capacity
**Committee:** Cross Cutting Sub-Committee
**Topic:** Workforce Development
**Keywords:** Workforce|Epi / Lab capacity


**Background:**
The Association of Public Health Laboratories (APHL), in partnership with the University of Michigan Center of Excellence in Public Health Workforce Studies, surveyed Laboratory Directors and workers in public health, agricultural and environmental laboratories (PHEALs) in 2011 to enumerate and characterize the national public health laboratory workforce and assess the capacity of our nation's PHEALs. This presentation summarizes a subset of findings from the National Laboratory Workforce Capacity Assessment.

**Methods:**
Online surveys were distributed by APHL to PHEALs in all 50 states, the District of Columbia, and Puerto Rico. The organizational-level survey used Laboratory Directors as key informants and collected number of workers by degree and job classification, equipment quality, and program capacity. The individual-level survey collected demographics, education, job classification and function, and job satisfaction from laboratorians.

**Results:**
The organizational-level survey garnered a 78% response rate (80/103); the individual-level response rate is approximated at 35% (1942/5498). PHEALs reported 6,599 workers, including 5,498 laboratorians, 804 information technology/informatics staff, and 207 administrative support staff. Program areas with the most laboratorians were environmental chemistry, bacteriology, and laboratory administration. Nearly 60% of laboratorians were classified as Laboratory Scientist; other job classifications included Laboratory Aide/Assistant, Laboratory Technicians, Laboratory Scientist-Supervisor, Laboratory Scientist-Manager, Laboratory Development Scientist, Deputy Director, and Director. Most laboratorians (60%) were trained at the bachelor's degree level, while 25% held master's or doctoral degrees. Laboratorians with college degrees most commonly studied biology/zoology, microbiology, and analytical chemistry. Laboratory instrumentation and equipment quality was rated as fair to very good by all laboratories. Overall capacity to perform necessary activities was also highly rated, with 89% of laboratories reporting full/almost full capacity. No laboratories reported minimal or no capacity. Laboratory quality and safety were the program areas with the highest capacity ratings; lowest capacity was reported for agricultural chemistry and agricultural microbiology. Laboratorians reported highest competency in areas of laboratory safety and instrumentation, and lowest competency in epidemiology, health management, and biostatistics. Job security and benefits were the most important factors for recruitment and retention of workers.

**Conclusions:**
PHEALs report high capacity for performing laboratory services and employ a workforce with the majority educated at the bachelor's degree level or higher. Capacity in agricultural-related program areas is low compared to other PHEAL program areas. More research is needed to define optimal laboratory program area capacity in PHEALs. Regular and systematic characterization of the PHEAL workforce should be a national priority to better understand and monitor factors that impact capacity.


---

**Presenting Author(s):**


**Matthew Boulton**
Center of Excellence in Public Health Workforce Studies, University of Michigan School of Public Health, Ann Arbor, MI
mboulton@umich.edu

**Contributing Authors**

Angela Beck, MPH, CHES, University of Michigan Center of Excellence in Public Health Workforce Studies Deborah Kim, MPH, Association of Public Health Laboratories Jack DeBoy, MPH, DrPH, SM(AAM)

**Abstract ID:** 1325701 **Presentation Type:** Poster Presentation
**Title:** Analysis of 2009 pollen readings in Atlanta, GA, Baltimore, MD and Madison, WI
**Committee:** Environmental Health Sub-Committee
**Topic:** Other Emerging Environmental Epidemiology Issues
**Keywords:** Environmental Health hazards|Emerging health issues|Surveillance

**Background:**
Seasonal allergenic rhinitis, a significant burden to public health, is primarily caused by airborne pollen. Pollen production from similar sources can differ spatially and temporally. Pollen readings for trees, grasses and weeds were analyzed to identify differences and similarities based on three different locations, but for the same temporal window, which was the 2009 pollen season. This study provides an initial baseline for the timing of pollen season in these regions, and a basis for the future development of an environmental public health pollen indicator and surveillance system.

**Methods:**
Pollen readings were available for three different National Allergy Bureau (NAB) certified pollen counting stations in Atlanta, GA, Baltimore, MD, and Madison, WI. The lower limit of the 99.9th percentile was used to determine a location-independent measure for the start, end and duration of the pollen season. Subsequent analyses determined the mean/maximum for total pollen, as well as the relative contribution of tree, grass and weed pollen to the daily total pollen count. For Atlanta and Madison, daily pollen readings were available for specific plant taxa. Daily pollen readings in Baltimore also included observed pollen sources such as the listing of specific tree taxa as well as pollen readings for all trees, grasses and weeds.

**Results:**
The pollen season started earlier (2/27) and lasted longer (196 days) in Baltimore than in Madison (4/18, 148 days). Atlanta had the earliest start of the pollen season (1/7) and it lasted 337 days. While the annual mean for total pollen was lower in Atlanta (19.0 grains/m3) than in Baltimore (131.3) or Madison (160.3), the maximum pollen reading was higher in Atlanta (2345) than in Baltimore (2310) or Madison (1831). The annual mean/maximum values were higher for oak than other tree taxa in Atlanta (133.9/1185) and Madison (72.3/1285). For Baltimore, maple (56 days) and elm (49) tree pollen sources occurred more often than oak (26) pollen. In Atlanta and Madison oak (73 days/56 days) and pine (138/40) tree pollen sources occurred most often.

**Conclusions:**
This analysis of different pollen measures recorded by pollen counting stations in three, spatially dispersed cities in the United States documented expected differences as well as unanticipated similarities in the pollen outcomes measures with regards to pollen season, mean/maximum pollen levels and generic/taxa tree pollen sources. These results could be used to better predict when higher pollen counts will adversely impact known health outcome measures and establish an ongoing pollen surveillance system.

---

**Presenting Author(s):**

**John Braggio**
Div. of Env. Health, Maryland
Department of Health and Mental
Hygiene, Baltimore, MD
jbraggio@dhmh.state.md.us

**Contributing Authors**

Wendy Brunner, PhD, Minnesota Department of Health, St. Paul; Liza Lutzker, MPH, Impact Assessment Inc., for the California Department of Public Health, Richmond; Arie Ponce Managan, MA, Centers for Disease Control and Prevention, Atlanta; Erin F. Simms,

**Abstract ID:** 1322656 **Presentation Type:** Roundtable Presentation
**Title:** Right size virologic surveillance update – how much is enough?
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Influenza
**Keywords:** Influenza surveillance|Infectious Diseases|Epi / Lab capacity

**Brief Summary:**
In 2011, APHL and CDC's Influenza Division launched an initiative to define the 'right-size' for influenza virologic surveillance to support key state, national and global needs and disease prevention efforts. The project's ultimate goal is to develop and implement right-size virologic surveillance guidelines which will assist CDC and public health laboratories (PHL's) in maximizing available resources and redirecting and building new capacity as needed to achieve optimal surveillance. The guidelines will consider the necessary virologic surveillance capacity to support annual prevalence and strain monitoring at local, state and national levels; assure detection of an emergent strain with pandemic potential; monitor anti-viral resistance; and inform vaccine strain selection. This session will provide an update on the "right-size" initiative year one activities and an opportunity for epidemiologists and influenza surveillance coordinators to provide input to guide project outcomes.

**Key Objectives:**
Provide a detailed update of the APHL-CDC influenza virologic surveillance right size initiative and seek input to guide influenza surveillance strategies for development of guidance documents. .

---

**Presenting Author(s):**

**Teresa Brammer**
Centers for Disease Control and Prevention, Atlanta, GA
lsb1@cdc.gov

**Peter Shult**
Wisconsin State Laboratory of Hygiene, Madison, WI
peter.shult@slh.wisc.edu

**Contributing Authors**

Tricia Aden, MT (ASCP) Association of Public Health Laboratories

**Abstract ID:** 1332211 **Presentation Type:** Breakout Presentation
**Title:** Re-designing surveillance for an e-health world
**Committee:** Surveillance/Informatics
**Topic:** Effective interactions between epidemiology and informatics
**Keywords:** Informatics|Information systems|Data/Surveillance

**Background:**
The anticipated increase in electronic laboratory reporting (ELR), the accelerated adoption of interoperable electronic health record (EHR) systems, and the availability of new information such as social media, will have a significant impact on how health departments receive information related to reportable conditions. The large volume of that data creates challenges for knowing which data to act on and which to ignore, and how to effectively disseminate information to the community. The purpose of this project was to collaboratively examine current public health surveillance processes and to redesign them, as needed, to leverage ELR and EHR systems, social media and other data sources, and to improve overall efficiency of public health surveillance activities. The project was supported by a Robert Wood Johnson Foundation grant to the Public Health Informatics Institute (the Institute).

**Methods:**
The Institute convened a workgroup of twelve local and state health department experts working in a variety of surveillance areas. It used its Collaborative Requirements Development Methodology to first conduct rigorous business process analysis on how surveillance of reportable conditions is currently performed. The workgroup was then asked to re-design those processes in light of future data sources (e.g., social media and others), data flows (e.g., automatically and electronically harvesting data from other systems vs. submitted reports to public health), and other anticipated changes in information and information technologies. From these re-designed processes, surveillance system requirements were identified that can be used to improve system design, functionality and interoperability. The workgroup identified a total of 11 business processes for surveillance of reportable conditions. Of these, nine were analyzed and/or re-designed, with detailed task flows and other documentation created. This body of work then was used to derive surveillance system requirements, with the specific goal of determining what surveillance systems will need to do to effectively support surveillance practice into the future.

**Results:**
The requirements developed by the workgroup can be used to enhance existing systems, evaluate competing commercial systems, or create specifications for funding announcements to build or buy a system. The business processes will also be used to assemble a more complete view of the work of public health, including processes that are common across programs that could help lead to development of re-usable system components, as well as better integration and interoperability of systems.

**Conclusions:**
In this presentation we will review the process and results of the project and provide perspective on the value of the process and work products from a workgroup member. The results will guide the development of a white paper on the informatics implications of surveillance in an e-health world.

---

**Presenting Author(s):**

**Bill Brand**
Public Health Informatics Institute,
Decatur, GA
bbrand@phii.org

**Contributing Authors**

Vivian Singletary, Public Health Informatics Institute

**Abstract ID:** 1331878 **Presentation Type:** Breakout Presentation
**Title:** Economic costs of excessive alcohol consumption in the U.S., 2006
**Committee:** Cross Cutting Sub-Committee
**Topic:** Substance abuse epidemiology: Burden of alcohol and opiate use, Polices related to substance abuse
**Keywords:** Alcohol|Binge drinking|Epidemiology

**Background:**
Excessive alcohol consumption is responsible for an average of 80,000 deaths and 2.3 million years of potential life lost in the United States each year. It is also known to have a substantial economic impact. However, the economic cost of excessive drinking has not been estimated since 1998.

**Methods:**
We used U.S. Public Health Services Guidelines to assess the economic cost of excessive alcohol consumption in 2006. Costs due to productivity losses, health care, crime, and other effects (e.g. property losses) were obtained from national databases, and the proportion of these costs that were attributable to excessive alcohol consumption was then assessed. Total costs were stratified by drinking pattern (e.g., binge drinking); risk group (e.g., underage drinkers); and payer (e.g., government).

**Results:**
The economic cost of excessive drinking in 2006 was $223.5 billion, or about $1.90 per alcoholic drink. Most (72%) of these costs were due to lost productivity, followed by healthcare (11.0%) and criminal justice expenses (9.4%). Binge drinking was responsible for $170.7 billion (76%) of the total costs, and $27.0 billion (12%) of the costs involved underage youth. The cost to government was $94.2 billion (42.1%), or $0.80 per drink.

**Conclusions:**
The economic cost of excessive drinking in the U.S. increased from $185 billion in 1998 to about $224 billion in 2006, and most of these costs were due to binge drinking. Community Guide recommendations for reducing excessive alcohol consumption (e.g., increasing alcohol excise taxes and regulating alcohol outlet density) should be widely implemented.

---

**Presenting Author(s):**

**Robert Brewer**
Centers for Disease Control and
Prevention, Atlanta, GA
bbrewer1@cdc.gov

**Contributing Authors**

Ellen Bouchery, MS, Mathematica Policy Research; Henrick J. Harwood, National Association of State Alcohol and Drug Abuse Directors (NASADAD); Carol J. Simon, PhD, The Lewin Group, Inc.; Jeff Sacks, MD, MPH, Sue Binder Consulting, Inc.

**Abstract ID:** 1273870 **Presentation Type:** Breakout Presentation
**Title:** Occupational Health Indicators in North Dakota, 2004 - 2008
**Committee:** Occupational Health Sub-Committee
**Topic:**
**Keywords:** Occupational Surveillance|Work-related fatalities|Workplace safety

**Background:**
Occupational health surveillance can guide efforts to improve worker safety and health and to monitor trends and progress over time. Each year thousands of North Dakotans are affected by preventable work-related injuries and illnesses yet no comprehensive occupational health surveillance system exists in ND.

**Methods:**
The Council for State and Territorial Epidemiologists (CSTE) developed the Occupational Health Indicators (OHIs) as a way for state governments to take 'snapshots' of worker health in their respective states. The Midwest Center for Occupational Safety and Health (MCOSH), in collaboration with the National Institute for Occupational Safety and Health (NIOSH) Western States Office, Denver, has prepared a data-driven report to provide a baseline occupational health profile of the ND workforce. A core set of data was abstracted from multiple existing state and national datasets for the years 2004-2008 to describe worker demographics, measures of work-related health and factors that influence worker health. Of the 20 indicators, 13 report work-related injury and illness; 3 describe potential workplace health and safety hazards; 2 examine intervention activities; 1 measures harmful workplace exposures; and 1 describes the social and economic effects of work-related injuries and illnesses. A summary of key findings, data limitations and recommendations are reported here.

**Results:**
For the years 2004 to 2008, rates of work-related fatalities in ND were higher than overall US rates. The percent of workers employed in industries and occupations at high risk for occupational mortality was higher than national rates. A significant gap in data and need for workplace health surveillance in ND is non-fatal work-related injuries and illnesses. ND is one of seven states that does not participate in the Survey of Occupational Injuries and Illnesses (SOII). The SOII collects data on nonfatal work-related injuries and illnesses reported by employers. These data are helpful in describing the burden of injuries and illnesses that occur in the workplace. Additionally, ND is one of ten states that does not participate in the Adult Blood Lead Epidemiology and Surveillance (ABLES) program, a state-based surveillance program of laboratory-reported adult blood lead levels.

**Conclusions:**
The importance of occupational health and safety surveillance programs remains high in North Dakota. The OHIs offer a summary of worker health and safety issues and allow for comparison to the US and other states. The OHI report can be used to communicate with industry, government, and policy makers about the importance of worker health and safety issues, especially related to injuries in the workplace.

---

**Presenting Author(s):**

**Anna Briggs**
Midwest Center fo Occupational
Safety and Health, University of
Minnesota School of Public Health,
Minneapolis, MN
brigg096@umn.edu

**Contributing Authors**

Kaylan Stinson, MSPH, Mountain and Plains Education and Research Center, Colorado School of Public Health; Pat McGovern, PhD, MPH, RN, Midwest Center for Occupational Safety and Health, University of Minnesota School of Public Health

**Abstract ID:** 1327317 **Presentation Type:** Poster Presentation
**Title:** Norovirus at a wildland firefighter base camp — Idaho, 2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Foodborne/waterborne disease
**Keywords:** Foodborne disease|Outbreak investigations

**Background:**
During 1998–2009 in the United States, 1of 3,673 reported foodborne norovirus outbreaks was known to have occurred at a wildland firefighter base camp. On September 3, Idaho public health officials were notified of an outbreak of >35 acute gastroenteritis cases among ~180 responders at such a camp. We investigated to determine the outbreak magnitude and source.

**Methods:**
We defined a case as vomiting or diarrhea of any duration on or after September 2 in a camp-associated responder. We examined illness by responder group. We tested stool samples for norovirus by reverse-transcription polymerase chain reaction and cultured for bacteria. We inspected restaurant A.

**Results:**
Forty-nine cases were identified among ~180 responders (attack proportion ~27%); 2 (4%) hospitalizations occurred. Ill responders were incapacitated for ?1 day. Of 20 responder groups, 11 (55%) reported ?1 case; 5 (25%) reported ?66% members ill. Of 13 responder groups, 8 (89%) of 9 responder groups of 1–22 persons who had eaten at Restaurant A on September 1 and 0 (0%) of 4 groups of 10–21 persons who had not, had ?1 ill member (Fisher's exact test P = 0.01). Five secondary cases among 4 responder groups were identified. Stool samples from 2 ill persons were positive for norovirus GII. Critical violations identified at restaurant A were lack of demonstrable knowledge of food safety practices and young children (1 ill on August 31) in food preparation areas; no postopening inspection had occurred.

**Conclusions:**
Improper food safety practices that might have been corrected by a postopening inspection at restaurant A contributed to a norovirus outbreak at a wildland firefighter base camp. Norovirus can decrease workforce capacity at wildland fires.

---

**Presenting Author(s):**

**Carla Britton**
CDC/Idaho Department of Health and
Welfare, Boise, ID
vib6@cdc.gov

**Contributing Authors**

Ken Keller, BS, Southeastern District Health Department Maggie Mann, BS, Southeastern District Health Department Christine Hahn, MD, Idaho Department of Health and Welfare Kris Carter, DVM MPVM, Idaho Department of Health and Welfare and Centers for Disea

**Abstract ID:** 1327502 **Presentation Type:** Poster Presentation
**Title:** Evaluation of I-Suite and SMIS for wildland firefighter injury and illness surveillance
**Committee:** Occupational Health Sub-Committee
**Topic:** Epidemiology and surveillance of workers involved in emergency response
**Keywords:** Occupational Surveillance|Emergency response

**Background:**
Five federal agencies from 2 departments have direct wildland firefighting responsibilities and surveil firefighter injury and illness events to assess the magnitude of events, identify risk factors, evaluate trends, and develop prevention strategies. We evaluated the ability of two surveillance systems — I-Suite, for voluntary multiagency use at fires, and the U.S. Department of Interior's (DOI's) mandated worker compensation reporting system, SMIS, to capture these events.

**Methods:**
We compared 2007 data from I-Suite with SMIS and examined I-Suite data for 2007–2011. We observed I-Suite use at 2 fires and interviewed 4 system users. We interviewed risk management staff from 3 federal agencies.

**Results:**
During 2007, events among DOI employees could have been captured in both I-Suite and SMIS at 35 fires. At 23 (66%) fires, I-Suite captured 761 events, including 330 (43%) injuries. At 16 (46%) fires, SMIS captured 60 events, including 45 (75%) injuries. SMIS also captured 210 events on ~127 additional fires. Of 5 viral infections reported in I-Suite, 3 (60%) were reported as illness. Of 2 viral infections reported in SMIS, 2 (100%) were reported as illness. Any I-Suite event can be classified as injury or illness; in 23 (43%) of 54 conditions, events were classified in either category. Because I-Suite data lack personal identifiers, sensitivity cannot be calculated. During 2007–2010, I-Suite was used at 7%–18% of fires at which I-Suite use was feasible. Barriers to use include confidentiality concerns and time constraints.

**Conclusions:**
Because I-Suite and SMIS overlap incompletely, use of both is desirable. System performance can be improved by standardizing condition classification, assigning unique identifiers to firefighters to allow record comparison, and overcoming low acceptability of I-Suite.

---

**Presenting Author(s):**

**Carla Britton**
CDC/Idaho Department of Health and
Welfare, Boise, ID
vib6@cdc.gov

**Contributing Authors**

Kris Carter, DVM MPVM, Idaho Department of Health and Welfare and Centers for Disease Control and Prevention

**Abstract ID:** 1321893 **Presentation Type:** Breakout Presentation
**Title:** Enhancing the national framework for animal rabies reporting and data sharing
**Committee:** Surveillance/Informatics
**Topic:** Electronic disease surveillance systems (e.g., EDSS, NEDSS, etc.)
**Keywords:** Rabies|Animals and Public Health|Surveillance

**Brief Summary:**
Rabies is a reportable zoonotic disease in nearly all states and a nationally notifiable condition. Human rabies prevention and control activities require knowledge of the circulation of rabies in animal species responsible for transmitting rabies to humans. However, because rabies is the only nationally notifiable disease in the public health system that involves reporting disease in animals, current systems are poorly suited to provide the detailed data submission necessary for adequate surveillance. Current national electronic reporting systems (i.e. NEDSS and NETSS) are only sufficient for case notification of disease in humans and are not well suited for submitting data elements that are critical for rabies surveillance (e.g. animal species, total lab submissions, etc.). Historically these limitations have been addressed by having states submit electronic data files directly to the CDC rabies program on a monthly or annual basis. This adjunct method has allowed for data collection on more than 120,000 animals submitted for rabies diagnosis on an annual basis and allows inclusion of additional critical data elements not captured in the national notifiable disease surveillance system. However, this ad hoc system lacks a standard reporting format and consistent submission periodicity which results in significant delays for routine analysis of rabies surveillance data. Recent efforts to improve electronic reporting of animal rabies data have focused on establishing a messaging guide for submitting data via PHINMS. Currently, 10 states are submitting weekly updates using this system which uses a standard messaging guide and data structure, but does not currently require a standard vocabulary for data elements. The CDC Rabies program has also initiated development of the Rabies Surveillance Network (RSN) which will be an online portal for sharing national rabies surveillance data between jurisdictions and potentially tri-nationally under the North American Rabies Management Plan framework. The roundtable discussion will focus on addressing limitations of the current animal rabies reporting systems, facilitating data sharing, and identifying additional strategies for improvement.

**Key Objectives:**
Discuss -Strengths and weaknesses of the current systems for submitting animal rabies durveillance data -Sharing surveillance data across jurisdictions and data use agreements -Current development of the Rabies Surveillance Network (RSN) system as a portal to facilitate access to rabies surveillance data -Strategies for improving the national animal rabies surveillance system

---

**Presenting Author(s):**

**Catherine Brown**
Massachusetts Department of Public Health, Jamaica Plain, MA
catherine.brown@state.ma.us

**Jesse Blanton**
Centers for Disease Control and Prevention, Atlanta, GA
asi5@cdc.gov

**Abstract ID:** 1329609 **Presentation Type:** Breakout Presentation
**Title:** Stroke mortality and geographic disparities in drive times to Georgia Coverdell Acute Stroke Registry facilities
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Using Geographic Information Systems (GIS) for CD/MCH/OrH Epidemiology
**Keywords:** Geographic Information Systems|Strokes|Health disparities

**Background:**
In 2007, Georgia's age-adjusted stroke mortality rate was 17% higher than the national rate. The Georgia Coverdell Acute Stroke Registry (GCASR) aims to improve the care of acute stroke patients in the hospital setting. Recent research suggests that disparities exist in timely access to facilities with stroke care quality improvement initiatives in Georgia. Timely access to health care is critical in improving stroke patient outcomes. We sought to update previous research by analyzing socio-demographic disparities and stroke mortality risk by drive time to GCASR facilities.

**Methods:**
We defined 30-minute drive-time areas to GCASR facilities using ESRI ArcGIS 10.0 software. We calculated the proportion of the population in 2008 living within drive time areas by race, sex, ethnicity, and socioeconomic factors. Geographic centroids were used to determine whether census tracts were inside or outside the drive time areas. Stroke mortality rates were calculated by race, sex, and for Georgians 65 and older.

**Results:**
Overall, 85% of Georgians and 81% of Georgians over 65 years lived within thirty minutes of a GCASR facility. Significant disparities among those within thirty minutes of a GCASR facility were found by race, education, and poverty. The greatest disparity was found for low education (21.4% of those living outside the areas had less than a high school education, versus16.7% of those living inside). The stroke mortality rate was 130% greater for people living outside the area (RR=2.3 (CL: 2.1, 2.5)). Both sex and race groups demonstrated similar results, with those living outside the area having higher stroke mortality rate than those living inside. Results were similar for stroke mortality risk ratios when analyzing only Non-Metro Atlanta counties; however disparities by drive time for education and income increased.

**Conclusions:**
In 2008, approximately 14.5% of Georgians lived more than 30 minutes away from a GCASR facility. Stroke mortality was at least twice as high for race and sex groups more than thirty minutes away from GCASR facilities. That findings were similar when excluding metropolitan Atlanta suggests that high hospital density in Atlanta may not influence stroke mortality rates as much as other factors. Overall, access to GCASR facilities is associated with decreased risk of stroke mortality. These findings can inform existing strategies to improve stroke care and outcomes in Georgia.

---

**Presenting Author(s):**

**Michael Bryan**
Georgia Department of Public Health,
Georgia Department of Public Health,
Atlanta, GA
mibryan@dhr.state.ga.us

**Contributing Authors**

Lydia Clarkson, MPH, Georgia Department of Public Health Moges Ido, MPH, Georgia Department of Public Health

**Abstract ID:** 1329826 **Presentation Type:** Breakout Presentation
**Title:** A Clostridium difficile infection prevention project involving collaborative groups of long term care facilities: Initial challenges and lessons learned
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Healthcare associated infections (HAI)|Collaboration|Challenges and Opportunities

**Background:**
The goal of the project is to reduce Clostridium difficile infection (CDI) rates in New York State long term care facilities (LTCFs) through the formation of collaborative CDI prevention groups. Each group involves infection control (IC) staff from LTCFs surrounding and sharing patients with the community's acute care hospital. The initial challenges in project design and recruitment of LTCFs for this collaborative project are described.

**Methods:**
Statewide hospital discharge data from 2010 and a LTCF address database were used to quantify the degree of patient sharing between LTCFs and hospitals within communities. Collaborative groups were formed around hospitals and included LTCFs which sent the majority of their patients to the hospital and which collectively comprised the majority of the hospital's LTCF admissions. Staff members primarily responsible for infection prevention at the identified LTCFs were asked to participate in this voluntary project. Signed approval from LTCF administrators was also obtained. All challenges during conception, design, and recruitment for this project were documented, and reasons for declination were recorded.

**Results:**
Several challenges were encountered during conception, design and recruitment. First, concern about LTCFs' willingness to voluntarily provide infection data that might be publically releasable necessitated completion of a process designating project data as confidential under New York Public Health Law. Additionally, patient transfer patterns did not closely relate to the geographic distance between LTCFs and hospitals, requiring the establishment of alternate criteria based on discharge data to define collaborative groups. Limitations of the discharge database (e.g. inaccurate reporting of LTCF residence, variations in LTCF addresses) led to the need for a cumbersome, partially-manual process to quantify patient transfer patterns in each community. Workload issues, multiple job responsibilities, and high turnover of LTCF IC staff were barriers to communication and recruitment despite expressions of interest in the project, and a perception that CDI is not a problem in the LTCF or that CDI comes from hospitals led to declinations. Finally, consent from LTCF administration was often difficult to obtain.

**Conclusions:**
These challenges lengthened the design and recruitment process. Lessons learned include the need to ensure during project design that data can legally be kept confidential and the importance of understanding the limitations of geographic criteria when forming collaborative groups. Additionally, inclusion criteria should be broad enough to allow for a substantial number of declinations, and education regarding CDI in LTCFs may be necessary for both LTCF IC staff and administration.

---

**Presenting Author(s):**

**Nicole Bryan**
New York State Department of Health,
Albany, NY
nms03@health.state.ny.us

**Contributing Authors**

Emily C. Lutterloh, MD, MPH, New York State Department of Health, Valerie B. Haley, MS, New York State Department of Health, Allison L. Braden, BA, New York State Department of Health, Debra S. Blog, MD, MPH, New York State Department of Health, Carole L.

**Abstract ID:** 1327268 **Presentation Type:** Poster Presentation
**Title:** Chemical poisonings among Kentucky workers, 2000-2010
**Committee:** Occupational Health Sub-Committee
**Topic:** Emerging issues in occupational health
**Keywords:** Occupational exposure|Chemical and biological exposures|Lead

**Background:**
Background: The Bureau of Labor Statistics estimates that there were approximately 2,800 occupational poisoning cases in the US in the year 2001. The objective of the present study was to enumerate and characterize occupational poisonings due to chemicals in Kentucky.

**Methods:**
Methods: A descriptive quantitative and qualitative study of occupational chemical poisonings was performed utilizing Kentucky Department of Workers' Claims data for years 2000-2010.

**Results:**
Results: There were 602 first reports of injuries for chemical poisonings submitted to the Kentucky Department of Workers' Claims for years 2000-2010, with an average of 55 cases per year. Almost all of the occupational chemical poisonings involved exposure of multiple body systems or multiple body parts (n=509). Of the chemical poisonings, 12% (n= 70) were due to exposure to metals. Ten percent of the poisoning victims inhaled chemical dust, gases, fumes or vapors. One-quarter of the chemical poisonings occurred in the services industry; approximately one-fifth of all chemical poisonings occurred in the manufacturing sector and in the public administration sector. Specific industrial chemical poisoning reports were in the executive offices industry (n=71), eating places (n=40), help supply services (n=28), general medical and surgical hospitals (n=19), and in colleges and universities (n=19). The majority of the first reports of injury (91%) did not result in workers' compensation awards; only 32 workers received a workers' compensation award due to the chemical exposure. Three worker fatalities resulted from occupational exposure to chemicals. The highest numbers of chemical poisonings were among laborers (except construction) (n=67), police and detectives (n=43), miscellaneous machine operators (n=35), and retail sales workers (n=28). Eighteen percent (n=106) of all occupational chemical poisonings were due to carbon monoxide exposures; 9% were due to workplace lead exposures (n=56), 4% were due to chlorine exposures (n=24), and 3% were due to exposure to tobacco while harvesting (n=21).

**Conclusions:**
Conclusions: A comprehensive data analysis of multiple public health datasets should be conducted to fully characterize occupational chemical exposures.

---

**Presenting Author(s):**

**Terry Bunn**
Kentucky Injury Prevention and
Research Center, University of
Kentucky, Lexington, KY
tlbunn2@uky.edu

**Contributing Authors**

Svetla Slavova, PhD, University of Kentucky

**Abstract ID:** 1393101 **Presentation Type:** Late Breaker: Breakout Presentation
**Title:** Multi-county outbreak of community-acquired pneumonia —West Virginia, 2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Respiratory diseases, non-influenza
**Keywords:** Outbreak investigations |Respiratory diseases: Non-influenza|School health

**Background:**
Background: Mycoplasma pneumoniae (MP) is a leading cause of pneumonia in children and young adults. In October 2011, the West Virginia Bureau for Public Health (WVBPH) was notified of an increase in chest x-ray confirmed pneumonia among school children in counties A and B. Preliminary testing of nasopharyngeal (NP) swabs among suspected cases suggested MP as a potential etiology. With assistance from the Centers for Disease Control and Prevention (CDC), WVBPH characterized the outbreak, confirmed the etiology, and implemented control measures.

**Methods:**
Methods: Active surveillance was conducted at all schools and primary care provider clinics in counties A and B during October 28–December 25, 2011. Case patients with mycoplasma-like-illness (MLI) were residents, students, or school employees from county A or B with cough ?3 days and fever ?100°F. Cases were confirmed by either chest radiograph (CXR) or by detection of MP by real-time polymerase chain reaction (qPCR) in oropharyngeal (OP) or NP swabs. Case patients were administered questionnaires to collect demographics and risk factor information. Communication was established among public health, schools, health care providers, and the public to facilitate outbreak control. Symptomatic persons were excluded from school, and families were educated about hand hygiene and cough etiquette.

**Results:**
Results: One hundred twenty-five cases were identified in the two counties (23 qPCR-confirmed, 39 CXR-confirmed, 63 MLI). Forty-three OP or NP swabs were collected among cases, of which 23 (53%) were mycoplasma-positive. Nine cases (18.7%) were confirmed by both CXR and pPCR. Eighty-three case patients (66%) attended or worked at schools in counties A (5 schools) or B (3 schools). The median school attack rate was 5.2% (range: 3.5%–8.0%) in county A, and 3.6% (range: 1.5%–7.7%) in county B. The median age of case patients was 10.2 years (range: 7 days–65 years) and 29 (25%) reported a history of asthma. There were no extrapulmonary sequlae or fatalities. The last case was identified on December 14, 2011.

**Conclusions:**
Conclusions: This was an unusually large community outbreak of laboratory-confirmed MP concentrated among school-aged children that was well-characterized by active surveillance. Outbreak control was successful due to the ongoing communication between parties. Increased physician awareness and early identification of MP as the etiology allowed prompt implementation of control measures and guided appropriate clinical case management. Additionally, education of students, parents, and teachers about MP prevention contributed to the successful control of the outbreak.

---

**Presenting Author(s):**

**Patrick Burke**
Mid-Ohio Valley Health Department,
Parkersburg, WV
patrick.c.burke@wv.gov

**Contributing Authors**

Katherine Fleming-Dutra, MD, Epidemic Intelligence Service (EIS), Centers for Disease Control and Prevention (CDC), Robert Posey, BS, Lewis County Health Department, Brenda Smith, BSN, Gilmer County Health Department, Laura Steinhardt, PhD, EIS, CDC, Kamil Barbour, PhD, EIS, CDC, Jessica Woods, BS, Mid-Ohio Valley Health Department, Thein Shwe, MPH, Division of Infectious Disease Epidemiology (DIDE), West Virginia Bureau for Public Health (WVBPH), Leann Newell, BSN, Minnie Hamilton Health System, Alvaro Benitez, BS, National Center for Immunization and Respiratory

Disease (NCIRD), CDC, Kathleen Thurman, MS, NCIRD , CDC, Maureen Diaz, PhD, NCIRD, CDC, Bernard Wolff, BS, NCIRD, CDC, Agnes Warner, BA, NCIRD, CDC, Sherif Ibrahim, MD, DIDE, WVBPH, Laura Conklin, MD, NCIRD, CDC, Loretta Haddy, PhD, WVBPH, Jonas Winchell, PhD, NCIRD, CDC

**Abstract ID:** 1311019 **Presentation Type:** Breakout Presentation
**Title:** Enhancing rabies surveillance and timeliness of case notification: An automated solution using electronic laboratory reporting — Nebraska, 2011
**Committee:** Surveillance/Informatics
**Topic:** Electronic laboratory reporting
**Keywords:** Electronic laboratory reporting (ELR)|Surveillance|Rabies

**Background:**
Enhanced laboratory-based rabies surveillance is a critical component of rabies prevention and control programs. Accurate and timely rabies reporting is necessary to define rabies epidemiology, assess animal vaccination programs, and guide case management of potentially exposed humans or animals. To facilitate such activities, the Compendium of Animal Rabies Prevention and Control recommends that electronic laboratory reporting (ELR) be implemented and integrated with standard public health reporting and notification systems. Accordingly, Nebraska Department of Health and Human Services (NDHHS) collaborated with Kansas State University Veterinary Diagnostic Laboratory (KSUVDL) to establish ELR of animal rabies test results to Nebraska's Electronic Disease Surveillance System (NEDSS).

**Methods:**
During July 2011, NDHHS and KSUVDL agreed to establish ELR of rabies test data. Previously, test results and limited surveillance data from paper laboratory requisitions were reported manually by KSUVDL staff to NDHHS epidemiologists via daily e-mails. Beginning August 1, 2011, KSUVDL expanded the amount of test requisition information included in a comma separated electronic file, including laboratory diagnostic number; test date; submitter's name and city; animal location, species, breed, and vaccination status; human bitten (Y/N) and exposure history; animal contact (Y/N) and history; and test result. As of December 1, 2011, this electronic data file, updated daily, has been automatically messaged to NDHHS via PHINMS (Public Health Information Network Messaging System), converted to HL7 format, and imported (migrated) into the NEDSS system. During the first quarter of 2012, NDHHS plans to make rabies ELR data fully accessible to local health department (LHD) staff via NEDSS. Laboratory data will be supplemented with associated investigation information to create a detailed and comprehensive rabies epidemiology line-list spreadsheet for daily extraction from NEDSS.

**Results:**
Between August 1 and December 1, 2011, KSUVDL provided 537 rabies test reports to NDHHS NEDSS via automated ELR (387 bats, 62 cats [7 vaccinated], 32 dogs [11 vaccinated], 20 raccoons, 14 cattle [none vaccinated], 6 skunks, and 16 other species); 12 (2.2%) were positive (7 bats, 3 skunks, 1 cat, and 1 horse), 6 of which included a report of human exposure. Of the 537 records, 172 (32.0%), 123 (22.9%), and 102 (19.0%) included reports of animal, human non-bite, and human bite potential exposures, respectively.

**Conclusions:**
NDHHS and KSUVDL have successfully established automated ELR of animal rabies testing results. Anticipated enhancements include an Internet-based test requisition to electronically capture more robust exposure-related data for subsequent messaging to NDHHS NEDSS and availability for case management.

---

**Presenting Author(s):**

**Bryan Buss**
Office of Epidemiology, Nebraska Department of Health and Human Services, Lincoln, NE
bryan.buss@nebraska.gov

**Contributing Authors**

Thomas J Safranek, MD Nebraska Department of Health and Human Services

**Abstract ID:** 1332658 **Presentation Type:** Breakout Presentation
**Title:** Development of "potential for impact" maps to focus efforts to reduce obesity through environmental changes as part of the Communities Putting Prevention to Work (CPPW) program.
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Using Geographic Information Systems (GIS) for CD/MCH/OrH Epidemiology
**Keywords:** Geographic Information Systems|Community health|Measuring Social Inequality

**Background:**
The Douglas County Health Department was awarded a grant from the U.S. Department of Health and Human Services' Communities Putting Prevention to Work (CPPW) initiative to support public health efforts to combat chronic disease and promote health. The project goal is to improve healthy lifestyles and behaviors of county residents by implementing environmental changes and policies in the community. To determine where the highest impact of our efforts could be made, we utilized available study data and GIS technology to identify the areas in the community that would most benefit from such interventions.

**Methods:**
The county was broken into 5 regions (SE Omaha, NE Omaha, SW Omaha, NW Omaha, and Western Douglas County). These regions were sub-divided into census tracts and block groups. Each block was assigned a score by combining rank scores for each of 5 factors: fruit/vegetable consumption, obesity rate, physical activity (from local community health assessment survey data), median income, and population density. The median income data was available by census tract (ESRI Demographics Data Update) and population density (residents per square mile) by census block (Census 2000). The median income score for each census tract was assigned to each block group within that tract. The rank scores for each factor were summed and the total scores were broken into quartiles, with each quartile having a distinct shade on the map to indicate potential for impact.

**Results:**
The block groups with scores in the highest point range were color-coded a deep maroon to indicate the areas of greatest risk. We found that the greatest areas of risk/need were concentrated in the lower northeastern portion of the county, with small pockets of need in the southeast and north central areas. As the census tract scores went down, their color-coding (in earth tones) became lighter accordingly. The areas with the lowest potential for impact (the lowest point range) were color-coded a light yellow. The lowest risk areas were primarily all concentrated in the southwestern area of the county.

**Conclusions:**
The impact maps that were developed identified areas of need and assisted in the allocation of resources and project activities to ensure positive outcomes. In addition, the maps proved to be valuable communication tool that demonstrated the successes of the grant.

---

**Presenting Author(s):**

**David Busse**
Douglas County Health Department,
Omaha, NE
david.busse@douglascounty-ne.gov

**Contributing Authors**

Mary Balluff, MS, RD, Douglas County Health Department Anne O'Keefe, MD, MPH, Douglas County Health Department Adi Pour, PhD, Douglas County Health Department

**Abstract ID:** 1321809 **Presentation Type:** Breakout Presentation
**Title:** Community Assessment for Public Health Emergency Response (CASPER) one year following the Gulf Coast Oil Spill— Alabama and Mississippi, 2011
**Committee:** Environmental Health Sub-Committee
**Topic:** Disaster epidemiology: tools, data, experiences, and challenges
**Keywords:** Community health assessment|Emergency response|Mental health

**Background:**
On April 20, 2010, the Deepwater Horizon drilling unit exploded off the coast of Louisiana, resulting in 11 deaths and the largest marine petroleum release in history. Previous oil spill disasters have been associated with negative mental health outcomes in affected communities. In response to requests from Mississippi and Alabama, we identified potential mental health issues resulting from this event by implementing a novel use of a Community Assessment for Public Health Emergency Response (CASPER) in the months immediately following the Gulf Coast oil spill. We repeated this assessment one year later to determine long-term mental health needs and changes.

**Methods:**
We used a two-stage cluster sampling method to select a representative sample of 210 households from three separate sampling frames used in 2010, two in Alabama and one in Mississippi. We administered a questionnaire that included standardized behavioral health questions that were adopted from Behavioral Risk Factor Surveillance System (BRFSS). We conducted individual and household weighted cluster analysis and compared BRFSS questions to the most recent (2006 and 2009) state and national BRFSS reports and the 2010 CASPER results.

**Results:**
Among the sampling frames, 8.8-15.1% of individuals reported depressive symptoms in 2011 compared to 15.4–24.5% of individuals in 2010, with 13.2-20.3%reporting symptoms consistent with an anxiety disorder compared to 21.4–31.5% of individuals in 2010, and 13.2-18.3% reporting 14 or more mentally unhealthy days in the past 30 days compared to 16.3–22.8% of individuals in 2010. Overall, a higher proportion of negative quality of life indicators and social context outcomes were reported as compared to BRFSS surveys, but these proportions were lower than those seen in the 2010 CASPERs. When responses were stratified by self-reported change in income following the oil spill, respondents reporting decreased income following the oil spill were more likely to report poor mental health symptoms compared to respondents reporting no change or an increase in income following the oil spill.

**Conclusions:**
Although mental health concerns appear to have decreased in 2011 compared to 2010, the proportion of individuals with mental health symptoms is higher in the 2011 assessments than in the 2009 Alabama, Mississippi, and nation-wide BRFSS estimates and higher in populations experiencing decreased income following the oil spill. Together, this suggests that mental health services are still needed in the area, particularly in households who have experienced decreased income as a result of the oil spill.

---

**Presenting Author(s):**

**Danielle Buttke**
NCEH/EHHE/HSB, Centers for Disease Control and Prevention, Chamblee, GA
iyk7@cdc.gov

**Contributing Authors**

Sara Vagi, PhD, National Center for Environmental Health, Centers for Disease Control and Prevention (NCEH/CDC); Tesfaye Bayleyegn, MD, NCEH/CDC; Amy Schnall, MPH NCEH/CDC ; Melissa Morrison, MPH, Alabama State Department of Health and CDC Career Epidem

**Abstract ID:** 1277883 **Presentation Type:** Poster Presentation
**Title:** Putting National Toxic Substance Incidents Program data on the map: Hazard awareness and emergency planning through partnership
**Committee:** Environmental Health Sub-Committee
**Topic:** Surveillance and response to chemical/radiologic emergencies, including National Toxic Substance Incidents Program (NTSIP)
**Keywords:** Environmental exposures|Geographic Information Systems

**Background:**
One of the goals of the National Toxic Substance Incidents Program (NTSIP) and its state partners is to increase a community's understanding and awareness of toxic substances and the potential risk posed by close proximity to these substances. To accomplish this goal, Oregon's Hazardous Substances Incident System (HSIS) program partnered with a local emergency planning committee (LEPC) to map chemical hazards in two counties.

**Methods:**
Oregon HSIS partnered with other programs in the Public Health Division to create and prioritize indicators of social justice. Pertinent Census 2010 data were obtained by Oregon census tract. Hazardous materials data were obtained from the Oregon Office of the State Fire Marshal. All HSIS events in the LEPC area from 2006–2010 were identified and mapped. The LEPC provided a list of priority chemicals of concern, including ammonia, chlorine, fluorine, and sodium hydroxide. Other data used in the maps included hospitals, schools, day care providers, and adult care facilities. In addition, the LEPC provided a list of addresses of potential vulnerable population centers, which were geocoded. All maps were created with ArcMap version 10.

**Results:**
HSIS events in the LEPC area from 2006–2010 were mapped with the Census data overlayed. Other maps showed facilities storing priority chemicals. The geocoded vulnerable population centers obtained from the LEPC were included as a layer on each of the maps. Maps were shared with the LEPC, and discussions of each map were conducted via conference call. Maps were amended based on feedback from the LEPC. Plans were made to share the maps at an upcoming LEPC meeting, and use them during a large scale chlorine exposure exercise scheduled for September of 2012.

**Conclusions:**
State NTSIP programs play an important role in toxic substances communication awareness and education. Partnering with LEPCs on projects such hazard mapping benefits both the local community as well as other agencies that may need to utilize the data (e.g. State Departments of Environmental Quality). Feedback from the LEPC is an important component of the partnership, as it assures that the maps and data are as useful to the community as possible.

---

**Presenting Author(s):**

**Dan Cain**
Oregon Department of Human
Services, Portland, OR
daniel.t.cain@state.or.us

**Contributing Authors**

Jaime Walters, MPH (Oregon Public Health Division)

**Abstract ID:** 1330614 **Presentation Type:** Roundtable Presentation
**Title:** Policies for eliminating healthcare-associated infections: Lessons from states
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Healthcare associated infections (HAI)|Policy/Policy Development|Public health law

**Brief Summary:**
Healthcare-associated infections (HAI) are preventable, yet they affect 1 in 20 patients in U.S. hospitals and result in outbreaks and adverse impacts across the continuum of care. There is a critical need for comprehensive programs to eliminate HAI. The Association of State and Territorial Health Officials (ASTHO) and the Centers for Disease Control and Prevention (CDC) have collaborated since July 2010 to advance state-level healthcare-associated infection (HAI) prevention efforts. In March 2011, ASTHO and CDC jointly released the toolkit Eliminating Healthcare-Associated Infections: State Policy Options, available at www.astho.org/HAI_Policy_Toolkit. This toolkit (phase I of the project) provides guidance to policy-makers on various promising ways to use legal and policy interventions to implement a comprehensive HAI prevention program. The phase II report, to be released in January 2012, is titled Policies for Eliminating Healthcare-Associated Infections: Lessons from State Stakeholder Engagement. Phase II builds on the HAI policy toolkit and examines the early impact of policy. The 150 participating stakeholders included state and local health agencies, consumer and patient groups, quality improvement organizations, hospitals and hospital associations, outpatient settings, healthcare professionals, and healthcare payers. Participants in this session will learn more about the ASTHO and CDC policy materials, hear the perspective of a state health official on the role of public health in HAI prevention, and learn from states implementing policies to prevent HAI. There will be an emphasis on mandatory public reporting at the state level (beyond CMS requirements), its role in generating data for prevention, and best practices for implementation (e.g., data validation, phasing in of requirements, and coordination with local health). Participants will also be invited to share their successes and challenges. Following the meeting, session leads will provide technical assistance to participants as they use the policy materials and facilitate peer-to-peer technical assistance to allow participants to learn from one another.

**Key Objectives:**
Discussion points: state policies to prevent HAI Presenters: (1) state health official to provide opening remarks (2) CDC/ASTHO to provide overview of HAI policy materials (3) HAI coordinators to discuss implementation of HAI policy, including mandatory public reporting

---

**Presenting Author(s):**

**Catherine Cairns**
Association of State and Territorial Health Officials, Arlington, VA
ccairns@astho.org

**Elizabeth Skillen**
Centers for Disease Control and Prevention, Atlanta, GA
ews3@cdc.gov

**Contributing Authors**

Catherine Cairns, MPH (ASTHO), Cecilia Curry, PhD (CDC), Elizabeth Mothershed, MS (CDC), Matthew Penn, JD, MLIS (CDC), Tara Ramanathan JD, MPH (CDC), Elizabeth Skillen, PhD (CDC), Kathy Talkington, MPAff (ASTHO), Jackie Watkins, MPH (CDC)

**Abstract ID:** 1327553 **Presentation Type:** Breakout Presentation
**Title:** Translating data into public health action: Application of a systematic process to ensure evidence-based efforts for increasing physical activity in Colorado
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Translating CD/MCH/OrH data into public health action
**Keywords:** Evidence based practice|Data/Surveillance|Physical activity

**Background:**
Limited public health dollars, coupled with an increased emphasis on results, require public health departments to be strategic. Making decisions and planning programs based on data and the best available scientific evidence are paramount to this strategic planning. At the Colorado Department of Public Health and Environment, a multidisciplinary team of epidemiologists, evaluators, and program staff was formed to develop and apply a systematic, evidence-based public health (EBPH) approach for prioritizing, planning, implementing, and evaluating physical activity interventions. This presentation will summarize the methodology we followed, with a focus on how data were used to inform decision making throughout the process.

**Methods:**
A seven-step framework for EBPH developed by Brownson and colleagues was selected as a model: 1) community assessment, 2) quantify the issue, 3) develop a concise statement of the issue, 4) determine what is known through the scientific literature, 5) develop and prioritize program and policy options, 6) develop an action plan and implement interventions, and 7) evaluate the program or policy. Key data sources for steps 1–2 included U.S. Census, Behavioral Risk Factor Surveillance System, Youth Risk Behavior Surveillance System, Colorado Child Health Survey, and key informant interviews.

**Results:**
Key findings from steps 1-2 include that the population is aging in Colorado, and the population of Hispanics is growing. Older adults and both Hispanic adults and children have a high prevalence of low physical activity levels. These and other results were summarized into a concise statement of the issue (step 3), which was used to focus the review of the published scientific literature (step 4). The data and the scientific evidence were then used to inform the prioritization process (step 5), develop an action plan including measurable goals and objectives for increased physical activity (step 6), and develop a program evaluation plan (step 7). The project team's capacity for applying a systematic EBPH approach increased. Several outputs were created, including a data summary and concise statement of the issue, summary of the scientific evidence, logic model, and action and evaluation plans.

**Conclusions:**
Because action planning and intervention implementation often occur without due diligence to reviewing population data and the scientific evidence, a multidisciplinary team used a methodological, sequential approach to develop an action plan that will enhance the efficiency and effectiveness of physical activity efforts at the state health department in Colorado. Public health practitioners elsewhere can duplicate this process for any public health topic.

---

**Presenting Author(s):**

**Renee Calanan**
Colorado Department of Public Health
and Environment, Denver, CO
renee.calanan@state.co.us

**Contributing Authors**

Kerry Thomson, MPH, CHES - Colorado Department of Public Health and Environment; Barbara Gabella, MS - Colorado Department of Public Health and Environment; Jason Vahling, MPH - Colorado Department of Public Health and Environment

**Abstract ID:** 1332038 **Presentation Type:** Breakout Presentation
**Title:** Recent findings and impacts from the SENSOR-Pesticides program
**Committee:** Occupational Health Sub-Committee
**Topic:** Acute pesticide poisoning surveillance
**Keywords:** Pesticides|Occupational Surveillance|Policy/Policy Development

**Background:**
Since 1987, acute occupational pesticide-related illness and injury has been one of the conditions under surveillance by the National Institute for Occupational Safety and Health (NIOSH). NIOSH supports these surveillance activities by providing cooperative agreement funding and technical support to state health departments. The program conducting these activities is the Sentinel Event Notification System for Occupational Risks (SENSOR)-Pesticides Program. SENSOR-Pesticides is also partially funded by the US Environmental Protection Agency (EPA).

**Methods:**
Cases of acute pesticide-related illness and injury are identified and investigated by state agencies that participate in the SENSOR-Pesticides program. Data are submitted annually by each state agency to NIOSH, and NIOSH aggregates the data to produce a national database. The SENSOR-Pesticides program also provides timely identification of emerging pesticide problems.

**Results:**
An update on recent findings and impacts from the SENSOR-Pesticides program will be provided. Agricultural workers have a 10-fold higher risk of acute pesticide poisoning compared to workers in other industries. In 2011, media and advocacy organizations began citing published SENSOR-Pesticides findings to describe the magnitude of acute pesticide poisoning among agricultural workers. EPA is currently working on regulations to enhance farmworker protections, and these activities are, in part, being guided by SENSOR-Pesticides findings and recommendations. Additionally, in 2011, EPA took action after being alerted by the SENSOR-Pesticides program about an illegal Chinese pesticide product containing mirex, an organochlorine insecticide banned since 1978, that was available for purchase on the internet. EPA warned 4 internet sites (including eBay) to cease processing orders for the pesticide, and all four sites cooperated and immediately ceased processing orders. In 2011, findings from the SENSOR-Pesticides program were published in three MMWR articles. One article described acute illnesses associated with insecticides used to control bed bugs. The article spawned immediate widespread media attention including hundreds of mentions via the press, internet and social media outlets such as Twitter. This story was also a featured topic on the NIOSH science blog. Findings from the MMWR article on bedbugs are being used by State regulators, other bed bug researchers, and university extension services.

**Conclusions:**
The SENSOR-Pesticides program is considered the principal source of surveillance data in the US, and perhaps the world, on the acute health effects associated with pesticide exposure. The SENSOR-Pesticides program is a vital source of data for EPA to use when assessing whether pesticides are producing any unreasonable harm to human health.

---

**Presenting Author(s):**

**Geoffrey Calvert**
Centers for Disease Control and Prevention, Cincinnati, OH
jac6@cdc.gov

**Abstract ID:** 1331769 **Presentation Type:** Breakout Presentation
**Title:** Hockey player hemoptysis in New Hampshire, January 2011
**Committee:** Environmental Health Sub-Committee
**Topic:** Cancer and other disease cluster investigations
**Keywords:** Chemical and biological exposures|Outbreak investigations |Environmental Health hazards


**Background:**
Nitrogen dioxide gas (NO<sub>2</sub>) is a byproduct of combustion. Inhalation of elevated levels can lead to respiratory symptoms, including cough, shortness of breath, hemoptysis and chest pain or tightness. In January 2011, the New Hampshire Department of Health and Human Services was notified of a cluster of acute respiratory symptoms in ice hockey players who practiced in the same indoor ice arena.

**Methods:**
Environmental and epidemiologic investigations were initiated to determine the outbreak etiology and to identify additional exposed individuals. A survey was administered to assess acute symptoms and exposures, followed by a second survey two to four weeks later to assess for late-onset or persistent symptoms. An environmental inspection of the ice arena evaluated arena air quality as well as the resurfacing equipment and ventilation systems. A case was defined as an individual who was present in the ice arena on Monday January 3, 2011 with onset within 48 hours of: cough, hemoptysis, chest pain, chest tightening, shortness of breath, headache, dizziness, nausea, or vomiting.

**Results:**
The ice arena reported heavy use of propane-fueled equipment during a 24-hour period when the arena ventilation system was not functioning, and during which two hockey practices were held. An environmental inspection found moderately elevated levels of NO<sub>2</sub> while running the ice resurfacing equipment in the ice arena even after the ventilation system had been repaired. Forty-three exposed individuals were interviewed, of whom 31 (72.1%) reported symptoms consistent with NO<sub>2</sub> exposure. The highest attack rate was among players (87.9%), who were four times more likely to become ill than non-players (spectators, coaches, and arena personnel) (Risk ratio (RR): 4.39, 95% Confidence Interval (CI): 1.26, 15.28). The attack rate also increased as time spent on the ice increased (Cochran-Armitage Test for Trend, p=0.01). Following repair of the ventilation system, no additional cases were identified.

**Conclusions:**
NO<sub>2</sub> emitted from an ice resurfacing machine in an unventilated ice arena caused illness in 31 individuals. Since 1987, five similar exposures have been described in the literature and all were linked to ice arenas with malfunctioning ice resurfacing equipment and/or inadequate ventilation. Consistent with previous reports, a higher attack rate was observed among hockey players involved in this incident. To prevent similar episodes, ice arena operators should ensure ventilation systems and alarms are operating properly and that levels of NO2 and carbon monoxide are continuously monitored for early detection of increased gas levels.


---


**Presenting Author(s):**

**Steffany Cavallo**
New Hampshire Department of Health
and Human Services, Concord, NH
Steffany.Cavallo@dhhs.state.nh.us

**Contributing Authors**

Maureen Macdonald, MSN, Darlene Morse, M.Ed, Jodie Dionne-Odom, MD<sup>1,2</sup>, Christine Adamski, Richard Rumba, MPH, Teresa Ferrara, MPH, Leslie Cartier, Elizabeth A Talbot, MD<su

**Abstract ID:** 1329847 **Presentation Type:** Breakout Presentation
**Title:** Work-related fatalities in Florida
**Committee:** Injury Control and Prevention Sub-Committee
**Topic:**
**Keywords:** Work-related fatalities|Occupational Surveillance


**Background:**
In 2007, Florida ranked third nationally for number of work-related fatalities. These 363 fatalities represent almost one work-related death per day among Florida's workforce. The purpose of this descriptive analysis was to identify the most common accident type, high-risk industry/occupations, as well as demographic characteristics of fatally injured workers.

**Methods:**
A descriptive analysis was performed on data from the Census of Fatal Occupational Injuries (CFOI) and the Current Population Survey. Work-related fatalities were defined as injuries that occur at the workplace or while working and result in death.

**Results:**
Work-related fatality rates varied by race/ethnicity and age group. The highest rate of work-related fatalities occurred in Hispanics (5.6 per 100,000), Blacks (4.4 per 100,000) and workers 65 years and older (7.2 per 100,000). Workers age 55 and up had the highest proportion of fatalities in the transportation and warehousing industry whereas workers 20-54 had the highest proportion of fatalities in the administrative and waste services industry. The most common fatal accident types in Florida in 2007 were transportation incident (137 deaths), assaults and violent acts (70 deaths-predominantly shootings), and falls (62 deaths). This pattern differed for self-employed versus wage and salary workers. The most common fatal accident type for self-employed workers was assaults and violent acts (48%) compared to only 16% of wage and salary worker fatalities. A higher proportion of female workers were killed through assaults and violent acts (30% of female fatalities; 18% of male work fatalities). The occupations with the highest fatality rate were agricultural workers (49.6 per 100,000 employed), aircraft pilots/flight engineers (34.3 per 100,000 employed) and roofers (26.4 per 100,000 employed). Industries with the highest fatality rate were Agriculture (37.7 per 100,000), Administrative/waste services (12.6 per 100,000), and Construction (9.0 per 100,000). Highest fatality rates among whites and Hispanics were in the Agriculture industry and highest rate among blacks was in the Administrative/waste services industry.

**Conclusions:**
Fatal assaults and violent acts are a problem in the Florida workforce and they disproportionately affect self-employed workers and females. High-risk industries that should be considered as a target for future interventions are Agriculture, Administrative/waste services, and Construction. Fatality rates in each industry differed by race/ethnicity and age. These differences should be taken into consideration when designing interventional or educational efforts. Next steps for our program will include collaborating with stakeholders within Florida that are currently working with these high-risk groups.


---


**Presenting Author(s):**

**Juanita Chalmers**
Florida Department of Health,
Tallahassee, FL
juanita_chalmers@doh.state.fl.us

**Contributing Authors**

Sharon Watkins,PhD, Florida Department of Health

**Abstract ID:** 1323646 **Presentation Type:** Poster Presentation
**Title:** Assessment of perinatal hepatitis B hospital policies and practices, New Jersey
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Maternal & child health epidemiology
**Keywords:** Hepatitis|Vaccination

**Background:**
The New Jersey Department of Health and Senior Services (NJDHSS) annually receives approximately 350 reports of pregnant women who are hepatitis B surface antigen (HBsAg) positive. NJDHSS regulations require healthcare providers and laboratories to report all HBsAg positive laboratory reports and immediately screen all pregnant women admitted for delivery with unknown or undocumented HBsAg status. The Advisory Committee on Immunization Practices (ACIP) recommends that all newborns receive a birth dose of hepatitis B virus (HBV) vaccine prior to hospital discharge and that infants born to positive HBsAg mothers receive hepatitis B immunoglobulin (HBIG). In 2011, NJDHSS assessed perinatal HBV infection prevention policies and practices of NJ birthing hospitals.

**Methods:**
We sent an electronic survey to all 49 birthing hospitals in March 2011, which assessed implementation of written policies and pre-printed admission orders (i.e., standing orders) for verification of maternal HBsAg status upon admission, testing for women with unknown or undocumented status and administration of HBV vaccine birth dose to all newborns. To verify hospital practices, we reviewed medical records at ten high-volume birthing hospitals in the state's north, central, and south regions; for each hospital, we selected random samples of 25-30 paired newborn-maternal medical records among births during April 1, 2010 to March 31, 2011.

**Results:**
All 49 delivery hospitals completed the survey. Forty-two (86%) hospitals reported having written policies to review maternal HBsAg test results upon admission; 21 (43%) had pre-printed admission or standing orders to facilitate policy implementation. Similarly, 42 (86% ) hospitals had written policies regarding testing of pregnant women with undocumented HBsAg results, but only 24 (49%) had standing orders. Thirty (61%) hospitals had written policies and standing orders to routinely administer HBV vaccine to all newborns. Of the 261 paired newborn-maternal medical records reviewed, 146 (56%) newborns received HBV vaccine birth dose. [Further results pending]

**Conclusions:**
Although NJ birthing hospitals are required to document maternal HBsAg test results upon admission, less than half have standing orders to verify test results, and 61% had standing orders for administration of the HBV vaccine birth dose. Vaccination of all newborns provides additional protection against perinatal HBV infection when there is failure to identify HBsAg positive mothers and provides early protection against HBV transmission from close contacts. To prevent perinatal transmission of HBV, standing orders should be implemented at all birthing hospitals in accordance with ACIP recommendations.

---

**Presenting Author(s):**

**Miranda Chan**
New Jersey Department of Health and
Senior Service, Trenton, NJ
miranda.chan@doh.state.nj.us

**Contributing Authors**

Christine Armenti, BSN, MS, CIC, Stella Tsai, PhD, CIH, Patricia Jordan, M.A.Ed, Katherine Melnicki, BS, Denise Garon, BS, New Jersey Department of Health and Senior Services, Trenton, NJ

**Abstract ID:** 1309858 **Presentation Type:** Poster Presentation
**Title:** Human rabies–exported from Haiti to New Jersey, 2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Zoonoses
**Keywords:** Rabies|Risk Assessment|Outbreak investigations

**Background:**
On July 7, 2011, the New Jersey Department of Health and Senior Services (NJDHSS) was notified about suspect rabies in a hospitalized 73 year-old Haitian woman with meningoencephalitis. The patient travelled from Haiti to New Jersey in May 2011 and no animal exposure had been reported at the time of hospitalization. The patient initially presented on June 30 with right shoulder pain, chest pain, headaches and increased blood pressure and later progressed to hallucinations and altered mental status.

**Methods:**
Patient specimens of serum, cerebral spinal fluid, saliva and a nuchal skin biopsy were sent to the Centers for Disease Control and Prevention (CDC) to determine disease etiology. The NJDHSS and the Haitian Ministry of Health interviewed family members regarding the patient's exposure history. The NJDHSS provided rabies education and conducted a risk assessment of potential rabies virus exposure to social contacts and health care workers in collaboration with the hospital's infection prevention program and the local health department.

**Results:**
On July 18, the CDC confirmed infection with rabies virus, later identified as a canine rabies virus variant present in Haiti. The patient's clinical status continued to deteriorate, leading to her death on July 20. After the confirmed rabies diagnosis, a family member revealed that in April the patient had sustained a minor dog bite occurring in Haiti. Four social contacts received post-exposure prophylaxis (PEP), beginning on July 22. An assessment of 246 medical personnel began on July 18. Ten (4.1%) health care workers received PEP.

**Conclusions:**
This case highlights the importance of prompt rabies education and exposure risk assessment, along with the value of a detailed medical and animal exposure history of patients with travel from rabies-endemic countries.

---

**Presenting Author(s):**

**Miranda Chan**
New Jersey Department of Health and
Senior Service, Trenton, NJ
miranda.chan@doh.state.nj.us

**Contributing Authors**

Danielle Tack (1,2) DVM, MPVM, Dipl ACVPM; Faye Sorhage (3) VMD, MPH; Colin Campbell (3) DVM, CPM; Dori Prasek (4) BSN, RN, CIC; Olena Stepanyuk (5) MD; Charles E. Rupprecht1, VMD, PhD; Christina Tan (3) MD, MPH; 1: Division of High-Consequence Pathogen

**Abstract ID:** 1326358 **Presentation Type:** Breakout Presentation
**Title:** The integration of Outbreak Investigations with Disease Surveillance in New York
**Committee:** Surveillance/Informatics
**Topic:** Electronic disease surveillance systems (e.g., EDSS, NEDSS, etc.)
**Keywords:** Outbreak investigations |Disease prevention|Surveillance

**Background:**
Typically an outbreak investigation involves epidemiologic, environmental, and laboratory components to identify the cause of the outbreak, implement interventions to stop the spread of disease and gain knowledge to prevent future outbreaks. When a food or waterborne disease outbreak is reported or detected at the local level, each county within New York State (NYS) usually utilizes its own outbreak investigation form. Although there are many similarities between these forms across counties, there is no one set of standard questions. Moreover, there is no standard method of collecting, entering, and analyzing this data. A mix of paper-based, Excel, and/or Access systems are used by the various jurisdictions. The effort expended on data collection, data entry and data management can take away from the public health functions of control and prevention and also inhibits the sharing of current information and effective communications.

**Methods:**
NYS developed a statewide Outbreak Management System (OMS) which allowed users to share outbreak incident level information to improve communication during an incident and to provide users with a common set of data for decision support. The system was integrated with the Communicable Disease Electronic Surveillance System (CDESS), New York State's electronic disease case reporting and investigation system, to facilitate aggregated query and reporting capabilities across the jurisdictions and program areas involved in an outbreak investigation. The system was moved to production in October 2011.

**Results:**
A need has been identified to have easy access to the same data collected during outbreak investigations in order to generate quick and accurate summaries of a specific outbreak. A set of standardized questionnaires for food, waterborne, rash and respiratory illnesses have been developed as a module to be added to CDESS. Environmental and communicable disease staff at all jurisdictional levels will be able to enter patient level data into CDESS collected during outbreak investigations. Through the use of web services, users can link OMS outbreak incident level information with patient level information in CDESS. Basic reports including case counts by case status, county, age group and a de-identified line list can be generated in OMS by extracting data from the CDESS linkages.

**Conclusions:**
The integration of OMS with disease surveillance will increase NYS's ability to provide timely and consistent information to the public and healthcare practitioners and to improve its ability to coordinate outbreak response activities. Both OMS and CDESS will be used to answer general inquiries, generate reports, and to calculate performance measures.

---

**Presenting Author(s):**

**Hwa-Gan Chang**
New York State Department of Health,
Albany, NY
hgc04@health.state.ny.us

**Contributing Authors**

Jackie Griffin, Keane Inc Dina Hoefer, MPH, New York State Department of Health Madhu Anand,MPH, CPH, New York State Department of Health Debra Blog, MD, MPH, New York State Department of Health

**Abstract ID:** 1361005 **Presentation Type:** Poster Presentation
**Title:** Increasing thyroid cancer incidence in the United States, 1973-2008: Time trends and age-period-cohort effects
**Committee:** Student Section
**Topic:** Chronic Diseases
**Keywords:** Cancer|Data/Surveillance|Registry

**Background:**
The increasing incidence of thyroid cancer in the United States has been well reported. However, there is still debate about the underlying causes for this increase. We investigated the trends and estimated the age, period, and/or cohort effects to interpret the thyroid cancer trends in the United States between 1973 and 2008.

**Methods:**
Incidence cases of thyroid cancer were obtained from nine registries of the National Cancer Institute's Surveillance, Epidemiology and End Results (SEER9), 1973-2008. Analysis of trends by gender (female and male), race (all, white, black), histology (all, papillary, and follicular), and stage (localized, regional, and distant) was performed using a Joinpoint analysis. In addition, age-period-cohort (APC) analysis of the observed thyroid cancer incidence in SEER by gender, race, histology and stage was also conducted to determine whether birth year or year of diagnosis better correlate with the observed patterns of thyroid cancer incidence. Best fitted APC models were determined by the Akaike information criteria (AIC).

**Results:**
A total of 56,740 thyroid incidence cases aged from 0-84 were diagnosed in the SEER 9 regions between 1973 and 2008. The APC analysis showed a strong period or calendar-year effects in thyroid cancer incidence for all gender, race, histology and stage combinations, particularly for localized thyroid cancer cases (for example a 4-fold increase in the thyroid cancer incidence among white males and 3-fold in all males was found during the period of observation).

**Conclusions:**
The consistent increase of thyroid cancers by period for all gender, race, histology, stage combinations, together with the largest increases found for early stage cancers suggest that the increases in thyroid cancer in the United States could be explained by access to healthcare and more intensive screening diagnostics on small tumors at early stages.

---

**Presenting Author(s):**

**Joanne Chang**
Epidemiology, University of Michigan,
Ann Arbor, MI
changjo@umich.edu

**Contributing Authors**

Dr. Rafael Meza, PhD. University of Michigan, School of Public Health, Department of Epidemiology

**Abstract ID:** 1330726 **Presentation Type:** Roundtable Presentation

**Title:** Lessons learned from CDC public health responses to the Fukushima Japan nuclear reactor accident and rubidium Rb-82 generator recall

**Committee:** Environmental Health Sub-Committee

**Topic:** Surveillance and response to chemical/radiologic emergencies, including National Toxic Substance Incidents Program (NTSIP)

**Keywords:** Radiation |Emergency response|Preparedness

**Brief Summary:**

Background: The Centers for Disease Control and Prevention (CDC) participated in public health responses to two radiation incidents in 2011. In March, after a massive earthquake and tsunami, the Fukushima-Daiichi nuclear reactor in Japan was damaged, resulting in a "major nuclear accident" as defined by the International Nuclear and Radiological Event Scale. Japan evacuated approximately 78,000 citizens from communities within a 30 km radius. The CDC provided recommendations for the screening and follow-up of travelers at risk for radioactive contamination who were returning to the US from Japan. In July, a Rubidium Rb-82 generator used for cardiac positron emission tomography (PET) throughout the US was recalled after three patients set off routine radiological screening devices at US airports. These generators were routinely used throughout the US with an estimate of 45,000 procedures performed annually. FDA requested CDC's assistance in the subsequent investigation. The objective of this presentation will be to disseminate lessons learned from these radiation public health emergencies. Methods: During the Fukushima response, CDC collaborated and obtained feedback from several national, state and local public health agencies to draft recommendations and risk communication messages. Final versions of the recommendations were disseminated nationally. During the Rubidium response, CDC worked with state radiation control programs and state and local public health departments on an investigation that provided voluntary radiation assessment and urine analysis to a sample of participants that had the cardiac PET medical procedure between February and July. A subset of participants was also sent to Oak Ridge National Laboratories for whole body counting. Results: Some of the lessons learned included: 1) Public health agencies need to partner with agencies outside their normal purview, such as US Customs and Border Protection, poison control centers and the national guard civil support teams, in order to effectively respond to a radiation public health emergency. 2) Relationships between public health and other agencies that have been previously established during exercises and other collaborations greatly enhance public health response activities. 3) Public health legal authority may need to be expanded to include response activities related to radiation public health emergencies. 4) Communication messages following a radiation public health emergency need to be timely, synchronized and united from all involved agencies given the public's fear of radiation. Conclusions: Following these two distinct radiation public health emergencies, common lessons learned were identified that should inform future public health responses to nuclear and radiological emergencies.

**Key Objectives:**

Disseminate lessons learned from CDC public health responses to two radiation incidents that occurred in 2011.

---

**Presenting Author(s):**

**Art Chang**
Centers for Disease Control and Prevention, Chamblee, GA
ctn7@cdc.gov

**Satish Pillai**
Centers for Disease Control and Prevention, Chamblee, GA
satish.pillai@cdc.hhs.gov

**Contributing Authors**

CDC/NCEH/HSB: Colleen Martin MPH, Matt Murphy PhD, Josh Schier MD, Royal Law MPH, Lauren Lewis MD
CDC/NCEH/RSB: Armin Ansari PhD, Jennifer Buzzell, Lynn Evans MS, Ziad Kazzi MD, Robert Whitcomb PhD, Charles Miller PhD  CDC/NCEH/DLS: Robert Jones PhD, David Saunders

**Abstract ID:** 1318593 **Presentation Type:** Software Demonstration
**Title:** Health Indicator Warehouse—Liberating data for health assessment, tracking, and health improvement
**Committee:**
**Topic:**
**Keywords:** Indicators|Community health|Health information systems

**Brief Summary:**
Access to high quality health data improves understanding of a community's health status and risk factors, and facilitates the prioritization of interventions. The Open.gov and data.gov federal initiatives also are spurring increased access to high quality data. As part of the Data.gov initiative, HIW 1) Provides a single, user-friendly, source for national, state, and community health indicators; 2) Meets needs of multiple population health initiatives; 3) Facilitates standardization of indicators across initiatives; 4) Links indicators with evidence-based interventions; 5) Encourages innovative application development; and 6) Catalyzes change to improve community health. The HIW contains more than 1,200 health and health related indicators on health status, outcomes, and determinants based on more than 200 different data sources, including vital statistics, survey data, surveillance data, Census data, and Medicare and Medicaid administrative data are included in HIW. It contains indicators on health status, outcomes, and determinants from more than 200 data sources. Standard procedures have been developed for adding new indicators and updating existing indicators. Supporting descriptive data are included to facilitate understanding and appropriate use of the indicators, as well as links to evidence-based interventions and related resources. A user-friendly web-accessible database was built to provide easy access to the data. Users—including researchers, public health analysts, students, policymakers, and web application developers—can select indicators based on topic area, geographic area, or initiative (e.g., Healthy People 2020), and download selected indicators either in excel tables or through machine-to-machine API technologies. Multiple forms of presentation including chart and map are available. The HIW also provides a motivation for agencies to standardize indicators. State and local health departments have used the HIW for required community assessments and tracking Healthy People objectives, and numerous other analyses and applications requiring health indicator data. The HIW also provides API/web services so developers can download the data directly. The HIW serves as "one-stop" shopping for frequently used pre-tabulated indicators—such as those from Healthy People 2020, Centers for Medicare and Medicaid Services, and the County Health Rankings—and as a teaser for users to go directly to the data sources and tools such as WONDER and WISQARS for additional measures and microdata, as well as to link them to evidence-based interventions and other resources.

**Key Objectives:**
This presentation will describe the Health Indicators Warehouse (HIW) and how it can be used for community health assessments and other analyses.

---

**Presenting Author(s):**

**Li-Hui Chen**
CDC/North Carolina Department of Health and Human Services,
Hyattsville, MD
eyx5@cdc.gov

**Kate Brett**
CDC/North Carolina Department of Health and Human Services,
Hyattsville, MD
kmb5@cdc.go

**Contributing Authors**

Jeanetta E. Churchill, MS; NCHS/CDC Amy B. Bernstein, Sc.D.; NCHS/CDC

**Abstract ID:** 1317402 **Presentation Type:** Poster Presentation
**Title:** Using antimicrobial susceptibility testing data to identify possible carbapenem-resistant Klebsiella pneumoniae in Hawaii, 2005–2010
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Antibiotic resistance|Healthcare associated infections (HAI)|Data/Surveillance

**Background:**
Carbapenem-resistant Klebsiella pneumoniae (CRKP) is an increasingly concerning etiology of some healthcare-associated (HAI) infections. The organism produces the enzyme K. pneumoniae carbapenemase (KPC), which then confers resistance not only to carbapenems but also to penicillins, cephalosporins, and aztreonam. According to the Centers for Disease Control and Prevention, 37 states have reported KPC organisms. In Hawaii CRKP infection is not reportable. This study aims to identify any possible CRKP infections occurring in Hawaii from 2005–2010.

**Methods:**
Antimicrobial susceptibility testing (AST) data are retrospectively collected by the State of Hawaii Antimicrobial Resistance Project (SHARP). Data are collected from the state's 4 major clinical laboratories and comprise over 95% of AST data statewide. All K. pneumoniae AST results were retrieved from SHARP and then compared with the 2010 minimum inhibition concentration (MIC) carbapenems resistance breakpoints determined by the Clinical and Laboratory Standards institute (CLSI); an elevated MIC would be highly suggestive of a CRKP infection. The carbapenems of interest and their respective MIC breakpoints were: ertapenem, ?1; imipenem, ?4; and meropenem, ?4.

**Results:**
A total of 896,393 AST results for K. pneumoniae were reported to SHARP from January 2005 through December 2010. Of the 4,324 AST tests conducted for ertapenem, 10 (0.2%) had elevated MICs. Similarly, 30 (0.2%) of the 14,458 AST tests conducted for imipenem and 15 (0.2%) of the 8,574 AST tests for meropenem had elevated MICs.

**Conclusions:**
The results suggest that some CRKP infections may have occurred in Hawaii during the study period. These findings are limited in that full clinical resistance is not always observed or consistent with in vitro results, and past CLSI breakpoints varied during the study period. However, using AST data and applying CLSI breakpoints may provide an efficient overall surveillance method to detect potential CRKP infections and help focus limited resources for the necessary complex testing and case follow-up for confirmation.

---

**Presenting Author(s):**

**Zeshan Chisty**
Disease Outbreak Control Division,
Hawaii State Department of Health,
Honolulu, HI
zeshan.chisty@doh.hawaii.gov

**Contributing Authors**

Myra Ching-Lee, MPH, Hawaii Department of Health Sarah Y. Park, MD, FAAP, Hawaii Department of Health

**Abstract ID:** 1327491 **Presentation Type:** Breakout Presentation
**Title:** Mortality in Tornado Outbreak — Alabama, 27 April 2011
**Committee:** Environmental Health Sub-Committee
**Topic:** Disaster epidemiology: tools, data, experiences, and challenges
**Keywords:** Natural disasters |Emergency response|Geographic Information Systems

**Background:**
On April 27, 2011, 67 tornadoes including powerful EF-4 and -5 tornadoes killed 256 people and injured thousands in Alabama, resulting in one of the deadliest tornado events in US history. We investigated circumstances surrounding these fatalities to identify risk factors to prevent future tornado-related fatalities.

**Methods:**
We combined interview data collected by American Red Cross volunteers during condolence visits with the decedents' families and death certificate data. Narratives from the interviews were coded into several variables of interest such as physical and social vulnerabilities, receipt of warnings, protective behaviors, and mechanisms and cause of death. We conducted a preliminary analysis to describe demographic characteristics, circumstances and cause of death, and behaviors prior to death.

**Results:**
Of the 256 tornado-related deaths in Alabama, most were female (n=149, 58.2%), white non-Hispanic (n=204, 79.7%). The majority of the decedents were indoors at the time of impact (n=233, 91.0%). Of the known housing types (n=207, 80.9%), 138 (66.7%) were single family homes and 51 (24.6%) were mobile homes. One hundred and six (41.4%) decedents had a social or physical vulnerability, with the majority being ?65 years (n=85, 33.2%). Of nearly half (n=108, 42.2%) known to receive some form of warning, 24.1% (n=26) were warned by another person and 16.7% (n=18) heard a siren; at least 73 (67.6%) took protective action. Nine people (8.3%) who heard warnings did not take protective actions. Most deaths occurred on site (n=217, 84.8%) and were directly associated with impact (n=237, 92.6%). The most common mechanisms of directly-related deaths were struck/cut by debris/objects (n=112, 47.3%), thrown (n=80, 33.8%), and crushed (n=44, 18.6%). Fifty-four (21.1%) decedents sustained head injuries which was the leading cause of death in 37 (14.5%) people.

**Conclusions:**
Preliminary findings suggest that the older populations were vulnerable and head injuries were common. When warned, most took protective action and many received warnings through word-of-mouth. These findings suggested that prevention efforts should target older populations and emphasize current CDC recommendations to prevent head injuries. Current CDC recommendations should expand to address the role of social interactions in alerting the public, such as encouraging individuals to warn others, while improving formal warnings. The novel use of American Red Cross data in combination with death certificates provided a better understanding of disaster-related vulnerabilities, behaviors, and circumstances of death from tornadoes to help prevent future tornado-related deaths.

---

**Presenting Author(s):**

**Cindy Chiu**
Centers for Disease Control and
Prevention, Atlanta, GA
vic2@cdc.gov

**Contributing Authors**

Amy Schnall, MPH, Centers for Disease Control and Prevention Sara Vagi, PhD, Centers for Disease Control and Prevention Rebecca Noe, MPH, Centers for Disease Control and Prevention Caitlin Mertzlufft, MPH, Agency for Toxic Substances and Disease Registry

**Abstract ID:** 1364672 **Presentation Type:** Poster Presentation
**Title:** Association of inflammatory markers with socioeconomic status in older adults: Does race/ethnicity matter?
**Committee:** Student Section
**Topic:** Chronic Diseases
**Keywords:** Social determinants |Aging|Social inequalities


**Background:**
Inflammatory processes are one of downstream biological pathways by which socioeconomic status (SES) affects disease risk. Studies have demonstrated that chronic health conditions such as coronary heart disease, atherosclerosis, cognitive impairment, and depression are associated with elevated levels of inflammatory markers. SES differences may persist or widen as individuals age, leading to greater levels of chronic disease risk in those of lower SES. Given the profound differences in SES between subpopulation of different racial background, it will be important to examine how SES is associated with inflammation within specific racial groups. The purpose of this study is to analyze the association between SES and two specific biomarkers of inflammation, CRP and IL-6, in a large sample of blacks and non-Hispanic whites.

**Methods:**
A cross sectional analysis was conducted for a sample from the Chicago Healthy Aging Project (CHAP) separately for black and non-black population (n=3618, aged 65 or older). CRP and IL-6 levels of participants' fasting blood samples were measured and assayed. The participants' SES as well as behavioral variables and medication status that may underlie SES differences in the levels of inflammatory biomarkers were also obtained.

**Results:**
The pattern of the association between inflammation and SES varied across different racial groups. Among blacks, lower-SES groups had higher CRP and IL-6 compared to the highest-SES group. However, the inverse gradient was not perfectly linear in that compared to the highest-SES group, low-SES groups were less likely to have higher IL-6 than middle-SES groups. The association between CRP and income demonstrate only a marginally significant inverse gradient between low- and middle-income groups, and the association between CRP and education demonstrate a non-significant inverse gradient. Among whites, there was a significant inverse gradient of association between income and IL-6, controlling for age and sex, but not between education and both CRP and IL-6. Compared to the highest-income group, low-income whites were more likely to have higher CRP.

**Conclusions:**
These observations help sharpen our understanding of the race-specific relationship between SES and biological markers of illness in the US. Distinct SES gradient of inflammatory marker levels in blacks and whites suggest that well-targeted interventions are necessary to solve both racial and SES disparities altogether.


---

**Presenting Author(s):**


**Jihyun Cho**
Epidemiology, University of Michigan,
Ann Arbor, Ann Arbor, MI
jhacho@umich.edu

**Abstract ID:** 1331246 **Presentation Type:** Breakout Presentation
**Title:** Tracking environmental health using national data
**Committee:** Environmental Health Sub-Committee
**Topic:** Environmental Public Health Tracking
**Keywords:** Environmental Health|Biomonitoring|Environmental exposures

**Background:**
The Centers for Disease Control and Prevention (CDC)'s National Environmental Public Health Tracking Program (EPHT) strives to provide information that communities can use to improve their health. With the help of state partners, EPHT laid the groundwork for the Tracking Network and identified critical data, methods, and analysis needs of environmental public health practitioners. EPHT also used national-level data from CDC's centers and other federal partners to examine temporal and geospatial relationships between health and environmental hazards. Recently, EPHT added three new topic areas: health impacts of fine particles in air, biomonitoring for population exposure, and developmental disabilities.

**Methods:**
EPHT continues to fill gaps in environmental health data through partnerships with CDC centers and other federal partners. To assess how efforts to reduce air pollution can impact health, data from Environmental Protection Agency (EPA) and the National Center for Health Statistics was used. In collaboration with CDC's National Center for Environmental Health's Division of Laboratory Science, analytes were selected from the National Health and Nutrition Examination Survey to show temporal levels of environmental chemicals in urine and blood. Data for developmental disabilities were examined with CDC's National Center on Birth Defects and Developmental Disabilities for disability-related burden using information from the Autism and Developmental Disabilities Monitoring Network and the U.S. Department of Education.

**Results:**
Health impacts of fine particles in air are indicated by the mortality benefits associated with lowering PM2.5 concentration levels. The measures help to identify areas where interventions to reduce air pollution could result in meaningful health improvements. Biomonitoring for population exposures provides information about 11 environmental chemicals and metabolites found in human urine or blood. Biomonitoring data provide unique exposure information to scientists, physicians, and health officials to inform the prevention of exposures to some environmental chemicals. The burden of developmental disabilities indicated the prevalence of autism spectrum disorders and the number of school children receiving services for a developmental disability.

**Conclusions:**
Engaging federal partners with various expertise has expanded capacity, fostered an extended community of practice, and advanced development of tools, methods, and the use of non-traditional data sources. Continued partnerships to develop, disseminate, and apply new methods will further address the critical information gap in understanding the relationship between environmental factors and disease.

---

**Presenting Author(s):**

**Ekta Choudhary**
NCEH/EHTB, Centers for Disease Control and Prevention, Chamblee, GA
echoudhary@cdc.gov

**Contributing Authors**

Heather Strosnider, Ambrish Vaidyanathan, Gonza Namulanda

**Abstract ID:** 1331647 **Presentation Type:** Breakout Presentation
**Title:** Public Health Response to a Chlorine Gas Release at a Poultry Processing Facility—Arkansas, 2011
**Committee:** Environmental Health Sub-Committee
**Topic:** Surveillance and response to chemical/radiologic emergencies, including National Toxic Substance Incidents Program (NTSIP)
**Keywords:** Chemical and biological exposures|Emergency response|Environmental Health hazards

**Background:**
Large-scale chemical releases can result in public health impacts including evacuations, decontaminations, injuries, and fatalities. The Assessment of Chemical Exposures (ACE) program of the Agency for Toxic Substances and Disease Registry (ATSDR) provides state and local health departments with technical assistance in assessing the exposure, health effects, and impact of large-scale toxic chemical spills. In June 2011, the ACE program responded to a chlorine gas release at a poultry processing plant that was the result of an accidental mixture of sodium hypochlorite and an acidic antimicrobial treatment. The objectives of this investigation were to (1) evaluate the public health and emergency medical services response, and (2) assist the state health department in developing and disseminating public health recommendations to lessen the impact of future incidents.

**Methods:**
We conducted key informant interviews with the state health department, local fire, EMS, and police departments, county emergency management, and representatives from area hospitals to understand the response mechanisms employed for this incident. To characterize affected workers, we also reviewed medical chart data for all patients who presented at the emergency departments (ED) in the responding hospitals and abstracted data on arrival/discharge times, signs/symptoms, treatments, and outcomes.

**Results:**
One hundred seventy workers (28% of all workers) were triaged on the scene and sent to five area hospitals after being exposed to an estimated 40lb chlorine gas release. Each hospital redistributed staff and/or called in extra staff (e.g., physicians, nurses, and respiratory therapists) in response to the event. From the medical chart review, the primary symptoms reported by the patients included sore/irritated throat, dyspnea, cough, and chest pain. Treatment included oxygen, nebulized-albuterol, and intravenous/intramuscular steroids. Key informant interviews with hospital staff emphasized the need for improved communication, especially in the following areas: (1) information about the total number of patients affected and severity of their symptoms, (2) more precise estimated times of arrival, (3) more detailed information on the substance released and its concentration, (4) level of decontamination required, and (5) discharge instructions for patients in Spanish and Marshallese, the predominant languages among those affected in this event.

**Conclusions:**
While the responding state and local agencies handled the patient surge without outside assistance because of effective planning, training, and drilling, the ACE investigation highlighted that greater interagency communication can play an important role in ensuring that patients are correctly managed and treated in a timely manner for the specific exposure.

---

**Presenting Author(s):**

**Bryan Christensen**
National Center for Environmental Health, Centers for Disease Control and Prevention, Chamblee, GA
iyl1@cdc.gov

**Contributing Authors**

Mary Anne Duncan, DVM, MPH, Dipl. ACVPM; Agency for Toxic Substances and Disease Registry  Sallyann C. King, MD, MSc; Centers for Disease Control and Prevention Francisco Meza, MD, MPH; Centers for Disease Control and Prevention Candis Hunter, MPH; Agency

**Abstract ID:** 1330104 **Presentation Type:** Breakout Presentation
**Title:** Differential receipt of influenza vaccine between public versus private healthcare providers: Cross-sectional analysis of Michigan Care Improvement Registry data
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Influenza
**Keywords:** Influenza / Pandemic influenza|Immunization|Epidemiology

**Background:**
In 2004, the Advisory Committee on Immunization Practices (ACIP) began recommending influenza vaccination for children aged 6-23 months. Further expansion of the ACIP recommendations occurred in 2006 with the addition children aged 24-59 months, in 2008 with inclusion of children, adolescents, and teens aged 5-18 years, and in 2010 when the recommendations expanded to universal vaccination for all children and adults aged 6 months and older. Despite changes in the ACIP recommendations in recent years, little research has been conducted to assess differences in the delivery of influenza vaccine to children by public compared to private healthcare providers. The goal of this analysis is to examine the association between healthcare provider types and receipt of a single dose of influenza vaccine in children aged 6 months through 17 years using data from the Michigan Care Improvement Registry during the 2010-2011 influenza season.

**Methods:**
Data from the Michigan Care Improvement Registry, a state-wide immunization information system, was used to calculate the 2010-11 vaccination coverage for four age groups: 6-23 months, 24-59 months, 5-12 years, and 13-17 years. Public healthcare providers were examined for the likelihood of children to receive influenza vaccine during the 2010-2011 season, compared to private healthcare providers.

**Results:**
During the 2010-11 influenza season, 620,022 influenza vaccinations were given to children 6 months through 17 years of age. Public healthcare providers administered 62,983 (10.2%) influenza doses while private healthcare providers administered 557,039 (89.8%) influenza doses. Influenza vaccination coverage in Michigan was 37.2% for children aged 6-23 months, 34.7% for children aged 24-59 months, 19.5% for children aged 5-12 years, and 16.6% for children aged 13-17 years. This is well below the Healthy People 2020 goal of 80% for all age groups. Public healthcare providers, including local health departments, colleges and universities, migrant health centers, and tribal healthcare centers, had 67% lower odds of vaccinating children 6 months through 17 years of age against influenza during the 2010-2011 influenza season compared to private healthcare providers [OR=0.33, 95%CL (0.329, 0.336)]. Co-administration of influenza vaccine along with another vaccine increased the odds of a child being vaccinated against influenza by 6% compared to influenza vaccination alone [OR=1.06, 95%CL (1.057, 1.072)].

**Conclusions:**
Public healthcare providers, including local health departments, colleges and universities, migrant health centers, and tribal healthcare centers, should identify measures to reach the pediatric populations they serve in order to increase influenza vaccination.

---

**Presenting Author(s):**

**Joshua Clayton**
Department of Epidemiology,
University of Michigan, Ann Arbor, MI
nakolus@umich.edu

**Contributing Authors**

Matthew L. Boulton, MD, MPH, University of Michigan, Department of Epidemiology Rachel Potter, DVM, MS, Michigan Department of Community Health Eden V. Wells, MD, MPH, University of Michigan, Department of Epidemiology

**Abstract ID:** 1327353 **Presentation Type:** Poster Presentation
**Title:** Canine leptospirosis outbreak investigation — southeast Michigan, 2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Zoonoses
**Keywords:** Zoonotic disease|One Health|Infectious Diseases

**Background:**
In fall 2011, Michigan Department of Agriculture and Rural Development (MDARD) reported a possible outbreak of canine leptospirosis in southeast Michigan. This included a report of an increase in the highly virulent L. interrogans servoar Icterohaemorrhagiae, in which the reservoir host is rodents. Leptospirosis is a zoonotic disease; both human and animal cases are reportable in Michigan. A team from Centers for Disease Control and Prevention, Michigan Department of Community Health, and MDARD sought to characterize the scope of the outbreak, identify risk factors, and suggest recommendations to prevent future canine and human disease transmission.

**Methods:**
Review of existing MDARD and Michigan State University's Diagnostic Center for Population and Animal Health (DCPAH) databases with augmentation from medical records allowed classification of cases as confirmed, probable, or suspect. Phone interviews of owners were conducted to collect risk factor information. Rodents from 8 patient neighborhoods were trapped for Leptospira sp. testing at DCPAH.

**Results:**
We reviewed and classified 91 potential cases from 2010–2011: 10 confirmed, 51 probable, 26 suspect, and 4 not a case. A suspect case was a case having one or more of the following symptoms: acute febrile illness, acute/chronic renal failure, hepatic dysfunction, uveitis, pulmonary hemorrhage and/or hemorrhagic manifestations. A probable case was a suspect case plus response to antimicrobial therapy or a presumptive laboratory result. A confirmed case was a probable case plus a confirmed laboratory result. The number of confirmed, probable, and suspect canine leptospirosis cases increased from 26 in 2010 to 61 in 2011. The mortality rate increased from 42% in 2010 to 46% in 2011. In 2011, 12 (18%) cases had the serovar Icterohaemorrhagiae compared to 8 (23%) in 2010. We collected risk factor information from 58 (68%) owners; 15 (26%) owners recalled seeing rats around their home. From the 16 traps that were set, 5 rats were captured and tested; 4 were culture positive and all 5 were PCR positive for leptospirosis. Currently, there has not been an increase of human cases of leptospirosis in Michigan.

**Conclusions:**
The increased reported canine leptospirosis cases and Leptospira sp.-positive rodents sampled near the homes of canine patients demonstrate a need for canine leptospirosis vaccination promotion, increased veterinarian and public awareness, and better control of local rat populations. This investigation highlights the One Health concept—that the environment (rats), animals (dogs), and human health are closely intertwined.

---

**Presenting Author(s):**

**Jessie Clippard**
Michigan Department of Community Health, Michigan Department of Community Health, Lansing, MI
jrclippard@gmail.com

**Abstract ID:** 1331427 **Presentation Type:** Poster Presentation
**Title:** Evaluation of 2010 Lyme disease surveillance – Michigan
**Committee:** Surveillance/Informatics
**Topic:** General surveillance topics
**Keywords:** Evaluation|Data/Surveillance|Vectorborne disease

**Background:**
Historically, locally-acquired Lyme disease (LD) cases have been concentrated in the Upper Peninsula (UP) of Michigan; however, LD has been emerging in the southwestern Lower Peninsula (LP) as the tick vector, Ixodes scapularis, has expanded its geographic range. Given the recent emergence in the LP, the parameters of the CSTE surveillance case definition, and the multi-step laboratory confirmation often needed for case classification, investigations are hypothesized to be lengthy and data collection often incomplete. The objectives of this study were to 1) identify strengths and weaknesses of the LD surveillance system currently in use, 2) compare data collection and reporting of cases by peninsula, and 3) suggest recommendations for improvement.

**Methods:**
This evaluation was conducted using the Center for Disease Control's Updated Guidelines for Evaluating Public Health Surveillance Systems, 2001. Analysis included all 2010 Michigan confirmed and probable LD cases (defined using 2011 CSTE case definitions). Timeliness was assessed by comparing the average length of investigation of cases to the average length of ehrlichiosis and rickettsial disease case investigations combined from 2006-2010. Surveillance data including length of investigation, diagnostic criteria (clinical signs vs. laboratory evidence), and reporting of symptoms were stratified based on peninsula location (UP vs. LP) of the case. Data utility was assessed by comparing reported case locations to published ecological studies documenting vector spread in Michigan.

**Results:**
Case investigations lasted a median of 13 days and ranged from 1-149 days. Lyme disease investigations were not significantly longer than the comparison group ($p = 0.143$). Missing and inappropriately entered data were common; in 43% of cases, whether a physician-diagnosed erythema migrans (EM) was present was not indicated, despite EM being an important component of case classification. The negative predictive value of the surveillance system was 0.88. The positive predictive value was 0.72. Additionally, the routinely collected case data closely mirrored the published ecologic data documenting the emergence of the tick vector in Michigan. There were no statistically significant differences found in reporting in any of the variables examined between UP and LP reports despite differences in incidence and reporting experience in the two areas.

**Conclusions:**
While one main weakness was identified – lack of data quality, the surveillance system was strong in negative predictive value, relative timeliness, and data utility. Interventions to improve the data quality are planned and will aid in documenting ongoing emergence and subsequent human risk in additional Michigan communities.

---

**Presenting Author(s):**

**Jessie Clippard**
Michigan Department of Community Health, Michigan Department of Community Health, Lansing, MI
jrclippard@gmail.com

**Contributing Authors**

Erik Foster, MS, Michigan Department of Community Health Kimberly Signs, DVM, Michigan Department of Community Health Mary Grace Stobierski, DVM MPH, MIchigan Department of Community Health

**Abstract ID:** 1309600 **Presentation Type:** Breakout Presentation
**Title:** Review of state-level laws requiring carbon monoxide alarms in residential settings
**Committee:** Environmental Health Sub-Committee
**Topic:** Healthy Homes
**Keywords:** Environmental Health|Public health law|Environmental exposures

**Background:**
Carbon monoxide (CO)—a poisonous gas that is imperceptible to humans—is found in combustion fumes, such as those from home heating systems or gasoline engines. CO poisoning is preventable yet unintentional, non-fire related CO poisoning accounts for nearly 450 deaths, 2,300 hospitalizations, and 21,000 emergency department visits annually. CO poisoning prevention guidance recommends the installation of Underwriter's Laboratory approved, battery-operated or battery-backup CO alarms outside of the sleeping areas in homes. The need for CO alarms is particularly important in homes with fuel burning appliances or attached garages. According to the 2009 National Health Interview Survey, 37% of U.S. households report having a CO alarm. Law is recognized as an important tool to affect public health outcomes; the number of jurisdictions with CO alarm laws is increasing. Our objective was to describe state-level laws requiring CO alarms in residential dwellings and to assess provisions of the laws pertaining to public health guidance for CO poisoning prevention.

**Methods:**
We identified state laws, including building, residential, and fire codes, health and safety provisions, and landlord/tenant laws, effective as of December 31, 2011 that require CO alarms in traditional residential dwellings by searching WestlawNext, the International Code Council and individual state legislative and building code websites. Two researchers independently abstracted provisions from each law into a database. Inconsistencies in coding were reviewed and resolved by an attorney. The frequencies are reported using state as the unit of analysis. Analyses were conducted using SAS software v9.2.

**Results:**
Preliminary results indicate that 36 states (72%) have a law pertaining to CO alarm use within residential dwellings. Of the 36 states with a CO alarm law, six (17%) specify that the alarm be battery-operated or battery-backup, whereas 31 (86%) require that the alarm have Underwriter's Laboratory approval and 32 (89%) specify that the alarm be located outside of sleeping areas. The majority of state laws require alarms in dwellings with fossil fuel burning appliances (86%) and in dwellings with an attached garage (86%). Two (6%) states require alarms in leased dwellings. Additional data on state law provisions will be presented.

**Conclusions:**
The impact of public health laws varies depending on factors such as breadth of the law, funding, implementation, and enforcement. Only two states have a state-level, residential CO alarm law that would be considered in alignment with all provisions of public health CO alarm guidance. Laws of narrower scope may limit the ability to prevent CO poisonings.

---

**Presenting Author(s):**

**Jackie Clower**
Cazador, Herndon, VA
jclower@cdc.gov

**Contributing Authors**

Stacie Kershner JD, CDC Tegan Boehmer PhD, MPH, CDC Lisa Caucci JD, MA, CDC Shahed Iqbal PhD, MBBS, MPH, CDC Yvette Wing MPH, CDC Fuyuen Yip, PhP, MPH, CDC

**Abstract ID:** 1333002 **Presentation Type:** Roundtable Presentation
**Title:** Conducting measles contact investigations with limited public health resources – time to re-evaluate and standardize our approach?
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Vaccine preventable diseases
**Keywords:** Communicable disease|Outbreak investigations |Epi / Lab capacity

**Brief Summary:**
Measles was declared eliminated in the United States in 2000. Since that time, the majority of U.S. measles cases have reported recent travel to measles endemic countries. Due to recent measles outbreaks in Europe, particularly in France, the U.S. has experienced a significant increase in the number of confirmed measles cases from 43 cases in 2007 to 222 cases, including 17 outbreaks, in 2011. Suspect and confirmed measles cases require follow-up by local and state health departments. Confirmed cases require extensive investigation to identify exposed contacts, assess their immune status and provide postexposure prophylaxis to those who are susceptible. These types of investigations are costly and time intensive. In 2011, local health departments in California investigated over 1,850 contacts of measles cases. Bimonthly conference calls with epidemiologists from 18 U.S. states and New York City, New Zealand, Quebec and British Columbia were convened as a CSTE working group in 2011 to discuss data from recent measles outbreaks and best approaches to conducting contact investigations. The objective of this working group is to evaluate current measles contact investigation protocols and develop consensus on follow-up measures necessary to protect public health. Meetings are ongoing and will continue until a consensus guidance document is developed. Given the high likelihood of falsely positive measles serologic results from commercially available kits in the elimination era, identification of true measles cases remains a challenge, yet is essential to determine the appropriate public health response. The CSTE measles confirmed case definition could be revised to include clinical features or require virus detection as an adjuvant to positive serologic results in patients who do not meet the clinical case definition. Current protocols for measles contact investigations are based on historical data; however, the dynamics of measles transmission in an elimination setting may be modified, warranting a less resource intensive approach to contact identification, investigation and follow-up.

**Key Objectives:**
Discussion Points: A CSTE measles working group has been formed. A roundtable discussion at the CSTE annual conference would permit input from additional state health departments and help inform measles case and outbreak investigation guidance. Discussion points include: laboratory testing, measles case definition, identifying data needs to address outstanding research questions (e.g., measles transmission dynamics based on index case characteristics, exposure setting or susceptibility of exposed population, barriers to and age group appropriate recommendations for postexposure prophylaxis.

---

**Presenting Author(s):**

**Sara Cody**
Santa Clara Public Health Department,
San Jose, CA
sara.cody@phd.sccgov.org

**Contributing Authors**

Jennifer Zipprich PhD, Kathleen Winter MPH, Darryl Kong MPH, Catheryn Salibay MPH - California Department of Public Health, Karyn Leniek MD - Utah Department of Health

**Abstract ID:** 1327086 **Presentation Type:** Breakout Presentation
**Title:** Public Health Laboratory Interoperability Project (PHLIP): Epidemiologically enhanced surveillance data
**Committee:** Surveillance/Informatics
**Topic:** Novel surveillance methods and data sources
**Keywords:** Data/Surveillance|Influenza surveillance|Informatics

**Background:**
One of the greatest challenges in surveillance is the linkage of epidemiologic and laboratory data. In an effort to support automated laboratory and epidemiological data exchange between public health laboratories (PHLs), clinical partners and the Centers for Disease Control and Prevention (CDC), the Association of Public Health Laboratories (APHL) and CDC, developed the Public Health Laboratory Interoperability Project (PHLIP). Influenza is an important public health concern and serves as a test case for PHLIP. Seasonal influenza outbreaks and frequent virologic changes of the virus allow the utility and flexibility of PHLIP to be fully demonstrated. The PHLIP electronic laboratory surveillance message (ELSM) captures basic influenza laboratory data. This message has been implemented in over 30 state and regional PHLs. To accommodate the vast interest in additional epidemiologic factors influencing influenza severity and spread, an "enhanced ELSM" message has been developed. The additional information carried in this message includes linkages to surveillance projects, such as the U.S. Outpatient Influenza-like Illness Surveillance Network (ILINet), Emerging Infections Program (EIP), and testing results for antiviral resistance.

**Methods:**
Through the use of the ELSM for Influenza (HL7 2.3.1 format), information on specimens tested that are associated with an ILINet provider or an EIP site are now incorporated into a designated HL7 field in order to link data from these programs to confirmed influenza results. These data allow CDC to understand the epidemiological characteristics of cases in outpatient and inpatient clinical practices, and also investigate differences in severity relative to different influenza virus type and subtypes captured through PHLIP. Additionally, pyrosequencing tests for markers of antiviral resistance were added.

**Results:**
Currently, 3 PHLs are sending enhanced ELSM data to the CDC Influenza Division, and 10 additional PHLs are in the process of making these message improvements. Over time, as more states begin reporting ILINet and EIP data, these linkage variables will inform characteristics of patients by influenza virus in these practice settings. New data on antiviral medications with activity against influenza viruses are also being captured. Through the enhanced ELSM influenza message, detected mutations and markers associated with antiviral resistance will be captured and sent in a near real-time data exchange from Public Health Laboratory to CDC. PHLIP is also working to capture other data elements within the standard message formats including antiviral use, additional demographic and travel related information, and vaccination information. PHLIP datasets available to CDC will inform internal decision makers and biostatisticians at the national level.

**Conclusions:**
The PHLIP ELSM epidemiology and laboratory data linkage addresses one of the greatest challenges in public health surveillance. The enhanced ELSM has a tremendous capacity to improve surveillance even further. An evaluation of the experiences of epidemiologists and laboratorians in incorporating these data into existing message guides is critical in assessing successes and challenges in the implementation process of this important project.

---

**Presenting Author(s):**

**Linda Cohen**
Informatics, APHL, Silver Spring, MD
linda.cohen@aphl.org

**Contributing Authors**

Desiree Mustaquim, MPH: Centers for Disease Control and Prevention; Amber Bishop, MPH: Centers for Disease Control and Prevention; Lynnette Brammer, MPH: Centers for Disease Control and Prevention; Michelle Meigs, BS: Association of Public Health Laborato

**Abstract ID:** 1331379 **Presentation Type:** Breakout Presentation
**Title:** Evaluation of maintenance of a 5A's perinatal smoking cessation program within Ohio WIC Clinics, 2010-11
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Evaluating CD/MCH/OrH programs
**Keywords:** Smoking|Evaluation|Pregnancy

**Background:**
Cigarette smoking during pregnancy remains a significant risk factor contributing to poor pregnancy outcomes in the United States. Ohio ranks among the 10 states with the highest rates of smoking during pregnancy; rates are particularly high (>20%) among WIC participants. The 5A's (i.e., ASK, ADVISE, ASSESS, ASSIST, ARRANGE) brief counseling intervention has been demonstrated to increase smoking cessation among pregnant women. By January 2009, Ohio had trained 14 WIC sites, which volunteered to participate, on an evidence-based 5A's intervention. Booster training was given in January-July 2010. The objective of this study was to evaluate the extent of implementation of the intervention before and after booster training.

**Methods:**
Within each WIC site at two time points (January-July 2010 and December 2010-August 2011), a random sample of ? 40 smoking and 40 nonsmoking pregnant clients. Charts were audited using a standard form. Presence of an intervention form and documentation of each intervention step was collected and prevalence of each step within sites calculated.

**Results:**
In August 2010, 7 (50%) sites indicated no current use of the intervention forms. Across the 7 continuing intervention sites, chart reviews were performed for 84% (n=488; 48-79/site) of sampled clients. Across sites, forms were present in 39-100% of charts (median 96%), and documentation of the first 5A's step (ASK) ranged from 96-100%. Review of smokers' charts revealed ranges of documentation of steps 2-5 as follows: "ADVISE"=0-85% (median 52%); "ASSESS"=0-84% (median 57%); "ASSIST"=0-33% (median 13%); 'ARRANGE'=0-46% (median 6.3%). Post booster training, chart reviews were performed for 91% (n=465; 51-72/site) of sampled clients. Across sites, intervention forms were present in 62-100% of charts (median 92%), and documentation of the ASK step ranged from 94-100% (median 96%). Among smokers, documentation of steps was as follows: "ADVISE"=3-91% (median 74%); "ASSESS"=3-100% (median 74%); "ASSIST"=0-50% (median 36%); 'ARRANGE'=0-64% (median 13%).

**Conclusions:**
Only half of all trained sites implemented the intervention. Among continuing sites, intervention delivery documentation was high for the first step ("ASK"), and moderate to low for subsequent steps. Booster training was not associated with any change in use of the intervention forms or first step. Results suggest a modest improvement in documentation of steps 2-5 after booster training. Training public health sites to deliver an evidence-based intervention does not guarantee implementation with fidelity and must be followed by monitoring. More must be learned to understand why some sites have low implementation after training.

---

**Presenting Author(s):**

**Elizabeth Conrey**
State Epidemiology Office, Ohio
Department of Health, Columbus, OH
elizabethj.conrey@odh.ohio.gov

**Contributing Authors**

Sherry T. Liu, MPH1,2; Katherine Graham, MPH1; William Cartwright, MA, LICDC1 1Ohio Department of Health, Columbus, OH; 2The Ohio State University College of Public Health, Columbus, OH

**Abstract ID:** 1332111 **Presentation Type:** Poster Presentation
**Title:** Prevalence, treatment and control of hypertension in Kansas—Results from the Kansas Cardiovascular Health Examination Survey (CVHES)
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Epidemiology of chronic conditions
**Keywords:** Cardiovascular disease|Data/Surveillance

**Background:**
The Kansas CVHES was designed to provide population-based information on cardiovascular disease indicators that require physical or laboratory examination for accurate assessment. Hypertension is a key modifiable risk factor for heart disease and stroke. The Kansas CVHES data provide the first opportunity to characterize hypertension prevalence among Kansas adults based on clinically measured blood pressure. Objective: To estimate the prevalence of hypertension among Kansas adults and to assess blood pressure treatment and control among adults with hypertension.

**Methods:**
The Kansas CVHES employed a multistage disproportionate stratified design. The initial stage was a telephone-based survey of non-institutionalized adults 18 years and older stratified to ensure adequate sample among African-American and Hispanic target subpopulations. Subsequent stages included a mail-in questionnaire and a physical examination conducted in health departments and clinics. Hypertension was defined as an average blood pressure of 140/90 mmHg or higher or current use of blood pressure medication. Treatment and control of hypertension were assessed among adults with hypertension. Treatment of hypertension was defined as the use of blood pressure medication. Blood pressure control was defined as an average blood pressure below 140/90 mmHg. Hypertension awareness was assessed based on the response to the question “Have you ever been told by a doctor, nurse, or other health professional that you had high blood pressure?”

**Results:**
The prevalence of hypertension among Kansas adults 18 years and older was 24.3%. The age-adjusted prevalence of hypertension was higher among African Americans compared to whites and Hispanics. Among adults with hypertension, 73.7% were treated with blood pressure medication and 53.7% were treated and have their blood pressure controlled. Among adults with hypertension 18.2% have not been told they have high blood pressure.

**Conclusions:**
These are the first population-based estimates of hypertension prevalence, treatment, control and awareness in Kansas based on blood pressure measurement. This information will be used to inform healthcare professionals, policy makers and other partners of hypertension prevalence including untreated hypertension, uncontrolled hypertension and hypertension in persons who are not aware of their condition. This information will also help to guide efforts to address hypertension in African American and Hispanic sub-populations.

---

**Presenting Author(s):**

**Eric Cook-Wiens**
Kansas Department of Health and
Environment, Topeka, KS
ecook-wiens@kdheks.gov

**Contributing Authors**

Ghazala Perveen, MBBS, PhD, MPH, Bureau of Health Promotion, Kansas Department of Health and Environment Paula F. Clayton, MS, RD, Bureau of Health Promotion, Kansas Department of Health and Environment Sue Min Lai, PhD, MS, MBA, Department of Preventive

**Abstract ID:** 1314445 **Presentation Type:** Poster Presentation
**Title:** Evaluation of Shiga toxin-producing Escherichia coli surveillance in Virginia, 2005–2010
**Committee:** Surveillance/Informatics
**Topic:** General surveillance topics
**Keywords:** Evaluation|Foodborne disease|Surveillance

**Background:**
Shiga toxin-producing Escherichia coli (STEC) infection causes an estimated 265,000 infections annually in the United States. During 2005–2010, 165 STEC cases were reported to the Virginia Department of Health (VDH) annually on average. Because of severe complications associated with infections (e.g. Hemolytic Uremic Syndrome) and the need to respond rapidly to reported cases or outbreaks, accurate and timely surveillance is necessary to identify STEC infections. VDH's STEC surveillance system was evaluated to assess the system's performance and overall usefulness and to make recommendations for improvement.

**Methods:**
Multiple data sources were used for the evaluation, including stakeholder interviews, Virginia Electronic Disease Surveillance System (VEDSS) data from 2005–2010 and laboratory data from the Division of Consolidated Laboratory Services (DCLS). The evaluation addressed multiple system components, such as laboratory testing, reporting and VEDSS, and focused on data quality and timeliness. Qualitative analyses and quantitative analyses using SAS (Version 9.2) and Microsoft Excel (2007) were conducted to evaluate system attributes. Data quality was assessed by evaluating overall completeness, system organization and the consistency of data entry procedures. Timeliness of physician and laboratory reporting to the health department was evaluated by subtracting diagnosis date from the date of initial public health notification and comparing these values to the three-day reporting requirement outlined in Virginia's health regulations.

**Results:**
Although the system's integration of information from multiple sources allows for case classification and the detection of outbreaks, it has multiple shortcomings. Inconsistencies in data entry, particularly with laboratory results, were identified. These inconsistencies resulted from confusion among stakeholders about data entry responsibilities and led to missing data. Among the 33 variables that were applicable to all cases and analyzed in VEDSS, data were missing or unknown approximately 20% of the time. Laboratory data variables were missing or unknown 40% of the time. Only 54% of cases were reported to public health within the required timeframe.

**Conclusions:**
Based on this evaluation, STEC surveillance in Virginia seems to be correctly classifying cases and non-cases. However, data entry omissions and inconsistencies affect the system's usefulness because assessing overall data trends are difficult. Further, many cases were not being reported to VDH in a timely manner. To improve the system, VDH should develop policies that outline a clear division of responsibilities, provide training to stakeholders and reiterate the importance of timely reporting to physicians and laboratory directors.

---

**Presenting Author(s):**

**Kate Corvese**
Division of Surveillance and
Investigation, Virginia Department of
Health, Richmond, VA
kate.corvese@vdh.virginia.gov

**Contributing Authors**

Diane Woolard, PhD, MPH. Virginia Department of Health.

**Abstract ID:** 1331561 **Presentation Type:** Poster Presentation

**Title:** Assessing the impact of using maternal race in vital birth records to measure racial and ethnic disparities in birth outcomes and maternal risk factors in Michigan

**Committee:** Cross Cutting Sub-Committee

**Topic:** Health disparities: Racial/ethnic and socioeconomic, Best epidemiologic practices

**Keywords:** Health disparities|Minority Health|MCH Epidemiology

**Background:**
Birth records include data about a broad range of birth outcomes and maternal risk factors, and are thus a rich source for measuring racial/ethnic health disparities. Standard practice uses the mother's race/ethnicity as the race/ethnicity variable. This study examines the impact on disparities in birth outcomes and risk factors when the mother's race/ethnicity alone is used versus using a combined variable based on the mother's and father's race/ethnicity.

**Methods:**
Data from 2004-2009 Michigan birth records were used to construct seven race/ethnicity categories for the mother: Non-Hispanic White (W), Non-Hispanic African American (AA), Non-Hispanic Asian/Pacific Islander (API), Non-Hispanic American Indian/Alaska Native (AI/AN), Non-Hispanic Arab (Ar), Non-Hispanic Multiracial/Other (M/O), and Hispanic/Latino (H/L). Seven additional variables were constructed for each category listed above using the mother's and father's race/ethnicity. These variables were dichotomized as "mother and/or father in this category" vs. "neither mother or father in this category". Birth outcomes and maternal risk factors were examined for the seven categories separately using both classification methods. Disparities for each race/ethnicity were calculated separately and compared to identify how changing the measurement of race/ethnicity affected disparity measurement.

**Results:**
Including the father's race increased the number of infants included in all race/ethnicity categories, ranging from an increase of 4% (W) to 64% (AI/AN). After including the father's race/ethnicity, the number of years of maternal education was significantly higher than the estimate using mother's race alone for Ar, M/O, and H/L; and significantly lower among W. Mother's age was significantly higher among Ar. Among AA, gestational age and birth weight were both significantly higher when using both mother and father's race than when using mother's race alone. When comparing disparities using the two different race/ethnicity classification methods, disparities tended to remain unchanged in size and statistical significance. However, the disparity between AI/AN and W for gestational age was statistically significant when including father's race and not significant when using mother's race alone.

**Conclusions:**
Including the father's race/ethnicity to examine disparities changes the estimate of birth outcomes and related maternal risk factors. The impact varies among different populations but in all cases increases the sample size. For smaller populations this can result in increased precision of estimates, which in one case resulted in identifying a disparity that was not previously statistically significant. Including father's race/ethnicity may improve our ability to understand racial/ethnic disparities in birth outcomes and how these disparities can be eliminated. This is especially important for small populations.

---

**Presenting Author(s):**

**Rebecca Coughlin**
Bureau of Epidemiology, Michigan
Department of Community Health,
Lansing, MI
coughlinr@michigan.gov

**Contributing Authors**

Elizabeth Kushman, MPH, Inter-Tribal Council of Michigan Glenn Copeland, MBA, Michigan Department of Community Health Sheryl Weir, MPH, Michigan Department of Community Health Sarah Lyon-Callo, MA, MS, Michigan Department of Community Health Brenda Jegede

**Abstract ID:** 1327448 **Presentation Type:** Poster Presentation
**Title:** Reproductive risk factors for breast cancer across Marin County, California, and the United States
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Generating and using county and local-level data for CD/MCH/OrH epidemiology
**Keywords:** Breast cancer|Risk factors|Local epidemiology

**Background:**
Reproductive risk factors for breast cancer vary geographically and by socioeconomic status. Marin, an affluent California county, has historically elevated breast cancer incidence. Never giving birth (nulliparous) and having children at an older age are associated with breast cancer.

**Methods:**
We analyzed reproductive risk factors and breast cancer incidence for Marin County, California, and the United States. For each geographic level, we assessed the percentage of nulliparous women and, for parous women, the percentage that gave birth at or above age 30. Bivariate analysis at the county-level compared reproductive factors across socioeconomic factors including income and educational attainment. The Marin Women's Study (MWS), an epidemiologic study of breast cancer risk in 14,000 Marin women who received mammograms, contributed data for reproductive and socioeconomic data. Comparison data for Marin, California, and the US came from state and national surveys. The Surveillance Epidemiology and End Results program provided breast cancer data. A county-level multivariate logistic regression analysis of reproductive risk factors, socioeconomic status, and breast cancer using MWS data is planned.

**Results:**
Nulliparity ranged from 23.7% for MWS participants to 31.1% for Marin women overall, with 27.1% and 28.3% of women in California and the US, respectively, remaining nulliparous. For MWS participants, nulliparity varied by income with 27.0% and 16.4% in the lowest and highest income households, respectively. Estimates of age at first birth of age 30 or above in parous women were 43.3% for MWS participants, and 35.3%, 16.2%, and 12.7% for women in Marin, California, and the US, respectively. The percentage of MWS participants having a child at or over age 30 with education beyond a bachelors degree was three times that of women with a high school education or less (55.3% vs. 16.3%). Breast cancer incidence was 148.1, 125.1, and 125.0 per 100,000 in Marin, California, and the US, respectively.

**Conclusions:**
Nulliparity was similar across geographic levels, but within Marin nulliparity varied by income. Marin women delivered a first child at an older age than California or US women, with more educated Marin women having a higher percentage than less educated Marin women as well as California and US women. At an ecologic level, breast cancer incidence was higher in Marin than in California and the US, consistent with reproductive risk factors occurring more frequently in Marin women. The planned multivariate analysis will improve understanding of the relationship between reproductive risk factors and breast cancer in Marin County.

---

**Presenting Author(s):**

**Jessica Cunningham**
Health & Human Services, County of
Marin, San Rafael, CA
jcunningham@marincounty.org

**Contributing Authors**

Kate Stearns, MPH; Lee Ann Prebil, PhD; Mark Powell, MD; Joanne Nititham, MPH; Rochelle Ereman, MS, MPH

**Abstract ID:** 1329564 **Presentation Type:** Breakout Presentation
**Title:** Mandatory surgical site infections reporting in New Hampshire critical access hospitals
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Healthcare associated infections (HAI)|Surveillance|Hospital data

**Background:**
Surgical site infections (SSIs) cause an estimated 244,385 infections annually in the United States. Increasing awareness and public concern in recent years have resulted in numerous states and the federal Centers for Medicare and Medicaid Services to require hospital reporting of SSIs. Due to small size (?25 beds) and limited resources, critical access hospitals (CAHs) are often excluded from federal and state mandates for reporting SSIs. In New Hampshire (NH), hospitals support a long-held belief that quality care is expected in all hospitals regardless of size and CAHs participate in both mandatory and voluntary quality measure reporting.

**Methods:**
In 2009, NH required acute care hospitals, including CAHs, to report SSIs following colon, knee, and coronary artery bypass graft procedures using the National Healthcare Safety Network (NHSN). Standardized infections ratios (SIRs) and corresponding 95% confidence intervals (CI) were calculated in NHSN for reported SSI data and posted to a public website. Due to small numbers of procedures performed, not all CAH data were reported publicly to avoid inaccurate interpretation of sparse data. SSI data reported in 2009-2010 were validated through onsite chart review in 2011, which included review of reporting methods. Sensitivity and specificity for identification of SSIs were calculated for each hospital.

**Results:**
In 2010, CAHs (n=13) reported 13 SSIs (SIR: 0.84, CI: 0.45, 1.43) and non-CAHs (n=13) reported 81 SSIs (SIR: 0.63, CI: 0.50, 0.79). Data for SSIs were robust enough to present hospital-specific data for 8 (62%) CAHs and all observed similar numbers of SSIs as expected based on national data except 1 CAH that observed more (SIR: 3.72, CI: 1.01, 9.53). Sensitivity and specificity of SSI reporting in CAHs were 76% and 93% respectively, which was similar to non-CAHs (75% and 94%). Quality departments were engaged in SSI reporting in 2 (15%) CAHs compared to 6 (47%) non-CAHs. CAHs were less likely to be able to query hospital data systems for procedure data (39% of CAHs vs. 92% of non-CAHs). All 13 CAHs manually entered procedure data in NHSN compared to 9 (69%) non-CAHs that used the NHSN function for uploading a file of procedure data.

**Conclusions:**
NH CAHs have participated in mandatory SSI reporting since 2009, including provision of SSI data to the public. CAHs have fewer resources available for SSI reporting, which requires development of creative alternative methods. Expansion of CAH quality measure reporting will require investment in availability of electronic records and more automated data reporting systems.

---

**Presenting Author(s):**

**Elizabeth Daly**
New Hampshire Department of Health
and Human Services, Concord, NH
erdaly@dhhs.state.nh.us

**Contributing Authors**

Katrina Hansen, MPH, New Hampshire Department of Health and Human Services, Concord, NH Steffany Cavallo, MPH, New Hampshire Department of Health and Human Services, Concord, NH

**Abstract ID:** 1366720 **Presentation Type:** Breakout Presentation
**Title:** ONC/CMS Update on Meaningful Use
**Committee:** Surveillance/Informatics
**Topic:** General surveillance topics
**Keywords:** Policy/Policy Development

**Background:**
This is a panel session featuring presenters from ONC and CMS providing an update on Meaningful Use, focusing on the criteria for Stage 2.

**Methods:**
This is a panel session featuring presenters from ONC and CMS providing an update on Meaningful Use, focusing on the criteria for Stage 2.

**Results:**
This is a panel session featuring presenters from ONC and CMS providing an update on Meaningful Use, focusing on the criteria for Stage 2.

**Conclusions:**
This is a panel session featuring presenters from ONC and CMS providing an update on Meaningful Use, focusing on the criteria for Stage 2.

---

**Presenting Author(s):**

**James Daniel**
Office of the National Coordinatorfor
Health Information Technology, US
Department of Health and Human
Services , Washington, DC
james.daniel@hhs.gov

**Abstract ID:** 1326165 **Presentation Type:** Poster Presentation
**Title:** Using University of Nebraska Alumni network to evaluate a statewide awareness campaign promoting colorectal cancer screening *
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Evaluating CD/MCH/OrH programs
**Keywords:** Cancer|Health promotion|Evaluation

**Background:**
Colorectal cancer is the third most commonly diagnosed cancer and second leading cause of cancer deaths in Nebraska in the past decade. The colorectal screening rates in adults age 50 and older in 2008 are 20% for FOBT over the past two years and 59% for colonoscopy in lifetime. Given a strong sports culture in Nebraska, an intensive statewide awareness campaign featuring Husker sports was launched to promote colorectal cancer screening between July 2008 and August 2009. The University of Nebraska Alumni Association which is known as having good access to Husker sports fans was contracted to carry out a survey after the campaign. This study used this survey to evaluate the effectiveness of the campaign and explore better ways of delivering health messages.

**Methods:**
For purpose of this study, an alumnus is defined as an adult residing in Nebraska who attended the University of Nebraska at one point of his/her life. The questions included if and where they have seen or heard the messages and what the messages are, as well as their preference on social marketing tools. More than 10,000 surveys were sent out and 2,507 were returned.

**Results:**
Of the 2,507 respondents, 47% were female and 53% were male. Twenty nine percent of them were between 40-49 and 54% were 50 or older. Fifty six percent of the respondents reported seeing the campaign messages and 56% of those knew this campaign promoted colorectal cancer screening. After seeing the messages 8% reported talking to doctors, 11% encouraging friends to get screened and 11% getting screened themselves. The appropriate ways of delivering health messages for future campaigns were explored in this survey. Approximately 37% of the respondents aged 40-49 and 78% of the respondents age 50 and older reported that they occasionally or never used text messages. Eighty seven percent of the respondents claimed to follow up Husker sports by radio (80%), attending games (63%), watching TV (48%), going to the website (39%), and/or buying a game day program (19%). Compared to adults aged 40-49 who rank TV and radio as their No.1 and No.2 social marketing tools, adults aged 50 and older favored TV and newspapers/magazines.

**Conclusions:**
The vast majority of the respondents are age-eligible for colorectal cancer screening. The campaign had a positive impact on raising awareness and increasing screenings. Texting is not an effective way to reach target population, but TV, radio, and newspaper/magazines are.

---

**Presenting Author(s):**

**Jianping Daniels**
Department of Public Health,
Nebraska Department of Health and
Human Services, Lincoln, NE
jianping.daniels@nebraska.gov

**Contributing Authors**

Michelle Heffelfinger, Melissa Leypoldt, RN, Kathy Ward, B.S, Department of Public Health, Nebraska Health and Human Services

**Abstract ID:** 1327707 **Presentation Type:** Breakout Presentation
**Title:** Racial misclassification and disparities in mortality among American Indians/Alaska Natives and other races, Washington
**Committee:** Cross Cutting Sub-Committee
**Topic:** Tribal epidemiology
**Keywords:** American Indians|Health disparities|Data/Surveillance

**Background:**
Compared with the general population, American Indians and Alaska Natives (AI/ANs) experience excess mortality from a variety of causes including injuries. Mortality surveillance efforts may be hampered when AI/ANs are miscoded as another race on death certificates. To update knowledge of patterns in AI/AN leading causes of death and rates of mortality, we examined race-corrected information from 30 recent years of Washington State death certificate data.

**Methods:**
We corrected race coding in Washington death certificate data for the period from 1980 to 2009 using probabilistic record linkage to a large demographic data file of much of Washington's urban and tribal AI/AN population, which was derived from patient enrollment records of the Indian Health Service and a large urban Indian health organization. Using linkage-corrected race data, we calculated leading causes of death and age-adjusted mortality rates.

**Results:**
Record linkage increased case ascertainment of AI/AN deaths by 10.2% (from 14,426 pre-linkage to 15,904 post-linkage); among matched records for which a race had been coded, 83% were classified correctly as AI/AN in the state data system. While the leading causes of death were similar between AI/ANs and whites, mortality from all causes occurred at younger ages among AI/ANs (mean age at death=56) than among whites (mean age at death=73). From 1990 to 2009, age-adjusted rates of unintentional injury death per 100,000 were twice as high among AI/ANs as whites. Most of the disparity in unintentional injury rates can be attributed to higher rates of death from motor vehicle accidents (MVA) and unintentional drug overdoses. For AI/ANs the MVA mortality rate was 31.1 (95% CI, 27.8 to 34.9) compared with 10.0 (95% CI, 9.8 to 10.3) for whites, and the unintentional drug overdose mortality rate was 22.0 (95% CI, 19.5 to 25.1) for AI/ANs compared with 9.2 (95% CI, 9.0 to 9.5) for whites. AI/ANs were also disproportionately affected by intentional injuries, with higher rates of both suicide (17. 8 for AI/ANs vs. 13.1 for whites, difference statistically significant) and homicide (9.4 for AI/ANs vs. 2.3 for whites, difference statistically significant).

**Conclusions:**
Correct racial classification is a critical factor in achieving accurate surveillance of mortality. Record linkages using Indian health data can increase case ascertainment of AI/AN deaths and highlight important disparities, including deaths from injuries. These data may help target interventions and inform public health policy for and by AI/AN populations.

---

**Presenting Author(s):**

**Jenine Dankovchik**
Tribal EpiCenter, Northwest Portland
Area Indian Health Board, Portland,
OR
jdankovchik@npaihb.org

**Contributing Authors**

Megan Hoopes, MPH (second presenter): Northwest Tribal EpiCenter, Northwest Portland Area Indian Health Board; 2121 SW Broadway Dr. Suite 300 Portland, OR 97201 David L. Nordstrom, PhD: University of Wisconsin-Whitewater, Department of Occupational &

**Abstract ID:** 1317089 **Presentation Type:** Breakout Presentation
**Title:** Regional analysis of childhood injury in Kansas
**Committee:** Injury Control and Prevention Sub-Committee
**Topic:** Innovative methods for injury data analysis
**Keywords:** Injury surveillance|Population|Injury prevention

**Background:**
Unfortunately, preventable injury remains the leading killer of Kansas children ages 1-14 years, taking more lives than any other cause including homicide and suicide. The unintentional injury hospital discharge rates for the leading causes of childhood injury and for age groups were calculated and compared for six Kansas trauma regions. These six regions are culturally and economically diverse.

**Methods:**
Hospital discharge data were acquired from the Kansas Hospital Association. Data were coded and selected using recommendations from Safe States Alliance. Regions were defined by the Kansas Trauma Program, Kansas Department of Health and Environment (Northeast, Northcentral, Northwest, Southeast, Southcentral, and Southwest). Rates were calculated by dividing the number of hospital discharges by the 2005-2009 midyear population estimates, using the estimates from the year population estimates were released rather than the most recent year. Data were analyzed using SAS 9.2. This study examines unintentional injury hospital discharges (UIHD) in children 0-14 years from 2005-2009. Leading causes of UIHD were defined as falls, motor vehicle crash, and poisoning. Traumatic brain injury (TBI) related UIHD were also examined. Age groups were defined as: <1, 1-4, 5-9, and 10-14, years.

**Results:**
From 2005-2009 there were 4,250 UIHD in children 0-14 years for a rate of 147.8 UIHD per 100,000 population. The southeast and the southcentral region of the state had consistently higher rates of UIHD across all age groups compared to the Northeast. The highest rate of UIHD for all ages combined (0-14 years) was seen in the southeast region. The highest rate of UIHD for those less than one year of age was seen in the southcentral region. The highest rate of UIHD for one to four and five to nine year olds was seen in the southeast region. The highest rate of UIHD for ten to fourteen year olds was seen in the northwest region. The highest rate of motor vehicle crash and poisoning UIHD was seen in the southeast region. The highest rate of falls UIHD was seen in the southcentral region. The highest rate of TBI related UIHD was seen in the northcentral region.

**Conclusions:**
For the period of 2005 to 2009, the southcentral and southeast regions of Kansas had consistently higher rates of UIHD among children 0-14 years for all age groups and for selected causes. Safe Kids Kansas will use this information to focus interventions to reduce injuries, in different trauma regions of the state.

---

**Presenting Author(s):**

**Dan Dao**
Kansas Department of Health and
Environment, Topeka, KS
ddao@kdheks.gov

**Contributing Authors**

Ghazala Perveen, M.B.B.S, Ph.D., M.P.H.

**Abstract ID:** 1332166 **Presentation Type:** Breakout Presentation
**Title:** Adding working conditions to the public health agenda on obesity
**Committee:** Cross Cutting Sub-Committee
**Topic:** Public health collaboration: local/state, academia, non-profit, and private sector
**Keywords:** Obesity|Occupational Health|Health promotion

**Background:**
The public health benefits of healthy body weight, coupled with the financial implications of obesity for both employers and employees, have prompted investigation of preventable risk factors and program effectiveness. There is special concern about low-income workers, many of whom have physical demanding jobs, live in less healthy communities and have less access to the range of health resources. However, consideration of working conditions is noticeably absent in much of the obesity research literature and public health agenda.

**Methods:**
The Occupational Health Surveillance Program at the Massachusetts Department of Public Health called on their Advisory Board and outside experts to examine the evidence on occupation and obesity. The group discussed strategies for integrating working conditions into public health efforts to reduce obesity in the state. Subsequently, focus groups on this topic were held with low income workers from healthcare/human services, construction, food service, and housekeeping/cleaning jobs. A participatory model engaged worker leaders from two community organizations in development and facilitation of the focus groups, and analysis and dissemination of results.

**Results:**
The literature review showed growing evidence on job features such as excessive demands, low decision latitude, poor work relationships, job insecurity, threat of violence, and shift work (with fatigue and sleep disruption) with direct or indirect risk of overweight and obesity.. Stress and shift work have physiological effects that contribute to weight gain and also influence relevant personal behaviors – eating, sleeping and exercise habits. Chemical exposures, especially endocrine disruptors, have been implicated. Weight gain may also be secondary to post-injury disability or use of medication for asthma, depression, and other conditions. Focus group participants referred consistently to stress, excessive workload, poor access to healthy foods at work, and limited facilities to prepare foods brought from home. Timing and length of meal breaks were cited as affecting ability to eat in a healthful manner.

**Conclusions:**
Working conditions should be considered in public health programs, messaging, and policies addressing obesity. Integrated worksite wellness programs that address workplace as well as personal risk factors are needed. Information about occupation and industry should be integrated in core public health data sets (e.g., BRFSS). Input from working people should be sought in developing workplace and community activities that take into account the realities of people's working lives on their health and ability to maintain healthy weight.

---

**Presenting Author(s):**

**Letitia Davis**
Occupational Health Surveillance
Program, Massachusetts Department
of Public Health, Boston, MA
letitia.davis@state.ma.us

**Contributing Authors**

NJ Champagne, EdD, U Mass Lowell S Nobrega, MS, U Mass Lowell M Goldstein-Gelb, MS, Massachusetts Coalition for Occupational Safty and Health M Montano, Massachusetts Coalition for Occupational Safety and Health I Lopez, Massachusetts Coalition for Occ

**Abstract ID:** 1332063 **Presentation Type:** Breakout Presentation
**Title:** Enumeration of work-related amputations in Massachusetts using multiple data sources
**Committee:** Occupational Health Sub-Committee
**Topic:** Innovation in occupational health surveillance methods
**Keywords:** Injury surveillance|Occupational injury and death


**Background:**
Accurate information about the extent, nature, and cause of work-related (WR) injuries is essential to both prioritize and evaluate prevention efforts. Official estimates of WR injuries rely on data from a sample of OSHA logs maintained by employers; yet no one source captures all cases. Innovative approaches that combine information from multiple sources are needed. Massachusetts is one of three states funded by the Bureau of Labor Statistics to pilot multi-data source surveillance of WR amputations.

**Methods:**
Cases of WR amputations during 2007 and 2008 were identified using data from the Massachusetts sample of the Survey of Occupational Injuries and Illnesses (SOII) and four statewide administrative data sets: workers' compensation records (WC) of lost time claims and inpatient discharge, outpatient, and emergency department data -- collectively referred to as Case Mix (CM) data. Potential WR amputations were identified through a combination of injury classification (ANSI & OIIC) codes, ICD-9 diagnosis and procedure codes, and narrative text searches. Medical records for potential CM cases were collected and abstracted to obtain personal/employer identifiers needed for linkage with other data sets and to assess work-relatedness. Data sets were linked using FRIL™ software. Criteria for inclusion of cases were developed and applied to enumerate a final statewide count of work-related amputations. Case capture rates by data source were computed and characteristics of cases captured by different sources examined.

**Results:**
Application of the selection criteria yielded 447 and 2,630 potential WR amputations in WC and CM data, respectively and approximately 60 cases in the SOII sample. Use of medical records collected for potential CM cases increased identification of WR amputations by 22% compared to reliance on payment by workers' compensation alone. After matching and application of inclusion criteria, a total of 883 WR amputations with definite or uncertain bone loss were identified. The greatest number (82.1%) was captured by CM followed by WC (33%). Fifty-five percent were captured by CM only and 13.8% by WC only. The final count was approximately four times greater than the 210 cases estimated by SOII for 2007-08. Some cases were reported in the SOII as other injuries and some cases were not eligible for inclusion.

**Conclusions:**
Use of multiple data sources identifies substantially more amputations than any single source, and far exceeds the number of cases estimated by SOII. Multi-data source surveillance enhances our ability to characterize injury burden but also poses administrative, technical, and methodological challenges.


---


**Presenting Author(s):**

**Letitia Davis**
Occupational Health Surveillance
Program, Massachusetts Department
of Public Health, Boston, MA
letitia.davis@state.ma.us

**Contributing Authors**

Kathleen Grattan, MPH, MA Dept of Public Health Sangwoo Tak, AsD, MPH, MA Dept of Public Health Lucy Bullock, BA, formerly with MA Dept of Public Health Leslie Boden, PhD, Boston University Al Ozonoff, PhD, Children's Hospital, Boston

**Abstract ID:** 1318322 **Presentation Type:** Poster Presentation
**Title:** Reported adverse events following administration of adjuvanted versus unadjuvanted inactivated 2009 H1N1 influenza vaccines in British Columbia, Canada and Washington State, USA
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Vaccine preventable diseases
**Keywords:** Influenza / Pandemic influenza|Vaccine safety|Data/Surveillance

**Background:**
In response to the 2009 H1N1 pandemic both British Columbia (BC) and Washington State (WA) implemented campaigns to deliver monovalent influenza vaccine to their citizens. Most vaccine used in BC was a novel squalene adjuvanted inactivated vaccine. The inactivated vaccine (MIV) administered in WA was unadjuvanted and based on 'seasonal' formulation vaccine. The population demographics of these jurisdictions are similar and lend themselves to comparison of adverse events following immunization (AEFIs).

**Methods:**
Comparable passive systems for monitoring reports of AEFIs were in place in BC and WA. Both jurisdictions tracked the number of doses of vaccine administered. Rates of AEFI reporting following receipt of inactivated vaccine were compared overall, and by severity of event.

**Results:**
Approximately 1.59 million doses of adjuvanted vaccine were administered in British Columbia, and reports of AEFIs for 381 individuals were received. The rate of AEFI reporting was 24.0 per 100,000 doses administered overall with 1.5 serious adverse events reported per 100,000 doses. 93.7% of AEFI reports in the province were not serious. An estimated 990,000 doses of MIV were distributed in Washington State. Adverse events were reported for 134 individuals following receipt of MIV, for an overall rate of 13.53 AEFIs reported per 100,000 doses of MIV administered with 1.21 serious adverse events reported per 100,000 doses. 91% of AEFI reports in the state following receipt of MIV were not serious.

**Conclusions:**
Distribution of inactivated H1N1 vaccine to demographically similar populations in neighboring jurisdictions yielded comparable rates of serious AEFI reporting in BC and WA, despite the use of vaccines with significantly different formulations. Non-serious AEFIs were reported in BC at a rate nearly double that in WA. Reasons for that difference are discussed.

---

**Presenting Author(s):**

**Charla DeBolt**
Washington State Department of
Health, Seattle, WA
chas.debolt@doh.wa.gov

**Contributing Authors**

Amy Schneeberg MHSc1; Monika Naus MD1, 3; David Patrick MD1; Samson Chan MPH3; Anthony Marfin MD2; Azadeh Tasslimi MPH2. 1-BC Center for Disease Control, Vancouver, British Columbia, Canada, 2-Washington State Department of Health, 3-University of Britis

**Abstract ID:** 1310816 **Presentation Type:** Poster Presentation
**Title:** Mortality trends among people diagnosed with hepatitis C virus infection: Massachusetts, 1992-2009
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Viral hepatitis
**Keywords:** Viral hepatitis|ICD

**Background:**
Hepatitis C virus (HCV) infection causes significant morbidity and mortality. Research indicates a substantial and rising burden of premature mortality due to HCV infection and that HCV-positive individuals are at higher risk of non-liver-related mortality. An analysis was conducted to explore mortality trends among people reported with evidence of HCV infection in Massachusetts, where hepatitis C infection has been a reportable condition since 1992.

**Methods:**
Data from 1992 through 2009 were extracted from the Massachusetts Department of Public Health (MDPH) electronic surveillance system, MAVEN (Massachusetts Virtual Epidemiologic Network), and matched to the state's death records. A total of 95,801 HCV cases were matched against 1,107,544 people in the death records based on first name, last name, and date of birth and analyzed using SAS 9.2 software. Cause of death was classified using the International Classification of Diseases, 9th Revision (ICD-9) for deaths during 1992-1998, and ICD-10 for deaths during 1999-2009.

**Results:**
Between 1992 and 2009, 7,512 HCV-positive individuals died in Massachusetts. HCV cases were compared to individuals not known to have HCV infection on age at death for all causes. The mean age of death was 75 years among individuals not diagnosed with HCV infection, compared to 53 years in the HCV positive individuals (including deaths due to HCV and to other causes). Analysis of time from diagnosis of HCV infection to death indicated that 73% of those with HCV infection died within five years of their HCV infection diagnosis from all causes. Seventy percent of liver-related deaths and 75% of non-liver-related deaths occurred within five years of HCV diagnosis. Twenty-one percent of HCV infected individuals died between the ages of 50 and 55 years compared to 3% of the general population.

**Conclusions:**
Individuals with HCV infection are dying at a younger age from all causes than are their uninfected counterparts. Premature mortality could represent issues related to access to care, with individuals with HCV infection entering care late in the course of disease progression. Liver-related and non-liver related deaths had similar time to death trends in the HCV positive individuals suggesting HCV infection itself, or co-morbidities, are important determinants.

---

**Presenting Author(s):**

**Alfred DeMaria**
Massachusetts Department of Public
Health, Boston, MA
alfred.demaria@state.ma.us

**Contributing Authors**

Lijewski V., MPH, Church D., MPH , Onofrey S, MPH. Division of Epidemiology and Immunization, Bureau of Infectious Disease, Massachusetts Department of Public Health, Boston, MA.

**Abstract ID:** 1315990 **Presentation Type:** Poster Presentation
**Title:** Hepatitis B virus and hepatitis C virus coinfection in Massachusetts, 2000-2010
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Viral hepatitis
**Keywords:** Hepatitis|Co-morbidity

**Background:**
Hepatitis B virus (HBV) and hepatitis C virus (HCV) cause significant morbidity and mortality. The epidemiology of HBV/HCV coinfection is not well established in the literature, but evidence suggests that coinfection can lead to accelerated progression of liver disease and may be an important factor when considering antiviral therapy. Evidence of HBV and HCV infection is reportable to the state and local boards of health in Massachusetts. An analysis was conducted to determine the number of coinfected individuals in the Massachusetts Department of Public Health (MDPH) electronic surveillance system, MAVEN (Massachusetts Virtual Epidemiologic Network).

**Methods:**
Data from 2000 to 2010 were extracted from MAVEN and analyzed using SAS version 9.2. A total of 23,291 HBV infections were matched with 87,411 HCV infections based on a person identification number indicated in MAVEN.

**Results:**
The match identified 1,737 people infected with both HBV and HCV from 2000-2010. Seven percent of all reported HBV cases were coinfected with HCV, while two percent of reported HCV cases were coinfected with HBV. Six percent of HBV infections among identified coinfected people were classified as acute. Seventy-one percent of coinfected cases were male, 46% were white, 9% were black, 6% were Asian/ Pacific Islander, 6% were reported as other or multiple race, and 33% did not have a race listed. Six percent were reported as Hispanic and 5% were reported as foreign born. Only 26% of coinfected cases had any risk history data available (n= 456). Of these, the most commonly reported risk factor was injection drug use (n=270, 75%). Seventy-one percent of coinfected cases were diagnosed with HBV and HCV infection within the same year, while the remaining 29% were diagnosed with HBV infection a year or more after their HCV infection was diagnosed.

**Conclusions:**
Reports of HBV and HCV coinfection in Massachusetts are relatively limited, but of concern. Detailed demographic and risk history data are also limited for these cases, and improved collection of demographic and risk history is needed in order to better understand this population. A notable portion of coinfected cases had their HBV infection reported after their HCV infection despite recommendations for HBV immunization for people with HCV infection. Although the exact date of infection for HBV and HCV cannot be determined in this analysis, it nevertheless enforces the importance of integrated risk assessment, testing, and care in clinical and public health settings.

---

**Presenting Author(s):**

**Alfred DeMaria**
Massachusetts Department of Public
Health, Boston, MA
alfred.demaria@state.ma.us

**Contributing Authors**

Barton K, MPH, Church D, MPH. Division of Epidemiology and Immunization, Bureau of Infectious Disease, Massachusetts Department of Public Health, Boston, MA

**Abstract ID:** 1316004 **Presentation Type:** Poster Presentation
**Title:** Antibiotic susceptibility testing trends across Massachusetts acute-care hospitals, 2005-2010
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Antibiotic resistance
**Keywords:** Antimicrobial resistance|Epidemiology

**Background:**
Hospital antimicrobial susceptibility testing results for bacterial pathogens are aggregated into summary tables, or antibiograms, to be used by medical professionals to indicate hospital or community resistance patterns. The Massachusetts Department of Public Health (MDPH) has been requesting and compiling state-wide antibiograms from Massachusetts acute-care hospitals since 1999. MDPH conducted an analysis of antibiogram data from 2005 through 2010 to identify changes in antimicrobial testing practices and the susceptibilities of monitored bacterial pathogens.

**Methods:**
Antibiograms submitted from 2005-2010 were verified and analyzed using Microsoft Access and SAS v9.2 (SAS Institute Inc., Cary, NC, USA). Data were aggregated across all reporting hospitals and stratified by patient population type. Hospitals reporting redundant patient data were excluded, but duplicate bacterial isolates, if included, could not be excluded. We examined statewide trends in reporting of specific antimicrobials used in susceptibility testing and susceptibility results across five bug-drug combinations of interest, including Klebsiella oxytoca and Klebsiella pneumoniae with carbapenems and second and third generation cephalosporins, and Escherichia coli with fluoroquinolones. Annual proportions of susceptibility were weighted by the number of isolates in individual hospital antibiograms. P-values were calculated using Poisson regression analysis. Trends in reporting of antimicrobial susceptibility testing across Massachusetts hospitals were also compared to assess laboratory adherence to national recommendations.

**Results:**
Between 2005 and 2010, the MDPH received an average of 53 antibiograms (range: 50-55) each year consisting of 40,998 isolates of 13 organisms of interest. Between 2007 and 2010, we observed an increase in the proportion of hospitals reporting ertapenem susceptibility for Klebsiella pneumoniae (2% to 56%) and Klebsiella oxytoca (2% to 42%) after several national recommendations were made to test this antibiotic as a carbapenem class drug. Additionally, significant downward trends in the susceptibility of E. coli to ciprofloxacin (89% to 82%, $p<0.0001$), levofloxacin (88% to 82%, $p<0.0001$), and moxifloxicin (86% to 74%, $p<0.0001$) were observed between 2005 and 2010.

**Conclusions:**
Massachusetts antibiogram data were analyzed to identify changes in antimicrobial susceptibility testing and to track trends in antimicrobial susceptibility results. Changes in the use of ertapenem for susceptibility testing indicated hospital laboratories were following national antibiotic testing recommendations. Statewide, E. coli susceptibility to fluoroquinolones was found to be decreasing over time. This is consistent with observations at the individual hospital level and tends to support antimicrobial stewardship with respect to fluoroquinolones and other agents.

---

**Presenting Author(s):**

**Alfred DeMaria**
Massachusetts Department of Public
Health, Boston, MA
alfred.demaria@state.ma.us

**Contributing Authors**

Bolstorff B, MPH, Division of Epidemiology and Immunization, Massachusetts Department of Public Health, Boston, MA; Hilary Placzek, MPH, Division of Epidemiology and Immunization, Massachusetts Department of Public Health, Boston, MA and Clinical and Popu

**Abstract ID:** 1361822 **Presentation Type:** Roundtable Presentation
**Title:** Babesiosis, blood supply and national notifiability
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Zoonoses
**Keywords:** Surveillance|NNDSS

**Brief Summary:**
Participants will share information and experience from blood collection agencies, CDC, and state and local health departments.

**Key Objectives:**
This roundtable will consist of a discussion of the current status of transfusion-related babesiosis, screening of donors for evidence of babesiosis and babesiosis surveillance since CSTE recommended that it be made nationally notifiable.

---

**Presenting Author(s):**

**Alfred DeMaria**
Massachusetts Department of Public
Health, Jamaica Plain, MA
alfred.demaria@state.ma.us

**Abstract ID:** 1361827 **Presentation Type:** Roundtable Presentation
**Title:** The end of culture: The potential impact of new laboratory methods and platforms
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Laboratory test methods & their impact on surveillance
**Keywords:** Infectious Diseases

**Brief Summary:**
The progress in laboratory testing, with more rapid and sensitive testing methods, will have a significant impact on infectious disease surveillance in terms of case attribution, outbreak detection and recognition of phenotypic characteristics, such as antimicrobial susceptibility. Participants will learn of current efforts to address the challenges presented by application of these new clinical laboratory methods, and potential short-term and long-term solutions.

**Key Objectives:**
This roundtable will bring together participants interested in sharing experiences and ideas related to changes in laboratory technology that will lead to the elimination of bacterial isolates as an end result of diagnostic testing in microbiology laboratories.

---

**Presenting Author(s):**

**Alfred DeMaria**
Massachusetts Department of Public
Health, Jamaica Plain, MA
alfred.demaria@state.ma.us

**Abstract ID:** 1312694 **Presentation Type:** Breakout Presentation
**Title:** Enhancing statewide drug overdose surveillance by utilizing the North Carolina controlled substances reporting system and medical examiner data
**Committee:** Injury Control and Prevention Sub-Committee
**Topic:** Unintentional drug poisonings deaths
**Keywords:** Unintentional/intentional poisoning |Injury surveillance|Data/Surveillance

**Background:**
Unintentional overdose from prescription narcotics is a growing problem in the United States and has gained increased attention from health and law enforcement agencies nationwide. In North Carolina, the rate of unintentional and undetermined overdose deaths from prescription narcotics increased elevenfold from 0.54 per 100,000 in 1999 (43 deaths) to 6.60 per 100,000 in 2008 (610 deaths) and has since declined to 5.40 per 100,000 in 2010 (515 deaths). The purpose of this study is to examine the demographic characteristics and prescription drug history of N.C. residents who died from an unintentional or undetermined drug/medication overdose in 2010 and determine how many had a prescription for the medication(s) that contributed to their death.

**Methods:**
The study sample included all 894 N.C. residents who died in 2010 from a drug/medication overdose (ICD-10 codes X40-X44, Y10-Y14). Detailed matching criteria were developed, and death certificate data for each case were matched to prescription drug records from the year before death using the online query system of the N.C. Controlled Substances Reporting System (CSRS). These data were then merged with data from the N.C. Office of the Chief Medical Examiner (OCME). Frequency analysis was conducted using SAS, version 9.2.

**Results:**
Of the 894 overdose victims in the study, 61% were male, 90% were white, and the mean age was 42. Prescription narcotics were listed as a cause of death for 58% of cases, while illicit drugs (cocaine or heroin) were listed for only 17% of cases. Preliminary analysis showed that cases had an average of 19 prescriptions for controlled substances dispensed in the year before death, which includes those cases for whom no prescription drug records were found for the specified time frame. The majority of cases (56%) had at least one prescription for a controlled substance dispensed within 30 days of death. Analysis of study data is ongoing, and results of additional analyses will be presented at the conference.

**Conclusions:**
Although the rate of unintentional and undetermined drug/medication overdoses in North Carolina declined slightly in 2010, this issue remains a significant public health problem for the state. Linking death certificate data to prescription drug history and medical examiner data provides valuable insight into this problem, showing that many overdose victims received prescriptions for controlled substances in the months leading up to their deaths. These results can be used to develop targeted intervention and prevention strategies to lower the rate of overdose deaths in North Carolina.

---

**Presenting Author(s):**

**Annie DeMuth**
Chronic Disease & Injury Section,
North Carolina Department of Health
and Human Services, Raleigh, NC
annie.demuth@dhhs.nc.gov

**Contributing Authors**

Scott Proescholdbell, MPH, North Carolina Division of Public Health William Bronson, North Carolina Division of Mental Health, Developmental Disabilities and Substance Abuse Services

**Abstract ID:** 1331017 **Presentation Type:** Poster Presentation
**Title:** Reduction in emergency department visits for acute myocardial infarction following passage of North Carolina's smoke-free restaurants and bars law
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Surveillance of policies, environments, and systems changes for CD/MCH/OrH
**Keywords:** Surveillance|Tobacco|Policy/Policy Development


**Background:**
The 2006 Surgeon General's Report provided data on the relationship between several health problems and secondhand smoke exposure, and discussed the plausibility of the association between smoke-free legislation and decreased incidence of acute myocardial infarction (AMI). A 2009 report from the Institute of Medicine concluded that there is sufficient evidence from several studies to suggest a causal relationship between smoke-free legislation and reduced risks of acute cardiovascular events, such as AMI. We present additional population-based data to support this assertion and examined the rates of AMIs before (2008-2009) and after (2010) North Carolina's smoke-free law went into effect on January 2, 2010.

**Methods:**
Using data from the North Carolina Disease Event Tracking and Epidemiologic Collection Tool, we extracted emergency department (ED) visit record from the years 2008 to 2010 that were made by anyone over the age of 18 with a first-listed ICD-9 CM diagnosis code for an AMI. We used an interrupted time series design to evaluate the effect of the implementation of the legislation on ED visits for AMI. We calculated crude and adjusted rate ratios by modeling the weekly number of ED visits for each stratum of sex, county, and age; conducted analyses using generalized estimating equation Poisson regression models; applied backwards selection to identify the best fitting model; and examined Quasilikelihood under the Independence model Criterion (QIC) statistics, to compare models.

**Results:**
ED visits for AMI for the entire NC population decreased from 9,066 in 2008 to 7,669 in 2010. Interestingly, the number of visits increased slightly during this period in younger women. Overall rates consistently declined between 2008 and 2009; after that period, the rates leveled off at a consistently lower level in 2010. Comparison of QIC statistics suggested that the model providing the best fit to the data was one that adjusted for the weekly average temperature and county. This model indicated that the rate of ED visits for AMI was 21% lower following the implementation of the smoke-free legislation (Rate Ratio Estimate = 0.79; 95% CI = 0.75-0.83).

**Conclusions:**
Results from this analysis show a decrease from 2008 to 2010 in the rate of ED visits for AMI in North Carolina. The results suggest a greater decrease following the implementation of NC's smoke-free law than that shown by the three meta-analyses mentioned in the IOM report. This may be partially attributable to NC's above-average adult smoking rate (19.8% compared to US rate of 17.3%).


---


**Presenting Author(s):**

**Annie DeMuth**
Chronic Disease & Injury Section,
North Carolina Department of Health
and Human Services, Raleigh, NC
annie.demuth@dhhs.nc.gov

**Contributing Authors**

Molly Aldridge, MPH, North Carolina Division of Public Health Leah Schinasi, MSPH, University of North Carolina School of Public Health Winston Liao, MPH, North Carolina Division of Public Health Sally Herndon, MPH, North Carolina Division of Public Healt

**Abstract ID:** 1322106 **Presentation Type:** Poster Presentation
**Title:** Violent death surveillance among special populations and evaluation of the North Carolina Violent Death Reporting System (NC-VDRS)
**Committee:** Surveillance/Informatics
**Topic:** Electronic disease surveillance systems (e.g., EDSS, NEDSS, etc.)
**Keywords:** Violence|Injury surveillance|Domestic violence

**Background:**
The NC-VDRS is a CDC-funded statewide surveillance system that collects detailed information from death certificates, medical examiner reports, and law enforcement reports on all deaths that occur in North Carolina resulting from violence. This system is a valuable tool for describing characteristics of violent death victims and understanding the circumstances that led to their deaths. In particular, the NC-VDRS can be used to gain an understanding of violent deaths among special populations, including law enforcement officers, veterans, and victims of intimate partner violence (IPV), for which data have historically been difficult to obtain. The purpose of this study is to evaluate the NC-VDRS using CDC's guidelines for evaluation of a surveillance system and to describe violent deaths among special populations using the multi-source data in the NC-VDRS.

**Methods:**
Following the CDC's guidelines for evaluating a surveillance system, we will assess key attributes of the NC-VDRS, including simplicity, flexibility, data quality, acceptability, sensitivity, specificity, and stability. Key stakeholders, including data providers, board members, and data users, will be interviewed to evaluate the acceptability of the system, and representatives from outside data sources, such as the N.C. Coalition Against Domestic Violence and the N.C. Department of Justice, will be consulted to compare case definitions for violent deaths among special populations. Descriptive analyses will be conducted using SAS, version 9.2.

**Results:**
From 2004-2009, NC-VDRS identified 11,078 deaths that occurred in North Carolina as a result of violence. Among these deaths, NC-VDRS identified 43 violent deaths among law enforcement officers, 1,667 violent deaths among veterans, and 645 IPV-related deaths. Case definitions and counts of violent deaths among these populations will be compared with outside data sources. Evaluation of the system is ongoing, and additional results and analyses will be presented at the conference.

**Conclusions:**
Acceptability of the system could be increased through dissemination of NC-VDRS updates and data through e-mail newsletters, presentations at conferences, and other methods. Improved collaboration with organizations that track violent deaths among special populations would enhance the usefulness of the system and help to refine case definitions across data sources. Violent deaths are a significant public health problem in North Carolina, and the NC-VDRS will continue to be a valuable tool in tracking the problem and understanding the circumstances contributing to these deaths.

---

**Presenting Author(s):**

**Annie DeMuth**
Chronic Disease & Injury Section,
North Carolina Department of Health
and Human Services, Raleigh, NC
annie.demuth@dhhs.nc.gov

**Contributing Authors**

Scott Proescholdbell, MPH, North Carolina Division of Public Health Tammy Norwood, BS, North Carolina Division of Public Health Leah Perkinson, MPH, North Carolina Coalition Against Domestic Violence Catherine Guerrero, MPA, North Carolina Division of Pub

**Abstract ID:** 1332004 **Presentation Type:** Poster Presentation
**Title:** HIV-associated risk behaviors by serostatus partnership among men who have sex with men (MSM); 2011 National HIV Behavioral Surveillance (NHBS) system Atlanta, GA
**Committee:** Infectious Diseases Sub-Committee
**Topic:** HIV
**Keywords:** HIV/AIDS|Surveillance|Health risks

**Background:**
MSM carry the heaviest burden of HIV infection in the United States by transmission category. Unprotected anal intercourse (UAI) in the context of serosorting, the practice of seeking out sexual partners with the same HIV status, and seropositioning, the practice of assuming the insertive or receptive role based on HIV status, is increasing in popularity as a strategy for reducing transmission of HIV outside of total condom use. This analysis examined rates of UAI among three types of serostatus partnerships, rates of UAI by type of partner (main or casual), and demographics of the MSM sample surveyed.

**Methods:**
As part of the National HIV Behavioral Surveillance (NHBS) system of the Centers for Disease Control and Prevention (CDC), HIV-related behavioral data was collected from September 2011 to November 2011 in the Atlanta, GA metropolitan statistical area (MSA) using venue based time-space sampling to obtain a cross-sectional sample of MSM. Frequencies and percentages of participants reporting HIV-associated risk behaviors are described demographically. MSM were grouped by type of serostatus partnership at most recent sexual encounter and were compared using a Chi-square test for association.

**Results:**
This analysis evaluated 583 interviews from the 2011 MSM3 data cycle of NHBS in Atlanta, GA. Our findings include a significant difference in rate of HIV positive seroconcordant partnership MSM who reported engaging in unprotected anal intercourse compared to MSM in HIV negative seroconcordant partnerships or serodiscordant partnerships. More participants reported UAI with a main partner than a casual partner at their most recent sexual encounter. Rates of type of unprotected anal intercourse (insertive vs. receptive) reported by participants were similar by type of partner in last sexual encounter (main or casual).

**Conclusions:**
Rates of risky sexual behavior such as UAI are dynamic among MSM. Public health implications include supporting the need for HIV intervention and prevention programs to tailor their educational messages to MSM within the context of serosorting. Additionally, health care practitioners need to be vigilant about encouraging MSM to test frequently for HIV and other sexually transmitted infections in the context of number of sexual partners, type of sexual partner, and type of risk management behavior practiced—total condom use, serosorting, or both.

---

**Presenting Author(s):**

**Angela DeQuesada**
HIV AIDS Epidemiology Section,
Georgia Department of Public Health,
Atlanta, GA
ajdequesada@dhr.state.ga.us

**Contributing Authors**

Greg Bautista GA Department of Public Health Jhetari Carney, MPH GA Department of Public Health Jeff Todd, MA GA Department of Public Health

**Abstract ID:** 1327220 **Presentation Type:** Poster Presentation
**Title:** Evaluation of the Maine syndromic surveillance system, 2011
**Committee:** Surveillance/Informatics
**Topic:** Syndromic Surveillance and Situational awareness (incl. BioSense)
**Keywords:** Evaluation|Data/Surveillance

**Background:**
Maine has been conducting syndromic surveillance since 2007 using the Early Aberration Reporting System (EARS). The main objectives for conducting syndromic surveillance in Maine are to detect health events earlier in the disease continuum, detect beginning of disease seasons, verify outbreaks, monitor trends, and supplement traditional surveillance. No formal evaluation of EARS has been completed. This evaluation will determine if system objectives are being met, assess the system's usefulness, and identify areas for improvement. This specific analysis focused on the "Tick" syndrome because prevention of Lyme disease and other tick-related illness is a priority in Maine.

**Methods:**
The syndromic surveillance system in Maine collects and analyzes emergency department (ED) data from 24 of Maine's 36 acute care hospitals (representing approximately 75% of Maine's ED visits) and 7 affiliated urgent care clinics. The previous day's ED visits are classified into syndromes based on chief complaint. Maine uses 14 syndromes: 9 infectious, 4 environmental and an "other." The "Tick" syndrome includes specific key words such as tick and Lyme as well as broader terms such as vector-borne, bug bite, and insect. This evaluation assesses usefulness of the Tick syndrome, correctness of the Tick syndrome definition, age and gender disparities, and data completeness using CDC Guidelines for Evaluating Public Health Surveillance Systems and guidelines for evaluating syndromic surveillance systems. Stakeholder meetings were conducted with system users. EARS data from June 21-August 1, 2011 were analyzed to assess system attributes and will be replicated using winter 2011 data.

**Results:**
Patients with tick-related visits (n=752) were mostly adult-aged (31% 18-44 years and 27% 45-64 years). Within the Tick syndrome, there were no missing data for chief complaint, age, or gender. Hospital disposition code was missing for 179 (23.8%) observations. The Tick syndrome correctly identified 751/879 (85.4%) tick-related visits. Of the observations within the Tick syndrome, 751/752 (99.9%) were truly tick-related events. 96 tick-related events were misclassified into 'Other.' Adding five terms to the Tick symptom list corrected 74/96 (77.1%). Additionally, correcting existing terms with punctuation attached fixes 89/96 (92.7%).

**Conclusions:**
Results of the Tick syndrome evaluation will be used to refine the evaluation methodology for additional syndromes and make recommendations to improve the system and syndrome definitions.

---

**Presenting Author(s):**

**Stefanie DeVita**
Division of Infectious Disease, Maine
Center for Disease Control and
Prevention, Augusta, ME
stefanie.devita@maine.gov

**Contributing Authors**

Amy Robbins, MPH, Maine Center for Disease Control and Prevention

**Abstract ID:** 1317435 **Presentation Type:** Breakout Presentation
**Title:** Enhancing competencies and skills of chronic disease epidemiologists in an environment of limited financial resources
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Building epidemiology capacity for CD/MCH/OrH
**Keywords:** Cardiovascular disease|Epidemiology capacity|Professional development

**Background:**
The Epidemiology and Evaluation Committee (EEC) of the Cardiovascular Health (CVH) Council of the National Association of Chronic Disease Directors (NACDD) surveyed state Heart Disease and Stroke Prevention (HDSP) program epidemiologists, evaluators, stroke registry data managers, and WiseWoman data managers to assess their strengths and training needs. The survey was aligned with the CSTE applied epidemiology competency areas. Based on the survey results, a strategy to increase chronic disease epidemiology and evaluation capacity using low- or no-cost distance training and peer-to-peer mentoring was developed and implemented.

**Methods:**
Several methods were used to build epidemiology and evaluation capacity. First, a technical assistance directory comprised of individuals who indicated on the survey that they would be willing to assist other epidemiologists and evaluators with specific tasks (e.g., designing surveys, conducting an economic evaluation, analyzing Medicare data) was created and distributed. Second, a subcommittee of EEC was convened to coordinate trainings for 2012. Experts were recruited to facilitate distance education opportunities in areas such as analyzing Emergency Medical Services(EMS) data, conducting cost-effectiveness evaluation, and bringing surveillance data to communities. Finally, a list of useful websites and other resources is being compiled into an electronic manual for chronic disease epidemiologists and evaluators. Evaluations of the usefulness of the technical assistance directory and the effectiveness of the trainings are planned for 2012.

**Results:**
In response to the training needs identified in the 2011 assessment, EEC expects to coordinate three distance education opportunities between January and June 2012, reaching 45 epidemiologists and evaluators in HDSP and other chronic disease programs. Anticipated enrollment is 15 per course. Data on the number of participants attending each training stratified by chronic disease program, reported perception of the value of the trainings, and the number of identified training needs addressed will be collected. The technical assistance directory is posted on the CVH Council website and includes 41 epidemiologists and evaluators for HDSP, WiseWoman, and Coverdell Stroke Registry programs. The list of useful websites and other resources will be used to support incoming chronic disease epidemiologists and evaluators. It will be marketed to program managers and maintained on the CVH Council website.

**Conclusions:**
Even in an environment of constrained financial resources, it is possible to continue building chronic disease epidemiology and evaluation capacity across programs and states.

---

**Presenting Author(s):**

**David DeVries**
State of Nebraska, Lincoln, NE
david.devries@nebraska.gov

**Contributing Authors**

Mary Catherine Jones MPH Heart Disease and Stroke Prevention State of Utah Carrie Daniels MPH Heart Disease and Stroke Prevention State of Oklahoma

**Abstract ID:** 1331528 **Presentation Type:** Breakout Presentation
**Title:** A predictive influenza model using demographic, clinical and public health surveillance data
**Committee:** Surveillance/Informatics
**Topic:** General surveillance topics
**Keywords:** Influenza surveillance


**Background:**
Influenza -like illness is currently estimated from local and regional public health surveillance data and is centralized nationally as part of influenza-like illness network (ILINet). However, the proportion of ILI that is caused by influenza is not well described and there is little in the way of real-time quantitative, automated methods for clinical decision support. As part of the Influenza Incidence Surveillance Project (IISP), consensual ILI patients provided demographic and clinical data, as well as a sample for RT-PCR and Luminex testing for virus identification. This information along with the public health surveillance data was used to develop a predictive model to describe the significant factors contributing to the probability of influenza infection in patients with ILI.

**Methods:**
Demographic and clinical data collected from each patient underwent bivariate testing to determine factors significantly associated with a positive influenza test, as did other factors including ILI incidence and percent influenza positive (from PCR testing) from the previous week. The significant factors will be used to build a logistic regression model for patients with ILI that are positive for influenza.

**Results:**
The results of the bivariate analyses indicate that cough, rhinorrhea, myalgia, chills, malaise, or a positive rapid influenza test result are significantly associated with a positive RT-PCR influenza result. Patients positive for other respiratory viruses or for a rapid streptococcus test were significantly associated with a negative RT-PCR influenza result. Analyses for other factors including percent of visits due to ILI and percent influenza positive from the previous week as well as the logistic regression model are underway.

**Conclusions:**
The outcome of this model will be a probability of influenza infection in patients with ILI given a set of factors. This model could serve as a tool for clinical decision making (i.e., if a patient is likely to have flu, antivirals should be prescribed) at the point of care since it is currently not possible to provide a timely clinical decision using PCR testing results because by the time results are available, the patient will have likely already recovered.


---

**Presenting Author(s):**


**Steve Di Lonardo**
Health Care Access and Imporvement,
New York City Department of Health
and Mental Hygiene, New York, NY
sdilonardo@health.nyc.gov


**Contributing Authors**


Jason Wang, PhD Director of Evaluation, New York City Department of Health and Mental Hygiene, Division of Health Care Access and Improvement. Primary Care Information Project. Winfred Wu, MD, MPH Director of Public Health Informatics, New York City Dep

**Abstract ID:** 1331751 **Presentation Type:** Poster Presentation
**Title:** Alternatives to chlorine disinfection for wastewater treatment facilities in Utah: UT-NTSIP's community outreach initiative
**Committee:** Environmental Health Sub-Committee
**Topic:** Air/Water quality related to environmental epidemiology and health
**Keywords:** Risk Assessment|Geographic Information Systems|Environmental Health hazards

**Background:**
Inherently Safer Technology (IST) initiatives are designed to reduce hazards presented by currently-employed industrial practices. One major IST focus is chlorine gas-using wastewater treatment facilities due to the extreme hazards associated with the transportation and usage of this chemical. To this end, Utah's National Toxic Substance Incidents Program (UT-NTSIP) created this outreach initiative to encourage Utah's wastewater facilities to consider safer water treatment alternatives.

**Methods:**
UT-NTSIP collaborated with Utah Department of Water Quality (UDWQ) to locate all wastewater facilities in the state. As over eighty percent of Utah's total population is concentrated within five counties (Salt Lake, Utah, Davis, Weber, and Washington), we used Geographic Information Systems (ArcGIS) technology to map the location of the chlorine gas-using wastewater treatment facilities in these highest impact areas. We then used ArcGIS mapping to assess the population and vulnerable institutions within one mile of these facilities. UT-NTSIP created an informational brochure, webpage, and follow-up survey to send to all 62 wastewater facilities in Utah. The brochure contains information regarding chlorine alternatives, possible government subsidies, and a chlorine gas decision tool. The website contains detailed chemical information as well as ArcGIS maps of the highest impact facilities, neighboring populations and institutions, and graphic impact estimates of a chlorine gas release. The online survey will gauge both the informational value of the brochure/website and determine if facilities might consider chlorine gas alternatives.

**Results:**
Expected outcome measures include the level of general interest (i.e. number of website visits), attitudes toward switching disinfection technologies, and identification of obstacles preventing a technology switch. The most tangible results of this outreach will be the number of wastewater facilities switching to a chlorine alternative. For example, among the highest impact wastewater facilities, four elderly care facilities, 28 schools (including 11 elementary and 7 high schools), and over 21,000 homes are within one mile of a facility; should one facility in Utah County switch to a chlorine alternative for disinfection, 6,900 residents, 3 schools, and 1 elderly care facility would be positively impacted.

**Conclusions:**
ArcGIS is a powerful tool in identifying vulnerable populations and assessing risk. In this initiative, maps generated through ArcGIS provide added incentive for targeted facilities to explore the website resources and appreciate the potential impact of a chlorine gas release on their community.

---

**Presenting Author(s):**

**Craig Dietrich**
Utah Department of Health, Salt Lake City, UT
dietrich@utah.gov

**Contributing Authors**

Alex Wu, MPH, Utah Dept. of Health Feli Anne Hipol, Utah Dept. of Health Melissa DeMartini, Utah Dept. of Health

**Abstract ID:** 1326991 **Presentation Type:** Breakout Presentation
**Title:** Outbreak of Pseudomonas aeruginosa and Klebsiella pneumoniae bloodstream infections at an outpatient chemotherapy infusion center
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Healthcare associated infections (HAI)|Infection control

**Background:**
Mississippi State Department of Health (MSDH) was contacted July 18, 2011 by a local hospital due to concurrent hospitalizations of four individuals with Pseudomonas aeruginosa and Klebsiella pneumoniae central line-associated bloodstream infections. All patients received services at the same outpatient chemotherapy infusion center.

**Methods:**
Local MSDH staff conducted an on-site investigation of the outpatient infusion center July 18. The center was closed as an imminent public health threat July 20. Interviews of staff members and reviews of procedures were conducted. Based on the identified exposure risk period of July 5, 2011 through July 20, 2011, all patients receiving care during this time were monitored for the development of P. aeruginosa and/or K. pneumoniae bloodstream infection. Pulsed-field gel electrophoresis (PFGE) was performed on available clinical isolates to assess genetic relatedness. Additionally, all patients receiving care at the center from 1/1/2008 on were notified of potential exposure to unsafe injection practices and offered free testing for Hepatitis B, C and HIV.

**Results:**
Of 84 patients receiving care at the infusion center from July 5 to July 20, 2011, 16 developed bloodstream infections with P. aeruginosa, K. pneumoniae, or both, including 15 of 43 patients with indwelling central lines. One potentially associated death occurred in a patient with a diagnosis of sepsis. Six clinical isolates of K. pneumoniae and six clinical isolates of P. aeruginosa were available from seven patients for PFGE analysis. PFGE analysis revealed 100% concordance for all P. aeruginosa and K. pneumoniae isolates. Staff interviews and infection control assessment revealed that the following changes in policy and practices were made on July 5, 2011 as a cost savings measure: a common source heparin bag was put into use, syringes were reused for common source heparin, and syringes were reused between patients. Based on these unsafe injection practices, 623 patients seen from 1/1/2008 to 7/20/2011 were identified for testing for Hepatitis B, C and HIV, of whom 331 presented to local health departments for testing. Twenty-seven patients tested positive for resolved Hepatitis B infection (core antibody positive and surface antigen negative, one for chronic Hepatitis B infection (surface antigen positive). None were positive for HIV. Four tested positive for active Hepatitis C infection by RNA but additional genotype analysis did not indicate common source exposure. No evidence of viral pathogen transmission was apparent.

**Conclusions:**
An outbreak of P. aerugionsa and K. pneumoniae bloodstream infections was identified at an outpatient infusion center and was likely due to a common source heparin flush bag and the reuse of heparin syringes. Lack of infection control policies and oversight as well as misguided cost control efforts likely contributed to this outbreak.

---

**Presenting Author(s):**

**thomas dobbs**
Mississippi State Department of
Health, Hattiesburg, MS
thomas.dobbs@healthyms.com

**Contributing Authors**

Paul Byers, MD Mississippi State Department of Health Peggy Oakes, RN Mississippi State Department of Health Jan Vince, RN Mississippi State Department of Health Andrea Miller Mississippi State Department of Health

**Abstract ID:** 1310139 **Presentation Type:** Breakout Presentation

**Title:** A collaborative, locally oriented Wisconsin outreach plan to reduce the dangers associated with chemical vulnerability following an acute release of hazardous chemicals

**Committee:** Environmental Health Sub-Committee

**Topic:** Surveillance and response to chemical/radiologic emergencies, including National Toxic Substance Incidents Program (NTSIP)

**Keywords:** Vulnerable populations|Data/Surveillance|Collaboration

**Background:**
For more than 18 years, the Wisconsin Department of Health Services (DHS) in partnership with the Agency for Toxic Substances and Disease Registry (ATSDR), has actively tracked the adverse health outcomes associated with the uncontrolled release of hazardous substances. During those years, the program has been performing prevention outreach. Under the new ATSDR program, the National Toxic Substance Incidents Program (NTSIP), states have been asked to identify populations or areas that may be chemically vulnerable during an acute hazardous chemical incident. These areas can then be targeted for prevention efforts.

**Methods:**
The Wisconsin, NTSIP/DHS staff performed data assembly of chemical storage quantities, hazardous materials spills data, road and rail transportation corridor data, and census/demographic data, then performed geocoding and data integration. ESRI GIS software was utilized for mapping and layering of the multiple data sources, to identify areas/populations where chemical vulnerability was a strong likelihood. Utilizing the data, NTSIP staff formed primary partnerships with two local public health agencies (LPHAs). Through this collaboration NTSIP and LPHA staff formed secondary partnerships with agencies including, local emergency planning committees, school planning committees, minority groups, hospitals, and private sector organizations to increase awareness of chemical vulnerability. Testamentary interviews, questionnaires, and observations were used to measure changes and improvements.

**Results:**
Preliminary results included vastly improved knowledge of local chemical storage data by the primary LPHA partners; access to DHS/GIS resources allowing the primary partners to document and map vulnerabilities in other public health venues; expanded understanding of the elements of chemical vulnerability by secondary partners; and outreach materials containing information about persons to contact, and a listing of steps to be taken during an actual chemical release emergency. The increased knowledge, communication, and partnerships resulted in planning for a local emergency response exercise.

**Conclusions:**
Under the NTSIP program, many states saw budget increases that enabled a well-established state environmental surveillance program like Wisconsin, to greatly expand the scope of its outreach program. NTSIP provided GIS resources, heretofore unavailable, to be utilized in support of both primary and secondary partners in two pilot areas within which the concept of chemical vulnerability had not previously been part of the public health discussion. It also provided an opportunity through which DHS/GIS resources could be accessed by LPHAs, statewide, to identify other public health vulnerabilities. The impact of these activities will be evaluated including decreases in spills and monitoring of the communications and interactions between primary and secondary partners.

---

**Presenting Author(s):**

**James Drew**
Dept. of Health Services, Wisconsin
Department of Health and Family
Services, Madison, WI
james.drew@wi.gov

**Contributing Authors**

Henry Anderson, MD, WI Dept of Health Services Henry Nehls-Lowe, MS, WI Dept of Health Services Mark Werner, PhD, WI Dept of Health Services Katie Gajeski, MS, WI Dept of Health Services, WI NTSIP

**Abstract ID:** 1332139 **Presentation Type:** Breakout Presentation
**Title:** Rapid Assessment of Exposure and Health Effects after a Chlorine Release
**Committee:** Environmental Health Sub-Committee
**Topic:** Surveillance and response to chemical/radiologic emergencies, including National Toxic Substance Incidents Program (NTSIP)
**Keywords:** Chemical and biological exposures|Environmental exposures

**Background:**
In June 2011, an accidental mixing of sodium hypochlorite with an acid antimicrobial treatment released approximately 40 pounds of chlorine gas inside a poultry processing facility. Around 600 workers were present during the release. The Arkansas Department of Health requested assistance from the Agency for Toxic Substances and Disease Registry's Assessment of Chemical Exposures (ACE) program to assess health effects of the release. The investigation was conducted in conjunction with the National Institute for Occupational Safety and Health's Health Hazard Evaluation (HHE) at the facility.

**Methods:**
During the HHE, workers were interviewed in their primary language about symptoms, medical history, and chlorine odor strength. In the ACE investigation, medical chart abstractions were performed at hospitals that treated persons exposed to the chlorine; data abstracted included demographics, signs and symptoms, testing, treatment, and duration of stay. HHE and ACE data on individuals were linked for analysis. Data analysis included descriptive statistics, Chi Square for Linear Trend in Proportions, and the Mann-Whitney/Wilcoxon Two-Sample Test.

**Results:**
The most common symptoms reported by 523 interviewees, who were present during the release and answered symptom questions, were headache (52%), burning throat (48%), burning eyes (43%), and cough (43%). There was a dose response for strength of reported chlorine odor and reporting these symptoms ($p<0.01$). A total of 170 workers were transported to five hospitals after the chlorine release. Of these, 54% were treated and released, 38% were discharged the next day, and 9% were hospitalized for 2–3 nights. Two required respiratory support. The most common symptoms documented in medical records were: sore/irritated throat (70%), shortness of breath (66%), cough (60%), and chest pain (55%). One hundred thirty-nine interviewed workers could be matched to their medical records; of these, 86% reported smelling a strong chlorine odor. Patients reporting a strong smell of chlorine had a longer hospital stay than those not reporting a strong odor ($p=0.01$).

**Conclusions:**
A large number of persons were exposed to chlorine in this accidental release, with many experiencing symptoms that required medical care. During an acute chemical release incident, the concentration of the toxic substance is often not measured. In the absence of a measurement, self-report of odor strength may be a good surrogate for the concentration of a toxic gas with a pungent odor, such as chlorine.

---

**Presenting Author(s):**

**Mary Anne Duncan**
CDC/Agency for Toxic Substances and
Disease Registry, Atlanta, GA
bwj1@cdc.gov

**Contributing Authors**

Francisco Meza, MD, MPH, NIOSH; Sallyann C. King, MD, MSc, CDC; Bryan E. Christensen, PhD, MEPC, CDC; Candis Hunter, MSPH, ATSDR; Christina Souther, AB, CDC; Perri Ruckart, MPH, ATSDR; Elena Page, MD, MPH, NIOSH; Maureen Orr, MS, ATSDR

**Abstract ID:** 1322328 **Presentation Type:** Poster Presentation
**Title:** Identifying previous out of jurisdiction HIV diagnoses in New York City
**Committee:** Infectious Diseases Sub-Committee
**Topic:** HIV
**Keywords:** HIV/AIDS|Data/Surveillance|Registry


**Background:**
Rising life expectancies, population mobility and migration, the expansion of electronic laboratory reporting, and the recent advent of name-based reporting in high morbidity states increase opportunity for interjurisdictional duplicate HIV/AIDS case reports. Per CDC and CSTE recommendations, CDC provides semiannual lists of potential duplicates through the Routine Interstate Deduplication Review (RIDR) to identify interjurisdictional duplicate reports of HIV/AIDS diagnoses. Because CDC has limited identifying information on cases and local registries may not contain persons diagnosed with HIV before named reporting, additional deduplication efforts are needed.

**Methods:**
New York mandated named reporting of AIDS cases in 1981 and HIV cases in 2000. Electronic laboratory reporting of all viral loads, CD4 counts and percents, positive Western Blots, genotypes and STARHS results is legally mandated. New York City Department of Health and Mental Hygiene (NYCDOHMH) participates in RIDR and, in 2010, modified its case report form to improve ascertainment of out of jurisdiction (OOJ) diagnoses. In February 2011, NYCDOHMH reabstracted medical records of 731 HIV-infected patients with suspected previous OOJ diagnoses reported from 1995-2011 (81% reported in 2009 – 2010). We compared results of these field investigations to data in eHARS. We measured indicators of OOJ diagnosis and checked whether RIDR identified these cases.

**Results:**
In eHARS, 81% of reabstracted cases originally listed a NYC diagnosing provider and a NYC residence at HIV diagnosis. Field investigation confirmed that 493 (67%) of these patients were first diagnosed OOJ. Top OOJ diagnosing states include Florida (N=69), California (N=53) and New Jersey (N=33). Although 81% of HIV diagnosis years were correctly recorded, facility of diagnosis was updated for all 493 cases. Only 32% (N=158/493) of the confirmed OOJ cases were matched through RIDR. Over 90% (N=451/493) of the confirmed OOJ diagnoses were physician-based rather than laboratory-based. The median time from original OOJ HIV diagnosis date to the first reported Western Blot in NYC was 73 months (IQR=16-153).

**Conclusions:**
RIDR only identified 32% of confirmed OOJ cases. Accurate ascertainment of residence and facility of HIV diagnosis requires in depth, time consuming chart reviews. Residence and facility of diagnosis are crucial for accurate case counting and identifying migration patterns. DOHMH's modified case report form improved identification of persons previously diagnosed OOJ. Local health departments should strive to correctly identify patients previously diagnosed elsewhere. Additional de-duplication methods involving information sharing between jurisdictions are needed to accurately monitor the HIV epidemic in the United States.


---


**Presenting Author(s):**

**Joanna Eavey**
Bureau of HIV, New York City
Department of Health and Mental
Hygiene, New York, NY
jeavey@health.nyc.gov

**Contributing Authors**

Vicki PetersMD1, Sarah L Braunstein PhD, MPH1, Colin W Shepard MD1

**Abstract ID:** 1286428 **Presentation Type:** Breakout Presentation
**Title:** The eHARS Dashboard – A tool for monitoring HIV surveillance activities
**Committee:** Surveillance/Informatics
**Topic:** Surveillance indicators
**Keywords:** Surveillance|Epidemiologic methods|Electronic data

**Background:**
Monitoring epidemiologic trends is a cornerstone of HIV surveillance. The ability to identify and respond to subtle changes in reporting behaviors is a critical function of disease surveillance in an era of electronic data streams. New HIV cases are identified through a combination of passive surveillance (electronic lab reporting), and active surveillance (line lists and chart reviews from facilities known to treat HIV, and counseling and testing sites.)

**Methods:**
A monthly analysis of data reporting/collection trends was developed using data extracted from the Philadelphia electronic HIV/AIDS Reporting System (eHARS). eHARS is a document-based surveillance system that stores data for all documents associated with a reported case of HIV, including lab tests, case report forms and death certificates. Data are extracted monthly and analyzed using a SAS program developed by the surveillance unit epidemiologist. The analysis includes descriptive statistics of recent activity, as well as tabular data, boxplots, line graphs and bar charts.

**Results:**
The eHARS dashboard reports on 11 separate indicators that monitor the volume of data reported (e.g. documents entered manually and documents imported), the number of new cases identified compared to the same period in the previous year, the source and type of diagnosing facilities, median CD4 of newly diagnosed cases by gender, open cases by disease surveillance investigator (to monitor completeness and work distribution), comparisons of laboratory reporting to the same period in the previous year (to identify changes in laboratory testing and/or reporting), and a number of surveillance process indicators such as the percentage of recent cases with no identified risk factor, cases missing vital status information, and cases with incomplete or correctional address data. The indicators are presented in an HTML format with the ability to drill-down for more detailed information. The data presented in the dashboard overview allow surveillance staff to quickly identify changes or gaps in reporting data streams, and the drilldown function provides detailed information that can identify the source and potential resolution.

**Conclusions:**
The monthly eHARS dashboard has become a valuable source of information to guide program activities, monitor and evaluate DSI performance as well as a method for compiling and analyzing the various data sources that make routine HIV surveillance effective. The implementation of the eHARS dashboard has helped improve timeliness and completeness of reporting and ensure prompt identification and response to emerging problems in the field.

---

**Presenting Author(s):**

**Michael Eberhart**
Department of Public Health, City of Philadelphia, Philadelphia, PA
michael.eberhart@phila.gov

**Contributing Authors**

Mark Shpaner, MD, Philadelphia Department of Public Health

**Abstract ID:** 1327363 **Presentation Type:** Breakout Presentation
**Title:** Alcohol-attributable deaths and years of life lost among youth under age 21
**Committee:** Injury Control and Prevention Sub-Committee
**Topic:** Violence epidemiology and prevention across the lifespan
**Keywords:** Binge drinking|Surveillance

**Background:**
Alcohol is the most commonly used and abused drug by underage youth, and is associated with many of the leading causes of death in this population. Excessive alcohol use by adults can also lead to alcohol-attributable deaths (AADs) among youth, including deaths due to motor vehicle crashes and child maltreatment. In 2005, CDC released a new version of the Alcohol-Related Disease Impact (ARDI) application that allowed users to assess deaths and Years of Potential Life Lost (YPLL) among underage youth due to excessive alcohol use, including both underage drinking and exposure to excessive drinking by adults.

**Methods:**
We used the ARDI application (available at www.cdc.gov/alcohol) to estimate the average annual AADs and YPLL among youth <21 years of age due to excessive alcohol use from 2001 to 2005. Deaths and YPLL were assessed for 54 alcohol-related conditions. For chronic conditions (e.g., liver cirrhosis), AADs and YPLLs were assessed for decedents aged 20 years; for acute conditions (e.g., motor vehicle crashes and homicide), AADs and YPLLs were assessed for youth aged 15 - 20 years. AADs and YPLL were also assessed for youth <15 years who died from motor vehicle crashes, child maltreatment, and low birthweight. Average annual AADs and YPLLs were stratified by state.

**Results:**
Excessive alcohol use was responsible for an average of 4,700 deaths and 280,925 YPLL (59.8 years of life lost per death) among youth <21 years from 2001 to 2005. Overall, 4,492 (96%) of these deaths and 265,425 YPLLs (94%) were due to acute conditions. Most of the deaths involved males (77.7 %), and youth aged 15-20 years (85.8%). Youth <15 years of age accounted for 668 deaths (14.2%), most of which were due to child passenger deaths (332) and child maltreatment (168). The states with the highest age-adjusted AADs for underage youth were California, Texas, and Florida.

**Conclusions:**
From 2001-2005, excessive alcohol use was responsible for an average of 4,700 deaths per year in the U.S., and shortened the lives of those who died by an average of 60 years. Most of these deaths were due to acute conditions, and involved males aged 15-20 years. One in 7 AADs involved youth under 15 years of age. Evidence-based strategies for reducing excessive alcohol use, including increasing alcohol excise taxes and enforcing the age 21 minimum legal drinking age, should be widely implemented.

---

**Presenting Author(s):**

**Valerie Edwards**
Centers for Disease Control and
Prevention, Atlanta, GA
vae2@cdc.gov

**Contributing Authors**

Mandy Stahre, Ph.D., Robert Brewer, M.D., Dafna Kanney, Ph.D.

**Abstract ID:** 1318434 **Presentation Type:** Breakout Presentation
**Title:** Changing epidemiology of hepatitis A in Arizona following intensive immunization programs (1988-2007)
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Viral hepatitis
**Keywords:** Hepatitis|Epidemiology|Vaccination

**Background:**
In 1995, the first hepatitis A vaccines became available for use in the U.S. At that time, Arizona had the highest hepatitis A incidence of all fifty states. A series of increasingly inclusive policies and recommendations for hepatitis A vaccination were implemented in 1996 through 2006. Our primary objective was to examine the shifting epidemiologic patterns in hepatitis A incidence in Arizona from 1988 through 2007, in the context of the changing vaccination coverage of the population.

**Methods:**
Hepatitis A reporting is required in Arizona from health care providers and laboratories. Passive surveillance reports to the Arizona Department of Health Services were used to calculate hepatitis A rates by age, race/ethnicity and geographic area, and compare the demographic distribution of cases in two time periods (1994-1995 and 2006-2007), before and after wide-spread vaccine recommendations. Age-adjusted incidence during three time periods (1990-1997, 1998-2002, and 2003-2007) was mapped using ArcGIS and relative distribution of incidence was mapped using standard deviations. Reported risk factors and possible sources of infection, collected during standard interviews, were compared for two time periods (1994-1995 and 2006-2007) to examine changing trends.

**Results:**
Overall hepatitis A incidence in Arizona has fallen from over 58 cases per 100,000 population in 1988 to 2.3 per 100,000 in 2007 and is approaching national rates. The proportion of reported cases among children has dropped from 62% in 1994-1995 to 32% in 2006-2007. Disparities by race/ethnicity have been nearly eliminated, although rates among the Hispanic population continue to be somewhat elevated. There has been a large change in the geographic distribution of hepatitis A cases within the state. Available risk factor data indicate that cases from earlier years were more likely to report contact with another hepatitis A case (23% vs. 11%) or attendance or employment in childcare facilities (13% vs. 4%); over half of cases in later years indicated recent international travel (52% vs. 6%).

**Conclusions:**
A major shift in the overall burden of hepatitis A and the high risk groups for hepatitis A transmission has occurred in Arizona since the implementation of hepatitis A immunization policies and the concomitant rise in vaccination rates in the state.

---

**Presenting Author(s):**

**Laura Erhart**
Office of Infectious Disease Services,
Arizona Department of Health
Services, Phoenix, AZ
laura.erhart@azdhs.gov

**Contributing Authors**

Kacey C. Ernst, PhD, MPH, Mel and Enid Zuckerman School of Public Health, University of Arizona, Tucson, AZ, USA

**Abstract ID:** 1318440 **Presentation Type:** Poster Presentation
**Title:** Pediatric influenza-associated deaths in Arizona, 2004-2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Influenza
**Keywords:** Influenza / Pandemic influenza|Children and adolescents|Influenza surveillance

**Background:**
Each year, 3,000 to 49,000 people die in the U.S. from influenza-associated illness. While the majority of these deaths are among the elderly, the rate of influenza-related hospitalizations among children can be high, especially for those under the age of five years or who have pre-existing medical conditions, and fatalities among children do occur. In 2004, pediatric influenza-associated mortality became nationally notifiable, with the goal of better characterizing the burden and epidemiology of influenza-associated deaths among children, and since then, Arizona has been conducting surveillance for these cases. Influenza has been a laboratory-reportable condition in Arizona since 2004. Influenza-associated pediatric mortality became specifically reportable by health care providers in Arizona in 2008. In this report we describe the characteristics of reported Arizona cases from seven influenza seasons.

**Methods:**
Cases were classified based on the CSTE case definitions and investigated using the national investigation form. Descriptive analysis was conducted on information available through these investigations.

**Results:**
Thirty-seven deaths were identified during this time period, with a range of one to 13 deaths in each of the seven seasons. Several cases were initially identified through reporting and investigations for unexplained deaths with a history of fever. Twenty-three (62%) were associated with the 2009 H1N1 influenza A virus, 10 (27%) with influenza B, and 4 (11%) with influenza A viruses of unknown subtype. Eleven (30%) cases were under the age of five years. The duration of illness was one week or less for half of the cases. Invasive bacterial infections were identified in nine (30%) of those tested, and viral coinfections in four of 37 children. Twenty-one (62% of 34 with information) cases had one or more known underlying medical conditions, with moderate or severe development delays most frequently cited. Eight of the 13 cases with no preexisting conditions had other viral or invasive bacterial infections. Only 29% of those with known vaccination status had received an influenza vaccination.

**Conclusions:**
More than half of Arizona's pediatric influenza-associated deaths occurred during the 2009 pandemic. Arizona has had at least one case each year since surveillance began in 2004, and infections with influenza B viruses have contributed substantially. One-third of the children would not have been included in age- or morbidity-specific vaccine recommendations; hopefully the current universal recommendation and continued vaccination campaigns will increase coverage and reduce the number of additional cases.

---

**Presenting Author(s):**

**Laura Erhart**
Office of Infectious Disease Services,
Arizona Department of Health
Services, Phoenix, AZ
laura.erhart@azdhs.gov

**Abstract ID:** 1309446 **Presentation Type:** Poster Presentation
**Title:** Challenges in a salmonella disease outbreak investigation in a correctional facility
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Infectious disease and ethical/legal issues
**Keywords:** Epidemiologic methods|Epidemiology|Collaboration

**Background:**
A local health department (LHD) near Houston notified the Texas Department of State Health Services (DSHS), Regional office of a salmonella outbreak in a Federal Correctional Centre (FCC) located within its jurisdiction. The LHD wanted advice on who had public health jurisdiction and further plan of action. At the time of report 35 inmates had presented with illness. Thirteen stool samples have been positive for salmonella. The prison authorities had indicated that the situation was under control and declined assistance; however, they later invited the LHD and the Texas DSHS to conduct an investigation. Background checks and access clearance to the FCC was mandated for all members of the visiting team. These prison system requirements which were uncommon to us resulted in a 6 days lapse between time of report and site visit.

**Methods:**
A team of epidemiologists and sanitarians made a site visit. Epidemiology set out to interview the inmates with a case control approach. A questionnaire was developed based on preliminary information provided and knowledge of food borne outbreaks. A list of food items served three days before the first symptom presentation was included. Epidemiology completed 19 interviews mainly of those with positive stool cultures and kitchen workers. The sanitarians inspected the kitchen area at the facility.

**Results:**
Only two of the 13 culture positive isolates were available for serotyping and PFGE analysis. Both were typhimurium and indistinguishable on PFGE. Symptoms reported were Fever (72%), Diarrhea (67%), Nausea / Vomiting (56%) and Abdominal Cramps (33%). The median duration of illness was 4 days. There was no consistent association of any of the food served and the development of illness. The sanitarians did not observe violations or evidence to support possible food contamination. None of the served foods prior to or during the illnesses were sent for testing nor were available at the time of inspection for evaluation.

**Conclusions:**
The source of the salmonella infection was not known, but the epidemiological curve indicates a common source outbreak. This investigation highlights the constraints in investigating disease outbreaks in the prison system. Investigation was impeded by lack of clear cut jurisdictional responsibility, delayed access and incomplete processing of submitted clinical specimens. The need for LHD to determine, in advance the public health oversight of FCC within their jurisdictions, develop working collaborations and protocols is encouraged. The LHD and the FCC need to operate as community health partners in contrast to last resort stopgap.

---

**Presenting Author(s):**

**Anthony Eshofonie**
Epidemiology, Texas Department of
State Health Services, Houston, TX
eshofonie@yahoo.com

**Contributing Authors**

Huai Lin MD,PHD (Texas Department of State Health Services), Randy Valcin (Texas Department of State Health Services), Darrel Irvin MPH (City of Beaumont Health Department), Kathleen Goss RS (Texas Department of State Health Services), Jeremy Piper RS (Te

**Abstract ID:** 1330921 **Presentation Type:** Breakout Presentation
**Title:** Effectiveness of electronic-based screening and brief intervention for reducing excessive alcohol consumption and related harms: A systematic review
**Committee:** Cross Cutting Sub-Committee
**Topic:** Substance abuse epidemiology: Burden of alcohol and opiate use, Polices related to substance abuse
**Keywords:** Alcohol Use|Screening|Interventions

**Background:**
Screening and brief interventions (SBI) target individuals who consume alcohol excessively, such as binge drinkers and others at risk of experiencing alcohol-related harms. The U.S. Preventive Services Task Force recommends screening and behavioral counseling interventions in primary care settings to reduce alcohol misuse by adults. Electronic-based SBI (e-SBI) has the potential to reduce alcohol misuse in a time- and resource-efficient manner, and can readily be delivered outside of the primary-care setting (e.g., universities or public places). Thus, it may be a feasible way to reach a broader population than the recommended traditional SBI.

**Methods:**
The methods of the Guide to Community Preventive Services were used to conduct this systematic review. Relevant articles published up through October 2011 were identified via electronic searches of CINAHL, EconLit, Embase, ERIC, Medline, NTIS, PsycINFO, Social Services Abstracts, Sociological Abstracts, Web of Science, and PubMed. Articles were included if they evaluated an e-SBI designed to decrease alcohol consumption and/or alcohol-related harms (e.g., motor vehicle crashes; alcohol-impaired driving; or personal, social, sexual, and legal consequences). Interventions were considered electronic-based if the screening and/or brief intervention had an electronic component (e.g., telephone/texting, computer/web-based programs, and interactive voice response). Interventions were excluded if they included only screening and an assessment of an individual's consumption, but did not provide individualized feedback regarding risks and consequences of the individual's reported alcohol consumption (e.g., provided social norming feedback only). The impact of the mode of electronic-based delivery and the type of core intervention feedback component, beyond the drinking assessment, were also examined (e.g., personalized feedback without motivational components, personalized feedback with less intensive motivational components, and personalized feedback with more intensive motivational components). Data were independently extracted by at least two researchers, studies were quality-assessed, and inter-rater reliability checks were performed on all extracted data.

**Results:**
The formal literature search identified 8,082 citations. After three levels of screening and quality assessments, twenty-seven studies were included in the systematic review. The majority of the brief interventions were delivered via computer or internet programs.

**Conclusions:**
The Guide to Community Preventive Services systematic review will provide insight on the effectiveness of electronic-based screening and brief interventions to reduce excessive alcohol consumption and alcohol-related harms. An identified gap in the literature is the examination of which e-SBI components are effective to reduce alcohol consumption among drinkers who vary by risk status (e.g., low-risk, high-risk, and dependent drinkers) and could be investigated with further research.

---

**Presenting Author(s):**

**Marissa Esser**
Centers for Disease Control and Prevention, Atlanta, GA
messer@cdc.gov

**Contributing Authors**

Kristin A. Tansil, MSW - Centers for Disease Control and Prevention Paramjit Sandhu, MD, MPH - Centers for Disease Control and Prevention Randy W. Elder, PhD, MEd - Centers for Disease Control and Prevention

**Abstract ID:** 1326694 **Presentation Type:** Breakout Presentation
**Title:** Practicing epidemiology at the local level: Conversations about capacities, priorities, and gaps
**Committee:** Cross Cutting Sub-Committee
**Topic:** Local epidemiology
**Keywords:** Local epidemiology|Epidemiology capacity

**Background:**
Public health epidemiology capacities have been comprehensively characterized for more than the past decade by surveys conducted, primarily at the state level, by the Council of State and Territorial Epidemiologists (CSTE). Similar data of epidemiologists practicing at the local public health level have not been as accessible, due to the lack of a registry of such epidemiologists. Often there are difficulties in identifying who is an epidemiologist because of a variety of job titles used for those who perform the tasks of an epidemiologist but whose jobs are not titled "Epidemiologist." The National Association of County and City Health Officials (NACCHO) has a newly-funded program intended to improve the capacity of local health departments (LHDs) to continuously and systematically collect, analyze, and interpret health-related data needed for the planning, implementation, and evaluation of public health practice. This session will report on our key informant interviews – a first step to develop a sense of the issues and needs of practicing epidemiology at the local level.

**Methods:**
Twenty formally trained and twenty informally trained epidemiologists, identified through NACCHO's efforts to develop a registry of locally-based epidemiologists, are being asked to participate in key informant interviews. Care is being taken to consider the geographic spread of key informants. The structured interview takes approximately one hour and covers topics including program priorities, training backgrounds and needs, competencies, collaborations with state-level colleagues, and roles in informatics. These topics were identified from informal conversations held at the 2011 CSTE meeting, a formal meeting held at the 2011 NACCHO Annual Meeting, and input from NACCHO's Epidemiology Work group members. The interviews are being recorded, transcribed, and then reviewed for commonalities. Responses are being quantified and compared between the two groups.

**Results:**
Results will be completed by the CSTE 2012 meeting.

**Conclusions:**
At this point, we expect to be able to have a "first pass" at a qualitative yet formal look at some of the major issues for epidemiologists and people who "do" epidemiology in the course of their regular duties, all of whom are part of the landscape of epidemiology capacity at the local health department level.

---

**Presenting Author(s):**

**Paul Etkind**
National Association of County and
City Health Officials, Washington, DC
petkind@naccho.org

**Contributing Authors**

Michael Coletta, MPH, National Association of County and City Health Officials Dana Cole, MPH, National Association of County and City Health Officials Robert Kim-Farley, MD, MPH, Communicable Disease Control and Prevention, Los Angeles County Department

**Abstract ID:** 1315503 **Presentation Type:** Breakout Presentation
**Title:** An interstate response to the public health concerns of M. tuberculosis in a circus elephant
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Zoonoses
**Keywords:** Infectious Diseases|Animals and Public Health|Veterinary Public Health

**Brief Summary:**
M. tuberculosis is a predominant disease-causing agent in elephants and transmission of M. tuberculosis between elephants and humans has been described previously. In North America, approximately 14% of approximately 500 captive elephants are thought to be infected with M. tuberculosis. In April 2011, the Baltimore City Health Department (BCHD) sought guidance from the Maryland Department of Health and Mental Hygiene (DHMH) regarding the public health risk presented by a circus elephant with a recent positive indirect test for M. tuberculosis scheduled to perform in Baltimore in two days. The investigation included review of the elephant's medical records, review of relevant literature and guidance regarding tuberculosis in elephants, discussion with circus management, and consultation with state and federal subject matter experts. Knowing that the circus was scheduled to perform in Virginia next, and with no clear federal or industry guidance regarding this situation forthcoming, DHMH alerted the Virginia Department of Health (VDH) that similar concerns regarding potential public health risk were likely to occur in that state. Medical record review revealed that while there was serologic evidence of exposure to M. tuberculosis, the elephant's trunk wash cultures were negative. According to the Guidelines for the control of tuberculosis in elephants, 2008, published by the National Tuberculosis Working Group for Zoo & Wildlife Species, these test results do not warrant travel or performance restrictions. Conflicting statements in the guidance did suggest concern for the occupational health of elephant caretakers. Information gathered via interviews with circus management, literature review and subject matter experts indicated that the activities in which the elephant performed did not pose an increased public health risk to circus spectators and BCHD, DHMH, and VDH did not recommend restriction of the elephant's performances. VDH alerted the next state in which the circus was scheduled so they could prepare for likely public health concerns. This response highlights grey areas in assessing public health risk posed by elephants in public settings and calls for national coordination to facilitate responses to future similar concerns.

**Key Objectives:**
Key objectives are to: detail the interstate and interagency coordination involved in responding to public health concerns associated with M. tuberculosis in elephants, often in the face of competing priorities of the various agencies; discuss available resources regarding public health concerns associated with M. tuberculosis in elephants; discuss how occupational health concerns of elephant caretakers differ from public health concerns; and discuss the lessons learned from this response.

---

**Presenting Author(s):**

**Katherine Feldman**
Maryland Department of Health and Mental Hygiene, Baltimore, MD
kfeldman@dhmh.state.md.us

**Julia Murphy**
Virginia Department of Health, Richmond, VA
julia.murphy@vdh.virginia.gov

**Contributing Authors**

Maryland Department of Health and Mental Hygiene: David Blythe, MD, MPH, Ruth Thompson, Kim Mitchell, MPH, Nancy Baruch, RN, MBA Baltimore City Health Department: Olivia Farrow, JD, RS, Kevin Usilton Maryland Department of Agriculture: Guy Hohenhaus, DVM, MPH Virginia Department of Health: Margaret Tipple, MD Karen Gruszynski, DVM,

PhD, Rebecca LePrell, MPH, Keri Hall, MD, MS, Jane Moore, MHSA, Deborah Staley, RN, Maribeth Brewster, Michelle Peregoy  Fairfax County Health Department:  Peter Troell, MD, MPH, Glen Barbour, Ronald Karpick, MD, FCAP, FCCP Virginia Department of Agriculture and Consumer Services:  Charles C. Broaddus, DVM, Richard Wilkes, DVM, Elaine Lidholm

**Abstract ID:** 1363169 **Presentation Type:** Breakout Presentation
**Title:** Current issues in novel influenza case detection
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Influenza
**Keywords:** Influenza surveillance

**Background:**
This presentation will provide an overview of the significance of the recent novel influenza detections in the context of influenza surveillance, pandemic preparedness and laboratory methods.

**Methods:**
N/A

**Results:**
N/A

**Conclusions:**
N/A

---

**Presenting Author(s):**

**Lyn Finelli**
CSTE, Atlanta, GA
lfinelli@cdc.gov

**Contributing Authors**

N/A

**Abstract ID:** 1361856 **Presentation Type:** Roundtable Presentation
**Title:** Arboviral surveillance planning
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Vectorborne
**Keywords:** Arbovirus |Surveillance

**Brief Summary:**
This session, led by the Arboviral Diseases Branch at CDC, will be held to discuss the future of national arboviral surveillance with state partners.

**Key Objectives:**
To discuss a strategic plan and funding for national arboviral surveillance for the next 3-5 years

---

**Presenting Author(s):**

**Marc Fischer**
Centers for Disease Control and Prevention, Atlanta, GA
mfischer@cdc.gov

**Nicole Lindsey**
Centers for Disease Control and Prevention, Atlanta, GA
nplindsey@cdc.gov

**Abstract ID:** 1331861 **Presentation Type:** Breakout Presentation
**Title:** Current asthma prevalence among service workers: Using occupation information from the 2010 Massachusetts Behavioral Risk Factor Surveillance System
**Committee:** Occupational Health Sub-Committee
**Topic:** Improving occupational health surveillance
**Keywords:** Asthma|Occupational Surveillance|Surveillance

**Background:**
According to the U.S. Bureau of Labor Statistics, an estimated 531,000 (17%) Massachusetts workers were employed in service occupations in 2010, making service the third largest occupation group in the state. Service workers include those in protective service, healthcare support, food service, childcare, hair styling, and janitorial occupations. Previous studies have shown that these workers are exposed on the job to agents associated with respiratory problems, including asthma. In Massachusetts, sentinel work-related asthma cases among service workers have been reported to the Department of Public Health. In this study, we used population-based surveillance data to assess whether Massachusetts workers in service occupations have higher current asthma prevalence compared to those in non-service occupations.

**Methods:**
Annually, questions on lifetime and current asthma are included in the Behavioral Risk Factor Surveillance System (BRFSS). In the 2010 Massachusetts BRFSS, open-ended questions on industry and occupation (I/O) were asked of respondents employed in the past year. Of the 16,311 participants, 10,110 were eligible for the I/O questions, and 9,014 responded. Responses were coded by the National Institute for Occupational Safety and Health according to standard national coding systems using computer-assisted methods. Analyses were conducted using SAS 9.2 and SUDAAN. Binomial regression was carried out to calculate adjusted prevalence ratios (PR).

**Results:**
Compared to non-service workers, service workers were more likely to be female (57.3% vs. 47.5%), Hispanic (17.2% vs. 6.2%), aged 18-24 years (16.2% vs. 5.7%), current smokers (20.7% vs. 12.5%), and have an education level of high school or less (49.5% vs. 17.3%). Current asthma prevalence among service workers (15.4%) was significantly higher than the prevalence for non-service workers (8.8%). Within service, those employed in personal care occupations had the highest prevalence (22.7%). After adjusting for gender, age, race/ethnicity, smoking, education, and exposure to environmental tobacco smoke at work, service workers had 60% higher current asthma prevalence than non-service workers (PR 1.6; 95%CI 1.2-2.2). Those in personal care occupations had 100% higher prevalence compared to all other occupation groups (PR 2.0, 95%CI 1.4-3.1).

**Conclusions:**
Massachusetts workers in service occupations have higher current asthma prevalence than those in non-service occupations. Our findings highlight the need for targeted asthma intervention and policy efforts for service workers in the Commonwealth. In conjunction with occupational exposure information from sentinel surveillance, additional years of I/O data from the BRFSS will allow for more detailed analyses of service workers to further inform these efforts.

---

**Presenting Author(s):**

**Kathleen Fitzsimmons**
Massachusetts Department of Public Health, Boston, MA
kathleen.fitzsimmons@state.ma.us

**Contributing Authors**

Sangwoo Tak, ScD, MPH; Jean Zotter, JD; and Letitia Davis, ScD, EdM, Massachusetts Department of Public Health

**Abstract ID:** 1326973 **Presentation Type:** Breakout Presentation
**Title:** Streptococcus suis: Case report of a rare occupational zoonosis
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Zoonoses
**Keywords:** Infectious Diseases|Zoonotic disease|Agricultural work safety

**Background:**
Streptococcus suis is an important swine pathogen worldwide. It is also zoonotic; historically, human cases have occurred sporadically, and most often in Asia. However, a recent outbreak in China involved 215 human cases and 39 deaths. Prior to 2011, only 3 human cases of S. suis infection have been documented in the United States: domestically acquired cases in New York and Hawaii, and a case in California that was exposed in the Philippines. All confirmed cases reported swine contact.

**Methods:**
In December 2011, the Minnesota Department of Health (MDH) was notified by a clinical laboratory of a suspected Streptococcus suis isolate from the blood of a hospitalized meningitis patient. The isolate was submitted to the MDH Public Health Laboratory for confirmation by 16S ribosomal RNA sequencing. The isolate was serotyped, genotyped, and putative virulence factors identified, and results compared to a library of swine isolates by the Minnesota Veterinary Diagnostic Laboratory. The case was interviewed regarding illness and potential exposures.

**Results:**
The patient's isolate was confirmed as S. suis by MDH. The case was a 60-year old male with no underlying medical conditions. The case reported developing severe headaches, vomiting, diarrhea, and chills, progressing to inability to walk and altered mentation on day 2 of illness. The patient was hospitalized for 10 days, requiring mechanical ventilation for the first 24 hours. The case's job was transporting slaughter-weight pigs from farms in the Midwest to slaughterhouses in Minnesota, Iowa, and South Dakota. He reported wearing personal protective equipment when loading pigs into the truck, including coveralls, boots, and gloves, but wore a dust mask only occasionally. Four weeks prior to illness onset, he reported transporting swine which the farmer reported had experienced pneumonia, a potential sign of S. suis disease in swine. The case had not butchered pigs or handled raw pork products, known risk factors. Results of characterization of the S. suis strain are pending.

**Conclusions:**
S. suis is a potentially emerging human pathogen in the United States. Documented disease in humans in the United States remains rare, although infections could be substantially under recognized. Contact with infected pigs and/or their products are the predominant risk factors for infection. Protective measures, including personal protective equipment and hand-washing, should be encouraged for people in contact with swine. Physicians should consider S. suis among the differentials for bacterial meningitis in swine workers.

---

**Presenting Author(s):**

**Heather Fowler**
Minnesota Department of Health, St
Paul, MN
heather.fowler@state.mn.us

**Contributing Authors**

Paul Brown, MD Lakeview Medical Clinic Beth Shade, MT(ASCP) Minnesota Department of Health Public Health Laboratory Kathryn Klammer, BS Minnesota Department of Health Public Health Laboratory Albert Rovira, DVM, MS, PhD University of Minnesota Veterinary

**Abstract ID:** 1327014 **Presentation Type:** Poster Presentation
**Title:** Evaluation of the Minnesota Department of Health Emerging Infections Program Clostridium difficile surveillance system
**Committee:** Surveillance/Informatics
**Topic:** General surveillance topics
**Keywords:** Surveillance|Evaluation|Infectious Diseases

**Background:**
Clostridium difficile is an anaerobic, spore-forming, gram positive bacillus that is an established cause of hospital-acquired infectious diarrhea. Transmission of this organism occurs primarily in healthcare facilities, although recent trends show an increased incidence in both the healthcare setting and in the community. While several risk factors for infection are known, sources of infection, infectious dose, and a complete understanding of the pathogenesis remain elusive. In order to better understand Clostridium difficile infections (CDI), the Minnesota Department of Health's (MDH) Emerging Infections Program (EIP) initiated active population-based laboratory surveillance for CDI in 2009 as part of the larger Centers for Disease Control and Prevention (CDC) EIP CDI surveillance. This system is the first to globally evaluate CDI, collecting exposure information on CDI in healthcare settings and the community.

**Methods:**
Standard CDC surveillance system guidelines were used to evaluate this surveillance system. The system, as well as each attribute, were rated using a 5 point scale (Excellent, Very Good, Good, Fair, and Poor). Recommendations were given for strategies to further improve the system.

**Results:**
In 2010, the incidence rate of CDI was 152.9 per 100,000 population. This rate surpasses that of all other major enteric pathogens seen in the state, including Salmonella (13.2 per 100,000 population) and E. coli O157:H7 (2.7 per 100,000 population) and approaches rates seen with the sexually transmitted disease Chlamydia (311 per 100,000 population). Laboratory detection methods used at participating laboratories possessed a positive predictive value of 89.9% when compared to stool culture assay, the gold standard. This system is well accepted by the majority of participating stakeholders including CDI case-patients themselves with 82.3% of eligible cases consenting to interview in 2010. It is amendable to changes, including the expansion of the catchment area and the addition of new research variables, and allows collection of complete data in a timely fashion. However, data collected via this system is not representative of the state with a significantly greater proportion of whites living in the catchment area compared to the entire state ($p < 0.001$). In addition, the system is not simple, possessing detailed, multi-leveled case definitions.

**Conclusions:**
The MDH CDI surveillance system, though not perfect, is capable of collecting important data for analysis of healthcare and community acquired CDI's in Minnesota. Significant weaknesses of the system have been identified and measures will be taken to address them.

---

**Presenting Author(s):**

**Heather Fowler**
Minnesota Department of Health, St
Paul, MN
heather.fowler@state.mn.us

**Contributing Authors**

Scheftel, Joni, DVM, MPH, DACVPM Minnesota Department of Health Holzbauer, Stacy, DVM, MPH, DACVPM Career Epidemiology Field Offider, Minnesota Department of Health

**Abstract ID:** 1332391 **Presentation Type:** Breakout Presentation
**Title:** Resource-intensive public health response to an outbreak of Measles: Omaha, Nebraska 2010
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Vaccine preventable diseases
**Keywords:** Infectious Diseases|Communicable disease|Outbreak investigations

**Background:**
In 2010, a non-vaccinated child introduced measles into the community of Omaha, NE. This was the first case of measles in Omaha since 1994. The investigation proved to be both challenging and resource intensive due to the infectious nature of measles and the rarity of the disease.

**Methods:**
A complete cost analysis to assess resource utilization for outbreak containment was performed retrospectively using SurveyMonkey. Assessed activities conducted by the Douglas County Health Department (DCHD) during the outbreak included: epidemiologic investigations, molecular typing of viral isolates, documentation of Koplik spots and rash with photographs, notification of neighboring states of possible exposures, communication with the local medical community, and development and delivery of media messages.

**Results:**
In 2010, a family of four unvaccinated children, one of which was incubating measles, visited Omaha, Nebraska, resulting in four cases of the disease. Prior to their arrival in Omaha, the family was vacationing in California, where a documented outbreak of measles was occurring. In Omaha, more than 10,000 persons were potentially exposed to the index case on the day of prodromal onset at the opening of a major exhibit at Omaha's zoo. Sixty-eight schools were visiting that day, totaling over 3,000 students from Nebraska, Iowa, Kansas, Missouri, and South Dakota. Once the index case was identified, DCHD immediately put containment measures in place, including voluntary quarantine of all susceptible contacts, Subsequently, all four of the unvaccinated children developed disease and tested positive by measles antibody IgM. Molecular typing of the four cases clinical isolates identified the genotype D9, which is endemic in the Philippines. Using an intra-oral camera, photo documentation of Koplik spots was possible. As a result of increased active surveillance by local physicians, a total of 11 suspected cases of measles were investigated and later ruled out. Nebraska's medical community was notified by using the state's Health Alert Network (HAN). Due to the magnitude of exposure, DCHD released multiple press releases, identifying place and time of possible exposures. Estimated time and cost of the initial response included: 105.5 person hours and $2,848 in salary. Implementation of the outbreak control measures and ongoing surveillance included: 484 person hours and $15,526, resulting in a total per case of $4,593.50.

**Conclusions:**
Although measles is a relatively rare disease, each case can have a significant impact on resource utilization of a local public health agency. Response may also reduce the ability of the agency to conduct other routine activities.

---

**Presenting Author(s):**

**Justin Frederick**
Epidemiology, Douglas County Health Department, Omaha, NE
justin.frederick@douglascounty-ne.gov

**Contributing Authors**

Carol Allensworth MPH, MT(ASCP)SN, DCHD, Anne O'Keefe MD, MPH, DCHD, Kari Simonsen MD, DCHD, Bonnie Harmon, MSN, DCHD, Adi Pour, PhD, DCHD

**Abstract ID:** 1332084 **Presentation Type:** Poster Presentation
**Title:** Implementation of a surveillance system for a non-reportable chronic disease: Florida's state-based Amyotrophic Lateral Sclerosis Surveillance (ALS) Project
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Epidemiology of chronic conditions
**Keywords:** Chronic diseases|Surveillance


**Background:**
Amyotrophic lateral sclerosis (ALS) is a progressive neurodegenerative disease affecting the central nervous system resulting in loss of motor function. ALS is difficult to diagnose and requires a combination of clinical examinations and a series of diagnostic tests to rule out diseases that mimic ALS. In Florida, there are few examples of epidemiologic surveillance systems for non-reportable chronic diseases. In Florida, a disease is included on the state's List of Reportable Diseases due to the number of cases (burden) and an immediate threat to a person or community. In 2010, the Florida Department of Health (FDOH) received funding to develop and implement a surveillance system for ALS. The purpose of this surveillance system is to better describe the incidence and prevalence of ALS in the state of Florida, as well as to outline key demographic factors of individuals who are diagnosed with ALS. Data from the state surveillance system will also be used to evaluate the completeness of the National ALS registry.

**Methods:**
The ALS Surveillance Project has relied on active surveillance methods for case ascertainment. Working in partnership with the Florida Neurological Society, the Florida Chapter of the ALS Association, and other stakeholder groups, FDOH has worked to establish reporting with all licensed neurologists who provide care to ALS patients. Under the protocol for this project, FDOH was able to reimburse physicians for their time and effort in submitting case reports. Retrospective case finding from existing data sources will also be performed by accessing several databases: hospital discharge data, ambulatory care data, emergency room data, and mortality data. Available patient demographic data and facility data will be used to facilitate a trace-back process. Trace-back will entail contacting the treating facility and/or physician so that missing data elements can be obtained. Since few examples of surveillance systems exist for chronic diseases, evaluation of these methods will assist other state and local areas in the development of surveillance systems for non-reportable chronic diseases

**Results:**
As of January 1, 2012, over 50% of expected cases of ALS have been ascertained through voluntary reporting by independent neurologists, ALS Centers, university-affiliated neurology clinics, and hospital-associated neurology providers. Data collection will end in spring, 2012.

**Conclusions:**
It is difficult to determine the true burden of chronic diseases such as ALS when such conditions are non-reportable. Rare diseases such as ALS will continue to be misunderstood with regards to incidence and prevalence without a comprehensive plan to engage care providers in the reporting process.


---


**Presenting Author(s):**

**Cecilia Freer**
Florida Department of Health,
Tallahassee, FL
cecilia_galvan@doh.state.fl.us

**Contributing Authors**

Cecilia Freer, MPA Florida Department of Health Ursula Weiss, MS Florida Department of Health

**Abstract ID:** 1332770 **Presentation Type:** Breakout Presentation
**Title:** Evaluating Kentucky's efforts to improve enteric disease outbreak response and reporting
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Foodborne/waterborne disease
**Keywords:** Evaluation|Outbreak investigations |Epidemiology

**Background:**
In 2009 the Centers for Disease Control and Prevention (CDC) identified Kentucky as one of 16 states reporting the fewest number of foodborne illness outbreaks per 100,000 people. The Kentucky Department for Public Health (KDPH) took critical steps to improve their ability to identify and respond to enteric disease outbreaks. They hired a foodborne disease epidemiologist, improved outbreak investigation trainings offered to local and state public health professionals and developed standardized statewide enteric disease outbreak investigation procedures; however no mechanism was in place to measure their impact. In 2011 KDPH implemented a plan for regular assessment and evaluation of the actions taken to improve the ability to respond to outbreaks of enteric disease.

**Methods:**
Online surveys developed with input from staff at KDPH, the CDC and the National Institutes of Health assessed the knowledge, attitudes, and practices of Kentucky public health professionals regarding outbreak investigation procedures. Surveys were delivered electronically to 363 Kentucky public health professionals listed as contacts in state's investigation protocols in March 2011. Follow-up surveys were distributed to the same group in October 2011 and differences between the surveys were examined using Mantel-Haenszel chi-squared tests. In addition, surveillance and response practices will be evaluated using data from Kentucky's Disease Surveillance Module and National Electronic Disease Surveillance System databases to produce measurable performance indicators suggested by the Council to Improve Foodborne Outbreak Response. Trends in knowledge, attitudes, and practices from survey information will be compared to trends in the performance indicators to identify which areas of intervention are most influential.

**Results:**
Of the 363 invited participants, 198 (55%) responded (n=133, 37% in March; n=128, 35% in October). Sixty-two (17%) participants completed both surveys. Local health department staff who responded ranked outbreak investigation third of seven important major services they provide behind direct patient care and environmental health services (mean rank = 3.54, 95% CI = 3.08, 3.59 in March; mean rank = 3.43, 95% CI = 3.12, 3.73 in October). Just over 20% of participants reported they could independently describe the ten steps of an outbreak investigation in either survey (n = 28, 21% in March; n = 26, 23% in October). Staff reported incomplete investigations were most likely caused by lack of cooperation from agencies outside of public health (n = 48, 38% in March; n = 45, 40% in October).

**Conclusions:**
Surveying public health practitioners provided valuable, actionable information to improve Kentucky's outbreak response practices. Results from this evaluation will guide KDPH actions to affect attitudes toward the public health importance of outbreak investigations, increase understanding of roles and responsibilities during investigations, and promote best investigation practices. Continued evaluation of KDPH's efforts to improve their response to outbreaks of enteric disease is essential to best protect the public's health.

---

**Presenting Author(s):**

**Alexander Freiman**
Division of Epidemiology and Health Planning, Infectious Disease Branch, Kentucky Department for Public Health, Frankfort, KY
alex.freiman@ky.gov

**Contributing Authors**

Sara Robeson, MA, MSPH and Robert L. Brawley, MD, MPH, FSHEA; Kentucky Department for Public Health, Frankfort, KY

**Abstract ID:** 1393940 **Presentation Type:** Late Breaker: Breakout Presentation
**Title:** Implementation and evaluation of a disaster-related injury surveillance system following an outbreak of severe weather, Kentucky 2012
**Committee:** Surveillance/Informatics
**Topic:** General surveillance topics
**Keywords:** Injury surveillance|Natural disasters

**Background:**
On March 2, 2012, Kentucky was struck by multiple tornadoes that were part of a destructive severe weather system. The Kentucky Department for Public Health (KDPH) implemented novel, statewide surveillance of disaster-related injuries in Kentucky resulting from severe weather. We describe the implementation of this surveillance system and examine its effectiveness.

**Methods:**
KDPH staff adapted existing Disaster Mortality/Morbidity Surveillance Forms provided by the Centers for Disease Control and Prevention (CDC) immediately following the storm. The newly developed surveillance form was disseminated to public health and healthcare personnel across the state on March 3. Completed forms were faxed to KDPH daily by local health departments from facilities treating patients injured from the storm. A database was established using EpiInfo 7 and was managed daily by KDPH epidemiology staff in the state's public health operations center. Data was analyzed and disseminated during daily situation reports and statewide conference calls to inform stakeholders and direct health and safety messages. In the weeks after the event, KDPH personnel evaluated the surveillance system using CDC's Updated Guidelines for Evaluation Public Health Surveillance Systems.

**Results:**
Local health departments contacted healthcare facilities daily and submitted 203 report forms from 188 facilities to KDPH between March 2 and March 8. Of these, 72 (35.4%) came from hospitals, 120 (59.1%) from long-term care facilities, and 11 (5.4%) from shelters or other facilities. Injuries were noted on reports from 25 (13.3%) facilities with 158 injuries reported; 12 were identified as life threatening, 34 were serious, and 107 were minor. Health and safety messages to prevent injuries and illness were sent to local jurisdictions based on types of injuries identified such as chain saw injury prevention. Evaluation of the disaster-injury surveillance system found it to be highly flexible, stable, simple, and timely. The system produced daily estimates of observed injuries during the disaster response. Mortality surveillance during the response was more accurate because one death was correctly identified during case follow-up at facilities reporting life threatening injuries. Improvements needed to enhance disaster-related injury surveillance were noted in data quality, acceptability, and representativeness.

**Conclusions:**
Active surveillance of disaster-related injuries implemented quickly during the event provided valuable information that allowed KDPH to more efficiently disseminate safety and health messages to emergency responders and the general public. Implementation of recommendations to address shortcomings found in the evaluation will help improve disaster-related injury surveillance during future responses.

---

**Presenting Author(s):**

**Alexander Freiman**
Division of Epidemiology and Health Planning, Infectious Disease Branch, Kentucky Department for Public Health, Frankfort, KY
alex.freiman@ky.gov

**Contributing Authors**

Margaret A Riggs, PhD, MPH, MS<sup>a, b</sup>; Elizabeth Hoo, MPH, CLC<sup>a</sup>; Douglas A Thoroughman, PhD, MS<sup>a, b</sup>; <sup>a</sup> Kentucky Department for Public Health, Frankfort, KY ; <sup>b</sup> Office of Public Health Preparedness and Emergency Response, Centers for Disease Control and Prevention, Atlanta, GA

**Abstract ID:** 1326406 **Presentation Type:** Poster Presentation
**Title:** Surveillance of environmental health information during the 2011 Kentucky NASCAR Sprint Cup race
**Committee:** Surveillance/Informatics
**Topic:** Syndromic Surveillance and Situational awareness (incl. BioSense)
**Keywords:** Data/Surveillance|Environmental Health

**Background:**
Public health practitioners need timely access to environmental health inspection data during mass gatherings to aid decisions that promote attendee's health and safety. During July 2011, the Kentucky Speedway hosted a Sprint Cup Series NASCAR race in Sparta, Kentucky and attracted ~180,000 spectators during a three-day period. The Kentucky Department for Public Health (KDPH) established a field-based electronic surveillance system for retail food establishment inspection and recreational vehicle park inspection data during this event.

**Methods:**
Environmental health personnel performed daily inspections of retail food establishments and recreational vehicle parks in close proximity to the speedway during the event. Observed deficiencies such as hazardous food temperatures or poor worker hygiene practices were identified and managed according to Kentucky state regulations. Deficiencies were classified as critical (requiring immediate action and follow-up inspection because of the public health risk) or noncritical (violations not posing a substantial risk to public health or safety). Epidemiologists located at the speedway entered the collected environmental inspection information into a digital database daily by using handheld computers. Data were analyzed onsite and findings were disseminated daily through situation reports delivered to stakeholders. Following the event, aggregate data was analyzed using SAS.

**Results:**
During July 7–9, 2011, 8 environmental health professionals performed 589 inspections at 105 facilities in close proximity to the speedway. They recorded 175 violations; 34 (19.4%) were considered critical. The proportion of inspections yielding critical violations decreased throughout the 3-day event (11/152, [7.2%] on July 7; 16/230, [7.0%] on July 8; 7/207, [3.4%] on July 9) with the largest reduction observed during the event's most attended day (July 9 versus July 8; risk ratio = 0.49; 95% confidence interval, 0.20–1.16; p = .10).

**Conclusions:**
Surveillance of environmental health information provided daily summaries of inspection data. Use of handheld computers allowed for rapid organization, analysis, and dissemination of collected data and required limited staff to successfully implement. The ability to rapidly identify facilities with violations allowed environmental health specialists to immediately intervene, focus inspections on identified problems, and target establishments at highest risk for violations. Our findings indicate that efforts to prevent violations at retail food establishments during mass gatherings might require several days before they are realized or can be most influential during highest-attendance days. The collection of actionable environmental health information improved KDPH's ability to identify and address environmental health issues during a mass gathering and resulted in reduced risk for violations.

---

**Presenting Author(s):**

**Alexander Freiman**
Division of Epidemiology and Health Planning, Infectious Disease Branch, Kentucky Department for Public Health, Frankfort, KY
alex.freiman@ky.gov

**Contributing Authors**

Elizabeth Hoo, MPH, CLC<sup>a</sup>; Justin L. Pittman, RS<sup>b</sup>; Margaret A. Riggs, PhD, MPH, MS<sup>a, c</sup>; <sup>a</sup>Kentucky Department for Public Health, Frankfort, KY; <sup>b</sup>Three Rivers District Health Department, Owenton, KY; <su

**Abstract ID:** 1332727 **Presentation Type:** Breakout Presentation
**Title:** Sampling Lyme disease reports to calculate disease estimates: Evaluation of an approach to reduce surveillance burden, Minnesota, 2010
**Committee:** Surveillance/Informatics
**Topic:** Other surveillance/informatics
**Keywords:** Vectorborne disease|Surveillance

**Background:**
Lyme disease (LD) is the most commonly reported vector-borne disease in the United States, and many states are being challenged by marked increases in LD reports. The Minnesota Department of Health (MDH), which conducts passive laboratory- and physician-based surveillance for LD, receives large numbers of LD reports; all require surveillance follow-up, but only a minority become confirmed cases (e.g., 1,293 [28%] of 4,551 reports in 2010). Laboratory reports are rarely accompanied by clinical details and require the most follow-up. The large and increasing surveillance burden warrants exploration of alternative cost-effective but accurate surveillance approaches. We retrospectively applied a sampling methodology developed by New York for laboratory-reported LD to Minnesota reports from 2010 to determine whether key surveillance findings between the actual and sampled LD groups would be statistically indistinguishable.

**Methods:**
We tested two separate random samples of all 3,127 laboratory-only reports in 2010: 1 of 2 (1,564 reports) and 1 of 5 (625 reports). To estimate confirmed case counts, we multiplied the number of sampled, confirmed reports by 2 for the 1/2 sample and by 5 for the 1/5 sample and added this to the total number of confirmed cases reported by providers. Estimated case counts for confirmed cases that had erythema migrans (EM), were males, and were children ?12 years of age ("pediatric") were similarly calculated and compared to actual proportions using Chi-square goodness of fit tests.

**Results:**
The estimated count of confirmed LD cases was 1,300 (24.5 cases/100,000 population) using the 1/2 sample and 1,191 using the 1/5 sample (22.5 cases/100,000), similar to the actual count of 1,293 confirmed cases (24.4 cases/100,000). The percentage of confirmed cases with EM was nearly the same between the actual group (77.4%) and both the 1/2 sample (77.9%; p=0.76) and the 1/5 sample (78.8%; p=0.40). The percentage of confirmed cases that were male in the actual group (60.4%) was similar to the 1/2 sample (58.7%; p=0.34) but higher than the 1/5 sample (54.1%; p=0.001). The percentage of confirmed cases that were pediatric was similar between the actual group (24.7%) and both the 1/2 sample (25.1%; p=0.85) and 1/5 sample (24.0%; p=0.64).

**Conclusions:**
Random 1/2 and 1/5 samples of laboratory-reported LD resulted in confirmed case counts very similar to the actual group, as did proportions of confirmed cases that had EM, were male, or were pediatric, in almost all instances. Applying this approach in the future would conserve limited funding resources by reducing follow-up effort by 35%-55% while providing accurate disease estimates. Formal implementation of this approach would require examination of other variables (e.g., geographical distribution of cases); ideally, estimated case counts would be accepted for MMWR publication.

---

**Presenting Author(s):**

**Hannah Friedlander**
Minnesota Department of Health,
Saint Paul, MN
hannah.friedlander@state.mn.us

**Contributing Authors**

David Neitzel, MS, Minnesota Department of Health; Kirk Smith, DVM, MS, PhD, Minnesota Department of Health; Melissa Kemperman, MPH, Minnesota Department of Health

**Abstract ID:** 1330623 **Presentation Type:** Poster Presentation
**Title:** Evaluation of the Minnesota Department of Health Lyme disease surveillance system
**Committee:** Surveillance/Informatics
**Topic:** Other surveillance/informatics
**Keywords:** Vectorborne disease|Surveillance


**Background:**
Lyme disease (LD) has been reportable to the Minnesota Department of Health (MDH) since 1985. LD surveillance is centralized at MDH, which performs passive physician- and laboratory-based surveillance, and is fully funded through CDC Cooperative Agreements. Surveillance methods have remained consistent, changing slightly with national surveillance case definition changes in 1996 and 2008. LD surveillance findings are provided to Minnesota medical providers, local public health agencies, and the public. LD reports increased from 632 (252 confirmed) in 1996 to 4,090 (1,293 confirmed) in 2010. This marked increase prompted a formal evaluation of the LD surveillance system for usefulness, effectiveness, and sustainability.

**Methods:**
The surveillance system was evaluated using the 2001 CDC Updated Guidelines for Evaluating Public Health Surveillance Systems. Requirements for reporting, case investigation, and case status determination were reviewed. Interviews with major stakeholders, including MDH personnel, were conducted to assess surveillance burden and system efficiency. The system's performance and effectiveness were evaluated based on its simplicity, flexibility, stability, and quality and timeliness of data collection.

**Results:**
MDH receives LD reports from multiple sources (clinical laboratories, medical providers) via multiple means (electronically and via mail, facsimile, and phone). MDH surveillance staff contact providers to obtain missing demographic or clinical data on all reports and interview confirmed cases with erythema migrans to determine geographic location of tick exposure, resulting in very complete data. Likewise, data are valid as they are obtained directly from providers, medical charts, or patients by a small number of trained staff using consistent collection and interpretation methods. Because of this completeness and validity, data quality is high. However, data collection is resource-intensive, requiring 4.5 full-time-equivalent staff, and applying the complex LD case definition can be time-consuming and error-prone. Timeliness of the system is hindered by reporting delays and the large burden of reports; months may pass before case data are completed and entered, impacting staff ability to interview patients in a timely manner and increasing risk for recall bias. Additionally, the reliance of LD surveillance on federal funds renders it vulnerable to fluctuations in available funding.

**Conclusions:**
MDH's LD surveillance system provides a high level of methodological consistency, data completeness, and thorough, statewide findings. However, its sustainability without additional funding is questionable if numbers of LD reports continue to increase. Because of an increasing surveillance burden and uncertain funding, the system's resource-intensiveness and limited opportunities for effective interventions warrant exploration of alternative surveillance methodology.


---

**Presenting Author(s):**


**Hannah Friedlander**
Minnesota Department of Health,
Saint Paul, MN
hannah.friedlander@state.mn.us


**Contributing Authors**

David Neitzel, MS, Minnesota Department of Health; Kirk Smith, DVM, MS, PhD, Minnesota Department of Health; Martina Korinek, BS, Minnesota Department of Health; Melissa Kemperman, MPH, Minnesota Department of Health

**Abstract ID:** 1326758 **Presentation Type:** Poster Presentation
**Title:** Utah Cancer Small Area Report, 2011: The Benefits of Community-level Data Analysis
**Committee:** Cross Cutting Sub-Committee
**Topic:** Translating epidemiologic data into public health actions
**Keywords:** Data/Surveillance|Community health

**Background:**
The Utah Department of Health Cancer Control Program (UCCP) has been working for over 25 years to prevent cancer through surveillance, education and awareness, policy development, implementation of community-based interventions, establishment of community partnerships, and screening. The UCCP has developed and maintained partnerships with local health districts, cancer registries, health insurance companies, and more to combat cancer in Utah. Reporting by small area is a step toward understanding the relative burden of cancer in our communities. As the cost of cancer fatalities, hospitalizations, and treatment increase each year, this report can help decision makers and stakeholders determine how to best allocate limited resources and focus on communities in need.

**Methods:**
The report focuses on the top six cancers in Utah (female breast and cervical, prostate, colorectal, melanoma, and lung) and presents screening, incidence and mortality data in each of Utah's 61 small areas. Screening data were derived from the 2004-2008 Utah Behavioral Risk Factor Surveillance System, 2005-2007 incidence data were provided from the Utah Cancer Registry, and 2005-2009 mortality data from the State Office of Vital Records. Small areas were defined using ZIP code and county boundaries, but were limited geographically and statistically by ensuring they did not cross health district boundaries and population counts were in the range of 40,000-60,000. Small areas were also designed to conform to established political city/town boundaries and reflect homogeneous communities.

**Results:**
The Utah Cancer Small Area Report 2011 was released by the UDOH on November 29, 2011. The report provides detailed summaries, tables, and maps by cancer topic. The developmental process, as well as potential epidemiological benefits of the report, will be discussed in detail.

**Conclusions:**
Small area data can bolster evidence-based community health plans and target specific populations for prevention programs. Using small area data as the geographic unit of analysis will reduce costs by focusing efforts on specific communities at risk. Analyzing and presenting data at this level can assist states in strengthening prevention programs, to better allocate available funds, and set appropriate targets for cancer prevention and control.

---

**Presenting Author(s):**

**Michael Friedrichs**
Utah Department of Health, Salt Lake
City, UT
mfriedrichs@utah.gov

**Contributing Authors**

Lynne Nilson, MPH, MCHES, Utah Cancer Control Program, Utah Department of Health Meghan M. Balough, MPH, CHES, Utah Cancer Control Program, Utah Department of Health Kathryn Rowley R.T.T., MPH, Utah Cancer Control Program, Utah Department of Health

**Abstract ID:** 1326958 **Presentation Type:** Poster Presentation
**Title:** Public health messaging after the first case of primary amebic meningoencephalitis in Kansas
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Foodborne/waterborne disease
**Keywords:** Emerging diseases|Communication|Environmental exposures

**Background:**
Naegleria fowleri is a small, free-living ameba that can cause a very rare, but severe, infection of the brain. This organism infects people by entering the body through the nose. This typically occurs when people swim or dive in warm freshwater. Once the ameba enters the brain, it causes a usually fatal infection called primary amebic meningoencephalitis (PAM). The number of reported cases of N. fowleri infection is actually very small. From 2001 – 2010, 32 infections were reported in the United States.

**Methods:**
A 14-year-old male was admitted to a local hospital through the emergency room in August 2011 with a one-day history of complications with headache, neck stiffness and fever of 101 Fahrenheit. A tentative diagnosis of meningitis was made, and the local health department was notified. Prior to this headache, the patient had been completely healthy. The case subsequently had problems with confusion and seizures. Despite aggressive management with vancomycin, Rocephin and IV fluids, death occurred 4 days later. Notable in the case's history is that he, and his family, swam at a lake near Wichita, Kansas the weekend before illness onset. The mother of the case reported her son had not been diving, jumping or involved in rough play in the water. At this time, the region had been experiencing an unusually hot summer and the lake's temperature was higher than normal.

**Results:**
Autopsy findings confirmed the polymerase chain reaction (PCR) test was positive for Naegleria and brain tissue samples were sent to the CDC for further testing.

**Conclusions:**
Because the fatality of PAM is high (98 percent), its prevalence rare, and the manner and speed of death uncommon, the public's interest peaked. The ensuing response was unique in that local health officials and spokespersons remained cognizant of and adhered to medical privacy boundaries pertaining to public information dissemination; however, the victim's family used social websites and other media outlets to provide information about the child's death. Neither was incorrect, but spokespersons approached questions to confirm or deny details released by unofficial sources with a heightened awareness. Also, an event at the lake that draws 16,000 attendees was scheduled to take place one week after the death, so local health department officials issued educational materials and precautionary statements on measures to limit the amount of water that enters the nose while swimming, as well as awareness of symptoms of PAM.

---

**Presenting Author(s):**

**Deborah Fromer**
Sedgwick County Health Department,
Wichita, KS
dfromer@sedgwick.gov

**Contributing Authors**

Deborah B. Fromer, MT(ASCP), MPH[1]; Seth A. Konkel, BS[1]; Jamie DeMent, MNS[2]; Amanda Matthews[1]; Dante Corimanya, MD, MPH[1]; Claudia Blackburn, MPH, RNC, CPM[1] [1]Sedgwick County Health Department, Wichita, KS; Kansas Department of Health and Environment, Bur

**Abstract ID:** 1318181 **Presentation Type:** Poster Presentation
**Title:** Data sharing and mapping co-occurrence of infectious disease: Program collaboration and service integration at New York City
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Program integration and data sharing
**Keywords:** Infectious Diseases|Data sharing|Geographic Information Systems

**Background:**
Identifying at-risk populations and neighborhoods with high rates of infectious disease such as HIV/AIDS, gonorrhea, chlamydia, syphilis, tuberculosis (TB) and viral hepatitis, is critical to successful public health activities by health departments. In many US health departments, programs addressing these diseases are separate which can limit data sharing to identify neighborhoods and groups with high rates of more than one disease. In 2010, NYC DOHMH was awarded Program Collaboration and Service Integration (PCSI) funding from CDC to improve data sharing across programs to better target the delivery of integrated services to the public. We sought to identify priority neighborhoods for integrated infectious disease screening and linkage to care by mapping zip codes with co-occurring high morbidity for more than one disease, and observing social factors such as poverty and immigration which may be contributing to co-occurrence.

**Methods:**
Using 2009 surveillance data for HIV, chlamydia, gonorrhea, syphilis, TB, hepatitis B and hepatitis C, we identified zip codes in NYC with co-occurring high morbidity. A high morbidity zip code for each disease was defined as a rate per 100,000 in the top quintile (20%) of all zip codes in NYC with a reported case of disease. All zip codes with high morbidity for more than one disease were identified and given a score 2-7, indicating the number of diseases in the top quintile. Census data (Year 2000) was used to examine social characteristics of the high-morbidity zip codes. Maps were created using ArcGIS to visualize the surveillance and census data and to identify priority areas of the city for public health intervention.

**Results:**
Of 192 NYC zip codes, 49 (25%) have more than one disease in the top quintile. In every zip code where hepatitis C and HIV co-occur, gonorrhea or chlamydia are also in the top quintile. The zip codes with high morbidity for these four diseases are primarily those with high levels of poverty. TB and hepatitis B co-occur frequently in neighborhoods with large immigrant populations.

**Conclusions:**
Data sharing across infectious disease programs provides the opportunity to identify neighborhoods with co-occurring high morbidity and better coordinate health department activities. By mapping surveillance and census data, we have identified specific areas of NYC for coordinated activities. Next steps include working with providers in identified neighborhoods to improve testing, treatment and linkage to care; and separately, linking surveillance registries to analyze co-infection, and map neighborhoods with high rates of co-infection.

---

**Presenting Author(s):**

**Jennifer Fuld**
Division of Disease Control, New York
City Department of Health and Mental
Hygiene, Long Island City, NY
jfuld@health.nyc.gov

**Contributing Authors**

Ann Drobnik, MPH, NYC DOHMH, Susan Resnick, MA, MSW, NYC DOHMH

**Abstract ID:** 1326763 **Presentation Type:** Poster Presentation
**Title:** Trends in timeliness and completeness of reporting to the Listeria Initiative, 2004–2010 *
**Committee:** Surveillance/Informatics
**Topic:** Surveillance indicators
**Keywords:** Surveillance|Evaluation|Outbreak investigations

**Background:**
Invasive listeriosis is a rare, severe disease, which primarily affects older adults, immunocompromised persons, and pregnant women and their fetuses and newborn infants; finding controls for these populations can be challenging during listeriosis outbreak investigations. In 2003, CSTE adopted a position statement recommending: 1) prompt, routine interviews of all patients using a standardized questionnaire, and 2) forwarding of all Listeria monocytogenes isolates for pulsed-field gel electrophoresis (PFGE) subtyping at public health laboratories. Accordingly, CDC launched the Listeria Initiative (LI) in FoodNet sites in 2004 and expanded it nationwide in 2005. The LI database links epidemiologic data with PFGE results. These linkages have facilitated investigations of 58 listeriosis clusters/outbreaks since 2004, and led to the recall of contaminated Mexican-style cheese made from pasteurized milk, celery, hog head cheese, sprouts, and milk contaminated post-pasteurization.

**Methods:**
We tabulated the annual number of states reporting to the LI for 2004–2010 and compared the number of cases reported through the LI to the number of cases reported to the National Notifiable Disease Surveillance System (NNDSS) and to the number of patterns from Listeria isolates uploaded to PulseNet. We also evaluated timeliness of LI reporting and PulseNet upload, completeness of LI case reports, and proportion of interviews completed using the LI questionnaire.

**Results:**
The number of states reporting to the LI increased steadily from 2004 (n=10 states) to 2010 (n=42); annual case reports increased from 114 (2004) to 574 (2010). The proportion of NNDSS cases reported to the LI increased from 15% to 70%; among human isolates uploaded to PulseNet, the proportion linked to an LI questionnaire increased from 21% to 65%. The median time from case interview to LI report ranged from 36 (2008) to 55 days (2010); the median time from specimen collection to PulseNet upload decreased from 2004 (28 days) to 2009 (16) but increased in 2010 (28). The proportion of reports completed using the LI questionnaire decreased from 2004 (92%) to 2010 (76%). The completeness of food history also declined (2004: 75% versus 2010: 49%).

**Conclusions:**
As the number of states reporting to the LI and the proportion of cases reported has increased, the timeliness of reporting to the LI and PulseNet uploads has declined. Some states continue to report cases using non-standard forms, limiting the amount and comparability of food history data. Improvements in the timeliness and completeness of reporting could further facilitate timely investigation of listeriosis clusters.

---

**Presenting Author(s):**

**Katie Fullerton**
Enteric Diseases Epidemiology Branch,
Centers for Disease Control and
Prevention, Atlanta, GA
kgf9@cdc.gov

**Contributing Authors**

KA Jackson, MPH, Enteric Diseases Epidemiology Branch, Centers for Disease Control and Prevention SG Stroika, Enteric Diseases Laboratory Branch, Centers for Disease Control and Prevention BJ Silk, PhD, Enteric Diseases Epidemiology Branch, Centers for D

**Abstract ID:** 1326888 **Presentation Type:** Breakout Presentation
**Title:** Addressing capability 14, responder safety and health, with the Emergency Responder Health Monitoring and Surveillance document
**Committee:** Environmental Health Sub-Committee
**Topic:** Disaster epidemiology: tools, data, experiences, and challenges
**Keywords:** Emergency preparedness|Occupational Health|Epidemiology capacity

**Background:**
Emergency Responder Health Monitoring and Surveillance (ERHMS) document was developed collectively by an interagency workgroup coordinated and lead by NIOSH. The goal of ERHMS is to systematically address surveillance, safety, and health monitoring issues emergency responders face during all phases of emergency response (pre-, during, and post-deployment). In a separate effort, CDC implemented a systematic process for defining a set of public health preparedness capabilities to assist state and local health departments with their strategic planning and published Public Health Preparedness Capabilities: National Standards for State and Local Planning in March 2011. These capabilities are being used with the new Public Health Emergency Preparedness (PHEP) cooperative agreements that took effect in August 2011. For the first time, Responder Safety and Health is addressed as part of public health emergency preparedness (Capability 14).

**Methods:**
This presentation will discuss the Responder Safety and Health capability and its associated functions and tasks and how the ERHMS document serves as a resource. Examples will be given of how ERHMS was used in recent emergency events, such as the Deepwater Horizon oil spill and an interagency anthrax exercise. There will be a group discussion surrounding the audience's experience with addressing responder safety and health issues and what resources are needed to meet this new capability.

**Results:**
In addition to document development, NIOSH has been engaged in implementation development and field testing of the ERHMS system during both real-world and simulated events. This includes responses such as the Deepwater Horizon response, as well as an interagency anthrax exercise. NIOSH seeks to determine how organizations can optimally put the ERHMS system into practice themselves, as well as meet their PHEP grant requirements. Additional activities include field testing hand held devices for data collection and developing a model database that incorporates the data components of ERHMS identified in the document. This database could streamline and standardize the use and sharing of ERHMS data among various responder groups.

**Conclusions:**
Participants will develop an understanding of the Responder Safety and Health capability and how the Emergency Responder Health Monitoring and Surveillance document serves as a resource to meet these requirements.

---

**Presenting Author(s):**

**Renee Funk**
CDC/National Institute for
Occupational Safety and Health,
Atlanta, GA
rfunk@cdc.gov

**Contributing Authors**

John Halpin, MD, MPH, NIOSH

**Abstract ID:** 1318306 **Presentation Type:** Breakout Presentation
**Title:** Epidemiology of Hepatitis A Virus Infection (HAV) in Connecticut, 2006-2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Laboratory test methods & their impact on surveillance
**Keywords:** Epidemiology|Data/Surveillance|Hepatitis

**Background:**
Incidence of Hepatitis A (HAV) disease has declined dramatically in the United States since Hepatitis A vaccine first became available in 1995. Positive IgM anti-HAV laboratory results are reportable to the Connecticut Department of Public Health (DPH). We describe the epidemiology of HAV disease and examine differences between positive IgM anti-HAV reports that meet the case definition versus those that do not.

**Methods:**
Demographic, clinical, laboratory, and reason for testing information was collected from the reporting laboratory and ordering physician on all positive IgM anti-HAV reports during 2006-2011. Reports were classified according to CDC/CSTE case definition for acute Hepatitis A. Reports meeting the case definition were considered cases; those that did not were "false-positives". Risk factor information was collected through case interviews using a standardized form. Tests of significance of associations between categorical variables were done using SAS 9.2.

**Results:**
During 2006-2011, DPH received a total of 633 positive IgM anti-HAV reports. Of those, 163 (25.8%) met the case definition for confirmed acute HAV disease. Cases reported symptoms including jaundice (72%), nausea (70%), abdominal pain (64%), loss of appetite (63%), vomiting (60%), fever (55%), dark urine (56%), and diarrhea (33%); 34% were hospitalized, no deaths occurred. Reported risk factors included international travel (41%), shellfish consumption (11%), and contact with another case-patient (8%). The median ALT/AST was 1500/818 among cases and 36/33.5 among false-positives. Reasons for testing for HAV among false-positives included screening of asymptomatic patients with no risk factors (35%) or with risk factors (14%), and evaluation of elevated liver enzymes (21%); 91% of cases were tested because of symptoms of acute HAV. Patients tested because of symptoms of acute HAV were 322 times more likely to be a confirmed case ($p<0.001$). Incidence of HAV disease decreased from 1.25 cases/100,000 population in 2006 to 0.53 in 2011 ($p<0.001$) and the proportion of false-positive reports increased from 47% to 82.2% ($p <0.001$).

**Conclusions:**
Consistent with national data, incidence of HAV has decreased significantly in Connecticut. However, in Connecticut an increasing trend in the proportion of false-positive reports was observed. International travel was the most commonly reported risk factor among cases. Liver function test results are critical for case classification. Beginning in 2012, laboratories in Connecticut are required to report peak liver function tests (ALT, AST) conducted within one week of patient's HAV IgM positive test.

---

**Presenting Author(s):**

**Paul Gacek**
Connecticut Department of Public Health, Connecticut Department of Public Health, Hartford, CT
Paul.Gacek@ct.gov

**Contributing Authors**

Quyen Phan, MPH, Jessica Brockmeyer, MPH, Jaime Krasnitski, MPH, Kristen Soto MPH, Terry Rabatsky-Ehr, MPH, Matt Cartter, MD, MPH. All non-presenting authors are from the Connecticut Department of Public Health, Epidemiology Program.

**Abstract ID:** 1324631 **Presentation Type:** Breakout Presentation
**Title:** Effects of electronic communicable disease reporting
**Committee:** Surveillance/Informatics
**Topic:** Electronic case reporting
**Keywords:** Electronic case reporting|Information technology|Informatics

**Background:**
In most communities, healthcare providers report notifiable conditions to local public health departments by faxing or calling the department. In some cases, information that is manually transferred by the health departments to computer systems maintained by the state has a high risk of systematic error and information bias. In other scenarios, providers enter the information directly into a state based system, which precludes local jurisdictions from acting as required by their mandate. If local jurisdictions cannot carry out their duties effectively, then the state and the Centers for Disease Control (CDC) will not be able to carry out their responsibilities as well. Some local jurisdictions have implemented communicable reporting and investigation systems which facilitate: reporting by community healthcare providers and laboratories to local health departments, investigation and de-duplication of reports by the department's staff, and, where available, electronically submitting the information to the states. When a healthcare provider submits an electronic report for a communicable disease and specific criteria are met, messages are sent to the appropriate public health officers. Immediately after a report is submitted by a provider, the information becomes available to an unlimited number of users, regardless of their location and jurisdiction. This expedites investigations and follow-ups, and dramatically reduces systematic error and information bias. Our goal is to demonstrate how this technology impacts the efficiency and effectiveness of local, state and possibly federal levels by providing pertinent information faster and with greater accuracy.

**Methods:**
El Paso, Texas and Imperial County, California are among the public health departments that we included in our research. Pertinent data was collected and analyzed for periods prior to the implementation of the technology and a year to five years after. Analysis of the data involved measuring the time elapsed between report submission and retrieval, the number of reports received, and the number of systematic errors incurred during the process of report submission and retrieval.

**Results:**
Results from El Paso and Imperial County Public Health Departments will be included in the presentation.

**Conclusions:**
Use of this technology by public health departments and healthcare providers has significantly reduced the time gap between submission and retrieval of reports, enabling health departments to act accordingly. The utilization of this technology has also reduced systematic error and information bias, making health departments more effective. Finally, the number of reports received has increased after the technology was implemented, enabling them to make informed decisions supported by timely and accurate information.

---

**Presenting Author(s):**

**Jeorge Gallegos**
Public Health, City of El Paso, El Paso,
TX
GallegosJE@elpasotexas.gov

**Contributing Authors**

Michael Hill, Director, El Paso Public Health Department

**Abstract ID:** 1327567 **Presentation Type:** Poster Presentation
**Title:** Yard flooding by irrigation canals increased the risk of West Nile Disease in El Paso, Texas
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Zoonoses
**Keywords:** Zoonotic disease

**Background:**
To investigate the effects of use of water from irrigation canals to flood residential yards on the risk of West Nile disease in El Paso, Texas

**Methods:**
Authors used a case-control study to investigate the effects of use of water from irrigation canals to flood residential yards on the risk of West Nile disease in El Paso County, Texas. They interviewed 39 of 48 confirmed cases reported in 2009-2010 and a random sample of 50 residents of the county (i.e., controls) to obtain data on access to water from irrigation canals by subjects or their neighbors and other relevant exposures. A windshield survey of 600 meters around the study subjects' address recorded the presence of irrigation canals. A geographic information system was used to determine the Euclidean distance between residence and nearest irrigation canal. Cases were more likely than controls to report that their neighbors flooded their yards with water from canals, which were more often observed in neighborhoods of cases than of controls. They also compared the closest distance to canals from residence of the 182 confirmed cases reported in 2003-2010 with that of 182 blocks selected at random, which showed a statistically significant inverse relation with risk of West Nile disease.

**Results:**
In 2003-2010, 182 confirmed cases of WN were reported (age-adjusted incidence of 3.5 cases per 100,000 person-years). Case-fatality was 9.9%. Most cases (84%) were neuroinvasive. Risk increased with age, higher among Hispanics (RR=1.8, $p<0.05$), and men (RR=1.8,$p<0.05$). Cases occurred only from late June to early November, peaking in August . No evidence of confounding by age, gender, chronic disease or social economic status. Only those living close to canals had access to water from canals; within close proximity, yard flooding by irrigation canals increased the risk. Nine percent of cases used insect repellent (OR of non use =3.5; 95% CI: 1.0, 15.9).

**Conclusions:**
Evidence was found that living in close proximity to irrigation canals, the use ofwater from canals and the prevalent practice of flooding residential yards with water from canals in El Paso County, Texas, was a risk factor for disease. Other risk factors: were identified, older individuals with chronic conditions who do not use mosquito repellent. Interventions should target these populations within areas close to irrigation canals. It was concluded that flooding of yards with water from canals increase the risk of disease.

---

**Presenting Author(s):**

**Jorge Gallegos**
City of El Paso Department of Public Health, City of El Paso Department of Public Health, El Paso, TX
jorge.e.gallegos@elpasotexas.gov

**Contributing Authors**

Victor M. Cardenas, MD, MPH, PHD, Javier Jaime, MA, Paula B. Ford, PHD, Fernando J. Gonzalez, MPH, Irma Carrillo, MPH, Jorge E. Gallegos, BS, Douglas M. Watts, PHD

**Abstract ID:** 1319849 **Presentation Type:** Breakout Presentation
**Title:** Limited human to human transmission of novel influenza A (H3N2) virus in Iowa
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Influenza
**Keywords:** Influenza surveillance|Influenza / Pandemic influenza|Infectious Diseases

**Background:**
On November 20, 2011, CDC confirmed three cases of swine origin triple reassortant influenza A (H3N2) (S-OtrH3N2) virus infection in children in two counties in Iowa. None of the children were hospitalized and each recovered from a mild episode of febrile respiratory illness. All three were in contact with one another, and none had a known recent exposure to swine.

**Methods:**
As part of routine influenza surveillance, the respiratory specimens from three young children in Iowa were forwarded to the University of Iowa State Hygienic Laboratory (SHL) for further evaluation. Real-time reverse transcription-polymerase chain reaction (rRT-PCR) testing of these specimens indicated possible S-OtrH3N2 influenza virus. SHL notified the Iowa Department of Public Health, Center for Acute Disease Epidemiology on November 18, 2011 of these results and the CDC was contacted. Specimens were forwarded to the CDC for further analysis. Epidemiological investigation was conducted utilizing the CDC novel human influenza A case report form. Parents of the three children were contacted (two of whom were siblings in the same household) for interviews.

**Results:**
Complete genome sequencing at CDC confirmed all three specimens as S-OtrH3N2 with the M gene from the pH1N1 virus. The viruses from these three patients were resistant to amantadine and rimantadine, but were expected to be susceptible to the neuraminidase inhibitor drugs oseltamivir and zanamivir based on their genetic sequence. The epidemiological investigation determined that the families of patients A, B, and C reported no recent travel or attendance at community events. The only epidemiologic link that has been identified is attendance at a gathering of children on patient A's illness day one. No illnesses were reported among adults or among the five other children who were present at this gathering on that day. No swine exposures have been identified among adults or children attending this gathering. IDPH has detected no increase in absenteeism or reports of respiratory illness in the community where the patients reside or in the schools in the community. Enhanced surveillance for influenza like illness has been implemented in health-care facilities in the communities where patients A, B, and C reside. No additional cases of S-OtrH3N2 infection have been identified to date and surveillance data from the state have shown low levels of influenza activity at the time of all these patients' illnesses and in the following month.

**Conclusions:**
The lack of known exposure to swine in the three cases described, combined with the known epidemiologic links, suggests that limited human to human transmission of this novel influenza virus might have occurred. Transmission of swine origin influenza A (H3N2) viruses not containing the M gene from the pH1N1 virus to humans from close contact with an infected person has been reported previously and has not resulted in sustained human to human transmission.

---

**Presenting Author(s):**

**Ann Garvey**
Center for Acute Disease
Epidemiology, Iowa Department of
Public Health, Des Moines, IA
Ann.garvey@idph.iowa.gov

**Contributing Authors**

Kari Prescott, Webster County Health Department Shelby Kroona, MPH, Hamilton County Public Health Patricia Quinlisk, MD, Iowa Department of Public Health (IDPH) Ann Garvey, DVM, IDPH Sandy Jirsa, University of Iowa State Hygienic Laboratory (SHL)

**Abstract ID:** 1333228 **Presentation Type:** Breakout Presentation
**Title:** Modeling spatial accessibility to parks in St. Louis County, Missouri
**Committee:** Student Section
**Topic:**
**Keywords:** Geographic Information Systems|Built environment |Exercise


**Background:**
Promoting physical activity is a critical public health strategy for containing the current obesity epidemic and for preventing the occurrence of major chronic diseases. Shaping the local built environment to better support healthy behaviors such as exercise can have a long term effect on population health. Parks and open space are critical components of the neighborhood built environment. They provide ideal venues for leisure and promote population level physical activity. Limited park access can reduce the physical activity opportunities of local residents. From a geographical perspective, the number of parks and their spatial distribution across regions represents the basic park access potential for local residential populations. The residents of St. Louis County, Missouri, currently have access to 43 county parks. In November 2011, the St. Louis County Commissioner announced plans for closing 23 of the parks in 2012.

**Methods:**
We will use Geographical Information System software to model spatial accessibility to St. Louis County parks before and after park closings to quantify the surrounding residential population's spatial access to parks. We will quantify this spatial access by measuring the distance to the nearest park from the center of the resident's zip code before and after the park closing. We will calculate the difference between those distances to determine the percent of residents by zip code that have experienced a decline in spatial access to parks as a result of the parks closing.

**Results:**
The results of our study will include the spatial access to parks by zip code and a set of maps illustrating the park accessibility trends following the parks closing. We will also map the distances to specific recreational facilities for each zip code in the County including trails, camping sites, tennis courts, basketball courts, swimming pools, and recreational shelters.

**Conclusions:**
Most residents in our study will have a reduction in their spatial accessibility to parks after the County parks close. This reduction puts St. Louis County residents at greater risk for obesity and other chronic diseases.


---


**Presenting Author(s):**

**Julie Gary**
Public Health, Saint Louis University,
St. Louis, MO
garyjuliej@gmail.com

**Contributing Authors**

Manan Shroff, MPH, St. Louis University School of Public Health Pooja Chandiramani, MPH, St. Louis University School of Public Health Satish Munigala, MPH, St. Louis University School of Public Health Lauren Ho, St. Louis University School of Public Healt

**Abstract ID:** 1333240 **Presentation Type:** Breakout Presentation
**Title:** Distributive environmental justice and potential county parks closings in St. Louis County, Missouri
**Committee:** Student Section
**Topic:**
**Keywords:** Environmental justice|Health disparities|Built environment

**Background:**
This study examines the distribution of parks in St. Louis County, Missouri, as an environmental justice issue. Parks and open space improve physical and mental health and strengthen communities. Parks also increase property values, reduce crime rates, and improve quality of life. Previous studies have shown that low income neighborhoods are especially short of park space. The residents of St. Louis County, Missouri, currently have access to 43 county parks. In November 2011, the St. Louis County Commissioner announced plans for closing 23 of the parks in 2012.

**Methods:**
We will use United States Census Data, MICA, and Geographical Information Systems to determine the socioeconomic characteristics in zip codes surrounding the potential closed parks and their access to other public health entities including grocery stores, community centers, trails, schools, and transportation. We will then apply ethical principles to our findings.

**Results:**
Of the population surrounding the potential closed parks in St. Louis County, Missouri, 36% have a high school education or less, 27% are low income minorities, and 15% are single parent families. Thirty-seven percent of the students living in these areas are on the reduced or free lunch program and twenty-five percent are on Medicaid. If these parks are closed, this population with have limited or no feasible access to parks and open space.

**Conclusions:**
There is a strong case of distributive environmental injustice in the parks closing in STL County. Policies should be implemented to address the socioeconomic inequity displayed in these park closings.

---

**Presenting Author(s):**

**Julie Gary**
Public Health, Saint Louis University,
St. Louis, MO
garyjuliej@gmail.com

**Contributing Authors**

Pooja Chandiramani, MPH, St. Louis University School of Public Health Lauren Ho, St. Louis University School of Public Health Satish Munigala, MPH, St. Louis University School of Public Health Manan Shroff, MPH, St. Louis University School of Public Healt

**Abstract ID:** 1333208 **Presentation Type:** Poster Presentation
**Title:** Closing public parks and its projected impact on health outcomes in St. Louis County, Missouri
**Committee:** Student Section
**Topic:**
**Keywords:** Built environment |Physical activity|Chronic diseases

**Background:**
Parks and open space improve physical and mental health, strengthen communities, and make cities and neighborhoods more attractive places to work and live. Evidence shows that people who have access to parks exercise more. Regular exercise improves health and reduces the risk of heart disease, obesity, and diabetes. Parks also reduce pollution, increase property values, and reduce crime rates. The residents of St. Louis County, Missouri, currently have access to 43 county parks. In November 2011, the St. Louis County Commissioner announced plans for closing 23 of the parks in 2012. The county budget would require an influx of 10 million dollars to keep the parks open. According to the Missouri Information for Community Assessment, 9% of the county population is below the poverty line, and 25% of the children are on food stamps and Medicaid. About 30% of the population has high blood pressure and high cholesterol, 7% has diabetes, and 10% report their health status as fair or poor.

**Methods:**
We will assess the new barriers for St. Louis County residents to exercise. We will use SAS statistical software to model the obesity, diabetes, and heart disease rate progression over the next 5 to 10 years to estimate the impact of the closings on the county population. We will compare the costs of those additional cases to the cost of keeping the parks open.

**Results:**
Many St. Louis County residents will now have to travel approximately 5 miles to the nearest county park. If they swim, play tennis, or cycle, the distance to those facilities increases up to two fold. Other newly added barriers to exercise include cost of travel, the social barrier of feeling comfortable exercising in a new environment, and personal safety in a new location. In addition, although keeping the parks open would require 10 million dollars, the new cases of disease resulting from lack of exercise would represent a greater economic burden over time with 1 in 10 healthcare dollars spent on diabetes and its complications, heart disease patients costing $2650 more dollars per year than healthy patients, and overweight citizens weighing in at $1500 more than normal weight citizens.

**Conclusions:**
Access to the parks is important to the public health and welfare of the communities in St. Louis County. Closing parks in St. Louis County is a vital public health issue and would be detrimental to the health of the community.

---

**Presenting Author(s):**

**Julie Gary**
Public Health, Saint Louis University,
Collinsville, IL
garyjuliej@gmail.com

**Contributing Authors**

Satish Munigala, MPH, St. Louis University School of Public Health Manan Shroff, MPH, St. Louis University School of Public Health Pooja Chandiramani, MPH, St. Louis University School of Public Health Lauren Ho, MPH, St. Louis University School of Public

**Abstract ID:** 1394051 **Presentation Type:** Late Breaker: Breakout Presentation
**Title:** Delayed mortality among cases of Eastern equine encephalitis and West Nile virus illness in Florida, 1999-2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Vectorborne
**Keywords:** Vectorborne disease|Infectious Diseases

**Background:**
West Nile virus (WNV) illness and Eastern equine encephalitis (EEE) associated mortality is believed to occur mostly during acute or early convalescent phases of illness. Nationally the reported mortality rates for WNV illness range from 3%-15% and approximately 33% for EEE. Some studies suggest mortality may continue for at least a year after acute WNV illness. Epidemiologic and vital statistics data collected from January 1, 1999 to December 31, 2011 were analyzed to determine if delayed mortality occurred among patients reported as cases of WNV illness and EEE in Florida.

**Methods:**
The analysis population included 275 patients identified as reported cases of WNV illness (255 cases) and EEE (20 cases) reported to Florida Department of Health (FDOH) from January 1, 1999 to December 31, 2011. Patient names and dates of births were used to search the FDOH vital statistics database during the same time period to determine if a death certificate was issued. Death certificates listing EEE, WNV, non-bacterial encephalitis, mosquito-borne encephalitis or encephalopathy as contributing causes of death were assumed to be directly related to the arbovirus infection. Delayed mortality was defined as mortality more than 30 days after reported onset of illness.

**Results:**
Fifty of 275 WNV and EEE patients were issued death certificates; nine deaths among all EEE cases and 41 deaths among all WNV illness cases. Three of nine (33%) EEE deaths and three of 11 (2.7%) WNV deaths captured in vital statistics records were not captured as deaths in FDOH Merlin reporting system. All nine EEE deaths were attributed to the arbovirus infection resulting in an overall mortality rate of 45%. Median interval from onset to death for EEE related deaths was 88 days (range 3-373 days), with two of nine deaths occurring one year or more after onset. The median age was 34 years of age (range 1-78 years). Eleven of 41 WNV illness deaths were attributed to WNV infection resulting in a 4% overall mortality rate. Median interval from onset to death for WNV infection attributed deaths was 62 days (range 4 - 455 days) with death occurring more than 30 days after onset in 3 cases. The median age was 68 years of age (range 40-89 years).

**Conclusions:**
Results of this analysis suggest mortality due to EEE and WNV illness does occur beyond acute or early convalescent phases of the illnesses and that the associated mortality rates in Florida are underestimated.

---

**Presenting Author(s):**

**Michelle George**
Florida Department of Health,
Sanford, FL
michelle_george@doh.state.fl.us

**Contributing Authors**

Leena Anil, MVSc., Ph.D, Danielle Stanek, DVM, Gregory Danyluk, Ph.D, MPH, MS Dr. Anil is the Arthropod-borne Disease Surveillance Coordinator with the Bureau of Environmental Public Health Medicine. Dr. Stanek is the Medical Epidemiologist with the Bureau of Environmental Public Health Medicine Dr. Danyluk is the Epidemiology Manager with the Seminole County Health Department.

**Abstract ID:** 1330271 **Presentation Type:** Breakout Presentation
**Title:** Increased risk of fall-related injury in Philadelphia due to adverse weather events
**Committee:** Injury Control and Prevention Sub-Committee
**Topic:** Fall-related injuries
**Keywords:** Fall-related injuries|Injury surveillance|Hospital data

**Background:**
On February 2, 2011, BioSense, a national-level surveillance system based on emergency department (ED) chief complaints at sentinel hospitals, alerted Philadelphia of a sharp increase in fall-related visits at a local hospital. Philadelphia also found a spike of fall-related visits on this date in multiple EDs that submit chief complaint data for syndromic surveillance. The previous day, Philadelphia was hit by a severe early morning ice storm. In order to provide more guidance on factors related to surges of these types of ED visits, we considered whether there have been historical increases in fall-related ED visits on days with similar weather profiles, and if so, identified the common weather characteristics and groups most at-risk for fall-related injury on these days.

**Methods:**
Fall-related visits were identified in de-identified ED chief complaints between April 1, 2006 and March 31, 2011, using a standardized set of key words. ED visits were divided into four seasons based on the date of visit. Any day exceeding the seasonal threshold (median number of fall visits in a given season + three standard deviations) was included as a fall cluster day in the analysis. Each fall cluster date was compared to a control group that consisted of a set of similar weekdays within the same season. National Climatic Data Center and Weather Underground (Wunderground©) data were used to obtain weather characteristics of cluster and control days and also days preceding both. Matched case-control analysis was conducted to identify particular weather and patient characteristics related to increased fall-related visits.

**Results:**
18- to 64-year-olds were nearly twice as likely to seek care for fall-related injuries on days exceeding the fall threshold (fall cluster days) relative to any other age group. Fall visits to the ED between 7-11AM increased about 50% relative to visits during other time periods on fall cluster days. Compared to temperature preceding control days, max temperature preceding fall cluster days was four times more likely to be below freezing. Fall cluster days were fourteen times more likely to follow snow than control days.

**Conclusions:**
The characteristics of the surges in fall-related ED visits suggest that many falls may have occurred during work transit. This demonstrates a potential gap that could be addressed through improved planning or injury prevention efforts. Snow and freezing weather create particularly hazardous conditions.

---

**Presenting Author(s):**

**Kathryn Gevitz**
Disease Control, Philadelphia
Department of Public Health,
Philadelphia , PA
kathryn.gevitz@phila.gov

**Contributing Authors**

Robbie Madera, MPH, Claire Newbern, PhD, MPH, Jose Lojo, MPH, Caroline Johnson, MD Philadelphia Department of Public Health

**Abstract ID:** 1332614 **Presentation Type:** Breakout Presentation
**Title:** Local Health Epidemiology Capacity Assessment, 2009
**Committee:** Cross Cutting Sub-Committee
**Topic:** Local epidemiology
**Keywords:** Local epidemiology|Epidemiology capacity

**Background:**
The Council of State and Territorial Epidemiologists (CSTE) has conducted four national assessments of core epidemiologic capacity of state and territorial health departments since 2001. In 2009, CSTE worked with the National Association of County and City Health Officials (NACCHO) to survey local epidemiologists using a more abbreviated questionnaire which included core questions from the state and territorial assessment to measure the epidemiologic capacity of the local health department (LHD) workforce.

**Methods:**
The epidemiologic capacity assessment (ECA) survey was sent to 472 LHDs representing those jurisdictions which had reported at least one staff with some portion of their time dedicated to epidemiology in NACCHO's 2008 National Profile of Local Health Departments. Because no national contact list of local epidemiologists exists, CSTE and NACCHO administered the questionnaire via a single email t the primary contacts of the 472 LHDs and asked them to forward the survey to the epidemiologists in their health departments for completion.

**Results:**
Responses were received from 297 of 472 epidemiologists. We are currently ascertaining how many LHDs these 297 respondents represent. 94% of respondent were full-time employees. Three quarters (77%) had at less than 5 years experience as an epidemiologist. Two-thirds (63%) had at least a Masters degree in epidemiology. Over half (56%) spent most of their time in Infectious Disease programs, while 7% spent at least half of their time on duties other than epidemiology. Only 65% were supported with any local funds. The only training need commonly cited across all levels of experience was training in the use of informatics tools and development of information systems. In the presentation, results will be stratified by health department size.

**Conclusions:**
The results of this preliminary effort to assess local epidemiologic capacity revealed a workforce of varied training, experience and responsibilities. When surveying LHD epidemiologists in the future, NACCHO and CSTE should consider identifying single points of contact for survey administration and follow-up. The survey should be linked to NACCHO's database regarding the size of each jurisdiction, population served, and zip codes and census tracts. In addition, both NACCHO and CSTE should continue current efforts to identify as many LHD-based epidemiologists as possible in order to develop as robust a picture of local epidemiologic capacity as possible.

---

**Presenting Author(s):**

**Joseph Gibson**
National Association of County and
City Health Officials, Washington, DC
JGibson@HHCorp.org

**Contributing Authors**

Matthew Boulton, MD, MPH; Assocoate Professor of Epidemiology, University of Michigan School of Medicine Glenna Nall, BS; Epidemiologic Intern, Marion County (Indianapolis) IN Department of Health Lilly Kan, MPH; Senior Program Analyst, NACCHO Dana Cole,

**Abstract ID:** 1333284 **Presentation Type:** Breakout Presentation
**Title:** Nationwide perinatal periods of risk snalysis with Kitagawa results for counties with adequate data quality
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Maternal & child health epidemiology
**Keywords:** Reproductive health|Infant mortality|Women's health

**Background:**
Perinatal outcomes are often summarized by a few statistics such as infant mortality and prematurity rates which do not fully utilize the richness of vital records data or indicate to community stakeholders which prevention activities would have the most impact. The Perinatal Periods of Risk (PPOR) approach provides an analysis plan and steps for investigating fetal-infant mortality in large cities. PPOR was developed for US-urban use by the CDC and CityMatCH, based on the World Health Organization Periods of Risk model. The full analysis takes a community from mortality rates, through a series of logical steps, to identification of areas for intervention with highest potential impact. Unfortunately, many communities have difficulty completing all the steps. This analysis uses vital records data to demonstrate the value of one particular step in PPOR, the Kitagawa analysis, and how and why this step leads to different action steps in different US cities.

**Methods:**
Perinatal outcomes are often summarized by a few statistics such as infant mortality and prematurity rates which do not fully utilize the richness of vital records data or indicate to community stakeholders which prevention activities would have the most impact. The Perinatal Periods of Risk (PPOR) approach provides an analysis plan and steps for investigating fetal-infant mortality in large cities. PPOR was developed for US-urban use by the CDC and CityMatCH, based on the World Health Organization Periods of Risk model. The full analysis takes a community from mortality rates, through a series of logical steps, to identification of areas for intervention with highest potential impact. Unfortunately, many communities have difficulty completing all the steps. This analysis uses vital records data to demonstrate the value of one particular step in PPOR, the Kitagawa analysis, and how and why this step leads to different action steps in different US cities.

**Results:**
Data quality, particularly missing maternal characteristics among fetal deaths, limited the complete analysis to 34 counties. Generally, Non-Hispanic Blacks had 80-100% of their excess mortality due to birthweight distribution, and in some counties, survival advantage partially concealed the mortality due to very low birth weight. Hispanics and whites had lower mortality in the MHP period and this was attributable in most cases to fewer births in the period. Some options for reference groups will be discussed.

**Conclusions:**
Among cities/states with adequate data quality, Kitagawa results vary by race/ethnicity, by geography, and by the distribution of excess mortality across periods of risk. Non-Hispanic Blacks were more likely to experience excess mortality in the MHP period and that excess is more likely to be attributed to birthweight distribution. In these populations, very early deliveries must be reduced. In other populations, low survival rates must also be addressed.

---

**Presenting Author(s):**

**Carol Gilbert**
CityMatCH, University of Nebraska
Medical Center, Omaha, NE
CGILBERT@UNMC.EDU

**Abstract ID:** 1313321 **Presentation Type:** Poster Presentation
**Title:** Evaluation of the New Jersey Silicosis Surveillance System, 1993-2008
**Committee:** Occupational Health Sub-Committee
**Topic:** Strategic planning and evaluation of occupational health surveillance programs
**Keywords:** Occupational Surveillance|Evaluation|Occupational lung diseases

**Background:**
The New Jersey Department of Health and Senior Services (NJDHSS) Silicosis Surveillance System was evaluated to develop recommendations for improved data quality and targeted interventions. Silicosis is a preventable but fatal occupational lung disease caused by the inhalation of respirable crystalline silica.

**Methods:**
Simplicity, timeliness, stability, flexibility, positive predictive value (PPV) and representativeness were evaluated according to the 2001 updated CDC guidelines by performing staff interviews and a review of system documentation, databases, publications and relevant literature. The PPV (number of cases confirmed over the total number of cases reported) was calculated for each report source. Report source PPV for 'No', 'Insufficient', 'Coal', 'Asbestosis', 'Missing' and 'Unknown' case confirmation status was calculated to determine the levels of incorrect case reporting. Proportions of gender, race, ethnicity and occupation for confirmed cases of silicosis were compared to the potentially silica-exposed New Jersey workforce (farming, construction, installation, production, transportation and architecture industries) using a chi-square goodness of fit test. Univariate analysis of Hispanic ethnicity by demographic and radiologic characteristics was performed using a Fischer's Exact test to determine factors associated with Hispanic misrepresentation.

**Results:**
The system receives a score of fair for simplicity, timeliness and PPV, good for stability and representativeness and excellent for flexibility. Overall PPV is low (36%). Hospital discharge data has the highest PPV reinforcing the usefulness of this data source. Over half of reported cases from death certificates result in 'Insufficient' conclusions, while all workers' compensation data result in a 'Missing' classification. Gender and racial distributions in the silicosis system are representative of the New Jersey potentially silica-exposed workforce. Ethnicity is misrepresented with Hispanic workers representing 35% of the workforce but only 7% of the surveillance registry. Hospitals were more likely to report non-Hispanic cases as compared to cases of Hispanic or unknown ethnicity (92% vs. 75% vs. 89%). Physician reports, death certificates and worker's compensation were more likely to report Hispanic cases as compared to cases of non-Hispanic or unknown ethnicity.

**Conclusions:**
Report source relationships should be examined, especially workers' compensation reporting. Inclusion of occupational information in hospital data will improve timeliness, simplicity and PPV. The large "unknown" ethnicity category enforces the need to make ethnicity a priority data collection field. Interventions to increase healthcare provider reporting should be performed. The Hispanic workforce should be targeted for silicosis awareness and education interventions.

---

**Presenting Author(s):**

**Jessie Gleason**
CDC/CSTE Fellow, New Jersey
Department of Health and Human
Services, Atlanta, GA
jessie.gleason@doh.state.nj.us

**Contributing Authors**

Karen Worthington, MS, RN, COHN-S

**Abstract ID:** 1332357 **Presentation Type:** Poster Presentation
**Title:** HIV/AIDS care in Houston/Harris County, Texas: Charting Latino progress over healthcare barriers
**Committee:** Infectious Diseases Sub-Committee
**Topic:** HIV
**Keywords:** HIV/AIDS|Community health|Barriers to care

**Background:**
This study examines differences in prescription for anti-retrovirals among the racial/ethnic groups in Houston/Harris County in the context of ongoing national discussion among policy makers that would possibly expand HIV treatment guidelines to all patients.

**Methods:**
Data for this study was obtained through a cross-sectional representative survey of adult HIV+ patients (?18 years old) in Houston/Harris County who received medical care in 2009. A total of 368 medical record abstractions were examined. Descriptive and logistic regression analyses were used to determine the relationships between the independent variables and outcome variable while controlling for gender and age. STATA version 11 was used for data management and statistical analysis.

**Results:**
Patient prescriptions for anti-retroviral therapy for African Americans, Latino and Caucasians were above 80% in 2009. However, a comparison of African Americans and Caucasians to Latinos revealed that a significantly higher proportion of Latinos were prescribed anti-retroviral therapy: AOR (95%CI) = 3.9 (3.3 - 4.6) and AOR = 3.0 (2.5 – 3.7), respectively. Latinos were also more likely to have higher rates of viral load suppression than African Americans [AOR = 1.8 (1.6 – 2.0)] and Caucasians [AOR = 2.0 (1.8 – 2.2]. Further analysis showed that Latinos were less likely to progress to HIV Stage 3 (CD4 < 200) than African Americans [RR = 0.5 (0.4 -0.5)] and Caucasians [RR = 0.8 (0.6 – 0.9)].

**Conclusions:**
The impact of prescription and adherence to anti-retroviral medication is reflected in HIV viral suppression, making it less likely for patients to progress to stage 3. In advocating for anti-retroviral therapy prevention programs should consider identifying barriers within race/ethnicity that may prevent patients from receiving and adhering to their medications.

---

**Presenting Author(s):**

**James Gomez**
Bureau of Epidemiology, City of
Houston Health Department, Houston
, TX
james.gomez@houstontx.gov

**Contributing Authors**

Osaro Mgbere PhD, MPH; Salma Khuwaja MD, MPH, Dr.PH; Brian Goldberg BA, Lydwina Anderson BS; Karen Miller MS

**Abstract ID:** 1322123 **Presentation Type:** Breakout Presentation
**Title:** Alcohol type and brand preference among Michigan Youth, 2011
**Committee:** Cross Cutting Sub-Committee
**Topic:** Substance abuse epidemiology: Burden of alcohol and opiate use, Polices related to substance abuse
**Keywords:** Alcohol Use|Risk factors|Adolescent health

**Background:**
There is ample evidence to demonstrate that the degree of youth alcohol advertising exposure is strongly and directly associated with intentions to drink, prevalence of drinking, and the amount consumed. Preliminary studies have reported a correlation between underage drinkers' brand preference and marketing expenditures, suggesting a marketing influence on choice of beverage. This is the first study to investigate brand-specific and other consumption behaviors among Michigan high school students.

**Methods:**
Data were obtained from the 2011 Michigan Youth Tobacco Survey, an anonymous survey of 4,142 9th-12th grade students, to produce representative statewide estimates of health risk behaviors. The questionnaire asked ten specific questions on alcohol consumption behavior, including usual type and brands consumed and negative consequences experienced from alcohol consumption (e.g. forgetting what happened or doing poorly school). Weighted prevalence estimates were generated and chi-square tests examined the associations between consumption, alcohol preference and specific behaviors. In the past 30 days, “nondrinkers” reported not drinking any alcohol, “non-binge drinkers” reported having at least one drink of alcohol, but less than five drinks within a couple of hours and “binge drinkers” reported consuming five or more drinks in a row on at least one occasion.

**Results:**
Liquor and beer were the two most common types of alcoholic beverages consumed by all drinkers. Smirnoff vodka and Bud Light were the two most prevalent brands of liquor and beer reported among drinkers. Compared to non-binge drinkers, binge drinkers were more likely to report a usual type of liquor consumed (61.2%), mixing alcohol with energy drinks (51.8%) and experiencing a negative consequence from drinking alcohol (44.8%) in the past 30 days ($p<0.05$). When a usual brand of liquor was identified, experiencing a negative outcome increased to 53.3% among binge drinkers. Self-reported Four Loko (an alcoholic energy drink) consumption was significantly higher among binge drinkers, especially females, than non-binge drinkers. Among binge drinkers, 47.0% reported eight or more drinks as the largest number consumed in one occasion in the past 30 days. Binge drinkers were more likely to report drinking at someone else’s home, while non-binge drinkers reported usually consumed alcohol at their own home.

**Conclusions:**
Self-reported data indicate underage binge drinkers in Michigan are consuming alcohol excessively and are experiencing detrimental consequences as a result; these effects are intensified when a preferred type or brand of alcohol is identified. Self-reported alcohol brand preference is consistent with national research which identified overexposure of specific brands to youth.

---

**Presenting Author(s):**

**Katy Gonzales**
Michigan Department of Community
Health, Lansing, MI
gonzalesk2@michigan.gov

**Contributing Authors**

Thomas Largo, MPH, Michigan Department of Community Health

**Abstract ID:** 1322145 **Presentation Type:** Poster Presentation
**Title:** Measuring the burden of excessive alcohol consumption among Michigan residents: Alcohol-attributable hospitalizations, 2001-2010 *
**Committee:** Cross Cutting Sub-Committee
**Topic:** Substance abuse epidemiology: Burden of alcohol and opiate use, Polices related to substance abuse
**Keywords:** Alcohol|Hospital data |Epidemiology

**Background:**
Excessive alcohol consumption is the third leading cause of death in the United States. Consuming alcohol beyond moderate levels increases the risk of negative outcomes and is a causal factor in more than 60 types of diseases and injuries. The purpose of this analysis was to describe alcohol-attributable hospitalizations among Michigan residents.

**Methods:**
The study population consisted of Michigan residents discharged from acute-care hospitals between January 1, 2001 and December 31, 2010 with a primary diagnosis of an alcohol-attributable condition. These conditions included: alcohol psychoses, acute alcohol intoxication, alcohol abuse, alcoholic polyneuropathy, alcoholic cardiomyopathy, alcoholic gastritis, alcoholic liver diseases, fetal alcohol syndrome, excessive blood level of alcohol, toxic effect of ethyl alcohol, and accidental poisoning by alcoholic beverages. Characteristics of alcohol-attributable hospitalizations were compared to all other hospitalizations using Pearson's chi-square tests and differences between estimates were statistically significant when $p<0.05$. Prevalence estimates of alcohol-attributable hospitalizations by patient demographics, source of admission, discharge disposition, insurance type and total hospital charges were generated.

**Results:**
Between 2001-2010, there were a total of 94,695 hospital stays among Michigan residents that resulted directly from excessive alcohol consumption. Approximately three-quarters (73.7%) of alcohol-attributable hospitalizations were among men and almost two-thirds (63.3%) occurred among adults aged 35-54. The average 9,470 hospitalizations totaled approximately 115 million dollars in hospital charges each year. A substantial proportion of alcohol-attributable hospitalizations were paid out of pocket (more than $13 million per year). Self-payment varied by alcohol condition (8.1-22.2%) and was considerably higher for alcohol conditions than all other hospitalizations (2.2%). Individuals hospitalized with an alcohol condition were more likely to be admitted to the hospital through the emergency department (78.6% v. 57.6%) and were 3.5 times more likely to discontinue their care or leave against medical advice compared to those hospitalized for other conditions (12.9% v. 3.6%).

**Conclusions:**
The large proportion of self-payment among alcohol-attributable hospitalizations is a major public health concern; those paying out of pocket are most likely uninsured and represent an at-risk population that is less likely to have access to and utilize primary and/or managed care and more likely to delay seeking treatment. Previous research has demonstrated that these individuals may have missed opportunities for screening and behavioral interventions and that their conditions are often more progressed than if they had some form of health insurance.

---

**Presenting Author(s):**

**Katy Gonzales**
Michigan Department of Community
Health, Lansing, MI
gonzalesk2@michigan.gov

**Contributing Authors**

Thomas Largo, MPH, Michigan Department of Community Health Lorraine Cameron, PhD, Michigan Department of Community Health

**Abstract ID:** 1327412 **Presentation Type:** Poster Presentation
**Title:** Using market research data to explore alcohol-related behaviors among Michigan adults, 2011 *
**Committee:** Cross Cutting Sub-Committee
**Topic:** Substance abuse epidemiology: Burden of alcohol and opiate use, Polices related to substance abuse
**Keywords:** Alcohol Use|Data/Surveillance|Minorities


**Background:**
Traditional data sources measuring adult alcohol consumption provide a variety of prevalence estimates on current and binge drinking. However little is known about the types and brands of alcohol adults consume, where these products are purchased, and how they are associated with detailed demographic characteristics, such as race/ethnicity, age, sex, and income. Additionally, these data sources cannot be used to understand consumption patterns among small populations or for small geographic areas. We utilized a novel data source to explore these factors as they relate to adult drinking behavior in Michigan.

**Methods:**
We used Nielsen 2011 data and software to categorize Michigan adults into market segments that describe demographics and consumer behavior. Reports were generated to describe alcohol-related consumer behavior and compare the types and brands of alcohol being purchased by different demographic groups in Michigan. Maps were generated to identify where these groups live.

**Results:**
Individuals making over 100,000 dollars a year were approximately four times more likely to purchase premium wines, such as Clos Du Bois, Blackstone and French red wine, during the past week and were more than three times as likely to purchase wine, liquor and beer at a wholesale membership club than other groups. This subgroup was also more likely to purchase more expensive brands of liquor (Ketel One Vodka, Stolichnaya Vodka and Makers Mark) and beer (Anchor Steam Beer, Amstel Light and Sierra Nevada Ale) over the past six months. Conversely, in the past six months, lower income individuals were more than three times as likely to purchase inexpensive malt liquor and alcohol, such as Colt 45, Olde English 800 and E & J, compared to the overall Michigan population. In addition, these individuals were more likely to purchase liquor at a convenience store and live in urban areas. Compared to other groups, individuals under 35 years and low income individuals had similar purchasing behaviors, particularly inexpensive beer, such as Pabst Blue Ribbon Beer and Keystone Beer.

**Conclusions:**
Market research data expand information available on adult alcohol consumption, including which brands are being purchased, where, and by whom. This can be used to develop targeted interventions as well as to inform policy related to community development and alcohol availability.


---


**Presenting Author(s):**

**Katy Gonzales**
Michigan Department of Community
Health, Lansing, MI
gonzalesk2@michigan.gov

**Contributing Authors**

Rebecca Coughlin, MPH, Michigan Department of Community Health Corinne Miller, PhD, Michigan Department of Community Health

**Abstract ID:** 1319742 **Presentation Type:** Poster Presentation
**Title:** HIV and hepatitis mortality in Florida: Examining trends, disparities, and areas for intervention
**Committee:** Infectious Diseases Sub-Committee
**Topic:** HIV
**Keywords:** HIV/AIDS|Hepatitis|Co-morbidity

**Background:**
An analysis of hepatitis B and C mortality was completed by the CDC's Division of Viral Hepatitis in 2011. This analysis, presented at the American Association for the Study of Liver Diseases, showed that in the U.S. hepatitis C associated deaths had outpaced HIV associated deaths by 2007. To see if this was true for Florida, a similar analysis was conducted focusing on demographic differences as well as identifying co-morbid conditions as targets for outreach.

**Methods:**
All death certificates for Florida residents from 1999-2010 that had an immediate, contributing or underlying cause of death of HIV (ICD10 B20-B24) or hepatitis B or C (ICD10 B16-B19) were selected. Deaths were analyzed based on selected demographics as well as time trend analysis. Underlying and contributing causes were examined to identify co-morbid conditions. All analysis was completed using SAS 9.2.

**Results:**
During the twelve years of study, the number of hepatitis deaths increased by almost 200% while there was a 34% decrease in the number of HIV deaths. The increase in hepatitis deaths was associated with hepatitis C; hepatitis B deaths remained consistent. Compared to HIV deaths, hepatitis deaths were generally older, more likely to be white, and more likely to be non-Hispanic (all significant at p-value <0.001). Blacks and Hispanics were over-represented in both HIV and hepatitis deaths when compared to the corresponding race/ethnicity distribution of total deaths. Hepatitis deaths were more likely to have alcohol-related conditions listed as co-morbidities. Preventable and/or controllable chronic health conditions were frequently listed as co-morbidities, including hypertension, heart disease, diabetes, and COPD.

**Conclusions:**
Currently in Florida, HIV deaths still outnumber hepatitis deaths, which is different from the national data. However, this is likely due to a combination of Florida's high prevalence of HIV along with a relatively high HIV death rate. If current mortality trends continue, hepatitis deaths will outpace HIV deaths in 2011. Even with the dramatic increase in hepatitis deaths, HIV mortality is a more significant source of years of potential life lost due to the fact that HIV deaths are on average 13 years younger than hepatitis deaths. Analysis of immediate, contributing and underlying causes of death indicates that there are many chronic health conditions that could be targets for education and prevention in these populations.

---

**Presenting Author(s):**

**Kate Goodin**
Bureau of HIV/AIDS, Florida
Department of Health, Tallahassee, FL
Kate_Goodin@doh.state.fl.us

**Abstract ID:** 1315530 **Presentation Type:** Poster Presentation
**Title:** Creating a lead risk map using parcel level data *
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Generating and using county and local-level data for CD/MCH/OrH epidemiology
**Keywords:** Geographic Information Systems|Lead|Environmental Health


**Background:**
Idaho does not currently have a funded childhood lead program. As a result there is scant data available on lead screening numbers and resources are limited. To help local agencies better target childhood lead screening efforts to geographic areas most in need a lead risk map will be created for the most populous county in Idaho.

**Methods:**
The Department of Health and Welfare has obtained parcel level data for Ada County from the county tax assessor's office. Using ArcGIS 10.0, a lead risk map will be created based on the year that the house was built (i.e., pre-1978, pre-1950). Census data (% children under 5, % below poverty) and screening information (% Medicaid children screened) at the census block level will be joined to the parcel data in order to identify geographic areas in need of increased screening efforts. Maps at the parcel level resolution will be available, but it is anticipated that the most visually useful (and actionable) maps will be those in which the lead exposure risk is aggregated to the census block group or tract level (ex., displaying block groups where >80% of homes are built pre-1978).

**Results:**
In addition to the map(s) itself, a list of geographic areas to prioritize for child lead screening (ex., block groups with >80% of homes built pre-1978) will be shared with local agencies involved in childhood lead screening such as Medicaid, local health districts, and local Head Start programs. For Medicaid, those areas which also have a low % of children screened will be given heightened priority.

**Conclusions:**
It is anticipated that these maps will result in the development of more efficient and cost-effective lead screening efforts by local agencies, in which higher risk areas are systematically targeted for screening. It is also hoped that the mapping project will enhance relationships with local agencies and result in the project being expanded to other counties.


---


**Presenting Author(s):**

**Robert Graff**
Idaho Department of Health and
Welfare, Boise, ID
graffr@dhw.idaho.gov

**Contributing Authors**

Norka Paden, PhD., Joseph Pollard, BA Idaho Department and Health and Welfare

**Abstract ID:** 1324553 **Presentation Type:** Breakout Presentation
**Title:** Social network analysis as a tool in infectious disease cluster investigations
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Viral hepatitis
**Keywords:** Infectious Diseases|Outbreak investigations |Data sharing

**Background:**
Clusters of infectious disease can be complex for health departments to manage. Frequently, public health practitioners will create ad hoc network diagrams to better visualize the spread of disease, keep track of contacts tested or interviewed, and communicate details of the cluster with others. Such diagrams can quickly become cumbersome as the size of the cluster increases. This presentation will discuss how social network analysis software was used to guide and analyze a hepatitis C (HCV) cluster investigation in a rural Wisconsin county.

**Methods:**
Staff from the state health department developed an MS Access relational-based database in which to keep track of testing and risk data. From this database, data were exported to construct a social network diagram using UCINet and accompanying visualization software, NETDRAW. Network diagrams were constructed depicting connections between partners of multiple levels of risk: sexual, injection drug, and both. Variable of age, sex, and HCV testing status were visually incorporated into the diagrams. Multiple versions were created; both the entire network, as well as focused diagrams featuring individuals with the greatest numbers of known partners. To ensure confidentiality, diagrams containing client codes were shared between the health departments over a secure, encrypted email system. De-identified diagrams were produced alongside to illustrate cluster characteristics to a wider audience.

**Results:**
Social network diagrams facilitated the communication of cluster investigation updates between local and state health departments and provided an easily updatable visual diagram of the demographics of ultimately 165 individuals included in the cluster investigation. The state health department used the social network analysis to provide the county a list of highest priority individuals for follow-up testing, including individuals who were either HCV-negative or individuals with an unknown HCV infection status that had a large number of HCV-positive needle-sharing partners or were connected to a high-risk network.

**Conclusions:**
Social network analysis can aid in communication about a cluster, focusing on individuals to test within a large cluster, and identifying potential intervention strategies. Experiences from this cluster are currently being applied to other infectious disease clusters in the state. As public health practitioners face an environment of fewer resources and greater demands, the need for efficient communication and information-sharing increases. Social network diagramming can be a useful and low-cost method for visually describing data involving complex relationships.

---

**Presenting Author(s):**

**Katarina Grande**
Population Health Institute, University
of Wisconsin-Madison, Milwaukee, WI
katarina.grande@gmail.com

**Contributing Authors**

Marisa Stanley, MPH, Wisconsin Division of Public Health AIDS/HIV and Adult Viral Hepatitis Programs; Chris Bering, MEd, Wisconsin Division of Public Health AIDS/HIV and Adult Viral Hepatitis Programs; Sheila Guilfoyle, Wisconsin Division of Public Health

**Abstract ID:** 1324085 **Presentation Type:** Poster Presentation
**Title:** Linking data throughout the life course: Building a longitudinal birth surveillance system for studies of black-white disparities in infant health
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Lifecourse epidemiology
**Keywords:** Health disparities|Surveillance|Birth outcomes

**Background:**
There is a well-established literature substantiating the need to address social determinants of women's health over the life-course in order to close racial gaps in infant health. However, many states lack the resources to collect longitudinal, population-based data to support life-course efforts. Our goal was to use readily available data to create a longitudinal surveillance system that would facilitate studies of persistent racial disparities in birth outcomes.

**Methods:**
Virginia birth data was used to match the birth records of infants born from 2005-2009 to the mother's birth record using maternal information reported on the infant's certificate. Infant birth records with valid maternal maiden names and birth dates, listing Virginia as the mother's birthplace, and a maternal birth year from 1960-1997 were eligible for linkage. SAS Version 9.2 was used to apply data cleaning and standardization procedures to the linkage variables. Linkage was, then, performed in Microsoft Access 2007 using a series of deterministic matching criteria based on full and partial combinations of mother's birth date and first, middle, and maiden names. Visual examination of unlinked records identified additional data cleaning steps and helped refine the matching criteria.

**Results:**
Maternal linkage of 2005-2009 Virginia births yielded 173,821 matched infant records (86.7% of all eligible records). Eligibility and match rates varied between sociodemographic groups. Infants of Hispanic ethnicity had a low eligibility rate (3.4%) compared to the total birth population and were, therefore, underrepresented in the linked dataset. However, match rates among linkage-eligible infants were similar across racial/ethnic groups. Eligibility rates decreased with increasing maternal age and infants born to mothers over 35 years old had a substantially lower match rate (52.6%) than younger mothers. Rates of adverse birth events (e.g. low birthweight, preterm birth) among matched infants were comparable to the state rates.

**Conclusions:**
When birth data spanning generations are available, constructing a dataset that will allow ongoing surveillance of the life-course of childbearing women can be accomplished with relative ease. In this linked dataset, there was adequate representation of non-Hispanic black and non-Hispanic white infants, the racial groups with the most disparate outcomes, making it useful for studies of health inequities. Furthermore, since Virginia birth records are routinely geocoded and linked to other Vital Records data (e.g. infant deaths) as well as US Census data, life-course epidemiology could be readily used to perform studies that incorporate broad, social factors for a range of birth outcomes.

---

**Presenting Author(s):**

**Gandarvaka Gray**
Family Health Services, Virginia
Department of Health, Richmond, VA
gandarvaka.gray@vdh.virginia.gov

**Contributing Authors**

Derek Chapman, PhD Virginia Commonwealth University, Virginia Department of Health

**Abstract ID:** 1322211 **Presentation Type:** Breakout Presentation
**Title:** Adult Blood Lead Epidemiology and Surveillance (ABLES) 2012 case coding exercise and website usage
**Committee:** Occupational Health Sub-Committee
**Topic:** Lead exposure surveillance (ABLES)
**Keywords:** Data/Surveillance|Exercise|Lead

**Background:**
The CDC/NIOSH's Adult Blood Lead Epidemiology and Surveillance (ABLES) program tracks laboratory-reported elevated blood lead levels in adults. State ABLES programs collect data on adult BLLs from laboratories and health-care providers through mandatory reporting requirements. For BLLs ? 25 µg/dL, follow-up by telephone generally is conducted to ensure completeness of information on the industry where the person works, exposure source (occupational or nonoccupational), and other variables. ABLES data, publications and resources are available at the ABLES website http://www.cdc.gov/niosh/topics/ABLES/ables.html

**Methods:**
To assess the ABLES website usage, Omniture codes are embedded in ABLES web pages. The number of countries that visited the ABLES Program web pages, the number of views, and the number of visits during the 2011 – 2012 will be summarized to illustrate how the ABLES data are being used globally. Also, to improve the performance of the ABLES program, an industry and occupation case coding exercise will be conducted with all state ABLES programs.

**Results:**
Note: Results are not available at this time as these programmatic activities will take place by June 2012.

**Conclusions:**
Responses will be analyzed by NIOSH and the ABLES coding committee. The results will be analyzed and discussed with all attendees to identify strengths and needs for improvement and additional data coding issues will also be discussed.

---

**Presenting Author(s):**

**Janet Graydon**
DHHS, Centers for Disease Control and Prevention, Cincinnati, OH
jsg2@cdc.gov

**Abstract ID:** 1324695 **Presentation Type:** Breakout Presentation
**Title:** Extreme heat in Oregon
**Committee:** Environmental Health Sub-Committee
**Topic:** Climate change epidemiology and public health
**Keywords:** Climate change|Environmental Health hazards|Emergency preparedness

**Background:**
Climate change projections show that heat waves will become more frequent and intense, particularly in mid-latitude regions like Oregon. The goal of this study was to examine the relationship between heat and illness and determine what constitutes a heat event of public health significance in Oregon. Oregon Environmental Public Health Tracking (EPHT) worked in collaboration with the Oregon Public Health Division's Climate Change Work Group to conduct the analysis.

**Methods:**
We analyzed zip code level weather station and health outcome data during the warm season (May-September) for the years 2000-2009. Poisson regression was used to model numerous daily hospitalization and mortality outcome counts versus daily temperature variables at the zip code level while controlling for temporal trends and potentially confounding factors. Model outputs including rate ratios and predicted values were used to determine when heat had a public health impact. Heat events were analyzed as discrete episodes in order to test the effect of event duration on daily illness counts. Rate ratios were used to calculate the number of excess cases attributable to heat.

**Results:**
Daily maximum temperature was consistently the strongest climatic predictor of health outcomes. We found that adults 65 and older had a slightly higher risk for heat-related illnesses. There were also major regional differences in risk. For example, the Oregon coast, with its extremely mild climate, was the most vulnerable to high temperatures, likely due to an elderly population and poor adaptation. Heat event duration was not consistently associated with illness rates in Oregon. Over the 10-year study period there were 333 documented hospital admissions for heat-related illness and 18 documented heat stroke deaths. We estimated that there were approximately 1,400 excess hospital admissions and 450 excess deaths attributable to heat over 10 years, clearly much higher than previously recognized.

**Conclusions:**
Contrary to popular belief, it does get hot enough in Oregon to impact public health. Daily high temperatures were significantly and consistently associated with a number of hospitalization and mortality outcomes. The following thresholds were established at temperatures where we observed sharp increases in risk: Statewide, 100°F; Coast, 90°F; Willamette Valley, 100°F; Central/Eastern, 100°F; Southwest, 105°F. However, older adults are more vulnerable and may experience heat-related illness at lower temperatures, depending on their health status. These results will be used to reassess the criteria for issuing heat advisories and to improve heat response in Oregon counties.

---

**Presenting Author(s):**

**Mandy Green**
Public Health Division, Oregon Health
Authority, Portland, OR
mandy.k.green@state.or.us

**Contributing Authors**

Mandy K. Green, MPH, Oregon Health Authority Eric C. Main, ACIP, Oregon Health Authority Kyle R. Ryff, MPH, Oregon Health Authority Melissa E. Powell, MPH, Oregon Health Authority Richard F. Leman, MD, Oregon Health Authority

**Abstract ID:** 1324651 **Presentation Type:** Breakout Presentation
**Title:** Obesity surveillance using driver's license data in Oregon
**Committee:** Surveillance/Informatics
**Topic:** Novel surveillance methods and data sources
**Keywords:** Obesity|Surveillance|Risk factors

**Background:**
The increasing prevalence of overweight and obesity highlights the need for robust surveillance of population-level weight status. The goal of this study was to assess the validity and feasibility of using data from state issued driver's licenses and identification cards to describe geographic variation and longitudinal trends in body mass index (BMI) scores in Oregon.

**Methods:**
In July 2011 we purchased a snapshot of the state driver's license database from the Oregon Driver and Motor Vehicles Service Division (DMV) containing individual height and weight information. The records were geo-coded, missing data removed and exclusion criteria applied. To test representativeness, DMV data were compared to 2010 Census counts with Pearson's correlations. To validate BMI estimates from this new data source, we tested their agreement with estimates from the annual Behavioral Risk Factor Surveillance Survey (BRFSS). In addition, we analyzed temporal trends and mapped DMV data to the Census block group level to evaluate their usefulness and precision in analyzing small areas.

**Results:**
We retrieved 3.5 million records from the DMV database. Only 2% of records were excluded for data issues. The DMV data were highly representative of the state population when compared to the Census (r=0.95). The DMV records produced slightly lower population-level BMI estimates than the BRFSS but showed good agreement over time, geography, age and sex. However, the difference in BMI estimates between the datasets was larger for women than for men. Due to the large sample, DMV estimates were much more precise than BRFSS estimates, especially for small geographic areas. Trend analysis of the DMV data gave an early indication that obesity prevalence may be leveling off in Oregon. Block group level maps revealed large neighborhood level differences in BMI and allowed us to identify hot spots with particularly high levels of obesity.

**Conclusions:**
Driver's license records are an inexpensive data source for monitoring spatial patterns and temporal trends in population-level weight status. The DMV data are representative of the state population and the track well with the BRFSS BMI estimates, although differences between men and women may be somewhat exaggerated. Estimates from the DMV data are much more precise than the BRFSS and may be particularly useful for early detection of trends and exploring sub-county spatial patterns in obesity.

---

**Presenting Author(s):**

**Mandy Green**
Public Health Division, Oregon
Department of Human Services,
Portland, OR
mandy.k.green@state.or.us

**Contributing Authors**

Daniel S. Morris, MS, Oregon Health Authority Stacey S. Schubert, MPH, Oregon Health Authority Duyen L. Ngo, PhD, MPH, Oregon Health Authority Eric C. Main, AICP, Oregon Health Authority

**Abstract ID:** 1323502 **Presentation Type:** Breakout Presentation
**Title:** Escherichia coli O157:H7 outbreak associated with a state fair — North Carolina, 2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Zoonoses
**Keywords:** Zoonotic disease|Outbreak investigations

**Background:**
A Shiga toxin-producing Escherichia coli (STEC) outbreak attributed to a petting zoo at the 2004 North Carolina State Fair resulted in regulation regarding exhibits housing animals intended for physical contact. On October 24, 2011, the North Carolina Division of Public Health was notified of 4 STEC infections among attendees of the October 13–23 State Fair. We investigated to identify the vehicle and prevent further illness.

**Methods:**
We conducted a case-control study, matching 3 control subjects per case-patient by age and date of fair attendance. Cases were identified through active surveillance and defined as acute bloody diarrhea, hemolytic uremic syndrome (HUS), or culture-confirmed STEC in a person who had attended the fair 1–10 days before illness onset. Pulsed-field gel electrophoresis (PFGE) testing was performed on culture isolates. To recruit control subjects, we contacted 11,000 randomly selected advanced ticket purchasers to request participation. We assessed food, animal, and activity exposures.

**Results:**
We identified 25 case-patients with illness onset during October 16–25. Median age was 26 years (range: 1–77 years). Eight (32%) case-patients were hospitalized; 4 (16%) experienced HUS. Eleven (44%) case-patients had laboratory confirmation of E. coli O157:H7 with matching PFGE patterns. Visiting Building A was the only exposure associated with illness (matched odds ratio: 5.6; 95% confidence interval: 1.6–19.2). Building A housed sheep and goats for livestock competitions and was open to the public; signage discouraged physical contact.

**Conclusions:**
An exhibit housing animals not intended for physical contact was the likely outbreak source. This outbreak illustrates the importance of applying public health prevention measures to ruminant exhibits where physical contact might occur, regardless if intentional, to prevent future STEC outbreaks.

---

**Presenting Author(s):**

**Stephanie Griese**
North Carolina Division of Public Health, Centers for Disease Control and Prevention, Raleigh, NC
stephanie.griese@dhhs.nc.gov

**Contributing Authors**

Denise Griffin, Debra Springer, Zack Moore, MD MPH, Levi Njord, MSc, Rebecca Njord, MSc, David Sweat, MPH, Nicole Lee, MPH, Jean-Marie Maillard, MD, MSc, Megan Davies, MD, North Carolina Department of Health and Human Services. Aaron Fleischauer, PhD, MSP

**Abstract ID:** 1323764 **Presentation Type:** Breakout Presentation
**Title:** Data quality and continuity of care for HIV patients in North Dakota
**Committee:** Surveillance/Informatics
**Topic:** Effective interactions between epidemiology and informatics
**Keywords:** HIV/AIDS|Data sharing|Informatics

**Background:**
HIV in North Dakota is monitored using numerous stand-alone systems that do not communicate with each other: (1) eHARS, for transmitting data to the Centers for Disease Control and Prevention, (2) CAREWare for Ryan White and the AIDS Drug Assistance Program, (3) an Access database for tracking medications, and (4) Maven, the electronic disease surveillance system which stores case management data for all mandatory communicable diseases. Most of the information needed for all four systems is the same, creating double and triple data entry which results in degraded data quality. However, not all data needed for improved care are collected causing manual comparisons to occur, such as comparing line lists of HIV cases to line lists of TB/STD/hepatitis/syphilis/etc. cases. The use of four systems results in minimal time dedicated to prevention, surveillance or care activities. This non-cohesive approach to HIV case management highlighted the need for a comprehensive system that would alleviate the time constraints, improve data quality and increase the continuity of care for those living with HIV in North Dakota.

**Methods:**
The Maven system is not only a disease centric system, but client centric as well and is comprised of three models (STD, epidemiology/immunization, and TB). HIV has already been incorporated into the STD model in order to allow HIV surveillance personnel a more complete infection/comorbidity review. All laboratory follow-up is incorporated into this single case including CD4 counts and viral load. Additionally, infections of TB, HCV, chlamydia, or even influenza will be linked to HIV cases when they become reported. A separate model containing Ryan White clients will be incorporated into Maven as well, allowing surveillance data to be shared with Ryan White data and vice versa.

**Results:**
The resulting product will incorporate all four stand-alone systems into a single system allowing for communication improvement between HIV surveillance and Ryan White. This is a novel approach to HIV case management because it will allow data sharing between personnel to flow seamlessly and without manual efforts. Additionally, it will increase efficiency of data entry, reduce staff time, and be an all-encompassing reporting mechanism.

**Conclusions:**
Health outcomes for people living with HIV have been steadily improving since the beginning of the epidemic. To ensure this continues, retaining HIV patient care is essential. By having one centralized database, this can be achieved by allowing staff to spend more time on medication adherence, confirming laboratory results and comorbidity follow-up.

---

**Presenting Author(s):**

**Krissie Guerard**
North Dakota Department of Health,
Bismarck, ND
kguerard@nd.gov

**Contributing Authors**

Tracy Miller, M.P.H. North Dakota Department of Health Beck Wahl, B.S. North Dakota Department of Health Craig Steffens, M.P.H. North Dakota Department of Health

**Abstract ID:** 1330739 **Presentation Type:** Breakout Presentation
**Title:** Infection Prevention in Outpatient Oncology Settings
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Infection control|Cancer|Outbreaks

**Background:**
In recent decades, the vast majority of oncology services have shifted to outpatient settings, such as physician offices, hospital-based outpatient clinics, and nonhospital-based cancer centers. Currently, more than one million cancer patients receive outpatient chemotherapy, radiation therapy, or both. However, in contrast to acute care hospitals, outpatient oncology facilities vary greatly in their attention to infection prevention. This is reflected in a number of outbreaks in outpatient oncology settings that have resulted from lapses in basic infection prevention. In many of these incidents, the facilities did not have written infection control policies and procedures for patient protection.

**Methods:**
A summary of outbreak investigations in outpatient oncology settings will be presented, followed by a description of CDC's newly released Basic Infection Control and Prevention Plan for Outpatient Oncology Settings.

**Results:**
The CDC speaker will summarize recent investigations of viral hepatitis and bacterial outbreaks occurring in outpatient oncology settings, highlighting the commonly identified infection control lapses and the challenges associated with these investigations. The speaker will also discuss the development of the Basic Infection Control and Prevention Plan for Outpatient Oncology Settings in response to these recent outbreaks and describe several key components of the plan, including the use of Standard Precautions, with emphasis on the triaging of cancer patients with respiratory symptoms and the use of safe injection practices to prepare and administer chemotherapy infusions; the use of Transmission-Based Precautions; and the recommended practices for handling central venous catheters (e.g., implanted ports). Finally, the speaker will discuss suggested approaches to the detection and investigation of potential outbreaks, establishing linkages with state Healthcare Associated Infections programs, and outreach to clinicians and public health partners who focus on treatment and prevention of cancer.

**Conclusions:**
At the conclusion of this presentation, attendees will have an increased awareness of the types of outbreaks and associated infection prevention lapses occurring in outpatient oncology facilities as well as a better appreciation for the need to prioritize infection prevention in these settings. In addition, they will learn about the use of the CDC Basic Infection Control and Prevention Plan for Outpatient Oncology Settings to promote the delivery of safe care to cancer patients.

---

**Presenting Author(s):**

**Alice Guh**
Centers for Disease Control and
Prevention, Atlanta, GA
ggt4@cdc.gov

**Abstract ID:** 1330930 **Presentation Type:** Breakout Presentation
**Title:** Public health and electronic health records Meaningful Use : Opportunities and Challenges- A Local Perspective
**Committee:** Surveillance/Informatics
**Topic:** Electronic case reporting
**Keywords:** Surveillance|Emergency preparedness

**Brief Summary:**
Local health departments (LHDs) are both receivers and senders of electronic data. Meaningful use provides an opportunity to improve the cost effectiveness of local public health agency business processes such as clinical care and case management. Syndromic surveillance and electronic laboratory reporting have the potential to enhance biosurveillance and response activities particularly in areas such as chronic diseases, injuries, health inequities, and all hazard emergencies. These efforts can provide a more comprehensive and timely population health perspective. Data standardization efforts can be a potential threat to data utility. For example, standardized chief complaints may have limited flexibility for timely monitoring of emerging public health threats. Also systems should support varying information needs for differing response roles at federal, state and local levels. Additional challenges faced by local health departments include insufficient infrastructure for sending and receiving, lack of funding, and shortage of adequately trained workforce (informatics and analyst).

**Key Objectives:**
1. Describe opportunities provided by electronic health records to improve public health clinical services and case management 2. Discuss potential enhancements for non-infectious disease biosurveillance and response activities 3. Describe challenges and barriers to maximizing the potential of electronic health records for biosurveillance and response.

---

**Presenting Author(s):**

**Julia Gunn**
Boston Public Health Commission,
Boston, MA
jgunn@bphc.org

**Abstract ID:** 1326782 **Presentation Type:** Poster Presentation
**Title:** Validation: A method for improving the quality of central-line associated bloodstream and surgical site infection data reported in South Carolina
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Healthcare associated infections (HAI)|Data/Surveillance|Hospital data

**Background:**
Under the Hospital Infections Disclosure Act (HIDA), the South Carolina Department of Health and Environmental Control (DHEC) requires acute-care facilities to collect and report healthcare-acquired central line associated bloodstream infection (CLABSI) and surgical site infection (SSI) data to the National Healthcare Safety Network (NHSN). DHEC performs data validation to assure the quality and accuracy of the reported information.

**Methods:**
In 2011 DHEC set a goal to conduct validation site visits on all 81 facilities who reported CLABSI and SSI data to NHSN in 2010. Completeness and timeliness of reporting was assessed for each facility by reviewing reported NHSN data for each month. Data quality was assessed through medical record review. Prior to each visit, line listings of infections were generated from NHSN; providing a sampling frame within each facility. Up to 10 CLABSIs and 20% of each reportable SSI were reviewed. From facility laboratories, 10 to 12 positive blood cultures not attributed to a central line, were obtained and reviewed for verification. To ensure the validity of denominator data, data collection and reporting methods were discussed with the individuals performing these duties.

**Results:**
A total of 1739 charts (292 CLABSI and 1457 SSI) and 497 blood cultures were reviewed during 46 visits. Several challenges prevented DHEC from conducting visits at all 81 facilities; I) scheduling conflicts, II) the staff conducting the validation had 8 months to complete the visits and III) variations in electronic and paper charting made the amount of time needed at each facility difficult to predict. The main causes of discrepancy between reviewed medical records and NHSN data were: a) system errors such as inaccurate data importation of American Society of Anesthesiologists score, anesthesia type, and surgical cut time and b) misclassification of NHSN surveillance definitions for surgical wound class and surgical implant. Completeness of reporting was satisfactory for all facilities, however the reviewer discovered data collection problems in a few facilities that resulted in inaccurately reported summary data. Face-to-face feedback and consultation was provided to each facility at the end of the on-site visit. Summary reports were sent to the facilities within one week of the visit. Facilities were expected to make post-validation corrections and report to DHEC.

**Conclusions:**
Future trainings and support will be developed based on the findings of the validation process. Validation in 2012 will begin with facilities where visits were not performed in 2011. Flexibility in scheduling will allow for visits to be added and prioritized as needed. Combined training and validation efforts create a sustainable method for maximizing the validity of data reported to NHSN.

---

**Presenting Author(s):**

**Katherine Habicht**
Division of Acute Disease
Epidemiology, South Carolina
Department of Health and
Environmental Control, Columbia, SC
habichkl@dhec.sc.gov

**Contributing Authors**

Lisa Smith, RN, BSN, CIC South Carolina Department of Health and Environmental Control Stan Ostrawski, RN, MS, MT, (ASCP), CIC South Carolina Department of Health and Environmental Control Kathleen Antonetti, MD South Carolina Department of Health an

**Abstract ID:** 1332405 **Presentation Type:** Poster Presentation

**Title:** A statewide assessment of resources and roles of hospital infection prevention departments in South Carolina

**Committee:** Infectious Diseases Sub-Committee

**Topic:** Healthcare-associated infections

**Keywords:** Infection control|Healthcare associated infections (HAI)

**Background:**
The limited resources of hospital infection prevention departments (HIPDs) do not reflect current roles and growing responsibilities, including the public reporting of healthcare-associated infections. To assess the current resources and demands of HIPDs across the state, the South Carolina Department of Health and Environmental Control (DHEC) surveyed acute-care facilities.

**Methods:**
A 100+ question electronic survey was sent via e-mail to the infection prevention department of all acute-care facilities. The survey had six sections and collected the following data: facility profile information (location, facility type, bed size, etc.), current infection prevention resources, infection prevention policies, infection prevention process monitoring, data collection and dissemination methods, and antimicrobial stewardship policies.

**Results:**
This abstract highlights the key findings of the infection prevention resources section of the survey. Responses were received from 64 (79%) facilities. Of the respondents, 95% were infection control practitioners (ICPs) and 5% were healthcare quality managers. Facilities were stratified by general bed size (<400 beds vs. ?400 beds). Fifty seven (89%) responses were from facilities with <400 beds. Staffing levels varied. The average number of ICP full-time equivalents (FTEs) per facilities with <400 beds was 0.938 (range, 0.25 – 2.6) compared to an average of 3.56 (range, 2 – 7) ICP FTEs per facilities with ?400 beds. Less than one third of facilities with <400 beds had access to physician hospital epidemiologists; only three facilities reported a physician hospital epidemiologist FTE of 1. Part-time, contracted hospital epidemiologists provided services to 5/7 facilities with ? 400 beds. Thirty six (63%) facilities with <400 beds reported that a single ICP was responsible for performing all infection prevention and control activities; twenty of these facilities reported that their lone ICP was also responsible for employee health. Other reported ICP responsibilities at facilities with <400 beds included quality management, risk management and case management. ICPs at 42 (74%) facilities with <400 beds and 4 (57%) facilities with ?400 beds have on-call duties. Less than half of the ICPs at facilities with <400 beds received compensation for on-call services compared to all but one of the on-call ICPs at facilities with ?400 beds. Regardless of bed size, more than half of responding facilities reported that their HIPD is responsible for the surveillance and prevention activities at other facilities in their health system that lack their own infection prevention departments.

**Conclusions:**
Limited resources and growing responsibilities burden HIPDs of smaller facilities compared to HIPDs of major medical centers in South Carolina. The results of this survey are essential to advocate for needed funding and resources as the roles of HIPDs continue to expand.

---

**Presenting Author(s):**

**Katherine Habicht**
Division of Acute Disease
Epidemiology, South Carolina
Department of Health and
Environmental Control, Columbia, SC
habichkl@dhec.sc.gov

**Contributing Authors**

Dixie Roberts, APRN, MPH South Carolina Department of Health and Environmental Control  Cindy Budelmann, RN, CIC Laurens County Health Care System  Beth Rhoton, RN, CIC Medical University of South Carolina  Linda Formby, RN, CIC Medical University of Sou

**Abstract ID:** 1326889 **Presentation Type:** Poster Presentation
**Title:** Healthcare personnel influenza vaccination coverage and policies in South Carolina acute care facilities, 2011-2012
**Committee:** Occupational Health Sub-Committee
**Topic:** Emerging issues in occupational health
**Keywords:** Vaccination|Healthcare associated infections (HAI)|Infection control

**Background:**
Healthcare personnel (HCP) are at risk of occupationally acquired influenza and of transmitting influenza to patients and other HCP. National survey data indicate that HCP influenza vaccination coverage remains low. The South Carolina Department of Health and Environmental Control (DHEC) developed survey tools to assess policies and vaccination coverage in acute care facilities across the state during the 2011 – 2012 flu season.

**Methods:**
Two unique surveys were distributed to all acute care facilities. Survey I was distributed in October 2011 and collected information on HCP influenza vaccination policies (as per the Center for Disease Control and Prevention definition of HCP). Healthcare personnel were stratified by employee HCP with direct patient contact, employee HCP with no direct patient contact and contracted non-employee medical staff. The following vaccination policies were investigated: voluntary, voluntary with incentive, mandatory with declination option, mandatory or facial mask requirement upon declination and mandatory or termination of employment upon declination. Survey II will be distributed in April 2012 and will collect facility HCP vaccination rate data and surveillance methods at baseline (when the vaccine became available) through March 2012.

**Results:**
This abstract highlights several findings of Survey I, as Survey II results are pending. Survey I had a response rate of 64.2%, collecting data from 52/81 acute-care facilities. The number of HCP at each facility ranged from 120 to over 17,000. Most facilities have consistent policies for employee HCP with direct patient contact and with no direct patient contact: ten (19.2%) facilities reported voluntary with incentive policies; 11 (21.2%) facilities require mandatory vaccination with declination option policies and 5 (9.6%) facilities reported mandatory or termination upon declination policies. Four (7.7%) facilities have mandatory vaccination or facial mask requirement upon declination policies for employee HCP with direct patient contact but have voluntary policies for employee HCP with no direct patient contact. For contracted non-employee medical staff, thirty (57.7%) facilities reported voluntary policies; seven facilities offered incentives with vaccination. Twenty (38.5%) facilities reported mandatory policies with either a declination option or a facial mask requirement upon declination. Two ( 3.8%) facilities terminate contract with non-employee medical staff that decline vaccination without proof of a pre-existing contraindication to influenza vaccination.

**Conclusions:**
The results of these surveys will contribute to the development of a formal HCP vaccination surveillance system in South Carolina and assist facilities in preparing for future requirement of HCP vaccination reporting by the Centers for Medicare & Medicaid in 2013.

---

**Presenting Author(s):**

**Katherine Habicht**
Division of Acute Disease
Epidemiology, South Carolina
Department of Health and
Environmental Control, Columbia, SC
habichkl@dhec.sc.gov

**Contributing Authors**

Dana Giurgiutiu, PhD, MPH South Carolina Department of Health and Environmental Control Dixie Roberts, APRN, MPH South Carolina Department of Health and Environmental Control Kathleen Antonetti, MD South Carolina Department of Health and Environmental

**Abstract ID:** 1331482 **Presentation Type:** Breakout Presentation
**Title:** The benefits of automation! Improving salmonellosis surveillance efficiency through automated case creation and classification
**Committee:** Surveillance/Informatics
**Topic:** Electronic disease surveillance systems (e.g., EDSS, NEDSS, etc.)
**Keywords:** Surveillance


**Background:**
Among bacterial enteric diseases, Salmonella is one of the most common causes of illnesses, with 49,192 cases in the U.S. reported to the Centers for Disease Control and Prevention in 2009. During 2011, Florida reported nearly 6,000 cases of salmonellosis, more than any other state in the country (provisional MMWR data). Over 9,000 laboratory reports were received and attached to reported salmonellosis cases during 2011, with 65% received via electronic reporting. Florida implemented procedures to reduce time and effort associated with case-creation activities while maintaining our ability to conduct case interviews and report morbidity and take timely control measures when indicated.

**Methods:**
Merlin is the Florida Department of Health's secure web-based disease reporting and epidemiologic analysis system, operating in all 67 counties. Enhancements were made to Merlin for salmonellosis to automate: case classification according to the surveillance case definition (confirmed, probable or suspect); interpretation of electronic laboratory results; and case creation, using only the information received on the laboratory report. Counties can add or edit information before reporting the case. County health departments were enrolled into a pilot project to evaluate staff time spent per case pre- and post-automation.

**Results:**
At the time of abstract submission, 6 pilot counties had completed pre-automation case processing time and effort questionnaires, and were in their initial week after automation implementation. Pre-automation case creation and processing data indicate the current time to conduct activities that will be eliminated once automated at an average of 14.2 minutes per case; given the volume of salmonellosis cases (~6,000 per year) in Florida this would translate into a time savings of 1420 hours per year statewide. A similar process was implemented in the system for chronic hepatitis B and C during 2011. The success of this project led to the expansion of a similar functionality to Salmonellosis. Full evaluation results will be presented.

**Conclusions:**
New technological capabilities provide the opportunity to increase reportable disease case reporting case classification accuracy and timeliness and reduce data entry burden. The logic tables that support automated case classification are machine readable and could be implemented in many different surveillance information systems. Drawing on our experience with salmonellosis automated case classification, and case creation this functionality will be expanded to other high volume diseases.


---


**Presenting Author(s):**

**Janet Hamilton**
Florida Department of Health,
Tallahassee, FL
janet_hamilton@doh.state.fl.us

**Contributing Authors**

Leah Eisenstein, MPH - Florida Department of Health Stu Gash - Florida Department of Health Charlotte White - Florida Department of Health Travis McLane - Florida Department of Health Richard S Hopkins, MD, MSPH - Florida Department of Health

**Abstract ID:** 1357945 **Presentation Type:** Roundtable Presentation
**Title:** Surveillance and Informatics Steering Committee Roundtable
**Committee:** Surveillance/Informatics
**Topic:** General surveillance topics
**Keywords:** Surveillance|Informatics

**Brief Summary:**
This roundtable will update members on the activities of the Surveillance and Informatics Steering Committee in the past year and invite discussion on activities for the coming year.

**Key Objectives:**
To update members on the activities of the Surveillance and Informatics Steering Committee.

---

**Presenting Author(s):**

**Janet Hamilton**
Florida Department of Health,
Tallahassee, FL
janet_hamilton@doh.state.fl.us

**Abstract ID:** 1366716 **Presentation Type:** Roundtable Presentation
**Title:** State Experiences with Health Information Exchanges (HIEs)
**Committee:** Surveillance/Informatics
**Topic:** Leveraging HIEs for public health
**Keywords:** Health information exchange

**Brief Summary:**
This session will include a discussion of the opportunities, challenges, and successful interactions between public health and health information exchanges to support public health objectives. discussion about public health interaction and integration with health information exchanges (HIE). Presenters will represent the perspectives of both HIEs and public health.

**Key Objectives:**
To discuss public health interaction and integration with health information exchanges (HIE).

---

**Presenting Author(s):**

**Janet Hamilton**
Florida Department of Health ,
Tallahassee, FL
janet_hamilton@doh.state.fl.us

**James Daniel**
Office of the National Coordinatorfor
Health Information Technology,
Washington, DC
james.daniel@hhs.gov

**Abstract ID:** 1366717 **Presentation Type:** Roundtable Presentation
**Title:** ONC/CMS Meaningful Use Q&A
**Committee:** Surveillance/Informatics
**Topic:** General surveillance topics
**Keywords:** Policy/Policy Development

**Brief Summary:**
This roundtable is intended to be a follow-up to the ONC/CMS Meaningful Use Update session, to allow for additional question and answer time with the panelists.

**Key Objectives:**
To provide additional question and answer time following the ONC/CMS Meaningful Use Update session.

---

**Presenting Author(s):**

**Janet Hamilton**
Florida Department of Health,
Tallahassee, FL
janet_hamilton@doh.state.fl.us

**Abstract ID:** 1331722 **Presentation Type:** Breakout Presentation
**Title:** Post-discharge surveillance for surgical site infections in New Hampshire hospitals
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Healthcare associated infections (HAI)|Surveillance|Hospital data

**Background:**
Surgical site infections (SSIs) cause an estimated 244,385 infections annually in the United States. Increasing awareness and public concern in recent years have resulted in numerous states and the federal Centers for Medicare and Medicaid Services to require hospital reporting of SSIs. There is no specific method of post-discharge surveillance (PDS) for SSI recommended by the National Healthcare Safety Network (NHSN) and hospitals use a variety of methods. Robust hospital PDS programs may identify more infections leading to higher SSI rates than hospitals with little or no PDS, potentially impacting comparability of data across hospitals in the context of public reporting. For this reason, some states present data only for SSI detected upon admission or readmission.

**Methods:**
In 2009, New Hampshire (NH) required acute care hospitals to report all SSIs following colon, knee, and coronary artery bypass graft procedures using NHSN. To identify differences in PDS across NH hospitals, reported SSI data for 2009-2010 were analyzed and percent SSIs identified through PDS calculated. Individual hospitals were compared to the rest of NH and statistical significance calculated using Wald Normal approximations. SSI data reported in 2009-2010 were validated through onsite chart review in 2011, including a review of reporting methods.

**Results:**
For 2009-2010, 62 (29%) of 211 SSIs in NH hospitals were identified through PDS. Although hospital communications suggested that substantial PDS variability existed among hospitals, only one facility identified statistically more SSIs post-discharge than the rest of the state: 21 (53%) of 40 SSIs. Three facilities identified less SSIs through post-discharge than the rest of the state: 0 (0%) of 13 SSIs, 0 (0%) of 12 SSIs, and 1 (5%) of 22 SSIs. Five hospitals did not report any SSIs during this time period. On site validation revealed that all hospitals perform at least one of several PDS methods, the most common being letters to surgeons (n=24, 92%).

**Conclusions:**
These data suggest that inconsistency in PDS between NH hospitals may be less common than previously believed. Overall, there was little variation in PDS methods and actual rates of PDS detection in hospitals. Reporting of infections identified after discharge of the patient is important to understanding the full burden of SSIs following surgical procedures. Expansion of data quality checks regarding infection detection and sharing of PDS resources is an essential component to HAI reporting programs and is especially important in the context of public reporting.

---

**Presenting Author(s):**

**Katrina Hansen**
Infectious Disease Surveillance, New Hampshire Department of Health and Human Services, Concord, NH
katrina.hansen@dhhs.state.nh.us

**Contributing Authors**

Steffany Cavallo, MPH, New Hampshire Department of Health and Human Services, Concord, NH Elizabeth R. Daly, MPH, New Hampshire Department of Health and Human Services, Concord, NH

**Abstract ID:** 1332334 **Presentation Type:** Breakout Presentation
**Title:** Evaluating the spectrum of engagement in HIV care in Iowa, a low morbidity state
**Committee:** Infectious Diseases Sub-Committee
**Topic:** HIV
**Keywords:** HIV/AIDS|Data/Surveillance|Prevention

**Background:**
Multi-drug antiretroviral therapy is becoming a central strategy for preventing the transmission of HIV in Iowa. Recent studies, such as HPTN 052, have shown that an HIV-positive person with a suppressed viral load, i.e., a viral load below detectable limits, has a greatly reduced risk of infecting a sexual partner with the virus. As part of its response to the loss of federal prevention funding in lower morbidity jurisdictions, the Iowa Department of Public Health's HIV Prevention Program will focus its prevention efforts on suppression of viral load in HIV-positive persons. This strategy has become known as "Treatment as Prevention."

**Methods:**
We use Iowa's HIV/AIDS surveillance data to examine linkage to care, retention in care, and consequent viral suppression among HIV-positive persons in Iowa. We evaluate and test odds ratios, looking for statistically significant differences by diagnostic status (HIV vs. AIDS), birth sex, race/ethnicity, mode of exposure to HIV, birth country, county of residence (urban vs. rural), years since initial HIV diagnosis, and current age.

**Results:**
Of the 2,326 persons living with HIV/AIDS in Iowa as of December 31, 2010, 97% had been linked to care. Of those linked to care, 69% had been retained in care. Of those retained in care, 93% need antiretroviral therapy, and of these, 73% have a suppressed viral load. Persons out of care were more likely to have not progressed to AIDS (HIV diagnosis only), be members of a racial minority, be men-who-have-sex-with-men and also inject non-prescription drugs, have been born outside the U.S., reside in rural counties, or have lived longer since having been diagnosed with HIV.

**Conclusions:**
Iowa's data compare favorably to national data, particularly in the percentage of persons linked to care. We describe Iowa's successful linkage-to-care program, why it may work well as a model for lower-morbidity states, and how it might be extended to include locating persons lost to care.

---

**Presenting Author(s):**

**Jerry Harms**
Iowa Department of Public Health,
Des Moines, IA
Jerry.Harms@idph.iowa.gov

**Contributing Authors**

Alagie Jatta, M.S., Iowa Department of Public Health Randy Mayer, M.S., M.P.H., Iowa Department of Public Health

**Abstract ID:** 1332692 **Presentation Type:** Poster Presentation
**Title:** Public sector principles of data governance: A case study of the Iowa Department of Public Health *
**Committee:** Cross Cutting Sub-Committee
**Topic:** Public health laws and policies: Role of epidemiology and data
**Keywords:** Policy/Policy Development|Data/Surveillance|Information systems

**Background:**
In recent years, the Iowa Department of Public Health (IDPH) experienced difficulties stemming from intra-departmental lack of standardization in data management. In 2010, conflicting pregnancy statistics in separate reports were released by the department. The error was not identified until an event of public interest drew attention to the statistic. A review of reports with data content uncovered that more than 190 reports were on the IDPH website. Those reports were viewed less than once a day; about 30 had fewer than 100 views in a year. Approximately 61% of IDPH published reports go through editorial review and < 50% are reviewed by a subject matter expert. The core of these issues is a lack of standards and oversight to assure data quality. Data governance (DG) is a term used widely in private sector to describe appropriate data management. The principles of DG address the issues faced by IDPH and other state health departments. In 2011, IDPH conducted a department-wide quality improvement project with the intent of establishing data governance. Despite budget constraints and mandates to improve quality, IDPH staff worked through a comprehensive data needs assessment and recommendation development process without using extraneous resources.

**Methods:**
Three web-based surveys and two Excel workbooks were used in data collection. All 92 department programs completed the assessment. Results were analyzed in SAS. DG recommendations were developed in a series of facilitated sessions involving the state medical director, attorney general's office, epidemiologists and statisticians.

**Results:**
The data needs assessment set quantifiable baselines for data competencies and management issues for the department (www.idph.state.ia.us/adper/data_warehouse.asp). Analysis was completed at the program level, one organizational level above individual. Recommendations were formed and several have been initiated. The most important involved the formation of a DG council and appointing a data czar; a single person to oversee all data issues. Other recommendations were: establish a standards manual and clearance process, host source files for all widely used datasets (e.g., birth records), formalize the process for use of health data for research, provide guidance for hiring new employees and set minimum competencies for existing staff, and determine how to sustain DG.

**Conclusions:**
IDPH has already progressed on some of these recommendations. Cost-savings and efficiency are known outcomes of setting up DG in an organization. Iowa's experience in taking action to address these issues may be used by other states to address their data concerns.

---

**Presenting Author(s):**

**Meghan Harris**
Iowa Department of Public Health,
Des Moines, IA
mharris@idph.state.ia.us

**Contributing Authors**

Patricia Quinlisk, MD, MPH Erin Barkema, MPH Jill France

**Abstract ID:** 1319736 **Presentation Type:** Poster Presentation
**Title:** Relationship between the timeliness of reporting bioterrorism agents and demographic characteristics of patients and facilities
**Committee:** Student Section
**Topic:**
**Keywords:** Preparedness|Bioterrorism|Epidemiology

**Background:**
Despite extensive research to improve reporting times, notifiable diseases are still consistently reported after required timeframes. Current and past approaches to improving reporting times have been unsuccessful, suggesting a possible overlooked aspect of this problem. This study was designed to answer whether demographic characteristics are associated with the timeliness of reporting notifiable diseases. Demographics were chosen for this exploratory study based on the almost universal association with health outcomes.

**Methods:**
Five years' worth of data on reported cases of Category B bioterrorism agents (brucellosis, cholera, cryptosporidiosis, viral encephalitis, epsilon toxin of Clostridium perfringens, Escherichia coli O157:H7, glanders, melioidosis, psittacosis, Q fever, ricin toxin poisoning, salmonellosis, shingellosis, and staphylococcal enterotoxin B poisoning) in the state of Maryland were studied. Chi-square and t test analyses were used to determine whether any associations exist between the timeliness of reporting these diseases and patient and/or facility demographics. Based on the results of the chi-square and t test analyses, logistic regression was used to identify possible demographic factors that predict timeliness of reporting notifiable diseases. Patient and facility demographics were addressed separately during data analysis.

**Results:**
The logistic regression analyses showed that the patients' county of residence, reporting source category, reporting laboratory, and the county of the reporting laboratory were associated with the timeliness of reporting notifiable diseases.

**Conclusions:**
Specific reporting laboratories, counties, and reporting source categories are identified as models for interventions. The data presented here can lead to new approaches toward improved reporting times for notifiable diseases, with resulting reductions in morbidity, mortality, and economic impact. In a bioterrorism attack, the benefits of improved reporting times would be even greater by reducing the impact of a perceived threat.

---

**Presenting Author(s):**

**Stephanie Harris**
College of Health Sciences, Walden University, Minneapolis, MN
smharr7@yahoo.com

**Contributing Authors**

Aimee Ferraro, PhD, MPH - Walden University; James Rohrer, PhD - Walden University

**Abstract ID:** 1318324 **Presentation Type:** Poster Presentation
**Title:** Shiga toxin-producing Escherichia coli surveillance in New York City
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Foodborne/waterborne disease
**Keywords:** Foodborne disease|Surveillance|Local epidemiology

**Background:**
Shiga toxin-producing Escherichia coli (STEC) cases are reportable by law in New York City (NYC). We analyzed STEC laboratory and surveillance data reported to the NYC Department of Health and Mental Hygiene (DOHMH) from 2008-2011 to assess completeness of specimen submission, trends in O157 and non-O157 STEC rates, and differences in clinical and risk factor data.

**Methods:**
DOHMH attempts to interview all reported STEC cases to obtain symptom and exposure information. Clinical laboratories send isolates or specimens to Public Health Laboratories (PHLs) for confirmation, serotyping, and pulsed-field gel electrophoresis (PFGE). A case is laboratory-confirmed if STEC is isolated from a clinical specimen. E. coli O157:H7 isolates are assumed to produce Shiga toxin; for all non-O157 isolates, however, Shiga toxin or the presence of Shiga toxin genes must be detected. We analyzed demographic, symptom, exposure, and laboratory data of cases reported from 2008-2010.

**Results:**
During 2008-2010, DOHMH received 118 E. coli O157 and 165 non-O157 STEC reports. A greater proportion of E. coli O157 reports were laboratory-confirmed compared to non-O157 STEC reports (88% vs. 55%, p<0.001). The incidence rate per 100,000 of E. coli O157 decreased from 2008-2010 (0.46, 0.44, 0.37) while the rate of non-O157 STEC increased (0.23, 0.26, 0.62). For both E. coli O157 and non-O157 STEC, the majority of cases were female (52% and 58%) and non-Hispanic white (39% and 50%) was the most common race/ethnicity. Mean age of E. coli O157 cases was significantly greater than non-O157 STEC cases (27 vs. 16 years, p<0.001). Proportions of diarrhea (93% for both) and vomiting (40% vs. 31%) were similar for E. coli O157 and non-O157 STEC cases. HUS proportions differed, but not significantly (8% vs. 3%). E. coli O157 cases more frequently had bloody diarrhea (81% vs. 33%) and required hospitalization (54% vs. 13%) (p<0.001 for both comparisons).

**Conclusions:**
Comparisons of E. coli O157 and non-O157 STEC reveal differences in severity and symptoms; further studies should evaluate whether virulence varies by serotype. The increase in non-O157 STEC rates may reflect an increase in clinical laboratories' capacity to test specimens for Shiga toxin. Many clinical laboratories only test for presence of Shiga toxin without attempting to isolate the organism. It is important to remind clinical laboratories to forward isolates and specimens to public health laboratories for confirmation. Given the importance of testing practices and the increase in non-O157 STEC, surveys of clinical laboratories are needed to interpret surveillance data.

---

**Presenting Author(s):**

**Cassandra Harrison**
New York City Department of Health
and Mental Hygiene, Queens, NY
charrison1@health.nyc.gov

**Contributing Authors**

Vasudha Reddy, MPH - New York City Department of Health and Mental Hygiene; Heather Hanson, MPH - New York City Department of Health and Mental Hygiene; Sharon Balter, MD - New York City Department of Health and Mental Hygiene

**Abstract ID:** 1318329 **Presentation Type:** Poster Presentation
**Title:** A series of unusual investigations: Three outbreaks of Enterotoxigenic Escherichia coli in New York City, March-June 2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Foodborne/waterborne disease
**Keywords:** Foodborne disease|Outbreak investigations |Local epidemiology

**Background:**
Enterotoxigenic Escherichia coli (ETEC) is a major cause of gastrointestinal illness among children and travelers in developing countries, however it is rarely identified as the etiology of outbreaks in the US. During March-June 2011, the New York City Department of Health and Mental Hygiene (DOHMH) investigated three ETEC outbreaks. The first occurred in March-April and again in June among patrons of a Turkish restaurant, the second occurred in May among guests of a catered wedding, and the third occurred in June among guests of a gala event.

**Methods:**
DOHMH staff administered food exposure questionnaires to attendees and event staff of the three outbreaks. Environmental investigations were conducted to review food preparation practices, obtain invoices, and collect leftover food. Stool specimens were collected from 25 ill patrons and 22 event staff for testing by the DOHMH laboratory.

**Results:**
A total of 166 people from three outbreaks were identified as probable cases. Onset dates ranged from March 12 through June 22, 2011. DOHMH lab testing of stool identified no routine bacterial pathogens. Specimens were sent to CDC, where nine tested positive for ETEC. Each event consisted of multiple ETEC serotypes, and some individual specimens yielded multiple. In total, six serotypes were identified and two events shared two of the serotypes. Epidemiologic analysis revealed that hummus was associated with illness for the Turkish restaurant, spinach strudel and tabouleh salad for the catered wedding ($p=0.04$ for both), and barbeque tofu for the gala event ($p<0.001$). Hummus, cumin, and dill from the Turkish restaurant tested positive for E. coli at DOHMH, but negative for ETEC at CDC. A traceback investigation of common ingredients revealed no clear link among the outbreaks.

**Conclusions:**
Based on specimen testing, epidemiologic analysis, and tracebacks, it is unclear if the three outbreaks were related. Single source outbreaks may have multiple serotypes of ETEC, thus it is still possible that a common, contaminated ingredient caused these outbreaks; additional cases may have gone undetected as most laboratories do not test for ETEC. Due to limited testing, the prevalence of ETEC in the US is unknown. Therefore, it is important to consider ETEC if symptoms are consistent and tests for other pathogens are negative.

---

**Presenting Author(s):**

**Cassandra Harrison**
New York City Department of Health
and Mental Hygiene, Queens, NY
charrison1@health.nyc.gov

**Contributing Authors**

Heather Hanson, MPH - New York City Department of Health and Mental Hygiene Vasudha Reddy, MPH - New York City Department of Health and Mental Hygiene Faina Stavinsky, MS - New York City Department of Health and Mental Hygiene Laura Kornstein, PdD - New Y

**Abstract ID:** 1332468 **Presentation Type:** Breakout Presentation
**Title:** Precursors to adverse pregnancy outcomes in severely premature deliveries: An examination of antenatal hospitalizations, Massachusetts 2002-2008
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Maternal & child health epidemiology
**Keywords:** Pregnancy|Maternal and Child Health|Hospital data

**Background:**
Infants born less than 32 weeks gestation carry a greater risk of dying during the first year of life. In Massachusetts (MA) in 2008, these births made up 1.5% of the birth population but accounted for 63.8% of infant deaths. Understanding patterns of antenatal hospitalizations prior to delivery may provide additional opportunities for interventions to decrease mortality in this high risk population.

**Methods:**
This study examined antenatal hospitalization patterns prior to 32 weeks and their association with adverse outcomes. We used the Pregnancy to Early Life Longitudinal (PELL) data system which linked birth, infant death and fetal death records to corresponding non-delivery maternal hospital discharge (HD), observational stay (OS), and emergency department (ED) of MA resident occurrent deliveries from 2002-2008. Fetal or infant death was the adverse outcome of interest. Frequency distributions examined the type and timing of hospitalization patterns and logistic regression calculated odds ratios for adverse pregnancy outcomes.

**Results:**
Among the 10,788 eligible MA deliveries, 31% had an adverse outcome. Of eligible deliveries, 35.0% had at least one antenatal hospitalization; of these, 23% had three or more hospitalizations. The ED was the most common type of hospitalization with 20.7% of mothers having at least one ED encounter, with an average of 1.77 visits and 3.39 hours per visit. Mothers with at least one ED visit were 1.41 times as likely to have an adverse outcome (95% CI: 1.28-1.56) than those with no visits. There was no increased risk of adverse outcomes with increasing ED visits. Outside of the ED, 13.7% of women had at least one HD record and these women were 0.72 times as likely as others to have an adverse outcome (95% CI: 0.64-0.82). Also, 12.8% of women had at least one OS record and were 0.71 times as likely to have an adverse pregnancy outcome (95% CI: 0.62-0.80).

**Conclusions:**
Adverse outcomes occurred in almost one out of every three deliveries prior to 32 weeks. Preceding delivery, 35% of these women had hospital encounters, with the most common being in the ED. The type of hospitalization mattered: women with OS and HD hospitalizations were protective against adverse outcomes whereas women who encountered the ED had an increased risk of adverse outcomes. However, the number of ED hospitalizations did not increase the risk of adverse outcomes. Further research into the demographics and timing of ED hospitalizations will help inform potential interventions aimed to decrease infant mortality.

---

**Presenting Author(s):**

**Lizzie Harvey**
Bureau of Family Health and Nutrition,
Office of Data Translation,
Massachusetts Department of Public
Health, Boston, MA
Lizzie.Harvey@state.ma.us

**Contributing Authors**

Hafsatou Diop, MD, MPH, MA Dept of Public Health; Emily Lu, MPH, MA Dept of Public Health; Xiaohui Cui, ScD, MA Dept of Public Health; Milton Kotelchuck, PhD, MPH, Harvard University

**Abstract ID:** 1332522 **Presentation Type:** Breakout Presentation
**Title:** A closer look at infant deaths due to prematurity: Variation in receipt of antenatal corticosteroids, Massachusetts 2000-2008
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Maternal & child health epidemiology
**Keywords:** Neonatal |Birth outcomes|Interventions

**Background:**
Prematurity affects 1 in 12 babies in Massachusetts (MA) and is a leading cause of infant death. Administration of antenatal corticosteroids (ANC) is recommended to women at risk of preterm delivery between 24 and 34 weeks gestation for its association with decreased respiratory distress syndrome, intraventricular hemorrhage, and mortality. Understanding the patterns of ANC administration among preterm infants who died will inform infant mortality reduction and perinatal quality improvement initiatives in MA.

**Methods:**
This study examined differences in ANC administration among infants who died in MA and were eligible for treatment. We examined the linked birth-infant death data in MA from 2000-2008. As birth defects are another leading cause of infant death, cases identified by the MA Birth Defects Monitoring Program were excluded from this analysis. A gestational age variable combining the calculated and clinical gestational age was applied to the recommendation adopted by the American College of Obstetricians and Gynecologists (ACOG) to identify infants eligible to receive ANC. Frequency distributions and multivariate logistic regression models were used to assess risk, controlling for covariates.

**Results:**
Excluding birth defects (N=488), 66.3% of infant deaths were due to disorders relating to short gestation (N=2808). About 78% of infant deaths were <37 weeks gestation and 30% met the eligibility criteria for ANC administration. Of those eligible, 19% received ANC. Factors associated with decreased ANC administration among eligible infants included: inadequate prenatal care (aOR 0.43, 95% CI: 0.23-0.87) and vaginal delivery (aOR 0.64 95% CI: 0.43-0.96). Examining hospitals with the highest number of ANC eligible infants, there was variation in ANC administration ranging from 0.0% to 63.0%.

**Conclusions:**
More than 4 out of every 5 MA infant deaths were eligible to receive ANC but did not, indicating potential missed opportunities for evidence-based interventions. Among ANC eligible infant deaths, those born to women who received inadequate PNC or had a vaginal delivery were more vulnerable for not receiving ANC. As most infant deaths are due to causes of prematurity, adherence to ACOG guidelines for ANC administration to promote lung maturity may aid in decreasing infant mortality throughout the Commonwealth. Targeted perinatal quality improvement efforts should focus on identified vulnerable populations at risk for not receiving ANC when eligible and investigation into hospital variation.

---

**Presenting Author(s):**

**Lizzie Harvey**
Bureau of Family Health and Nutrition,
Office of Data Translation,
Massachusetts Department of Public
Health, Boston, MA
Lizzie.Harvey@state.ma.us

**Contributing Authors**

Hafsatou Diop, MD, MPH, MA Dept of Public Health; Emily Lu, MPH, MA Dept of Public Health; Michael Silver, MS, MA Dept of Public Health

**Abstract ID:** 1330293 **Presentation Type:** Poster Presentation
**Title:** Outbreak of Histoplasmosis capsulatum associated with a bamboo bonfire in Arkansas
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Respiratory diseases, non-influenza
**Keywords:** Infectious Diseases|Respiratory diseases: Non-influenza|Environmental exposures

**Background:**
In late 2011, the Arkansas Department of Health investigated an outbreak of acute respiratory illness caused by Histoplasma capsulatum associated with a family gathering. This report summarizes the findings.

**Methods:**
A retrospective cohort study was performed. All individuals who attended the gathering were interviewed with a standard questionnaire and were offered free serologic testing for presence of histoplasma yeast and mycelial antibodies. The location of the outbreak was visited and characterized, and environmental samples were taken for fungal culture.

**Results:**
Setting: The outbreak site is a residential property in a highly populated area of NE AR. The approximately ¼ acre site is approximately 25% wooded and 75% well-groomed zoysia grass yard with a tall white pine canopy and a small 15 by 15 foot sparse bamboo grove understory. There were no major construction or excavation projects nearby. Residents of the area cited the location as a prominent blackbird (Terdus merula) roost. During annual migrations, some residents stated that there were so many as to "darken the sky." No bats were reported. Environmental Sampling: Samples of dirt, fecal residue, and leaf litter were taken from 18 areas on the property and cultured for fungi. No histoplasma were found. The cultures were dominated by common environmental molds such as Cladosporium, Penicillium, and Trichoderma. Participant Characteristics: The majority of attendees were children: 8 (42%) were less than 10 years old and 5 (26%) were between 10 and 20 years old. Clinical Outcomes: Six of 19 attendees were hospitalized, and 5 (83%) of these were < 10 years old. Fifteen attendees sought medical care. All have since recovered. All nineteen attendees reported illness onset within 3-10 days. Attendees participated in the following (non-mutually exclusive) activities: all 19 attended the bamboo bonfire and cookout, 3/19 cut bamboo, 3/19 built a small bamboo fort, 1/19 raked leaf litter, and 8/19 raked or stirred up the leaves or bamboo ash. Clinical Samples: Serologic testing for yeast or mycelia antibodies was positive in 10 of the 11 patients (91%) who submitted samples.

**Conclusions:**
To our knowledge, this is the first outbreak of H. capsulatum associated with a bamboo bonfire reported in AR. The fact that all attendees became ill raises suspicion that the heating of histoplasma spores in conjunction with air currents from the bonfire created an ideal mode of transmission. Additional research on heating and desiccation on mold particle size and infectivity would be very interesting.

---

**Presenting Author(s):**

**Dirk Haselow**
Epidemiology, Arkansas Department
of Health, Little Rock, AR
haselowdirk@uams.edu

**Contributing Authors**

Haytham Safi, MD, MPH, Arkansas Department of Health (ADH), Daviid Holcomb, MPH, ADH, Nathaniel Smith, MD, MPH, ADH

**Abstract ID:** 1318615 **Presentation Type:** Roundtable Presentation
**Title:** National mentorship program in applied chronic disease epidemiology
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Building epidemiology capacity for CD/MCH/OrH
**Keywords:** Chronic diseases|Epidemiology capacity|Workforce development

**Brief Summary:**
The 2009 CSTE's National Assessment of Epidemiology Capacity (Supplement) reported the percentage of jurisdictions with minimal-to-no (<25% of ideal) chronic disease epidemiology capacity increased progressively: 8% in 2001, 15% in 2004 and 2006, and 18% in 2009. The reason for this worsening trend can be found in challenges of recruiting and retaining qualified chronic disease epidemiologists. The newly hired epidemiologist, after receiving a brief orientation, is expected to become fully integrated and function as a chronic disease epidemiologist. Without adequate supervision from an experienced chronic disease epidemiologist, however, the new epidemiologist has difficulty maturing. This dynamic creates a cycle of inefficiency and insufficient state level capacity coupled with program frustration. It can also sometimes result in disillusionment on the part of the epidemiologist, thus deterring growth. The National Association of Chronic Disease Directors (NACDD) started the Mentorship Program in July 2010 by recruiting mentors and mentees from state health departments and universities. Among various strategies used, the CDC-NACDD's mentorship program is a promising practice that enables senior chronic disease epidemiologists at state health departments and academic centers to assist newly hired epidemiologists as they work on major projects deemed as a priority. Each mentee is expected to select a well-defined project with the assigned mentor's assistance. Projects have varied, with policy, program and analytic components predominating. Mentors communicate with mentees through audio-video conference calls, emails and in-person meeting. 2010 evaluation of the first cohort of Mentoring Program revealed overwhelming positive reactions from all seven mentees and their mentors. The second cohort is comprised of six pairs of mentor-mentees. The purpose of this round table discussion is to highlight the urgency of developing chronic disease epidemiology capacity at the state level and to share the available strategies that have the potential of addressing this need. The six paired mentor-mentee participants in this program along with the steering committee members will be attending this round table discussion to share their unscripted experience, lessons learned, and recommendations. The opportunity allows the participants to discuss their experience, consider alternative approaches, identify strategies for sustainability and provide recommendations.

**Key Objectives:**
1. Highlight the urgency of developing chronic disease epidemiology capacity at the State level 2. Discuss and critique the NACCD Mentorship Program

---

**Presenting Author(s):**

**Khosrow Heidari**
South Carolina Department of Health and Environmental Control, Columbia, SC
heidarik@dhec.sc.gov

**Donald Austin**
Oregon Health and Science University, Portland, OR
austind@ohsu.edu

**Contributing Authors**

Don Austin, M.D., M.P.H., Oregon Health & Science University; Kathy Brown, Ph.D., Knoxville County Health Department; Chelsey Cox, M.S. Virginia State Health Department; Luis Escobedo, M.D. New Mexico Dept. of Health; Chuck Gollmar, M.P.H., National Association of Chronic Disease Directors; Khosrow Heidari,

M.A., M.S., M.S., SC Dept. of Health & Environmental Control; Abby Holt, M.P.H., Arkansas Department of Health; Youjie Huang, M.D., M.P.H, Dr.P.H., Florida Dept. of Health; Jessica Irizarry, M.P.H., Puerto Rico Department of Health; Julie Nightengalem, M.P.H, Alabama Dept. of Public Health; Geraldine Perry, Dr.Ph., CDC; Ken Powell, M.D., M.P.H., Public Health and Epidemiologic Consultant; Victoria Efim Sumner, M.P.H., National Association of Chronic Disease Directors; Lorna Thorpe, Ph.D., City University of New York; Mary Wesley, M.P.H., Mississippi Department of Health; Xiao-Ying Yu, M.D., M.P.H., Maryland Department of Health; Juan Carlos Zevallos, M.D., University of Puerto Rico Health Science Campus

**Abstract ID:** 1329682 **Presentation Type:** Poster Presentation
**Title:** The current status of the National Typhoid and Paratyphoid Fever Surveillance system: Recent trends in reporting and completeness
**Committee:** Surveillance/Informatics
**Topic:** Surveillance indicators
**Keywords:** Surveillance|Enteric infectious diseases


**Background:**
Typhoid fever, caused by Salmonella serotype Typhi, is rare in the United States, with about 400 infections reported each year. The Centers for Disease Control and Prevention (CDC) has been collecting standardized information, including travel history and vaccination status, from state and local health departments on cases of typhoid fever since 1975. In 2007, the system became the National Typhoid and Paratyphoid Fever Surveillance (NTPFS) system, to allow reporting of cases of paratyphoid fever, which is caused by Salmonella serotypes Paratyphi A, Paratyphi B (tartrate-negative), and Paratyphi C. The National Notifiable Disease Surveillance System (NNDSS) collects reports of typhoid fever but not paratyphoid fever.

**Methods:**
We examined the number of typhoid and paratyphoid cases reported to NTPFS by year and state from 2000 to 2009. We evaluated completeness of selected demographic and epidemiologic variables and time from clinical isolation to reporting to NTPFS. We compared the number of typhoid fever cases reported to NTPFS and NNDSS.

**Results:**
From 2000 to 2009, a total of 2,933 typhoid cases were reported to NTPFS; from 2007 to 2009, 171 paratyphoid cases were reported. Completeness was high for demographic and epidemiologic variables (91% and 81% overall), including variables related to travel (99%) and vaccination status (96%), and did not differ by serotype. Completeness of demographic information declined from 2007 (95%) to 2009 (78%). Although NNDSS receives reports of more typhoid cases than NTPFS, the gap has narrowed, with NTPFS receiving 52% of the number of NNDSS reports in 2002 but 95% in 2008. The median time from clinical isolation to completion of the NTPFS report form decreased from 2001 to 2004 (27 days to 11 days) but increased again in 2006 (33 days) before decreasing to 23 days in 2009. From 2000 to 2009, the median time from completion of the NTPFS report form to reporting to CDC was 129 days.

**Conclusions:**
The completeness of demographic and epidemiologic information on typhoid and paratyphoid cases in NTPFS is generally high but has decreased recently. Reporting to NTPFS has increased relative to NNDSS over time. The timeliness of NTPFS form reporting to CDC has varied over time, perhaps related to states' batching reports to CDC. Complete reporting is important because NTPFS collects important epidemiologic data, including travel and vaccination status, which are not captured in any other national surveillance system.


---

**Presenting Author(s):**


**Katherine Heiman**
National Center for Emerging and Zoonotic Infectious Disease, Division of Foodborne, Waterborne and Environmental Diseases (proposed), Enteric Diseases Epidemiology Branch, Centers for Disease Control and Prevention, Atlanta, GA
uwj0@cdc.gov


**Contributing Authors**

Anna E Newton, MPH, Centers for Disease Control and Prevention, Atlanta, Georgia Amanda Conrad, BA, Centers for Disease Control and Prevention, Atlanta, Georgia Kathleen E Fullerton, MPH, Centers for Disease Control and Prevention, Atlanta, Georgia

**Abstract ID:** 1321699 **Presentation Type:** Breakout Presentation
**Title:** Assessing neonatal abstinence syndrome among Michigan infants, 2000-2009
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Maternal & child health epidemiology
**Keywords:** Substance abuse |MCH Epidemiology|Infant health

**Background:**
Since the 1990s, prescription opioid use among women of reproductive age (15-44 years) has increased dramatically. Opioid use during pregnancy may lead to neonatal drug withdrawal, clinically termed neonatal abstinence syndrome (NAS). The primary purpose of this study was to determine whether the diagnosis of NAS increased among Michigan infants between 2000 and 2009. Secondly, we hypothesized that infants with NAS would require a longer postneonatal hospitalization (hospital length of stay) compared to infants without NAS.

**Methods:**
We conducted a retrospective population-based study using 2000-2009 Michigan live birth records linked with corresponding hospital discharge data. Infants were classified as having NAS if a diagnosis code of neonatal drug withdrawal (ICD-9-CM code 779.5) was included in any of their records. Birth prevalence of NAS was calculated per 100,000 live births and a chi-square test was performed for linear trend analysis. To examine differences in hospital length of stay between infants with and without NAS, we restricted related analysis to linked data on infants born between 2006 and 2009. A negative binomial distribution model was used to fit the data, adjusting for potential confounders and interaction terms.

**Results:**
From 2000 through 2009, 1,496 infants were hospitalized with NAS. The birth prevalence of NAS increased significantly during the study period, from 41.2 (2000) to 277.9 per 100,000 live births (2009) (chi-square 460.4, $p < .0001$). The NAS-related hospitalization rate for white infants increased 11.1 times from 2000-2009, while the rate for black infants increased only 2.2 times during the same time period. Among infants born from 2006-2009, we found that the average hospital length of stay for those with NAS was 5.6 (95% CI= 5.3-6.0) times longer compared to their counterparts without NAS. Over three-quarters (78.1%) of NAS infants born between 2006 and 2009 had Medicaid as their hospital payment source.

**Conclusions:**
In the past decade, NAS increased significantly in Michigan. Infants with NAS required a longer hospital length of stay compared to their counterparts without NAS. Results indicate NAS is a growing public health concern, with the majority of the financial burden occurring at the state and federal levels.

---

**Presenting Author(s):**

**Kim Hekman**
Michigan Department of Community
Health, Lansing, MI
hekman.kim@gmail.com

**Contributing Authors**

Violanda Grigorescu, MD, MSPH; Lorraine Cameron, PhD, MPH; Corinne Miller, PhD; Ruben A. Smith, PhD, MS; Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention

**Abstract ID:** 1332492 **Presentation Type:** Breakout Presentation
**Title:** Risks for death from pandemic influenza A among American Indians and Alaska Natives, 2009: Results from a 5-state case-control study
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Influenza
**Keywords:** Influenza / Pandemic influenza|American Indians|Epidemiology

**Background:**
In the US, American Indians/Alaska Natives (AI/AN) experienced a death rate four times that of the general population during the 2009 H1N1 influenza pandemic. Clear explanations for increased mortality among AI/AN are lacking; however, a high prevalence of comorbid medical conditions existed among persons who died. We report here results from a 5-state case-control study to determine differences in pandemic H1N1 mortality risk factors by race, and to determine whether AI/AN race was an independent risk factor for mortality.

**Methods:**
We used a matched case-control design where case-patients were persons with fatal laboratory-confirmed influenza A (p-H1N1) infection from April 1 through December 31, 2009 and residents of Alaska, Arizona, New Mexico, Oklahoma, or Wyoming. Controls were persons with laboratory-confirmed influenza who were not hospitalized. Two controls per case were recruited; matching criteria included state of residence and date of specimen collection diagnosis ±2 weeks. Information on potential risk factors was obtained from review of individual medical records and interviews. Family member or household proxies were sought for the fatal cases; controls, or their parent/guardian, were interviewed directly. Data collected included pre-existing medical conditions, initial medical management, vaccine status, access to medical care, household living conditions, socioeconomic status and demographic information. Contact information for interviews was obtained through a variety of sources, including detailed web-based search tools. Univariate and multivariable conditional logistic regression will be used to evaluate risk factors for mortality.

**Results:**
Of a possible 207 case-patients, 130 have been interviewed by proxy and had chart reviews completed. Additionally, 227 controls have been interviewed and have had chart reviews completed. Sixteen percent of fatal case-patients were AI/AN; compared with 6 % of the overall population of the participating states. Case-patients ranged in age from 2 months to 86 years; the median age was 47 years; 53% were male. Analysis of risk factors awaits completion of data collection and is expected to be completed for presentation at the annual meeting.

**Conclusions:**
AI/AN persons suffered disproportionate mortality during the 2009 influenza pandemic. This multi-agency collaborative study is working to evaluate risk factors for fatal influenza illness in states with large AI/AN populations. We anticipate the results of this study will inform future efforts to reduce or eliminate this health disparity.

---

**Presenting Author(s):**

**Tom Hennessy**
Arctic Investigations Program, Centers
for Disease Control and Prevention,
Anchorage, AK
tbh0@cdc.gov

**Contributing Authors**

Kristy Bradley, DVM, MPH, Oklahoma State Dept of Health Ken Komatsu, MPH, Arizona Dept Health Services Michael Landen, MD, New Mexico Dept Health Joe McLaughlin, MD, MPH, Alaska Division of Public Health Dan O'Leary, DVM, MPH, Wyoming Dept of Health Dana

**Abstract ID:** 1332779 **Presentation Type:** Poster Presentation
**Title:** Fetal alcohol spectrum disorders in Arizona
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Maternal & child health epidemiology
**Keywords:** Alcohol|Pregnancy

**Background:**
Fetal Alcohol Spectrum Disorders (FASD) describes the range of effects that an individual may have if their mother consumed alcohol at any time while pregnant. FASD are thought to be the most preventable cause of mental retardation. The Arizona FASD project is a part of the state's Health Start (HS) Program, a home visitation program for both prenatal and postpartum women. Pregnant women from 13 HS sites are screened for alcohol use and the risk of alcohol use. Those who show risk or use of alcohol receive a brief intervention (BI).

**Methods:**
Data from 13 HS sites throughout Arizona was collected as pregnant women were enrolled in HS. Overall 2,349 women have been screened during their pregnancy from 2008 through 2011. Women who qualified for the BI based on their TWEAK score and alcohol consumption in the past 30 days were given the BI after screening. The TWEAK score is calculated based on the response to five questions related to the respondent's drinking habits, with total scores ranging from 0 to 7. Women with a TWEAK score of 2 or greater qualified for the BI. Women also qualified if they consumed 1 or more alcohol beverages in the 30 days prior to screening. All measures were self-reported.

**Results:**
Of those who reported race and ethnicity, 55% were Hispanic (n=1,293), 25% were American Indian or Alaskan Native (n=572), 17% were Non-Hispanic White (n=401), and 3% were of another race including Asians, Blacks, and Native Hawaiians (n=79). Of the 2,349 women screened, 22% qualified for the brief intervention (n=522). There was a statistically significant difference in TWEAK scores by age group ($p<0.0001$), gestational age ($p<0.04$), marital status ($p<0.0001$), and race and ethnicity ($p<0.0001$). Women aged <20 years and 20-24 years had significantly higher TWEAK scores than the other age groups ($p<0.0001$). Those who were married at some point had significantly lower TWEAK scores than those who were never married or unmarried, but living with their partner ($p<0.0001$). American Indian or Alaskan Native women had significantly higher TWEAK scores than Hispanic women and Non-Hispanic White women ($p<0.0001$). There was no difference in TWEAK scores between gestational age groups.

**Conclusions:**
The results suggest that being younger than 25, never married or unmarried, and American Indian or Alaskan Native raise a woman's risk of drinking while pregnant. This allows us to determine target populations to focus on when addressing the dangers of alcohol consumption while pregnant.

---

**Presenting Author(s):**

**Sarah Henry**
Bureau of Women's and Children's
Health, Arizona Department of Health
Services, Phoenix, AZ
sarah.henry@azdhs.gov

**Contributing Authors**

Khaleel S. Hussaini Ph.D, Arizona Department of Health Services and Sara Rumann M.A., Arizona Department of Health Services

**Abstract ID:** 1332665 **Presentation Type:** Breakout Presentation
**Title:** Underreporting of tick-borne disease cases and adjusted incidence estimates in a highly endemic county, Minnesota, 2009
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Vectorborne
**Keywords:** Infectious Diseases|Vectorborne disease|Surveillance

**Background:**
Lyme disease (LD) and human anaplasmosis (HA) are tick-borne diseases (TBDs) reportable to the Minnesota Department of Health (MDH). In 2009, confirmed or probable case incidence (cases/100,000 population) was 29 LD and 6 HA statewide, 145 LD and 77 HA in Crow Wing County (CW), one of Minnesota's highest-incidence counties. TBD incidence is likely underestimated because of physician or laboratory underreporting. Our objective was to determine the extent of TBD underreporting and to better estimate TBD incidence among health care-seeking patients.

**Methods:**
We performed population-based retrospective chart reviews of CW residents who sought medical care in 2009 in CW or 4 adjacent counties and whose visits were coded with: (a) TBD-specific ICD-9 codes; or (b) symptom ICD-9 and CPT code pairings for LD. We reviewed laboratory findings, clinical presentations, and physician impressions and assessed whether criteria for reportability (physician diagnosis or positive lab result) were met. Patients with reportable TBD events that met confirmed or probable surveillance case criteria were compared to the MDH surveillance database to determine whether they were independently reported through passive surveillance. The reciprocal of the proportion of confirmed and probable CW cases identified through chart review that had not been passively reported as confirmed or probable to MDH in 2009 was used as a "multiplier" to estimate a more accurate Minnesota incidence.

**Results:**
Of 51 targeted facilities, 48 participated; 39 had patients meeting inclusion criteria. We reviewed 632 medical charts; of the 308 (49%) with reportable illness events, 137 (43%) representing 133 patients met confirmed or probable case criteria (114 LD, 15 HA, 4 dual LD-HA). Of the 118 LD cases, 81 (69%) were not in the MDH surveillance database as confirmed/probable LD (63 not reported to MDH, 18 reported but as suspect cases, non-cases, or HA). Of the 19 HA cases, 11 (58%) were not in the surveillance database as confirmed/probable cases (8 not reported; 3 reported as non-cases). Applying the CW underreporting multipliers (1.46 for LD, 1.73 for HA) to statewide case numbers from passive surveillance yielded estimates of 43 LD and 10 HA cases/100,000 Minnesota population.

**Conclusions:**
In a high-incidence Minnesota county, confirmed/probable LD and HA cases were underreported by 69% and 58%. Applying CW underreporting multipliers statewide increased Minnesota incidence by 46% and 73% over that computed from passive surveillance. However, it is unclear whether CW diagnosis/reporting patterns are generalizable to the state, which warrants repeating this project in other counties.

---

**Presenting Author(s):**

**Alison Hinckley**

cue0@cdc.gov

**Contributing Authors**

Conner McLaughlin, MPH, Minnesota Department of Health David Neitzel, MS, Minnesota Department of Health Kirk Smith, DVM, PhD, Minnesota Department of Health Ashley Kay, MSPH, Centers for Disease Control and Prevention Alison Hinckley, PhD, Centers for D

**Abstract ID:** 1332562 **Presentation Type:** Poster Presentation
**Title:** TickNET: A survey of testing practices for Lyme disease by large commercial laboratories -- United States, 2008
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Laboratory test methods & their impact on surveillance
**Keywords:** Vectorborne disease|Surveillance

**Background:**
Lyme disease (LD) was the 7th most common nationally notifiable disease in the United States, with nearly 30,000 confirmed cases reported to CDC in 2008. Clinical laboratory testing is a supportive tool for LD diagnosis and surveillance. It is recommended that laboratories routinely use a 2-tiered testing approach to evaluate serologic specimens, yet use of single tier and alternative (non-validated) tests are reportedly in widespread use. To assess the laboratory testing practices and burden with respect to Lyme disease, we conducted a survey of large commercial labs in the United States. Collaborators included investigators participating in the TickNET program from CDC and from the Emerging Infections Programs in CT, MD, MN, and NY.

**Methods:**
We contacted 10 laboratories regarding types and numbers of tests offered for LD in 2008. The economic impact of testing for LD was calculated based on current costs for such tests. We also assessed the percent positive by test for 4 highly endemic states (CT, MD, MN, and NY). An estimate for the number of false positive results was derived using these data and test-specific performance parameters available in published literature.

**Results:**
Seven labs agreed to participate, 2 did not respond to our inquiry, and 1 refused. More than 3.4 million LD tests were conducted by participating laboratories, at a cost of more than $400 million. Overall, 60% of tests used the recommended 2-tiered methodology; 36% were single-tier Western blot (26%), or EIA (10%) tests. Less than 1% used alternative testing procedures. Of more than 1 million LD tests conducted in the four highly endemic states, the majority (67%) were 2-tiered (8% with positive results). Based on these data, we estimated more than 90,000 false positive test results were obtained for the United States in 2008.

**Conclusions:**
In 2008, LD testing was common and costly, with most testing compliant with recommendations. The estimated number of false positives was very high at more than 3 times the number LD cases reported for the United States in that year. This is due, in large part, to the frequent use of single-tier tests. There is concern that the substantial number of false positive results contribute to a large number of inappropriate LD diagnoses and treatments. These results highlight the importance of considering clinical and exposure history in conjunction with laboratory results for diagnosis and classification of LD for surveillance purposes.

---

**Presenting Author(s):**

**Alison Hinckley**
Division of Vector-Borne Diseases,
Centers for Disease Control and
Prevention, Fort Collins, CO
cue0@cdc.gov

**Contributing Authors**

Neeta P. Connally, Ph.D. MSPH, Western Connecticut State University; James I.Meek, MPH, Connecticut Emerging Infections Program; Barbara J. Johnson, PhD, Centers for Disease Control and Prevention; Melissa M. Kemperman, MPH, Minnesota Department of Health

**Abstract ID:** 1330141 **Presentation Type:** Breakout Presentation
**Title:** Investigation framework for transplant and transfusion related disease transmissions: federal agencies, private agencies, and state health departments
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Outbreak investigations |Healthcare associated infections (HAI)|Infectious Diseases

**Background:**
Transplant and transfusion related disease transmissions are complex investigations to undertake often involving multiple federal agencies, transplant centers in several states, and multiple state and local health departments. Rapid communication of the status of patients, therapies, and test results in suspected disease transmissions is required to prevent further transmission or aid in treatment when transmission has occurred. Development of a framework for these investigations and understanding the roles that each agency can play is essential to forming a successful approach to investigations.

**Methods:**
An update will be provided on the working agreement between CDC and HRSA that outlines the mechanism by which CDC is made aware of these cases. Agencies and facilities that provide information regarding cases will be described. The basic steps taken at the initiation of a case will be outlined to provide a framework for states beginning investigations.

**Results:**
The CDC speaker will describe recent experiences in investigating transmissions. The speaker will also discuss perceived barriers to engaging facilities and other key participants and practical strategies that can be applied by health departments to undertake investigations. Lessons learned from these experiences will be applied to the development of a conceptual approach for health departments to use in responding to these transmission events.

**Conclusions:**
At the conclusion of this presentation, attendees will better appreciate the important role of state and local health departments in coordinating local and regional transplant transmission response activities. In addition, they will have a better understanding of how to operationalize public health response to reported disease transmissions.

---

**Presenting Author(s):**

**Susan Hocevar**
Office of Blood, Organ, and Other Tissue Safety in the Division of Healthcare Quality Promotion, Centers for Disease Control and Prevention, Atlanta, GA
igc7@cdc.gov

**Contributing Authors**

Mathew Kuehnert, MD. The Centers for Disease Control and Prevention.

**Abstract ID:** 1311496 **Presentation Type:** Poster Presentation
**Title:** Behavior, knowledge, and attitudes regarding ticks and tickborne diseases: Results from the 2009 nationwide HealthStyles survey
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Vectorborne
**Keywords:** Vectorborne disease|Behavioral health|Disease prevention

**Background:**
In 2009, over 30,000 cases of tickborne diseases were reported in the US. Prevention of tickborne diseases relies heavily on the use of personal prevention measures, which is contingent upon awareness and knowledge of tickborne diseases. The objective of this study was to assess behavior, knowledge, and attitudes toward ticks and tickborne diseases in order to guide prevention messaging under development by the Centers for Disease Control and Prevention (CDC).

**Methods:**
We included seven questions related to tick exposure, knowledge of tickborne diseases, and attitudes toward pesticide use in the 2009 HealthStyles survey, an annual, cross-sectional, national mail survey designed to be demographically representative of the US population. For the purposes of this analysis, "endemic" states were defined as follows based on highest reported incidence in 2009: Lyme disease (CT, DE, ME, MD, MA, MN, NJ, NH, NY, PA, VT, WI); anaplasmosis (CT, DE, ME, MA, MN, MO, NH, NJ, NY, OK, RI, WI ), ehrlichiosis (AR, DE, MD, MO, NJ, NY, NC, OK, RI, TN, VA, WI), and Rocky Mountain spotted fever (AL, AR, DE, MD, MO, MT, NE, NJ, NC, OK, TN, VA ). States endemic for babesiosis were assumed to mirror those endemic for Lyme disease.

**Results:**
The survey response rate was 73% (4728/6504). Median respondent age was 45 years; 69% of respondents were white, 69% had at least some college education, and 60% reported an annual household income >$40,000. Overall, 21% of respondents reported finding a tick on a household member in the previous year, and 2% consulted a health care provider as a result. Among respondents, 16% had not heard of any of eight tickborne diseases. Among those living in Lyme disease endemic states, 18% were unaware that the disease occurs in their area, while 59% living in states endemic for Rocky Mountain spotted fever were unaware that the disease occurs in their area. Additionally, 98%, 99%, and 99% of respondents were unaware that babesiosis, ehrlichiosis, or anaplasmosis occurs in their area, respectively. Regarding pesticide use, 39% of respondents would use chemical pesticides and 59% would use plant-derived pesticides one to two times per year if it would meaningfully reduce tick populations in their yards.

**Conclusions:**
These results demonstrate high rates of tick exposure nationwide as well as knowledge gaps regarding tickborne disease occurrence. Additionally, these results reveal important opportunities for effective education and prevention interventions in the US.

---

**Presenting Author(s):**

**Sarah Hook**
Division of Vector-Borne Diseases,
Centers for Disease Control and
Prevention, Fort Collins, CO
vhx8@cdc.gov

**Contributing Authors**

Alison Hinckley, PhD, DVBD/CDC; Paul Mead, MD MPH, DVBD/CDC; Emily Zielinski-Gutierrez, DrPH, DVBD/CDC

**Abstract ID:** 1320377 **Presentation Type:** Breakout Presentation
**Title:** The ratio of emergency department visits for ILI and self-reported illness on a survey to seroprevalence of 2009 H1N1 Influenza A infection, Florida, 2009
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Influenza
**Keywords:** Surveillance|Influenza / Pandemic influenza|Preparedness


**Background:**
In an evolving influenza epidemic, existing real-time surveillance systems do not provide needed information about cumulative incidence of infection in the population. A seroprevalence survey carried out in Tampa Bay, Florida in late 2009 yielded such an estimate for the 2009 H1N1 influenza pandemic. We calculated the ratio of influenza-like illnesses detected in 2 existing surveillance systems to actual infections.

**Methods:**
Total emergency department (ED) visits for influenza-like illness (ILI) during the epidemic period were estimated using the ESSENCE-FL syndromic surveillance system, by age group, for Florida and for Tampa Bay. Cumulative statewide reports of ILI using 3 different definitions were derived from the Behavioral Risk Factor Surveillance System (BRFSS), for interviews conducted Oct 1-- Dec 27, 2009, using the BRFSS weights to make statewide estimates for persons aged 18 and older.

**Results:**
For all ages combined, for the whole state there were an estimated 27.5 infections for every ILI ED visit. Age-specific ratios rose with age, from 8.5 to 1 for children aged under 5 years to 66 to 1 for persons aged 65 and over. Corresponding ratios for just Tampa Bay were 37 to 1, 11.3 to 1, and 98 to 1. For persons aged 18 and over, there were 3.0 infections for every 1 person reporting ILI (fever and cough and/or sore throat) on BRFSS interview. Ratios ranged from 1.4 to 1 for persons aged 50 to 64 years, to 8.4 to 1 for persons 65 and over. For more stringent BRFSS ILI definitions, ratios are much higher.

**Conclusions:**
For jurisdictions using syndromic surveillance systems or ongoing BRFSS-like interviews, these ratios provide a way to estimate weekly and cumulative incidence, which can be used together with estimates of the reproductive number (R0) for planning and forecasting. Syndromic surveillance data allow more detailed age and geographic breakdowns and a full age range, and are more timely than BRFSS data.


---


**Presenting Author(s):**

**Richard Hopkins**
Epidemiology, Florida Department of
Health, Tallahassee, FL
Richard_Hopkins@doh.state.fl.us

**Contributing Authors**

Kate Goodin, MPH Aaron Kite-Powell, MS Mackenzie Weise, MPH Janet J Hamilton, MPH All with Bureau of Epidemiology, Florida Department of Health, Tallahassee, FL

**Abstract ID:** 1322176 **Presentation Type:** Breakout Presentation
**Title:** Prioritizing investigation of reported cases of selected enteric infections, Florida 2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Foodborne/waterborne disease
**Keywords:** Enteric infectious diseases|Surveillance|Cost-Effectiveness

**Background:**
Florida has encouraged county health departments (CHDs) to interview every reported case of enteric infection, including salmonellosis (~6,000 cases annually), shigellosis (1,000 to 3,000), campylobacteriosis (~1,100), giardiasis (~2,000), and cryptosporidiosis (400 to 700); 83% were interviewed in 2011. Reductions in funding now make this less feasible. We proposed prioritizing cases for interview, assuming that people are much less infectious once symptoms resolve: (1) case report indicates the person is in a sensitive situation (healthcare worker, childcare worker or attendee, food-handler) or is part of an outbreak; (2) case report received early enough that the person is likely still symptomatic; (3) all others. Group 1 case reports are rare as most initial case reports are laboratory results. We analyzed the likely effect of interviewing only those in group 2 on workload and detection of people in sensitive situations.(healthcare worker, childcare worker or attendee, food-handler) or is part of an outbreak; (2) case report received early enough that the person is likely still symptomatic; (3) all others. Group 1 case reports are rare as most initial case reports are laboratory results. We analyzed the likely effect of interviewing only those in group 2 on workload and detection of people in sensitive situations.

**Methods:**
Median intervals from onset to specimen collection and to lab report were calculated for all confirmed reported Florida 2011 cases. Usual durations of each illness from textbooks were compared to these median intervals to assess when a case was no longer likely to be symptomatic. This disease-specific timeframe was applied to reported 2011 cases to determine whether they were in Group 2. We estimated the number of interviews saved, how many of those interviewed would have been symptomatic at the time of interview, and the number of people in sensitive situations who would have been missed.

**Results:**
Duration of symptoms was assumed to be 6, 14, 14, 6, and 9 days for campylobacteriosis, cryptosporidiosis, giardiasis, salmonellosis, and shigellosis. Median intervals from onset to specimen collection were 3, 6, 10, 3 and 2 days respectively, and from onset to lab result were 7, 9, 13, 7 and 6 days. Applying the proposed policy for one year would reduce interviews by 954 (campylobacteriosis), 52 (cryptosporidiosis), 736 (giardiasis), 3,830 (salmonellosis), and 191 (shigellosis), for a total of 5,763, or 64%, fewer interviews. In a four-month period, out of 34 foodhandlers identified, 10 were symptomatic at time of interview and 7 of these were not in group 2. Of 53 healthcare workers, 14 were symptomatic at interview and 11 of these were not in group 2. Of 469 daycare-associated cases, 107 were symptomatic at interview and 59 were not in group 2.

**Conclusions:**
Applying this policy results in substantial savings of CHD staff time. After applying the recommended policy, 120 additional interviews of adults would be needed to detect one additional symptomatic foodhandler, 78 to detect one additional symptomatic healthcare worker, and 32 children and adults to identify one additional symptomatic case associated with childcare.

---

**Presenting Author(s):**

**Richard Hopkins**
Florida Department of Health,
Tallahassee, FL
Richard_Hopkins@doh.state.fl.us

**Contributing Authors**

Leah Eisenstein, MPH.  Bureau of Epidemiology, Florida Department of Health, Tallahassee, FL

**Abstract ID:** 1386839 **Presentation Type:** Roundtable Presentation
**Title:** International Task Force for Disease Eradication
**Committee:**
**Topic:**
**Keywords:**

**Background:**

**Methods:**

---

**Presenting Author(s):**

**Don Hopkins**
Carter Center Health Programs,
Atlanta, GA;
bchristner@cste.org

**Abstract ID:** 1332649 **Presentation Type:** Breakout Presentation
**Title:** Geographic Disparities in the Utilization of Minimally Invasive Breast Biopsy – Illinois, 2008-2010
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Examining social determinants of health and health disparities in CD/MCH/OrH
**Keywords:** Breast cancer|Rural health|Health disparities

**Background:**
Minimally invasive breast biopsies (MIBB) are safer, cost less, and result in less morbidity than open surgical biopsies. The American College of Surgeons Consensus Conference (2005) recommends MIBB as the gold standard for biopsy of most suspicious breast lesions. Only 5-10% of breast biopsies should be open surgical biopsies. This study explores the rate of open surgical biopsy and examines disparities experienced by rural women in Illinois.

**Methods:**
The Illinois Hospital Discharge database collects procedure codes, demographic data, and charge data for all discharges from Illinois hospitals and ambulatory surgery centers. For women with Current Procedural Terminology codes 19100, 19102, and 19103 for MIBB, and codes 19101 and 19125 for open biopsy from 2008-2010, we analyzed procedure data, hospital type, and residency information. Using BRFSS strata, patient addresses were categorized as Cook County, collar counties, urban counties or rural counties outside of Cook County.

**Results:**
During 2008-2010, 67,383 breast biopsies were performed in Illinois. Nearly twenty-seven percent (18,045) were open surgical biopsies. The rate of open biopsies decreased during the study period, from 29.9% in 2008 to 23.1% in 2010. Women living in Cook County had an open biopsy rate of 22.2%, Women living outside Cook County and in rural counties had open biopsy rates of 28.5% and 30.4% respectively. Women living outside Cook County were significantly more likely to receive open biopsies than women in Cook County ($p<.001$). Women living in rural counties were significantly more likely to receive open biopsies than women living in any other residential strata ($p<.001$). Fifteen of the state's 18 teaching hospitals are located in Cook County. The rural counties have no teaching hospitals; 92.2% of critical access hospitals are in rural counties. Teaching hospitals had an open biopsy rate of 16.2% and were significantly less likely to use open biopsy than non-teaching and critical access hospitals ($p<.001$). Non-teaching and critical access hospitals had an open biopsy rate of 28.7% and 53.0% respectively.

**Conclusions:**
While all women in Illinois experienced high rates of open biopsy, women outside of Cook County and especially in rural Illinois are more likely to receive open surgical biopsy of breast lesions. This is likely due to practices and resources at the critical access and non-teaching hospitals where women access care. Targeted efforts to educate providers and increase access to stereotactic biopsy and imaging equipment in hospitals outside Cook County may address these disparities.

---

**Presenting Author(s):**

**Julia Howland**
Health Protection, Illinois Department
of Public Health, Chicago, IL
julia.howland@illinois.gov

**Contributing Authors**

Barbara Fischer, RN, Division of Patient Safety and Quality, Illinois Department of Public Health

**Abstract ID:** 1394057 **Presentation Type:** Late Breaker: Breakout Presentation
**Title:** A Cluster of Hepatitis C among Rural, Young Adults – Illinois, 2012
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Viral hepatitis
**Keywords:** Viral hepatitis|Outbreak investigations |Rural health

**Background:**
Historically an epidemic of older adults, males, and African Americans, several states have recently described an increase of hepatitis C virus (HCV) infections among young rural and suburban patients. In February 2012, the local health department (LHD) identified a cluster of HCV among young adults in County A, a small, rural county in central Illinois. The 2011 rate of HCV among young adults (age 15-34) in County A was 82.24 per 100,000, significantly higher than the young adult state rate of 25.58 and similar to four other counties in the area. We conducted an investigation to determine risk factors for infection, the extent of the outbreak and intervention opportunities.

**Methods:**
Cases were defined as County A residents less than 35 years old with HCV infection as classified by current CSTE case definitions. Cases were identified through provider reporting to the state reportable disease surveillance system and contact tracing. The LHD conducted initial interviews with the reported cases to determine risk factors and symptoms. Medical and public health records were abstracted for co-morbidities, risk behaviors, and HCV diagnosis. We interviewed cases for risk behaviors, symptoms, and contacts. Contacts were offered HCV testing and were interviewed.

**Results:**
Thirteen cases were identified. Five met the case definition for acute infection. Ten (76.9%) were identified through provider reporting, three (23.1%) were contacts to cases. Four cases (30.8%) agreed to be interviewed. The mean age of cases was 25.2 (range 15-34) All cases were non-Hispanic white, and six (46.2%) were female. Seven (53.8%) cases were symptomatic at the time of diagnosis. Eleven (84.6%) cases had a history of illicit drug use, ten (76.9%) of injection drug use. Drug use history was available for six cases. Six used methamphetamine and prescription opiates and five used heroin. Of the four cases interviewed, all reported sharing drug preparation equipment and drug snorting equipment. Three shared needles. A network of four drug-using partners was identified among the cases. Six cases (46.2%) had a mental illness. No case received HCV treatment.

**Conclusions:**
Systems for detection, prevention and treatment of HCV in young adults must be strengthened in rural and suburban communities. Enhanced surveillance of HCV cases among young adults was essential to identification of this cluster. Considerations for prevention and control of HCV in this setting include development of harm reduction programs tailored to rural communities, especially individuals with mental illness. Hepatitis C infection is an emerging problem among rural, young adults.

---

**Presenting Author(s):**

**Julia Howland**
Infectious Diseases, Illinois
Department of Public Health, Chicago,
IL
julia.howland@illinois.gov

**Abstract ID:** 1318335 **Presentation Type:** Breakout Presentation
**Title:** Collecting detailed cancer registry data to perform outcomes-based comparative effectiveness research—Florida, 2011
**Committee:** Surveillance/Informatics
**Topic:** Novel surveillance methods and data sources
**Keywords:** Data collection|Hospital data |Co-morbidity

**Background:**
Reporting to the Florida Cancer Data System (FCDS) is legislatively mandated for hospitals and physicians. However, in-depth research comparing cancer treatment and patient outcomes have been limited due to a lack of patient data linkages. To complete a comparative effectiveness research project, the Florida Department of Health (FDOH) is identifying methods to collect detailed cancer treatment information that incorporate current standardized formats and linking patient pathology and treatment data to investigate patient outcomes.

**Methods:**
Five counties (Broward, Miami-Dade, Palm Beach, Orange, and Hillsborough) were selected as project target sites. Hospital abstractors in these counties were given surveys requesting information about electronic data submission practices and the presence of infusion centers. FCDS coordinators then conducted onsite case validation to collect demographic and treatment data for patients diagnosed with breast, colorectal and CML cancers in 2011. FDOH and FCDS completed data linkages with the Agency for Health Care Administration to analyze statewide cancer co-morbidity data. Cancer patient data were enhanced with medication therapies. Medical claims data collected from physicians allow FCDS to follow-back to providers for remaining data gaps. The DOH and FCDS staff performed physician outreach.

**Results:**
Medical claims data represent a nationally recognized standard for coding diagnosis and medical procedures and provide the majority of data necessary for a complete cancer abstract. Despite outreach, reporting is perceived as burdensome for physicians, resulting in missed cases and incomplete treatment information. Capturing medical claims data for cancer reporting is a novel method and can provide more complete information for outcomes-based research.

**Conclusions:**
Enhanced medical data linkages will institute ongoing data-capture for rates of completed therapy critical for researchers and will help clinicians improve diagnoses and achieve better treatment outcomes.

---

**Presenting Author(s):**

**Youjie Huang**

youjie_huang@doh.state.fl.us

**Contributing Authors**

Jason Feldman, MPH; Florida Department of Health Monique N. Hernandez, PhD; University of Miami Miller School of Medicine Jill A. Mackinnon, PhD; University of Miami Miller School of Medicine Tara Hylton, MPH; Florida Department of Health Avalon Adams-Th

**Abstract ID:** 1332335 **Presentation Type:** Poster Presentation
**Title:** Congruence between self-report and medical record CD4 lymphocyte and HIV viral load test results among HIV-infected patients in care *
**Committee:** Infectious Diseases Sub-Committee
**Topic:** HIV
**Keywords:** HIV/AIDS|Epidemiology|Health care

**Background:**
Self-reported medical information is a relatively inexpensive and convenient way to collect patient health information for research purposes. However, the ability to accurately recall health information, particularly laboratory values, is variable. We compared patient interview data with data collected during medical chart review among patients participating in the Medical Monitoring Project (MMP), a HIV/AIDS supplemental surveillance project of patients receiving HIV care, to assess patients' accuracy reporting CD4 cell count and HIV viral load test results and investigated factors associated with having congruent results.

**Methods:**
We analyzed data from HIV-infected adults seen at San Francisco outpatient health care facilities from 2007 to 2008 who were enrolled in MMP. Analyses were restricted to patients who self-reported a most recent viral load test or CD4 cell count and had corresponding laboratory results in their medical chart. Kappa coefficients were calculated to assess agreement between self-reported HIV viral load and CD4 cell count results recorded in their medical chart. For HIV viral load, congruence was defined as both values being either undetectable (defined as ?200 copies/ml); detectable and <5,000 copies/ml; 5,000-100,000 copies/ml; or >100,000 copies/ml. Additionally, HIV viral load was dichotomized as detectable versus undetectable. For CD4 count, congruence was both values being: 0-49 cells/mm3; 50-99 cells/mm3; 100-199 cells/mm3; 200-349 cells/mm3; 350-499 cells/mm3; or ?500 cells/mm3. Multiple logistic regression was utilized to assess demographic and behavioral factors associated with congruent test results. Adjusted odds ratios (AORs) were calculated.

**Results:**
Of the 329 MMP patients, 285 (87%) had a most recent viral load and 284 (86%) had a most recent CD4 count value in both the interview and medical chart. Eighty-nine percent (n=253) had congruent HIV viral load values, 93% (n=265) when categorized as detectable or undetectable and 76% (n=216) had congruent CD4 values. The unweighted kappa coefficient was 0.62 (95% CI: 0.52-0.73) for HIV viral load and 0.64 (95% CI: 0.57-0.71) for CD4 count. Patients who were ?50 years compared to those 18-39 years and patients currently taking ART were more likely to report congruent results for HIV viral load (AOR= 3.9, 95% CI: 1.1-14.0; AOR=5.4, 95% CI:2.0-14.9, respectively). Patients who reported ever using injection drugs were less likely to have congruent HIV viral load values (AOR= 0.4, 95% CI: 0.2-0.9). Continuous health insurance coverage during the past year was associated with having congruent CD4 results (AOR=2.8, 95% CI: 1.3-6.2).

**Conclusions:**
The majority of patients accurately reported HIV viral load and CD4 cell count results indicating that self-report may provide a reasonable approximation of medical record values. This has implications for patients who change medical providers and may need to rely on self-report of test results and for research surveys that only collect participant-reported data. Greater concurrency may reflect more interest in health-related details among older patients and persons receiving ART. However, the increase in congruence when HIV viral load results were dichotomized rather than categorized as well as the slightly lower congruence with CD4 cell count indicate that recall of specific numerical values may be difficult for some patients and suggest that clinically meaningful categories for self-reported laboratory values should be utilized.

---

**Presenting Author(s):**

**Alison Hughes**
AIDS Office, San Francisco Department
of Public Health, San Francisco, CA

alison.hughes@sfdph.org

**Contributing Authors**

Susan Scheer, PhD, MPH, San Francisco Department of Public Health

**Abstract ID:** 1332475 **Presentation Type:** Poster Presentation
**Title:** Evaluating the number and proportion of out of jurisdiction HIV/AIDS cases receiving care in San Francisco, CA
**Committee:** Infectious Diseases Sub-Committee
**Topic:** HIV
**Keywords:** HIV/AIDS|Surveillance|Health care

**Background:**
The Ryan White Comprehensive AIDS Resources Emergency (CARE) Act funds jurisdictions for the care and treatment of low-income, uninsured and underinsured people living with HIV/AIDS. Funding is allocated according to a formula that includes the number of HIV/AIDS cases diagnosed in that jurisdiction. However, as people live longer with HIV/AIDS, the likelihood of seeking care in a place other than the residence at diagnosis increases. As such, migration into and out of jurisdictions affects the burden on the health care system without adjustments in the funds received from the CARE Act. Accurate estimates of the total number of people in care is necessary for HIV care planning purposes and could help evaluate the degree to which using HIV/AIDS case counts based on residence at diagnosis for Ryan White funds misrepresents the burden of HIV in a community.

**Methods:**
Routine HIV/AIDS core surveillance assigns case ownership by residence at diagnosis. HIV/AIDS cases currently receiving care in San Francisco (SF) but who were residing elsewhere at time of diagnosis are considered out of jurisdiction cases (OOJ). We electronically linked two clinical datasets of patients who received HIV care in SF from January-April 2011 to the HIV/AIDS case registry to determine the proportion of these patients who were OOJ. First, we used data from the Medical Monitoring Project (MMP), a supplemental surveillance project that includes a representative sample of patients receiving outpatient HIV care in SF. Patients from one facility could not be matched to the HIV/AIDS case registry because patient names from this site were not provided. Second, we used mandatorily reported electronic laboratory records of CD4 and HIV viral load tests from all persons tested at any clinical site in SF.

**Results:**
Twenty-five percent (n=1,431) of the 5,821 sampled from MMP provider sites receiving care were determined to be OOJ and 21% (n=2,316) of the 11,008 cases from the laboratory data base were determined to be OOJ.

**Conclusions:**
These two methods yielded similar estimates of the proportion of OOJ HIV/AIDS cases receiving HIV related health care in SF. Based on these findings, approximately 25% of the cases who receive HIV-related care in SF are not counted as cases in the formula to determine CARE funds. These findings highlight the degree to which using the residence at time of HIV/AIDS diagnosis may misrepresent the true number of persons in need of care because of in-migration. However, this estimate does not include persons who were SF residents at the time of HIV/AIDS diagnosis but move away from the city later. The recently developed Enhanced HIV/AIDS Reporting System (eHARS) provided to HIV surveillance jurisdictions by CDC, may be used to track changes in residence of persons reported with HIV/AIDS. Efforts to evaluate the ability of eHARS to provide an updated accurate estimate of persons receiving HIV care in any jurisdiction, taking into account both in- and out-migration, should be undertaken and, if acceptable, used to more equitably allocate CARE funds.

---

**Presenting Author(s):**

**Alison Hughes**
AIDS Office, San Francisco Department
of Public Health, San Francisco, CA
alison.hughes@sfdph.org

**Contributing Authors**

Chi-Sheng Chin, MBA, San Francisco Department of Public Health Susan Scheer, PhD, MPH, San Francisco Department of Public Health

**Abstract ID:** 1332594 **Presentation Type:** Poster Presentation
**Title:** Using secondary data to identify HIV/AIDS cases and evaluate completeness of case reporting in San Francisco, California
**Committee:** Infectious Diseases Sub-Committee
**Topic:** HIV
**Keywords:** HIV/AIDS|Surveillance

**Background:**
Active surveillance is the main method of HIV/AIDS case ascertainment in San Francisco (SF). Potential HIV/AIDS cases are identified from mandatorily reported electronic and paper laboratory reports that are routinely sent to SFDPH HIV core surveillance and investigated by surveillance staff by medical chart review. Cases are also identified by passive reporting, through review of death certificates, from validation studies and reports from other health departments. We utilized a dataset of patients participating in the Medical Monitoring Project (MMP), a HIV/AIDS supplemental surveillance project of patients receiving HIV care, as a secondary source for HIV/AIDS case ascertainment and to calculate completeness of case reporting.

**Methods:**
Of the 21 participating SF MMP facilities, 20 facilities provided a list of all patients seen for HIV care between January-April 2011. One facility did not provide patient identifiers and these patients were excluded. An unduplicated dataset of MMP patients was first matched to the HIV/AIDS case registry in SF. Patients that did not match the SF HIV/AIDS registry were subsequently checked to determine if they matched cases in other California jurisdictions or out of state cases. Surveillance staff investigated all patients that did not match to any SF case or out of jurisdiction cases (OOJ). Completeness of reporting was calculated and defined as the number of matched cases divided by the total of matched cases and new cases. New cases included both new SF HIV/AIDS cases and existing OOJ cases seen in SF but not previously identified.

**Results:**
There were a total of 5821 unique patients seen in SF between January-April 2011 at the 20 participating MMP facilities. Seventy-six patients did not match the SF HIV/AIDS case registry or any existing OOJ cases and were further investigated. This investigation yielded 3 new SF HIV/AIDS cases that were previously unreported, 28 patients matched OOJ cases not previously identified in SF, 29 patients matched existing SF cases who had alias name or date of birth, 12 patients were HIV-negative and 4 patients were not able to be investigated by surveillance field staff. The overall completeness of reporting was 99%.

**Conclusions:**
Using this secondary data source was a simple and effective way to evaluate completeness of case reporting and identify HIV/AIDS cases not yet identified through routine surveillance activities. We also were able to update alias information for existing SF cases and track existing OOJ cases that are seen in SF for medical care. Although the completeness of reporting was high, we were able to evaluate why these case reports were missed and determine approaches to improve HIV/AIDS case reporting.

---

**Presenting Author(s):**

**Alison Hughes**
AIDS Office, San Francisco Department
of Public Health, San Francisco, CA
alison.hughes@sfdph.org

**Contributing Authors**

Susan Scheer, PhD, MPH, San Francisco Department of Public Health

**Abstract ID:** 1330014 **Presentation Type:** Breakout Presentation
**Title:** Too hot to handle: Heat-related illnesses and deaths during the 2011 heat wave, Dallas County, Texas
**Committee:** Injury Control and Prevention Sub-Committee
**Topic:** Data linkage to improve injury surveillance/prevention
**Keywords:** Climate|Data/Surveillance|Injury surveillance

**Background:**
Background: From June through September of 2011, Dallas County experienced a record-setting total of 71 days of temperatures ? 100°F, including the highest number of consecutive ? 100°F days (40) since 1980. Seasonal public health efforts to prevent heat-related illnesses (HRI) have typically emphasized use of air conditioning, limiting time outdoors, checking on elderly persons, and staying hydrated. Prevention of HRI remains challenging, however, and the County recorded the highest number of HRI deaths (31) since1998. The Dallas County Department of Health and Human Services (DCHHS) conducts seasonal HRI surveillance, enabling further assessment of the characteristics and contributing factors of HRI deaths in Dallas County.

**Methods:**
The DCHHS seasonal HRI surveillance program obtains data regarding HRI cases through reports received from the county Medical Examiner's (ME) office, hospital infection prevention offices and syndromic surveillance system databases. Emergency department visits for chief complaints related to HRI were captured from 18 area hospitals through the Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE). Details regarding contributing factors of HRI deaths were extracted from ME reports. Characteristics of HRI illnesses and deaths from June through September 2011 were analyzed using SAS 9.2.

**Results:**
From June through September 2011, 753 HRI cases were recorded in Dallas County, including 31 HRI deaths. Of the 722 HRI cases which did not expire, 75% (545) occurred in males, 9% (65) occurred in individuals who were less than 18 years old, 64% (461) occurred in individuals between the ages of 18 and 50, and 27% (196) occurred in individuals over the age of 50. Heat cramps accounted for 42% of HRI, heat exhaustion 53%, and heat stroke 5%. The highest proportions of heat cramps (58%) and heat exhaustion (70%) occurred in persons 18 to 50 years of age. Heat stroke was mostly seen in individuals over the age of 50, which accounted for 49% of the cases. Of the HRI deaths, 65% (20) occurred in males. Individuals over the age of 50 accounted for 71% (22) of the HRI deaths and persons between 18 and 50 years of age accounted for 26% (8). Most common factors contributing to HRI deaths included: 52% (16) having no air conditioner, 26% (8) having an air-conditioner but not using it, 6% (2) being involved in outdoor work-related activities, 6% (2) use of alcohol or drugs, and 3% (1) being left unattended in a vehicle. Lack of air conditioning for any reason accounted for the majority 77% (24) of HRI deaths, 79% (19) of these individuals were over the age of 50.

**Conclusions:**
Known risk factors for mortality from HRI have included persons of older ages and lack of use of air conditioning. The unexpected numbers of deaths which occurred in persons who possessed air-conditioning units, but deliberately did not use their units, emphasizes the challenges in public health prevention messaging for those at greatest risk.

---

**Presenting Author(s):**

**Elizabeth Hull Smith**
Dallas County Health and Human
Services, Dallas, TX
elizabeth.h.smith@dallascounty.org

**Contributing Authors**

Gabriela Cantu, Judy Tran, MPH, Mariama D. Janneh, MPH, and Wendy M. Chung, MD, Dallas County Department of Health and Human Services, Dallas, TX

**Abstract ID:** 1331584 **Presentation Type:** Breakout Presentation
**Title:** Epidemiologic study of suicide among Alaska Natives and Non-Alaska Natives, 2003–2008
**Committee:** Injury Control and Prevention Sub-Committee
**Topic:** Violence epidemiology and prevention across the lifespan
**Keywords:** Suicide |Alaska Natives|NVDRS

**Background:**
Suicide is of particular concern in Alaska, which consistently has one of the highest suicide rates in the nation. Suicide rates are consistently higher among Alaska Native people than any other racial/ethnic group in the U.S.; suicide ranks 5th among leading causes of death among Alaska Native people.

**Methods:**
The study was conducted jointly by the Alaska Section of Epidemiology and the Alaska Native Tribal Health Epidemiology Center. Using the data from the Alaska Violent Death Reporting System (AK VDRS) from 2003-2008, descriptive analyses were conducted on Alaska Native and non-Alaska Native datasets. Included were demographics, pre-event circumstance and environmental factors, weapon, victim-weapon relationship, and forensic toxicology. P-value of ?0.005 was considered significant.

**Results:**
The rate of suicide among Alaska Native people during 2003-2008 was 40.4 (range 34.5-49.7) per 100,000 persons per year, while the rate for non-Alaska Native was 17.7 (range 16.4-20.6) per 100,000 persons per year. Despite annual variation, the study did not show that there was a significant increase in suicide rates among Alaska Native people during 2003-2008. However, the rate of suicide among non-Alaska Native people appeared to increase slightly over this period. Overall, Alaska Native suicide decedents were younger than non-Alaska Native decedents. Almost two-thirds of Alaska Native suicide decedents were younger than 29 years, while only about a third of non-Alaska Native decedents were under age 29. Although there was no clear trend, rates of suicide varied by month (range 2.1-4.7 per 100,000 persons) among Alaska Native people with the highest rates in March and April and less monthly variation throughout the year (range 1.2-2.0 per 100,000 persons) with slight peaks in June and September among non-Alaska Native. Firearms were used in the majority of suicide deaths for both Alaska Native and non-Alaska Native people (54.0% and 68.2%, respectively), followed by hanging/strangulation/suffocation (37.3% and 16.0%, respectively), and poisoning (4.9% and 12.0%, respectively). Approximately 19.3% and 29.6% of Alaska Native and non-Alaska Native suicide decedents, respectively, had been diagnosed as having a current mental health problem, and 17.9% and 27.7%, respectively, were being treated for a current mental health problem.

**Conclusions:**
AK VDRS data indicated that Alaska Natives continue to be a high-risk population in need of intervention; however, the apparent leveling of rates indicates a positive trend and suggests suicide prevention efforts are effective and should continue to be evaluated.

---

**Presenting Author(s):**

**Deborah Hull-Jilly**
Health & Social Services, Alaska Department of Health and Social Services, Anchorage, AK
deborah.hull-jilly@alaska.gov

**Contributing Authors**

Jessica Craig, MPH, Alaska Native Tribal Health Epidemiology Center

**Abstract ID:** 1332791 **Presentation Type:** Breakout Presentation
**Title:** Ciguatera fish poisoning outbreaks signal need for improvements in prevention
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Foodborne/waterborne disease
**Keywords:** Foodborne disease|Outbreak investigations |Surveillance

**Background:**
Human ciguatera poisoning can occur after consumption of a wide variety of coral reef fish, such as barracuda, grouper, red snapper, amberjack, surgeonfish, and sea bass. Cases are likely underreported to health authorities and physicians can have a difficult time properly diagnosing cases even in areas were the disease in commonly reported.

**Methods:**
The New York City Department of Health and Mental Hygiene (NYC DOHMH) detected an unusual increase in the number of reported ciguatera fish poisoning (CFP) cases from August 2010 to July 2011. In less than one year, a total of 29 cases from six outbreaks and one individual case were identified from our surveillance system; more cases than the last ten years combined. In response, DOHMH released an alert to health care providers. DOHMH interviewed cases about symptoms and collected details on the type of fish and where it was purchased. Uneaten portions of the fish were collected for testing when available.

**Results:**
In cooperation with the New York State Department of Agriculture and Markets (NYS DAM) and the United States Food and Drug Administration (FDA), all of the fish purchased were traced back to two distributors in Florida. Four samples of cooked and raw barracuda sent to the NYS DAM laboratory tested positive for ciguatoxins using a commercially available rapid immunoassay. In addition, an additional outbreak involving eleven individuals was reported in response to the DOHMH health alert.

**Conclusions:**
These outbreaks demonstrate the need for trace back evaluations of implicated fish along with updated HACCPs to prevent CFP fish coming to market until a commercially available rapid test can be developed. At the same time, outreach to the medical community and analysis of surveillance data remain fundamental activities for facilitating CFP detection, diagnosis, and treatment. Educating health care providers to recognize the pattern of gastrointestinal, cardiac and/or neurological symptoms among patients who have consumed potentially ciguatoxin containing fish can lead to proper diagnoses. Regular communication with health care providers on CFP incidence may increase reporting.

---

**Presenting Author(s):**

**John Hustedt`**
PHPS, Centers for Disease Control and
Prevention, New York, NY
irn5@cdc.gov

**Contributing Authors**

Nathan Graber, MD, MPH, Faina Stavinsky, MS, Nancy Clark, MA, New York City Department of Health and Mental Hygiene. Jessica Button, MS, University of Medicine & Dentistry of New Jersey. Scott Martin, MD, Stony Brook University School of Medicine.

**Abstract ID:** 1326812 **Presentation Type:** Breakout Presentation
**Title:** Building geographic information system (GIS) capacity in Maine for surveillance of chronic diseases
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Using Geographic Information Systems (GIS) for CD/MCH/OrH Epidemiology
**Keywords:** Geographic Information Systems|Chronic diseases|Epidemiology capacity

**Background:**
Geographic disparities in chronic diseases in Maine exist, but Maine's Division of Population Health (DPH) has had limited chronic-disease-related geographic information system (GIS) mapping capacity to use data to illustrate, investigate, and communicate these disparities. In 2011, Maine's DPH was selected for the CDC-funded GIS Training for Surveillance of Heart Disease, Stroke and Other Chronic Diseases.

**Methods:**
The Maine DPH formed a four-person Training Team, to attend the training program's three in-person trainings and carry out the mapping projects, and a larger GIS Advisory Team. Maine's Training Team comprised one epidemiologist and three programmatic staff. The Training Team's mapping projects focused on 1) using local data to document the burden of chronic diseases, trends, and disparities; 2) building maps around Maine's Master Blood Pressure Trainer program and Diabetes Self-Management Education programs showing current coverage and local need using surveillance data; and 3) using state and local data to build maps on tobacco use and policy in Maine.

**Results:**
Maine's Training Team is using their GIS skills to produce maps that document geographic disparities in chronic diseases; inform policy and program decision making; and turn data into information for chronic disease program action. The Team's maps show substantial geographic disparities in chronic diseases, with areas in northern and eastern Maine having higher death and hospitalization rates than the southernmost areas. They also show that the programs and local policies the team mapped seem to have less reach in northern and eastern Maine. The Team formalized mapping standards and templates, so all maps created have a similar look and adhere to the same data standards. The Team's use of GIS has contributed to DPH's integration process, providing a new way to show connections between program areas and facilitating collaboration among programs. Involvement of the programmatic staff in the Training Team has been critical in ensuring map projects are relevant program use and in building their understanding of surveillance data. A DPH GIS Team and a health department-wide GIS User's Group have been established to sustain and build the capacity, now the training program has ended.

**Conclusions:**
Participation in the training program has greatly expanded Maine's capacity to use GIS methods to turn data into information for chronic disease program efforts. Developing GIS capacity among both chronic disease epidemiology and programmatic staff was critical to integrating GIS mapping into Maine's chronic disease program efforts.

---

**Presenting Author(s):**

**Sara Huston**
Maine Cardiovascular Health Program,
Maine Center For Disease Control and
Prevention, August, ME
Sara.Huston@maine.gov

**Contributing Authors**

David Pied: Cardiovascular Health Program, Maine Center for Disease Control and Prevention; Holly Richards: Cardiovascular Health Program, Maine Center for Disease Control and Prevention; Nathan Morse: Diabetes Prevention and Control Program, Maine Cent

**Abstract ID:** 1367246 **Presentation Type:** Roundtable Presentation
**Title:** Chronic Disease / MCH / Oral Health Steering Commitee Update
**Committee:**
**Topic:**
**Keywords:**

**Background:**

**Methods:**

---

**Presenting Author(s):**

**Sara Huston**
Maine Center for Disease Control and Prevention, Augusta, ME;
Sara.Huston@maine.gov

**Abstract ID:** 1380470 **Presentation Type:** Roundtable Presentation
**Title:** Chronic Disease / MCH / Oral Health Subcommittee Chairs and Liaisons Meeting
**Committee:**
**Topic:**
**Keywords:**

**Background:**

**Methods:**

---

**Presenting Author(s):**

**Sara Huston**
Maine Center for Disease Control and Prevention, Augusta, ME;
Sara.Huston@maine.gov

**Abstract ID:** 1315609 **Presentation Type:** Breakout Presentation
**Title:** Visual impairment among adults aged ?40 years — New Mexico, 2008
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Epidemiology of chronic conditions
**Keywords:** Epidemiology|American Indians|Minority Health

**Background:**
During 2000, approximately 3.4 million U.S. residents aged ?40 years were blind or visually impaired; this number is predicted to double by 2030. Early detection and timely treatment of many ocular diseases can reduce visual impairment (VI). VI prevalence and covariates were assessed to guide prevention strategies.

**Methods:**
We analyzed 2008 Behavioral Risk Factor Surveillance System data for 4743 New Mexico adults aged ?40 years. VI was defined as any difficulty with near or far vision, while wearing glasses or contact lenses for those using them. Adjusted odds ratios (aORs) from complex-survey logistic regression and weighted percentages were calculated.

**Results:**
VI prevalence was 44.9% (95% confidence interval [CI]: 43.1–46.8) and was significantly more prevalent among Hispanics (52.3%; 95% CI: 48.9%–55.7%) and American Indians/Alaska Natives (AI/ANs) (51.6%; 95% CI: 43.2%–59.9%) than non-Hispanic whites (40.5%; 95% CI: 38.3%–42.9%). VI was significantly associated with ages 40–64 years (aOR: 1.28; 95% CI: 1.04–1.57), unemployment (aOR: 2.01; 95% CI: 1.24–3.28), no college education (aOR: 1.37; 95% CI: 1.13–1.66), annual household income ?$49,999 (aOR: 1.34; 95% CI: 1.10–1.63), “fair” or “poor” health (aOR: 1.58; 95% CI: 1.28–1.95), stroke history (aOR: 1.55; 95% CI: 1.05–2.29), inability to visit doctor because of cost (aOR: 1.61; 95% CI: 1.23–2.11), and no eye-care visit in ?2 years (aOR: 1.42; 95% CI: 1.16–1.74).

**Conclusions:**
VI prevalence was highest among Hispanics and AI/ANs and was associated with middle age, stroke history, limited care access, and lower education and income. To reduce VI, disparities should be addressed through a vision health initiative that increases access to eye care services among groups at high risk.

---

**Presenting Author(s):**

**Mam Ibraheem**
EFAB/DAS/SEPDPO/OSELS, Centers for Disease Control and Prevention, Santa Fe, NM
mam.ibraheem@state.nm.us

**Contributing Authors**

(1) Michael Landen, MD, MPH, Deputy State Epidemiologist, New Mexico Department of Health (2) Wayne Honey, MPH, Survey Epidemiologist, New Mexico Department of Health

**Abstract ID:** 1326798 **Presentation Type:** Poster Presentation
**Title:** Impact of participation in a statewide acute stroke registry on patient survival
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Evaluating CD/MCH/OrH programs
**Keywords:** Strokes|Program evaluation|Data sharing

**Background:**
The Georgia Coverdell Acute Stroke Registry (GCASR) aims to improve the clinical care of acute stroke patients in the hospital setting. This study evaluates the impact of participation in a statewide registry program on patient survival by linking hospital discharge and death data.

**Methods:**
Georgia hospital discharge and death data from 2006 to 2007 were linked using Fine-Grained Record Integration and Linkage software. A multi-stage, probabilistic matching algorithm was used based on the hospital discharge unique identifier, event date, facility, residence county, residence zip code, age, and race. The study population was patients admitted to non-federal acute and critical care facilities in Georgia during 2006 with principal diagnosis of acute ischemic stroke (ICD-9 codes 433-434). Demographics such as age, sex, race, and insurance status, and hospital characteristics including bed size and urbanicity were included in the analyses. Length of hospital stay and co-morbidities were included to adjust for disease severity. All predictor variables were documented at the patient's first stroke admission. The outcome variable was patients' discharge status at or prior to 2008 as stated in the hospital discharge records from the patient's first or subsequent hospital admission and from death records. Outcome was attributed to the facility of first stroke admission. Patients were coded as having a first stroke admission if they were not admitted for stroke in 2005, the year immediately prior to the study period. Patients were also coded as having received treatment at either a GCASR or non-GCASR facility. We ran the extended cox model, controlling for correlated data, to estimate the marginal effects of the predictor variables.

**Results:**
Whites accounted for 67% of the study population, the median age was 69 years, and 39% of patients were treated in GCASR facilities. Of 12,618 admitted patients, 2,777 (22%) died before 2008. Patients' mortality rate one month after first admission was 9%; this increased to 19% by the end of the first year. The extended Cox model indicated that patients treated at non-GCASR facilities had a hazard ratio of 1.12 (95% CI: 0.99, 1.27, p-value = 0.0648) after the first week of admission.

**Conclusions:**
Linked hospital discharge and death data is a useful tool for assessing the impact of clinical interventions. Patients treated at non-GCASR hospitals had a 12% higher adjusted risk of mortality one week after their first stroke admission compared to those treated at GCASR facilities.

---

**Presenting Author(s):**

**Moges Ido**
Georgia Department of Public Health,
Atlanta, GA
msido@dhr.state.ga.us

**Contributing Authors**

Lydia Clarkson, MPH, Georgia Department of Public Health

**Abstract ID:** 1332710 **Presentation Type:** Poster Presentation
**Title:** Health disparities in diabetes self-management and preventive care in Puerto Rico, 2010
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Examining social determinants of health and health disparities in CD/MCH/OrH
**Keywords:** Diabetes|Health disparities

**Background:**
Diabetes is a chronic disease that disproportionally affects Hispanics. In 2010, the prevalence of diabetes in Puerto Rico (PR) was higher than the nationwide prevalence (12.8% vs 8.7%). The objective of the study was to assess health disparities in diabetes self-management and preventive care in Puerto Rico.

**Methods:**
The Behavioral Risk Factor Surveillance System (BRFSS) collects information on diabetes education, preventive care, and self-management. Data gathered from the 2010 PR BRFSS were analyzed to construct a self-management and preventive care profile of adults with diabetes in PR. Data were weighted to obtain estimates representative of the total PR adult population. Health disparities were defined as differences in diabetes self-management and preventive care that occur by gender, age, education, and annual household income. Self-management compliance included daily self-monitoring of blood glucose, daily feet checks, and having ever taken class in diabetes self-management. Preventive care assessed whether adults with diabetes had at least one eye exam with pupils dilated, one feet exam conducted by a health professional, at least two HbA1c tests, and flu immunization in the past 12 months. Bivariate analyses using the Pearson Chi-square test were conducted to determine statistical differences of diabetes self-management and preventive care practices by selected health disparities.

**Results:**
Most subjects with diabetes were age ? 45 years (84.9%), female (55.7%), had health insurance (97.5%), and had an annual household income less than $15,000 (57.4%), while 36.2% did not graduate from high school. Only 10.9% of adults with diabetes were compliant with all recommended self-management practices, while only 6.1% were compliant with all preventive care practices. However, the majority of PR adults with diabetes were compliant with at least one of the self-management or preventive care practices (85.7% and 90.9% respectively). Males, individuals aged 64 years or less, those who did not graduate from high school, and those who had an annual household income less than $15,000 were less likely to comply with all or some of the recommended self-management and preventive care practices ($p < 0.001$).

**Conclusions:**
The study validated the occurrence of health disparities in diabetes self-management and preventive care practices in PR adult population. Results demonstrated that the majority of adults with diabetes in Puerto Rico were not following the American Diabetes Association recommendations for diabetes self-management and preventive care. Further research should be conducted to evaluate contributors for compliance in self-management and preventive care practices among PR's sub-populations of adults with diabetes.

---

**Presenting Author(s):**

**Jessica Irizarry**
Diabetes Prevention and Control Program, Puerto Rico Department of Health, Quebradillas,
jesirizarry@salud.gov.pr

**Contributing Authors**

Alexander Pao, MPH, Emory University Leonardo Pérez-Rivera, MPHE, PR Diabetes Prevention and Control Program Cinthia Santiago-Díaz, BS, PR Diabetes Prevention and Control Program Ruby A. Serrano-Rodríguez, MS, DrPH, PR Behavioral Risk Factor Surveillance

**Abstract ID:** 1326740 **Presentation Type:** Roundtable Presentation
**Title:** Meaningful Use: Inpatient and ambulatory clinical care electronic health record data for public health syndromic surveillance
**Committee:** Surveillance/Informatics
**Topic:** Syndromic Surveillance and Situational awareness (incl. BioSense)
**Keywords:** Informatics|Data/Surveillance|Electronic data

**Brief Summary:**
PHSS is commonly conducted by public health agencies. Over the years, the practice of PHSS has evolved to encompass monitoring, assessing and/or identifying a wide range of population health trends in infectious disease, chronic disease conditions, and injuries, using data from multiple clinical settings. PHSS leverages information technology to systematically collect and analyze electronic health-related data from clinical care providers in near 'real-time', often on a daily or weekly basis. Rapidly expanding health information technology will increase the availability of EHRs to support public health surveillance activities. As eligible professionals and hospitals adopt, implement, and upgrade their EHR systems to meet MU objectives, public health agencies will be able to receive electronic data from new healthcare partners to expand PHSS practice and possibly identify innovative approaches to filling current gaps in local, regional, state, and national surveillance mechanisms. Public health and other stakeholders can play an important role in shaping the future of PHSS practice through MU policy. The International Society for Disease Surveillance (ISDS), in partnership with the Centers for Disease Control and Prevention (CDC), has convened a multi-stakeholder expert workgroup to develop guidelines for PHSS using MU-certified hospital inpatient and ambulatory EHR data. Using a consensus-driven process, the ISDS workgroup is expanding the previous ISDS and CDC MU recommendation for emergency department and urgent care data. The guideline development process includes (1) identifying public health uses and the data elements and processes necessary to support them, (2) drafting PHSS guidelines and assessing the health information technology landscape, (3) finalizing ISDS workgroup recommendations, and (4) working with CDC on a technical implementation guide for the vendor, healthcare, and public health communities. Throughout, stakeholder input will be solicited and integrated into the ISDS workgroup efforts. Final recommendations will be completed and submitted in September 2012 to the Office of the National Coordinator for Health Information Technology (ONC) for vetting as the standard for the syndromic surveillance objective for eligible professionals for MU Stage 3.

**Key Objectives:**
Describe objectives and business processes for public health syndromic surveillance (PHSS) using inpatient and ambulatory care electronic health record (EHR) data. Present the provisional work of the International Society for Disease Surveillance (ISDS) Meaningful Use (MU) Workgroup. Obtain feedback from epidemiologists regarding the development of guidelines to inform the implementation of MU requirements for PHSS.

---

**Presenting Author(s):**

**Charles Ishikawa**
International Society for Disease Surveillance, Brighton, MA
cishikawa@syndromic.org

**Geraldine Johnson**
New York State Department of Health, Albany, NY
gsb03@health.state.ny.us

**Contributing Authors**

Maiko Minami - HLN consulting, LLC Taha Kass-Hout, MD, MS - Centers for Disease Control and Prevention David Buckeridge, MD, PhD - McGill University, International Society for Disease Surveillance Laura Streichert, PhD, MPH - International Society for Disease Surveillance

**Abstract ID:** 1327343 **Presentation Type:** Breakout Presentation
**Title:** Issues in Identifying Work-Related Injuries in Emergency Department Medical Records
**Committee:** Occupational Health Sub-Committee
**Topic:** Underreporting: occupational injuries, illnesses, and data limitations
**Keywords:** Occupational injury and death|Injury surveillance|Hospital data

**Background:**
The National Institute for Occupational Safety and Health (NIOSH) conducts surveillance of nonfatal injuries and illnesses treated in hospital emergency departments (EDs) using the National Electronic Injury Surveillance System—occupational supplement (NEISS-Work). NEISS-Work relies on information available in ED records (not just expected payer) to identify work-related cases.

**Methods:**
NEISS-Work uses a national probability-based sample of hospital EDs stratified by hospital size. Work-related cases are identified by records abstractors in each hospital within a few days of treatment. NIOSH audited 20 randomly selected NEISS-Work EDs stratified by hospital size from small to very large. At each ED, we reviewed all ED visits for a specified time period sufficient to have >1,000 visits; typically 4 or more consecutive treatment days up to several months depending on hospital size. One audit goal was to identify missed or incorrectly reported NEISS-Work cases. A second goal, the subject of this presentation, was to better understand the work-related case identification issues prevalent in ED medical records.

**Results:**
The medical records reviewed varied from paper-based, electronic-based with scanned paper records, to full-electronic-based systems. It was common for hospitals to have 2-3 electronic sub-systems. Occupation, when captured, typically included entries such as “student,” “retired,” and “self-employed.” No fields directly captured the patient’s “industry.” Most hospitals captured employer name. Identification of expected payer varied greatly. Insurance information was often obtuse and difficult to interpret without state-specific insurance knowledge. When no insurance was listed, employer information was often missing. Indicators of work-relatedness were found in chart locations such as admissions, triage, treating nurse, and/or physician notes. Where in the chart and by whom a work-relationship was noted varied within and across hospitals. Brief notes with few injury details were ubiquitous. Many injuries were identified from narrative details that simply stated that the injury occurred “at work.” Standardized complaint-driven forms occasionally included a prompt for the injury locale (including work), but only for non-traffic-related injuries. Even when checkboxes were available, locale was often not completed. Electronic systems that asked “Was this work-related?” did not enforce a response or appeared to default to “no.”

**Conclusions:**
Our ED audits identified numerous issues in capturing work-related injuries/illnesses from hospital record systems. However, without systematic and required collection of occupational information and injury locale, improved injury narratives, and efficient medical documentation systems, it seems unlikely that work-related indicators in ED medical records will significantly improve or more readily identify injuries among workers.

---

**Presenting Author(s):**

**Larry Jackson**
National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention, Morgantown, WV
LLJackson@cdc.gov

**Contributing Authors**

Susan J. Derk, MA, NIOSH Suzanne M. Marsh, MPA, NIOSH Audrey A. Reichard, MPH, OTR, NIOSH

**Abstract ID:** 1332841 **Presentation Type:** Breakout Presentation
**Title:** Factors associated with HIV viral load suppression among HIV-positive adults in care in Washington State in 2009
**Committee:** Infectious Diseases Sub-Committee
**Topic:** HIV
**Keywords:** HIV/AIDS|Mental health |Substance abuse

**Background:**
It is important to understand the factors associated with HIV viral load suppression because effective HIV virus suppression improves the health of individuals living with HIV and reduces the risk they will transmit the virus to others. The Centers for Disease Control and Prevention's Medical Monitoring Project (MMP) is a surveillance project designed to learn about the experiences and needs of HIV-infected adults who are receiving care for HIV. It uses a three-stage method to develop a representative sample of individuals who receive medical care in the United States. Washington State is one of 23 sites nationwide that participates in MMP. The project includes two main components: 1) a patient interview that inquires about patients' access to care and prevention services, use of HIV antiretrovirals (ARV) and health- and risk-related behavioral information; and 2) a medical record abstraction (MRA) that documents the health care providers' interactions with the patients.

**Methods:**
During the 2009 MMP data collection cycle, Washington's sample size was 400 patients. Among these, staff conducted 180 standard length interviews, 3 short interviews and 252 MRAs. Various characteristics for determining associations with HIV viral load suppression were obtained from the MRAs and patient interviews and calculated using the Chi Square statistic with SAS. HIV viral load comparison categories include Suppressed (<= 200 copies per milliliter) or Not Suppressed (>200 copies/ml) and represent the most recent viral load test in the year prior to the interview.

**Results:**
Among the 252 MRAs, 212 (84%) included a HIV viral load test during the year prior to the patient interview or the first attempt to contact the patient. Of the 212 individuals with recent viral load tests, 156 (74%) also included an interview. HIV viral load suppression is significantly and most strongly associated with being on ARVs. It is also significantly associated with alcohol and other substance abuse and with high gaps in supportive services. It is moderately associated with mental illness and low income status. It is not significantly associated with the demographic characteristics of gender, race/ethnicity, age or education.

**Conclusions:**
Being on antiretroviral therapy is the strongest indicator of suppressed HIV viral load. When attempting to get and keep people in care, health care providers and public health practitioners should place special emphasis on individuals with histories of mental illness or substance abuse and on those who have three or more gaps in supportive services, as these are the groups who are most at risk of not having suppressed viral loads.

---

**Presenting Author(s):**

**Tom Jaenicke**
Washington State Department of
Health, Olympia, WA
tom.jaenicke@doh.wa.gov

**Abstract ID:** 1310889 **Presentation Type:** Poster Presentation
**Title:** Childhood elevated blood lead level surveillance at Tri-County Health Department — Colorado, 2008–2010
**Committee:** Surveillance/Informatics
**Topic:** Other surveillance/informatics
**Keywords:** Lead|Surveillance|Environmental Health hazards

**Background:**
Elevated blood lead levels (EBLLs) are notifiable, affecting >250,000 children nationwide, annually. Colorado statute requires reporting all blood lead level test results to the Colorado Department of Public Health and Environment (CDPHE) for children aged <18 years; EBLL reports from laboratories and clinicians are disseminated to local health departments that maintain surveillance databases. Tri-County Health Department (TCHD) evaluated EBLL surveillance in their jurisdiction.

**Methods:**
Confirmed EBLL among children aged <16 years is defined by the Council of State and Territorial Epidemiologists as 1 venous blood or 2 capillary specimens ?12 weeks after collection, each with lead concentration ?10 µg/dl. Our evaluation assessed information flow, data management, and system attributes by comparing CDPHE data during 2008–2010 with TCHD 2005–2011 database for completeness, predictive value positive, timeliness, and representativeness.

**Results:**
CDPHE data during 2008–2010 for TCHD jurisdiction included >10,000 test results. TCHD data during 2005–2011 included 107 EBLL reports; of these, 11 (10%) of 107 records were missing age; 40 (37%) of 107 were missing specimen type, and only 32 (30%) met EBLL case definition. CDPHE reporting to TCHD was a median of 19 (range: 0–281) days. Discrepancies were identified among CDPHE and TCHD databases during 2008–2010; mismatched cases per year ranged from 1 (11%) of 9 to 6 (37%) of 16.

**Conclusions:**
TCHD's lead surveillance system provides information regarding an important public health concern; however, the system has an incomplete case ascertainment, likely contributing to the low positive predictive value and a lack of flexibility and stability. Simplifying and standardizing the system between CDPHE and TCHD can improve system attributes and provide better direction for community-based interventions.

---

**Presenting Author(s):**

**Neena Jain**
Epidemic Intelligence Service Field Assignments Branch, Scientific Education and Professional Development Program Office and Tri-County Health Department, Centers for Disease Control and Prevention, Greenwood Village, CO
vik9@cdc.gov

**Contributing Authors**

Tista S. Ghosh, MD MPH, Medical Epidemiologist, Tri-County Health Dept Barb Stone, MSPH, Program Coordinator, Colorado Environmental Public Health Tracking, Colorado Department of Public Health and Environment Richard L. Vogt, MD, Executive Director, T

**Abstract ID:** 1331961 **Presentation Type:** Roundtable Presentation
**Title:** Improving viral hepatitis surveillance: What are the essential data elements for collection?
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Viral hepatitis
**Keywords:** Viral hepatitis|Surveillance|Infectious Diseases

**Brief Summary:**
CDC's Division of Viral Hepatitis (DVH) has initiated activities to improve viral hepatitis surveillance, as outlined in the HHS Action Plan for the Prevention, Care & Treatment of Viral Hepatitis. The success of the plan and the ability to provide reliable and valid viral hepatitis data for public health decision-making and action is dependent on collaborations between local, state, and national public health partners. Members of the DVH will present the process for initiating changes to a draft viral hepatitis case report form. DVH staff also will provide updates about other surveillance-related activities that were developed over the past year, including, the pilot evaluation of 9 state viral hepatitis surveillance programs; updates on the Funding Opportunity Announcement to support viral hepatitis surveillance; collaborative work with the Office of Surveillance, Epidemiology, and Laboratory Services; and status of plans to update procedures currently used to estimate new viral hepatitis infections and the number of persons living with chronic hepatitis B and C . State and local epidemiologists who attend this round table will be encouraged to: provide feedback on the process and changes to the draft viral hepatitis case report form; volunteer to work with DVH on this project; and share their experiences, including best practices for conducting follow-up, ensuring completeness of laboratory reports, and removing duplicate cases from the data set. Finally, partners will be asked for feedback about activities presented by DVH/ST during this session. Information shared by state and local viral hepatitis surveillance programs will be used to guide current and future activities of DVH's Surveillance Team.

**Key Objectives:**
To inform state and local epidemiologists about plans to update and seek OMB clearance for the draft viral hepatitis case report form. To receive feedback from state and local epidemiologists on plans to update the viral hepatitis case report form and other activities within DVH/ST. To receive updates from state and local epidemiologists related to viral hepatitis surveillance at the state and local levels. To solicit volunteers to work with DVH in updating the draft viral hepatitis case report form.

---

**Presenting Author(s):**

**Ruth Jiles**
Centers for Disease Control and Prevention, Atlanta, GA
rxg0@cdc.gov

**Elizabeth Hughes**
Centers for Disease Control and Prevention, Atlanta, GA
chy2@cdc.gov

**Contributing Authors**

Elizabeth Hughes, DrPh - Centers for Disease Control and Prevention Henry Roberts, PhD - Centers for Disease Control and Prevention Scott Holmberg, MD, MPH - Centers for Disease Control and Prevention

**Abstract ID:** 1380472 **Presentation Type:** Roundtable Presentation
**Title:** The impact of rapid testing on hepatitis C virus diagnosis and surveillance
**Committee:**
**Topic:**
**Keywords:**

**Background:**

**Methods:**

---

**Presenting Author(s):**

**Ruth Jiles**
Centers for Disease Control and Prevention, Atlanta, GA;
rxg0@cdc.gov

**Alfred DeMaria**
Massachusetts Department of Public Health, Jamaica Plain, MA;
alfred.demaria@state.ma.us

**Abstract ID:** 1317867 **Presentation Type:** Breakout Presentation
**Title:** Risk factors for marijuana use among Mississippi adolescents
**Committee:** Injury Control and Prevention Sub-Committee
**Topic:** Substance abuse and injury outcomes
**Keywords:** Substance abuse |Adolescent health|Behavioral health

**Background:**
Adolescent marijuana use is a major public health problem. The consequences associated with use include high risk behavior, criminal activity, unintentional injuries and at times death , all of which cause a great burden to society. In order to better understand the factors leading to marijuana use amongst adolescents this study examined the relationship between marijuana use and selected risk factors and the effect of having multiple risk factors on use, using data from the Mississippi SmartTrack Survey. Thirteen risk factors were identified that assessed various important social and personal aspects of life.

**Methods:**
Data was analyzed for 124, 759 grade 6-11 students participating in the 2010 Mississippi SmartTrack survey. The Mississippi SmartTrack Survey is an annual computer-based health behavior survey that is offered and administered to all public school students across the state. A factor analysis was conducted to identify possible risk factors for marijuana use. Multivariate logistic regression analyses were carried out on marijuana use to determine possible predictors. Stepwise logistic regression analyses were conducted to generate model predictors of marijuana use. All analyses were carried out using SAS version 9.2 at the 0.05 alpha levels.

**Results:**
Overall 9.1% students reported using marijuana in the past 30 days. Males (10.8%) were more likely to report use than females (7.6%). African Americans (9.6%) had a higher prevalence of use than other racial groups. Factors such as peer drug use, school environment, exposure to school bullying, attitude toward school, academic performance, relationship with parents, parental discipline/monitoring, parental disapproval of drug use, perception of risk of harm from using the drug marijuana, perceived availability, and normative/ delinquent behavior were significantly associated with marijuana use among adolescents. The multivariate model was statistically significant (Wald statistic 10816.7, $p<0.0001$) at the 0.05 alpha level. The number of risk factors reported also significantly predicted use after controlling for grade level, gender and race. The odds of marijuana use was a thousand times higher for an adolescent with 10 or more risk factors (OR >999.99; CI 549.8, >999.99) compared with adolescents with no risk factors. The average number of risk factors reported was 3.5. With males (3.6) reporting on average more risk factors than females (3.4).

**Conclusions:**
Consistent with previous literature, findings support a multiple pathway model of drug use were several different factors may lead to substance use and the number of risk fators significantly increase risk. Results suggest taking a multilevel approach to addressing marijuana use among adolescents.

---

**Presenting Author(s):**

**Tabeth Jiri**
Epidemiology and Biostatistics,
Jackson State University, Jackson, MS
tabeth.jiri@dmh.state.ms.us

**Contributing Authors**

Jung Hye Sung, Sc.D.,Department of Biostatistics and Epidemiology, College of Public Services, 350 W. Woodrow Wilson Drive Jackson Medical Mall, Suite 301. Jackson, MS 39213-7681 Jae Eun Lee Dr.PH, RCMI Translational Research Network Data and Coordinatin

**Abstract ID:** 1327573 **Presentation Type:** Breakout Presentation
**Title:** Mortality during the 2006 California heat wave: Demographic and geographic patterns
**Committee:** Environmental Health Sub-Committee
**Topic:** Climate change epidemiology and public health
**Keywords:** Climate change|Epidemiology|Health disparities

**Background:**
With climate change, heat waves (HWs) are predicted to increase in intensity and duration. Mortality rises during HWs, and may vary demographically, geographically, and by built environmental characteristics. These and other factors may influence regional variations of HW mortality risks. In July 2006 California experienced an unprecedented statewide HW lasting 10 days in much of the state and longer in some areas. Analysis of mortality data from this event may identify populations with disproportionate risk. To investigate characteristics that may impact risk, we analyzed mortality data during the HW by cause of death, demographic characteristics, and building climate zones, which were established by the California Energy Commission based on elevation, coastal proximity, temperature, and building construction characteristics.

**Methods:**
We geocoded decedents' residential addresses and assigned each death to a climate zone. We then calculated rate ratios (RRs) and 95% confidence intervals (CIs) of deaths (internal, external, and all-cause) during the HW period, plus several days following to account for possible lagged impacts (July 15 – August 1, 2006), to deaths on non-HW reference days in the same summer. These RRs were calculated statewide and also by gender, five-year age groups, race/ethnicity, and building climate zone.

**Results:**
The all-cause RR was 1.05 (CI=1.03-1.08), demonstrating a 5% excess risk of mortality during the HW. For internal causes (92% of all deaths), the RR was 1.04 (CI=1.02-1.06), while that for external causes was 1.18 (CI=1.10-1.27). All-cause and internal-cause RRs revealed similar demographic patterns. Specifically, RRs were modestly higher for males (all-cause RR=1.07, CI=1.03-1.10) compared to females (all-cause RR=1.04, CI=1.00-1.07). Several age strata within the middle-aged population had higher RRs than all other age groups. Hispanics had the highest RR of all race/ethnicity groups (all-cause RR=1.13, CI=1.07-1.19). Among the climate zones, a wide range of RRs was observed, with higher RRs occurring in major agricultural areas.

**Conclusions:**
The 2006 California HW resulted in elevated mortality risks due to both internal and external causes. Males, middle-aged adults, and Hispanics had higher mortality risks than other demographic groups. People residing in agricultural areas may have also had additional risk. Further investigations of the relationship between health outcomes during extreme heat events and individual, community, and built environment characteristics are warranted. Age-related and race/ethnicity demographic mortality risks during this California HW differed from those observed during HWs nationally and internationally, suggesting that local assessment should inform climate change mitigation and adaptation strategies.

---

**Presenting Author(s):**

**Lauren Joe**
Environmental Health Investigations
Branch, California Department of
Public Health, Richmond, CA
lauren.joe@cdph.ca.gov

**Contributing Authors**

Martha Harnly, MPH, California Department of Public Health Sumi Hoshiko, MPH, California Department of Public Health Svetlana Smorodinsky, MPH, California Department of Public Health Daniel Smith, DrPH, California Department of Public Health

**Abstract ID:** 1326952 **Presentation Type:** Poster Presentation

**Title:** Using an administrative workers' compensation claims database for occupational health surveillance in California: Validation of a case classification scheme for carpal tunnel syndrome *

**Committee:** Occupational Health Sub-Committee

**Topic:** Improving occupational health surveillance

**Keywords:** Occupational Surveillance|Occupational Health|Surveillance

**Background:**
In 2000, the California Department of Industrial Relations implemented the electronic Workers' Compensation Information System (WCIS). WCIS was created for administrative purposes, but can be used for occupational health surveillance. In 2010, the California Department of Public Health Occupational Health Branch received funding from the National Institute for Occupational Safety and Health to utilize WCIS for surveillance of carpal tunnel syndrome (CTS). CTS is one of several work-related upper extremity musculoskeletal disorders that result from biomechanical stress or trauma. Because CTS often has a long latency period before diagnosis, case ascertainment from an administrative dataset is challenging. To better classify the CTS cases extracted from WCIS, we reviewed a sample of cases that occurred in 2007-2008, developed a case classification (CC) scheme, reviewed medical records to validate the scheme, and calculated positive predictive value (PVP) and negative predictive value (NPV).

**Methods:**
CTS cases from 2007-2008 were extracted from the WCIS database using an algorithm combining text searches, ICD-9 codes, and nature of injury codes. After manually reviewing a sample of cases, we developed a CC scheme that categorized cases into three levels: probable, possible, and uncertain. Medical records for a sample of cases were independently reviewed by two physicians to validate the scheme. Probable and possible categories were aggregated to calculate medical record review agreement rates, PPV, and NPV.

**Results:**
41,292 CTS claims (29% probable, 42% possible and 23% uncertain) were extracted from WCIS. We received and reviewed 60 medical records (43% probable, 33% possible and 23% uncertain). 83% of them had a WCIS CC that matched the CC determined by both medical record reviewers, and 18% did not. Of the non-matches, 64% were false negatives and 36% false positives, resulting in a PPV of 0.91 and a NPV of 0.50.

**Conclusions:**
Results suggest that our WCIS CC scheme underestimates the number of probable/possible cases. 50% of cases with an uncertain CC were found to be probable/possible after medical record review. This discrepancy can be attributed to poor coding of the WCIS claim, as well as the subsequent development of CTS following traumatic injury to the upper extremity. Our analyses demonstrate some of the challenges of using a static, administrative dataset for public health surveillance of a chronic medical condition with a long latency period. Despite these challenges, however, workers' compensation data adds a great deal to the enumeration of CTS in California.

---

**Presenting Author(s):**

**Lauren Joe**
Occupational Health Branch,
California Department of Public
Health, Richmond, CA
lauren.joe@cdph.ca.gov

**Contributing Authors**

Stella Beckman, MPH, California Department of Public Health Rachel Roisman, MD, MPH, California Department of Public Health Matt Frederick, California Department of Public Health John Beckman, BS, California Department of Public Health David Rempel, MD, M

**Abstract ID:** 1323921 **Presentation Type:** Poster Presentation
**Title:** Representativeness of tuberculosis genotyping surveillance in the United States, 2009 – 2010
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Laboratory test methods & their impact on surveillance
**Keywords:** Surveillance|Respiratory diseases: Non-influenza|Epidemiology


**Background:**
Tuberculosis (TB) genotyping surveillance data contribute to ongoing TB control activities through detection of TB case clusters with indistinguishable genotypes that might represent outbreaks. Genotyping methods require a positive Mycobacterium tuberculosis culture. However, approximately 20% of U.S. cases do not have a positive culture and cannot be genotyped, and almost 10% of culture-positive cases are not genotyped. To date, no study has evaluated the representativeness of U.S. TB genotyping surveillance data.

**Methods:**
Demographic and clinical data for all U.S. TB cases reported during January 1, 2009–December 31, 2010 were obtained from the National Tuberculosis Surveillance System; genotyped cases were linked through surveillance records to a national genotyping database. Representativeness was assessed by comparing demographic and clinical characteristics of genotyped cases to those that were not. Measures of association were obtained through chi-square analyses and risk ratios (RR) with 99% confidence intervals (CI).

**Results:**
Of 22,719 cases reported in the study period, 14,990 (66.0%) had a linked genotype record. Among 17,303 cases with a positive culture, 14,906 (86.2%) had a linked genotype record. Among all reported TB cases, demographic and clinical characteristics associated with having a genotype record included male sex (RR=1.07, 99% CI: 1.02–1.12), homelessness (RR=1.23, 99% CI: 1.09–1.39), excessive alcohol use (RR=1.37, 99% CI: 1.25–1.49), and non-injecting drug use (RR=1.19, 99% CI: 1.08–1.33). Compared to the 20–44 year-old age group, children < 5 years old had a lower probability of having a genotype record (RR=0.30, 99% CI: 0.26–0.34) whereas being 65 and older was associated with having a genotype record (RR=1.06, 99% CI: 1.04–1.09). After restricting analysis to culture-positive cases, age greater than 65 years (RR=0.96, 99% CI: 0.94–0.98) was associated with a lower probability of having a genotype record. In both analyses foreign-born cases were more likely to have a genotype record than U.S.-born cases (RR=1.10, 99% CI: 1.07–1.12 and RR=1.04, 99% CI: 1.02–1.05, respectively).

**Conclusions:**
Genotyped TB cases in the United States differ from the overall population of reported ones. Although differences may result from certain population groups more frequently diagnosed with culture-negative TB, differences are important to interpret genotyping data in routine TB control activities. Outbreak detection methods that rely solely on genotyping surveillance data may underestimate tuberculosis transmission among groups that are underrepresented by genotyping data, such as U.S.-born persons and children.


---


**Presenting Author(s):**

**Emma Johns**
CDC Experience Fellowship in Applied Epidemiology, Centers for Disease Control and Prevention, Atlanta, GA
vqy5@cdc.gov

**Contributing Authors**

Anne Marie France PhD MPH (CDC), Lauren Cowan PhD (CDC), Angela Starks PhD (CDC), Juliana Grant MD MPH (CDC)

**Abstract ID:** 1333133 **Presentation Type:** Breakout Presentation
**Title:** Alcohol use and binge drinking among Hispanic/Latino subcultural youth, and differences in the affect of acculturation
**Committee:** Cross Cutting Sub-Committee
**Topic:** Substance abuse epidemiology: Burden of alcohol and opiate use, Polices related to substance abuse
**Keywords:** Alcohol Use|Health disparities|Adolescent health

**Background:**
Public health disparities among minority populations are well documented. Florida African American (AA) youth report lower levels of alcohol use than both Hispanic/Latino (HL) and White (W) youth, whereas HL youth use at a slightly lower rate than W youth. Few studies have examined the difference in youth alcohol use among HL subcultures. Florida represents a unique opportunity to examine this difference. Florida has a more diverse HL population than any other state; and the Florida Youth Substance Abuse Survey (FYSAS) has been administered annually since 2000 to public middle and high school youth. This study examined the heterogeneity of youth alcohol use among the Florida HL population, and differences in the affect of acculturation on alcohol use.

**Methods:**
In odd-numbered years the FYSAS is administered to a state-level sample. In even-numbered years it is administered to a larger sample representative at the county level, and weighted to be representative at the state level. We examined even-numbered year data only, with Ns ranging from 57,000 to 92,000 youth. Due to changes made to the survey, 2000 data was not used. We first examined HL subculture participation and alcohol use data for even years from 2002 - 2010, then combined this data and weighted it to adjust for sample size differences. Subculture differences in past-30-day alcohol use, binge drinking, and the affect of acculturation on alcohol use - using language spoken at home as a proxy measure - were analyzed.

**Results:**
The percent of participants reporting HL ethnicity increased from 19.4 to 23.6%, mirroring the change in Florida's estimated youth population from 2002 to 2010. The ranking of prevalence rates for alcohol use did not vary significantly over years among the subcultures. The combined dataset represented 72,455 HL youth. The prevalence of past-30-day use ranged from 26.4% to 34.7%. The prevalence of binge drinking ranged from 13.2% to 17.7%. Cubans, Mexicans and Puerto Ricans in English speaking households were more likely to report past-30-day drinking than those from Spanish speaking households, while Central Americans were less likely. Binge drinking was higher among Mexicans that spoke English at home.

**Conclusions:**
This is the largest sample we are aware of examining HL subcultural differences in youth alcohol use, and among the largest to examine differences in any public health measure. While the findings are not unequivocal, the present study provides evidence for the importance of considering specific HL subcultures when conducting epidemiological studies or developing public health programs for Hispanic/Latinos.

---

**Presenting Author(s):**

**Hal Johnson**
Substance Abuse and Mental Health
Office, Florida Department of Children
and Families, Tallahassee, FL
hal_johnson@dcf.state.fl.us

**Abstract ID:** 1321868 **Presentation Type:** Poster Presentation
**Title:** Seasonality of asthma emergency department visits among Tennessee children *
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** CD/MCH/OrH surveillance
**Keywords:** Asthma|Surveillance|Children and adolescents

**Background:**
Asthma is characterized by episodic and reversible airflow obstruction and airway hyper responsiveness. It is the third leading cause of hospitalization for children and one of the most common childhood chronic diseases. The cause of asthma is unknown with triggers including exercise, tobacco smoke, air pollution and other allergens. Poor asthma management leads to asthma attacks which can result in emergency department (ED) visits and hospitalizations. Understanding the seasonality pattern of asthma ED visits helps guide the planning process of asthma control and intervention.

**Methods:**
The 2005-2009 Tennessee Hospital Discharge Data System (HDDS) data was used to identify ED records of Tennessee resident children age 5-17 with a primary diagnosis of asthma (ICD9-CM codes 493). A five year monthly average was used to describe the seasonality for this population by socio-demographic characteristics of age group, gender, race, rural/urban residence, and payment method. The Fisher-Kappa (FK) statistic and the Bartlett Kolmogorov Smirnov (BKS) statistic were used to detect periodicities in asthma ED visits from the time period of January 2005- December 2009. Chi square tests were used to assess differences in patient characteristics between fall (September-November) and non-fall (December-August) ED admissions.

**Results:**
Between 2005-2009 there were 43,159 ED visits among children age 5-17 due to asthma. Results show a consistent seasonality pattern of fall peaks and summer troughs regardless of age, gender, race, rural/urban residence or payment method. All FK values were significant and p-values from BKS were <0.001, indicating that all asthma time series exhibited periodicity. When stratified, age 5-8 had the highest rate compared to 9-12 and 13-17, males had higher rates than females, blacks had higher rates than whites, urban residents had higher rates than rural residents and patients on Tenncare (Tennessee Medicaid) had higher rates than patients with private insurance. There was a higher percentage of younger, male, black, and urban children admitted to the ED in the fall compared to non-fall admissions (all p-values <0.001). Between 2005 and 2009, a downward trend in magnitude of the fall peak of asthma ED visits was observed in all demographic subgroups. The most pronounced decrease was seen in black children (34% decrease).

**Conclusions:**
There were seasonal variations of asthma ED visits in Tennessee children from 2005-2009. The highest rates of admissions occurred in the fall months and a greater percentage of children admitted during this time were younger, male, black, and urban residents.

---

**Presenting Author(s):**

**Lindsey Jones**
Office of Policy, Planning &
Assessment , Tennessee Department
of Health, Nashville, TN
lindsey.jones@tn.gov

**Contributing Authors**

Yinmei Li, PhD MD Tennessee Department of Health David Law, PhD Tennessee Department of Health

**Abstract ID:** 1382180 **Presentation Type:** Roundtable Presentation
**Title:** Let's talk training: A coordinated learning agenda for chronic disease epidemiologists and evaluators
**Committee:**
**Topic:**
**Keywords:**

**Background:**

**Methods:**

---

**Presenting Author(s):**

**MaryCatherine Jones**
Utah Department of Health, Salt Lake City, UT;
mcjones@utah.gov

**Abstract ID:** 1327292 **Presentation Type:** Breakout Presentation
**Title:** Developing county-level environmental health measures in Florida
**Committee:** Environmental Health Sub-Committee
**Topic:** Environmental Public Health Tracking
**Keywords:** Environmental Health|Community health assessment|Local Public Health Agencies

**Background:**
Over the last 5 years, the Florida Department of Health has developed a series of county health profile reports focusing on topics such as chronic disease, adolescent and child health, and minority health. These reports contain topic-specific metrics that are widely used at the local level for community health assessments and planning. Similar measures for environmental health topics were previously unavailable, and therefore, environmental health issues were often not considered in community health assessment projects. County health departments and local coalitions need county-specific data to assess the health of their communities, prioritize health issues, and develop and mobilize partnerships to address these issues.

**Methods:**
The Florida Department of Health's Environmental Public Health Tracking (EPHT) Program organized a workgroup to assess stakeholder needs, systematically review established indicators and benchmarks in the field of environmental health, review available data sources and assess the feasibility of gaining access to new data, and explore methods to adapt established national measures to better meet the needs of Florida counties. This presentation will discuss the development of a county health profile report that focuses on environmental health, including indicator creation, testing, and incorporating stakeholder feedback.

**Results:**
National indicators were reviewed to assess the feasibility of adapting them at a county-level. Indicators were developed based on stakeholder feedback. Existing data sources were evaluated to look at availability of data (data for every county and timeliness), and new data were generated using GIS software. Additional indicators that were suggested by stakeholders but could not be supported at this time due to lack of local-level data or difficulty obtaining data, will be considered in future releases of the profile reports. Metadata, which provides important information and documentation about the data sources and limitations, will be provided for every indicator. Communities in Florida will now have access to county-specific data on important environmental health issues in one snapshot report, along with documentation and references for more information.

**Conclusions:**
The goal of this project was to meet an identified need for county-level environmental health measures, which were previously not available. This tool will be used by county health departments, local health councils, city and county governments, and other stakeholders statewide to assess environmental health factors in their communities. The Florida EPHT Program will host these profile reports online and www.floridatracking.com and will update these reports on a regular basis, in collaboration with stakeholders and data stewards.

---

**Presenting Author(s):**

**Melissa Jordan**
Florida Department of Health,
Tallahassee, FL
melissa_jordan@doh.state.fl.us

**Contributing Authors**

Chris DuClos, MS, Florida Department of Health

**Abstract ID:** 1331090 **Presentation Type:** Roundtable Presentation
**Title:** Ongoing contributions of H1N1 investments to public health infrastructure
**Committee:** Cross Cutting Sub-Committee
**Topic:** Epidemiology capacity
**Keywords:** Epidemiology capacity|Influenza / Pandemic influenza|Challenges and Opportunities

**Brief Summary:**
Given contemporary debate about the utility of public health and preparedness resources, it is essential that advocates be able to demonstrate the positive outcomes and externalities associated with funding increases. During the public health response to H1N1 influenza, state health agencies received additional resources and were able to maximize existing resources. ASTHO is conducting ongoing analysis of the long-lasting impact of the investments made during H1N1, including surveys, site visits, and interviews with public health agency staff. The aim of this work is to identify and share the infrastructure benefits that are sustainable and replicable post-pandemic. Reports have been developed and disseminated based on the findings from the various surveys, interviews, and site visits; these materials are available on the internet and have been disseminated to all states with the goal of improving infectious disease infrastructure nationwide. Some of the infrastructure benefits identified through our ongoing analysis include: cross training of staff, program integration, novel collaborations with non-traditional public health partners, and improved health information systems. However more remains to be done to systematically cull findings from state and local health agencies and demonstrate the value of investments in public health. At this roundtable ASTHO will share the findings thus far. Participants will be invited to discuss experiences and lessons learned as well as how these lessons learned contribute to ongoing public health initiatives and infrastructure. Topics for discussion include partnerships and communications developed and strengthened during H1N1, capacity-building and program integration, efficient utilization of diminishing resources, and after-action reports and response planning for future events.

**Key Objectives:**
Experiences and lessons learned from H1N1 regarding the value of investments in public health and infectious disease infrastructure Specific questions for discussion may include: - Have the lessons learned from H1N1 been sustained in operations or planning activities? - Have the areas for improvement identified during H1N1 been addressed? - Are internal and external partnerships developed during H1N1 still in place?

---

**Presenting Author(s):**

**Connie Jorstad**
Association of State and Territorial Health Officials, Arlington, VA
cjorstad@astho.org

**Virginia Lathrop**
Association of State and Territorial Health Officials, Arlington, VA
vlathrop@astho.org

**Abstract ID:** 1393992 **Presentation Type:** Late Breaker: Breakout Presentation
**Title:** Population- Based Surveillance of Reportable Disease in Long Term Care Facilities in Nebraska -2010?2011
**Committee:** Surveillance/Informatics
**Topic:** Electronic laboratory reporting
**Keywords:** Surveillance|Electronic laboratory reporting (ELR)|Informatics

**Background:**
Long-term care facility (LTCF) residents are at increased risk for infections because of advanced age, comorbidities, frequent need for hospitalization, and group living. LTCFs face multiple challenges associated with infectious disease, thus effective surveillance is essential to monitor occurrence of communicable disease in such settings. The Nebraska Department of Health and Human Services (NDHHS) uses automated electronic laboratory reporting (ELR) and a local version of the National Electronic Disease Surveillance Systems (NEDSS) to assess type and number of reportable diseases among LTCF residents.

**Methods:**
We used 2010–2011 NEDSS laboratory report data to identify laboratory confirmed cases of selected conditions among residents of LTCFs in Nebraska. Patient address from laboratory report demographic data was used to link records to facility address to identify LTCF resident cases. Among these, we calculated frequency distributions to determine the number of reports by etiology. Nebraska data demonstrate that the majority of LTCFs operate at capacity. Accordingly, statewide incidence for selected conditions was calculated using total LTCF bed count as a proxy for the number of at-risk LTCF residents in Nebraska.

**Results:**
Of 233 LTCFs in Nebraska, 77 (33%) matched the patient address of 510 2010– 2011 electronic case reports of selected conditions as follows: Clostridium difficile (n=46, 9.01%), enterobacter (n=10, 1.96%) Enterococcus spp. (n=198, 38.82%), influenza (n=21, 4.11%), methicillin-resistant S. aureus (MRSA) (n=65, 12.75%), Neisseria (n=3, 0.588%), Staphylococcus aureus (n=165, 32.35%), Streptococcus spp. (n=1, 0.19%) and vancomycin-resistant Enterococcus spp. (n=1, 0.19%). For these conditions respectively, mean (range) number of cases per facility was 0.60 (0-7), 0.13 (0-3), 2.57 (0-34), 0.27 (0-5), 0.84 (0-22), 0.04 (0-3), 2.14 (0-14), 0.01 (0-1),0.01 (0-1); and statewide incidence per 100 LTCF residents was 0.72, 0.15, 3.13, 0.33, 1.03, 0.04, 2.61, 0.01 and 0.015

**Conclusions:**
Using address information provided from electronic lab reports and linking to LTCF address has facilitated population-based estimates of LTCF-specific disease incidence. Prior to such functionality, tracking of diseases among LTCF residents relied mainly on inconsistent passive, voluntary reporting. This enhancement holds promise to better define disease burden in LTCF settings and help identify clusters or outbreaks of illness in the absence of voluntary reports. Further study is indicated to compare age-adjusted incidence among LTCF residents with the non-LTCF population in Nebraska.

---

**Presenting Author(s):**

**Manjiri Joshi**
Division of Public Health- Office Of Epidemiology , Nebraska Department of Health and Human Services, Lincoln , NE
manjiri.joshi@nebraska.gov

**Contributing Authors**

Alison R. Keyser Metobo, MPH

**Abstract ID:** 1325158 **Presentation Type:** Poster Presentation

**Title:** Prevalence of Diabetic Neuropathy among diabetic patients attending Endocrinology clinic in Pune, West India

**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee

**Topic:** Chronic disease risk factors: tobacco, physical activity, nutrition, and obesity epidemiology

**Keywords:** Diabetes|Chronic diseases|Risk factors

**Background:**
Diabetes Mellitus affects about 51 million people in India. Diabetic neuropathy (DN) forms one of the important micro vascular complications of diabetes mellitus (DM) and about 20-30% diabetics are affected by DN worldwide. Aim of this study was to assess the prevalence and find risk factors of DN among DM patients.

**Methods:**
This case-control study included, 189 diabetic patients attending the Endocrinology clinic of tertiary care hospital in Pune, India. Neuropathic cases were determined by presence of symptoms of neuropathy Viz: positive & negative sensory symptoms , motor complaints or had neuropathy signs .The controls were those who did not show neuropathic signs or symptoms. Different variables were assessed viz: type of diabetes ,duration of diabetes, age, gender, height, FBG, PPBG, HbA1c , consumption of tobacco, alcohol, smoking, and foot complications such as absent monofilament test ,absent ankle jerk, hammer toe deformities, dry scaly skin ,callosities on the foot. Statistical tests like chi square, t test and logistic regression were used to see for associations, differences and predictors.

**Results:**
Out of 189 diabetic patients, 96 (52.4%) diabetic subjects were affected by DN. [85 (89%) showed Distal Sensory Peripheral Neuropathy and 11 (11%)] Radiculopathy. 69% were men. 94.5% of the DN patients had type 2 DM and 5.5% were type 1 DM. 53% were hypertensive, 33% had monofilament absent and 45% had ankle jerk absent. DN was predominantly seen among men (65%;(no significant difference between both sexes) and above age of 66 years (23% vs 11%, p = .036). Significantly more DN patients were hypertensive as compared to non DN patients (53% vs 33%, p = .008). Most of the DN subjects had significant association with absent ankle jerk (p =.045) and monofilament test for both feet (p = .05).. Interestingly univariate logistic regression showed diabetic patients with hypertension were 2.09 times and diabetics with age > 66 years were 2.67 times, absent monofilament and ankle jerk were 2 times more likely to suffer from DN. In a multivariate model when age was adjusted with HTN, monofilament and ankle jerk patients above 66 years had 4.46 times more chance of being affected with DN (p = .032; 95% CI: 1.13 – 17.58).

**Conclusions:**
Our study has shown that prevalence of DN was 52,4%; higher in our population than reported in the literature. DN was significantly associated with age, hypertension and absence of monofilament and ankle jerk.

---

**Presenting Author(s):**

**Veena Joshi**
Research, Deenanath Mangeshkar
Hospital and Research Centre, Pune,
Maharashtra, INDIA
veena.joshi@dmhospital.org

**Contributing Authors**

Dr. Vaishali Deshmukh MD, DNB Medicine, DM (Endocrinology) Deenanath Mangeshkar Hospital and Research Centre, Erandavane, Pune, India.

**Abstract ID:** 1325114 **Presentation Type:** Poster Presentation
**Title:** Adults at higher risk from swine flu
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Influenza
**Keywords:** Influenza / Pandemic influenza|Risk factors|Infectious Diseases

**Background:**
Swine flu is a recent pandemic. The objective of this study was to look at the associated symptoms and predictors of swine flue.

**Methods:**
The retrospective data from July to December 2010 from the Department of Intensive care in a tertiary hospital in Pune, India was used for this study. Swine flu was tested by Reverse Transcriptase Polymerase Chain Reaction (RT PCR) performed on Pharyngeal swab or on tracheal secretion. Statistical tests used were t test, Chi square and logistic regression to look at differences, associations and predictors.

**Results:**
413 patients were seen at the clinic. 50.6% were men. 26%, 17%, 39.5% and 19.5% of the patients were < 6 years, between 6 to 20 years, between 21 to 40 years and above 40 years of age respectively. 25% or 105 patients suffered from Swine flu. Fatigue was associated with age above 40 years (p =.012). Among those who had swine flu, heart rate (HR) (.001) and respiratory rate (RR) (.019) were associated with age. For HR, age between 21 to 40 had significantly higher HR compared to age < 20 years. For RR, age between 21 to 40 had significantly higher RR compared to age < 6 years. Using logistic regression with Swine flu: Yes or No as dependent variable, it was observed that when reference was children < 6 years, people between age 21 to 40 were 2.9 times (p =.016) and people above age 40 years were 4 times (p<.0001) likely to get swine flu. Those with breathlessness were 1.59 times (p = .049), headache were 1.8 times (p = .014) and sore throat were 1.77 times (p = .006) more likely to get swine flu as compared to those without breathlessness, headache, sore throat. In subgroup analysis with women, univariate analysis showed that women with medical complications were 1.9 times more likely to get swine flu as compared to women with no medical complication (p = .06). In multivariate analysis, age between 6 to 20 were 4. 48 times (p =.036) and age between 21 to 40 were 6 times (p = .001) more likely to catch swine flu when adjusted with women's history of medical problems.

**Conclusions:**
Adult age was a significant risk factor of swine flu. Women with history of medical problems were more prone to get swine flue. Further studies should investigate the risk factors with wider variety of people in India.

---

**Presenting Author(s):**

**Veena Joshi**
Research, Deenanath Mangeshkar
Hospital and Research Centre, Pune,
Maharashtra, INDIA
veena.joshi@dmhospital.org

**Contributing Authors**

Dr. Sameer Jog, MD, Internal Medicine, Dip. Intensive Care. Department of Intensive care, Deenanath Mangeshkar Hospital and Research centre, Pune, India.

**Abstract ID:** 1326009 **Presentation Type:** Poster Presentation
**Title:** Findings from a Needs Assessment of Local Health Departments and Healthcare-Associated Infection Prevention
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Healthcare associated infections (HAI)|Local Public Health Agencies|Prevention

**Brief Summary:**
While national HAI elimination efforts have led to increased engagement of state health departments, the present involvement and role of LHDs remains unclear. Therefore, this assessment aimed to characterize: 1) LHDs' awareness of HAIs; 2) the extent to which LHDs were engaged in HAI prevention, surveillance, and response; 3) barriers to primary HAI prevention; and 4) needs in order to become more involved in expanding national and state HAI prevention activities. In this roundtable session, presenters will share results of the assessment and use findings to facilitate a discussion on additional considerations and opportunities for clarifying the role of and engaging LHDs in HAI prevention.

**Key Objectives:**
To increase stakeholders' understanding of the following: 1. Local health departments' (LHDs') awareness of healthcare-associated infections (HAIs) and prevention efforts 2. Extent to which LHDs are engaged in HAI prevention, surveillance, and response; 3. Barriers to primary HAI prevention; and 4. Needs in order to become more involved in expanding national and state HAI prevention activities. To provide at least three recommendations to stakeholders for facilitating LHD involvement in HAI prevention.

---

**Presenting Author(s):**

**Lilly Kan**
National Association of County and City Health Officials, Washington, DC
lkan@naccho.org

**Ronda Sinkowitz-Cochran**
Centers for Disease Control and Prevention, Atlanta, GA
rls7@cdc.gov

**Abstract ID:** 1309565 **Presentation Type:** Breakout Presentation
**Title:** State-specific binge drinking prevalence, frequency, and intensity among adults – United States, BRFSS 2010
**Committee:** Cross Cutting Sub-Committee
**Topic:** Substance abuse epidemiology: Burden of alcohol and opiate use, Polices related to substance abuse
**Keywords:** Binge drinking|Alcohol|Surveillance

**Background:**
Binge drinking is responsible for more than half of the estimated 80,000 average annual deaths and three-quarters of $223.5 billion in economic costs due to excessive alcohol consumption in the U.S.

**Methods:**
We analyzed data on the prevalence of binge drinking (women drinking ?4; men drinking ?5 drinks on an occasion during the past 30 days) among U.S. adults aged ?18 years in 48 states and DC; and on the frequency (average number of episodes per month) and intensity (average largest number of drinks consumed on occasion) among binge drinkers using a 2010 Behavioral Risk Factor Surveillance System developmental dataset that included landline and cell phone respondents.

**Results:**
In 2010, the prevalence of binge drinking was 17.1%. The average frequency of binge drinking was 4.4 episodes per month, and the average intensity was 7.9 drinks on occasion. Binge drinking prevalence (28.2%) and intensity (9.3 drinks) were highest among persons aged 18-24 years. Frequency was highest among binge drinkers aged ?65 (5.5 episodes). Respondents with household incomes ?$75,000 had the highest binge drinking prevalence (20.2%), but those with household incomes <$25,000 had the highest frequency (5.0 episodes) and intensity (8.5 drinks). The age-adjusted prevalence of binge drinking in states ranged from 10.9% to 25.6%, and the age-adjusted intensity ranged from 6.0 to 9.0 drinks.

**Conclusions:**
Binge drinking is common among U.S. adults, and persons who binge drink tend to do so frequently and intensively. More widespread implementation of evidence-based interventions such as increasing alcohol excise taxes and regulating alcohol outlet density would reduce the frequency and intensity and ultimately the prevalence of binge drinking in states, as well as the health and social costs related to it.

---

**Presenting Author(s):**

**Dafna Kanny**
Centers for Disease Control and
Prevention, Atlanta, GA
dkk3@cdc.gov

**Contributing Authors**

Yong Liu, MS, MPH, Robert D Brewer, MD, MSPH, William Garvin, Lina Balluz, ScD

**Abstract ID:** 1330204 **Presentation Type:** Breakout Presentation
**Title:** Diabetes, obesity, and other predictors of health-related quality of life among Kentucky residents
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Chronic disease risk factors: tobacco, physical activity, nutrition, and obesity epidemiology
**Keywords:** Diabetes|Obesity|Mental health

**Background:**
Health related quality of life (HRQoL) encompasses a holistic examination of well-being in which health is considered to be "a state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity" (WHO, 1948). HRQoL measures how people perceive their health, including their perceptions of physical limitations, pain, vitality, mental health, and related role and social functioning. Previous studies have found higher rates of anxiety and depression, and reduced mobility in adults reporting diabetes when compared with healthy individuals. Obesity, as defined by body mass index (BMI), is associated with several major health risk factors, including diabetes and poor health status. In 2009, diabetes prevalence among adults in Kentucky was estimated at 11.5% while obesity prevalence was at an all time high of 32.4%. The objective of this study is to examine the self-perceived health-related quality of life of diabetic, obese, and overweight adults in Kentucky compared with adults who are healthy.

**Methods:**
We used data from the 2009 Behavioral Risk Factor Surveillance System (BRFSS) for participants in Kentucky (n = 9,005). HRQoL of respondents with self-reported diabetes were compared to HRQoL of respondents who reported not having diabetes. Adjusted odds ratios (AOR) were calculated using multivariable logistic regression models to control for socio-demographic factors, BMI, smoking, and exercise. We also compared HRQoL of respondents classified as obese (BMI ?30) and those overweight (BMI 25.0– 29.9) to adults who were neither overweight nor obese (BMI 18.5 –24.9).

**Results:**
Sixty percent of respondents with self-reported diabetes (n = 1,475) were classified as obese (BMI ? 30). Respondents with self-reported diabetes were more likely to report frequent mental distress [AOR = 1.7, p =0.0004], frequent activity limitations [AOR = 2.0, p <.0001], frequent physical distress [AOR = 2.5, p <.0001], and fair or poor general health [AOR = 3.6, p <.0001] compared to respondents who did not have diabetes. Respondents who were classified as obese (BMI ?30) were more likely to report fair or poor general health [AOR = 2.0, p <.0001] compared to those who were neither overweight nor obese (BMI 18.5 – 24.9).

**Conclusions:**
Significant associations were observed between diabetes and poor health-related quality of life measures such as frequent mental distress, frequent activity limitations, frequent physical distress, and fair or poor general health. Moreover, obesity status, cigarette smoking, exercise, and socio-demographic factors all play important roles in determining health-related quality of life.

---

**Presenting Author(s):**

**Sarojini Kanotra**
Div of Prevention & Quality
Improvement, Kentucky Department
for Public Health, Frankfort, KY
Sarojini.Kanotra@ky.gov

**Contributing Authors**

Seth Siameh, MPHc, Kentucky Department for Public Health Dennis Peyton, MPH, Kentucky Department for Public Health

**Abstract ID:** 1327109 **Presentation Type:** Poster Presentation
**Title:** Communities putting prevention to work: Results from pre-intervention survey in Louisville, Kentucky
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Examining social determinants of health and health disparities in CD/MCH/OrH
**Keywords:** Health disparities|Risk factors|Surveillance

**Background:**
Several communities throughout the nation received federal funding as part of the Communities Putting Prevention to Work (CPPW) chronic disease prevention initiative. The community receiving the ARRA CPPW grant in Kentucky was Louisville Metro. The community proposed to target 12 neighborhoods clustered within West Louisville. All of these neighborhoods have been classified as distressed. Majority of these areas are predominately African-American with a high percentage of residents living below the poverty line. The study was conducted to identify differences between these neighborhoods and rest of Louisville in access to healthy foods, level of physical activity, perception of the neighborhood, and nutrition environment.

**Methods:**
A pre-intervention survey was conducted in Louisville Metro by the Kentucky BRFSS(Behavioral Risk Factor Surveillance System) program in 2011. The telephone survey used a disproportionate stratified sample (DSS) design. The sample was divided into two geographically defined strata: i) 12 neighborhoods and ii) the rest of Louisville. The BRFSS questionnaire was completed by 1501 residents. Prevalence estimates (weighted) for each indicator were calculated and comparisons were made between the two strata using chi-square tests. Limitations to BRFSS include use of self-reported data and recall bias.

**Results:**
Among residents of west Louisville 27.6 % disagreed that it was easy to purchase healthy foods in their neighborhood as compared to 15% for the rest of Louisville. Residents living outside west Louisville reported a statistically significant higher estimate of no consumption (47.7%) of soda/pop per day. A greater proportion of Non-Hispanic Blacks significantly consumed 3 or more soda/pop per day compared to Non-Hispanic Whites (15.2% vs. 7.0%). Whites living in West Louisville reported the highest estimate for physical inactivity (40.5%) during the last 30 days. Significant differences between the two strata were also identified in perception of neighborhood with higher percent residents of west Louisville rating walking in their neighborhood as not at all pleasant compared to residents of the rest of Louisville. Similarly, more than half of residents of West Louisville perceived their neighborhood not safe compared to less than a quarter of residents of the rest of Louisville. For prevalence of obesity and diabetes significant differences with respect to neighborhood of resident were identified with 47.5% of west Louisville residence being obese and 17.3% being diabetic.

**Conclusions:**
The results of the pre-intervention survey corroborate that wide gaps exist between these 12 neighborhoods and the rest of Louisville in the availability of opportunities for physical activity and access to nutritious foods.

---

**Presenting Author(s):**

**Sarojini Kanotra**
Div of Prevention & Quality
Improvement, Kentucky Department
for Public Health, Frankfort, KY
Sarojini.Kanotra@ky.gov

**Contributing Authors**

Duke Appiah, PhDc University of Louisville School of Public Health & Information Sciences

**Abstract ID:** 1330398 **Presentation Type:** Poster Presentation
**Title:** Tapping into child health data in schools
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Generating and using county and local-level data for CD/MCH/OrH epidemiology
**Keywords:** Children and adolescents|School health|Data collection


**Background:**
Deriving meaningful and useful data from school sources, that can be related to absenteeism and performance, is the goal of school health data methodology. Defining, describing, and impacting health measures that in turn impact school success is a cornerstone of life course development theory, and key to improving the health and productivity of populations for generations to come.

**Methods:**
This poster session illustrates several different approaches to gathering and analyzing health data derived from schools. Example #1: a study of absenteeism by severity of asthma. Example #2: BMI surveillance summary Example #3: a process for defining a health minimum data set for education Example #4: an iterative data project design for schools (highlighting the current dental screening data project)

**Results:**
1. The most severe absenteeism in a survey of students with asthma in a large metropolitan school district was found in middle school students with moderate severe asthma. 2. The BMI surveillance study of 2010-2011 was completed using a methodology for voluntary electronic submission of de-identified individual BMI screening results from schools. 3. The school health minimum data set is geared to Nebraska statutes and regulations, and federal laws related to what schools must know and do for students, including those with identified chronic conditions. The school health minimum data set reflects a protocol for health system information development, i.e. begin with definition of data elements. 4. The project design for the school health data project incorporates several unique elements: adapation of the CDC bmi calculator; development of the end-user base; the long-term goal of linking with the Dept. of Education universal mandated data set on student performance; the technical methodology of working with education software vendors versus individual schools to prepare for data collection.

**Conclusions:**
1. The nation's schools provide rich and meaningful sources of significant child health data. 2. Sharing of data between schools and public health can be accomplished without compromising federal health care or federal education privacy protections. 3. Child health data coupled with learning outcomes represents critical information for evaluating and developing public health interventions with significant life course impact.


---


**Presenting Author(s):**

**Kathy Karsting**
Nebraska Department of Health and
Human Services, Lincoln, NE
kathy.karsting@nebraska.gov

**Contributing Authors**

Ming Qu, PHD Administrator, Health Data Section, NE Department of Health and Human Services.

**Abstract ID:** 1330405 **Presentation Type:** Breakout Presentation
**Title:** A mixed methods approach to identify community solutions to decrease racial disparities in infant mortality
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Examining social determinants of health and health disparities in CD/MCH/OrH
**Keywords:** Infant mortality|Social determinants |Health disparities

**Background:**
The relationship between racism and infant mortality has been well-described. However, few communities have worked together to generate innovative ideas that communities could implement to decrease racial disparities in infant mortality. In this study, members from six learning collaborative teams addressing racial disparities in infant mortality through coordinated systems building in communities with disproportionate burdens of infant mortality participated in a concept mapping project to identify actions communities could take to decrease racial disparities in infant mortality.

**Methods:**
A mixed methods approach (concept mapping) was used. Participants generated ideas in response to a focus prompt: "One specific action our community could take to decrease racial disparities in infant mortality is …." Participants rated these ideas as to necessity and action potential (AP) and sorted ideas (actions) into themes. Using multidimensional scaling and cluster analysis, data were analyzed and a series of visual representations (concept maps) were produced to show relationships between actions and the clustering of actions into themes. Multidimensional scaling techniques were used to produce analyses describing the necessity of and AP for implementing the proposed ideas/actions. Selected participants and study investigators interpreted maps, discussed broader themes suggested by the data, and identified actions communities could take to decrease racial disparities in infant mortality.

**Results:**
A total of 128 wide-ranging actions were identified, e.g., educating mental health providers about the impact of racism; requiring mandatory curricula for and continuing education for re-licensure of health care providers on interpersonal/institutional racism; utilizing the lifecourse theory as a foundation to improve African American birth outcomes; disseminating strategies to eliminate racism and community rankings in a 'racism report card'; and, assuring that community planning processes engage affected community members. Eleven thematic clusters of actions were identified, including promoting the knowledge and understanding of the relationship between health and racism; developing social messages about racism and infant mortality; improving educational systems and opportunities; ensuring/improving health services for women across the lifespan; educating professionals/lay people to take action about racism's impacts on health; conducting/disseminating community-informed research; and coordinating/institutionalizing strategies that promote equity across all systems.

**Conclusions:**
Initial findings suggest that thematic clusters with high AP usually represented on-going activities or actions communities could easily initiate. Thematic clusters with lower AP contained actions requiring broader, longer-term, policy, institutional or system-wide changes and more resources. Many of the high necessity thematic clusters contained actions perceived as essential for change, but sometimes outside of a community's control. Using this approach, participants identified a number of practical, do-able actions that hold potential for individual, community and institutional changes which could result in decreasing racial disparities in infant mortality.

---

**Presenting Author(s):**

**Laurin Kasehagen**
Division of Reproductive Health,
Centers for Disease Control and
Prevention, Omaha, NE
laurin@kasehagen.name

**Contributing Authors**

Kathleen Brandert, MPH, CityMatCH at the University of Nebraska Medical Center; Brenda Thompson, MPH, HCA Nebraska; Jessica Hawkins, MPH, Association of Maternal and Child Health Programs; Phyllis George, MPH, National Healthy Start Association; Infant Mo

**Abstract ID:** 1330274 **Presentation Type:** Poster Presentation
**Title:** Using existing national surveillance system data to understand adolescent preconception health
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Translating CD/MCH/OrH data into public health action
**Keywords:** Adolescent health|Local Public Health Agencies|MCH Epidemiology

**Background:**
The concepts of life course epidemiology and preconception care are not new. The application of these perspectives, however, is relatively new in the US, particularly within public health, and presents certain challenges within traditional maternal, child, and adolescent health programs. Additionally, much of the preconception health data is collected solely on women during their adult reproductive years. To better understand the health status of young women and men and factors associated with their future reproductive health, we analyzed data from the National Survey of Children's Health (NSCH). These data were then used to frame a pilot project to guide public health planning and programmatic decision-making around improving adolescent health and well-being in US urban areas.

**Methods:**
To demonstrate the utility of this approach, we conducted descriptive, bivariate and multivariable analyses of data from 45,897 adolescents, 10-17 years, from the 2007 NSCH and created reference populations for comparison. Logistic regression was used to determine priority health risk areas within specific Midwestern urban area subpopulations in six domains: health status, social determinants, tobacco exposure, nutrition/physical activity, mental health, and chronic conditions. Domains and health indicators were identified by selecting variables from the NSCH that corresponded to the Core State Preconception Health Indicators. Analyses were carried out using SAS-callable SUDAAN to appropriately weight estimates and adjust for the complex sampling design.

**Results:**
(Only select results for Midwestern Urban Area #1 (MUA1) are reported). Within MUA1, priority health risk areas were found among social determinants and tobacco exposure for all adolescents and racial/ethnic minority adolescents. For example, compared to a reference Midwestern urban adolescent population with family incomes >400% of the federal poverty level, more MUA1 adolescents: lacked health care coverage (MUA1 adolescents 9.3% [95% CI: 6.1, 13.9], minority MUA1 adolescents 19.6% [95%CI: 10.8, 33.0], reference 3.5% [95% CI: 2.3, 5.3]); lacked preventive dental care (MUA1 adolescents 9.8% [95% CI: 6.3, 14.9], minority MUA1 adolescents 12.0% [95%CI: 6.5, 21.2], reference 3.2% [95% CI: 2.1, 5.0]); and, lived in a household where someone smokes inside the house (MUA1 adolescents 13.7% [95% CI: 9.4, 19.6], minority MUA1adolescents 14.4% [95%CI: 7.6, 25.5], reference 4.6% [95% CI: 3.3, 6.4]).

**Conclusions:**
By using existing nationally, representative adolescent health data and known preconception health indicators, we found that Midwest urban areas have unique adolescent health issues that can be readily identified and present opportunities for community-based interventions. A structured, multi-staged, joint public health-community process aids community engagement, analysis, and implementation of interventions to improve adolescent health.

---

**Presenting Author(s):**

**Laurin Kasehagen**
Division of Reproductive Health,
Centers for Disease Control and
Prevention, Omaha, NE
laurin@kasehagen.name

**Contributing Authors**

Chad Abresch, MEd, CityMatCH at the University of Nebraska Medical Center

**Abstract ID:** 1322044 **Presentation Type:** Breakout Presentation
**Title:** Public health and electronic health records Meaningful Use: Opportunities and challenges - a federal perspective
**Committee:** Surveillance/Informatics
**Topic:** Syndromic Surveillance and Situational awareness (incl. BioSense)
**Keywords:** Emergency preparedness|Surveillance

**Brief Summary:**
This presentation will highlight the public health opportunities and challenges associated with the adoption and implementation of the Electronic Health Records (EHR) Meaningful Use (MU) Incentive Program. The panel will explain how the current CDC driven EHR MU and Standards & Interoperability Framework activities fit into the broader public health electronic disease reporting and surveillance domains. The BioSense 2.0 program collaboration with Council of State & Territorial Epidemiologists (CSTE), Association of State and Territorial Health Officials (ASTHO) and National Association of County and City Health Officials (NACCHO) will be described, to address the following questions: 1) How can BioSense 2.0 help hospitals meet the syndromic surveillance MU public health objective? 2) How will state and local public health authorities designate BioSense 2.0 as their proxy for receiving syndromic surveillance messages in Stage 1 & 2 of MU? The EHR MU Incentive Program provides a unique opportunity for local, state, and federal public health agencies to support public health and to leverage the wealth of clinical data now being made available through the convergence of Health Information Exchanges (HIEs) and the NwHIN Direct Project. CDC has initiated two projects aimed at piloting these capabilities to help determine the readiness of the nation's HIEs, EHR products, and public health agencies to collect and act upon these data. The purpose of the first project, Demonstrating the Preventive Care Value of Health Information Exchange (DPCVHIE), is to establish an initial collection of preventive quality measure data to address the application and effectiveness of the ABCs (aspirin therapy, blood pressure screening, cholesterol screening, and smoking cessation). The second project, the State, Communities and HIEs for Prevention and Public Health (SCHIEPPH) will expand data collection for the ABCs; collect quality metrics for diabetes prevention and management; and provide a foundation for requirements for syndromic surveillance in future MU stages. A summary of the key challenges and lessons learned will be presented.

**Key Objectives:**
1.To enumerate the public health opportunities and challenges associated with the adoption and implementation of the Electronic Health Records (EHR) Meaningful Use (MU) Incentive Program and to describe current activities at federal, state and local public health agencies. 2. To describe the role of Centers for Disease Control & Prevention (CDC) in two community driven efforts – the Standards & Interoperability (S&I) Public Health Reporting Initiative which will standardize and expand public health reporting as well as the role of BioSense 2.0 in Meaningful Use. 3. To highlight the convergence of the EHR MU Incentive Program, State Health Information Exchange (HIE), and the Nationwide Health Information Network (NwHIN) to support public health information exchange at the local, state and federal levels with the clinical community.

---

**Presenting Author(s):**

**Taha Kass-Hout**
Centers for Disease Control and Prevention, Atlanta, GA
tik2@cdc.gov

**Contributing Authors**

Nedra Garrett CDC Laura Conn CDC Kim Gadsden-Knowles CDC Kathy Gallagher CDC Jim Kirkwood ASTHO

**Abstract ID:** 1318661 **Presentation Type:** Roundtable Presentation
**Title:** The New Mexico race and ethnicity data project: An update on improving data collection in hospitals
**Committee:** Cross Cutting Sub-Committee
**Topic:** Health disparities: Racial/ethnic and socioeconomic, Best epidemiologic practices
**Keywords:** Interventions|Hospital data |Data collection

**Brief Summary:**
The first step to eliminating racial and ethnic disparities is being able to collect race and ethnicity demographics in a way that is complete, uniform and validated. The New Mexico Department of Health has a grant from the Agency for Healthcare Research and Quality to improve race and ethnicity data collection using 1997 Office of Management and Budget Standards. New Mexico is one of the first states to improve these data through mandating hospitals to collect this information at the registration level. This project includes several interventions that are occurring at the institutional, legislative and operational levels, in addition to validation surveys of recently hospitalized patients. Currently, 92 percent of all non-Federal New Mexico hospitals (n=50) have submitted data to the Department of Health. Of that 92 percent, 39 hospitals have followed the correct coding of variables and only one hospital is non-compliant to the new standards. The purpose of this roundtable is to share the innovative approaches to race and ethnicity data collection and the evaluation being developed in this New Mexico Race and Ethnicity data project.

**Key Objectives:**
At the conclusion of this session, participants will be able to describe race and ethnicity as used in the Hospital Inpatient Discharge Data; Understand the current Office of Management and Budget standards for collecting race and ethnicity data; Describe the interventions occurring at the legislative, institutional and operational level in New Mexico; and Apply the experiences of this project to share with other state programs.

---

**Presenting Author(s):**

**Nicole Katz**
Epidemiology and Response Division,
New Mexico Department of Health,
Santa Fe, NM
nicole.katz@state.nm.us

**Sue Noell Stone**
Epidemiology and Response Division,
New Mexico Department of Health,
Santa Fe, NM
noell.stone@state.nm.us

**Contributing Authors**

Terry Reusser, MBA, New Mexico Department of Health; Michael Landen, MD, MPH, New Mexico Department of Health

**Abstract ID:** 1322203 **Presentation Type:** Poster Presentation
**Title:** Association of asthma with seasonal and pandemic H1N1 influenza among children with medically attended respiratory illness in a Wisconsin population cohort — 2007–2009 *
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Influenza
**Keywords:** Influenza / Pandemic influenza|Asthma

**Background:**
Influenza has been associated with asthma among hospitalized children; less is known among pediatric outpatients. We examined this association in a primarily outpatient setting to inform prevention and treatment recommendations.

**Methods:**
We conducted a study among children aged 5–17 years in a defined community cohort seeking care for acute respiratory illness during the 2007–2008 and 2008–2009 influenza seasons and the 2009 H1N1 pandemic. Patients with respiratory illness, including fever or cough <8 days in duration, were prospectively recruited and tested for influenza by real-time reverse transcription polymerase chain reaction. Participants were classified as having confirmed, possible, or no asthma based upon previous diagnoses and prescription records. Associations between asthma and seasonal and pandemic influenza were determined using logistic regression, controlling for age and sex; influenza vaccination status was included for seasonal influenza only because pandemic vaccine was unavailable until after the pandemic wave.

**Results:**
We enrolled 3,416 children (females: 51%; median age: 9 years; asthma: 11%). Before the pandemic, 51/150 (34%) with confirmed asthma and 507/1,173 (43%) without asthma tested positive for influenza. However, 50% of those with asthma and 25% without asthma were vaccinated. No significant association between asthma and seasonal influenza existed after adjusting for covariates (adjusted odds ratio [aOR]: 0.74; 95% confidence interval [CI]: 0.52–1.07). During the 2009 H1N1 pandemic, 53/100 (53%) with confirmed asthma and 225/603 (37%) without asthma tested positive for influenza (aOR: 1.86; CI: 1.21–2.86).

**Conclusions:**
Among children seeking care for respiratory illness, asthma was associated with influenza during the 2009 pandemic, but not the previous 2 seasons. Our findings suggest that children with asthma were disproportionately affected by the 2009 H1N1 virus.

---

**Presenting Author(s):**

**Sarah Kemble**
Minnesota Department of Health, St.
Paul, MN
sarah.kemble@state.mn.us

**Contributing Authors**

S. Irving, MPH, Marshfield Clinic Research Foundation; A. Bateman, MPH, University of Wisconsin; B. Kieke, MS, Marshfield Clinic Research Foundation; D. Shay, MD, MPH, National Center for Immunziation and Respiratory Diseases, Centers for Disease Control

**Abstract ID:** 1366705 **Presentation Type:** Software Demonstration
**Title:** Public Health Information eXchange (PHIX)
**Committee:**
**Topic:**
**Keywords:** Informatics

**Brief Summary:**
The PHIX has been designed to perform a full range of functions and features to support interoperable data exchange including message transformation, vocabulary validation and translation, component routing based on appropriate business rules and organizational requirements, and message component analysis of incoming data streams for specific conditions of interest.

**Key Objectives:**
Software demonstration of the Public Health Information eXchange (PHIX), an interoperable public health solution being developed for demonstration and production pilot purposes.

---

**Presenting Author(s):**

**Gautam Kesarinath**
Division of Informatics, Practice, Policy and Coordination | PHITPO , CDC, Office of Surveillance, Epidemiology and Laboratory Services, Atlanta, GA
gfk0@cdc.gov

**Abstract ID:** 1327477 **Presentation Type:** Breakout Presentation
**Title:** Telling a community's story by geocoding HIV data to census tract: Douglas County Nebraska, 1983-2010
**Committee:** Surveillance/Informatics
**Topic:** Other surveillance/informatics
**Keywords:** HIV/AIDS|Epidemiology|Geocoding


**Background:**
The ability to geocode patient address at the time of Human Immunodeficiency Virus (HIV) diagnosis will assist programs to visualize geographic distribution of cases, identify current or new clusters of illness, and identify the availability of healthcare resources. Douglas County, in Nebraska which includes the city of Omaha, is the largest county with 409,000 residents (23% of total state population) and accounts for 61% of all reported Nebraska HIV cases.

**Methods:**
Residential address of cases diagnosed with HIV disease in Douglas County was extracted from Enhanced HIV/AIDS Reporting System (eHARS) and geocoded to census tract using ArcGIS. Data were analyzed using Statistical Analysis Software (SAS). Census tracts were divided into high (HICT), middle (MICT), and low (LICT) income tracts using the percent of people living below 100% poverty and grouped into years based on year of diagnosis.

**Results:**
At the time of HIV diagnosis, patients reported residing in 147 of Douglas County's 173 (85%) census tracts. Of the 1,500 cases 64% resided in HICTs, 22% in MICTs, and 14% in LICTs. This distribution did not vary from 1983-2010. The distribution of cases by race: whites (42% in HICTs, 38% in MICTs, and 20% in LICTs) and blacks (16% in HICTs, 37% in MICTs, and 47% in LICTs). From 1983-2010 the percent of black men who have sex with men (MSM) living in LICTs decreased from 50%-34% and the percent living in MICTs increased from 36% to 53%. From 1983-2010 the percent of heterosexual females living in LICTs increased from 11%-42% and the number living in HICTs decreased from 45%-20%. The number of cases diagnosed per 10,000 people is 15 in HICTs, 49 in MICTs, and 91 in LICTs. The number of cases diagnosed per 10,000 people for whites is 13 in HICTs, 38 in MICTs, and 84 in LICTs and for blacks is 122 in HICTs, 93 in MICTs, and 84 in LICTs.

**Conclusions:**
States can gain valuable information by geocoding HIV data to examine trends, identify high risk populations, and guide interventions and testing. The data highlights the gap between the upper and lower incomes and blacks and whites in terms of resources, mobility, and the burden of disease. We hypothesize that the increasing number of black MSMs living in MICTs and heterosexual females living in LICTs may in part be due to outcomes of interventions focusing on knowing ones status, risk, and testing facilities. There was a significant difference in the number of cases diagnosed per 10,000 people for whites in HICTs, MICTs, and LICTs but not for blacks. We hypothesize the similar rates for blacks may in part be due to more interaction with people of all races and socioeconomic classes. The Nebraska HIV prevention program should continue targeting identified high risk populations and further examine other social determinants to ensure linkage to care and services.


---


**Presenting Author(s):**

**Alison Keyser-Metobo**
Nebraska Department of Health and
Human Services, Lincoln, NE
alison.keysermetobo@nebraska.gov

**Contributing Authors**

Cheryl Bullard BS , Karis Bowen, Ge Lin PhD, Thomas Safranek, MD

**Abstract ID:** 1324137 **Presentation Type:** Breakout Presentation
**Title:** Multi-source surveillance system for 2010 work-related skull fractures in Michigan
**Committee:** Occupational Health Sub-Committee
**Topic:** Improving occupational health surveillance
**Keywords:** Occupational Surveillance|Occupational injury and death

**Background:**
Occupational skull fractures are serious injuries. For 2010, the U.S. Bureau of Labor Statistics' (BLS) Survey of Occupational Injuries and Illnesses (SOII) estimated there were 3,850 skull fractures in the U.S. In 2010, Michigan initiated multi-data source surveillance of work-related skull fractures in Michigan.

**Methods:**
Records from all 134 of Michigan's hospitals/emergency departments (EDs), the Workers Compensation Agency (WCA) and Michigan's Fatality Assessment Control and Evaluation (MIFACE) program were used to identify work-related skull fractures. Discharge summaries and ED notes were reviewed to differentiate the work and non work-related skull fractures. Companies where individuals were hospitalized or had an ED visit within six months of identification were referred for an OSHA enforcement inspection. Individuals whose workplace could not be identified in the records received were contacted to obtain employer information.

**Results:**
Hospital/ED reports identified 80 work-related skull fractures, Michigan WCA identified 59, and MIFACE program identified 7 deaths from occupational skull fractures. Forty-two reports were received by more than one source. Ten of the 134 hospitals have yet to report and we estimate that there will be another 8 work-related skull fractures. Six injured individuals were self-employed. After matching reports from the three reporting sources 103 individuals were identified with work-related skull fractures. The demographics were: men (82.5%); age range 17-75; Caucasians (84.0%), African-Americans (5.3%) and Hispanics (5.3%); fractures of base of skull (61.2%), vault of skull (10.7%), other (18.5%), multiple (0.9%), Face Unspecified (4.9%), Jaw/Chin/Cheek (2.9%), and Face Multiple (0.9%); fall (44.0%), struck by (29.8%), assault (7.1%), MVA (7.1%) and other (12.0%); depressed (31.7%), linear (4.9%), compound (2.4%) and other (61.0%); loss of consciousness (46.7%); Workers' Compensation paid lost work time and medical costs for 57% and medical costs only for 15.5%; Construction (NAICS 23) (13.6%), Public Administration (NAICS 92) (11.1%), Primary Metal Manufacturing (NAICS 33) and Transportation and Warehousing (NAICS 48) (8.6%); deaths (8.3%), hospitalizations (56.0%), ED visits (33.3%) and outpatient visits (2.4%).

**Conclusions:**
Michigan has the regulatory authority and infrastructure to perform multi-data source surveillance on any work-related condition that is likely to be treated in a hospital or ED. We identified 103 work-related skull fractures in 2010 in Michigan from the hospital/ED, WCA and MIFACE data. Modifications are planned to expand the number of ICD-9 codes requested from the hospitals. We estimate that the total number of skull fractures will be 20% greater with these additional ICD-9 codes.

---

**Presenting Author(s):**

**Joanna Kica**
Department of Medicine,
Occupational and Environmental
Medicine, Michigan State University,
East Lansing, MI
Joanna.Kica@hc.msu.edu

**Contributing Authors**

Kenneth D Rosenman, MD Michigan State University Department of Medicine Occupational and Environmental Medicine 117 West Fee Hall East Lansing, MI 48824

**Abstract ID:** 1331125 **Presentation Type:** Poster Presentation
**Title:** Descriptive epidemiology of a localized, community-wide outbreak of invasive group A streptococcus
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Miscellaneous infectious disease
**Keywords:** Infectious Diseases|Outbreaks

**Background:**
Invasive Group A Streptococcal (iGAS) infections have been notifiable in the U.S. since 1995. Cases present as one or more of multiple clinical syndromes, the most severe being necrotizing fasciitis or streptococcal toxic shock syndrome (STSS). Nationwide, iGAS infections follow a seasonal pattern with relatively stable annual rates since 2005. The majority of 2011 cases within Fairfax County occurred during the six-month period from mid-December 2010 to mid-June 2011. Thirty iGAS cases were reported to the Fairfax County Health Department (FCHD) during that timeframe, reflecting a nearly 350% increase from previous years. Excluding one neighboring jurisdiction, this increase was not seen in any other jurisdictions in Northern Virginia.

**Methods:**
Laboratory results indicating iGAS infection were reported to the FCHD through the Virginia Electronic Disease Surveillance System. Once identified, the increase in reported cases prompted further investigation to characterize the outbreak and guide public health interventions. Case demographics and clinical findings were collected and summarized. Additionally, pulse-field gel electrophoresis was performed by the Virginia Division of Consolidated Laboratory Services to further characterize bacterial isolates. Syndromic surveillance (using ESSENCE) was also analyzed to approximate the corresponding temporal trends in non-invasive GAS activity within the community.

**Results:**
Thirty iGAS cases were reported to FCHD from mid-December 2010 to mid-June 2011. The age range was one month to 91 years (median: 48 years). No clear geographical, facility, or familial linkages among cases were identified. Many cases exhibited more than one clinical syndrome, the most common being bacteremia (77%) followed by cellulitis (47%), pneumonia (43%), necrotizing fasciitis (20%), STSS (10%), and peritonitis (3%). Twenty-eight patients (93%) were hospitalized. Four patients died, two with STSS, one with pneumonia, and one with non-focal bacteremia. Pulse-field gel electrophoresis was conducted on 10 culture specimen, all of which matched emm1/T1 isolates in the DCLS library. This iGAS outbreak paralleled the trend of syndromic surveillance queries of the term “strep” in emergency department records within Fairfax County.

**Conclusions:**
This outbreak of iGAS is notable due to the relatively localized nature of the increase in disease incidence among cases with no apparent epidemiologic linkages. It is hypothesized that this outbreak resulted from an underlying fluctuation in the local baseline of non-invasive streptococcal disease.

---

**Presenting Author(s):**

**Shawn Kiernan**
Fairfax County Health Department,
Fairfax, VA
shawn.kiernan@fairfaxcounty.gov

**Contributing Authors**

Peter Troell, MD, MPH Fairfax County Health Department Edward Hurd, MD, MPH Fairfax County Health Department

**Abstract ID:** 1314985 **Presentation Type:** Breakout Presentation
**Title:** Perinatal Periods of Risk (PPOR) approach to better understand fetal-infant mortality: A state-level analysis in Kansas, 2005-2009
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Maternal & child health epidemiology
**Keywords:** Maternal and Child Health|Infant mortality|Birth outcomes

**Background:**
Kansas' infant mortality rate (IMR) has been persistently higher than the national rate. In recent years, Kansas' IMR has stagnated while the national rate has declined. Furthermore, while many states have made progress closing the mortality gap between non-Hispanic black and non-Hispanic white infants, Kansas has not.

**Methods:**
Fetal death and linked birth-infant death certificate files (2005-2009) were compiled and analyzed using the Perinatal Periods of Risk approach to gain greater insight into the underlying factors contributing to Kansas' fetal and infant deaths.

**Results:**
When compared to a national reference group, 42.4% of Kansas' excess fetal-infant mortality was in the post-neonatal period among infants ?1500g. The excess mortality rate for non-Hispanic blacks (10.9) was >4 times greater than non-Hispanic whites (2.4). Among non-Hispanic white and Hispanic mothers excess mortality was attributable to risks relating to infant health and injury/safety. For non-Hispanic black mothers, the excess fetal-infant mortality was attributable to maternal health and prematurity. Further analysis showed that 88.6% of the non-Hispanic black mortality in very low birth weight births was attributable to birthweight distribution. Only 11.4% of the non-Hispanic black VLBW disparity was due to birthweight-specific mortality.

**Conclusions:**
Causes of excess fetal-infant death and consequent opportunities for intervention vary according to the mother's race/ethnicity. To significantly impact Kansas' overall IMR, community-specific, tailored prevention efforts on prematurity, safe sleep, and injury prevention may be necessary. Complex factors necessitate a multi-pronged approach to reduce Kansas' overall IMR and collaborative efforts of community members, public health, and the medical community.

---

**Presenting Author(s):**

**Jamie Kim**
Kansas Department of Health and
Environment, Topeka, KS
jkim@kdheks.gov

**Contributing Authors**

Carol Gilbert, MS, CityMatCH Laurin Kasehagen Robinson, MA, PhD, CityMatCH and CDC

**Abstract ID:** 1328129 **Presentation Type:** Breakout Presentation
**Title:** Reaching for synergies between state- and locally-based epidemiologists
**Committee:** Cross Cutting Sub-Committee
**Topic:** Local epidemiology
**Keywords:** Local epidemiology|Epidemiology capacity

**Background:**
Epidemiologic data on the health status of the population are important for targeting, implementing, and evaluating public health interventions. State-based, and locally-based epidemiologists have different, yet overlapping roles and responsibilities regarding the collection, analysis, and interpretation of health status data.

**Methods:**
We propose a roundtable discussion of state and local epidemiologists to discuss common issues of interest, such as epidemiologic data for community health assessment, program priorities, training backgrounds and needs, competencies, collaborations with each other, and role of informatics in the day-to-day workplace.

**Results:**
Commonalities and differences will be recorded and highlighted for future action steps.

**Conclusions:**
Suggestions originating in the conversation on improving respective professional experiences will be developed and brought back to NACCHO and CSTE for future collaborative efforts.

---

**Presenting Author(s):**

**Robert Kim-Farley**
Office of Communicable Disease
Prevention and Control, Los Angeles
County Department of Public Health,
Los Angeles, CA
rkimfarley@ph.lacounty.gov

**Contributing Authors**

Paul Etkind, DrPH, MPH, Senior Director of Infectious Diseases, National Association of COunty and City Health Officials
Dana Cole, MPH, Program Analyst for Immunizations and Epidemiology, National Association of County and City Health Officials

**Abstract ID:** 1330688 **Presentation Type:** Breakout Presentation
**Title:** Disparities in heart attack knowledge by gender, race, education level and household income among Maine adults
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Other CD/MCH/OrH epidemiology
**Keywords:** Health disparities|Cardiovascular disease|Emergency response

**Background:**
Disparities are preventable differences experienced by socially disadvantaged populations defined by factors such as race, ethnicity, gender, education, and income. In this study, we examined disparities in knowledge of heart attack symptoms and the need to call 9-1-1 by gender, race/ethnicity, education level and household income among Maine adults. Individuals having a heart attack are more likely to survive if they or onlookers know the symptoms and call 9-1-1 immediately.

**Methods:**
We analyzed data on the knowledge of heart attack symptoms and the need to call 9-1-1 among Maine adults from the Heart Attack and Stroke Module of the 2009 Maine Behavioral Risk Factor Surveillance System. We examined differences in knowledge by gender, race/ethnicity, education, and income. We used logistic regression to assess whether these disparities persist after adjusting for age, and whether gender and racial/ethnic disparities persist after adjusting for age, education, and income. Analyses were conducted using SAS 9.2 survey procedures.

**Results:**
15.1% of Maine adults knew all heart attack symptoms and the need to call 9-1-1. Women, non-Hispanic Whites, college graduates, and those with an annual household income of $50,000+ were more likely to know all heart attack symptoms and the need to call 9-1-1 as compared to men, non-Whites or Hispanics, those with less than a high school education, and those with an annual household income <$15,000, respectively. These differences persisted after adjusting for age. After adjusting for age, education, and household income, women were 1.9 (95% confidence interval: 1.4-2.4) times more likely to correctly identify all signs and symptoms of heart attack and call 9-1-1 as compared to men, and non-Hispanic Whites were 3.5 times (95% confidence interval: 1.3-9.6) more likely as compared to non-Whites or Hispanics.

**Conclusions:**
There are significant disparities in heart attack knowledge among Maine adults, with men, non-Whites or Hispanics, those with less than college education, and those with annual household income <$15,000 being less likely to know all heart attack symptoms and the need to call 9-1-1, even after adjusting for age. Disparities by gender and race/ethnicity persist after adjusting for age, education, and income. The Maine Cardiovascular Health Program is working with partners on efforts to improve heart attack knowledge. Incorporating intentional outreach to disparate populations into these efforts will help ensure all Mainers have increased knowledge of heart attack symptoms and the need to call 9-1-1, which will lead to improved outcomes across the state.

---

**Presenting Author(s):**

**Nisha Kini**
Epidemiology, Maine Center for
Disease Control and Prevention/
University of Southern Maine,
Augusta, ME
nisha.kini@maine.gov

**Contributing Authors**

Sara L. Huston, Ph.D. Maine Center for Disease Control & Prevention University of Southern Maine  Troy Fullmer, BS Maine Center for Disease Control & Prevention  Santosh Nazare, MBBS, MPH, CPH Maine Center for Disease Control & Prevention University of So

**Abstract ID:** 1332544 **Presentation Type:** Breakout Presentation
**Title:** Investigation of a reported increase in intrauterine fetal death (IUFD) during the 2011 multistate outbreak of listeriosis associated with cantaloupe; El Paso County, Colorado
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Foodborne/waterborne disease
**Keywords:** Birth outcomes|Infectious Diseases|Outbreak investigations

**Background:**
Pregnancy-associated listeriosis can cause poor outcomes of fetal loss and neonatal invasive disease. Evaluation of pregnant women's exposure to Listeria monocytogenes is often limited to outbreak settings and disease attack rates are difficult to calculate. During the 2011 multistate listeriosis outbreak associated with cantaloupe, 7 of 146 (4.8%) cases were pregnancy-associated. In El Paso County (EPC), a local obstetrical practice reported a large increase in intrauterine fetal deaths (IUFD) from one birth center during August and September. To explore this clinical observation, El Paso County Public Health analyzed IUFD rates during 2011 and conducted chart reviews to investigate whether fetal loss was associated with maternal Listeria infection.

**Methods:**
Number of deliveries and IUFD data were obtained from 3 of 4 birthing hospitals in EPC for January through October 2011. Fetal demise was tracked using ICD9 codes and hospital billing data; trends in IUFD rates were examined by facility. Chart review of inpatient IUFD cases was performed for deaths between August and October 2011; abstraction assessed maternal illness and results of culture and pathologic examination of placental or fetal tissue.

**Results:**
From January to October 2011, 62 inpatient IUFDs occurred. The proportion of inpatient deliveries that resulted in fetal demise by month ranged from 0.3-1.9%.The average IUFD rate for January to July was 0.8%, as compared to an IUFD rate of 1.5% for August to October (outbreak months). This IUFD increase represented an average of 4 more cases per outbreak month. Chart review was completed for all 28 IUFD cases during outbreak months. Symptom history was available for 20/28 (71%) of mothers and only 2 (10%) had symptoms suggestive of potential Listeria infection. Two (7%) women had blood cultures and 1 had Listeria serum antibody; results were negative for Listeria. All had placental pathology performed and 4 (14%) showed choroiamnionitis; of those cases, 1 placental culture was negative for Listeria and no mothers had acute symptoms consistent with listeriosis. At least 16/28 (57%) of placental pathology reports indicated other noninfectious etiologies such as chromosomal anomalies. Placental culture was available from 7 (25%) cases; none were positive for Listeria.

**Conclusions:**
During the 2011 multistate listeriosis outbreak, only 5% of cases were reported as pregnancy-associated. Despite an increase in cases of IUFD during the outbreak period, available clinical and laboratory data did not identify Listeria as a causative factor. For this outbreak, attack rates in pregnant women appeared to remain low.

---

**Presenting Author(s):**

**Marigny Klaber**
El Paso County Public Health,
Colorado Springs, CO
marignyklaber@elpasoco.com

**Contributing Authors**

Shannon A. Rowe, MPH; Bernadette Albanese, MD, MPH El Paso County Public Health

**Abstract ID:** 1331634 **Presentation Type:** Breakout Presentation
**Title:** The burden of hepatitis C infection in sites funded to conduct surveillance
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Viral hepatitis
**Keywords:** Surveillance|Hepatitis

**Background:**
National seroprevalence surveys indicate that there are an estimated 3.2 million persons with chronic hepatitis C virus (HCV) infection in the United States resulting in significant morbidity and mortality; however state-specific estimates are not available. We describe the burden of HCV infection in sites funded to conduct enhanced hepatitis surveillance.

**Methods:**
CDC funds population-based HCV surveillance in the Emerging Infections Program (EIP). During 2010, CDC received HCV data from 8 sites: Colorado, Connecticut, Minnesota, New Mexico, 34 counties in New York State, New York City, Oregon, and San Francisco. Two sites (NYC and San Francisco) did not report acute cases. Surveillance methods used in all sites include laboratory reporting of HCV tests; sites determined if cases were previously reported. Sites then investigate all or a sample of new cases to supplement laboratory reports. We calculated 2010 rates using denominator estimates from the US Census Bureau; the combined population under surveillance was 24.2-33.2 million.

**Results:**
During 2010, six sites reported 164 acute HCV cases combined, for an overall rate of 0.7 per 100,000 (range 0.3-1.1 per 100,000). All sites combined reported 33,699 new cases of past/ present HCV infection in 2010 (range by site 1,690-10,021), for an overall rate of 102 per 100,000 population (range by site 33.4 to 209.9 per 100,000) in 2010. Overall, of the 33,699 cases with a positive antibody test result, 45.7% also had a positive RNA test (range by site 25%-70.8%) and 21.9% (range 4.2%-35.3%) had a genotype test reported. Age and sex was missing in only 0.1% and 0.3% of cases, respectively.

**Conclusions:**
Despite challenges, federal funds support the successful de-duplication and collection of basic demographic and select follow up information. Because many patients with HCV infection may be asymptomatic and unaware of their infection, our rates could underestimate disease burden. States lacking resources might estimate burden by applying rates by age and sex where population characteristics are similar.

---

**Presenting Author(s):**

**Monina Klevens**
Centers for Disease Control and
Prevention, Atlanta, GA
rmk2@cdc.gov

**Contributing Authors**

Iqbal K, MPH - Centers for Disease Control and Prevention Rizzo E, MA - New York State Department of Health Thomas A, MD - Oregon Public Health Division Vonderwahl C, BS - Colorado Department of Public Health and Environment Bryant T, MS - New Mexico Depa

**Abstract ID:** 1278936 **Presentation Type:** Breakout Presentation
**Title:** Surveillance of pertussis: Why reported cases fail to meet the clinical case definition
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Vaccine preventable diseases
**Keywords:** Surveillance|Respiratory diseases: Non-influenza

**Background:**
National Surveillance for Pertussis establishes criteria for reporting pertussis to public health authorities. A large number of suspected pertussis cases are reported, yet do not meet the case classification criteria for cough duration. This study aims to define the population who fail to meet case classification criteria and to identify probable reasons for failure.

**Methods:**
Data were confirmed and probable pertussis cases reported to the Michigan Disease Surveillance System between 1 January 2000 and 31 December 2010. Multi-level linear regression was used to determine predictors of insufficient cough duration, controlling for county, and year of disease.

**Results:**
Length of cough is associated with age, the type of antibiotic, and the timeliness of antibiotic administration. The average duration of cough for reported cases was 35.5 days. There were no significant distinctions between the correlations of macrolide antibiotics (84%) and those of sulfonamides (1%) or cyclins (1%). ?-lactamases (9%) and other drugs (5%) were correlated with a longer duration of cough, averaging 43.2 days. Receiving macrolide therapy within the first week of cough is associated with a mean cough duration of 10 days in young children, resulting in failure to meet the clinical cough criteria. This pattern attenuates with age, but failure to meet the cough criteria extends through older age groups.

**Conclusions:**
Early antibiotic treatment with a macrolide may decrease the burden of disease associated with pertussis by decreasing the length of cough. This results in failure to meet the clinical cough criteria, when the macrolide is prescribed within seven days of cough onset.

---

**Presenting Author(s):**

**Jennifer Knapp**
Epidemiology , University of Michigan,
Ann Arbor, MI
jkknapp@umich.edu

**Contributing Authors**

Matthew Boulton, M.D., M.P.H., University of Michigan School of Public Health

**Abstract ID:** 1315470 **Presentation Type:** Breakout Presentation
**Title:** State-specific proportions of asthma related to work: An update from the Behavioral Risk Factor Surveillance System, 2006–2009
**Committee:** Occupational Health Sub-Committee
**Topic:** Occupational lung diseases
**Keywords:** Occupational lung diseases|Asthma|Occupational Surveillance

**Background:**
Data from the 2006 and 2007 Behavioral Risk Factor Surveillance System Asthma Call-back Survey (ACBS) collected in 33 states and District of Columbia indicated that an estimated 9.7% of ever-employed adults with current asthma had health professional-diagnosed work-related asthma (WRA) (range: 5.0% [Arizona] to 13.8% [Florida]) and 47.5% had possible WRA (range: 38.1% [Arizona] to 62.6% [Oklahoma]). Using previous definitions, we aimed to provide more precise estimates of the state-specific proportions of asthma related to work based on the most recent available data.

**Methods:**
We analyzed data from the 2006–2009 ACBS for ever-employed adults (aged ?18 years) with current asthma from 38 states and District of Columbia. Individuals with health professional-diagnosed WRA were told by a doctor or other health professional that their asthma was related to any job they ever had. Individuals with possible WRA described their asthma as caused or made worse by chemicals, smoke, fumes or dust in a current or previous job. We estimated weighted proportions with corresponding 95% confidence intervals.

**Results:**
Among ever-employed adults with current asthma, 9.0% (95% confidence interval [CI]: 8.4%–9.6%) had health professional-diagnosed WRA and 45.7% (95% CI: 44.5%–46.9%) had possible WRA. Proportions of health professional-diagnosed WRA and possible WRA ranged by state (4.8% [Arizona] to 14.0% [Florida] and 37.7% [District of Columbia] to 58.2% [Oklahoma], respectively). Similar differences in the proportions of WRA by age, race, education, income, health insurance status, employment status, and asthma control level were found as in the previous report.

**Conclusions:**
Compared with previous estimates, no substantial differences in the proportion of asthma that is work-related were found. By state, the proportion of asthma that is work-related and the state rank did not change. Greater state participation in the ACBS would increase the precision of estimates. These results can assist asthma prevention programs with establishing intervention priorities.

---

**Presenting Author(s):**

**Gretchen Knoeller**
National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention, Morgantown, WV
ipb8@cdc.gov

**Contributing Authors**

Jacek M. Mazurek, MD, MS, PhD, National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention Jeanne E. Moorman, MS, National Center for Environmental Health, Centers for Disease Control and Prevention

**Abstract ID:** 1366615 **Presentation Type:** Breakout Presentation
**Title:** Occupational Asthma Incidence: Evidence from the 2006–2009 Behavioral Risk Factor Surveillance System Asthma Call-Back Survey
**Committee:** Occupational Health Sub-Committee
**Topic:** Other occupational health issues
**Keywords:** Asthma|Surveillance

**Background:**
The estimated asthma incidence among at-risk adults is 3,800 per million. Occupational asthma (OA) is new-onset asthma or the recurrence of previously quiescent asthma caused by workplace exposures. Information on population-based OA incidence and the proportion of incident asthma that is work related is limited.

**Methods:**
To estimate annual OA incidence we used Behavioral Risk Factor Surveillance System and Asthma Call-back Survey data collected from persons aged ?18 years during 2006–2009 in 38 states and the District of Columbia. Incident OA cases were persons with asthma diagnosed within the past 12 months who were told by a health professional that their asthma was work related. The at-risk population included respondents with no lifetime asthma diagnosis and incident OA cases. Incident potential OA cases were persons with asthma diagnosed within the past 12 months who either had health-professional–diagnosed work-related asthma or who described their asthma as caused by workplace exposures. The at-risk population included respondents with no lifetime asthma diagnosis and incident potential OA cases.

**Results:**
The estimated annual incidence among adults was 179 (95% CI: 113–245) per million population for OA and 692 (95% CI: 532–853) per million population for potential OA. The proportion of incident asthma that may be work related is 4.7%–18.2%.

**Conclusions:**
New-onset asthma in as many as one of six adult patients may be associated with work. Clinicians should consider OA when evaluating adults with new-onset asthma or the recurrence of previously quiescent asthma.

---

**Presenting Author(s):**

**Gretchen Knoeller**
National Institute for Occupational
Safety and Health, CDC, Morgantown,
WV
ipb8@cdc.gov

**Contributing Authors**

Gretchen E. Knoeller,1 Jeanne E. Moorman2 1 National Institute for Occupational Safety and Health, CDC 2 National Center for Environmental Health, CDC

**Abstract ID:** 1367707 **Presentation Type:** Poster Presentation
**Title:** Work-Related Asthma: Utility of the Behavioral Risk Factor Surveillance System Asthma Call-Back Survey
**Committee:** Occupational Health Sub-Committee
**Topic:** Improving occupational health surveillance
**Keywords:** Surveillance|Occupational Surveillance

**Background:**
Prior to the introduction of the Behavioral Risk Factor Surveillance System Asthma Call-back Survey (ACBS), population-based data on work-related asthma (WRA) were limited. The initiation of the ACBS provided an opportunity to address this gap.

**Methods:**
We analyzed 2006–2009 ACBS data from 38 states and District of Columbia for ever employed adults (aged ?18 years) with current asthma. We examined the proportion of asthma that is work related and identified associations between WRA and various demographic characteristics, chronic conditions, health-related quality of life, and financial barriers to asthma care. We estimated weighted proportions and, using logistic regression, calculated prevalence ratios (PRs).

**Results:**
We confirmed that an estimated 9.0% of individuals had health professional-diagnosed WRA and found that as much as 45.7% of asthma may be related to work. Persons with WRA differed from persons with non-WRA by age, income, education, current employment status, asthma control level, adverse asthma outcomes, chronic conditions, health-related quality of life, and financial barriers to asthma care. A major limitation of the data is the lack of information on industry and occupation.

**Conclusions:**
The ACBS proved to be useful for assessing the proportion and impact of WRA. These results indicate that WRA is a public health challenge. Addition of industry and occupation information would help guide intervention and prevention priorities.

---

**Presenting Author(s):**

**Gretchen Knoeller**
National Institute for Occupational
Safety and Health , Cincinnati, OH
ipb8@cdc.gov

**Contributing Authors**

Jacek M. Mazurek,1 MD, MS, PhD, Jeanne E. Moorman,2 MS 1 National Institute for Occupational Safety and Health, Centers for Disease Control and Prevention (CDC) 2 National Center for Environmental Health, CDC

**Abstract ID:** 1330258 **Presentation Type:** Breakout Presentation
**Title:** Evaluation of false positive hantavirus results in a commercial ELISA
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Zoonoses
**Keywords:** Zoonotic disease|Epidemiology

**Background:**
Hantavirus Pulmonary Syndrome (HPS) is a nationally notifiable rapid-onset severe respiratory disease. Detection of hantavirus-specific antibodies in serum is the most frequently used method of diagnostic confirmation, and several assays are available nationally. At the Centers for Disease Control and Prevention (CDC), we noticed an increased number of false positive test results associated with one commercially available hantavirus ELISA, as compared with our in-house ELISA. In this study, we compared the test results between these two assays.

**Methods:**
Records from diagnostic samples submitted to CDC for hantavirus testing were reviewed, and samples were included in the study if a previous test using the commercial assay had been performed and the test results were provided. Test results were recorded in a commercial database (Microsoft Access), and descriptive statistics were performed using SAS software.

**Results:**
Altogether, 59 patients had samples that tested positive by the commercial assay but negative by CDC's hantavirus ELISA (false positive), and 20 patients had samples that were positive by both assays and confirmed as having HPS (true positive). There were no patients that were negative by the commercial assay but positive by the CDC assay (false negative). Of the false positive patients, 45 were only IgM-positive, 5 were only IgG-positive, and 9 were both IgG and IgM-positive by the commercial assay. All true positive samples were both IgG and IgM-positive by the commercial assay. The commercial assay's mean IgG test score was 2.39 in false positive samples and 6.03 in true positive samples, while mean IgM score was 3.23 in false positive samples and 9.19 in true positive samples (positive cutoff >1.1 for both IgG and IgM). The mean test result was significantly higher in true positive samples for both IgG and IgM ($p<0.001$ for both by t-test).

**Conclusions:**
In conclusion, diagnostic samples from patients suspected of having HPS with a positive test result by this commercial assay should be confirmed by another hantavirus ELISA, particularly if the result was positive only for IgG or IgM, with a low test score.

---

**Presenting Author(s):**

**Barbara Knust**
Centers for Disease Control and
Prevention, Atlanta, GA
bknust@cdc.gov

**Contributing Authors**

Ute Stroeher, PhD, CDC; James A. Comer, PhD, CDC; Pierre E. Rollin, MD, CDC.

**Abstract ID:** 1366562 **Presentation Type:** Breakout Presentation
**Title:** National Violent Death Reporting System Panel
**Committee:**
**Topic:**
**Keywords:**

**Background:**

**Methods:**

---


**Presenting Author(s):**

**Melvin Kohn**
Oregon Health Authority, Portland, OR;
melvin.a.kohn@state.or.us

**Sabrina Walsh**
University of Kentucky, Lexington, KY;
sabrina.walsh@uky.edu

**Joseph Logan**
Centers for Disease Control and Prevention, Atlanta, GA;
ffa3@cdc.gov

**Abstract ID:** 1314616 **Presentation Type:** Breakout Presentation
**Title:** Preparing for functional needs while sheltering during a disaster — Kentucky, 2011
**Committee:** Environmental Health Sub-Committee
**Topic:** Disaster epidemiology: tools, data, experiences, and challenges
**Keywords:** Disasters|Preparedness|Assessments

**Background:**
During 2009–2011, Pike County (eastern Kentucky), experienced multiple severe storms, tornadoes, and flooding, resulting in damage to homes, lack of clean water, and need for temporary shelter of vulnerable populations. To plan for emergency responses for future disasters and to help ensure compliance with Federal Emergency Management Agency's new functional shelter guidance, we assessed the health status of Pike County by using a Community Assessment for Public Health Emergency Response (CASPER) survey.

**Methods:**
During June 2011, we used a 2-stage cluster sampling method to select 210 representative households in Pike County. Through in-person surveys, we assessed the proportion of households with children aged ?24 months, adults aged ?65 years, and residents affected by chronic health conditions, visual impairments (ranging from needing glasses for anything more than reading to legal blindness), physical limitations (use of cane/walker, wheelchair, or being bedbound or homebound), and supplemental oxygen requirements. Data were weighted to account for complex sampling.

**Results:**
Among 210 selected households, 207 (99%) were completed. Of these, 8.3% included children aged ?24 months, and 27.1% included an adult aged ?65 years. The most common chronic health condition reported was heart disease, affecting 50.7% of households, followed by diabetes (28%), lung disease (23%), and asthma (20.5%). Visual impairments were reported for 28.9% of households, physical limitations for 23.5%, and supplemental oxygen use for 11.6%.

**Conclusions:**
The substantial chronic disease burden among these selected Pike County households highlights the importance of encouraging residents to maintain personal emergency stocks of essential medications. Emergency response plans should include transportation for persons with physical limitations, and shelter modifications to ensure sufficient staff and supplies of infant formula, pharmaceuticals, and supplemental oxygen.

---

**Presenting Author(s):**

**Amy Kolwaite**
Division of Epidemiology and Health
Planning, Kentucky Department for
Public Health, Frankfort, KY
amy.kolwaite@ky.gov

**Contributing Authors**

Douglas Thoroughman, PhD, MS Kraig Humbaugh, MD, MPH Margaret Riggs, PhD, MPH, MS

**Abstract ID:** 1393719 **Presentation Type:** Late Breaker: Breakout Presentation
**Title:** Norovirus Outbreak at a Youth Basketball Tournament in Kentucky — February 2012
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Miscellaneous infectious disease
**Keywords:** Outbreak investigations |Infectious Diseases|Environmental exposures

**Background:**
Norovirus, a highly contagious pathogen, is the leading cause of acute gastroenteritis outbreaks worldwide. In February 2012, the Kentucky Department for Public Health was notified of multiple cases of vomiting and diarrhea among youth basketball players and spectators participating in a 3-day statewide basketball tournament. We investigated to determine the extent and cause of the outbreak to prevent further illness.

**Methods:**
We defined a case as vomiting or diarrhea ?72 hours after tournament attendance in coaches, players, spectators and employees. Identified patients were asked about illness history and food and water exposures. Stool specimens were requested for reverse transcription-polymerase chain reaction.

**Results:**
Among 52 teams, 49 (94%) were contacted, representing 573 players. Thirty-six teams (69%) had at least one ill player. The 242 identified cases occurred among 154/573 (27%) players, 11 coaches, 12/46 (26%) employees and 65 spectators. Nineteen (8%) sought medical care and 2 children were hospitalized. Three persons from 3 different teams experienced illness onset before the tournament; 1 vomited courtside in the gymnasium during the tournament's first night. Janitorial staff were never notified. Symptom onset on days 2 and 3 following the courtside vomiting episode occurred in 196 (81%). No common food or water sources were identified. All 6 stool specimens tested positive for norovirus. Five were sent for sequencing, and results yielded the identical genogroup 2 type 7, or GII.7 strain, a relatively rare norovirus strain. These 6 confirmed cases represented players or spectators from 4 different teams.

**Conclusions:**
The high proportion of teams affected, lack of common food or water sources, and shared genotype indicated person-to-person transmission. The courtside vomiting episode increased opportunity for exposure. Education regarding personal hygiene, exclusion of players experiencing gastroenteritis symptoms ?24 hours before a sporting event and greater attention to cleaning environmental surfaces can reduce future sports-associated norovirus outbreaks.

---

**Presenting Author(s):**

**Amy Kolwaite**
Division of Epidemiology and Health Planning, Kentucky Department for Public Health, Frankfort, KY
amy.kolwaite@ky.gov

**Contributing Authors**

Vinay Chiguluri, B.Pharm, MPH, Kentucky Department for Public Health Sara Robeson, MA, MSPH, Kentucky Department for Public Health Kraig Humbaugh MD, MPH, Kentucky Department for Public Health Rishi Desai, MD, MPH, Centers for Disease Control and Prevention Aron Hall, DVM, MSPH, DACVPM, Centers for Disease Control and Prevention Doug Thoroughman, PhD, MS, CDC/Kentucky Department for Public Health

**Abstract ID:** 1329669 **Presentation Type:** Breakout Presentation
**Title:** The Safe Injection Practices Coalition's One & Only Campaign: The State Health Department's Role in Promoting Injection Safety
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Healthcare associated infections (HAI)|Infection control

**Background:**
In 2001, an outbreak of Hepatitis C Virus (HCV) resulting from unsafe injection practices was discovered in an oncology clinic in Nebraska. 99 patients were ultimately diagnosed with HCV. This and other similar outbreaks led to the formation of the Safe Injection Practice's Coalition's One & Only Campaign, a public health campaign raising awareness among patients and providers about safe injection practices. State and local health departments are in a unique position to educate providers on the importance of safe injection practices and pursue regulatory changes (e.g., related to education and training requirements) to assure safe practice.

**Methods:**
The Safe Injection Practices Coalition (SIPC) is a partnership of healthcare-related organizations that promotes safe injection practices in all U.S. healthcare settings. The SIPC One & Only Campaign—a public health education and awareness campaign — is aimed at both healthcare providers and patients to advance and promote safe injection practices. Key partners in the One & Only Campaign have included state health departments in New York, Nevada and New Jersey.

**Results:**
Since 2009, the SIPC and its health department partners have developed a wide array of educational materials, including a free CME activity, brochures, posters, a provider toolkit and a health department implementation tool kit. In addition to presentations to professional and provider groups, state health departments have facilitated changes in state regulations and led interactions with liability insurers to increase requirements pertaining to ensuring safe injections. Practical steps that all health departments can take to promote injection safety in their own jurisdictions will be reviewed in the context of the health department toolkit. Future strategies include strengthening linkages among state health department HAI programs, surveillance, and survey/certification activities and emphasizing effective oversight of outpatient care settings.

**Conclusions:**
State and local health departments have important roles in both the investigation of outbreaks related to unsafe injection practices and, increasingly, primary prevention. They have an essential role in promoting safe injection practices in all healthcare settings.

---

**Presenting Author(s):**

**Rachel Kossover**
Centers for Disease Control and Prevention, Atlanta, GA
gvb7@cdc.gov

**Abstract ID:** 1331587 **Presentation Type:** Poster Presentation
**Title:** Human tularemia in the United States: 2001-2010 *
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Zoonoses
**Keywords:** NNDSS|Data/Surveillance|Zoonotic disease

**Background:**
Tularemia is a zoonotic disease caused by Francisella tularensis subsp. tularensis (type A) and subsp. holarctica (type B). Transmission to humans occurs by multiple routes and severity ranges from mild to life-threatening. In 1999, CSTE voted to reinstate tularemia as a notifiable disease due to concern regarding bioterrorism, with the goal of monitoring the current epidemiology of naturally-occurring tularemia in the United States.

**Methods:**
Tularemia cases are reported through the National Notifiable Diseases Surveillance System (NNDSS). Isolates were requested of health departments, identified to subspecies by biochemical analysis and subtyped by pulsed-field gel electrophoresis (PFGE). Clinical and exposure details, not available through NNDSS, were requested during 2008-2010 following creation of a national tularemia case report form.

**Results:**
During 2001-2010, 47 states reported 1208 tularemia cases; 64% were classified as confirmed. A median of 127 cases were reported each year (range: 90-154). Over half of all cases (56%) were reported from six central and south-central states (Missouri, Arkansas, Oklahoma, Kansas, Nebraska and South Dakota), although incidence was highest in Dukes County (Martha's Vineyard), Massachusetts (430 cases/100,000 population). Overall, rates were higher among males (0.6/100,000), persons aged 5-9 and 65-69 (both 0.7/100,000) and American Indians (2/100,000). Two-hundred sixty-six isolates from 33 states were available for testing; 68% were type A. Among states with ?10 isolates tested, type A strains accounted for anywhere from 10% to 96% of isolates. PFGE subtyping revealed distinct clades that, combined with patient data, demonstrate geographic and virulence differences. Clinical and exposure details were available for 33% (n=121) of cases reported during 2008-2010; 65% percent were ulceroglandular (58/89), 63% required hospitalization (65/104), and 6% were fatal (6/102). Tick or deerfly bite was a commonly reported exposure (68%, 56/82), as was contact with a sick or dead animal (38%, 23/60).

**Conclusions:**
The geographic distribution of tularemia is broad, but incidence remains very low outside of distinct foci. Elevated incidence in males, certain age groups, and American Indians likely reflects greater possibility for outdoor exposures. Although subject to reporting bias, the observed rate of hospitalization is substantial, and mortality is higher than in published case series. Submission of case details and isolates allows for analyses not possible based on NNDSS data alone. Furthermore, development of a reference library of PFGE patterns has allowed for greater differentiation of F. tularensis and led to a more thorough assessment of the current epidemiology of tularemia in the US.

---

**Presenting Author(s):**

**Kiersten Kugeler**
Division of Vector-Borne Diseases,
Centers for Disease Control and
Prevention, Fort Collins, CO
kkugeler@cdc.gov

**Contributing Authors**

Jeannine M. Petersen, PhD, Centers for Disease Control and Prevention Paul S. Mead, MD, MPH, Centers for Disease Control and Prevention

**Abstract ID:** 1309687 **Presentation Type:** Poster Presentation
**Title:** Enhancing Influenza-like Illness Surveillance in Virginia
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Influenza
**Keywords:** Influenza surveillance|Epidemiology

**Background:**
Since 2007, the Virginia Department of Health (VDH) has conducted influenza-like illness (ILI) surveillance by analyzing syndromic data from emergency department and urgent care center patient visits and laboratory and outbreak reports. Although surveillance was designed to minimize public health resource expenditures, data were primarily limited to calculating the proportion of outpatient visits due to ILI. To expand ILI surveillance, VDH and the Division of Consolidated Laboratory Services, (DCLS) participated in the Influenza Incidence Surveillance Project (IISP) managed by the Council of State and Territorial Epidemiologists and the Centers for Disease Control and Prevention.

**Methods:**
From August 1, 2010–July 31, 2011, providers from four outpatient facilities collected nasopharyngeal specimens from all patients with ILI, defined as recent febrile illness with cough and/or sore throat, for testing by a point of care rapid diagnostic influenza test. Providers submitted up to fifteen specimens per week for testing by the Luminex xTAG respiratory viral panel (RVP) assay for adenovirus, influenza viruses, human metapneumovirus, parainfluenza viruses, respiratory syncytial virus and rhinovirus. The weekly incidence of ILI was estimated by dividing the number of ILI cases reported each week by the patient population. The weekly incidence of laboratory-confirmed influenza was estimated by multiplying the weekly ILI incidence by the weekly proportion of specimens with detectable influenza virus. Rates were age-adjusted by the direct method to the 2010 Virginia population.

**Results:**
DCLS validated the Luminex xTAG assay to detect common respiratory viruses. Of the 568 specimens tested, 341 (59%) had at least one respiratory virus detected, with rhinovirus and influenza virus being most frequently (25% and 20%, respectively) detected. For the 1-year surveillance period, the age-adjusted incidence of ILI and laboratory-confirmed influenza were 1,962 per 100,000 population and 315 per 100,000 population, respectively. Compared with the Luminex xTAG RVP results, the rapid influenza diagnostic test was moderately specific (89%) but less sensitive (47%) during the peak influenza period.

**Conclusions:**
The IISP complemented existing ILI surveillance in Virginia by adding three critical pieces of information not previously captured: denominator data for calculating real-time incidence rates of ILI and laboratory-confirmed influenza, real-time identification of other respiratory viruses circulating in Virginia through expansion of laboratory capabilities and a performance evaluation of a rapid influenza diagnostic test in outpatient settings. Since participating in the IISP, Virginia has also improved respiratory disease outbreak investigations by the incorporation of expanded respiratory virus testing.

---

**Presenting Author(s):**

**Katie Kurkjian**
Office of Public Health Preparedness
and Response, Centers for Disease
Control and Prevention, Atlanta, GA
katie.kurkjian@vdh.virginia.gov

**Contributing Authors**

Kimberly J. Filbert, MPH, Virginia Department of Health Stephanie Dela Cruz, MS, Virginia Department of General Services, Division of Consolidated Laboratory Services Angela Poates, Virginia Department of General Services, Division of Consolidated Laborat

**Abstract ID:** 1331403 **Presentation Type:** Breakout Presentation
**Title:** Utilization of social media during a large outbreak of sapovirus-associated gastroenteritis for rapid case finding, specimen collection and investigation
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Foodborne/waterborne disease
**Keywords:** Outbreak investigations |Informatics|Infectious Diseases

**Background:**
In December 2011, a number of runners reported becoming ill with gastroenteritis during and after a local marathon through the marathon's Facebook page, largely focusing on water provided to runners during the race. Upon identification of the possible outbreak among the 44,000 race participants, we initiated an investigation to identify cases, describe the outbreak, and evaluate risk factors and possible sources of infection. Upon completion of the investigation, we evaluated the utility of social media for rapid case finding, specimen collection and investigation.

**Methods:**
We developed an online retrospective cohort study utilizing convenience sampling to identify cases and collect basic demographic, medical, and risk factor information, and distributed links to the survey on Facebook and through Twitter. We manually abstracted data from Facebook and Twitter on the timing of posts with links to the survey. Local residents who had completed the survey and met the case definition were contacted to arrange for specimen collection.

**Results:**
Links to the survey were re-posted to the marathon's Facebook page (with 25,732 followers) by members of the running community on four consecutive days starting on the day of release of the survey, and a total of 42 times within one week. Twenty-two people shared the survey link on Twitter, potentially reaching 17,982 followers. Respondents initiated 1,142 surveys, of which 1,060 surveys were sufficiently completed to determine if the respondent had met the outbreak case definition; of these, 575 (54.2%) met the illness case definition, and 485 (45.8%) did not. A total of 362 responses (31.7%) had been initiated within 12 hours of the release of the survey, and provided a sufficient sample size to conduct descriptive and risk factor analyses. Seventeen ill local runners were identified within 18 hours of the release of the survey and were requested to provide stool specimens. Laboratory testing on nine runners and two family members identified sapovirus as the causative agent of the outbreak. As a result of these activities, we were able to quickly rule out water as the source of the outbreak and provide a written interim report to the community within a week of the initiation of the investigation.

**Conclusions:**
Social media was ultimately successful in assisting in this outbreak investigation, and was enhanced by using an existing community with actively-participating members. However, social media data are not easily extracted and are incomplete, limiting their analytic value during an outbreak.

---

**Presenting Author(s):**

**Brian Labus**
Southern Nevada Health District, Las Vegas, NV
labus@snhdmail.org

**Abstract ID:** 1326077 **Presentation Type:** Breakout Presentation
**Title:** Impact of the updated pre-immigration screening guidelines on the rate of tuberculosis among newly arrived immigrants to New York City 2001-2010
**Committee:** Cross Cutting Sub-Committee
**Topic:** Importation of Diseases Across Borders: Asylees, Immigrants, Refugees, Travelers, Veterans, and More
**Keywords:** Infectious Diseases|Immigration|Screening

**Background:**
Pre-immigration medical screening is mandated for all persons applying for legal permanent residence in the United States (U.S.) (hereafter referred to as immigrants). The U.S. began requiring more intensive tuberculosis (TB) screening of immigrants in 2007, but implementation was staggered. The New York City (NYC) Department of Health and Mental Hygiene evaluates immigrants that were identified as having non-infectious TB and latent TB infection during their pre-immigration screening.

**Methods:**
We compared rates of TB disease diagnosed on evaluation in NYC among immigrants screened pre- and post-guideline change from China, Dominican Republic, Haiti, Hong Kong, Philippines, and Vietnam. Among immigrants diagnosed with TB disease in NYC, we examined characteristics associated with screening under the new guidelines.

**Results:**
The rate of active TB among immigrants screened pre-guideline change was 57.9/100,000 compared to 22.8/100,000 among those screened post-guideline change (p=0.01). From 2001-2010, 100 immigrants were diagnosed with active TB upon evaluation in NYC. Ninety were screened pre-guideline change. Median age was 52 years (range: 2-86), 61% were male, 18% were acid-fast bacilli sputum-smear positive, and 50% were culture-negative. Ten were screened post-guideline change. Median age was 45 (4-69) (p=0.13), 20% were male (p=0.01), 10% were smear positive (p=0.34), and 70% were culture-negative (p=0.32).

**Conclusions:**
These findings suggest that the new guidelines were associated with a reduced rate of TB in new immigrants. Further evaluation is needed to assess impact of the guidelines.

---

**Presenting Author(s):**

**Nicola Lancki**
Bureau of Tuberculosis Control, New York City Department of Health and Mental Hygiene, Long Island City, NY
kaz9@cdc.gov

**Contributing Authors**

Michelle Macaraig, MPH, New York City Department of Health and Mental Hygiene. Paul Edelson, MD, Centers for Disease Control and Prevention, New York Quarantine Station.

**Abstract ID:** 1279175 **Presentation Type:** Roundtable Presentation
**Title:** Tribal Epidemiology Roundtable
**Committee:** Cross Cutting Sub-Committee
**Topic:** Tribal epidemiology
**Keywords:** Tribal epidemiology

**Background:**
The tribal epidemiology subcommittee has been an active subcommittee for 10 years and annually has a roundtable to update members on current activities and plan for new activities

**Methods:**
See below

**Results:**
State Laws that are Relevant to State Data-sharing with Tribal Epidemiology Centers Report, Data Linkage Tools, Indian Health Service and Tribal Epidemiology Center Informational Package, Western Regional Tribal Epidemiology Meeting, American Indian/Alaska Native Denominators, AIAN influenza death case control study, AIAN TB study

**Conclusions:**
See above

---

**Presenting Author(s):**

**Michael Landen**
New Mexico Department of Health ,
Santa Fe, NM
michael.landen@state.nm.us

**Contributing Authors**

None

**Abstract ID:** 1327248 **Presentation Type:** Breakout Presentation
**Title:** Assessing heat health awareness and behaviors in New York City
**Committee:** Environmental Health Sub-Committee
**Topic:** Climate change epidemiology and public health
**Keywords:** Climate change|Environmental Health|Behavioral research

**Background:**
Heat waves are major causes of morbidity and mortality, and public behaviors in response to heat warnings may influence health impacts. During heat emergencies, the New York City Department of Health and Mental Hygiene (NYC DOHMH) opens cooling centers and conducts outreach, including recommending that vulnerable populations use or seek air conditioning (AC). To evaluate and inform public messaging related to extreme heat events, and to plan for climate adaptation, NYC DOHMH conducted a survey to examine penetration of heat-health warnings, heat illness prevention behaviors, and AC prevalence and use patterns.

**Methods:**
A random digit dial telephone survey was administered from September 20-25, 2011. The 15-question survey was administered to 719 adults aged >18 years with a landline or cell phone. The cooperation rate was 57.5%. Analyses used sample weights to represent the NYC population by age, sex, and race-ethnicity. Adults with elevated heat-health risk were defined as those age ? 65 or reporting poor or fair health.

**Results:**
During the most recent summer, 77% (95% CI: 73, 80) of all New Yorkers heard or saw a heat warning, mainly on TV. Eleven percent (9, 13) have no functioning AC and 25% (21, 28) do not have AC or never/rarely use it during hot weather. Among those with elevated health risk status (24%), barriers to AC ownership cited most frequently were: cost (50%, 34, 65), the perception that AC was not needed (26%, 15, 42), and a dislike of AC (15%, 7, 28). Among all adults, 8% (7, 10), or 545,000 people, had both high heat-health risk and did not own or never/rarely used AC. Among of this most vulnerable group, 48% (37, 59) stay home during very hot weather, most often because they "prefer to stay home' or feel unsafe leaving home. 54% (50, 58) of all New Yorkers reported checking on a family member, friend, or neighbor during very hot weather.

**Conclusions:**
Although warning penetration is high, many people are vulnerable to heat in NYC. Major barriers to AC protection of vulnerable populations during heat waves include cost of home AC, risk perception, and preference for staying at home. With future heat waves projected to be more severe and frequent in the future, efforts are needed to improve public health protection during heat waves. Measures to address cost of home air conditioning and gaps in risk perception are needed.

---

**Presenting Author(s):**

**Kathryn Lane**
Bureau of Environmental Surveillance
and Policy, New York City Department
of Health and Mental Hygiene, New
York, NY
klane1@health.nyc.gov

**Contributing Authors**

Katherine Wheeler, MPH, New York City Department of Health and Mental Hygiene Kizzy Charles-Guzman, New York City Department of Health and Mental Hygiene Nathan Graber, MD, MPH, New York City Department of Health and Mental Hygiene Thomas D. Matte, MD, MP

**Abstract ID:** 1330593 **Presentation Type:** Poster Presentation
**Title:** Evaluating the potential uses of hypothermia syndromic surveillance in New York City *
**Committee:** Surveillance/Informatics
**Topic:** General surveillance topics
**Keywords:** Evaluation|Surveillance|Environmental Health


**Background:**
Weather-related hypothermia is a preventable cause of mortality and morbidity among urban homeless populations and those with inadequate heat at home. Timely surveillance of hypothermia illness could help inform public health protection measures during severe winter weather. We conducted a retrospective analysis to evaluate the utility of possible hypothermia ED visits identified by syndromic surveillance. We compared geographic, temporal, and weather correlates of hypothermia syndromic illness, hospital admissions and ED visits, and deaths.

**Methods:**
A hypothermia syndrome (HS) case definition comprised of chief complaint key words and ICD 9 codes was applied to an archive of 2008-2009 cold season (October to April) syndromic surveillance data reported from a subset of NYC emergency rooms, representing 95% of all ED visits in NYC. All inpatient (ID) and emergency department (ED) hypothermia hospital discharges were identified with ICD-9 codes (991, E901.0, E901.8, E901.9, E988.3); hypothermia deaths (HD) were identified with ICD-10 code X31. Patient characteristics, including age, gender, and alcohol involvement, were compared. Poisson regression models were fit to estimate the relation of daily temperature, precipitation, and snow depth to HS and ID counts.

**Results:**
477 HS cases were identified from 2008-2009, with an average annual rate of 2.8 per 100,000 people. 765 total hospitalizations (4.6 per 100,000), 698 EDs (4.2 per 100,000), and 23 HDs (0.1 per 100,000) were identified during the same time period. More than 80% of HDs occurred in those aged 45 and older, 26% had no fixed address, and 17% were injured in their homes. Proportions of cases identified did not vary significantly by age group, gender, or borough when comparing syndromic surveillance with hospital discharge data. The majority of cases occurred in December and January. In preliminary analyses, mean minimum daily temperature and mean snow depth were associated with increases in daily hypothermia syndrome counts and ID counts.

**Conclusions:**
Cases of hypothermia identified through syndromic surveillance had a similar demographic and temporal pattern as those identified through hospital discharge data. Syndromic surveillance of cold-related illness may provide officials with timely and representative data to inform prevention efforts during cold weather and winter storms. Daily mean minimum temperature and mean snow depth are potentially useful in determining timing of analyses.


---


**Presenting Author(s):**

**Kathryn Lane**
Bureau of Environmental Surveillance and Policy, New York City Department of Health and Mental Hygiene, New York, NY
klane1@health.nyc.gov

**Contributing Authors**

Ramona Lall, Msc, PhD, New York City Department of Health and Mental Hygiene Katherine Wheeler, MPH, New York City Department of Health and Mental Hygiene Thomas D. Matte, MD, MPH, New York City Department of Health and Mental Hygiene

**Abstract ID:** 1366637 **Presentation Type:** Roundtable Presentation
**Title:** Climate Change Roundtable
**Committee:** Environmental Health Sub-Committee
**Topic:** Climate change epidemiology and public health
**Keywords:** Climate change

**Brief Summary:**
Brief description of focus and products of each of the following: -CSTE Climate Working Group -EPHT Climate Change Working Group -CDC Climate-Ready Cities and States Initiative (BRACE Framework) -Climate preparedness activities of ASTHO and NACCHO Discussion Prompts: 1. How can our different networks share ideas and products more readily? 2. Are there topic areas or data needs that aren't being addressed by these networks? 3. What challenges do CSTE members face in their states in preparing for and responding to climate related public health hazards? This roundtable will focus on the variety of climate change projects going on at the state and local level, including the CSTE climate change indicator project, the CDC's Climate Ready Cities and States Initiative, ASTHO's climate change initiatives, and the EPHT network's Climate Change indicators. While an overview of these initiatives is important, the hosts anticipate that the most dynamic part of this roundtable will be a discussion of state and local gaps and needs for climate change planning in regards to programming and adaptation.

**Key Objectives:**
1) Review and discuss 2 climate change indicator projects (EPHT and CSTE), and programs aimed at helping localities build capacity to cope with health impacts of climate change, with a focus on the CDC's Climate-Ready Cities and States Initiative. 2) Discuss with participants current activities to prepare for climate change and identify opportunities and challenges in preparing for climate change health impacts

---

**Presenting Author(s):**

**Kathryn Lane**
NYC Department of Health and Mental Hygiene, New York City, NY
klane1@health.nyc.gov

**Lauren Thie**
North Carolina Department of Health and Human Services, Raleigh, NC
thie27@gmail.com

**Abstract ID:** 1330235 **Presentation Type:** Breakout Presentation
**Title:** Monitoring violent deaths in Michigan: The Michigan Violent Death Reporting System (MiVDRS)
**Committee:** Injury Control and Prevention Sub-Committee
**Topic:** Violence epidemiology and prevention across the lifespan
**Keywords:** Injury surveillance|NVDRS|Epidemiology

**Background:**
Each year, approximately 50,000 Americans die from violence-related injuries. About 2,100 of these deaths occur in Michigan. To reduce personal, familial and societal costs of violence, the United States Centers for Disease Control and Prevention (CDC) implemented the National Violent Death Reporting System (NVDRS) in 2003. NVDRS is a state-based surveillance system for monitoring the magnitude and characteristics of violent deaths at the national, state, and local levels. In 2009, Michigan became one of 18 states funded by the CDC to implement NVDRS.

**Methods:**
Data collection for the Michigan Violent Death Reporting System (MiVDRS) began in 2010. MiVDRS collects and links high quality, detailed data from death certificates, law enforcement reports, and medical examiner records. Currently, completed data in the system constitute death certificate data for Michigan for 2010. Data are collected on suicide, homicide, legal intervention, unintentional firearm injury, and undetermined manner deaths. Data elements include demographic characteristics of victims and perpetrators, circumstances leading to the fatal injury, substance use, relationship of victim to offender, date and place of injury occurrence, and the type of weapon used to inflict the fatal injury. Deaths are classified using the International Classification of Diseases, 10th Edition (ICD-10 codes) and manner of death as listed on the death certificate.

**Results:**
In 2010, 2,129 deaths were recorded in MiVDRS using death certificates. Suicides accounted for the highest percentage of violent deaths (56.5%), followed by homicides (27.8%), undetermined manner (12.9%), unintentional firearm (2.1%), and legal intervention deaths (0.6%). Suicide rates were highest among males aged 85 years and older and Native Americans. Homicide victims were mostly males between the ages of 15 and 34 and non-Hispanic blacks. Among all types of violent deaths, the most common weapon type was a firearm (49.5%).

**Conclusions:**
Violence-related fatalities present an urgent public health challenge. Continuous collection and analysis of MiVDRS data will help answer critical questions about violent deaths to assist with the planning, development, implementation, and evaluation of Michigan's violence prevention and intervention programs. Analyses will include measurement of time trends and identification of risk factors for violent deaths in Michigan. By participating in NVDRS, MiVDRS will also contribute to national efforts to assess violent deaths.

---

**Presenting Author(s):**

**Thomas Largo**
Michigan Department of Community
Health, Lansing, MI
largot@michigan.gov

**Contributing Authors**

Anthony Daniel, MSW, and Patricia K. Smith, MS, Michigan Department of Community Health

**Abstract ID:** 1330032 **Presentation Type:** Roundtable Presentation
**Title:** Making the case for infectious disease infrastructure: Sharing stories and communicating with policymakers
**Committee:** Cross Cutting Sub-Committee
**Topic:** Epidemiology capacity
**Keywords:** Epi / Lab capacity|Core functions

**Brief Summary:**
The ability for state health agencies to quickly detect and respond to infectious diseases depends on having a strong infrastructure in place. Infrastructure is the foundation for planning, delivering, and evaluating public health. State health agencies require effective and efficient systems and staff for preventing infectious disease morbidity and mortality, ensuring control of outbreaks and vigilance against diminishing diseases, and preventing and responding to reemerging and emerging infectious disease threats. The goal of ASTHO's Infrastructure project is to increase awareness of and support for state health agencies' critical infectious disease infrastructure programs. ASTHO developed materials including overviews on infectious disease and immunization infrastructure and a series of fact sheets (updated annually) highlighting Epidemiology and Laboratory Capacity program (ELC), Emerging Infections Program (EIP), and tuberculosis (TB) grant funding to states and territories. The materials are featured on a dedicated Infectious Disease Infrastructure page on the ASTHO website and can be distributed to attendees at the meeting. As a continuation of this work ASTHO will present the results from interviews with selected states in order to demonstrate the ongoing value of infrastructure funding and the impact of funding cuts, and the need for adequate capacity in state health agencies to address infectious disease issues. ASTHO is developing a communications plan with input from these interviews to be used to articulate the importance and concrete benefits of infectious disease infrastructure in each state. The materials developed will be used in educating policymakers and stakeholders about critical infectious disease infrastructure and the importance of the work of state health agencies. Participants in the roundtable will be invited to discuss experiences with infectious disease infrastructure successes and needs in their states, and potentials for in-state and across-state collaborations. Capacity to respond to outbreaks and emergencies will also be addressed.

**Key Objectives:**
Sharing examples and needs regarding infectious disease infrastructure and capacity in state health agencies

---

**Presenting Author(s):**

**Virginia Lathrop**
Association of State and Territorial
Health Officials, Arlington, VA
vlathrop@astho.org

**Abstract ID:** 1329957 **Presentation Type:** Breakout Presentation
**Title:** Characteristics of health-care workers who did not receive annual influenza vaccination, Georgia, 2010
**Committee:** Occupational Health Sub-Committee
**Topic:** Other occupational health issues
**Keywords:** Occupational Health|Influenza / Pandemic influenza|Health care

**Background:**
The Advisory Committee on Immunization Practices recommends that all U.S. health-care workers receive influenza vaccinations annually; many health-care organizations now require that employees receive annual influenza vaccination. The objectives of this study were to describe the demographic and socioeconomic characteristics of health-care workers in Georgia who were least likely to receive annual influenza vaccine during 2010 and to conduct additional analyses to examine the prevalence of health risk behaviors among health-care workers by their influenza vaccination status.

**Methods:**
Cross-sectional data from the 2010 Georgia Behavioral Risk Factor Surveillance System Survey were used to describe the demographics and socioeconomic status characteristics and health risk behaviors of health-care workers in Georgia who responded that they did not receive a seasonal flu vaccine in the past 12 months. Factors associated with not receiving influenza vaccination were assessed using a multivariable logistic regression model.

**Results:**
Overall, about 46% of health-care workers reported that they did not receive influenza vaccination in the 12 months prior to the survey. Health-care workers who were male, between the ages of 18-44 and 45-54 years, were non-Hispanic black/Hispanic/other, with a high school education or less, or who earned <$50,000 annually were less likely to receive annual influenza vaccinations. After adjusting for demographics and socioeconomic status, significant associations for not receiving annual influenza vaccination were found for health-care workers who were male (OR: 3.1; 95% CI: 1.1-8.6) and who had a high school education or less (OR: 2.7; 95% CI: 1.1-6.7). No significant associations were found between health risk behaviors and influenza vaccination status.

**Conclusions:**
The Healthy People 2020 target for seasonal influenza immunization among health-care workers is 90%. Results from this study show that only about 54% of health-care workers in Georgia received influenza vaccinations in the past 12 months. Targeted education and accessibility efforts may help to increase influenza vaccination among health-care workers who are least likely to be vaccinated.

---

**Presenting Author(s):**

**Antionette Lavender**
Georgia Department of Public Health,
Atlanta, GA
anlavender@dhr.state.ga.us

**Contributing Authors**

A. Rana Bayakly, MPH, Georgia Department of Public Health

**Abstract ID:** 1330215 **Presentation Type:** Breakout Presentation
**Title:** Disease risks among non-smoking employees exposed to secondhand smoke at work, Georgia, 2009-2010
**Committee:** Occupational Health Sub-Committee
**Topic:** Other occupational health issues
**Keywords:** Tobacco|Occupational exposure|Occupational Health

**Background:**
Despite growing knowledge of the adverse health effects of secondhand smoke, exposure to secondhand smoke still occurs in workplaces. In 2006, the U.S. Surgeon General reported that there is no safe level of exposure to secondhand smoke. The objective of this study was to determine the risk of heart disease, respiratory disease, and asthma among non-smoking employees in Georgia who were exposed to secondhand smoke at work.

**Methods:**
A cross-sectional study, using state-level data from the 2009-2010 National Adult Tobacco Survey, was conducted to determine the risk of disease among employed adults in Georgia who have never smoked cigarettes (n=1,589) and have been exposed to secondhand smoke at work during the past seven days prior to the survey. Employees exposed to secondhand smoke at work were characterized by demographics and socioeconomic status. Risk of disease was determined using multivariable logistic regression.

**Results:**
About 75% of all non-smoking employees believed that breathing smoke from other people's cigarettes would be harmful to them; 19% of these non-smoking employees were exposed to secondhand smoke at work. Employees who were male, aged 18-34 years, earned less than $70,000 annually, or who did not graduate from college were more likely to be exposed to secondhand smoke at work. After controlling for demographics and socioeconomic status, non-smoking employees exposed to secondhand smoke at work were 2.6 (95% CI: 1.0-7.0) times more likely to have heart disease, 3.9 (95% CI: 1.3-12.1) times more likely to have respiratory disease, and 2.8 (95% CI 1.3-5.8) times more likely to have asthma compared to non-smoking employees who were not exposed to secondhand smoke at work.

**Conclusions:**
Employees exposed to secondhand smoke at work are at increased risk of developing heart disease, respiratory disease, and asthma. Secondhand smoke-related diseases can be prevented through implementation and enforcement of comprehensive worksite policies that prohibit smoking.

---

**Presenting Author(s):**

**Antionette Lavender**
Georgia Department of Public Health,
Atlanta, GA
anlavender@dhr.state.ga.us

**Contributing Authors**

A. Rana Bayakly, MPH, Georgia Department of Public Health

**Abstract ID:** 1330303 **Presentation Type:** Roundtable Presentation
**Title:** Poison Center and Public Health Collaborations Community of Practice: Use of data from poison centers for hazardous exposure and illness surveillance
**Committee:** Environmental Health Sub-Committee
**Topic:** Other Emerging Environmental Epidemiology Issues
**Keywords:** Environmental Health|Collaboration|Data/Surveillance

**Brief Summary:**
The Council of State and Territorial Epidemiologists (CSTE) identified data collected by the nation's 57 poison centers (PCs) and uploaded to the National Poison Data System (NPDS) as important tools for national hazardous exposure and illness surveillance. CSTE members were interested in building a community of practice (CoP) to share experiences, identify best practices, and facilitate relationships among federal, state and local public health (PH) departments and PCs. An initial roundtable discussion was held at the CSTE meeting in June 2010 and included participants from federal, state, local PH agencies and PCs. A second roundtable discussion was held at the 2011 CSTE meeting to review accomplishments and create a leadership team to provide future direction for the CoP. This roundtable discussion will build upon previous sessions by discussing accomplishments and various planned improvements to the CoP and encourage further involvement from PH departments and regional PCs. CoP accomplishments to date include: - The organization and presentation of five educational on-line webinars illustrating successful examples of PC-led disease surveillance efforts. The first webinar highlighted CDC's role in national chemical, poison and radiological surveillance using NPDS. In the second webinar, the New York City (NYC) Department of Health and Mental Hygiene presented on surveillance of camphor-related illness in their state. The third, fourth and fifth webinars highlighted the various collaborative efforts between state PH departments and PCs in Florida, Wisconsin and Oregon, and presented their learned challenges and successes. - A web-based forum for this CoP was established on www.phConnect.org to enable posting of documents and exchange of information across jurisdictions. Currently, over 70 members are enrolled in the forum. - A CoP leadership team was created consisting of representatives from local, state and federal public health agencies and PCs. Updates will be presented on the development of two needs assessment surveys targeting PCs and state HDs as well as several best practice documents on PH and PC collaboration. This roundtable discussion will be organized and led by the CoP leadership team.

**Key Objectives:**
to provide an overview of activities and accomplishments of the CoP over the last year - to facilitate discussion about current and future project ideas for the community of practice such as the use of PC data for environmental and occupational indicators of exposure and illness - to identify other state and local PH officials and regional PCs who are interested in participating in the community of practice

---

**Presenting Author(s):**

**Royal Law**
Health Studies Branch, Centers for
Disease Control and Prevention,
Chamblee, GA
hua1@cdc.gov

**Contributing Authors**

Jay Schauben PharmD - American Association of Poison Control Centers Sharon Watkins PhD - Florida Department of Health Melissa Powell MPH - Oregon Public Health Division Martha Stanbury MSPH - Michigan Department of

Community Health  Carina Blackmore PhD- Florida Department of Health Katherine Wheeler MPH - New York City Department of Health and Mental Hygiene  Prakash Mulay MPH - Florida Department of Health Josh Schier MD - Centers for Disease Control and Prevention

**Abstract ID:** 1323974 **Presentation Type:** Roundtable Presentation
**Title:** CLUE meeting: For large, local health departments
**Committee:** Cross Cutting Sub-Committee
**Topic:** Local epidemiology
**Keywords:** Local epidemiology|Local Public Health Agencies|Collaboration

**Brief Summary:**
The role of large local,urban health departments in CSTE. Topics for discussion would be (1) what is the positive side of large local health departments participating in CSTE from their side and what benefits do their participation offer to CSTE, (2) how can participation in CSTE be encouraged from large, urban, local health departments (3) how can State Epidemiologists work with large local health departments in their jurisdictions to discussing voting topics (4) how to define criteria for large urban health departments and what sort of staff to recruit participation from, since many may not have same level of ID vs chronic epi that states do

**Key Objectives:**
Large, urban local health departments are often bigger than many state health departments and have different problems and priorities. This roundtable will discuss this issues and how best to compliment each others role in working together at the national CSTE level.

---

**Presenting Author(s):**

**Marcelle Layton**
New York City Department of Health
and Mental Hygiene, New York City,
NY
mlayton@health.nyc.gov

**Abstract ID:** 1326488 **Presentation Type:** Poster Presentation
**Title:** Adult lead poisoning cluster from ayurvedic product usage in Iowa, 2011 *
**Committee:** Environmental Health Sub-Committee
**Topic:** Other Emerging Environmental Epidemiology Issues
**Keywords:** Alternative Medicine/Therapies|Lead|Environmental exposures

**Background:**
In April, 2011, an adult white non-Hispanic male seen at a neurology clinic for a two-year follow up of a previous intracranial hemorrhage demonstrated worsening neurological deficits. A heavy metal panel reported a blood lead level of 93.6 µg/dL. The patient reported ingesting two ayurvedic products obtained in India since June 2010. Test results for one product called bhasma revealed 19,400 mg/Kg lead and 1,430 mg/Kg arsenic. More than 100 adults living in the rural, predominantly Caucasian, community who also used ayurvedic products were tested over the following six months and over 200 ayurvedic product samples were submitted for heavy metal testing. The company in India supplying the products reported 1600 customers in the USA and Europe.

**Methods:**
This is a retrospective observational post-investigation study of reported blood lead and supplement assay test results received by the State of Iowa Adult Blood Lead Epidemiology and Surveillance (ABLES) program.

**Results:**
Forty-four Iowa adults using ayurvedic products were identified as cases with elevated blood lead levels (EBLs) of 10 µg/dL or greater. Four adults had elevated blood mercury levels (10 ng/ml or greater). The mean age of the Iowa cases was 62 years (range 45 - 74). The mean initial EBL was 37 µg/dL (range 11-94) with 32 of 44 (73%) having initial EBL results of 25 µg/dL or greater. Product testing revealed high levels of lead, mercury, arsenic, and other heavy metals in numerous products. The ability to correlate specific product exposure to persons with abnormal test results was limited. Many of the people using the ayurvedic products declined to participate in the epidemiologic investigation. Products submitted for testing had handwritten labels and were not identified by a lot or batch number from the supplier. Because the products were reported to be obtained directly from a supplier outside of the USA, the FDA had limited ability to intervene.

**Conclusions:**
The use of alternative medicine products continues to expand into the mainstream population in the USA. Users may have an increased risk of exposure to toxic substances, especially when the products are manufactured outside of the USA. Consumers and medical practitioners need to be aware of the potential risk and discuss the use of all supplements to determine the need for testing or intervention.

---

**Presenting Author(s):**

**Kathy Leinenkugel**
Public Health, Iowa Department of
Public Health, Des Moines, IA
kathy.leinenkugel@idph.iowa.gov

**Abstract ID:** 1330543 **Presentation Type:** Breakout Presentation
**Title:** Evaluating and enhancing pharmacy reporting for tuberculosis surveillance, Arizona, 2011
**Committee:** Surveillance/Informatics
**Topic:** Novel surveillance methods and data sources
**Keywords:** Surveillance|Respiratory diseases: Non-influenza|Epidemiology


**Background:**
To reduce the spread of tuberculosis (TB), Arizona requires healthcare providers, laboratory directors, and pharmacists to report suspected TB cases. Pharmacists filling initial prescriptions for two or more anti-TB medications are required to report patient information (Routine) to Arizona Department of Health Services (ADHS). Pharmacy surveillance data is a safety-net reporting mechanism to ensure the capture of potential TB cases not managed by local public health jurisdictions. The purpose of this surveillance evaluation was to assess the representativeness of routine reporting and identify unreported, potentially active TB cases.

**Methods:**
ADHS requested commercial and hospital pharmacies located in Arizona to provide an annual retrospective list of all reportable prescriptions filled from October 1st, 2010 through September 30th, 2011 (Annual). The annual data report was compared with routine reports to assess completeness of routine reporting. These data were also compared against ADHS TB surveillance databases to determine TB classification for previously reported cases. Unreported individuals with three or more anti-TB medications were prioritized for investigation through medical record abstractions or physician interview to determine TB diagnosis and classification.

**Results:**
Annual reports were received from 82.7% (1040/1257) of Arizona pharmacies, yielding 370 suspect TB cases. In comparison, 22 reports were received through routine reporting, of which 16 (4.3%) were also submitted through annual reporting. Among the 370 suspected cases identified by annual reports, 172 (46.5%) were previously unreported, and three additional cases of TB were found among the investigated records with three or more medications. For all routine reports, the positive predictive value (PPV) for identifying a TB case was 36.4% (8/22) by reports of two or more medications, compared with 70.0% (7/10) by three or more medications. Among annual reports, the PPV for identifying TB was 20.3% (75/370) by reports of two or more medications, compared with 45.9% (56/122) by three or more medications. Routine reporting failed to identify 70 cases of active-TB reported through annual reports.

**Conclusions:**
Due to the low number of reports received through routine reporting, ADHS should consider enhancing pharmacy reporting requirements by changing reporting requirements to prescriptions of only three or more anti-TB medications or requiring an annual submission of pharmacy reports. These enhancements will help raise awareness for routine reporting, increase reporting accuracy for active-TB diagnosis, improve the timeliness of case investigations, and reduce the burden of reporting on pharmacists.


---


**Presenting Author(s):**

**Jason Lempp**
Applied Epidemiology Fellowship
Program, Centers for Disease Control
and Prevention , Atlanta, GA
Jason.Lempp@azdhs.gov

**Contributing Authors**

Cara M Christ, MD MS - Arizona Department of Health Services, Bureau of Epidemiology and Disease Control Ayesha Bashir, MD MPH - Arizona Department of Health Services, Bureau of Epidemiology and Disease Control Shoana M Anderson, MPH - Arizona Departmen

**Abstract ID:** 1332857 **Presentation Type:** Poster Presentation
**Title:** Naegleria fowleri infection in Virginia: An implication for improved safe swimming messaging
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Foodborne/waterborne disease
**Keywords:** Waterborne disease|Environmental exposures|Risk communication

**Background:**
Infections caused by small, free-living amebas are still unfamiliar to clinicians and risk factors associated with ameba infections are generally not well understood. Primary amebic meningoencephalitis (PAM) is a rare but nearly always fatal disease caused by Naegleria fowleri. This ameba proliferates in warm, freshwater and infects people by entering the body through the nose. Only 32 cases of PAM caused by Naegleria fowleri were reported to CDC from 2001 to 2010, mostly in southern-tier states. Even though other environmental media have been identified as a source of exposure (e.g. bath tubs, neti pots), the disease is most commonly associated with swimming and diving in freshwater lakes and ponds. In Virginia, a previously healthy school aged child became precipitously ill and died one week after exposure to freshwater during the summer of 2011.

**Methods:**
Public health officials were notified by hospital staff once the patient was given a working diagnosis of meningitis. A review of the patient's medical record was performed. Ante mortem cerebrospinal fluid, serum samples, and post mortem brain biopsy samples were submitted to the CDC. An exposure history was collected from the patient's parent.

**Results:**
Review of the patient's medical record indicated that initial symptoms included headache, slurred speech, and difficulty walking. Etiologies considered included Naegleria fowleri, rabies, and raccoon roundworm. The exposure history revealed that the child went swimming at multiple fresh bodies of water (rivers and lakes), approximately 5-9 days before symptom onset. The CDC confirmed that the patient's brain biopsy samples were significant for Naegleria fowleri.

**Conclusions:**
This fatal case of PAM in Virginia indicates the need for improved public health messages for swimming in freshwater. Although there are relatively few annual infections from Naegleria fowleri, a low risk of infection will always exist for those using warm freshwater for recreational purposes. Enhanced educational programs should be considered in southern-tier states where infections may occur. Standard public health messages on safe swimming should integrate risk factors for ameba infections. Swimmers should be apprised of the low risk of infection, particularly when water temperatures are high and water levels are low. Holding the nose shut or using nose clips when participating in water-related activities in bodies of warm, natural bodies of freshwater should also be encouraged. Finally, the public should be cautioned against stirring up sediment when swimming in natural bodies of freshwater.

---

**Presenting Author(s):**

**Rebecca LePrell**
Virginia Department of Health,
Richmond, VA
rebecca.leprell@vdh.virginia.gov

**Contributing Authors**

Laurie Forlano, DO, MPH, Virginia Department of Health, Margaret Tipple, MD, Virginia Department of Health, Diane Woolard, PhD, Virginia Department of Health, Julia Murphy, DVM, Virginia Department of Health, Angela West, MPH, Virginia Department of H

**Abstract ID:** 1322384 **Presentation Type:** Poster Presentation
**Title:** Reported endoscope reprocessing breaches, Minnesota 2010-2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Infection control|Healthcare associated infections (HAI)|Outbreak investigations

**Background:**
Endoscopic diagnostics and therapeutics are increasingly replacing invasive surgical procedures. Cleaning and disinfection of endoscopes and endoscopic accessories is complex and must be performed according manufacturer specifications. Breaches in endoscope reprocessing can expose patients to viral and bacterial pathogens and must be addressed on a case-by-case basis. State health departments have an expanding role in healthcare-associated infection prevention and consultation separate from regulatory functions. We discuss the Minnesota Department of Health (MDH) infectious disease epidemiology program experience of providing public health consultation to guide the investigation of endoscope reprocessing breaches. Consultation with a state health department who can engage the Centers for Disease Control and Prevention (CDC) staff or other experts can be invaluable in investigating reprocessing breaches.

**Methods:**
Over the past 18 months, infection preventionists from several healthcare facilities requested assistance from us after identifying incidents of inadequate endoscope reprocessing. In each situation, MDH staff collected information on the nature of the breach, facility type, and endoscope/endoscopic accessories and practices. In consultation with CDC, the risk to patients, including pathogen transmission, was evaluated. Interventions such as patient notification, internal facility communication, and U.S. Food and Drug Administration (FDA) notification were assessed and implemented.

**Results:**
From 5/2010-9/2011, seven endoscope reprocessing breaches were reported from five healthcare facilities, involving both inpatient and outpatients. Breaches resulted from incorrect use of endoscopic accessories, reprocessing of single use devices, and failure to follow manufacturer reprocessing recommendations. Four of the breaches were reported to FDA because incorrect instructions were provided by manufacturer and/or vendor representative. Breaches involved various endoscope types (cystoscope, hysteroscope, colonoscope, gastroscope) and were recognized through identification of blood in the scope after reprocessing, detection of a cluster of bacterial infections post-endoscopic procedure, or observation/audit of technician practices. To assist future breaches, we developed an endoscope breach assessment tool and list of resources.

**Conclusions:**
All healthcare facilities that perform endoscopic procedures should regularly assess reprocessing protocols/procedures and ensure that staff receive education, training, and competency testing. Health departments should be familiar with national endoscope reprocessing guidelines and other resources in order to assist healthcare facilities in investigating breaches, including notifying patients, reporting to the FDA, and training/practice changes to ensure patient safety. Infection preventionists should be aware that state health departments can contribute to the investigation by engaging CDC, providing consultation, and facilitating laboratory testing as indicated.

---

**Presenting Author(s):**

**Lindsey Lesher**
Minnesota Department of Health,
Minnesota Department of Health, St.
Paul, MN
lindsey.lesher@state.mn.us

**Contributing Authors**

Aaron DeVries, MD, MPH, Minnesota Department of Health Richard Danila, PhD, MPH Minnesota Department of Health Jane Harper, BSN, MS, CIC, Minnesota Department of Health

**Abstract ID:** 1312769 **Presentation Type:** Poster Presentation

**Title:** Evaluation of compliance with new regulations for discharging infectious tuberculosis patients from New York City hospitals

**Committee:** Infectious Diseases Sub-Committee

**Topic:** Respiratory diseases, non-influenza

**Keywords:** Infectious Diseases|Evaluation|Interventions

**Background:**

In June 2010, the New York City (NYC) Health Code was amended to require that hospitals obtain approval from the NYC Department of Health and Mental Hygiene Bureau of Tuberculosis Control (BTBC) before discharging infectious tuberculosis (TB) patients. Hospitals are required to submit a hospital discharge plan for BTBC review at least 72 hours before planned discharge. Review of these plans is intended to improve TB surveillance, ensure appropriate TB treatment, and reduce TB transmission. We evaluated the completeness, appropriateness, and timeliness of hospital discharge plan submission and review.

**Methods:**

We included all TB cases admitted to a NYC hospital and reported to BTBC between January 1 and July 31, 2011. For patients with multiple hospitalizations, each hospitalization was treated as a unique observation. A hospitalization was considered eligible for a discharge plan if (1) at least one acid-fast bacilli (AFB) positive sputum smear result was collected during the hospitalization, (2) the last three AFB sputum smear results collected on different, consecutive days before discharge were not all negative, and (3) the patient did not elope or leave the hospital against medical advice, or die while hospitalized. We evaluated the completeness and appropriateness of discharge plan submission, timeliness of plan submission and review, and discharge plan outcomes.

**Results:**

A total of 286 hospitalizations occurred among 231 unique TB patients during the study period. At least one AFB positive sputum smear was collected during 201 (70%) hospitalizations, indicating that the hospitalization was potentially eligible for hospital discharge plan review. Of 99 hospitalizations that met our eligibility criteria, 41 (41%) had a plan submitted. Twenty (49%) plans were initially approved. The primary reasons for discharge plan disapproval were incomplete home assessment and lack of referral for medical follow-up or directly observed therapy. Failure to submit required discharge plans was widespread across NYC hospitals. Plans were most often submitted on the day of planned discharge. All submitted plans were reviewed by a BTBC physician, and most were reviewed and discussed with the treating provider on the day submitted.

**Conclusions:**

Compliance among NYC hospitals with the new hospital discharge plan requirements is low. Further efforts are needed to educate providers and hospital staff about the new health code requirements to increase compliance and improve the completeness, appropriateness, and timeliness of submitted plans.

---

**Presenting Author(s):**

**Natalie Levy**
Bureau of Tuberculosis Control, New York City Department of Health and Mental Hygiene, Queens, NY
nlevy@health.nyc.gov

**Contributing Authors**

Michelle M. Macaraig, MPH Douglas C. Proops, MD, MPH

**Abstract ID:** 1330596 **Presentation Type:** Poster Presentation
**Title:** Self-reported skin rash or irritation symptoms among World Trade Center Health Registry participants
**Committee:** Environmental Health Sub-Committee
**Topic:** Disaster epidemiology: tools, data, experiences, and challenges
**Keywords:** Disasters|Environmental exposures

**Background:**
We described self-reported skin rash 2-3 and 5-6 years after the terrorist attack on the World Trade Center (WTC) and examined its association with exposures to 9/11 dust/debris.

**Methods:**
We analyzed a longitudinal study of New York City WTC Health Registry participants in two surveys (W1 and W2) who resided or worked in Lower Manhattan or worked in rescue/recovery. Multivariate analysis, adjusted for demographics, smoking and source of enrollment, were performed using logistic regression.

**Results:**
Among 42,025 participants, 12% reported post-9/11 skin rash at W1, 6% both times, 16% at W2. Among participants without post-traumatic stress disorder or psychological distress, W1 self-reported post-9/11 skin rash was associated with intense dust cloud exposure (adjusted odds ratio=1.6; 95% CI=1.3-1.9), home/workplace damage (aOR=1.8; 1.4-2.3), and working >90 (aOR=1.7; 1.3-2.2) or 31-90 days (aOR=1.6; 1.3-2.1) at the WTC site.

**Conclusions:**
Post-9/11 skin rash may be related to acute and long-term exposure to dust, though subjectivity of skin symptoms may bias findings.

---

**Presenting Author(s):**

**Jiehui Li**
World Trade Center Health Registry,
New York City Department of Health
and Mental Hygiene, Long Island City,
NY
jli3@health.nyc.gov

**Contributing Authors**

Monica J. Huang, MPH1, Jonathan Liff, Ph.D1, David E. Cohen, MD3, James Cone, MD, MPH2 1Emory University, Atlanta, GA 2New York City Department of Health and Mental Hygiene, New York, NY 3 New York University, School of Medicine, Department of Dermatology

**Abstract ID:** 1321863 **Presentation Type:** Poster Presentation
**Title:** Chronic disease in Iowa: Risk factors, prevalence, and mortality
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** CD/MCH/OrH surveillance
**Keywords:** Chronic diseases|Risk factors|Surveillance

**Background:**
Background: Various risk factors have been associated with higher rates of chronic disease. The prevalence of various chronic diseases among Iowans has been increasing over the past decade. In addition, Iowans who are overweight/obese have a significant risk of developing chronic diseases (e.g., diabetes). Without continued monitoring, the Iowa Department of Public Health would have difficulty tracking and evaluating progress toward accomplishing state objectives, such as decreasing the prevalence rate of chronic diseases. The current study examined prevalence and mortality rates of various chronic diseases as well as risk factors, including overweight/obesity, plus gender and race/ethnic differences.

**Methods:**
Method: Self-reported responses to risk factors were evaluated to monitor state-specific trend data and changes in the prevalence rate of overweight/obesity among Iowa adults. Self-reported risk factors included fruit and vegetable consumption, physical activity, and tobacco use. Using Behavioral Risk Factor Surveillance System and Vital Records data, we determined the age-adjusted prevalence rate of risk factors, plus chronic disease prevalence and mortality rates among Iowans. Race/ethnicity was determined using the National Center for Health Statistics (2006) classification scheme.

**Results:**
Results: The most widely reported risk for chronic disease among both youth and adults was a lack of adequate nutrition; 81% of Iowa youth and 82% of Iowa adults reported eating fewer than 5 servings of fruits and vegetables daily, both higher than the national rate (79% and 77%, respectively). Moreover, 66% of Iowa adults self-reported the risk factor of overweight/obesity compared to 64% nationally. Related to preventive services, 83% of Iowa adults reported not having a fecal occult blood test within the previous two years. The most common cause of death in Iowa was related to cancer (i.e., age-adjusted rate 178 per 100,000 population).

**Conclusions:**
Conclusions: Chronic diseases (e.g., heart disease, stroke, cancer, diabetes) are among the most prevalent, costly, and preventable of all health problems. Leading a healthy lifestyle, including avoiding tobacco use, being physically active and eating well, greatly reduces the risk for developing chronic disease. Access to high-quality and affordable prevention measures (e.g., screening, appropriate follow-up) are essential steps in savings lives, reducing disability, and lowering costs for medical care.

---

**Presenting Author(s):**

**Catherine Lillehoj**
Iowa Department of Public Health,
Des Moines, IA
clilleho@idph.state.ia.us

**Abstract ID:** 1323499 **Presentation Type:** Breakout Presentation
**Title:** Occupational health surveillance in New Hampshire: Using the BRFSS to better understand work as a factor in health
**Committee:** Occupational Health Sub-Committee
**Topic:** Improving occupational health surveillance
**Keywords:** Occupational Surveillance|Behavioral health|Injury surveillance

**Background:**
The New Hampshire Occupational Health Surveillance Program (OHSP) has been exploring non-traditional avenues to gather work-related injury data, such as population-based health surveys. In 2008, workplace injury questions were included in the NH BRFSS survey. The results indicated that nearly 5 percent of respondents had reported work-related injuries requiring medical advice or treatment in the past 12 months. A majority of workers employed for wages and with an injury were likely eligible for workers' compensation benefits. About half (54%) reported their treatment was paid all, or in part, by workers' compensation. Other national and state data sources report much lower rates per 100 full-time equivalent workers. Many studies have suggested, however, that these numbers are underestimates because many injured workers do not file for workers' compensation when injured at work. This pilot initiative demonstrates that the BRFSS survey can be a useful tool in occupational health surveillance. Research has shown that socio-economic variables can impact a person's health status and health behaviors. However, the relationships between employment variables such as occupation and industry to health status and health behaviors have not been fully evaluated.

**Methods:**
Analyze and evaluate the relationship between occupations and industries and health status, prevalence of chronic disease, health behaviors (alcohol and tobacco use) and other health determinants such as obesity and sleep. Identify the occupations and industries associated with poor health status, risky health behaviors and other health determinants such as obesity and lack of sleep. Use the results and compare these occupations and industries to occupations and industries with high incidence of work-related injuries obtained from the Bureau of the Census County Business Patterns. This data set can be stratified into specific occupations and industries.

**Results:**
The results from our data analysis will enable the NH OHSP to determine if occupations and industries with the highest incidence rates of work-related injury also have higher prevalence of chronic diseases, risky health behaviors and other health determinants such as obesity and lack of sleep.

**Conclusions:**
The results from this study will provide the NH Division of Public Health Services and employers with insights as to what occupations or industries are good candidates for both occupational safety and health interventions and wellness/health promotion initiatives.

---

**Presenting Author(s):**

**Kim Lim**
New Hampshire Department of Health
and Human Services, Concord, NH
kim.lim@dhhs.state.nh.us

**Contributing Authors**

Karla R. Armenti, ScD. Occupational Helath Surveillance Program New Hampshire Division of Public Health Services

**Abstract ID:** 1331130 **Presentation Type:** Poster Presentation
**Title:** Associations between composite weather factors and water/foodborne disease hospitalizations in summer in New York State from 1991 to 2004 *
**Committee:** Environmental Health Sub-Committee
**Topic:** Climate change epidemiology and public health
**Keywords:** Climate change|Foodborne disease|Waterborne disease

**Background:**
In 2011 CDC estimated that roughly 1 in 6 Americans would be sickened by foodborne diseases alone. Because of substantial economic burden, and vulnerability to climate changes and weather exposures, waterborne and foodborne diseases (WFBD) are major public health problems. Considering that weather is a suite of dynamic conditions of the ground level atmosphere with multiple factors, and that most of the literature has only focused on individual weather conditions, we proposed to study holistic effects of composite weather exposures on WFBD hospitalizations in New York State in summer (June to August) from 1991 to 2004. We also assessed the potential interact effects of demographic factors and disease pathogens on the health outcome.

**Methods:**
A time series GAM (generalized additive models) model, adjusting for long term trend, weekly pattern and holidays, was applied to investigate the impacts of composite weather indicators on hospitalizations due to WFBD. The daily WFBD hospitalization counts obtained from the Statewide Planning and Research Cooperative System (SPARCS) were linked with weather indicator data from the 'Spatial Synoptic Classification' system developed by Dr. Scott Sheridan. Composite weather exposures were grouped into seven types of air masses: Dry Moderate, Dry Polar, Dry Tropical, Moist Moderate, Moist Polar, Moist Tropical and Transition. Demographic and pathogen stratified analyses were also performed to investigate the correlation of composite weather type with the WFBD hospital admissions in each category.

**Results:**
Dry Tropical, Moist Tropical and Transition air masses were significantly associated with hospitalizations for WFBD with an increased risk of 8.18%, 3.5% and 5.69% respectively, compared to Dry Moderate air mass. Stratified analysis showed that Moist Tropical-related percent changes in risk of WFBD hospitalization were greater among females (13.1%), non-Hispanics (6.8%), seniors aged 75 and above (12.5%), blacks (8.7%), and those with bacterial infections (15.3%).

**Conclusions:**
Dry Tropical, Moist Tropical and Transition air masses may increase hospitalizations due to waterborne and foodborne diseases in summer in New York State. Bacterial infection may be the main cause for increase in hospitalizations for WFBD associated with Moist Tropical air mass. These findings can help identify sub-populations and possible pathogens potentially vulnerable to the effects of climate change and inform public health preparedness.

---

**Presenting Author(s):**

**Shao Lin**
Bureau of Environmental and
Occupational Epidemiology, New York
State Department of Health, Troy, NY
sxl05@health.state.ny.us

**Contributing Authors**

Mingzeng Sun1,2, and Syni-An Hwang1,2, Scott Sheridan3 1 Bureau of Environmental and Occupational Epidemiology, Center for Environmental Health, New York State Department of Health, Troy, New York 2 Department of Epidemiology and Biostatistics, School of

**Abstract ID:** 1317363 **Presentation Type:** Breakout Presentation
**Title:** Outbreak of Yersinia enterocolitica infections associated with pasteurized milk — Southwestern Pennsylvania, March–August 2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Foodborne/waterborne disease
**Keywords:** Enteric infectious diseases|Epidemiology

**Background:**
Outbreaks of Yersinia enterocolitica (YE), a potentially serious enteric illness, rarely have been associated with pasteurized milk. Routine surveillance detected 3 YE illnesses among persons who reported having drunk milk from a small local dairy (Dairy A). We investigated to identify the outbreak's scope and source.

**Methods:**
We reviewed surveillance and laboratory records for culture-confirmed YE during 2011 among residents of the 4 Pennsylvania counties served by Dairy A. Patients were interviewed; the dairy was inspected. Food, milk, and environmental samples were cultured by using standard cold (5°C) enrichment; food samples were also cultured by using nonstandard, room temperature (25°C) enrichment. Pulsed-field gel electrophoresis (PFGE) was used to subtype YE isolates.

**Results:**
Twenty-one YE illnesses were identified among patients with symptom onsets during March–August, 2011. Seven (33%) patients were hospitalized; 1 died. Sixteen (76%) had consumed Dairy A products, including pasteurized milk (16) and ice cream (3). One prepasteurized milk sample and environmental, water, and dairy product samples did not yield YE with 5°C enrichment. An unopened container of ice cream and homemade yogurt (made with Dairy A milk) yielded YE only with nonstandard 25°C enrichment (i.e., not with 5°C enrichment). Available isolates from ice cream, yogurt, and 9 Dairy A consumers were indistinguishable by PFGE. Isolates from 2 non-Dairy A consumers each had different PFGE patterns. Pasteurization temperatures were achieved, but equipment was worn and cleaning pumps underpowered; deficiencies were corrected.

**Conclusions:**
This first documented use of room temperature enrichment to isolate YE during an outbreak confirmed the epidemiologic association between Dairy A and YE. Given the difficulty of isolating YE, multiple laboratory methods for food and environmental isolation should be considered.

---

**Presenting Author(s):**

**Allison Longenberger**
CDC/Pennsylvania Department of
Health, Harrisburg, PA
c-alongenb@pa.gov

**Contributing Authors**

Michael Gronostaj, MD, PharmD, MPH (CDC/Allegheny County Health Department) Gim Yee, B.S (Allegheny County Health Department) Lydia Johnson, PhD (Pennsylvania Department of Agriculture James Lando, MD, MPH (CDC/Allegheny County Health Department) Ronald V

**Abstract ID:** 1390061 **Presentation Type:** Late Breaker: Breakout Presentation
**Title:** Campylobacter jejuni Infections Associated with Unpasteurized Milk — Multiple States, 2012
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Foodborne/waterborne disease
**Keywords:** Foodborne disease|Outbreak investigations

**Background:**
Campylobacter is one of the most common causes of diarrheal illness in the United States. Unpasteurized milk is a well-documented source of infections from Campylobacter. During January 2012, a total of 5 Pennsylvania residents were reported to the Pennsylvania Department of Health (PADOH) with gastroenteritis after consuming unpasteurized milk from a certified dairy; 1 stool sample yielded Campylobacter jejuni. We investigated to characterize the outbreak and implement control measures.

**Methods:**
A confirmed case was defined as laboratory-confirmed Campylobacter infection during January–February 2012 in a person who had consumed unpasteurized milk from Dairy A or was epidemiologically linked to a confirmed case. A probable case was diarrheal illness in a person who drank Dairy A milk and was epidemiologically linked to a confirmed case. Case finding was conducted through review of surveillance data and health alerts to clinicians. Milk samples from the homes of ill persons and from Dairy A were tested for pathogens. Campylobacter isolates were compared by using pulsed-field gel electrophoresis (PFGE). The Pennsylvania Department of Agriculture inspected the dairy and reviewed dairy procedures.

**Results:**
A total of 81 confirmed cases were identified in 4 states (Pennsylvania, 70; Maryland, 6; West Virginia, 3; New Jersey, 2); all but 1 consumed Dairy A milk. Sixty-seven probable cases were also identified in the 4 states. Symptom onsets ranged from January 14 to February 2, 2012. Among confirmed case-patients, median age was 31 years (range: 2–74 years); 10 (12%) patients were hospitalized. Dairy A voluntarily halted unpasteurized milk sales, and PADOH issued a consumer advisory. Dairy A met or exceeded state regulations for dairies certified to sell unpasteurized milk. The only deficiency noted was a broken bottle capper; bottles had been manually capped. This deficiency was corrected. Two unopened bottles of unpasteurized Dairy A milk yielded Campylobacter jejuni which was indistinguishable by PFGE from all 24 available patient isolates. Since Dairy A resumed distribution of unpasteurized milk, no new onset cases have been identified.

**Conclusions:**
This multistate outbreak linked to unpasteurized milk is the largest associated with a Pennsylvania dairy, and one of the largest nationally, during recent years. The findings demonstrate that certification of a raw milk dairy does not guarantee safety. With the growing popularity of unpasteurized milk and the possibility that additional states will allow unpasteurized milk sales, the outbreak reinforces the need for continued policymaking and consumer education regarding the dangers of consuming unpasteurized milk.

---

**Presenting Author(s):**

**Allison Longenberger**
CDC/PADOH, Harrisburg, PA
c-alongenb@pa.gov

**Contributing Authors**

Aimee Palumbo, MPH, Pennsylvania Department of Health Alvina Chu, MHS, Maryland Department of Health & Mental Hygiene Maria Moll, MD, Pennsylvania Department of Health Andre Weltman, MD, Pennsylvania Department of Health

**Abstract ID:** 1324850 **Presentation Type:** Poster Presentation
**Title:** Timeliness of electronic laboratory reporting vs. traditional laboratory reporting in Southern Nevada from 1999-2010
**Committee:** Student Section
**Topic:** Other
**Keywords:** Electronic laboratory reporting (ELR)|Informatics

**Background:**
Electronic laboratory reporting (ELR) is becoming accepted, and sometimes mandated by law in the United States. One large commercial laboratory provides the Southern Nevada Health District (SNHD) with 70-90% of its electronic laboratory reports, including reports of gastrointestinal (GI) illnesses, a concern in Southern Nevada due to the transient population, and short incubation periods of the illnesses. This project aims to compare timeliness for ELR and traditional reporting for common GI illnesses in Southern Nevada, with a prediction that ELR will be faster than traditional reports.

**Methods:**
In this descriptive study, 915 electronic reports from 2004-2010, and 751 traditional reports from 1999-2004 of campylobacteriosis, salmonellosis, and shigellosis were examined for timeliness in days. Timeliness for public health response was measured from onset of symptoms to when the result was reported to SNHD; incubation time was examined to assess appropriate response time. Timeliness for compliance with state laws was measured from time of laboratory result to report time to SNHD. In addition, 572 electronic rotavirus reports were assessed for compliance with state law. Descriptive statistics were analyzed, and one-way analysis of variance was used to measure difference in ELR and traditional reports by disease type.

**Results:**
Means calculated showed traditional reporting to be faster for campylobacteriosis (9.53 days, ELR = 10.74d) and salmonellosis (9.94d, ELR = 10.36d), while ELR was faster for shigellosis (mean = 9.86d, traditional reporting = 10.05d) when examined for public health response; the difference was statistically significant ($F = 2.626$, $p = .023$). Traditional reporting was faster than ELR for all diseases (campylobacteriosis mean = 4.66d, ELR = 5.34d; salmonellosis mean = 5.24d, ELR = 5.34d; shigellosis mean = 5.52d, ELR = 5.85d), with regard to state law compliance; however neither method met state compliance mandates (24 hours) when means were calculated (mean for rotavirus ELR = 1.3d). The difference between ELR and traditional reports by disease for compliance was statistically significant between diseases ($F = 18.734$, $p < .001$).

**Conclusions:**
The data showed that neither traditional reporting, nor ELR complies with state disease reporting laws, but traditional reporting is still faster among two of three GI illnesses. ELR also takes longer than the maximum incubation period for all illnesses examined, so ELR is insufficient for public health authorities to investigate and respond in a timely manner to prevent secondary infections in Southern Nevada.

---

**Presenting Author(s):**

**Jennifer Lucas**
School of Community Health Sciences,
University of Nevada, Las Vegas, Las
Vegas, NV
lucasj23@unlv.nevada.edu

**Abstract ID:** 1367325 **Presentation Type:** Roundtable Presentation
**Title:** Legislative Update
**Committee:**
**Topic:**
**Keywords:**

**Background:**

**Methods:**

---

**Presenting Author(s):**

**Marcia Mabee**
Consultant, Lovingston, VA;
marcia.mabee@gmail.com

**Abstract ID:** 1324240 **Presentation Type:** Breakout Presentation
**Title:** Tracking 2009 unintentional carbon monoxide poisoning in Michigan
**Committee:** Environmental Health Sub-Committee
**Topic:** Environmentally-related diseases: economic, health, and social impact
**Keywords:** Environmental Health|Surveillance|Occupational Surveillance

**Background:**
Carbon Monoxide (CO) poisoning is the leading cause of unintentional poisoning deaths in the United States. In 2009, Michigan initiated multi data source surveillance of both occupational and non-occupational, unintentional CO exposures.

**Methods:**
In accordance with Michigan regulations, records from the 134 Michigan's hospitals/EDs, the Michigan poison control center, and death certificates were used to identify unintentional carbon monoxide exposures. A few cases were identified through the Michigan OSHA program, physician reports, and a newspaper clipping service. When available, the following data was abstracted: demographic information, admission and discharge dates, exposure date, carboxyhemoglobin (COHb) test result, cigarette smoking status, report source, source of CO exposure, treatment, and if exposed at work, employer information. Cases of intentional exposure to CO were not included. Occupationally exposed cases were referred to MIOSHA for follow-up to determine on-going risk of CO exposure.

**Results:**
In 2009, a total of 1,359 CO exposure reports were received on 1,239 individuals. Hospitals reported the most exposures, followed by the poison control center, death certificates, newspaper reports, MIOSHA, and individual physicians. Eighty-nine percent were non work-related. In 2009, there were a total of 40 deaths, 22 were fire related and 18 were non-fire related. The demographics for individuals with CO exposure were: male (44.4%), female (55.6%); 17 years old and younger (24.9%), 18-44 years old (43.0%), 45-64 years old (22.2%), 65 or older (10.0%); Caucasian (73.5%), African American (22.0%), Hispanic (3.7%), Asian (0.3%), one Native American and one multi-racial person. The most common month of exposure was January. The average COHb level for tested individuals was 10.0%. Ninety individuals were treated with hyperbaric chamber oxygen in 2009. Nine percent of individuals exposed to CO required overnight hospitalization, with the most common sources of exposure that required hospitalization being from fire, vehicle exhaust, furnaces or water heaters. Overall, the most common non-work exposure was furnace or water heaters (32.6%). The services sector was the most common location of workplace exposure. The most common identified source of work exposure was from vehicles (17.4%) followed by power machinery (13.9%).

**Conclusions:**
We identified 1239 unintentional carbon monoxide exposures in 2009 in Michigan from multiple sources including hospitals, the poison control center and death certificates. The largest number of reports came from hospitals (72.8%). Most (89%) of Michigan's unintentional exposures occurred in non-occupational settings. Plans are being formulated to use this surveillance data to target preventive activity.

---

**Presenting Author(s):**

**Melinda Maile**
Department of Medicine,
Occupational and Environmental
Medicine, Michigan State University,
East Lansing, MI
melinda.maile@hc.msu.edu

**Contributing Authors**

Kenneth D Rosenman, MD Michigan State University Department of Medicine Occupational and Environmental Medicine 117 W Fee Hall East Lansing, MI 48824

**Abstract ID:** 1332460 **Presentation Type:** Breakout Presentation
**Title:** Increasing the utility of and access to statewide and local influenza surveillance data by leveraging currently existing technology infrastructure
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Influenza
**Keywords:** Influenza surveillance

**Background:**
Each week providers enrolled in Florida's outpatient influenza-like illness surveillance system (FL-ILINet) report data into a website maintained by the CDC. Historically, a worksheet containing summarized data for a given week by county and provider was sent via email to all enrolled providers and County Health Department (CHD) staff. Worksheets were distributed weekly, and required that the provider or CHD site maintain those sheets longitudinally for trend analysis. This process is time-consuming, severely impacted by reporting delays, error-prone, and does not meet the needs of CHDs or providers. The purpose of this project was to explore alternative means of data access that would allow the providers or CHDs to see detail-level data in a more efficient, timely, and accurate way but also provide data analysis and visualization tools that would meet the vast majority of consumer needs.

**Methods:**
The Bureau of Epidemiology (BOE) added a new module to EpiGateway, the state's internet-based flexible surveillance application, to house FL-ILINet data. Each week a file is downloaded from the CDC's provider entry site and uploaded to the state EpiGateway ILINet module. Data are then immediately available to users with access to the module. Access is limited by user type and set on individual accounts. Users can access provider, county, region, or state level data, depending on their user type. Standard graphs and charts are available to aggregate data and display time trends. The charts are customizable and can be placed into external reports or documents. Additionally, aggregate and detail data are exportable into excel. Select CHD epidemiologists pilot-tested the module during development.

**Results:**
Users can produce graphs for percent ILI and number of visits by age group. These graphs can be prepared on the provider, county, region, and state level based on access rights and selection criteria. CHDs use the module for ILI surveillance and reporting. Future versions, currently in development, will allow users to check provider reporting records.

**Conclusions:**
Centralizing influenza surveillance data saved BOE the time and effort required to prepare ILINet data for dissemination. This module improved the timely dissemination of FL-ILINet data to consumers, and has also reduced the opportunity for human error when transcribing the data. Benefits of the ILINet module include: flexibility to accommodate improvements to the graphing functions, improved data quality, ease of use, centralized and standardized data practices, and simplification of analysis. These advancements can be used to enhance other surveillance efforts.

---

**Presenting Author(s):**

**Colin Malone**
Florida Department of Health,
Tallahassee, FL
colin_malone@doh.state.fl.us

**Contributing Authors**

Colin Malone MPH, Kate Goodin MPH, Janet Hamilton MPH

**Abstract ID:** 1332358 **Presentation Type:** Poster Presentation
**Title:** Super Sentinels: Developing and Implementing a New Influenza Surveillance Program
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Influenza
**Keywords:** Influenza surveillance|Influenza / Pandemic influenza|Surveillance

**Background:**
In the 2010-11 influenza season, the Florida Department of Health (FDOH) had 170 registered ILINet providers, 90 of whom regularly reported visit data. Florida's ILINet providers are the largest contributors of influenza specimens, but review of specimen submission trends indicated providers did not submit specimens according to FDOH guidance. ILINet specimens were submitted sporadically, indicating that they were convenience rather than surveillance specimens. County health department (CHD) influenza surveillance coordinators were responsible for administering sentinel sites located in their counties; increasing budgetary concerns and differing priorities strained some CHDs' epidemiology staffs.

**Methods:**
Using influenza-like illness (ILI) visit data and laboratory records, the FDOH Bureau of Epidemiology (BOE) identified the most active recent ILINet providers. BOE's experience in the Influenza Incidence Surveillance Project, indicated that 15-20 active sentinel sites could provide better quality and a similar number of specimens, if they were contacted regularly regarding specimen submission. A centralized model of site follow-up was applied, with BOE following up with these Super Sentinel sites directly. The Bureau of Laboratories (BOL), who perform ILINet specimen testing, were consulted about the planned changes. Sixteen geographically diverse sentinel sites were selected by BOL and BOE. The new approach was presented to CHD influenza coordinators.

**Results:**
Preliminary results indicate that centralized support of sentinel sites has increased timely reporting of ILI visit counts and specimen submission for influenza testing. In week 40, 2011, 35% of the expected number of specimens were submitted, compared to protocol. By week 50, 2011, 60% of expected specimens were submitted for testing. Over the same time period, the percentage of Super Sentinels reporting ILI visits on-time increased from 20% to 57%. Active follow-up with the 16 selected sites has also identified several problems with specimen submission that would not have been caught previously, including missing influenza test kits at sentinel sites, problems with providers' understanding of submission protocol, and incorrect understanding of case definitions.

**Conclusions:**
Bringing in BOL and CHDs early in the process helped to identify their surveillance needs, and helped ensure buy-in to the program. After the change, increased communication helped identify and overcome problems with sentinel sites that would otherwise not have been corrected. Follow-up has also improved specimen collection and visit reporting. Applying core principles of effective surveillance, including evaluation, cooperation, flexibility and frequent communication with data sources, has resulted in improved data quality and completeness and has helped us adapt to changing realities.

---

**Presenting Author(s):**

**Colin Malone**
Florida Department of Health,
Tallahassee, FL
colin_malone@doh.state.fl.us

**Contributing Authors**

Heather Rubino MS, Kate Goodin MPH, Janet Hamilton MPH, Lillian Stark PhD MPH MS, Richard Hopkins, MD MSPH, Florida Department of Health

**Abstract ID:** 1332108 **Presentation Type:** Poster Presentation
**Title:** CDC's reporting of state and national healthcare-associated infection data: Progress and future plans
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Healthcare associated infections (HAI)|Surveillance|Nosocomial infections

**Background:**
The National Healthcare Safety Network (NHSN) is a public health surveillance system that CDC's Division of Healthcare Quality Promotion (DHQP) maintains and supports as a mainstay of its healthcare-associated infection (HAI) prevention program. NHSN is used by healthcare facilities in all 50 states, Washington, D.C., and Puerto Rico. In 2010, CDC released its first public report containing both national and state-specific summary measures from NHSN, using a standardized infection ratio (SIR). Subsequent reports have expanded the amount of state-specific data reported publicly. CDC plans to continue to release a state-specific report on an annual basis.

**Methods:**
The SIR is a statistic used to measure HAI occurrence during a reporting period compared to a common referent period. In HAI data analysis, the SIR compares the actual number of HAIs reported with the predicted number based on the baseline U.S. experience (i.e., standard population), adjusting for several risk factors known to be associated with differences in infection rates. NHSN data from 2009 and 2010 have been included in CDC's state-specific public reports issued to date. Published state-specific SIRs include a 95% confidence interval to assess statistical significance, as well as facility-specific percentile distributions. Serial comparisons of SIRs from 2009 and 2010 have also been used to assess progress in prevention of HAIs.

**Results:**
In 2010, two state-specific reports were released, one for data from each half of 2009. The first report presented central line-associated bloodstream infection (CLABSI) data by state and only included data for states that had legislative mandates to report CLABSI to the state health department via NHSN during that time period. The second report included CLABSI data for the same group of states and introduced serial comparisons of SIRs. In 2011, the third report, using data from 2010, introduced national summary SIRs for surgical site infections and catheter-associated urinary tract infections. Additionally, state-specific results for CLABSI were published for all states, regardless of mandate status. Future public reports will be expanded to include state-specific measures for other HAIs in addition to CLABSI.

**Conclusions:**
CDC's DHQP continues to publish national and state-specific summary measures of HAI experience using data reported to NHSN. As participation in NHSN increases because of state mandates and Medicare reimbursement programs, future reports will include data from a more diverse group of HAIs. Data included in the reports has been presented in several formats and new graphical options for presenting the data are being investigated.

---

**Presenting Author(s):**

**Paul Malpiedi**
Centers for Disease Control and
Prevention, Atlanta, GA
ffp4@cdc.gov

**Contributing Authors**

Scott Fridkin, MD, Centers for Disease Control and Prevention Jonathan Edwards, MStat, Centers for Disease Control and Prevention Kelly Peterson, BBA, Centers for Disease Control and Prevention Philip Ricks, PhD, Centers for Disease Control and Prevention

**Abstract ID:** 1322267 **Presentation Type:** Poster Presentation
**Title:** Glare-related motor vehicle crash trends in Nebraska, 2002–2009 *
**Committee:** Injury Control and Prevention Sub-Committee
**Topic:** Injuries resulting from motor vehicle or other transportation modes
**Keywords:** Injury surveillance|Motor vehicles

**Background:**
Glare is a type of vision obstruction that causes a number of car crashes each year. Glare can be caused by any bright light, such as sunlight or car headlamps at night and can reduce driver visibility. The aim of this study is to characterize the circumstances of glare-related motor vehicle (MV) crashes and describe recent trends.

**Methods:**
Nebraska crash data collected from police reports were used to describe glare-related crashes in the state from 2002–2009. Glare-related MV crashes were described by season, month, time of day and other crash circumstances.

**Results:**
During 2002–2009, there was an average of one glare-related MV crash per day (n=3,093) in Nebraska. Approximately one percent of all MV crashes in the state were related to glare; this proportion did not change over the 8 year study period. There were a total of 16 deaths, 160 persons with severe injuries, 563 persons with moderate injuries, and 1,267 persons with possible injuries that resulted from glare-related MV crashes from 2002–2009. There were more glare-related crashes during September than any other month (21%, n=659). Glare-related MV crashes most commonly occur in the morning, between 7–9AM, and the late afternoon to early evening, between 4–8PM; peak crash times depend on the season. The majority of glare-related MV crashes involved another moving MV, bicyclist, or pedestrian (78%, n=2,400); occurred at intersections (71%, n=2,194); and involved vehicles traveling east or west (66%, n= 3,760).

**Conclusions:**
Glare can be caused by any light source that obstructs vision. These results, however, illustrate that sunlight is the most common cause of glare-related MV crashes in Nebraska as the majority of crashes occur during day time. Occurrences of glare-related MV crashes depend on the position of the sun; crashes peak shortly after the sun rises and again before sunset. During the autumnal equinox in September, the sun sets and rises almost exactly due east-west; this is likely responsible for the increase in glare-related MV crashes during that month. Identifying when and where glare-related MV crashes occur allow effective awareness messages to be constructed that inform the public about crash prevention.

---

**Presenting Author(s):**

**Jennifer Marcum**
Nebraska Department of Health and
Human Services, Lincoln, NE
jennifer.marcum@nebraska.gov

**Contributing Authors**

Ming Qu, PhD, Nebraska Department of Health and Human Services Tom Safranek, MD, Nebraska Department of Health and Human Services

**Abstract ID:** 1330173 **Presentation Type:** Poster Presentation
**Title:** An evaluation of the Georgia Violent Death Reporting System
**Committee:** Surveillance/Informatics
**Topic:** General surveillance topics
**Keywords:** Surveillance|Evaluation|Violence

**Background:**
The Georgia Violent Death Reporting System (GVDRS) is a population-based surveillance system initiated in 2004 to capture all violent deaths occurring in Georgia. GVDRS collects data from multiple sources: death certificates (DC), coroner and medical examiner (CME) reports, law enforcement reports, Georgia Bureau of Investigations forensic laboratory reports, and supplemental homicide reports. The purpose is to collect, analyze, and disseminate data to monitor violent deaths in Georgia.

**Methods:**
GVDRS data from 2009 reports, were used to measure the following surveillance system attributes: simplicity, flexibility, usefulness, acceptability, data quality, and timeliness. Simplicity and flexibility were measured by examination of the various components of the surveillance system. Usefulness and acceptability were measured by responses to a questionnaire completed by stakeholders, including coroners, medical examiners, and community leaders. Data quality was measured by the extent of missing data and after data primacy rules were applied based on the Centers for Disease Control and Prevention guidelines. Timeliness was measured by comparing death date to the date that information was entered into the GVDRS database.

**Results:**
Simplicity: GVDRS is complex. Abstractors manually identified DC from vital records. CME and police reports were then requested. Data for nearly 800 variables were abstracted. Flexibility: Flexibility is limited. GVDRS has no jurisdiction over the various data sources where data are being collected therefore it does not have the ability to change what data are collected. Usefulness: GVDRS is fairly useful. On a scale of 1(not useful) to 10 (excellent), stakeholders ranked GVDRS as somewhat useful (mean score=6.3) in its ability to inform violence prevention programs. Acceptability: GVDRS is highly accepted. The stakeholders rated the GVDRS as highly accepted by their organization (mean score=9.3). All members responded that the GVDRS should continue its surveillance activities. Data Quality: Data is of high quality. Only eight of 2,072 deaths reported in 2009 had missing data on date of death and/or date of birth. No information was missing for person type (victim or suspect). Timeliness: GVDRS is timely. The average time for CME data entry was 17 months from the date of death while DC average time was nine months.

**Conclusions:**
Overall the GVDRS ranked high for acceptability and data quality. GVDRS was timely and useful. The system is complex and inflexible. More community partners should be made aware of GVDRS data so they can use it to inform prevention programs.

---

**Presenting Author(s):**

**Audrey Martyn**
Georgia Department of Public Health,
Atlanta, GA
aumartyn@dhr.state.ga.us

**Abstract ID:** 1366679 **Presentation Type:** Breakout Presentation
**Title:** Right sizing capacity efforts: CSTE's workforce initiatives
**Committee:**
**Topic:**
**Keywords:**

**Background:**

**Methods:**

---

**Presenting Author(s):**

**Amanda Masters**
Council of State and Territorial Epidemiologists, Atlanta, GA;
amasters@cste.org

**Abstract ID:** 1386826 **Presentation Type:** Roundtable Presentation
**Title:** CDC/CSTE Applied Epidemiology Program Mentor meeting for current and previous mentors of a fellow - By invitation only
**Committee:**
**Topic:**
**Keywords:**

**Background:**

**Methods:**

---

**Presenting Author(s):**

**Amanda Masters**
Council of State and Territorial Epidemiologists, Atlanta, GA;
amasters@cste.org

**Abstract ID:** 1323684 **Presentation Type:** Breakout Presentation
**Title:** Evaluating public housing residents' knowledge, attitudes, and practices following Dengue prevention outreach in Key West, Florida
**Committee:** Cross Cutting Sub-Committee
**Topic:** Health disparities: Racial/ethnic and socioeconomic, Best epidemiologic practices
**Keywords:** Vulnerable populations|Vectorborne disease|Evaluation

**Background:**
Key West, FL experienced autochthonous transmission of the viral mosquito-borne disease, dengue, in 2009 and 2010, with nearly 100 cases reported. This launched large-scale, multi-agency efforts to engage residents in prevention activities.

**Methods:**
A randomized, population-based evaluation of knowledge, attitudes and behaviors toward dengue prevention was undertaken in Key West in July 2011, consisting of 521 separate household interviews. Once it was realized that the sampling frame failed to include most public housing residences, an additional 28 interviews conducted in randomly selected public housing units from 4 different public housing complexes. Subset (or comparative) analysis was performed to see if the knowledge, attitudes, and behaviors exhibited by the public housing subset differed from the randomized study population.

**Results:**
Public housing residents (PHR) were more likely than the randomized study population to be of races other than white (75% vs. 21% $p<0.0001$) and speak a language other than English (29% vs. 8% $p=0.002$). PHR, on average, recalled fewer outreach materials ($p=0.01$), and were less likely to recall specific sources, including local newspaper articles, outreach materials such as door hangers, mosquito control inspector visits, and mosquito control "report cards" than the randomized study population. PHR were 2.8 times (95% CI 1.4 - 5.6) more likely to not recall any outreach materials than the study population. PHR were less likely to correctly identify how dengue transmission occurs (61% vs. 89% $p<0.0001$), where mosquitoes lay their eggs (54% vs. 85% $p<0.0001$), if any cases in Key West were severe or needed to be hospitalized (18% vs. 45% $p=0.006$), or to identify a sign or symptom related to a dengue infection (36% vs. 64% $p=0.002$).

**Conclusions:**
The subset analysis of PHR identified a population that is at-risk for dengue infection that recalled significantly less exposure to outreach materials and had less knowledge about dengue infections and prevention than the randomized study population. Identification of this population highlights the need to target or modify health messages and interventions to this group for future outreach. Collecting data on this subset population provides a baseline for evaluating future outreach in this population demographic. Differences identified in the demographics of this population suggest alternative methods or languages may be required to reach desired outcomes.

---

**Presenting Author(s):**

**James Matthias**
Florida Department of Health,
Tallahassee, FL
James_Matthias@doh.state.fl.us

**Contributing Authors**

Carina Blackmore, DVM, PhD, Dipl. ACVPM, Florida Department of Health Ronald Blanton, MD, MSc, Case Western Reserve University Michael S. Doyle, MS, Florida Keys Mosquito Control District Robert Eadie, JD, Monroe County Health Department Elizabeth Gazdick

**Abstract ID:** 1318240 **Presentation Type:** Breakout Presentation
**Title:** Cause, setting, and ownership analysis of dog bites in Bay County, Florida from 2009-2010
**Committee:** Injury Control and Prevention Sub-Committee
**Topic:** Other injury epidemiology issues or topics
**Keywords:** Animals and Public Health|Injury prevention|Risk factors

**Background:**
The CDC estimates more than 4.7 million dog bites occur annually and 800,000 Americans will receive medical care for injuries. Hospital discharge and emergency room visit data may capture dog bite injury demographic information, but do not collect information on the bite cause, level of restrain involved in the biting animal, and familiarity the victim had to the biting dog, all are important for developing and implementing effective prevention measures.

**Methods:**
Bay County Health Department collected data from 800 dog bite reports provided by animal control services, local physicians, and other health care providers from January 1, 2009-December 31, 2010. Information collected included: victim's age and gender, primary cause of bite, whether the dog was restrained at the time of the bite, geographic location of where the bite occurred relative to where the dog lived, and relationship between the victim and the dog. Data were analyzed for variables of interest and stratified by age group and gender.

**Results:**
Children aged 0-5 had the greatest incidence of 343.6 bites per 100,000 persons per year, and the rate decreased gradually in older age groups. Boys aged 6-14 accounted for 2.24 times more bites than same-aged females ($p<0.001$). Bites from dogs unfamiliar or unknown to the victim accounted for 41% of bites while family dogs were responsible for 34% and other known dogs 22%. Causes of bites varied with age and gender of the victim. Separating dog fights was the most frequent cause at 18% of all dog bites. Females were significantly more likely to be bit while separating a dog fight ($p=0.01$) while males were more likely to be chased and bitten ($p<0.001$). Males were more likely than females to be bitten by unfamiliar dogs ($p=0.006$) or other known dogs ($p=0.01$) whereas females were more likely than males to be bitten when handling or grooming the animal ($p<0.001$). Males were bit 49% more often than females by dogs that were unrestrained and off owner's property ($p=0.002$). Causes of bites changed over age groups: from unknown causes, 49% of bites, in young children to separating dog fights (31%) in adults over 25 years old.

**Conclusions:**
Age groups and genders face different risks for dog bites. The type of contact, level of restraint, and victim's relationship to the dog varied across age and gender strata. Identifying these risks for the different age groups or genders provides an opportunity to target interventions or education for dog bite prevention.

---

**Presenting Author(s):**

**James Matthias**
Florida Department of Health,
Tallahassee, FL
James_Matthias@doh.state.fl.us

**Contributing Authors**

Michael Templin, Bay County Health Department

**Abstract ID:** 1318326 **Presentation Type:** Poster Presentation
**Title:** Salmonella infections in Florida: Temporal, geographic, and demographic factors
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Foodborne/waterborne disease
**Keywords:** Foodborne disease|Epidemiology|Waterborne disease

**Background:**
Florida has the highest number of Salmonella infections reported annually and incidence rates are 1.9 times higher than the national average of 15.2 cases per 100,000 population.

**Methods:**
Reported cases of Salmonella infections acquired in Florida from 2005 through 2010 were analyzed with respect to temporal factors (month and season), geographic factor (county), and demographic factors (age, race/ethnicity, and gender) to identify trends and associations. Counties with consistently high or low rates of salmonellosis were identified and the impact of demographic factors on incidence rates was evaluated.

**Results:**
Both case numbers and incidence rates of Salmonella infections had net increase over the study period (>10%) and peaked in 2009 with expected seasonal fluctuation. Rates varied across the state from 4.3 to 55.4 with a state average of 28.4 cases per 100,000 population. The <1 year old age group had the highest rate (501.9) followed by the 1-4 group (144.1) and the lowest rate was seen in the 15-39 group (12.8). Hispanics had the highest rates (28.1) followed by the white non-Hispanics (26.5) then the black non-Hispanics (20.8). Males had a slightly higher rate than females (28.8 and 28.0, respectively). Eleven counties were classified as consistently high (average rate 48.4) and eleven as consistently low (17.1). The overall incidence rate ratio (IRR) between high and low counties was 2.8, and across demographic characteristics the IRR was similar. Rates of salmonellosis in Florida exhibited the expected seasonal peaks, but the peak occurred later in Florida (September or October in all years but 2010, August peak) than the national average month (August).

**Conclusions:**
Florida's rates follow the national distribution pattern based on demographics but are much higher. As of 2010, Florida incidence rates were 2.75 times higher than the 2020 Healthy People objective, suggesting the need to determine sources and causes of infections leading to these increased rates of disease. The high and low rate counties show a consistent ratio across demographics suggesting that other factors may be the drivers of the variability in rates. To this end environmental factors may explain some of the variability, as demonstrated by the geographic clustering of high rate counties around certain watersheds.

---

**Presenting Author(s):**

**James Matthias**
Florida Department of Health,
Tallahassee, FL
James_Matthias@doh.state.fl.us

**Contributing Authors**

Leah Eisenstein, MPH, Florida Department of Health Tiffiani Onifade, MS PhD, Florida Department of Health

**Abstract ID:** 1315507 **Presentation Type:** Poster Presentation
**Title:** Evaluation of the Florida Lyme disease surveillance program
**Committee:** Surveillance/Informatics
**Topic:** General surveillance topics
**Keywords:** Surveillance|Evaluation|Vectorborne disease

**Background:**
In 2010, 94% of all Lyme disease cases occurred in 12 states; Florida is not one of these states. The CSTE national case definition is designed to be efficient and accurate in highly endemic states. The purpose of this surveillance system evaluation is to systematically determine the efficiency and effectiveness of Florida's system for Lyme disease case reporting, and the timeliness and accuracy of case classification using the national case definition in a low incidence Lyme disease state.

**Methods:**
Confirmed and probable reported cases of Lyme disease in Florida residents from 2008 to 2010 reported in Florida's notifiable disease reporting database MERLIN were evaluated using the Centers for Disease Control and Prevention's (CDC) "Updated Guidelines for Evaluating Public Health Surveillance Systems." In addition, 2010 cases that were marked for deletion were included to determine positive predictive values. To determine simplicity and other efficiency related factors for Lyme disease reporting 17 county health departments (CHDs) reporting the majority of Lyme disease cases in Florida completed a survey on these topics.

**Results:**
All 67 counties in Florida utilize MERLIN for Lyme disease reporting. MERLIN updates are regularly performed to meet the needs of the users and users can upload and manage Lyme disease cases 24 hours a day. CHDs complete Lyme disease case data entry thoroughly as 6 variables had 100% completeness, an additional 10 variables had over 85% completeness, and only 4 variables had less than 50% completeness. The median number of days from onset of symptoms to reporting of the case to the CDC was 55 days (IQR 37-102) and the number of days from the CHD receiving the case report to the CDC receiving the case report was 12 days (IQR 6-19). The positive predictive value (PPV) for Lyme disease reported cases was very low (29% in 2010). On average CHD staff spent 4 hours classifying a case, and 63% of survey respondents identified interpreting lab results as difficult.

**Conclusions:**
MERLIN was found to be flexible, stable, acceptable, and of high data quality. In Florida, Lyme disease reporting was untimely, complex, with a low PPV. Finding interventions or efficiencies that would make case classification simpler could greatly reduce the time spent per case and greatly improve the PPV.

---

**Presenting Author(s):**

**James Matthias**
Florida Department of Health,
Tallahassee, FL
James_Matthias@doh.state.fl.us

**Abstract ID:** 1322244 **Presentation Type:** Breakout Presentation
**Title:** Mine the gap: Unearthing disease specific data via surveys
**Committee:** Surveillance/Informatics
**Topic:** Effective interactions between epidemiology and informatics
**Keywords:** Surveillance|Influenza surveillance


**Background:**
The Communicable Disease Reporting and Surveillance System (CDRSS) is New Jersey's integrated system for reportable conditions. This system collects static data located in 10 pre-defined tabs (e.g., clinical, laboratory). Disease specific information captured by CDRSS is limited to symptomology and disease risk factors. The evolving nature of disease specific information (i.e., outbreaks, investigation/surveillance) requires a mechanism that can be changed by the user to obtain this data. NJDHSS evaluated the utility of linking CDRSS with NJDHSS web enabled situational awareness system (Hippocrates) which has dynamic survey capabilities. The collection of data related to fatal and severe influenza associated pediatric illness was one area which disease specific information was being collected in a separate web-based form and database outside CDRSS. This surveillance system was used as a pilot to determine the utility of the linkage between CDRSS and Hippocrates.

**Methods:**
Since Hippocrates was designed as a single data capture system (i.e., one survey completed one time by one user), modifications were necessary to allow for an open survey concept (i.e., multiple responses from a single survey and user). Modifications to CDRSS were also completed by providing an area in the epidemiology section allowing for surveys to be linked to investigations or outbreaks. The case patient identifier was used to link records in the two systems. Once system modifications were completed, an assessment of the data fields collected as part of pediatric influenza surveillance was conducted to determine if they could be captured in CDRSS or Hippocrates. Any variables not located in CDRSS were developed into survey questions in Hippocrates. The pediatric influenza survey was created and implemented in November 2011.

**Results:**
New Jersey was successful at integrating two surveillance systems to improve how disease specific data is collected which proved to fill a large gap in current disease surveillance. The pediatric influenza surveillance system, which was used as a pilot project, has already begun to capture information using this system. An ongoing assessment of the pilot data will continue throughout the 2011-12 influenza season.

**Conclusions:**
In times with decreased funding and resources, this project highlights the importance of leveraging existing systems to streamline and improve reporting processes. NJDHSS hopes to expand the use of this system to capture disease specific information on other routine disease surveillance (i.e. vibrio, typhoid fever) as well as using the system to collect outbreak specific information (i.e., questionnaires) on individual case investigations.


---


**Presenting Author(s):**

**Lisa McHugh**
New Jersey Department of Health and
Senior Services, New Jersey
Department of Health and Senior
Services, Trenton, NJ
lisa.mchugh@doh.state.nj.us

**Contributing Authors**

Amy Fink - New Jersey Department of Health and Senior Services Veena Mistry - New Jersey Department of Health and Senior Services Mark Cholewa - New Jersey Department of Health and Senior Services

**Abstract ID:** 1326925 **Presentation Type:** Poster Presentation
**Title:** Syndromic surveillance using emergency department chief complaints during and post-Hurricane Irene in New Jersey
**Committee:** Surveillance/Informatics
**Topic:** Syndromic Surveillance and Situational awareness (incl. BioSense)
**Keywords:** Surveillance|Hospital data |Information technology

**Background:**
On August 28, 2011, New Jersey experienced Irene, a Category 1 hurricane, which resulted in extensive flooding and caused power outages in several million homes. Previously, carbon monoxide (CO) poisoning has been associated with the hurricane-related use of portable generators. The New Jersey Department of Health and Senior Services (DHSS) used its newly-expanded syndromic surveillance system (EpiCenter) to determine whether CO poisoning increased following the storm, and to evaluate whether EpiCenter appropriately detected this rise. In addition, DHSS also explored the potential for tracking ED visits related to the hurricane for all reasons via EpiCenter.

**Methods:**
At the time of the storm, 36 New Jersey hospital emergency departments (EDs) were connected to EpiCenter and provided DHSS with real-time chief complaint data. In addition, on August 30, 2011, the emergency department surveillance staff, infection preventionists, and emergency department managers were asked to document flood- or storm-related injury and illness by adding the word “Irene” to the chief complaint field. EpiCenter technicians quickly set up a query to pull out this term upon request. In total, DHSS staff reviewed 113,635 ED visit records queried from EpiCenter, dating from August 19, 2011 (one week before hurricane) to September 9, 2011 (two weeks after hurricane). Chief complaint fields were searched for text terms related to carbon monoxide poisoning and Irene-related injury and illness. The database was managed using SAS Enterprise Guide 4.2 which also provided descriptive analysis.

**Results:**
Carbon monoxide-associated ED visits peaked with 12 cases on the actual day of the hurricane, with a total 22 cases reported within 3 days of the storm. Of these 22 cases, 14 (64%) were female. The median age was 27 years; 8 (36%) were ?16 years old, and none were ?65 years old. For comparison, there were six CO-related ED visits in the three days prior to the hurricane. The enhanced surveillance using the keyword “Irene” revealed 27 cases of hurricane related injury and illness between August 31 and September 14, 2011. Of these 27 cases, 17(63%) were male, and the median age was 50 years (range: 18 -75 years).

**Conclusions:**
This study reinforces previous literature indicating that ED visits for CO poisoning increase during and after a hurricane. It also shows that syndromic surveillance is capable of detecting this increase. In addition, having EDs use keywords, such as we did with “Irene”, provides an easily searchable “tag” that allows for quick implementation of enhanced surveillance. DHSS proposes that targeting education on the dangers and proper use of portable generators to those areas that may be affected by power outages prior to a hurricane or other disaster may lead to a reduction in CO poisoning incidents.

---

**Presenting Author(s):**

**Lisa McHugh**
New Jersey Department of Health and
Senior Service, Trenton, NJ
lisa.mchugh@doh.state.nj.us

**Contributing Authors**

Stella Tsai, PhD, CIH, NJ Dept of Health and Senior Services, Lauren Bradford, MHA, Health Monitoring Systems, Inc, Andrew Walsh, PhD, Health Monitoring Systems, Inc, Edward Lifshitz, MD, FACP, NJ Dept of Health and Senior Services,

**Abstract ID:** 1326814 **Presentation Type:** Breakout Presentation
**Title:** Data-to-Action: Using data analysis to estimate the impact of state funding cuts to the Michigan Family Planning Program on the cost of unintended birth
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Translating CD/MCH/OrH data into public health action
**Keywords:** Advocacy|Reproductive health|Policy/Policy Development

**Background:**
The Michigan Department of Community Health (MDCH)'s Michigan Family Planning Program (MI FP) provides reproductive health care; cancer and sexually transmitted disease screening; as well as counseling and the means to determine the number and spacing of children to low income individuals in Michigan. In October 2009 $4 million in state funds were cut from this program. The purpose of this analysis was to estimate the effect of the elimination of state funding on pregnancy-related costs to Michigan residents.

**Methods:**
Data sources were the Michigan Family Planning Annual Report 2009-2010, the 2008 Michigan Pregnancy Risk Assessment Monitoring System, and 2009 MDCH Vital Records. We estimated the number of unintended births that may have been prevented by accounting for: the difference in the number of women who received services between 2009 and 2010, contraceptive choices and associated contraceptive failure rates, the prevalence estimate of unintended pregnancy, the prevalence of pregnancy or seeking pregnancy among MI FP clinic users, and the abortion and miscarriage rate (estimated from national rates and from MDCH Vital Records). Based on the estimated number of unintended births, the total cost of uncomplicated labor and delivery for this population was calculated.

**Results:**
From 2009 to 2010, 9,454 fewer women were seen at MI FP clinics, 8,353 were estimated to be at risk for pregnancy and 1,418 would become pregnant regardless of access to family planning services. Accounting for unintended pregnancy and contraceptive failure, we estimated 3,093 more women had an unintended pregnancy. Subtracting pregnancies that ended in abortion or miscarriage,based on national rates and State of Michigan data, resulted in an estimated 1,485 to 2,202 live births, respectively. Based on these estimates, and assuming the women were Medicaid eligible, the $4 million cut to funding resulted in $16.3 to $24.2 million in Medicaid labor and delivery costs alone.

**Conclusions:**
These results were presented to policymakers charged with MDCH appropriations. By providing an analysis based on state-specific data, a compelling rationale for funding restoration was made. To date $900 thousand has been restored for pregnancy prevention in Michigan.

---

**Presenting Author(s):**

**Patricia McKane**
Michigan Department of Community
Health, Lansing, MI
mckanep@michigan.gov

**Contributing Authors**

Amy Zaagman, MPA, Michigan Council for Maternal and Child Health, Lansing, MI Barbara Derman, MSW, ACSW, Women's and Reproductive Health Unit, Division of Family and Community Health, MDCH Cristin Larder, MS, Maternal and Child Health Epidemiology Unit,

**Abstract ID:** 1366596 **Presentation Type:** Breakout Presentation
**Title:** The patient perspective on public health protections for cancer patients and HAI prevention
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Healthcare associated infections (HAI)

**Background:**
In the past decade more than 130,000 Americans have received letters from their local health departments urging them to be tested for Hepatitis C, Hepatitis B and HIV because their healthcare provider reused syringes or other disposable medical equipment intended for one time use. More than 40 outbreaks have taken place in urban centers of New York and Las Vegas as well as rural hamlets like Laurinburg, North Carolina and Fremont, Nebraska. These healthcare transmissions are the result of healthcare professionals not using fundamental safe injection practices.

**Methods:**
This presentation examines the Nebraska outbreak in detail and the other outbreaks across the country in which at least 620 patients contracted HCV when healthcare professionals reused syringes to access a multi-dose vial during procedures. Root causes of the outbreaks are reviewed as well as national efforts to prevent further outbreaks.

**Results:**
Highlighted is the One and Only Campaign, a national campaign funded through the CDC to educated providers and patients about the need for safe injection practices.

**Conclusions:**
The objectives of this presentation are: 1. To describe how reuse of syringes and multi-dose vials can lead to patient to patient transmission of bloodborne pathogens 2. To describe how a large scale healthcare associated hepatitis outbreak affects how the public accesses healthcare 3. To list 2 patient outcomes of the Nebraska Hepatitis C outbreak

---

**Presenting Author(s):**

**Evelyn McKnight**
HONOReform Foundation, Fremont,
NE
evelyn@honoreform.org

**Abstract ID:** 1329673 **Presentation Type:** Breakout Presentation
**Title:** Alcohol misuse screening and brief intervention surveillance on the BRFSS: Past, present, and future
**Committee:** Cross Cutting Sub-Committee
**Topic:** Substance abuse epidemiology: Burden of alcohol and opiate use, Polices related to substance abuse
**Keywords:** Interventions|Alcohol Use|Data/Surveillance


**Background:**
Excessive alcohol use is responsible for an average of 80,000 deaths in the U.S. each year and $223.5 billion in economic costs in 2006. Screening and brief intervention for excessive alcohol use (ASBI) is a cost-efficient yet underutilized clinical preventive service. The Affordable Care Act assures the availability of funding for ASBI; however, limited information is available to monitor the delivery of this service.

**Methods:**
As a first step toward assessing the delivery of ASBI, we analyzed data from a single question, "Has a doctor or other health professional ever talked with you about alcohol?" among 41,256 adults from 11 states who responded to a Behavioral Risk Factor Surveillance System (BRFSS) preventive services module in 1997, 1999, or both (the most recent years the delivery of this service was assessed in the BRFSS). The timing of this screening (ever, in the last 12 months, 1<3 years, 3+ years) was analyzed. Assessment was done by demographic characteristics; health care utilization; and selected health-risk behaviors (e.g., drinking patterns). Logistic regression analyses were used to examine the relationship between respondent characteristics and the likelihood of ever being talked to about alcohol. Available data from the 2011 BRFSS will also be presented.

**Results:**
In 1997 and 1999, the prevalence of ever having been talked to about alcohol was 15.4%, 10.1% within the past year, 2.7% between 1 and 3 years, and 2.6% 3 or more years ago. After adjusting for other characteristics, respondents who were most likely to report being talked to about alcohol were aged 18-34 years (AOR: 1.54, CI: 1.18-2.01); males (AOR: 1.30, CI: 1.14-1.48); non-Hispanic blacks (AOR:1.54, CI: 1.27-1.86); Hispanics (AOR:1.52, CI: 1.17-1.97); persons who were never married or members of an unmarried couple (AOR: 1.21, CI: 1.02-1.43); and those who were unable to work (AOR: 3.90, CI: 2.51-6.06). Binge drinkers (AOR: 1.56, CI: 1.34-1.80) and smokers (AOR: 1.45. CI: 1.26-1.66) were more likely to report being talked to about alcohol than non-binge drinkers and non-smokers. There were no significant differences by education, income, health insurance status, and having a check-up in the past 12 months.

**Conclusions:**
In 1997 and 1999, only about 1 in 7 U.S. adults reported ever being talked to about alcohol by a health professional. Some groups at higher risk for excessive drinking were more likely to report this (e.g., 18-34 year olds and males). Appropriate alcohol use screening should be routinely provided in healthcare settings and assessed in health surveys.


---


**Presenting Author(s):**

**Lela McKnight-Eily**
Centers for Disease Control and
Prevention, Chamblee, GA
dvn1@cdc.gov

**Contributing Authors**

Liu, Yong MS, MPH - CDC Brewer, Bob R MD, MSPH - CDC Kanny, Dafna L PhD - CDC Denny, Clark H PhD - CDC Hungerford, Dan PhD - CDC Esser, Marissa MPH - CDC Edwards, Valerie PhD - CDC

**Abstract ID:** 1332300 **Presentation Type:** Breakout Presentation
**Title:** Developing materials to return chemical test results to biomonitoring study participants
**Committee:** Environmental Health Sub-Committee
**Topic:** Other Emerging Environmental Epidemiology Issues
**Keywords:** Biomonitoring|Risk communication|Chemical and biological exposures

**Background:**
Biomonitoring California, a state-mandated program, carries out studies in collaboration with various local partners. Study participants include individuals with limited literacy skills, non-English speakers, and workers. The Program is charged with returning "meaningful" results of individual environmental chemical analyses from urine and blood to study participants. A major challenge in delivering results is providing useful, accurate information about chemicals for which there is scientific uncertainty regarding potential human health effects.

**Methods:**
To ensure that information was culturally appropriate, useful, and understandable, we conducted "usability testing" with participants or individuals with similar demographics. Usability testing involved in-depth one-on-one or small group interviews to elicit feedback on the content and design of materials. This allows for accurate and quick identification of confusing elements, such as difficult concepts or ambiguous images. We tested materials in tabular, text, and graphic display modes. Three rounds of review were conducted with changes made iteratively between rounds to address participant concerns and preferences.

**Results:**
Usability testing was a critical component in ensuring that chemical analysis result reporting materials were in accessible formats and provided sufficient context for participants to understand their results. Usability testing indicated that our participants preferred receiving their test results in multiple formats. Results of analyses for chemicals with established reference levels (such as lead and mercury in blood) were most easily understood. For all chemicals we provided simulated aggregate data from all participants, as well as summary data from the National Health and Nutrition Examination Survey Chemical Supplement. For each chemical we also provided succinct information on its most common sources, potential health effects, ways in which exposure to that chemical can be reduced (if known), and resources for more information. These elements were crucial in providing context for results of chemicals without established reference values. To address varying needs of study populations, we created dynamic components that could be tailored to the specific populations we are studying. For example, we described why we were studying firefighters, and how the study was a contribution to firefighters as a group. We developed materials for a population with a wide variety of literacy levels. We did this by including essential information in a lower literacy format at the beginning of the materials, followed by more detailed, higher literacy information.

**Conclusions:**
Usability testing of biomonitoring test result materials provided critical insights into ensuring that messages are clear and meaningful to participant populations.

---

**Presenting Author(s):**

**Sandy McNeel**
Department of Public Health,
California Department of Public
Health, Richmond, CA
sandy.mcneel@cdph.ca.gov

**Contributing Authors**

Amiko Mayeno, MA, California Department of Public Health Rupali Das, MD, MPH, California Department of Public Health Leslie Israel, DO, MPH, University of California, Irvine

**Abstract ID:** 1324567 **Presentation Type:** Roundtable Presentation
**Title:** Public health informatics in an era of consolidated IT and shared services
**Committee:** Surveillance/Informatics
**Topic:** Effective interactions between epidemiology and informatics
**Keywords:** Informatics|Information technology

**Brief Summary:**
The movement of government IT provision models to a consolidated services model has potential short and long term impacts on public health information systems implementation and support. This discussion will provide recommendations to empower partners with the tools to negotiate formal agreements with centralized IT leaders and optimize implementations through use of memorandum of understanding (MOU) and service level agreements (SLA). A White Paper on this topic has been published and copies will be provided.

**Key Objectives:**
Learn the difference between consolidated and shared IT service models and drivers of IT consolidation Learn how best to approach negotiations involving the two major tools for consolidated/shared services management: the memorandum of understanding (MOU) and service level agreement (SLA) Provide and discuss guidance to enable public health leaders to convey their unique business needs in terms meaningful to CIOs and other leaders driving business decisions. Overview of the appropriate questions that will help to determine the benefits and risks of a consolidated or shared IT services environment.

---

**Presenting Author(s):**

**Michelle Meigs**
Association of Public Health Laboratories, Silver Spring, MD
michelle.meigs@aphl.org

**Abstract ID:** 1324115 **Presentation Type:** Poster Presentation
**Title:** Recent methamphetamine event trends in six states, 2001-2010
**Committee:** Environmental Health Sub-Committee
**Topic:** Surveillance and response to chemical/radiologic emergencies, including National Toxic Substance Incidents Program (NTSIP)
**Keywords:** Environmental exposures|Toxins |Surveillance

**Background:**
Illegal methamphetamine (meth) production endangers the users, neighbors, and the environment; causes injuries and deaths; and results in costly public health protective actions in the US.

**Methods:**
To evaluate recent trends in meth-related events in six states (LA, NC, OR, UT, NY and WI) using the Hazardous Substances Emergency Events Surveillance)/National Toxic Substance Incidence Program data from 2001 through 2010.

**Results:**
In 2005, after Congress passed the Combat Methamphetamine Epidemic Act limiting the sale of pseudoephedrine containing products, meth events in the 6 states declined from 3.5% of all events reported to HSEES in 2005 to 1.3% in 2008. Meth events increased to 4.9% of all events in 2009 and remained at 3.8% during 2010. Some states, such as LA and NC reported significant increases in meth events. In other states, such as Oregon, meth events have declined. A new, dangerous “shake and bake” method of making meth that requires less pseudoephedrine is purported to be one cause of the 2009-2010 increase.. A prescription-only law for pseudoephedrine products took effect in 2006 in OR and in 2010 in MS. Oregon has since seen a decline in meth events and MS has reported less meth production. There has not been enough time to indicate whether the effect of the prescription laws will continue. Increased meth events in LA potentially could have resulted from meth production moving from MS to adjacent LA.

**Conclusions:**
The number of domestic meth events has recently been increasing and Drug Enforcement Agency funding to clean-up after these incidents has ended. Additional public health and legislative actions are needed along with continued monitoring surveillance data.

---

**Presenting Author(s):**

**Natalia Melnikova**
DHS/SRB, CDC/Agency for Toxic Substances and Disease Registry,
Atlanta, GA
nbm6@cdc.gov

**Contributing Authors**

Maureen Orr, MS; Jennifer Wu, MS.

**Abstract ID:** 1316021 **Presentation Type:** Breakout Presentation
**Title:** Testing Kansas' public water bodies for blue-green algae in 2011: Summary of activities and sampling results
**Committee:** Environmental Health Sub-Committee
**Topic:** Environmental Public Health Tracking
**Keywords:** Climate change|Environmental Health hazards|Toxins

**Background:**
Blue-green algae (BGA), or cyanobacteria, can generate powerful toxins that are harmful to humans and animals. They present significant challenges to public authorities as they affect recreational and drinking water resources and the aquatic food chain. High nutrient levels in lakes in the midwest region of the United States present unique challenges to programs designed to protect humans and animals against the dangers of harmful algal blooms. For the past two years, the Kansas Department of Health and Environment (KDHE), through its Environmental Public Health Tracking Program (EPHTP) and in collaboration with key partners, has strengthened its BGA-related prevention activities by increasing water testing activities, streamlining reporting, environmental testing, and surveillance activities, and by providing timely information to the public. This presentation describes the water testing activities that occurred in Kansas from March to October 2011 and summarizes the results of the water samples collected during that period.

**Methods:**
Blue-green algae-related public inquiries or complaints to KDHE and water sampling and testing records with a creation date ranging from March 18, 2011 to October 31, 2011 were extracted from the Blue-green Algae Monitoring Tool, an in-house data management system. For each inquiry/complaint the name of the body of water and the date of BGA observation was recorded. Each body of water was assigned a unique identifier and each water sample had a unique identifier linked to the body of water where it originated. For each sample the cell count per dL, the cyanobacterial concentration per mL, and the microcystin toxin concentration in microgram per liter were extracted. Based on the value of these parameters, a warning or advisory status was assigned to the totality or a section of body of water. Descriptive statistics as well as correlation between cell count and microcystin concentration were calculated using SAS® 9.2 software.

**Results:**
Of the 41 inquiries received, 38 unduplicated water bodies were tested and 240 water samples were analyzed. For BGA cell counts per mL, the mean was 194,207, the median was 33,068, the interquartile range was 4,885 to 167,489, and the maximum was 5,575,550. For microcystin concentration, the mean was 21.2 ?g/L, the median was 0.5 ?g/L, the interquartile range was 0.5 to 3.0 ?g/L, and the maximum was 1,600.0 ?g/L. There was a weak relationship between cell counts and microcystin concentration at low cell counts (lower quartile) r=0.38, p<0.002. However, this relationship was stronger at higher cell counts (upper quartile) r=0.75, p<0.001. The dominant species of BGA was Microcystis aeruginosa; 47.3% of the samples. Affected bodies of water spent an average of 25.1 days under public health Advisory status and 51.9 days under a public health Warning status.

**Conclusions:**
Based on these data, toxicity (microcystin concentration >1?g/L) appears low in most of the samples. However, blooms with cell counts greater than 100,000/L appear more toxic. The intensity, duration, and toxicity of blooms vary widely among the bodies of water tested in this study. More studies are warranted to fine tune the BGA policies regarding public health advisories and warnings.

---

**Presenting Author(s):**

**Henri Menager**
Bureau of Epidemiology and Public Health Informatics, Kansas Department of Health and Environment, Topeka, KS

hmenag1@hotmail.com

**Contributing Authors**

Farah Ahmed, MPH, PhD - Kansas Department of Health and Environment Ingrid C. Garrison, DVM, MPH, DACVPM - Kansas Department of Health and Environment Edward Carney, M.A., M.Ph. - Kansas Department of Health and Environment

**Abstract ID:** 1318947 **Presentation Type:** Breakout Presentation
**Title:** Preliminary analysis of heat-related deaths in Kansas, 2011
**Committee:** Environmental Health Sub-Committee
**Topic:** Environmental Public Health Tracking
**Keywords:** Climate change|Elderly|Risk factors

**Background:**
Elevated ambient temperatures have been linked to an increase in mortality, but the health impact of heat waves has not been documented in Kansas recently. During the summer of 2011, the state experienced several waves of very hot days that directly or indirectly sickened, injured and killed many Kansans.

**Methods:**
A descriptive analysis of all heat-related deaths (ICD-10 X30) was conducted using information recorded on death certificates between May 1 and September 30, 2011. Measures of central tendency were calculated using SAS 9.2 and the results were stratified by demographic variables.

**Results:**
Twenty-nine heat-related deaths were reported to the Kansas Department of Health and Environment. Seventy-six percent of the deaths were among men and 24% were among women. The average age of the decedents was 65.4 years. Eighty-two percent were white non-Hispanic and more than half (57.1%) had a high school education or less. As noted in the injury description fields of the death certificates, a large percentage of the deaths (65.5%) occurred in residences lacking a proper cooling system. In addition, more than three quarters of the decedents (75.9%) were diagnosed with at least one chronic disease prior to the heat exposure that led to their death.

**Conclusions:**
The extreme heat events of the summer of 2011 in Kansas led directly or indirectly to the death of many residents with known risk factors for heat-related death. Proven measures could be used to prevent those deaths when dangerous hot days are in the forecast. In addition, further studies are warranted to better identify Kansas-specific conditions associated with excess mortality due to elevated ambient temperatures.

---

**Presenting Author(s):**

**Henri Menager**
Bureau of Epidemiology and Public Health Informatics, Kansas Department of Health and Environment, Topeka, KS
hmenag1@hotmail.com

**Contributing Authors**

Farah S. Ahmed, MPH, PhD - Kansas Department of Health and Environment Ingrid C. Garrison, DVM, MPH, DACVPM - Kansas Department of Health and Environment

**Abstract ID:** 1332585 **Presentation Type:** Breakout Presentation
**Title:** Evaluation of Taxicab Safety Cameras in Reducing Driver Homicides Using Two Data Sources
**Committee:** Occupational Health Sub-Committee
**Topic:** Linking surveillance to action: Interventions and policy change at the local, state, and national level
**Keywords:** Interventions|Occupational injury and death|Violence

**Background:**
Taxicab drivers continue to have one of the highest homicide rates of any occupation. Historically partitions have been installed in many taxicabs to serve as a potential physical barrier against physical assaults. In the late 1990s, as security cameras became more accessible and affordable, there was widespread adoption of taxicab cameras as an alternative approach to reducing injuries due to workplace violence. Taxicab driver homicides are difficult to enumerate as police crime reports do not consistently have occupation reported. News clippings are an alternative data source as homicides are generally published in the media in as detailed an account as possible. The study objective is to quantitatively evaluate the effect of security cameras in cabs on city-wide homicide rates among taxicab drivers using two different data sources.

**Methods:**
Two different data sources were used to construct taxicab driver homicide rates: police crime reports and news clippings. Denominator data (number of licensed cabs) was provided by the municipal taxi regulators. The study intervention was cities with security cameras installed in taxicabs; comparison cities were cities where neither security cameras nor partitions were installed in taxicabs. Data were analyzed as a retrospective interrupted time series with pre-post data and comparison groups, employing generalized estimating equations tailored for a Poisson distribution.

**Results:**
Police crime reports were available for 10 cities using security cameras in taxicabs and 7 comparison cities with neither cameras nor partitions installed in taxicabs. News clipping data were available for 14 cities using security cameras in taxicabs and 14 comparison cities with neither cameras nor partitions installed in taxicabs. Cities in the United States contributed 15 years of data, cities in Canada contributed 21 years of data. Based on news clipping data the use of cabs installed with security cameras resulted in a 4-fold reduction in taxicab homicide rate at the city level (RR=0.25; 95% CL 0.09, 0.65). Using police crime reports the use of cabs installed with security cameras resulted in a 5-fold reduction in taxicab homicide rate at the city level (RR=0.19; 95% CL 0.06, 0.61).

**Conclusions:**
Preliminary results suggest that, at a city level, taxicabs installed with security cameras result in a reduced homicide rate among taxicab drivers compared with cities whose taxicabs have neither cameras nor partitions installed. Both data sources, police crime reports and news clipping data, support these preliminary findings.

---

**Presenting Author(s):**

**Cammie Menendez**
Centers for Disease Control and
Prevention, Morgantown, WV
cmenendez@cdc.gov

**Contributing Authors**

Parisa Damadi, BS, University of Maryland Scott Hendricks, MS, National Institute for Occupational Safety and Health, Division of Safety Research Srinivas Konda, MPH, National Institute for Occupational Safety and Health, Division of Safety Research Harla

**Abstract ID:** 1331404 **Presentation Type:** Poster Presentation
**Title:** From many to one: Development and evaluation of a unified patient match algorithm *
**Committee:** Surveillance/Informatics
**Topic:** Electronic disease surveillance systems (e.g., EDSS, NEDSS, etc.)
**Keywords:** Electronic data |Surveillance|Information technology

**Background:**
As part of an initiative to integrate and link disparate disease program registries, the NYC DOHMH developed the Electronic Disease Reporting Infrastructure (EDRI), a single data system for electronic disease reports from laboratories, hospitals, and health care providers. Previously, each disease program, such as Sexually Transmitted Diseases (STD), Tuberculosis (TB), Communicable Diseases (CD), and Vaccine Preventable Diseases (VPD), had utilized different methods and technologies to match patients. Linking patients across registries gives programs the ability to leverage data from other sources and makes cross-program analyses more feasible.

**Methods:**
To develop and evaluate the EDRI patient probabilistic match algorithm, each program submitted a sample gold-standard dataset with at least 100 sets of matches and non-matches. Sets contained at least one record that each program's pre-existing de-duplication method had identified as belonging to the same person (match) or to different persons (non-match). These records were de-duplicated using EDRI's patient match algorithm. The outcome of the EDRI match were compared to the gold-standard results to determine the sensitivity, specificity, and positive predictive value (PPV) of the patient match algorithm by disease control program and in aggregate. After reviewing discordant results for trends within and across programs, the algorithm was adjusted to achieve a priori defined goals of at least 90% sensitivity and 95% specificity overall.

**Results:**
A total of 33,030 records, with 6,216 sets, were submitted from all programs; among these there were 2,668 matches, and 3,548 non-matches. The EDRI patient match algorithm correctly identified 2,416 matches out of 2,668 gold standard matches (90.6% sensitivity), and correctly identified 3,488 non-matches out of the 3,548 gold standard non-matches (98.3% specificity) across all data sets. The sensitivity by program was: STD 91.7%; TB 93.0%; CD 76.9%; VPD 83.2%. The specificity by program was: STD 98.0%; TB 91.7%; CD 99.0%; VPD 98.4%. In addition, the overall PPV was 97.6%.

**Conclusions:**
The development of a single patient match algorithm can be achieved with satisfactory results. Inherent in this success includes involvement of the data owners to reach consensus on match criteria, definition of a unique patient, goals, and evaluation methods. A unified data system allows for greater integration of disease-specific analyses and examinations of co-morbidities.

---

**Presenting Author(s):**

**Angela Merges**
Division of Informatics and
Information Technology, New York
City Department of Health and Mental
Hygiene, Long Island City, NY
amerges@health.nyc.gov

**Contributing Authors**

Maushumi Mavinkurve, MPH, NYCDOHMH; Jisen Ho, BS, NYCDOHMH; Bonnie Kerker, PhD, NYCDOHMH; Stephen Giannotti, BS, NYCDOHMH; Jian Liu, MS, NYCDOHMH

**Abstract ID:** 1332875 **Presentation Type:** Breakout Presentation
**Title:** The standards and interoperability public health-reporting initiative: Establishing collaboration on harmonization of standards for electronic public health reporting
**Committee:** Surveillance/Informatics
**Topic:** Electronic case reporting
**Keywords:** Standards|Collaboration|Electronic case reporting

**Background:**
The American Recovery and Reinvestment Act (ARRA) initiated a broad range of national implementation activities. In order to support the critical activities of meaningful use (MU), the Office of the National Coordinator (ONC) established the Standards and Interoperability (S&I) Framework. The S&I Framework is an investment by the country in a set of harmonized interoperability specifications to support national health outcomes and healthcare priorities, including Meaningful Use, the Nationwide Health Information Network, and the ongoing mission to create better care, better population health and cost reduction through delivery improvements. The S&I Public Health (PH) Reporting Initiative was launched in July 2011 to address PH reporting gaps identified during working sessions of the S&I Laboratory Reporting Interface Workgroup.

**Methods:**
The S&I PH Reporting Initiative seeks to develop functional requirements and interoperable standards-based specifications that support electronic PH reporting from electronic health record systems (EHRs) to a variety of public health programs (e.g., child health, communicable diseases, chronic diseases). The S&I PH Reporting Initiative is a "community-led" initiative with participants from a variety of stakeholders such as federal agencies, state PH departments, professional organizations (e.g., CSTE and APHL), standards development organizations, clinicians and the EHR and PH IT vendor community. The group's priority is to help align public health objectives. identified in MU Stage 1, with the needs of other public health and patient safety programs that were not explicitly mentioned in MU Stages due to the availability and format of data in the EHR systems.

**Results:**
The PH-Reporting Initiative is currently working on the development of a harmonized PH reporting use case and respective interoperability specification (implementation guide) for EHR reporting, leveraging existing work from several PH domains such as immunization, patient safety, chronic disease, communicable disease, and birth records.

**Conclusions:**
At the time of this abstract the work is ongoing, the expected deliverables are a glossary of term definitions, the use case requirements document, an analysis of existing standards and gap analysis based on the use case requirements and finally an implementation guide that could be used for MU stage 3.

---

**Presenting Author(s):**

**Riki Merrick**
Association of Public Health
Laboratories, Silver Springs, MD
rmerrick@iconnectconsulting.com

**Contributing Authors**

Anna Orlova, PHDSC Lise Stevens, FDA Nikolay Lipskiy, MD, DrPH, MBA – CDC

**Abstract ID:** 1333124 **Presentation Type:** Breakout Presentation
**Title:** Reusable tools for public health messaging and vocabulary standards
**Committee:** Surveillance/Informatics
**Topic:** Electronic laboratory reporting
**Keywords:** Electronic laboratory reporting (ELR)|Local Public Health Agencies|Data/Surveillance

**Background:**
The Association of Public Health Laboratories ( APHL) Informatics team has been involved in several electronic reporting initiatives. With each project, we have developed processes, tools and vocabulary artifacts, many of which have been reused in subsequent efforts.

**Methods:**
The APHL's Public Health Interoperability Project (PHLIP) started in 2006 with a group of Public Health Laboratories interested in harmonizing the LOINC and SNOMED codes in use at their facilities. PHLIP defined the Health Level 7 (HL7) messaging and vocabulary needs for an Electronic Laboratory Surveillance Message (ELSM) of Influenza results from Public Health Laboratories directly to the Center for Disease Control and Prevention Influenza division ( CDC EPI ). As of January 2012, 31 State Public Health labs sending daily results to CDC EPI. PHLIP also spearheaded the Electronic Lab Test Order and Result (ETOR) use case, another HL7 messaging implementation, which was first piloted for surge capacity testing of Influenza samples in 2 separate regions, ETOR is now being piloted between 3 state public health labs and National Salmonella Reference Laboratory at CDC. In 2011, the APHL's Laboratory Technical Interoperability Assistance for Public Health (LTIAPH) was created to assist 10 public health agencies implement the requirement for receiving the Meaningful Use related HL7 Version 2.5.1 Implementation Guide: Electronic Laboratory Reporting to Public Health, (ELR2PH-251). LTIAPH also provided support to the associated public health laboratories to produce and send an ELR2PH-251 message to their public health agencies. APHL's informatics team is currently expanding this project to assist additional public health jurisdictions.

**Results:**
Reusable artifacts include the messaging guide spreadsheets, mapping templates, encoding guidelines and specimen cross mapping table. Processes that have been carried over include the Change-Control Board, weekly workgroup calls, as well as the PHLIP Assistance Team (PAT) model. Much of the extensive glossary of definitions and messaging and vocabulary related conventions have also been applied to the subsequent projects.

**Conclusions:**
The reuse of processes, tools and vocabulary artifacts, has greatly accelerated the ramp up time as well as improved overall progress in the APHL sponsored vocabulary an messaging projects. As the APHL informatics team moves forward these reusable elements will continue to grow and expand.

---

**Presenting Author(s):**

**Riki Merrick**
Association of Public Health
Laboratories, Silver Springs, MD
rmerrick@iconnectconsulting.com

**Abstract ID:** 1332972 **Presentation Type:** Poster Presentation
**Title:** Development of a standardized specimen mapping table for use across public health reporting initiatives
**Committee:** Surveillance/Informatics
**Topic:** Electronic laboratory reporting
**Keywords:** Electronic laboratory reporting (ELR)|Standards|Informatics

**Background:**
Association of Public Health Laboratories' (APHL) vocabulary team recognized the need for guidance, expansion and harmonization of the standard specimen vocabulary. This arose from the development of lab-to-lab Electronic Test Order and Result (ETOR) Health Level 7 (HL7) v2.6 message guide and from the assistance in implementation of the HL7 Version 2.5.1 Implementation Guide: Electronic Laboratory Reporting to Public Health, (ELR2PH-251) guide, where an entire segment (SPM) is devoted to the specimen description and its attributes. Moreover, these guides use SNOMED for standardized codes describing specimen related terms. The APHL vocabulary team collected varied local specimens terms from partner labs and created a prototype for a Specimen Cross Mapping Table (Specimen-CMT). The Specimen-CMT's goal is threefold: 1) Give guidance to SNOMED encoding for Specimen related terms in the context of HL7 messaging using the SPM segment., 2) Identify gaps in the existing standard nomenclature are submit for needed terms, and 3) Map the existing HL7 specimen terminology with the SNOMED terms were applicable.

**Methods:**
The basic design of the Specimen-CMT was defining a PHLIP-preferred term which describes a "real life" specimen concept used by labs and defining the SNOMED hierarchies for each of the HL7 defined SPM fields. Depending on the term, each PHLIP-preferred term was mapped one-to-one or one-to-many of the HL7 defined SPM fields. Further development of the Specimen-CMT It is through ongoing collaboration within the Laboratory Messaging Community of Practice (LMCoP) covering human, animal and environmental domains. The inclusion of preferred mappings of HL7 table 0070 terms to SNOMED make the Specimen-CMT more comprehensive. The LMCoP is adding definitions for each term as well as providing educational references about preferred specimen types for each laboratory section (microbiology, chemistry, etc).

**Results:**
Dozens of specimen-related concepts have been submitted for inclusion into the SNOMED vocabulary. Furthermore suggestions for adjustments to the specific SNOMED hierarchies assigned to individual SPM segment fields by the ELR2PH 251 authors have been forwarded. The Specimen-CMT has been presented to the ELR-2.5.1 guide authors and to the vocabulary working group at ONC's Laboratory Results Interface at the Standards & Interoperability (S&I) Framework.

**Conclusions:**
A simple application was developed to demonstrate the use of the Specimen-CMT as a mapping tool for mapping local specimen terms to both standard SNOMED and HL7 terms and has been used to harmonize specimen vocabulary among several public health laboratories in a current APHL project.

---

**Presenting Author(s):**

**Riki Merrick**
Association of Public Health
Laboratories, Silver Springs, MD
rmerrick@iconnectconsulting.com

**Abstract ID:** 1323599 **Presentation Type:** Poster Presentation
**Title:** Reducing absenteeism in a county school system through school-based influenza vaccination clinics
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Influenza
**Keywords:** Influenza / Pandemic influenza|Immunization|Sustainability

**Background:**
The Kanawha-Charleston Health Department (KCHD) is located in Charleston, West Virginia, serving the state's largest metro area with a population over 200,000. During the 2009 H1N1 pandemic, KCHD partnered with the county school system to implement school-located vaccination (SLV) clinics as a delivery system for the H1N1 vaccination to ensure children were vaccinated. KCHD vaccinated almost 15,000 children, nearly 50% of all Kanawha County students. The program was completely funded through the CDC Public Health Emergency Response Grant. In 2010, KCHD decided to continue the SLVs, offering seasonal influenza immunization to every primary and secondary student in the county free of charge. Parents were requested to provide insurance information if available which allowed KCHD to bill insurers and recoup all costs of the SLVs. With a sustainable influenza immunization program in place, KCHD's next step was to demonstrate that the program was effective in decreasing illness.

**Methods:**
Detailed information was collected from each SLV in 2009 and 2010 including the number of students receiving influenza vaccination per school by grade, classroom and dates of immunization. This data was aggregated to determine uptake rates by school and level (primary, middle, or high). Absence data provided by the county school system included daily absence totals for every county public school from 2006-2007 through the end of 2010-2011. Absence data was aggregated by individual school, school level, CDC ILI week, and year. These data were then analyzed together to determine if immunization rates had any measurable effect on absence.

**Results:**
Results of this analysis vary widely depending on school and grade level. For example, high schools had the lowest immunization uptake rates, the biggest fluctuations in baseline absence rates and no significant change in absence rates after the SLVs. However, with the highest uptake rates and the steadiest absence rates, elementary schools demonstrated a significant (a=.05) reduction in expected absence during peak influenza season. Baseline data suggested an average increase of absenteeism during peak influenza season of 14.2 percent in elementary schools. During the two intervention years, the absence rate increased only 5.8 percent at this time, a reduction in expected absenteeism of nearly 60 percent.

**Conclusions:**
While continued data collection and analysis is warranted, the results of this study suggest that SLVs can decrease influenza illness in schools. Importantly, the Kanawha-Charleston Health Department has successfully demonstrated that it is possible to create a self-sustaining, school-based influenza immunization program without external funding.

---

**Presenting Author(s):**

**Brandon Merritt**
Division of Epidemiology, Kanawha-Charleston Health Department,
Charleston, WV
brandon.s.merritt@wv.gov

**Contributing Authors**

Janet Briscoe, RN, BSN, MBA, Director of Epidemiology and Emergency Preparedness, Kanawha-Charleston Health Department Rachel Holloway, CDC Public Health Associate, Kanawha-Charleston Health Department

**Abstract ID:** 1327239 **Presentation Type:** Poster Presentation
**Title:** Animal bite surveillance report: Kanawha County, West Virginia, 2007-2010
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Zoonoses
**Keywords:** Data/Surveillance|Injury prevention|Zoonotic disease

**Background:**
The state of West Virginia designates animal bites as a Category II reportable condition under the West Virginia Reportable Disease Law, requiring any animal bite to be reported to the local health department within 24 hours. In Kanawha County, private health care providers, clinics, hospital ERs, and urgent cares comprise the majority of animal bite reporters while police departments, veterinary clinics, and animal shelters also file reports with the Kanawha-Charleston Health Department on a regular basis. This poster provides a summary of animal bites reported to the Kanawha-Charleston Health Department from 2007 through 2010.

**Methods:**
Data from all animal bites reported to the West Virginia Electronic Disease Surveillance Systems (WVEDSS) was collected and analyzed. Data elements included species of offending animal, date of the bite or exposure, age and sex of the victim, vaccination status of animal, status of animal after exposure, laboratory result of animal if tested for rabies, post-exposure prophylaxis status, and a number of other elements. Descriptive epidemiology was performed to capture county wide trends.

**Results:**
Between 2007 and 2010, 626 animal exposures in Kanawha County were reported to WVEDSS. Over 80 percent of the reported exposures were caused by dogs, while cats accounted for more than 16 percent. Approximately 35% of dogs and 21% of cats were verified to be current on a rabies vaccination. Children aged 1-4 years had the highest age-specific incidence of any age group with more than 18 bites per 10,000 population, while children less than 1 year of age had the lowest age-specific incidence at less than 3 bites per 10,000 population. During this period, of the 25 animals that were tested only one (bat) tested positive for rabies. Rate of rabies post-exposure prophylaxis (PEP) depended largely on the offending animal, with victims of reported bat exposures beginning rabies PEP 100% of the time, while victims of dog exposures only began rabies PEP 4% of the time.

**Conclusions:**
Even though animals that are identified to be infected with rabies in Kanawha County are extremely rare, especially among domesticated species, vaccine rates are still startling low. These data suggest that an increased effort by local veterinarians, animal shelters, and public health is warranted. Another important implication of these data for public health and local providers to consider is the number of animals that are lost to follow-up. About 20% of animals involved in reported exposure incidents in Kanawha County between 2007 and 2010 were lost to follow-up. While animal rabies incidence may be low, such a high percentage of lost animals increases the number of victims recommended to seek post-exposure prophylaxis, a costly and complicated recommendation. A collaborative effort to improve animal follow up between local health, providers, veterinarians, animal shelters, humane officers, and police should be considered.

---

**Presenting Author(s):**

**Brandon Merritt**
Division of Epidemiology, Kanawha-
Charleston Health Department,
Charleston, WV
brandon.s.merritt@wv.gov

**Abstract ID:** 1332884 **Presentation Type:** Breakout Presentation
**Title:** Use of the Emergency Community Notification System to detect outbreaks and conduct disease investigations
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Miscellaneous infectious disease
**Keywords:** Outbreak investigations |Data/Surveillance|Information systems

**Background:**
Immediate detection and timely investigation of disease outbreaks is critical to protect the community's health. The Emergency Community Notification System (ECNS) is a web-based, mass notification system used by local emergency management agencies to contact and disseminate information to residents and responders during emergencies. Clark County Public Health (CCPH) collaborated with their local emergency management agency to approve the use of ECNS for public health investigations. In November 2011, an elementary school notified CCPH of a high rate of absenteeism in their school. CCPH used ECNS for the first time during a public health investigation to collect information from households with absent students.

**Methods:**
CCPH initiated an investigation and used ECNS to survey households of absent students to 1) determine if children were absent due to illness, and 2) if so, to determine the extent and severity of the illness. The school provided a list of absent students and household contact information. Public health staff prepared and recorded five interview questions and response options to ask of each household. When activated, the automated system made phone calls to programmed phone numbers and provided real-time responses. The time it took to set up and activate ECNS was tracked in addition to the cost of using the system.

**Results:**
Question development and set up of the ECNS system took approximately two hours. Fifty-five households with absent students were identified for further investigation. Within five minutes of activating the system, 20 households (36%) completed the survey and 25 households (45%) received voicemail messages with a recorded statement asking the parent/guardian to contact CCPH. In less than 30 minutes after activating ECNS, CCPH determined the outbreak was caused by a virus and reported symptoms were consistent with Viral Gastroenteritis. The total cost to use the system was $7.70 in addition to three hours of staff time for three people.

**Conclusions:**
The use of ECNS to obtain case information improved the speed and efficiency of outbreak detection and data collection. The quick response allowed CCPH to send information about control measures home with students before the end of the school day. Additionally, the cost to implement ECNS was nominal compared to the cost for staff to interview the suspected cases. This innovative use of existing technology to more efficiently conduct disease investigations allows CCPH to better protect the public's health.

---

**Presenting Author(s):**

**Jennifer Merte**
Clark County Public Health,
Vancouver, WA
jennifer.merte@clark.wa.gov

**Contributing Authors**

Richard N. Konrad; Lianne T. Martinez; Alan L. Melnick, MD, MPH, Clark County Public Health

**Abstract ID:** 1332907 **Presentation Type:** Poster Presentation

**Title:** Assessing the usefulness of the CHILD Profile Immunization Registry to obtain or verify vaccination history to enhance pertussis surveillance in Clark County, Washington *

**Committee:** Surveillance/Informatics

**Topic:** General surveillance topics

**Keywords:** Surveillance|Vaccination|Information systems

**Background:**
Complete and accurate vaccine information is necessary to assess the impact of vaccination programs on protecting the public's health. Pertussis vaccine information for cases reported in Washington State is collected in the state's disease surveillance system, the Public Health Issue Management System (PHIMS). The CHILD Profile Immunization Registry (CPIR) is a separate statewide, web-based Immunization Information System which helps providers track their patients' (both children and adults) vaccinations. This study examines the potential usefulness of CPIR data as a means to verify or supplement pertussis vaccine information for cases in PHIMS.

**Methods:**
Reported pertussis cases in Clark County, Washington between January 1, 2005 and December 31, 2010 aged ?7 months and who had a record in CPIR were examined. Pertussis cases were identified in the PHIMS database; demographics and data elements pertaining to vaccination history, including number and dates of doses, were collected. Cases were linked to the immunization registry by first name, last name, and date of birth. Number and dates of doses were collected from CPIR. Vaccination status was determined separately for each data source. Up to Date (UTD) was defined by age group according to the minimum doses recommended by the the Advisory Committee on Immunization Practices pertussis vaccination guidelines. Percent agreement between the two data sources was assessed for number of doses and UTD status.

**Results:**
Among the 189 pertussis cases identified in PHIMS, 55% (n=103) were also identified in CPIR. Agreement between the two data sources for number of recorded doses was 54% (n=56). Agreement for UTD status was 75% (n=77). Vaccination history was more complete in CPIR compared with PHIMS for 32% (n=33) of cases.

**Conclusions:**
Use of CPIR supplemented vaccination history data for about 1/3 of pertussis cases aged ?7 months reported from 2005-2010. CPIR provided useful surveillance data for pertussis disease investigation. Vaccine information entered into pertussis case reports should be as complete and accurate as possible because this information is critical to assessing the impact of vaccination programs on preventing vaccine preventable disease. The immunization registry might also be useful in preventing pertussis by identifying individuals who are not UTD.

---

**Presenting Author(s):**

**Jennifer Merte**
Clark County Public Health,
Vancouver, WA
jennifer.merte@clark.wa.gov

**Contributing Authors**

Chas A. DeBolt, RN, MPH, Washington State Department of Health; Azadeh Tasslimi, MPH, Washington State Department of Health; Alan L. Melnick, MD, MPH, Clark County Public Health

**Abstract ID:** 1326286 **Presentation Type:** Breakout Presentation
**Title:** Business intelligence: Harnessing the power of information
**Committee:** Surveillance/Informatics
**Topic:** Effective interactions between epidemiology and informatics
**Keywords:** Informatics|Surveillance|Epidemiology

**Background:**
Denver Public Health (DPH) is committed to promoting, improving, and protecting the health and well-being of the Denver's residents. Timely compilation and access to data is a requirement for accreditation that many health departments are undertaking and can help public health officials make data- and knowledge-driven decisions that improve health and organizational outcomes.

**Methods:**
In 2008, DPH conducted a series of requirements gathering sessions within each public health area to document current data collection, storage, and utilization methods and to gain a better understanding of current and future data needs. A public health business intelligence roadmap was developed to define priorities and create an approach to streamline processes. Applications have subsequently been built out utilizing Microsoft SQL R2 and SharePoint 2010 in both test and production environments with on-line analytic processing (OLAP) abilities.

**Results:**
Over a 36 month period, DPH has integrated 8 data sources into their business intelligence solution including Influenza Vaccine Administration, Communicable Disease Surveillance, Syndromic Surveillance, Vital Statistics, Behavioral Risk Factor Surveillance, STD Surveillance, in-house EMR data, and the US Census. Depending on the data source, information is available from 2000 forward. More advanced users are able to access OLAP cubes to manipulate and analyze data in an ad-hoc manner using pivot tables in Microsoft Excel, while a web portal displays charts, graphs, and GIS mapping in a dashboard fashion to provide visual representation of the data for the less experienced user.

**Conclusions:**
The resulting BI solution has provided tremendous value to DPH staff and policy makers with much stronger interactions between available data and end-users than previously achieved. Users increasingly manipulate and analyze datasets using standard query methods. These methods decrease time to analysis completion, expand capacity to spot trends, and reduce dependency on manual data processing. While a substantial investment is required, BI technology has the potential to fundamentally transform the practice of public health. If those required to make informed decisions have greater access to the data, information can more efficiently be generated to help improve patient outcomes, reduce costs, and ensure a learning health and healthcare system.

---

**Presenting Author(s):**

**Christie Mettenbrink**
Public Health Informatics, Denver
Public Health Department, Denver, CO
christie.mettenbrink@dhha.org

**Contributing Authors**

Arthur Davidson, MD, MSPH

**Abstract ID:** 1327279 **Presentation Type:** Breakout Presentation
**Title:** Transplant-Associated Transmission of West Nile Virus — Los Angeles County, California, 2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Outbreak investigations |Healthcare associated infections (HAI)|Vectorborne disease

**Background:**
West Nile virus (WNV) is a mosquitoborne pathogen causing a spectrum of illness and death and has been demonstrated to be transmissible through organ transplantation. During 2011, Los Angeles County (LAC) reported the greatest number of WNV cases of any California jurisdiction. During October 2011, the LAC Department of Public Health (DPH) was notified by the Centers for Disease Control and Prevention (CDC) that 2 recent out-of-state kidney recipients, coordinated by a national organ procurement organization (OPO) from an LAC donor, developed WNV-associated encephalitis. The liver from the same donor was also transplanted to another LAC-area patient. LACDPH investigated the possibility of donor-derived WNV transmission through organ transplantation.

**Methods:**
We reviewed OPO medical records and interviewed patient physicians and family members to assess WNV risk factors, exposure histories, and treatments given to the LAC donor and recipient. Available serum, cerebrospinal fluid (CSF), and tissue specimens were sent to CDC for confirmatory laboratory testing by polymerase chain reaction (PCR) and enzyme-linked immunosorbent assay.

**Results:**
The organ donor was a man aged 56 years who experienced several days of fever and lethargy before undergoing cardiopulmonary arrest. He was evaluated in a local emergency room upon symptom onset, but WNV was not considered as a diagnosis despite residing in an LAC area with substantial WNV activity. Although no mosquito bites were reported, the donor reportedly spent time outdoors and frequently left unscreened doors open at home. Donor pretransplant and posttransplant serum tested during our investigation was WNV-positive by serology; lymph node and spleen tissue were WNV-positive by PCR. The liver recipient was a man aged 63 years with cirrhosis from hepatitis C and alcohol use. He had poor graft function that was not thought to be a result of WNV infection and required a second liver transplant; however, he became febrile and WNV was identified in CSF through PCR.

**Conclusions:**
WNV infection was documented in 3 organ recipients from a WNV-infected donor residing in an established WNV-endemic region in California. WNV testing is not included among current national organ donor screening guidelines. OPO involvement with local health departments (LHDs) is critical, as LHDs understand local communicable disease epidemiology, have established relationships with area infection preventionists and infectious disease physicians, and can assist OPOs investigating possible transplant-associated infections. Educating transplant surgeons and OPOs about LHDs as a resource for infectious disease evaluation might reduce transplant-associated transmission of communicable illness.

---

**Presenting Author(s):**

**Christina Mikosz**
Epidemic Intelligence Service assigned
to the Los Angeles County Dept of
Public Health, Centers for Disease
Control and Prevention, Atlanta, GA
dex0@cdc.gov

**Contributing Authors**

Rachel Civen, MD, MPH. Los Angeles County Dept of Public Health Van Ngo, MPH. Los Angeles County Dept of Public Health Laurene Mascola, MD, MPH. Los Angeles County Dept of Public Health

**Abstract ID:** 1317395 **Presentation Type:** Poster Presentation
**Title:** Comparison of O157 and Non-O157 Shiga Toxin–Producing Escherichia coli — Los Angeles County, 2006–2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Foodborne/waterborne disease
**Keywords:** Foodborne disease|Surveillance

**Background:**
Shiga toxin–producing Escherichia coli (STEC) causes ~175,000 illnesses annually; severe illness is typically associated with STEC O157:H7, with 5%–10% of illnesses leading to hemolytic uremic syndrome (HUS), usually among children. However, non-O157 STEC is an increasingly-recognized cause of morbidity and mortality. We studied epidemiology of non-O157 and O157 STEC in Los Angeles County (LAC) to characterize differences.

**Methods:**
An STEC case was defined as either non-O157 stool identified through Shiga toxin enzyme immunoassay (EIA), or O157 STEC identified by stool culture. We reviewed LAC STEC passive surveillance data from January 2006, when a systematic database for non-O157 STEC was initiated, through June 2011. We compared non-O157 and O157 STEC characteristics by using chi-square analysis.

**Results:**
STEC cases totaled 217 in LAC; 128 (59%) were non-O157 and 89 (41%) were O157 STEC. Similar percentages by sex were noted for non-O157 and O157 (48% and 54% female, respectively), with median ages of 3 and 14 years, respectively. Non-O157 illness was less severe than O157 with respect to bloody diarrhea (30% versus 82%; $P < 0.01$), hospitalization (5% versus 36%; $P < 0.01$), and HUS (0% versus 7%; $P < 0.01$). Two patients died, 1 with non-O157 and 1 with 0157 STEC. Non-O157 cases increased from 7 during 2006 to 51 during 2010.

**Conclusions:**
Less severe illness among non-O157 STEC in LAC reflects trends observed nationally. Younger median age among non-O157 illnesses and substantial increase in non-O157 illnesses during 2010 reflects an increase in EIA Shiga toxin testing, particularly among children. Increasing awareness regarding non-O157 STEC illness burden and further assessment of changes in testing practices will shape prevention and response efforts.

---

**Presenting Author(s):**

**Christina Mikosz**
Epidemic Intelligence Service assigned
to Los Angeles County Department of
Public Health, Centers for Disease
Control and Prevention, Atlanta, GA
dex0@cdc.gov

**Contributing Authors**

Leticia Martinez, RN, PHN, Los Angeles County Department of Public Health Roshan Reporter, MD, MPH, Los Angeles County Department of Public Health Laurene Mascola, MD, MPH, Los Angeles County Department of Public Health

**Abstract ID:** 1327449 **Presentation Type:** Breakout Presentation
**Title:** Influenza illness among vaccinated and unvaccinated children during the 09-10 and 10-11 influenza seasons in North Dakota
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Influenza
**Keywords:** Influenza / Pandemic influenza|Vaccination|Evaluation

**Background:**
North Dakota requires laboratory-confirmed influenza to be reported to the North Dakota Department of Health (NDDoH), including positive PCR, viral cultures, DFA, IFA, and rapid tests. NDDoH Division of Disease Control uses the data to gauge influenza impact. During the 2009-10 (July 1-June-31) influenza season, 3259 confirmed cases of influenza were reported to NDDoH of which (66.9%) occurred in children ages 18 and under. During the 2010-11 (July 1-June-31) influenza season, 2092 confirmed cases of influenza were reported to NDDoH of which (52.3%) were in children ages 18 and under. To determine if there is a correlation between vaccination and not having disease in children ages 18 and under, data from the North Dakota Immunization Information System (NDIIS) was linked to reported cases of confirmed influenza.

**Methods:**
NDDoH extracted data from the NDIIS for influenza seasons 2009-10 and 2010-11. Utilizing this data, children were categorized into vaccinated and not vaccinated for influenza for each season. All influenza vaccine types were included and a child was considered vaccinated if there had been at least one dose of influenza containing vaccine in the season entered into NDIIS. Children were matched to laboratory confirmed cases of influenza on the variables birth date, first name and last name. For the 2009-10 influenza season, any case of influenza that occurred before 10/15/2009 were categorized as not vaccinated since North Dakota was not allocated 2009 H1N1 influenza vaccine until 10/2/2009 and that season most children were susceptible to the prevailing strain.

**Results:**
During the 2009-10 influenza season, 26.1% (539/2059) of children with confirmed influenza were vaccinated. Children who were vaccinated in 2009-10 were 2.55 (95%CI: 2.31, 2.81) times less likely to have laboratory confirmed influenza than children who were not vaccinated for influenza. During the 2010-11 influenza season, 25.9% (274/1059) of children with confirmed influenza were vaccinated. Children who were vaccinated for influenza in 2010-11 were 2.38 (95% CI: 2.07, 2.73) times less likely to have laboratory confirmed influenza than children who were not vaccinated for influenza.

**Conclusions:**
While influenza vaccine is not 100% effective (66-91% in healthy children, CDC), the data suggests that children who receive influenza vaccinations are substantially less likely to have laboratory confirmed influenza in a single influenza season. Limitations to this study include: 1) data not adjusted for duration between vaccination and disease onset, 2) disease may have occurred before vaccination and 3) using a single dose of vaccine to determine vaccination status.

---

**Presenting Author(s):**

**Tracy Miller**
North Dakota Department of Health,
Bismarck, ND
tkmiller@nd.gov

**Contributing Authors**

Lindsey VanderBusch, B.S., North Dakota Department of Health

**Abstract ID:** 1310380 **Presentation Type:** Roundtable Presentation
**Title:** Substance Abuse Epidemiology Roundtable
**Committee:** Cross Cutting Sub-Committee
**Topic:** Substance abuse epidemiology: Burden of alcohol and opiate use, Polices related to substance abuse
**Keywords:** Substance abuse |Alcohol|Indicators

**Brief Summary:**
At the annual substance abuse epidemiology roundtable the activities and projects of the substance abuse subcommittee, alcohol epidemiology subcommittee, the overdose subcommittee and the alcohol and other drugs indicator subcommittee are discussed and plans are made for the upcoming year.

**Key Objectives:**
1. To update members on the activities and projects of the substance abuse epidemiology subcommittees. 2. To plan for new activities of the subcommittees in the next year.

---

**Presenting Author(s):**

**Corinne Miller**
Michigan Department of Community Health, Lansing, MI
millercori@michigan.gov

**Michael Landen**
New Mexico Department of Health, Santa Fe, NM
michael.landen@state.nm.us

**Abstract ID:** 1330882 **Presentation Type:** Breakout Presentation
**Title:** Human Salmonella infections associated with exposure to live poultry from agricultural feed stores and mail-order hatcheries
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Zoonoses
**Keywords:** Epidemiology|Zoonotic disease|Infectious Diseases

**Background:**
Salmonella infections from contact with live poultry (chickens, ducks, turkeys, geese) continue to be a public health problem. An increasing number of people around the country are choosing to raise live poultry in backyard flocks. Live poultry are commonly distributed through agricultural feed stores and mail-order hatcheries; approximately 50 million chicks are sold annually in the U.S. Since 1990, >30 outbreaks of human Salmonella infections linked to contact with live poultry from mail-order hatcheries have been reported.

**Methods:**
In summer 2011, two clusters of human Salmonella infections were identified through PulseNet, a molecular subtyping network for foodborne disease surveillance. Standard outbreak and traceback investigations were conducted.

**Results:**
Between February 25 and September 10, 2011, the outbreak strain was identified in 68 individuals with Salmonella Altona infections and 28 individuals with Salmonella Johannesburg infections from 24 states. Thirty-two percent of Salmonella Altona and 75% of Salmonella Johannesburg infected individuals were < 5 years. Forty-two (74%) of 57 Salmonella Altona and 17 (71%) of 24 Salmonella Johannesburg case-patients reported contact with live poultry in the week preceding illness. Most patients reported purchasing chicks and ducklings from multiple locations of a nationwide agriculture feed store chain which was supplied by a single mail-order hatchery. Live poultry were purchased for backyard flocks or as pets. In June 2011, the Ohio Department of Agriculture inspected the mail-order hatchery and made recommendations for improvement.

**Conclusions:**
These outbreaks highlight the ongoing risk of human Salmonella infections associated with live poultry contact, especially to young children. In response to this ongoing public health problem, an effective collaborative effort among officials with the U.S. Department of Agriculture's National Poultry Improvement Plan, local, state, and federal public and animal health agencies, the mail-order hatchery industry, and other partners was organized to develop and implement a comprehensive Salmonella control strategy. Educational materials warning customers of the risk of Salmonella infection from live poultry contact and measures they can take to prevent Salmonella infections should be distributed with all live poultry purchases. Preventing these infections will require an integrated approach at the hatchery, agricultural feed store, and consumer levels.

---

**Presenting Author(s):**

**Jennifer Mitchell**
Division of Foodborne, Waterborne,
and Environmental Diseases Outbreak
Reponse and Prevention Branch,
Centers for Disease Control and
Prevention, Atlanta, GA
itz4@cdc.gov

**Contributing Authors**

Katherine A. O’Connor, MPH, BSN - CDC; Kimberly D. Machesky, MPH - Ohio Department of Health; Beverly A. Byrum, DVM, PhD - Ohio Department of Agriculture; Tony Forshey, DVM - Ohio Department of Agriculture; Leslie Hausman, BA, BSN, MPH - CDC; Thomas M. Go

**Abstract ID:** 1331060 **Presentation Type:** Roundtable Presentation
**Title:** Update from MMWR
**Committee:** Cross Cutting Sub-Committee
**Topic:** Translating epidemiologic data into public health actions
**Keywords:** Communication|Epidemiology|Collaboration

**Brief Summary:**
MMWR is CDC's widely recognized voice on science. CSTE members have an ongoing interest in MMWR as readers and contributors and as professionals interested in ensuring that public health practice is grounded on the best and most timely scientific information. MMWR benefits from CSTE feedback. This roundtable discussion will focus on multiple topics relevant for CSTE members including MMWR's strategic plan, CME, data sharing, revision of the Surveillance Summaries and potential value of adding new conditions to the weekly End Tables. The potential value of increasing the number of articles on evaluation of public health interventions will be discussed.

**Key Objectives:**
-To provide an update on recent developments and new initiatives with MMWR including CME, increasing MMWR's value as an educational resource and re-design of Surveillance Summaries. -To request ideas and feedback from CSTE members on how MMWR could be

---

**Presenting Author(s):**

**Ronald Moolenaar**
Centers for Disease Control and Prevention, Atlanta, GA
rlm8@cdc.gov

**John Moran**
Centers for Disease Control and Prevention, Atlanta, GA
JMoran@CDC.GOV

**Contributing Authors**

John Moran, MD, MPH Deputy Editor, MMWR, Epidemiology and Analysis Program Office, CDC

**Abstract ID:** 1332635 **Presentation Type:** Poster Presentation
**Title:** Easier said than done: Challenges of carbapenem-resistant Enterobacteriaceae surveillance in Tennessee
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Antibiotic resistance
**Keywords:** Antimicrobial resistance|Healthcare associated infections (HAI)|Surveillance

**Background:**
On January 1, 2011, carbapenem-resistant Enterobacteriaceae (CRE) became reportable across Tennessee. The state used a broad definition to capture as many cases as possible. With a definition that includes all genera, plasmid mediated resistance phenotypes can be tracked from one species to another. The purpose of making CRE reportable was to understand the epidemiology of this emerging infection in Tennessee and to use the information to design evidence-based strategies to combat this problem.

**Methods:**
To report CRE, healthcare facilities must isolate a potential CRE from a clinical specimen and conduct an antimicrobial screening panel on the organism. Once a case is identified healthcare facilities and laboratories in TN are required to report information on species, antibiotic resistance, patient demographics, and specimen source to the TN Department of Health.

**Results:**
The level of complexity associated with making an emerging infection reportable became immediately apparent. The diversity of the genera in the Enterobacteriaceae family was a complicating factor as some of the organisms were unfamiliar to providers and caused confusion about which organisms were reportable. Another challenge for facilities is that there are multiple drugs, including four different carbapenems and third generation cephalosporins (ceftriaxone, cefotaxime, and ceftazidime) that have to be considered when determining if the isolate is a CRE. The new breakpoints from CLSI also posed a challenge because some machines were not yet calibrated or the breakpoints were below the detection limits for the machine. As a result, these issues caused severe reporting discrepancies across the state, including under-reporting in some areas and over-reporting in others.

**Conclusions:**
Due to the complexity associated with reporting CRE, we have instituted strategies to centralize reporting. We disseminated more educational materials such as fact sheets, presented at conferences, and provided direct communication with healthcare providers and regional staff. In addition, we encouraged Tennessee hospitals to join our Public Health Hospital Reporting Project, which provides the WHONET software at no cost and can be used to extract, flag, analyze, and report cases of CRE from existing hospital information systems with minimal burden on their staff. In 2012, we will modify the state definition to enhance the accuracy of the reporting and better target organisms that are likely to express the genes that confer carbapenem resistance. We will also use the information collected thus far to develop interventions for our healthcare facilities that have experienced increases in their CRE cases.

---

**Presenting Author(s):**

**Ashley Moore**
Tennessee Department of Health,
Nashville, TN
ashley.e.edwards@tn.gov

**Contributing Authors**

Emily L. McNish, BA; Marion Kainer, MBBS, MPH, FRACP

**Abstract ID:** 1341106 **Presentation Type:** Roundtable Presentation
**Title:** The Food Safety Modernization Act (FSMA): Update and what implications it has for states
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Foodborne/waterborne disease
**Keywords:** Foodborne disease|Surveillance

**Brief Summary:**
The FSMA includes a number of requirements to enhance foodborne illness surveillance systems and report annually on progress to the Secretary of HHS. State and local health departments are key partners in the collection, analysis and utilization of such surveillance data. There is a need to develop measures to monitor progress. After a brief introduction, the purpose will be to discuss how best to develop a joint plan to enhance surveillance and what performance measure to use to monitor progress.

**Key Objectives:**
1. Familiarize State Epidemiologists with provisions of FSMA and how it affects states 2. Strategies for enhancing Foodborne disease surveillance 3. Discussion of what metrics can be developed to measure progress

---

**Presenting Author(s):**

**Dale Morse**
Centers for Disease Control and Prevention, Atlanta, GA
dym2@cdc.gov

**Tim Jones**
Tennessee Department of Health, Atlanta, GA
tim.f.jones@tn.gov

**Abstract ID:** 1322150 **Presentation Type:** Poster Presentation
**Title:** Memphis: The number one city of chemical related incidents in Tennessee
**Committee:** Environmental Health Sub-Committee
**Topic:** Surveillance and response to chemical/radiologic emergencies, including National Toxic Substance Incidents Program (NTSIP)
**Keywords:** Surveillance|Chemical and biological exposures|Geographic Information Systems

**Background:**
The city of Memphis, Tennessee is unique in terms of transportation in the US. It is the world's busiest air-cargo hub, third busiest trucking corridor, and third most connected rail center in the US. As an industrial center and transportation corridor, Memphis has the high level of environmental pollution in Tennessee. The Tennessee Department of Health (TDH) along with the Agency for Toxic Substances and Disease Registry (ATSDR), has established the National Toxic Substance Incidents Program (NTSIP), a surveillance system of acute chemical release incidents to improve the health and the quality of life of citizens near areas such as Memphis.

**Methods:**
TDH has collected data and used ArcGIS to map chemical incidents in Memphis that occurred during 2010-2011. The chemical incident data are mapped by census tract along with chemical facilities (using E-plan data) and overlaid with Social Vulnerability Index (SVI) data. The underlying SVI characteristics for each incident are determined for each domain.

**Results:**
There were a total of 630 incidents in Tennessee during 2010 and 2011 (until November, 2011). Of these incidents, 181 occurred in Memphis. Memphis was the city with the highest number of incidents reported in the NTSIP database. The incidence of very high vulnerability (>0.95) was present in total state-wide percentile rankings. In terms of individual domain, the incidence of high vulnerability was observed for the socioeconomic domain. A slight increase in the frequency of high vulnerability was observed for the household structure/disability domain. However, the frequency of census tracts with a high vulnerability was less for the housing/transportation domains. It was also observed that a large number of industries were located in the more vulnerable areas of the city.

**Conclusions:**
Memphis is one of the most densely populated cities in the state of Tennessee. Memphis is also an important center of industry and transportation in the US. After collecting and analyzing the data, TDH determined that the socioeconomically challenged areas in Memphis are more vulnerable to chemical related incidents because this population is poor, unemployment is high, and the percentage of high school completion is low. Thus, the overall social vulnerability of Memphis is a key indicator of the community's susceptibility to chemical related incidents. Also Memphis is more vulnerable because there are several industries which are located in the vulnerable areas. By identifying these vulnerable areas of the city, the methods to mitigate public health consequences can be developed effectively.

---

**Presenting Author(s):**

**Sutapa Mukhopadhyay**
Department of Health, Tennessee
Department of Health, Nashville, TN
sutapa.mukhopadhyay@tn.gov

**Abstract ID:** 1309165 **Presentation Type:** Breakout Presentation
**Title:** Aerial Pesticide Application and Drift Impacting Gove Elementary School – Palm Beach County, Florida
**Committee:** Occupational Health Sub-Committee
**Topic:** Acute pesticide poisoning surveillance
**Keywords:** Pesticides|Occupational Surveillance|Environmental Health

**Background:**
Past studies indicate that aerial pesticide applications are the most common application method where drift events occur. In this Florida study, an agricultural pesticide applicator airplane was spraying an insecticide, fungicide, and fertilizer on a corn field near Gove elementary school in the morning as students arrived. Students and school staff began to notice an odor and complained of eye and skin irritation. The school principal took immediate action to lock down the school and keep the students, teachers and staff inside the building, limiting possible exposures. The epidemiological investigation was promptly initiated to assess the situation.

**Methods:**
A survey was conducted using a standard questionnaire to identify symptomatic individuals and collect additional information. Data were also gathered from the school nurse, local hospitals, Emergency Department chief complaints and poison control centers.

**Results:**
Survey results indicated that of the 813 students and 85 staff present, 22 students (2.7%) and 44 staff members (51.8%) developed health effects following the drift incident. Common symptoms reported immediately post-drift were itching skin, burning eyes and vomiting. Students were between 5 to 14 years of age and staff between 25 to 65 years of age. Distribution by race and ethnicity indicated that 65.15% were White (N=43), 27.27% Black (N=18), 3% Asian (N=2), 4.5% unknown (N=3); 38.2 % were of Hispanic ethnicity (N=26). About 29.7% (N=19) reported eye symptoms only (e.g. eye irritation, lacrimation and blurred vision). 56 patients reported two or more signs and symptoms. 15.2% patients (N=10) reported preexisting conditions like asthma. Half of the patients (N=32) did not have preexisting conditions and 33.3% were categorized as unknown (N=22). Of the 66 symptomatic individuals, 56 were classified as probable cases and these cases were considered to have low (27) and moderate (29) severity of illness. Additional environmental sampling data and the investigation details surrounding the pesticide application will be presented along with the epidemiological analysis.

**Conclusions:**
The investigation findings indicate that the health effects following a drift incident at Gove elementary school are consistent with the pesticides used. Of all staff at the school (N=85), half experienced health effects (N=44) regardless of whether they were outdoors or indoors during the event. Individuals with pre-existing conditions were more likely to experience moderate rather than low severity of illness. Similarly, individuals with moderate versus low severity of illness were more likely to receive medical care. This study highlights the importance of identifying and preventing contributing factors for drift incidents through investigation, regulation and education related to aerial pesticide spraying.

---

**Presenting Author(s):**

**Prakash Mulay**
Bureau of Environmental Public
Health Medicine, Florida Department
of Health, Tallahassee, FL
Prakash_Mulay@doh.state.fl.us

**Contributing Authors**

Diane King RN, MSPH,Palm Beach County Health Department Sharon Watkins, PhD, Florida Department of Health Anil Nair, PhD, Florida Department of Health Carina Blackmore, DVM, PhD, Dipl. ACVPM, Florida Department of Health

**Abstract ID:** 1332668 **Presentation Type:** Breakout Presentation
**Title:** Syndromic surveillance of inpatient hospital records in Nebraska: A pilot project
**Committee:** Surveillance/Informatics
**Topic:** Novel surveillance methods and data sources
**Keywords:** Surveillance|Cardiovascular disease

**Background:**
Syndromic surveillance of emergency department (ED) records has proven to be a useful tool in the timely detection of infectious disease outbreaks. However, ED records are not a data source to effectively track more severe, chronic diseases such as cardiovascular disease (CVD). Chronic disease burden is historically examined using inpatient records from hospital discharge data (HDD). HDD are also inadequate to properly track chronic disease; they are outdated and provide only limited patient information. More timely and comprehensive data are needed to properly track chronic disease morbidity trends in the state and allow public health officials to make informed decisions about prevention efforts and target populations.

**Methods:**
Nebraska Department of Health and Human Services (NDHHS) has implemented a real-time inpatient syndromic surveillance system with 128 data elements including several specific to CVD (eg., EKG results, discharge medications, hemoglobin A1C, troponin levels) and occupation. Hospital A agreed to participate in NDHHS's pilot inpatient syndromic surveillance project in May, 2011. Beginning in August 2011, electronic health records have been electronically transmitted via text delimited files from Hospital A on a near-daily basis via a secure messaging protocol called Public Health Information Network Messaging System. Raw data received by NDHHS are converted to Excel spreadsheets for easier viewing, manipulation, and analysis. Clinical data are sent to NDHHS five days after patient admission and demographic data are sent upon completion of record coding (mean = 10 days after admit date). Clinical and demographic data are merged to create a complete patient record based on a unique Visit ID number. SAS® is used to identify ICD-9 codes indicating acute CVD events: myocardial infarction (MI), stent placement, coronary artery bypass grafting (CABG), and percutaneous transluminal coronary angioplasty (PTCA).

**Results:**
During October 1, 2011 through January 6, 2012, Hospital A provided 5,309 demographic and 5,206 clinical patient records. A total of 1,771 (25%) clinical records were not matched with a demographic record and 1,874 (26.5%) demographic records were not matched with a clinical record. All demographic records contained a primary final diagnosis. There were a total number of 140 acute CVD events in the data: 86 MI, 43 PTCA, 53 CABG, and 39 stent placements.

**Conclusions:**
While still in the pilot phase of extracting, transmitting and receiving data this project has been very successful. Future steps include completing the extract of historical data, automating the daily conversion of data, and recruiting additional hospitals to participate.

---

**Presenting Author(s):**

**Eryn Murphy**
Division of Epidemiology, Nebraska Department of Health and Human Services, Lincoln, NE
eryn.murphy@nebraska.gov

**Contributing Authors**

Tom Safranek, MD Nebraska Department of Health and Human Services

**Abstract ID:** 1332356 **Presentation Type:** Poster Presentation
**Title:** Developing school-related indicators of child health in New York State schools
**Committee:** Environmental Health Sub-Committee
**Topic:** Environmental Public Health Tracking
**Keywords:** School health|Environmental Health|Indicators


**Background:**
Tracking school-related health is important because of the amount of time spent there by students and staff. The New York State (NYS) Department of Health was funded by the US Environmental Protection Agency to develop environmental public health indicators related to the school environment, explore appropriate statistical methodologies in evaluating the links between school environment and children's health and school performance (test scores, attendance), and assess the impacts of environmental policy on these outcomes.

**Methods:**
Staff identified existing NYS data sources which could provide information relevant to assessing factors affecting respiratory health and performance in the school environment. Staff developed a method for characterizing potential indicators, based on a proposed framework which assesses environmental health importance, public health importance, stakeholder concern, technical capacity and practicality, data and information quality, and implications for public health action and policy development.

**Results:**
Potential indicators related to the indoor school environment were identified from the 2010 Building Condition Survey (BCS), which NYS schools are required to complete every 5 years. These indicators included indoor air quality, thermal comfort, dryness, cleanliness, pest management, mold/moisture, acoustics, lighting, and overall building rating. Available state and federal data sources were used to characterize outdoor indicators in proximity to the school environment, including air pollution from traffic, industrial sources, and airports; land use patterns; hazardous waste sites and other hazards. These will be evaluated statistically to assess their association with student respiratory hospitalizations and test scores. NYS Department of Health hospitalization data will be used to identify asthma hospital admissions and emergency room visits. Academic test scores and attendance data from the NYS Education Department will be used to estimate student performance. Indicators of outdoor hazards associated with the home environment will be considered in the analysis as potential confounders.

**Conclusions:**
The school-related environmental public health indicators identified and evaluated in this project could be added to the NYS Environmental Public Health Tracking system or could be used by other stakeholders for public health action or policy development.


---


**Presenting Author(s):**

**Neil Muscatiello**
Center for Environmental Health, New
York State Department of Health,
Troy, NY
nam04@health.state.ny.us

**Contributing Authors**

Melissa Frisbie, M.S., New York State Department of Health Anne McCarthy, M.P.H., New York State Department of Health Shao Lin, Ph.D., New York State Department of Health

**Abstract ID:** 1326194 **Presentation Type:** Breakout Presentation
**Title:** Potential risk factors for work-related musculoskeletal pain to hired crop workers in the U.S.
**Committee:** Occupational Health Sub-Committee
**Topic:** Occupational health disparities
**Keywords:** Migrant Farm Workers|Agricultural work safety|Risk factors

**Background:**
Musculoskeletal pain is prevalent among hired crop workers in the United States (U.S.). Information on risk factors for these complaints, however, is limited. This study assessed potential risk factors for farm work-related musculoskeletal pain reported by these workers from the National Agricultural Workers Survey (NAWS).

**Methods:**
Data were collected from a sample of 20,301 hired crop workers through the NAWS during the federal fiscal years 1999 through 2004. Workers self-reported the number of farm work-related musculoskeletal complaints resulting in restricted work activity they experienced in the previous 12 months. The multivariate association between the incidence of these complaints and a list of 34 employment, socio-economic, and demographic variables were examined using a backwards elimination logistic regression approach. Results were adjusted for the weeks of farm work reported by the crop worker in the prior 12 months. SAS survey software was used to conduct the analysis to account for the complex NAWS sampling design.

**Results:**
The backwards elimination methodology with an "acceptance criteria" of ??0.05 resulted in 23 variables being retained in the final multivariate logistic model. Eight variables were demographic (e.g., age, sex, education), 5 were employment related (e.g., crop worked on, task worked on, workers' compensation coverage), and 10 were socio-economic (e.g., type of housing, income, social services used). Workers reporting responsible practices by their employer (e.g., having workers' compensation, good field sanitation) had lower odds of musculoskeletal complaints. Demographic, employment, and socio-economic variables indicative of workers being new to the agricultural work force were associated with higher odds of musculoskeletal complaints. Female workers were found to have a higher adjusted odds ratio for musculoskeletal complaints than males.

**Conclusions:**
The incidence of farm work-related musculoskeletal pain experienced by hired farm workers in the U.S. is associated with a combination of worker demographic characteristics, employment factors, and socio-economic factors. Prevention efforts should focus on working conditions, with particular focus given to female workers and workers new to the agricultural workforce.

---

**Presenting Author(s):**

**John Myers**
National Institute for Occupational
Safety and Health , Centers for
Disease Control and Prevention,
Morgantown, WV
JRMyers@cdc.gov

**Contributing Authors**

Larry A. Layne, MA. Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health

**Abstract ID:** 1326542 **Presentation Type:** Roundtable Presentation
**Title:** Exploring Collaborative Efforts Between NCIPC and NIOSH State Grantees to Enhance State Injury Prevention Programs.
**Committee:** Occupational Health Sub-Committee
**Topic:** Strategies for sustaining state public health/occupational health activities with fewer resources
**Keywords:** Injury prevention|Injury surveillance|Occupational injury and death

**Brief Summary:**
NCIPC is the lead CDC center for the prevention of non-occupational injuries in the U.S. NIOSH plays a similar role within CDC focusing on occupational injuries. Both NCIPC and NIOSH provide funding to states to advance their injury prevention programs. Because of the joint interests of NCIPC and NIOSH in promoting injury prevention within states, both centers see an opportunity to promote and foster a closer working relationship between their state grantees. This roundtable session would provide a forum to bring these state grantees together to initiate discussions on areas of mutual interest and explore collaborative activities within the states.

**Key Objectives:**
Provide state grantees funded by the National Center for Injury Prevention and Control (NCIPC) and the National Institute for Occupational Safety and Health (NIOSH) the opportunity to explore collaborative activities that would advance both non-occupational and occupational injury prevention efforts within the states.

---

**Presenting Author(s):**

**John Myers**
Centers for Disease Control and Prevention, Morgantown, WV
JRMyers@cdc.gov

**Abstract ID:** 1327233 **Presentation Type:** Poster Presentation
**Title:** Estimating the number of Kentuckians living with human immunodeficiency virus (HIV) disease with unmet needs for HIV-related primary care in calendar year 2009
**Committee:** Infectious Diseases Sub-Committee
**Topic:** HIV
**Keywords:** HIV/AIDS

**Background:**
Increasing the number of persons who are diagnosed and linked to effective care and prevention services has the potential to significantly reduce morbidity and premature death and decrease new HIV infections over time.

**Methods:**
To gauge how many HIV-positive persons had unmet needs, the Kentucky Department of Public Health (KDPH) used three databases to estimate the number of Kentuckians living with HIV, who did not receive HIV-related primary care during 2009. A retrospective analysis was conducted 12 months after the diagnosis period (2009) and having unmet needs was defined as "persons aware of their status, but not receiving care through laboratory testing, or the Ryan White Care Coordinator system or Medicaid". HIV surveillance data in the enhanced HIV/AIDS Registry System (eHARS) were analyzed for laboratory reports of viral loads and CD4 tests collected in 2009. Cases without laboratory tests in eHARS were compared to the Ryan White care coordinator database (CAREWare). Lastly, cases without laboratory tests and not in CAREWare were compared to Medicaid records for 2009.

**Results:**
Of the 4,767 Kentuckians living with a diagnosis of HIV disease at the end of 2009, 1,573 (33%) had unmet needs. Unmet needs were highest among persons living with HIV (not AIDS) (57%), in comparison with those living with AIDS (43%). Demographics of HIV-infected Kentuckians with unmet needs in 2009 are similar to the distribution of the disease in the state, with males having the majority of unmet needs (84%). Racial disparities exist. Hispanics had the highest percentage of unmet need (44%), in comparison to 38% of blacks and 29% of whites. Whites had the highest percentage of unmet needs among HIV-infected Men having Sex with Men (MSM) (66%). Among HIV-positive persons out of care with the behavioral risks of injection drug use (IDU) and heterosexual contact, the majority were black (54% and 53% respectively). Geographically, at least a quarter of all cases diagnosed within each of the six Ryan White program care coordinator regions in Kentucky were out of care in 2009.

**Conclusions:**
Kentucky's methodology identified a third of HIV-infected persons to be out of care in 2009. Interventions to address unmet need in Kentucky should target similar populations to those disproportionately affected by HIV, due to comparable demographic and behavioral distributions. Local and state programs across the U.S. can use similar methodology as a first step in facilitating program planning to increase linkage to and retention in care.

---

**Presenting Author(s):**

**Julie Nakayima**
Kentucky Department for Public
Health, Frankfort, KY
Peace.Nakayima@ky.gov

**Contributing Authors**

Kraig Humbaugh, MD, Kentucky Department for Public Health

**Abstract ID:** 1330261 **Presentation Type:** Breakout Presentation
**Title:** Bolstering epidemiology capacity and public health preparedness capabilities: A review of the Career Epidemiology Field Officer (CEFO) Program
**Committee:** Cross Cutting Sub-Committee
**Topic:** Epidemiology capacity
**Keywords:** Epidemiology capacity|Preparedness|Workforce

**Background:**
State and local public health shortages in epidemiology capacity are well documented. Since 2002, the Career Epidemiology Field Officer (CEFO) Program, at the Centers for Disease Control and Prevention (CDC) has assisted state and local health departments through assignment of CDC- trained epidemiologists. Currently, 32 CEFOs are assigned to 27 state or local health departments. In June 2011, an external peer review evaluated the CEFO Program's strengths, weaknesses, and opportunities for improvement.

**Methods:**
Data were derived from qualitative analysis of 143 activity reports describing ~ 400 epidemiology activities conducted by CEFOs during 2009- 2011 and the results of two surveys of CEFOs (n= 30) and state and local stakeholders (n =145) during April-May 2011. The survey of CEFOs collected information on demographics, type and distribution of work activities, satisfaction with support provided by CDC, and satisfaction with CEFO Program operational elements. The second survey collected information from program stakeholders about the respondent's demographics; awareness of the CEFO Program; whether they have ever had a CEFO in their health department; satisfaction with CEFO activities and contributions; satisfaction with support provided by CEFO Program Headquarters; and satisfaction with how CEFOs are funded. Survey response rates were 86% (n=26) and 44%, (n=64) respectively.

**Results:**
The majority of CEFOs conducted or supervised outbreak investigations and general surveillance activities. CEFOs and stakeholders expressed very high satisfaction with the activities and support received from CDC CEFO program. Respondents who currently or previously supervised a CEFO (67%, 43/64) were asked to identify CEFOs' three most important contributions to their respective health departments. They reported the three significant contributions were: 1) improving epidemiologic capacity (81%); 2) improving public health preparedness and response (74%); and, 3) providing education, training, and workforce development (44%). The majority of all respondents (72%, 46/64) reported that the field assignee's robust epidemiology skills and contributions to strengthening epidemiology and preparedness capacity were strengths of the CEFO Program. Funding levels remained the ultimate concern for sustainability of the CEFO program. Many respondents (78%) indicated that the funding may not be sustainable in the current federal budget climate. A few respondents (6%) noted that the relatively high salary for CEFOs compared with local staff salaries could result in prioritizing the hiring of local staff.

**Conclusions:**
The work conducted by CEFOs has bolstered the epidemiology capacity and public health emergency preparedness capabilities among state and local jurisdictions. The major threat to the CEFO program is sustainability of the current funding model. The review panel offered nine recommendations for improving the operations and sustainability of the CEFO program.

---

**Presenting Author(s):**

**Linda Neff**
DHHS, Centers for Disease Control and Prevention, Atlanta, GA
len2@cdc.gov

**Contributing Authors**

Nadine Oosmanally, MSPH, ORISE Fellow, Career Epidemiology Field Officer Program, Office of Science and Public Health Practice, Office of Public Health Preparedness and Emergency Response, Centers for Disease Control and Prevention.
John Horan, MD, Direct

**Abstract ID:** 1310245 **Presentation Type:** Breakout Presentation
**Title:** Measles transmission during air travel, United States, December 1, 2008 - May 31, 2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Vaccine preventable diseases
**Keywords:** Infectious Diseases

**Background:**
The Centers for Disease Control and Prevention (CDC) Division of Global Migration and Quarantine (DGMQ) and US health departments conduct contact investigations for travelers who were infectious with measles during a flight to identify passengers at risk of exposure and implement public health interventions to mitigate disease spread. We sought to determine if the current CDC measles protocol effectively identifies passengers at most risk of in-flight exposure and infection.

**Methods:**
We analyzed data from contact investigations initiated by DGMQ from December 2008 through May 2011. Per protocol, passenger-contacts were defined as passengers seated within 2 rows of the index case, and children ?2 years old seated in the lap of an adult anywhere on the aircraft. Names and contact information of passenger-contacts were obtained from airline flight manifests and distributed to US health departments or foreign public health authorities. Passengers without contact information were considered lost to follow-up. US health departments were asked to report outcomes of their contact investigations to DGMQ. We cross-referenced the National Notifiable Diseases Surveillance System (NNDSS) and CDC's National Center for Immunization and Respiratory Diseases (NCIRD) measles databases with passenger-contact demographic data to identify cases in passenger-contacts that had not been reported to DGMQ, and cross-referenced travel dates of cases in those databases with flight dates of index cases to identify any cases in passengers not identified as flight contacts.

**Results:**
Our evaluation included 65 index cases on 94 flights. Median flight duration was 7 hours (range: 0.6 ? 17 hrs). Of 3037 passenger-contacts, information for 648 (21%) was provided to foreign public health authorities or was insufficient. Information for 2389 (79%) was provided to US health departments; 7/2389 (0.3%) developed measles within one incubation period of their flights. The median age of secondary cases was 2 years (range: 0.4 - 36 yrs). No additional secondary flight-related cases were identified from NNDSS or NCIRD databases.

**Conclusions:**
Our evaluation provided evidence of measles transmission aboard aircraft. CDC's protocol is effective for identifying passengers at most risk of in-flight measles exposure and infection.

---

**Presenting Author(s):**

**Kailey Nelson**
Division of Global Migration and
Quarantine, Centers for Disease
Control and Prevention, Minneapolis,
MN
kailey.nelson@state.mn.us

**Abstract ID:** 1330679 **Presentation Type:** Breakout Presentation
**Title:** Developing a nationwide surveillance system for international adoptees
**Committee:** Surveillance/Informatics
**Topic:** General surveillance topics
**Keywords:** Surveillance|Children and adolescents|Special populations


**Background:**
The Minnesota Department of Health (MDH), the Centers for Disease Control and Prevention (CDC), and the University of Minnesota's International Adoption Medicine Program and Clinic (IAMPC) are implementing the first disease surveillance project targeting international adoptees who receive a comprehensive health screening upon US entry. In 2011, IAMPC started collecting data on these screenings as part a pilot surveillance project. IAMPC assisted in enhancing the surveillance system housed and maintained at MDH. A network of screening clinics nationwide are expected to participate in this initiative. The goal of this project is to identify health issues among international adoptees, and improve screening guidelines and data collection for the domestic health screening for this population.

**Methods:**
De-identified data from IAMPC's medical records were entered into the surveillance system. These data include demographic information, a pre-adoption medical chart review, and domestic health screening results.The pre-adoption medical chart review focuses on overseas medical history, living conditions, and developmental concerns. The domestic health screening covers both infectious and noninfectious conditions. This report is a descriptive analysis of our findings.

**Results:**
Screening results for 1,067 international adoptees are included in this summary. These adoptees were screened at IAMPC from January 2006-June 2011. Two hundred twenty (21%) adoptees came from Ethiopia, 187 (18%) from Russia, and 175 (16%) from China. The median age at screening was 2.1 years (range: 0.3-19 years) and 572 (54%) were female. Review of the pre-adoption medical chart revealed 65% of adoptees with some type of developmental delay, with fine motor delays in 50% of these. Tuberculosis (TB) results were available for 600 (56%) adoptees; 130 (22%) were diagnosed with latent TB infection (LTBI) and 2 (0.3%) with TB disease. Treatment was documented in 98% of adoptees diagnosed with LTBI and 100% diagnosed with TB disease. Seven hundred eighty-six (74%) were tested for parasites, with Giardia and Dientamoeba fragilis being the most commonly found.

**Conclusions:**
International adoptees have a high prevalence of developmental delays; however, further systematic grading is needed to better categorize their severity. LTBI and parasites were commonly observed in this population. Physicians providing care to adoptees should have a high index of suspicion for these and other infectious conditions. Screening and follow-up for certain conditions could have occurred outside of the domestic screening. Capturing these results would improve overall surveillance. Ongoing surveillance will lead to timely identification and description of health concerns among international adoptees, as well as improved screening guidelines and better interventions.


---


**Presenting Author(s):**

**Kailey Nelson**
Minnesota Department of Health,
Minneapolis, MN
kailey.nelson@state.mn.us

**Contributing Authors**

Beth Andrews, RN, MS, University of Minnesota International Adoption Program and Clinic Judith Eckerle, MD, University of Minnesota International Adoption Program and Clinic Sharmila Shetty, MD, US Centers for Disease Control and Prevention Blain Mamo, MP

**Abstract ID:** 1312632 **Presentation Type:** Breakout Presentation
**Title:** State-generated vaccine recall letter for Medicaid-enrolled children aged 19–23 months — Montana, 2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Vaccine preventable diseases
**Keywords:** Vaccination|Rural health|Children and adolescents

**Background:**
The Task Force on Community Preventive Services recommends the use of vaccine reminder/recall systems as an evidenced-based method for increasing vaccination coverage rates. Reminder/recall systems alert the parents of children due (reminder) or overdue (recall) for vaccination. The Montana Department of Public Health and Human Services (DPHHS) does not use a vaccine reminder/recall system, and among surveyed healthcare providers in Montana who administer vaccines to adolescents, only 21% reported using vaccine reminder/recall systems. In response, DPHHS piloted a state-generated recall letter system for Medicaid-enrolled children aged 19 to 23 months.

**Methods:**
Children enrolled in Montana Medicaid, aged 19 to 23 months by December 1, 2010, and not known to have completed the study series (four doses of diphtheria, tetanus toxoid, and acellular pertussis vaccine; three doses of poliovirus vaccine; one dose of measles, mumps, and rubella vaccine; four doses of Haemophilus influenzae type b conjugate vaccine; three doses of Hepatitis B vaccine; four doses of pneumococcal vaccine; and, one dose of varicella vaccine) were eligible for study participation. Data were extracted from Medicaid billing records and Montana's web-based immunization registry database (WIZRD) and children were assessed for being up-to-date. One-half of eligible children were randomly assigned to the intervention cohort whereby the parents received a mailed letter reminding them to visit their child's healthcare provider to receive the missing vaccines. The remaining children were assigned to the control cohort (i.e., no letter). Three months after the initial mailing, we completed a re-assessment of the vaccination status for each child.

**Results:**
Of the 1,865 children enrolled in Montana Medicaid aged 19 to 23 months by December 1, 2010, 878 (47%) were eligible for study participation. Of those, 184 (21%) children were classified as American Indian/Alaskan Native (AI/AN). Nearly 90% of participants lived in counties categorized as rural or frontier. Recall letters were sent to parents of 438 (50%) eligible children; of those, 38 (9%) were returned undeliverable. Excluding those with letters returned undeliverable, no significant difference existed between the intervention and control cohorts for percentage of children known to have completed any of the individual antigens at baseline and at three months, or completed the study series at three months.

**Conclusions:**
A state-generated recall letter did not appear to affect childhood vaccination coverage in a rural Medicaid population that was underimmunized. Further research is required to determine the most effective methods for increasing childhood vaccination coverage in rural underserved areas.

---

**Presenting Author(s):**

**Randall Nett**
Career Epidemiology Field Officer
Program, Centers for Disease Control
and Prevention, Atlanta, GA
gge5@cdc.gov

**Contributing Authors**

CA Parry, MPH CDC Public Health Advisor, National Center for Immunization and Respiratory Diseases, assigned to the Montana Immunization Program CL Custis, MS Epidemiologist, Office of Epidemiology and Scientific Support, Montana DPHHS JS Murphy Chief,

**Abstract ID:** 1330519 **Presentation Type:** Breakout Presentation
**Title:** Farm related injuries in Nebraska– (Nebraska Trauma Registry 2007-2010)
**Committee:** Injury Control and Prevention Sub-Committee
**Topic:** Other injury epidemiology issues or topics
**Keywords:** Occupational injury and death|Injury

**Background:**
In a state known for its production agriculture, a majority of hospitals (both large and small) regularly treat farm related traumatic injuries. The Nebraska Trauma Registry includes patients from designated trauma centers that were admitted, transferred out, dead on arrival, or died at the facility due to their injuries. Limited information is known about recent farm injuries in Nebraska. The purpose of this study is use the Nebraska Trauma Registry to describe farm related injuries in Nebraska. Through information collected from the Nebraska Trauma Registry, farm injuries that occurred in 2007-2010 are examined for population demographics, and patient outcome trends.

**Methods:**
The study population includes traumatic injuries with an emergency department arrival date between Jan. 1, 2007 – Dec. 31, 2010, with the injury indicated as work related and a patient's occupation of farming or ranching. Additional cases were included if the injury location site was coded as E849.1 – Farm, or the external cause of injury was coded as E919.0 – Agricultural machines. Summary statistics were generated to describe the demographics of the study population and times that injuries were more likely to occur. Annual mortality rates were calculated as well as average hospital length of stay and incidence of injury by ISS category.

**Results:**
Approximately 1000 farm-related injuries were treated in designated trauma centers during the study period. Patients were more likely to be male and 45 years or older. Key findings describe the demographics of the study population and circumstances surrounding the sustained injury. Presentation of patient outcome statistics include annual mortality rates, yearly average hospital length of stay, and incidence rates of injury by ISS category.

**Conclusions:**
The utilization of trauma registry data to examine circumstances surrounding farm injury will demonstrate recent impacts of injury in the study population and identify factors to target injury prevention and intervention efforts. Key findings may also indicate new focus areas for prevention and intervention work. The trauma registry includes only designated trauma centers, therefore this presents a limitation as the dataset is not population based.

---

**Presenting Author(s):**

**Ashley Newmyer**
Public Health, Nebraska Department
of Health and Human Services,
Lincoln, NE
ashley.newmyer@nebraska.gov

**Contributing Authors**

Lei Zhang, MS Nebraska Department of Health and Human Services

**Abstract ID:** 1329819 **Presentation Type:** Breakout Presentation
**Title:** The current status of the Cholera and Other Vibrio Illness Surveillance (COVIS) system: Recent trends in reporting and completeness
**Committee:** Surveillance/Informatics
**Topic:** Surveillance indicators
**Keywords:** Surveillance|Epidemiology|Infectious Diseases

**Background:**
The Cholera and Other Vibrio Illness Surveillance (COVIS) was established in 1988 by the US Centers for Disease Control and Prevention (CDC), Gulf Coast states (Alabama, Florida, Louisiana, and Texas), and the US Food and Drug Administration (FDA) to monitor Vibrio illness in the United States. By the late 1990s, about half of the states reported at least one case each year to COVIS. COVIS reports include basic demographics, clinical data, information about underlying illness, history of seafood consumption, and exposure to seawater during the seven days before illness, and also include traceback information about sources of implicated seafood. The National Notifiable Disease Surveillance System (NNDSS) has also collected information on Vibrio infections since 1998. In 2007, Vibrio infections became nationally notifiable.

**Methods:**
We examined the numbers of vibriosis cases reported and states reporting to COVIS from 1988 to 2010. We compared the number of vibriosis cases reported to COVIS with the number reported to NNDSS. We analyzed the completeness of selected demographic, clinical, and epidemiologic variables as well as the timeliness of reporting to COVIS.

**Results:**
A total of 8,938 vibriosis cases were reported to COVIS from 1988 to 2010, with a steady increase in number of cases reported annually since 2000 (2000: 305 reports; 2010: 907 reports). Forty-eight states, the District of Columbia, and two territories have reported at least one vibriosis case to COVIS since 1988. From 1998 to 2006, more cases were reported to COVIS than to NNDSS; however, since 2007, the number of reports to NNDSS has increased. Overall, the completeness of reporting of demographic, clinical, and epidemiologic variables in COVIS was high (99%, 96%, and 94%, respectively). Among cases for which seafood consumption was reported, 79% of reports included information in the seafood investigation section, but harvest site information was included in only 30%. The median time from isolation date to reporting to COVIS was 18 days (range 8-67 days).

**Conclusions:**
The completeness of select demographic, clinical, and epidemiologic variables for vibriosis cases is high in COVIS, but completeness of seafood traceback information, specifically harvest site, is poor. The proportion of cases reported and the number of states reporting annually to COVIS and NNDSS has increased over time. Further evaluation of the barriers to collecting surveillance information, particularly for variables that are less complete, is needed to ensure the value of COVIS data for state and regulatory partners.

---

**Presenting Author(s):**

**Anna Newton**
Division of Foodborne, Waterborne,
and Environmental Diseases, Centers
for Disease Control and Prevention,
Atlanta, GA
ivz9@cdc.gov

**Contributing Authors**

Amanda Conrad, MPH(c), CDC Kathleen E. Fullerton, MPH, CDC

**Abstract ID:** 1329849 **Presentation Type:** Poster Presentation
**Title:** Cholera, vibriosis, typhoid and paratyphoid fever: National surveillance
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Foodborne/waterborne disease
**Keywords:** Foodborne disease|Surveillance

**Brief Summary:**
The Cholera and Other Vibrio Illness Surveillance (COVIS) system was initiated by CDC in collaboration with the Food and Drug Administration (FDA), and the Gulf Coast states (Alabama, Florida, Louisiana, Mississippi, and Texas) in 1988 to collect detailed epidemiologic data on cases of cholera and vibriosis. The COVIS case report form is used to report clinical information and detailed exposure data (history of travel, seafood consumption [including traceback information], and recreational water exposure). States are asked to submit all Vibrio isolates to the CDC National Enteric Diseases Reference Laboratory for confirmation and characterization. Data from COVIS are summarized annually and provided to CSTE, the US Food and Drug Administration (FDA) and the Interstate Shellfish Sanitation Conference (ISSC). For typhoid fever, CDC has collected standard report forms from state and local health officials on laboratory-confirmed cases since 1975. The case report form is used to collect patient demographic and clinical information, typhoid vaccination status, and travel history. In 2007, the system was expanded to monitor paratyphoid fever, becoming the National Typhoid and Paratyphoid Fever Surveillance (NTPFS) system. Data from NTPFS are used by CDC to identify destinations where travelers contract these infections and to develop travelers' health vaccination guidelines. National and state-specific summaries of reporting timeliness and questionnaire completeness to COVIS and NTPFS will be provided and used for discussion of strategies to improve the utility and efficiency of COVIS and NTPFS. The impact of FSMA on CDC's reporting timelines will be discussed.

**Key Objectives:**
Enhanced surveillance for cholera and vibriosis and typhoid and paratyphoid fever is conducted through the Cholera and Other Vibrio Illness Surveillance (COVIS) and the National Typhoid and Paratyphoid Fever Surveillance (NTPFS) systems. The key objective of this roundtable is to discuss opportunities for and challenges to improving the utility of these systems and state and local health departments' participation in them. Specific discussion points will include: 1. Impact of the Food Safety Modernization Act (FSMA) on COVIS and NTPFS surveillance 2. Completeness of key data for public health (i.e., seafood traceback history in COVIS and travel and vaccination status in NTPFS) nationally and by state, barriers to complete data collection 3. Barriers to isolate submission to Center for Disease Control and Prevention (CDC) Reference Laboratories 4. Possible revisions to case report forms to enhance utility and efficiency of surveillance 5. Timeliness of COVIS and NTPFS reporting nationally and by state; discuss different strategies for reporting to CDC

---

**Presenting Author(s):**

**Anna Newton**
Centers for Disease Control and Prevention, Atlanta, GA
ivz9@cdc.gov

**Katie Fullerton**
Centers for Disease Control and Prevention, Atlanta, GA
kfullerton@cdc.gov

**Contributing Authors**

Katherine E Heiman, MPH, CDC Benjamin SIlk, PhD, CDC

**Abstract ID:** 1361911 **Presentation Type:** Breakout Presentation
**Title:** Using real-time technology to reduce the prevalence of HIV/AIDS among historically black college and university students, in Orangeburg, South Carolina
**Committee:** Student Section
**Topic:**
**Keywords:** HIV/AIDS|Behavioral health|Interventions

**Background:**
In the past, multiple studies that focused on sexual behavior change emphasized individual behavior change as the strategy to reduce the occurrence of new HIV/AIDS cases (Bazargan et al, 2000; Gurman et al, 2004; Johnson et al, 1992; Taylor et al, 1997). There is a documented concern about problems of sexual risky behavior and safe sex practices of HBCU students. It appears that students from HBCU do not understand the consequences of contracting HIV infections. The following are the key elements that underscore the gap in knowledge as it relates to HIV/AIDS knowledge among HBCU students. First, the nature of the relationship between safe sex negotiation and condom use among students from HBCU is inconsistent (Johnson et al, 1992). Second, most students from HBCU do not know why unsafe sex practices and condom use should be related (Taylor et al, 1997). There is a need to utilize technology as a new strategic health intervention to address the problem of unsafe sex practice among college students. This approach should integrate real-time technology applications, potentially influencing a change in behavior. As a result, it can impact the collegiate society and reduce the occurrence of new HIV/AIDS cases among students from HBCU. Using real-time technology is an essential variable in determining the likelihood of reducing the occurrence of new HIV/AIDS cases, specifically, when students from HBCU community have a good understanding of how unhealthy sexual behavior is related to contracting HIV. The understanding of how real-time technology would be used to influence the reduction of HIV/AIDS is less developed. The problem addressed in this study is that while the importance of changing risky sexual behavior as it relates to sexual partners negotiating or communicating with each other when it comes to using condoms before sex acts is common, it is not known why college students have not changed their sexual behavior. The results of previous studies revealed that students from HBCU are at an increased risk of HIV transmission through heterosexual contact (Bazargan et al., 2000; Cerwonka et al., 2000; Crosby et al). Other studies showed that students from HBCU are susceptible to contracting HIV infection (2001; DiClemente et al., 2004; Dilorio et al., 2000; Ducan et al., 2002; Ferguson et al, 2006; Gurman et al., 2004). In addition, past studies indicated that students from HBCU continued to practice unhealthy sexual risky behavior (Jemmott, 2000; Johnson et al., 1992 & 1994; Livepool et al., 2002; Polacsek et al., 1999; Taylor et al., 1997; Valentine et al., 2003; Whaley et al., 2003). A report released by the CDC (2008) indicated that HIV/AIDS is life threatening among African Americans. This report revealed that many students from HBCU aged 18-25, both male and female, are disproportionally represented as the victims of HIV. Researchers noted the importance of condom use in health prevention efforts, and their studies were focused on safe sex negotiation (Dilorio et al, 2000; Noar et al, 2006). These studies addressed the neglect of not using protection during sexual intercourse and its consequences as it relates to STIs among young adults, particularly college students. Hypothesis

**Methods:**
1. What are the characteristics of HBCU students who do and do not use real-time technology? The null and alternative hypotheses proposed: Ho: There are no differences between real time technology HBCU student users and non-users by demographic variables. Ha: There are differences between real time technology HBCU student users and non-users by demographic variables. The second research question examined the following: 2. What is the difference between HBCU student users and non-users of real-time technology in knowledge pertaining to HIV/AIDS prevention and transmission? The null and alternative hypotheses proposed: Ho: There is no difference in knowledge of HIV/AIDS prevention and transmission between HBCU student users and non-users of real-time technology (H0: $\mu_{user} - \mu_{nonuser} = 0$). Ha: If knowledge of HIV/AIDS prevention and transmission is related to use of real-time technology, then HBCU students who use real-time technology will have a higher average score on the knowledge portion of the survey than those who do not (HA: $\mu_{user} - \mu_{nonuser}$ 0). The findings of this study could then be used to tailor appropriate HIV/AIDS information to students at HBCU through real-time technology.

**Results:**
A total of 350 college students from a HBCU were solicited for participation in this study. Of the 350 college students, only about 42 % responded to three-sets of questionnaires (N = 147). The mean age for the sample was 25 years of age.

The median age for the sample was 21 years of age, with the modal group being 21 years old. The maximum age for the sample was 57 years of age. The minimum age for the sample was 18 years of age. Table 1 displays all of the statistics for demographic variables. The majority of the sample was female, never married, and Black or African American. There was a fairly equal spread of participants by year of education (27% Freshman, 13% Sophomore, 33% Junior, and 23% Senior). 92% of the samples were members of social media and 8% were not members of any social media networks. When HBCU students asked "do you use social media to seek health information," 25% of the samples responded "yes" and 75% of the sample responded "no". none of the chi-square results are significant. The two groups (real-time technology users and non-users) did not differ on gender, martial status, education, housing, employment status. Therefore, the null hypothesis is accepted. mean differences, though small, were in the direction as predicted in the alternative hypothesis (Real-time technology users, M =30.03, SD = 6.847; Real-time technology non-users, M = 29.045, SD = 5.895). However, these differences were not statistically significant, where F (35, 110) = 1.541, p=0.216, at ? = 0.05; therefore, there was not sufficient evidence to support the claim that real-time technology users scored higher on the HIV/AIDS knowledge survey than non-users. There was no strong relationship between HBCU students who use social media to seek out health information and: 1) HBCU students who use the Internet to seek the nature of STI; 2) HBCU students who use the Internet to seek information about the causes of STI and HIV/AIDS; and 3) HBCU students who use the Internet to seek medical treatments for STI or HIV/AIDS infection. There was a correlation (significant at $p < .05$) between HBCU students who use social media to seek about health information and: 1) HBCU students who use the Internet to seek things they can do to prevent contracting STD or HIV/AIDS infection (r=.164); and 2) HBCU students who use the Internet to know about how vulnerable they may be to STD or HIV/AIDS infection (r=.148).

**Conclusions:**

The HBCU students in this study had a mean score on the knowledge portion of the survey of 30.03 (for HBCU students who use social media networks) and 29.05 (for HBCU students who do not use social media networks). However, the total possible score was 45, which means this study's participants only chose the correct answers about 66% of the time. This indicates that HBCU students may have good, general knowledge of HIV/AIDS, but there is a significant gap in their understanding of certain specifics regarding risks and transmission of the disease. When HBCU students were asked "coughing and sneezing do not spread HIV/AIDS", the results of this study found 25.17% answered correct and 63.27% answered incorrect.

---

**Presenting Author(s):**

**Patrick Nhigula**
Walden University, Irmo, SC
patrick.nhigula@waldenu.edu

**Abstract ID:** 1330777 **Presentation Type:** Breakout Presentation
**Title:** Injuries following historic tornados — Alabama, April 2011
**Committee:** Injury Control and Prevention Sub-Committee
**Topic:** Other injury epidemiology issues or topics
**Keywords:** Injury|Emergency preparedness

**Background:**
On April 27, 2011 multiple devastating tornados struck Alabama resulting in 256 deaths. This study examines injured tornado victims treated in Alabama hospitals to characterize injuries and risk factors in order to better prepare for future tornados.

**Methods:**
The Alabama Department of Public Health and CDC performed a retrospective review of emergency department (ED) and inpatient records in 29 hospitals and conducted interviews with hospital staff. Cases were defined as tornado victims >17 years of age seen April 27–30, 2011 with an International Classification of Diseases, 9th Revision injury code of 800.0–959.9.

**Results:**
Of the 1,373 injured, the mean age was 47 years and a majority were male (n = 677, 51.2%) and white (n = 834, 70.5%). Most patients (n = 1,028, 74.9%) were discharged from the emergency department, with 325 (24.0%) admitted for ?1days. Among hospital admissions, 72 (22.2%) required intensive care unit admission and 5 (1.5%) patients died. The most frequent primary injury diagnosis was head injury (n = 407, 35.0%). Location at time of injury was recorded for 862 (62.8%) patients, and a substantial proportion occurred in high-risk locations (i.e., outdoors [n = 165, 19.1%] or in mobile homes [n = 98, 11.4%]). One minor injury occurred in an underground tornado shelter. Hospitals reported several post-disaster challenges, including loss of power and communication and security concerns due to sheltering community members.

**Conclusions:**
Most injured tornado patients seen at local hospitals had minor injuries treated in the ED. To ensure preparedness for future tornados, hospitals should have disaster plans to alleviate ED surge. The public should be educated to seek underground shelter and protection from head injury.

---

**Presenting Author(s):**

**Thomas Niederkrotenthaler**
NCIPC, Centers for Disease Control
and Prevention, Atlanta, GA
vig1@cdc.gov

**Contributing Authors**

Erin Parker, Ph.D., CDC, National Center for Injury Prevention and Control Fernando Ovalle, CDC, National Center for Injury Prevention and Control Jeneita Bell, M.D., CDC, National Center for Injury Prevention and Control David Sugerman, M.D., M.P.H., CDC

**Abstract ID:** 1327196 **Presentation Type:** Breakout Presentation
**Title:** Tuberculosis among foreign-born temporary residents — California, 2010–2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Respiratory diseases, non-influenza
**Keywords:** Immigration|Screening|Communicable disease

**Background:**
Foreign-born persons account for approximately 75% of tuberculosis (TB) disease in California. Unlike legal permanent residents (LPRs) (persons entering the country with an immigrant visa), temporary residents (TRs) (persons entering the country with a student, family, or work visa) have no visa-related TB screening requirement. We compared new arrivers (those who developed TB ?2 years after arrival [when disease risk is highest and screening most beneficial]) in California.

**Methods:**
We reviewed TB cases reported to the California Department of Public Health during January 1, 2010–October 1, 2011, for demographics, clinical characteristics, and sputum results. Analyses were limited to reported TB cases occurring in TRs or LPRs.

**Results:**
A total of 1,242 TB cases were reported among 154 TRs and 1,088 LPRs. More than 90% of both groups emigrated from countries with a high burden of TB disease. TRs consisted of 55 student, 55 family, and 44 work visas. Among TB patients, forty-six (30%) TRs and 191 (18%) LPRs were new arrivers. Thirty-six TRs (78%) had pulmonary disease, of whom 19 (53%) were sputum smear positive for acid-fast bacillus. For LPRs 165 (86%) had pulmonary disease, of whom 47 (29%) were sputum smear positive for acid-fast bacillus.

**Conclusions:**
Although a limited number of TB cases in California are among TRs, TRs were more likely to develop disease ?2 years of arrival and a greater proportion of TRs were smear-positive (a known predictor of infectiousness). Additional data are needed to assess screening strategies for TRs, but our data indicate that more systemic screening before or after arrival might help reduce TB disease associated with TRs in California.

---

**Presenting Author(s):**

**Jonathan Nunez**
Tuberculosis Control, California
Department of Public Health,
Richmond, CA
vig2@cdc.gov

**Contributing Authors**

Barry Pennan, MD/MPH, Chief Surveillance and Epidemiology Section, California Department of Public Health Erin Murray, PhD, Departmentof Immunization Saul Kanowitz, Surveillance Analyst, California Department of Public Health Jennifer Flood, MD/MPH, Ch

**Abstract ID:** 1330789 **Presentation Type:** Breakout Presentation
**Title:** Geographic clustering of preventable hospitalizations for hypertension by race, Medicare beneficiaries, 2004-2008
**Committee:** Surveillance/Informatics
**Topic:** General surveillance topics
**Keywords:** Surveillance|Geographic Information Systems|Hospital data

**Background:**
The Agency for Healthcare Research and Quality (AHRQ) has used hospitalization for hypertension as a prevention quality indicator that captures the failure of the outpatient health care system to prevent and control high blood pressure. Past studies reported higher rates of preventable hypertension hospitalizations for blacks compared to whites. However, none have mapped the county-level patterns of these hospitalization rates by race. In this study, we use Medicare data to examine patterns of preventable hypertension hospitalization rates by race across counties in the U.S., identifying areas with especially high rates for each race and areas with the greatest racial disparities.

**Methods:**
The study population consists of fee-for-service Medicare beneficiaries aged 65 years and older residing in the United States. Data from 2004-2008 were obtained from short-stay hospital claims data, Medicare Part A. Preventable hospitalization rates were calculated according to the technical specifications published by AHRQ for Prevention Quality Indicator #7. The denominators for the rates are Medicare beneficiaries. Rates for whites and blacks were age- and sex-standardized to the 2000 U.S. Census data. We mapped county-level rates of preventable hypertension hospitalizations for whites and blacks separately for all years combined. We identified statistically significant clusters of counties with high or low rates using local indicators of spatial association and calculated the ratio and absolute difference in rates for blacks compared to whites.

**Results:**
Blacks had statistically significantly higher rates than whites ($p < .0003$) for all years combined and there was a statistically significant increasing trend for blacks ($p < .0001$) from 2004 to 2008. For whites, clusters of high rate counties occurred primarily in Kentucky, Iowa, and Missouri. For blacks, however, the clusters of high rate counties were primarily in southwestern Alabama, east Texas, and Florida. Both ratios and absolute differences in rates showed the greatest black: white disparity occurred predominantly in Florida, Arizona, Illinois, and Ohio.

**Conclusions:**
We show that black: white disparities in rates of preventable hospitalizations for hypertension continue to exist through 2008. In addition, we found that race-specific patterns of clustering in preventable hospitalizations for hypertension were different for blacks compared to whites. Future studies are needed to examine possible reasons for these unequal distributions of rates of preventable hospitalizations for hypertension such as: comorbid illness, physician shortages, propensity to hospitalize, and socio-economic factors. These county-level results provide important information that could benefit the Million Hearts initiative to plan effective programs and policies for hypertension prevention and treatment.

---

**Presenting Author(s):**

**Isaac Nwaise**
Health and Human Services, Centers
for Disease Control and Prevention,
Chamblee, GA
ian4@cdc.gov

**Contributing Authors**

Julie Will, Ph.D., Linda Schieb, M.S.P.H. and Michele Casper, Ph.D. Centers for Disease Control and Prevention

**Abstract ID:** 1321672 **Presentation Type:** Breakout Presentation
**Title:** Unintentional drug poisoning deaths, Michigan residents, 1999-2009
**Committee:** Injury Control and Prevention Sub-Committee
**Topic:** Unintentional drug poisonings deaths
**Keywords:** Unintentional/intentional poisoning |Injury|Substance abuse

**Background:**
In 2008, unintentional poisonings were the second leading cause of injury deaths in the United States, following behind only motor vehicle deaths. From 1999 to 2002, the number of unintentional drug poisoning deaths in the U.S. with opioid analgesic involvement increased by 91.2%, while deaths involving cocaine or heroin increased by 22.8% and 12.4%, respectively. The national pattern has also been seen in Michigan, with unintentional poisonings becoming the leading cause of injury death in 2009. This study examined unintentional drug poisoning deaths due to opioid analgesics, heroin, and cocaine between 1999 and 2009 in Michigan.

**Methods:**
Data from 1999-2009 Michigan death certificate files were used for trend analysis. We restricted the analysis to only deaths with an underlying cause of death as unintentional drug poisoning, defined by an ICD-10 code of X40-X44. We identified the type of drug involved in the death by using the following ICD-10 codes: opioid analgesics (T40.2-T40.4), heroin (T40.1), cocaine (T40.5), other specified (T36-T50.8), and unspecified (T50.9). Rates were calculated per 100,000 population based on state estimates from the U.S. Census.

**Results:**
Between 1999 and 2009, the unintentional drug poisoning death rate increased from 2.4 to 10.0 per 100,000 population in Michigan. The unintentional drug poisoning death rate for opioid analgesics increased 734.6% during this time, while the death rate for heroin and cocaine increased by 487.8% and 203.9%, respectively. The greatest rate change in unintentional drug poisoning deaths occurred among adults aged 18 to 24 years from 1999-2009.

**Conclusions:**
Over the past decade, the rate of unintentional drug poisoning deaths due to opioid analgesics increased more than heroin and cocaine. During this time, a paralleled increase occurred in the number of prescriptions filled for opioid analgesics in Michigan. With the death rate among adults aged 18 to 24 years increasing more than any other age group, prevention and treatment providers should be aware of the increasing risk among young adults.

---

**Presenting Author(s):**

**Su Min Oh**
Michigan Department of Community
Health, Lansing, MI
ohs@michigan.gov

**Contributing Authors**

Su Min Oh, PhD, Michigan Department of Community Health; Lorraine Cameron, PhD, MPH, Michigan Department of Community Health

**Abstract ID:** 1317448 **Presentation Type:** Breakout Presentation
**Title:** Eliminating elemental mercury spills in schools, the challenges and the successes
**Committee:** Environmental Health Sub-Committee
**Topic:** Surveillance and response to chemical/radiologic emergencies, including National Toxic Substance Incidents Program (NTSIP)
**Keywords:** Surveillance|Chemical and biological exposures|School health

**Background:**
Elemental mercury, a potent neurotoxin, is a silvery liquid metal that attracts the attention of children who are often not aware of the health hazards. Children can be more sensitive to its deleterious effects than adults. The tendency of mercury to disperse in small droplets and sink into crevices makes clean-up of spills difficult and costly.

**Methods:**
We analyzed chemical incident data the Hazardous Substances Emergency Events Surveillance program (2002-2009) and National Toxic Substances Incidents Program (2010) to assess numbers of mercury incidents and their impacts on schools. ATSDR also compiled information from participating states on activities to reduce the potential for mercury exposure in schools.

**Results:**
During 2002-2010, mercury was the most frequently released substance in K-12 schools (n=179), occurring in 29.5% school incidents. Mercury incidents were disruptive, with half (50.3%) resulting in an evacuation. The mean evacuation duration was 60.2 hours and the maximum was 58 days. More than 16,000 persons evacuated. Four people were acutely injured. An unknown number of people were exposed to mercury. States reporting the most incidents were Minnesota (n=40), New York (n=36), and Michigan (n=29). Almost half of the incidents (n=85) involved broken thermometers, barometers, or thermostats. In approximately one of every eight incidents, the mercury was brought to the school from an outside source. New York, Michigan, and Minnesota conducted outreach activities and enacted legislation to remove mercury from schools.

**Conclusions:**
Exposure to mercury spills in schools has been an on-going problem noted by ATSDR, but appears to be lessening among the HSEES and NTSIP states. The decrease may be due to the implementation of new laws or increased awareness from outreach efforts. In an attempt to deter children from bringing mercury into schools, an ATSDR regional office has developed unique outreach materials geared to older children, on the dangers of mercury. ATSDR will examine mercury removal laws and voluntary mercury removal policies for schools to identify relevant data and evaluate evidence of policy and outreach effectiveness. This work will culminate in a white paper in late 2012 to inform state policy makers of best practices.

---

**Presenting Author(s):**

**Maureen Orr**
CDC/Agency for Toxic Substances and
Disease Registry, Atlanta, GA
morr@cdc.gov

**Contributing Authors**

Jenny Wu, MS, Agency for Toxic Susbtances and Disease Registry Martha Stanbury, MSPH, Michigan Department of Health Nancy Rice, MPH, Minnesota Department of Health Wanda Lizak Welles, PhD, New York State Department of Health

**Abstract ID:** 1363187 **Presentation Type:** Breakout Presentation
**Title:** Novel influenza in Pennsylvania and changes to the case definition
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Influenza
**Keywords:** Influenza surveillance

**Background:**
This presentation will provide an overview of the novel influenza cases detected in Pennsylvania in 2011 and will describe how these detections are related to the need for a new case definition

**Methods:**
N/A

**Results:**
N/A

**Conclusions:**
N/A

---

**Presenting Author(s):**

**Stephen Ostroff**
PA Department of Health, Harrisburg,
PA
sostroff@state.pa.us

**Contributing Authors**

N/A

**Abstract ID:** 1386328 **Presentation Type:** Late Breaker: Breakout Presentation
**Title:** Outbreak of Fungal Endophthalmitis After Retinal Surgery, Los Angeles County, 2012
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Miscellaneous infectious disease
**Keywords:** Outbreak investigations |Epidemiology|Healthcare associated infections (HAI)

**Background:**
Fungal endophthalmitis is an infrequent yet serious infection that can result in vision loss. In March 2012, the Los Angeles County Department of Public Health (LAC DPH) was notified of 9 fungal endophthalmitis cases at an ambulatory surgery center, Facility A, after retinal vitrectomy surgeries during October–December 2011. LAC DPH investigated to characterize the outbreak and determine associated exposures and risk factors.

**Methods:**
A matched case-control study assessed exposures associated with illness. Cases were defined as laboratory-confirmed or suspected fungal endophthalmitis among patients who underwent vitrectomy at Facility A during October 2011–January 2012. Control subjects were well vitrectomy patients. Two control subjects per case-patient were chosen by date of procedure and operating room number; 13 other control subjects were selected randomly. Active case finding was performed by calling eye surgery centers in LAC and reviewing medical charts at Facility A. By using a standardized questionnaire, we abstracted clinical and laboratory data and used SAS® version 9.2 for data analysis. Site investigations at Facility A were conducted.

**Results:**
Ten case-patients and 33 control subjects were identified. The mean incubation period between procedure date and endophthalmitis onset was 13.3 days (range: 3–36 days). The mean case-patient age was 70.6 years, and the mean control subject age was 62.0 years. Case-patients and control subjects did not differ significantly by sex; past history of diabetes or prior surgery on the affected eye; or pre- or intraoperative medicines, including eye drops. However, case-patients had significantly higher odds of being exposed to Brilliant Blue G (BBG) dye than control subjects (odds ratio: ?; P <.001). BBG was purchased from compounding Pharmacy X. An unopened BBG vial returned by Facility A to Pharmacy X was cultured by a third-party laboratory contracted by Pharmacy X; the mold Fusarium chlamydosporum was identified. Vitreous fluid collected from 2 case-patients revealed septate hyphae on cytology, indicative of fungal growth and consistent with a mold. No potential infection control breaches were identified during the site investigation of Facility A.

**Conclusions:**
BBG dye exposure was the only statistically significant risk factor associated with fungal endophthalmitis. BBG was likely contaminated with Fusarium. Investigation into the source of contamination and Pharmacy X is ongoing. Compounded medical products do not undergo the same quality assurance testing as manufactured medical products. Clinicians who use compounded medical products should monitor patients for adverse events and report suspected adverse events to public health officials.

---

**Presenting Author(s):**

**Kelsey OYong**
Los Angeles County Department of
Public Health, Los Angeles, CA
koyong@ph.lacounty.gov

**Contributing Authors**

Christina Mikosz, MD, MPH, Centers for Disease Control and Prevention, Clara Tyson, RN, MSN, Los Angeles County Department of Public Health, Moon Kim, MD, MPH, Los Angeles County Department of Public Health, Laurene Mascola, MD, MPH, Los Angeles County Department of Public Health

**Abstract ID:** 1331513 **Presentation Type:** Poster Presentation

**Title:** Evaluation and validation of National Healthcare Safety Network surveillance of central-line associated bloodstream infections in Los Angeles County

**Committee:** Infectious Diseases Sub-Committee

**Topic:** Healthcare-associated infections

**Keywords:** Healthcare associated infections (HAI)|Surveillance|Local Public Health Agencies

**Background:**
Created in 2005, the National Healthcare Safety Network (NHSN) is a free internet-based surveillance system that collects data from healthcare facilities in the United States to estimate the number of patient and personnel-related adverse events though use of standard case definitions. In 2008, California mandated hospitals to report specified healthcare-associated infections (HAIs), including central line associated bloodstream infections (CLABSIs), through NHSN. Letters were sent by Los Angeles County (LAC) Department of Public Health (DPH) asking hospitals to voluntarily join the LAC DPH NHSN group. We evaluated NHSN for use by LAC DPH for CLABSI surveillance.

**Methods:**
Using the CDC guidelines for evaluating public health surveillance systems, this evaluation assesses NHSN in regards to CLABSI surveillance in LAC for data quality and representativeness. We review how NHSN can be used for CLABSI surveillance and its performance during the first year of mandated reporting, from April 1, 2010 to March 31, 2011. In collaboration with the California Department of Public Health HAI Liaison Program, an independent validation study of CLABSIs treated at 25 de-identified volunteering LAC hospitals was conducted. Using an abstraction tool, a one to three month period of data was reviewed, from which sensitivity and positive predictive value (PPV) of NHSN case definitions were calculated.

**Results:**
Data quality: During year one, 955 CLABSI events were recorded. Our evaluation found that hospitals are required to report the following monthly: CLABSI events, inpatient central line days, and total patient days. These variables contain no missing data. Representativeness: Of the 100 LAC hospitals, 88 conferred rights to the LAC DPH NHSN group. Sensitivity and PPV: Data from 25 hospitals involved in NHSN validation yielded an 86.8% mean PPV and low sensitivity, which will be detailed in presentation.

**Conclusions:**
One benefit of using NHSN is standardizing case definitions for HAI surveillance purposes, yet low PPV and sensitivity imply possible difficulties applying those definitions. Further education of hospital infection preventionists or revisions to surveillance definitions may increase accurate reporting. In local health departments, surveillance data are limited to hospitals that have voluntarily conferred rights. Though 88% of hospitals allow access to reported data, these may not be representative of all events in LAC. Limited data access may result in biases and discrepancies with state and national reports. NHSN should consider granting local health departments access to data from all hospitals.

---

**Presenting Author(s):**

**Kelsey OYong**
Los Angeles County Department of
Public Health, Los Angeles, CA
koyong@ph.lacounty.gov

**Contributing Authors**

Dawn Terashita, MD, MPH, Los Angeles County Department of Public Health, Patricia Marquez, MPH, Los Angeles County Department of Public Health, Lynn Janssen, MS, CIC, California Department of Public Health, David Dassey, MD, MPH, Los Angeles County Depart

**Abstract ID:** 1332961 **Presentation Type:** Breakout Presentation
**Title:** Rapid ad-hoc cross-jurisdictional sharing of syndrome data
**Committee:** Surveillance/Informatics
**Topic:** Syndromic Surveillance and Situational awareness (incl. BioSense)
**Keywords:** Surveillance|Informatics|Electronic data

**Background:**
Cross-jurisdictional sharing of public health syndrome data can provide a regional or national view of disease activity and help a health jurisdiction determine the context of its own local observations. Considerable barriers to sharing of public health data exist, including developing trust, maintaining control of data and having available informatics systems to receive, manage, and present data. The Distribute project has successfully enabled cross-jurisdictional sharing of influenza-like illness (ILI) syndrome data through a community of practice approach to facilitate control and trust, and a distributed informatics solution. The open source Gossamer system incorporates methods used in several projects, including Distribute. Gossamer is built in a modular fashion, and can be hosted using virtual (cloud computing) or physical servers. Gossamer modules are designed for sharing of summarized data, and provide a subset of the Distribute functionality. The Distribute and Gossamer systems have been used several different case examples of ad-hoc data sharing: (1) ILI syndrome standardization, (2) event specific syndrome monitoring (2010 Olympics), (3) population level rotavirus vaccine impact, (4) alcohol syndrome monitoring, and (5) sharing respiratory isolate lab results.

**Methods:**
The Distribute system was initially designed to share ILI syndromes. To reduce barriers to entry the Distribute project does not impose strict syndrome definitions. This lack of standardization introduces variability between jurisdictions and Distribute supported a project to compare local ILI definitions and evaluate a common ILI definition. The approach taken for this project allowed the use of arbitrary indicators and stratifications. The Gossamer system further evolved the data model, and better accommodates external data sources. These technical methods have allowed much more flexible use of the system, letting it begin to expand beyond specific political structures and disease content areas.

**Results:**
The expanded data model was used to support the standardization effort through comparison of newly contributed common ILI syndrome data. The system was also used to allow cross-border sharing of specific syndromic data during the 2010 Winter Olympics, and to allow the addition of gastro-intestinal (GI) syndrome and alcohol syndrome data. An instance of Gossamer has been used to share lab test results for 14 viral isolates between two states.

**Conclusions:**
Though their data models are similar, each system has strengths and weaknesses for ad-hoc sharing of data. Advantages of the existing Distribute system include the trust and community based around an existing system, which facilitations both collaboration around new topic areas, and expansion of the community. Data feeds and administrative details are already in place. Disadvantages of Distribute include limitations in the common data transmission format, pre-determined stratifiers, and a fixed data hierarchy. Gossamer address limitations in both structure and implementation through enhancing both virtualization and the modular architecture, and through further extending the data model flexibility that has supported new applications of data collection, analysis, and data quality methods developed for use with influenza syndromes in Disribute. The five examples illustrate the strengths of the community of practice approach to sharing data. The Distribute and Gossamer systems illustrate how lightweight systems can be designed to easily facilitate ad-hoc sharing between jurisdictions.

---

**Presenting Author(s):**

**Ian Painter**
University of Washington, Seattle, WA
ipainter@u.washington.edu

**Contributing Authors**

Don Olson, MPH,  International Society for Disease Surveillance, Brighton, MA, United States William Lober, MD, University of Washington, Seattle, WA, United States

**Abstract ID:** 1324172 **Presentation Type:** Breakout Presentation
**Title:** Outbreak of Escherichia coli O157:H7 associated with lake swimming at a Pennsylvania state park
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Foodborne/waterborne disease
**Keywords:** Infectious Diseases|Waterborne disease|Enteric infectious diseases


**Background:**
An estimated 265,000 cases of Shiga-toxin producing Escherichia coli (STEC) infections occur in the US annually; one-third are caused by E. coli O157:H7. Transmission of E. coli O157:H7 mostly occurs through contaminated food; recreational water is a less frequent source of infection. STEC can lead to severe illness and complications, such as hemolytic uremic syndrome (HUS). In early August 2011, the Pennsylvania Department of Health was notified of two children with HUS who had both recently visited the same state park lake (Lake A).

**Methods:**
A confirmed case was defined as a person with E. coli O157:H7 isolated from stool or diagnosed with HUS who either swam at Lake A during July 1–August 9, 2011 or was epidemiologically linked to a confirmed case with Lake A exposure. Probable cases were persons with bloody diarrhea after swimming at Lake A or any diarrhea with an epidemiologic link to a confirmed case with Lake A exposure. Case finding was conducted by reviewing Pennsylvania's reportable disease surveillance system and by contacting local hospitals and physicians. Case interviews obtained systematic clinical, food, swimming, and travel histories. Records from routine state park water testing and concession inspections were reviewed. Water and sediment samples were collected from the Lake A swimming area for microbiologic testing. Red dye was used to test for sewer leaks into lake water.

**Results:**
Eighteen cases (13 confirmed and 5 probable) were identified with onsets during July 13–September 16, 2011. All cases except for two adults were 2–13 years of age. Ten of the 13 confirmed cases were hospitalized and seven were diagnosed with HUS. All 11 E. coli O157:H7 isolates available from confirmed cases had indistinguishable PFGE patterns. Seventeen of 18 case-patients swam in Lake A a median of 4 days before illness onset, leading to closure of Lake A to all recreational water activities on August 9th. No other common exposure was identified. All environmental samples were negative for E. coli O157:H7 and no sewage leak was detected.

**Conclusions:**
This outbreak of E. coli O157:H7 was associated with recreational swimming. Although the source of contamination of the lake was not identified, lake closure appeared to terminate the outbreak. This outbreak highlights the need to educate the public about safe recreational water practices, especially for small children at higher risk for infectious diseases from recreational water.


---


**Presenting Author(s):**

**Aimee Palumbo**
Pennsylvania Department of Health,
Harrisburg, PA
aipalumbo@pa.gov

**Contributing Authors**

Erica Smith, MPH, PA Dept of Health; Lauren Torso, MPH, PA Dept of Health; André Weltman, MD, PA Dept of Health; Fred Clark, PA Dept of Environmental Protection; Mària Moll, MD, PA Dept of Health;

**Abstract ID:** 1332750 **Presentation Type:** Breakout Presentation
**Title:** Status of veterans' health in Kansas and comparison among health risk behaviors, co-morbid conditions and health care access between veterans and non-veterans in Kansas
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** CD/MCH/OrH surveillance
**Keywords:** Tobacco|Diabetes|Alcohol Use

**Background:**
There are an estimated 215,780 veterans ages 18 years and older in Kansas. Veterans constitute 12% of adult population in the state. Comparison between risk factors, co-morbid conditions and health care access among veterans and non-veterans has not been previously examined in Kansas. The objective is to examine health disparities with regard to risk behaviors, co-morbid conditions and health care access among Kansans veterans and non-veterans.

**Methods:**
The 2010 Kansas BRFSS data were analyzed to assess health status of veterans in Kansas. The Veterans are defined as those who ever served on active duty in the United States Armed Forces, either in the regular military or in a National Guard or military reserve unit. Active duty does not include training for the Reserves or National Guard, but does include activation, for example, for the Persian Gulf War. Health risk behaviors, co-morbid conditions and health care access among veterans were examined. Odds ratios adjusted for age, gender, race, ethnicity and education status for each risk factors were calculated. The weighted logistic regression analysis was done using SAS 9.2 software.

**Results:**
The percentage of veterans in Kansas has decreased slightly, from 15% (95% CI: 13.7-16.1) in 2003 to 12% (95% CI: 11.0-12.6) in 2010. Among veterans about 93% are males and 7% are females. A higher percentage of veterans are older. About 38% of veterans were 65 years and older as compared to 15% of non-veterans. The odds of being current smoker, heavy drinker, and overweight; having diabetes, heart attack, and coronary heart disease was significantly higher for veterans as compared to non-veterans; after controlling for age, gender, race, ethnicity and education status (adjusted odds ratio for current smoking=1.57, heavy drinking=1.85, overweight=1.22, diabetes=1.40, heart attack=1.52 and coronary heart disease=1.29). Odds of being a smokeless tobacco user, arthritis, living with a disability and having health insurance after controlling for age, gender, race, ethnicity and education status were not significantly different for veterans as compared to non-veterans.

**Conclusions:**
Health disparities were seen among veterans in Kansas. Veterans were more likely to smoke and drink than non-veterans. The odds of being overweight, having diabetes, heart attack and coronary artery diseases were significantly higher among veterans than among non-veterans in Kansas. The health disparities among veterans indicated the need of public health strategies to address veterans' health issues in Kansas.

---

**Presenting Author(s):**

**Pratik Pandya**
Bureau of Health Promotion, Kansas
Department of Health and
Environment, Topeka, KS
ppandya@kdheks.gov

**Contributing Authors**

Ghazala Perveen, MBBS, PhD, MPH Kansas Department of Health and Environment

**Abstract ID:** 1333034 **Presentation Type:** Poster Presentation
**Title:** Kansas Behavioral Risk Factor Surveillance System (BRFSS)- local data, 2009
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Generating and using county and local-level data for CD/MCH/OrH epidemiology
**Keywords:** Local epidemiology|Health disparities|Behavioral health

**Background:**
The Kansas BRFSS responds to local partners data requests. An adequate sample size is needed to generate scientifically reliable estimates representative of the specific geographic area. Prior to 2009, the Kansas survey's sample size was sufficient to produce data for state and four larger counties. In response to increasing local data needs, BHP has received a BRFSS expansion grant from the Kansas Health Foundation. Thus, 2009 Kansas BRFSS sample has been doubled for providing local data. Objective is to provide overview of the analysis and dissemination of local BRFSS data

**Methods:**
In 2009, the disproportionate stratified sampling method was used with selection of telephone numbers within 10 geographic strata of the state. Data were examined and analyzed for counties that have more than 50 respondents. Data were then weighted for the individual county and Public Health Preparedness (PHP) regions using population distribution in age-sex groups. SAS 9.2 software was used for analysis. Results were disseminated using Instant Atlas software

**Results:**
The prevalence estimates for 61 indicators were obtained for 61 counties and for 16 PHP Regions. In addition, stratified analysis was done for 31 indicators using socio demographic and disability status groups for two- third of these counties and regions. Reports for individual counties and regions were disseminated through the website.

**Conclusions:**
Scientifically reliable BRFSS data for use in local public health efforts can be obtained for county and regional level when adequate sample size is available.

---

**Presenting Author(s):**

**Pratik Pandya**
Bureau of Health Promotion, Kansas
Department of Health and
Environment, Topeka, KS
ppandya@kdheks.gov

**Contributing Authors**

Ghazala Perveen, MBBS, PhD, MPH Kansas Department of Health and Environment

**Abstract ID:** 1329596 **Presentation Type:** Poster Presentation
**Title:** Associations between meteorological indicators and hospital admissions related to cold weather
**Committee:** Environmental Health Sub-Committee
**Topic:** Climate change epidemiology and public health
**Keywords:** Climate|Environmental Health|Hospital data

**Background:**
Although the effect of high temperature on mortality is well-documented, cold temperature effects are less studied and understood. While some studies have investigated effects of cold temperatures on cardiovascular and respiratory admissions, no study has looked at the effects of cold temperatures on cold-related hospital admissions such as hypothermia and frostbite.

**Methods:**
Time stratified case-crossover analysis was used to assess the association between specific meteorological indicators and daily weather related hospital admissions. Stratified analyses were used to evaluate interactions between demographic categories and meteorological indicators. Daily surface meteorology data (including temperature, relative humidity and barometric pressure) for 14 weather regions within NYS were obtained from the National Center for Atmospheric Research. Daily hospital admission records were obtained from the NYS Department of Health Statewide Planning and Research Cooperative System.

**Results:**
When apparent temperature fell below the relative regional 10th percentile, there was a 5.8% significant increase in cold weather related hospital admissions for each 1°F decline. Each degree drop in mean temperature showed a similar 6% increase in the number of admissions. On the other hand, there was a significant although small (1%) decrease in admissions associated with increasing barometric pressure. Relative humidity did not show significant associations with admissions. Stratified analyses showed that universal apparent temperatures below the 10th percentile threshold were significantly associated with increased admissions among; females, elderly, Medicaid and Medicare-covered patients and persons residing New York City.

**Conclusions:**
Colder temperatures, defined as either below the 10th percentile or as daily averages were associated with increased hospital admissions for hypothermia and frostbite. Associations varied regionally and socio-demographically. Increasing daily barometric pressure showed a protective effect. Early warnings and preventive measures based on meteorological forecasts and targeted on the susceptible populations may help mitigate the effects of colder temperatures on hypothermia and frostbite.

---

**Presenting Author(s):**

**Cristian Pantea**
Bureau of Environmental &
Occupational Epidemiology, New York
State Department of Health, Troy, NY
cip03@health.state.ny.us

**Contributing Authors**

1 Shao Lin , 2 Edward F. Fitzgerald 1 Bureau of Environmental and Occupational Epidemiology Center for Environmental Health New York State Department of Health 547 River Street, Room 200 E-Mail: cip03@health.state.ny.us 2 University at Albany, SUNY Sc

**Abstract ID:** 1324599 **Presentation Type:** Breakout Presentation
**Title:** Healthcare access and utilization in the unincorporated US Territories: Guam, Puerto Rico, and the Virgin Islands
**Committee:** Cross Cutting Sub-Committee
**Topic:** Healthcare reform and epidemiology
**Keywords:** Health care|Social determinants |Health insurance

**Background:**
National healthcare reforms such as the 2010 Patient Protection and Affordable Care Act rarely extend to the unincorporated US territories, where healthcare disparities may be masked by nationwide statistics. This study investigates healthcare access and utilization in Guam, Puerto Rico (PR), and the Virgin Islands (VI) relative to the US mainland, Alaska, and Hawaii. Further, we examined factors associated with healthcare outcomes to inform community-based interventions that may address healthcare gaps in the absence of healthcare reform benefits for the unincorporated territories.

**Methods:**
We analyzed the 2010 BRFSS data for access to and utilization of healthcare across five factor domains: socio-demographics (sex, marital status, employment status, age, race/ethnicity, education level, household income), history of chronic conditions (diabetes, heart attack, angina or coronary heart disease, stroke, asthma), self-reported health outcomes (general health, life satisfaction, activity limitations due to health, physical health, mental health), lifestyle/behavior (exercise, smoking status, alcohol consumption, BMI), and social/emotional support. Multiple logistic models estimated weighted odds of healthcare outcomes across three territories compared to the US mainland/Alaska/Hawaii, progressively adjusting for each factor domain.

**Results:**
Compared to US mainland/Alaska/Hawaii, residents in Guam and VI were more likely to be uninsured and lack a usual source of healthcare, whereas reverse associations were found in PR. Cost barriers were more prevalent in unincorporated territories than US mainland/Alaska/Hawaii, even for the highly-insured PR area (92%). Annual routine checkups were more prevalent in PR and less prevalent in Guam than US mainland. Among all the factor domain adjustments for cost barriers, socio-demographics produced the largest odds ratio (OR) reductions (PR: 46%, Guam: 35%, VI: 28%). Controlling for social/emotional support also meaningfully reduced cost barrier ORs for Guam (23%) and VI (14%), while controlling for lifestyle/behavior meaningfully reduced the cost barrier OR for Guam (10%). After adjusting for all factor domains, the final cost barrier AOR (95% CI) = 0.80 (0.55-1.19) for Guam, 0.70 (0.59-0.82) for PR, and 1.20 (0.93-1.54) for VI.

**Conclusions:**
Cost barriers may pose a significant challenge in unincorporated US territories even for a highly-insured area. Higher odds for cost barriers and other healthcare disparities in these territories may be attributed to broad socio-demographics (especially in Puerto Rico), high levels of insufficient social/emotional support in Guam and VI, and lifestyle/behavioral factors in Guam. Interventions to address gaps in healthcare across these territories should have cultural and social relevance.

---

**Presenting Author(s):**

**Alexander Pao**
CVDB, DHCPP, Centers for Disease
Control and Prevention, Atlanta, GA
alexander.pao@emory.edu

**Contributing Authors**

KM Venkat Narayan, MD, MSc, MBA Rollins School of Public Health, Emory University  Jin-Mann S. Lin, PhD Chronic Viral Disease Branch, DHCPP, CDC

**Abstract ID:** 1326405 **Presentation Type:** Breakout Presentation
**Title:** Prescription drug monitoring program data and the impact of opioid analgesic misuse in New York City
**Committee:** Cross Cutting Sub-Committee
**Topic:** Substance abuse epidemiology: Burden of alcohol and opiate use, Polices related to substance abuse
**Keywords:** Substance abuse |Chemical dependence

**Background:**
The misuse of prescription drugs is a serious public health and public safety problem. Nationally, in 2009, the number of first time, non-medical users of psychotherapeutics (prescription opioid analgesics, sedatives, tranquilizers, and stimulants) was similar to number of first time marijuana users. In New York City (NYC), excluding marijuana, opioid analgesics are the most commonly misused drug, including illicit drugs. Annually in NYC there are an estimated 2.5 million prescriptions filled for opioid analgesics yearly and opioid analgesic poisoning deaths account for 25% of all unintentional drug poisoning deaths. The objective of this presentation is to describe opioid analgesic prescription patterns in NYC; to identify high users of prescription opioids; frequent prescribers; and to discuss any relationship between prescribing and drug poising mortality (overdose).

**Methods:**
NYC Department of Health and Mental Hygiene (DOHMH) conducted a retrospective review of data from New York State Prescription Drug Monitoring Program; Data were analyzed for the years 2008-2010 and include number of prescriptions filled by specific opioid analgesic. Unique prescribers, pharmacists, and patients were identified. Patient data are limited to NYC residents; pharmacist and prescribers data are not.

**Results:**
During a three year period from 2008 -2010 there were over 8-million opioid analgesic prescriptions filled in NYC. The most common type of opioid analgesic was oxycodone, accounting for 34%% of all opioid prescriptions, increasing from 30% in 2008 to 38% in 2010. Hydrocodone is the second most common opioid analgesic prescribed in NYC and accounts for 31% of all opioid analgesic prescriptions filled. Overall, there were 4,570 unique pharmacies, 115,802 unique prescribers, and 2,918,300 unique patients. While the mean number of scripts per unique patients was 3 per year, 1% of patients accounted for 20% of all prescriptions filled. Opioid analgesic prescription was filled more commonly by women (57%); New Yorkers between the ages of 40-59 years accounted for 44% of all prescriptions filled. Half of prescriptions were paid for by private insurance. The median number of opioid analgesic prescriptions written by doctors was 3 over the three-year period, 1% of doctors prescribed 40% of all opioid analgesics.

**Conclusions:**
Understanding opioid analgesic prescription practices and the relationship to opioid analgesic poisoning mortality has critical public health implications. By identifying and describing the profiles of frequent prescribers, as well as patients who fill a high number of prescriptions, presents opportunities to intervene and to reduce the rate of opioid analgesic related fatalities.

---

**Presenting Author(s):**

**Denise Paone**
New York City Department of Health
and Mental Hygiene, New York, NY
dpaone@health.nyc.gov

**Contributing Authors**

Sharmila Shah, MPH; Daniella Bradley O'Brien, BA; New York City Department of Health and Mental Hygiene

**Abstract ID:** 1366570 **Presentation Type:** Breakout Presentation

**Title:** Improving our understanding of drug overdose deaths using death certificate, medical examiner, and toxicology data

**Committee:**

**Topic:**

**Keywords:**

**Background:**

**Methods:**

---


**Presenting Author(s):**

**Denise Paone**
New York City Department of Health and Mental Hygiene, New York, NY; dpaone@health.nyc.gov

**Margaret Warner**
Centers for Disease Control and Prevention, Atlanta, GA; mwarner@cdc.gov

**Abstract ID:** 1326622 **Presentation Type:** Breakout Presentation
**Title:** Implementation of the Strategic Prevention Framework (SPF) and state and community level outcomes
**Committee:** Cross Cutting Sub-Committee
**Topic:** Substance abuse epidemiology: Burden of alcohol and opiate use, Polices related to substance abuse
**Keywords:** Behavioral health|Substance abuse |Health promotion

**Background:**
The Cross-Site Evaluation of the Strategic Prevention Framework State Incentive Grant (SPF SIG) program for Cohorts I and II comprise 26 states and territories. With grantees having completed implementation, the focus of the cross-site evaluation is to conduct analysis of outcome data. Although the collection of state- and community-level outcome data has been ongoing for several years, we are only now arriving at a point in time where sufficient post-intervention data have been assembled that it makes sense to bexamine these data for preliminary indications of possible SPF SIG effects.

**Methods:**
This paper is the first systematic examination of trends in outcome measures at the state and community levels for Cohorts I and II SPF SIG states. It is a descriptive report on outcome data we have assembled to date, and therefore provides an initial overview of patterns and trends in outcome measures relevant to the SPF SIG. The data are presented in a series of plots depicting time trends in state and community outcome measures for all states for which data are available for at least one pre-intervention and one post-intervention time point. The text of the report describes the criteria used to select the states and measures, approaches and cautions to be applied in interpreting the data, and a summary of the patterns observed.

**Results:**
This report includes only measures that pertain directly to the substance use behaviors and consequences identified as priorities by the SPF SIG states and their communities. No tests have yet been conducted to determine whether any of the observed changes from pre-intervention to post-intervention are statistically significant. State-level Trends Two of the three states examined did, in fact, yield encouraging findings regarding possible SPF SIG impacts on measures of underage drinking. The pattern observed for Maine was especially promising, as the trends for all four measures examined exceeded both of the threshold criteria used to flag noteworthy levels of change. An encouraging trend for Maine was also observed for binge drinking among young adults. No such patterns were observed for measures of ARMVCs at the state level. Nevertheless, the adjusted relative decline was larger in the SPF SIG states than the nation as a whole for 13 of the 20 state-level plots examined. Community-level Trends With respect to trends in the community-level outcome measures, promising patterns were observed in fewer plots compared to the state-level trends. But because fairly small (and different) subsets of states comprise these two sets of findings, this observation cannot be generalized to the other states and measures yet to be examined as more data become available. Encouraging findings among the community-level trends examined include the fact that the two states that provided community-level comparison data on underage drinking measures (which provides a stronger comparison than the statewide estimates used for other states) were the states to experience the largest adjusted relative declines. Likewise, the only state that provided pre- and post-intervention data at the community level on ARMVCs also showed promising patterns for measures of this priority. The cursory preview of how trends in outcome measures for individual communities may behave was revealing. The Arizona data indicated that at least for some states, trends over time across individual communities may actually be fairly uniform. This has implications for the statistical modeling strategies that will be used later to assess the statistical significance of possible SPF SIG effects, including opportunities to enhance statistical power by accounting for secular tends and taking advantage of the within community correlations across time points.

**Conclusions:**
Not all states have yet been able to provide post-intervention data. Because efforts to update the state and community outcomes database are continuing, both the number of SPF SIG states and communities for which post-intervention data are available, and the number of post-intervention data points available for each entity, will increase over the next two years. Future reports will, therefore, provide a broader view of time trends in key SPF SIG outcomes. Future analyses in which community-level data from multiple states are being analyzed and will provide additional perspectives on possible SPF SIG effects.

**Presenting Author(s):**

**John Park**
Substance Abuse and Mental Health
Services Administration, Rockville, MD
john.park@samhsa.hhs.gov

**Contributing Authors**

Robert Orwin, Ph.D., Westat Robert Flewelling, Ph.D. PIRE Frank Winn, PhD, SAMHSA/CSAP

**Abstract ID:** 1363826 **Presentation Type:** Poster Presentation
**Title:** Re-emergence of locally acquired dengue fever in Palm Beach County, Florida
**Committee:** Student Section
**Topic:** Infectious Diseases
**Keywords:** Emerging infections|Surveillance|Arbovirus

**Background:**
Emerging and re-emerging infectious diseases is a constant threat to the health of the public. Since 1951 there have not been any reported cases of locally acquired dengue fever in Palm Beach County, Florida. We report two cases of locally acquired dengue fever in Palm Beach County, Florida in 2011, to highlight the need for continued surveillance.

**Methods:**
Case interviews and medical records review were done to gather travel history and symptoms and to evaluate risk factors related to the infection. Confirmatory testing using enzyme-linked immunosorbent (ELISA) assay to measure IgM and IgG antibodies was done on acute and convalescent serum. Real time polymerase chain reaction (PCR)/reverse transcriptase PCR (RT-PCR) was used to detect viral genetic material in acute serum. Transmission from recent imported cases and travel companions was assessed. Environmental evaluation was done to detect breeding sites of mosquito vectors of dengue fever around the residences of the cases. The cases were classified using the dengue fever cases definitions for the reportable diseases in Florida from the Florida Department of Health.

**Results:**
Both cases had symptoms consistent with dengue fever and recalled mosquito bites during the incubation period (3 to 14 Days) . There was no travel history outside the United States reported for both cases during the incubation period. Case one had travel history to Haiti four weeks prior to onset of symptoms (9/23/2011). None of the case's travel companions were sick during the trip or after arrival in the U.S. Case two had no travel history outside the U.S. six months prior to onset of illness (9/25/2011). Secondary transmission was ruled out among these two cases or recent imported cases. Dengue virus type 1 was positive by PCR/RT-PCR in acute serum of case one and was negative for case two. Dengue fever IgG antibodies were positive in high titers in acute and convalescent serum of both cases. IgM antibodies for dengue fever were positive in acute and convalescent serum of case two. The serological findings were consistent with a serological response in an individual with a previous infection of dengue fever or other flaviviruses infection. Environmental investigation demonstrated the presence of breeding sites for mosquito vectors of dengue fever; Aedes Albopictus for both cases.

**Conclusions:**
Cases one and two were classified as confirmed and probable dengue fever, respectively, and were acquired locally in Palm Beach County, Florida. Case one convalesced fully at home and case two recovered after hospitalization. Mosquito control efforts were implemented. A county-wide mosquito advisory and later a mosquito alert were enacted. Information and updates were provided to the medical community and the public. Enhanced surveillance continued. No new cases have occurred.

---

**Presenting Author(s):**

**Robert Parkes**
Palm Beach County Health
Department Preventive Medicine and
Public Health Residency Program,
Palm Beach County Health
Department, West Palm Beach, FL
roberthparkes@yahoo.com

**Contributing Authors**

Sandra Warren, MPH, Epidemiology Unit, Palm Beach County Health Department; JoEllen Alvarez, RN, MPH, Epidemiology Unit, Palm Beach County Health Department; Barbara Johnson, RN, BSN, Epidemiology Unit, Palm Beach County Health Department; John Pellosie,

**Abstract ID:** 1330356 **Presentation Type:** Poster Presentation
**Title:** Clostridium difficile Infection in Maryland: Healthcare Facility and Community Onset
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Healthcare associated infections (HAI)|Enteric infectious diseases|Surveillance

**Background:**
Clostridium difficile infection (CDI) has historically been recognized as a healthcare associated infection. Recently, more cases of CDI have been described in outpatient populations, including patients without recent hospitalizations or antibiotic use, underscoring the need for a CDI surveillance system that looks outside the traditional healthcare facility settings. As part of the Centers for Disease Control and Prevention's (CDC) Emerging Infections Program (EIP), Maryland conducts population-based surveillance for CDI to understand the epidemiology of CDI in inpatient and outpatient settings.

**Methods:**
Laboratory confirmed CDI cases are identified through active surveillance, via monthly submission of all positive C. difficile tests from laboratories serving Maryland's catchment area. EIP staff conduct chart reviews on incident cases to obtain information on CDI risk factors (e.g. recent healthcare facility exposure, underlying conditions and medication use). All cases are classified as Healthcare Facility Onset (HCFO), Community Onset- Healthcare Facility Acquired (CO-HCFA) or Community Acquired (CA). HCFO is defined as long-term care facility residency or hospitalization for ?4 days prior to a positive C. difficile test. Outpatients and individuals hospitalized <4 days are Community Onset (CO). CO patients with a recent healthcare facility stay are classified as CO-HCFA. Patients without a documented overnight stay are CA. Median ages, gender and rates of underlying risk factors were compared using Student t tests.

**Results:**
Of the 733 CDI cases identified in the first 6 months of 2011, 393 (54%) were HCFO and 340 (46%) were CO. Among the CO cases, 181 (53%) were HCFA and 159 (47%) were CA. CO cases were younger (57.7 vs. 75.4 years, p <.0001) and less likely to have underlying conditions (28.8% vs. 7.7%, P<.00001), but not significantly different in prior antibiotic use or gender. Within the CO cohort, the CA cases were younger than HCFA cases (53.7 vs. 67.5, p<.00001), and were less likely to have no underlying conditions (35.6 % vs. 10.1%, p<.00001) or recent antibiotic exposure (40.8% vs. 21.7%, p<.0001). Thirty CO cases (9%) had no documented risk factors (antibiotic use, recent hospitalization or underlying conditions). This group was significantly younger than CO patients with risk factors (41.9 vs. 60.7 years, P< .00001), but not significantly different by gender or geographic distribution.

**Conclusions:**
In Maryland, a substantial number of CDI cases were classified as CO. Of these, nearly a tenth had no identified CDI risk factors. Further research is needed to understand the risk of CDI in the community and target this emerging issue.

---

**Presenting Author(s):**

**Rebecca Perlmutter**
Infectious Disease and Environmental
Health Administration, Maryland
Department of Health and Mental
Hygiene, Baltimore, MD
rperlmutter@dhmh.state.md.us

**Contributing Authors**

Malorie Givan, MPH, Katherine Richards, MPH, David Blythe, MD, MPH, Patricia Ryan, MSc, Lucy Wilson, MD, ScM

**Abstract ID:** 1280862 **Presentation Type:** Breakout Presentation
**Title:** Comparing definitions of active and current asthma: 2007-2009 Behavioral Risk Factor Surveillance System Asthma Call-back Survey
**Committee:** Environmental Health Sub-Committee
**Topic:** Other Emerging Environmental Epidemiology Issues
**Keywords:** Asthma|Data/Surveillance

**Background:**
The "Current" asthma definition, based on ever having asthma and still having asthma questions, is the most commonly used case definition among the CSTE's probable asthma case classifications for prevalence estimates. Using the "current" asthma definition is preferred because of historical data and availability in multiple national surveys. Alternatively, the "active" asthma definition is preferred because it identifies more probable cases of asthma. Describing persons identified by each case definition may determine the best method for identifying persons with asthma in future national health surveys.

**Methods:**
2007-2009 Behavioral Risk Factor Surveillance System (BRFSS) Asthma Call-back Survey (ACBS) data were analyzed using SAS-callable SUDAAN and complex sample survey procedures. Characteristics of persons with "current" asthma: "yes" to "Do you still have asthma?" and "active" asthma: in the past 12 months to at least one of the following: 1) talked to a doctor, 2) took medication, or 3) had symptoms related to asthma were examined. The demographics, disease characteristics, and co-morbidities of people who reported "active", but not "current" asthma were assessed. A kappa statistic was used to calculate the percent agreement between "current" and "active" asthma definitions to determine the added value of "active" asthma questions.

**Results:**
A higher proportion of respondents met the criteria for "active" asthma compared with "current" asthma (estimated 73.3% vs. 67.2%, respectively) and 3,660 (9.0%) more respondents were identified under the "active" asthma definition. Overall, tested characteristics were similar between definitions of asthma. Moderate agreement (69%) was found between the two asthma definitions. Agreement was increased (to 82%) by adding one "active" asthma definition question to the "current" asthma definition. When the 3,660 adult respondents who met the "active" but not the "current" asthma definition were compared with adults not meeting either definition, statistically significant differences were found for ages 25-34 and 55-64 years, males, Hispanics, occurrences of asthma attacks, time since diagnosis, and co-morbidities.

**Conclusions:**
Although more respondents were captured by the "active" asthma definition, respondents under both case definitions were similar on all tested characteristics and continued use of the "current" asthma definition is recommended when making comparisons to national surveys. Alternatively, for the ACBS, the "active" asthma definition is a better indicator for analysis of certain demographics, asthma-related characteristics, and co-morbidities where statistically significant differences were found between definition groups. The "active" asthma definition is more specific and more consistent with the most recent CSTE asthma case definition which includes medication and symptom questions.

---

**Presenting Author(s):**

**Cara Person**
Centers for Disease Control and
Prevention, Atlanta, GA
ijr9@cdc.gov

**Contributing Authors**

Michael King, PhD, MSW (CDC); Cathy Bailey, MS (CDC); Hatice Zahran, MD, MPH (CDC); Jeanne Moorman, MS (CDC)

**Abstract ID:** 1330776 **Presentation Type:** Poster Presentation
**Title:** Opt-out vs. opt-in screening for sexually transmitted infections in a county correctional facility yields significantly higher positivity rates for Chlamydia and Gonorrheae infections
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Sexually transmitted infections
**Keywords:** Sexually Transmitted Diseases|Communicable disease|Special populations

**Background:**
Reducing the rates of the common sexually-transmitted infections (STI), Chlamydia trachomatis (CT) and Neisseria gonorrhea (NG), has been declared a priority in Douglas County, Nebraska by public health officials. In 2009 the rates of CT and NG in Douglas County were 30% and 88% higher than the rest of the nation, respectively. Incarcerated individuals carry a disproportionately high risk of STIs due to precarious sexual behavior and lack of access to routine screening and treatment. Beginning in July 2010, the Douglas County Department of Corrections (DCDC) partnered with a local academic medical center and public health officials to implement a program of STI education, screening, and treatment for inmates.

**Methods:**
Health professions students and faculty, as a service learning program, provided STI education to inmates in a convenience sample of housing modules at DCDC. After each session, inmates were offered STI screening on an "opt-in" basis. In order to increase the percentage of inmates receiving care and estimate the point prevalence of STIs in the facility, urine screening for CT and NG was offered to all incoming inmates on an "opt-out" basis, as part of the routine medical intake process during the week of July 12-17, 2011. Students and faculty provided necessary personnel to conduct testing as requested by DCDC. Laboratory testing was performed by the Nebraska Public Health Laboratory using a qualitative target amplification nucleic acid probe (GenProbe APTIMA®). Screening and treatment were funded by the Nebraska Department of Health and Human Services. Data analysis was performed by the Douglas County Health Department using SAS v. 9.2.

**Results:**
Screening was performed on 45 separate days from January 1, 2010 – December 22, 2011. An average of 23 screening tests were performed on each "opt-in" day and 44 tests were performed each "opt-out" day. During the "opt-out" week, all 309 incoming inmates were offered screening, with only one opting out. The "opt-out" (30/308) positivity rate for CT was 9.74% vs. "opt-in" (44/858) rate of 5.13% (p=0.004). The "opt-out" (4/308) positivity rate for NG was 1.30% vs. "opt-in" (2/857) rate of 0.23% (p=0.025).

**Conclusions:**
The positivity rate for the "opt-out" program was higher than "opt-in", where significant numbers of patients were able to receive STI care that may not have been sought elsewhere. Allocating additional resources for STI testing and treatment at DCDC on an opt-out basis may provide an effective strategy for reducing the burden of NG/CT in the Omaha metropolitan area.

---

**Presenting Author(s):**

**Austin Person**
University of Nebraska Medical
Center, Omaha, NE
aperson@unmc.edu

**Contributing Authors**

Jillian Fickenscher, University of Nebraska Medical Center Raees Shaikh, MPH, University of Nebraska Medical Center Kari Simonsen, MD, University of Nebraska Medical Center, Douglas County Health Department Elizabeth Berthold, MS, M(ASCP), Douglas County

**Abstract ID:** 1388469 **Presentation Type:** Late Breaker: Breakout Presentation
**Title:** Factors Associated with Maternal Mortality among HIV-infected women, Deliveries 2005-2011 in New York City (NYC).
**Committee:** Infectious Diseases Sub-Committee
**Topic:** HIV
**Keywords:** Maternal and Child Health|HIV/AIDS|Outcome Measures

**Background:**
We describe factors associated with maternal mortality among HIV-infected who delivered live newborns, 2005-2011 in NYC.

**Methods:**
Data were collected from medical records of HIV-exposed deliveries 2005-2011 from 16 NYC sites (65% of NYC's HIV-exposed deliveries) participating in CDC's Enhanced Perinatal HIV Surveillance project. Two-tailed Fisher exact test was used to compare characteristics.

**Results:**
Among 1,885 HIV-exposed deliveries 2005-2011, there were 1,926 infants, including 41 twins: 27 are HIV-infected (1.4%) and 1,658 (86.1%) are uninfected [241 (12.5%) have an indeterminate status]. Among 1,885 deliveries, there were 1,563 unique mothers: 47 (3.0%) died, 1,430 (91.5%) are alive, and 86 (5.5%) have an unknown vital status. Nine mothers died within the same year of the infant birth; one was attributable to an obstetrical complication. Three of the 47 mothers had an HIV-infected infant (6.4%). The deceased mothers were comprised of 10 of the 93 mothers with perinatal HIV transmission risk (10.8%), 4 of the 67 mothers with history of injection drug use (IDU) (6.0%), 24 of the 1,015 with heterosexual risk (2.4%), 9 of the 373 mothers with non-specified CDC risk (2.4%) and none of the 15 mothers with other risks (sexual abuse, prostitution, and receipt of blood products). Mothers with perinatal risk were significantly more likely to die compared to mothers with risks other than IDU [10.8% vs. 2.4% ($p< 0.0001$)]. Compared to mothers who are alive, mothers who died tended to be younger at the time of delivery [31.9% vs. 21.7% < 25 years of age (p=NS)], significantly more likely to be US born [68.1% vs. 47.1% (p=0.004)], to use illicit drugs [42.6% vs. 22.7% (p=0.001)], and tended to be diagnosed with HIV before pregnancy [87.2% vs. 79.9% (p=NS). They were significantly less likely to have received any prenatal care [85.1% vs. 94.5% (p=0.006)], any prenatal ART [72.3% vs. 91.0% ($p< 0.0001$)], and have a vaginal delivery [23.4% vs. 41.7% (p=0.009)]. Significantly more had an HIV viral load >1,000 copies/ml [57.4% vs. 15.7% ($p< 0.0001$)] and severe CD4 immunosuppression close to the time of delivery [51.1% vs. 13.1% ($p< 0.0001$)].

**Conclusions:**
Mothers who died were significantly more likely to have perinatal HIV risk compared to mothers with other risks other than IDU, have high HIV viral loads and severe immunosuppression close to the time of delivery. Our data identified high risk women for whom enhanced clinical monitoring and surveillance are warranted.

---

**Presenting Author(s):**

**Vicki Peters**
HIV Epidemiology Program, NYC
Department of Health and Mental
Hygiene, Long Island City, NY
vpeters@health.nyc.gov

**Contributing Authors**

Balwant Gill, PhD, Annette Brooks, Karla McFarlane, Janine Brewton, Colin Shepard, MD

**Abstract ID:** 1330436 **Presentation Type:** Breakout Presentation
**Title:** Tuberculosis contact investigation in a middle school — Kansas, 2010–2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Respiratory diseases, non-influenza
**Keywords:** Disease prevention|Communicable disease|Emerging infections

**Background:**
On December 22, 2010, a case of smear-positive tuberculosis (TB) in a 14-year-old student with cough, positive tuberculin skin test (TST), and cavitary lesion on chest radiograph, was reported to public health authorities; the student's TB symptom onset was <1 month after emigration from Peru. Among 46 reported TB cases in 2010 in Kansas, 26 (56%) were in foreign-born persons. Undiagnosed TB infection can lead to active TB disease and, possibly, death. We investigated the case and performed contact tracing to prevent additional cases.

**Methods:**
Because false-positive TST results might occur among foreign-born persons vaccinated with Bacillus Calmette-Guérin (BCG), all patient-contacts considered at risk for transmission (persons with daily contact) had TB infection assessed with an interferon-gamma release assay (IGRA) during baseline (January 14, 2011) and follow-up (March 8, 2011) testing; students' birth country was determined by send-home questionnaire.

**Results:**
All same-grade students and teachers were considered contacts. At baseline assessment, 31 (22%) of 142 same-grade students were foreign-born. Seven (4.9%) had IGRA-positive results; 5 were foreign-born with a diagnosis of treated latent TB infection, and 2 were U.S.-born with other risk factors (e.g., residence in an apartment building or area of county with previously confirmed TB cases) in addition to the recent re-exposure at school. During follow-up assessment, an additional 3 student contacts, all U.S.-born, had positive IGRA results consistent with recent infection. Five students newly identified with TB infection received and completed treatment.

**Conclusions:**
TB transmission to 3 students was detected by IGRA. Because of prior BCG vaccination, IGRA use might have avoided false-positive TST results among foreign-born contacts; TB contact testing methods should be selected to fit the specific population.

---

**Presenting Author(s):**

**Amy Peterson**
CDC/Kansas Department of Health
and Environment , Topeka, KS
apeterson@cdc.gov

**Contributing Authors**

K. Bisgard DVM MPH, CDC; J. Schwartz MPH KDHE; T. Elliott MS KDHE, D. C. Hunt MPH KDHE; P. Griffin BBA KDHE

**Abstract ID:** 1330371 **Presentation Type:** Poster Presentation
**Title:** Clonal cluster of Burkholderia contaminans among ventilated patients in a hospital intensive care unit — Kansas, 2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Healthcare associated infections (HAI)|Emerging infections|Health care

**Background:**
Burkholderia contaminans within the Burkholderia cepacia complex (BCC) often found in water, can cause infections among immunocompromised or critically ill patients. Health care–associated outbreaks have been linked to intrinsic and extrinsic contamination of medical products and to suboptimal infection prevention practices among health care personnel. Hospital A requested assistance on July 5 after an increase in BCC infections in an intensive care unit (ICU); we investigated the source of infections and provided recommendations to prevent additional cases.

**Methods:**
During November 2011, Hospital A patient microbiology and medical records were reviewed; cases were defined as colonization or infection with an isolate of a related BCC in a patient >48 hours postadmission. Infection prevention practices were observed and environmental swabs obtained from patient-care areas. Patient isolates were identified by conventional biochemical methods and typed by repetitive-element polymerase chain reaction.

**Results:**
During January 2009–October 2011, a total of 19 BCC cases were detected; 10/19 (53%) occurred during 2011 and were typed; 7/10 (70%) were from the surgical ICU (SICU). Among SICU cases, 4 were clonally related B. contaminans from respiratory sources among mechanically ventilated patients. Infection prevention observations detected a hand hygiene failure rate of 40% (73/184), improper cleaning and disinfection of shared equipment, and improper care of nebulizer cups. BCC was isolated from sinks in 2 (14%) patient rooms of 14 total environmental swabs.

**Conclusions:**
Review of BCC isolates from Hospital A indicated an increase beginning January 2011 associated with a BCC clonal cluster in the SICU. Inadequate infection prevention practices might have led to environmental source contamination of patient supplies and subsequent colonization or patient infections. Targeted infection prevention activities could reduce transmission.

---

**Presenting Author(s):**

**Amy Peterson**
CDC/Kansas Department of Health
and Environment , Topeka, KS
apeterson@cdc.gov

**Contributing Authors**

A. Kallen MD MPH CDC DHQP, A. Chitnis MD MPH CDC DHQP, N. Xiang BS CDC DHQP, J. Scaletta MPH CIC RN KDHE, R. Geist MPH KDHE, E. Lawlor MS KDHE, J. DeMent MNS KDHE, J. Noble-Wang PHD CDC DHQP, H. O'Connell PHD, CDC DHQP, J. Schwartz MPH KDHE, I. Garrison

**Abstract ID:** 1323905 **Presentation Type:** Poster Presentation
**Title:** Successes at interagency and international data sharing
**Committee:** Surveillance/Informatics
**Topic:** Other surveillance/informatics
**Keywords:** Information systems|Collaboration|Data sharing

**Background:**
EDN (Electronic Disease Notification) was Developed by CDC's Division of Global Migration and Quarantine (DGMQ). This system collects medical data from legal permanent immigrants and refugees arriving in the U.S. and disseminates that data to state and local health departments, fulfilling CDC's regulatory responsibility to prevent the importation and spread of communicable diseases. This data is contained on forms that record the medical examination and medical history of each person. EDN is incrementally replacing a paper process with an electronic system of modules that perform each aspect of the process that required the flow of paper. CDC has data entry staff to manually enter data that was not received electronically into a client/server system, where state and local health departments access this data securely via a CDC-hosted web system. For this project, we looked to leverage existing systems residing outside the CDC to provide data to EDN at a time and cost savings to CDC. The International Organization for Migration (IOM) in Geneva, Switzerland, handles many of the medical and logistical arrangements for refugees. CDC was receiving printed forms from refugees who were examined at IOM medical clinics. IOM could send this data directly to CDC; it would account for around 50% of all records in the system. The Refugee Processing Center (RPC) in Arlington, VA (part of the US Department of State), has affiliates who were responsible for printing two copies of all medical paperwork to submit to CDC upon U.S. arrival, but also for scanning in the paperwork and sending to RPC headquarters. RPC could send the scans as electronic files directly to CDC; it would save both partners costs of printing and moving papers.

**Methods:**
Agreements were made with these partners (IOM and RPC). The existing paper-based process was analyzed and, after working through technological and administrative challenges, electronic data-sharing solutions were built. The number of data records transferred was recorded for this study.

**Results:**
From 2008 through 2011 (inclusive), CDC received 169,398 records from IOM. In 2011, CDC received 50,389 records from RPC.

**Conclusions:**
Savings: Over 14,000 data entry hours have been saved since 2008 due to electronic files from IOM. In 2011, over 500 data entry hours, 700 paper processing hours, and approximately 40% of paper shipping costs have been saved due to electronic files from RPC

---

**Presenting Author(s):**

**Rossanne Philen**
DGMQ, Centers for Disease Control
and Prevention, Atlanta, GA
rhp2@cdc.gov

**Contributing Authors**

Yoni Haber, MBA: CDC Deborah Lee, MPH: CDC Possanne Philen, MD, MS: CDC

**Abstract ID:** 1366568 **Presentation Type:** Roundtable Presentation
**Title:** Change is coming: The world of ICD-10-CM (Injury epidemiologigy emphasis)
**Committee:**
**Topic:**
**Keywords:**

**Background:**

**Methods:**

---

**Presenting Author(s):**

**Donna Pickett**
Centers for Disease Control and Prevention, Atlanta, GA;
dfp4@cdc.gov

**Abstract ID:** 1367119 **Presentation Type:** Breakout Presentation
**Title:** ELR implementation support and monitoring
**Committee:**
**Topic:**
**Keywords:**

**Background:**

**Methods:**

---


**Presenting Author(s):**

**Robert Pinner**
Centers for Disease Control and Prevention, Atlanta, GA;
rwp1@cdc.gov

**Wesley Kennemore**
Association of Public Health Laboratories, Silver Springs, MD;
wes.kennemore@aphl.org

**Kathryn Turner**
Idaho Department of Health and Welfar, Boise, ID;
turnerk@dhw.idaho.gov

**Abstract ID:** 1330134 **Presentation Type:** Roundtable Presentation
**Title:** Healthcare-associated infections and reportable communicable diseases: Birds of a feather or horses of a different color?
**Committee:** Surveillance/Informatics
**Topic:** General surveillance topics
**Keywords:** Surveillance|Health care|Infectious Diseases

**Brief Summary:**
Efforts are under way in health departments throughout the United States to prevent healthcare-associated infections (HAIs) by applying methods and tools that have been used successfully against communicable diseases and other high priority public health problems. Outbreak investigations, surveillance, laboratory analysis, epidemiologic studies, prevention guidelines, public policies, and communication strategies have all been brought to bear on HAIs, much as they have been put into public health practice for reportable infectious diseases. Yet largely because HAIs and community-acquired infections differ with respect to where they occur and the role of healthcare in their onset, questions persist about whether the response to HAIs represents a departure from the traditional public health practice or a direct extension of what has worked successfully in combatting communicable diseases. Are they birds of a feather or horses of a different color? Resolving this key question has practical implications for how health departments plan, organize, and accomplish their programmatic objectives in HAI surveillance and prevention. In this session, two opposing viewpoints will be presented by epidemiologists working in public health agencies on HAIs, one making the case for HAI exceptionalism and the other arguing that HAIs should be treated no differently than other infectious diseases brought under public health's purview. The two presenters in this dialogue will take stock of the conceptual differences in their respective viewpoints and emphasize the operational consequences of their diverging positions for public health practice.

**Key Objectives:**
1. Describe similarities and differences between the public health response--including surveillance--to healthcare-associated infections (HAIs) and reportable infectious diseases. 2. Clarify how conceptual differences in the way that public health professionals view HAIs bear directly on programmatic planning, operations, and data flows.

---

**Presenting Author(s):**

**Daniel Pollock**
Centers for Disease Control and Prevention, Atlanta, GA
dpollock@cdc.gov

**Marion Kainer**
Tennessee Department of Health , Nashville, TN
marion.kainer@tn.gov

**Abstract ID:** 1319250 **Presentation Type:** Poster Presentation
**Title:** Paralytic shellfish poisoning - southeast Alaska, 2011
**Committee:** Environmental Health Sub-Committee
**Topic:** Other Emerging Environmental Epidemiology Issues
**Keywords:** Toxins |Epidemiology|Environmental Health

**Background:**
Paralytic shellfish poisoning (PSP) is a potentially fatal neuroparalytic condition resulting from ingestion of saxitoxins accumulated in bivalve mollusks. On June 6, 2011, the Alaska Section of Epidemiology (SOE) was notified of a case of PSP in Southeast Alaska and informed that other community members had also recently experienced PSP symptoms after consuming noncommercially harvested shellfish. We launched an investigation.

**Methods:**
Investigators conducted active case finding, interviewed ill persons, posted warnings at local beaches, and collected clinical specimens and shellfish for testing. A probable case of PSP was defined as a compatible illness in a person after consumption of noncommercially harvested shellfish from Alaska during May–June 2011. A confirmed case met the probable case definition and had detectable saxitoxins in urine or had consumed shellfish with ?80 µg saxitoxins/100 g of meat before illness onset.

**Results:**
Four suspected PSP patients were reported to SOE. Case finding identified 13 probable and 8 confirmed PSP cases in 2 neighboring communities. Of these 21 cases, 15 (71%) were associated with consumption of cockles, 4 (19%) with blue mussels, 1 (5%) with butter clams and cockles, and 1 (5%) with unspecified clams. Shellfish from both communities tested positive for high levels of saxitoxins, and urine from 2 ill persons was positive for saxitoxins. All 21 patients reported experiencing paresthesias. Four patients were hospitalized; none died.

**Conclusions:**
Active case finding enabled epidemiologists to identify previously symptomatic persons who had not sought care and therefore were not reported. The burden of PSP in Alaska is likely substantially underestimated through lack of reporting. An inexpensive test providing rapid identification of saxitoxins can benefit persons who consume noncommercially harvested shellfish.

---

**Presenting Author(s):**

**Kimberly Porter**
EIS Field Assignments Branch, Centers
for Disease Control and Prevention,
Anchorage, AK
KAPorter@cdc.gov

**Contributing Authors**

Donna Fearey, MSN, Alaska Section of Epidemiology L. Castrodale, DVM, MPH, Alaska Section of Epidemiology; D. Bensyl, PhD, MA, Centers for Disease Control and Prevention; T. Esposito, BSN, Alaska Section of Nursing; J. McLaughin, MD, MPH, Alaska Section

**Abstract ID:** 1314450 **Presentation Type:** Breakout Presentation
**Title:** Latent tuberculosis — Wyoming, 2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Respiratory diseases, non-influenza
**Keywords:** Data/Surveillance|Infectious Diseases

**Background:**
Latent tuberculosis infections (LTBI) affect 9–14 million persons in the United States; annually, 5%–10% of this population experiences active tuberculosis (TB). Before 2011, unstructured screening for LTBI with no clear guidelines occurred in Wyoming. Despite 3% of Wyoming's population being screened annually since 1993, the number of LTBI cases remained relatively constant with an annual mean of 200 persons with a positive result for LTBI. In 2011, targeted LTBI screening was initiated in Wyoming to improve allocation of resources given anticipated future funding decreases; screening was targeted to identify persons who are at high risk for TB exposure and infection, or who are at high risk for active TB after infection. We sought to better understand the results of targeted LTBI screening.

**Methods:**
LTBI cases were defined as a positive tuberculin skin test (TST) in millimeters of induration on the basis of employment or risk factor groups per Centers for Disease Control and Prevention recommendations. Persons considered positive with an induration of ?5 mm are human immunodeficiency virus-positive persons or any other immunosuppression, close contacts of active TB patients, or radiographic changes consistent with prior TB. Persons are considered positive with an induration of ?10 mm who are foreign-born, have extensive travel to TB-endemic countries, use illicit drugs, institutionalized employees or residents, children exposed to adults at high risk for LTBI reactivation, or children aged < 4 years. Tests completed January 1–September 28 were analyzed descriptively.

**Results:**
During the study period, 5,652 persons sought testing for LTBI at facilities receiving testing supplies from the Wyoming Department of Health; 111 (2.0%) had a positive TST result. Risk factor information was missing for 2,299 (40.7%) of 5,652 tested persons and for 43 (38.7%) of 111 persons with positive results. Employment requirements accounted for 2,898 (51.3%) of the TSTs; 34 (1.2%) had positive result. Risk factor groups with the highest positive percentage rate included foreign-born persons (21/61 [34.4%] had positive results), close contact with an active TB patient (5/37 [13.5%] had positive results), and persons with extended travel to a TB-endemic country (5/74 [6.8%] had positive results).

**Conclusions:**
Improved collection of employment and risk factor information is needed to determine groups at high risk for LTBI in Wyoming; these data will allow targeted screening specific to the state's population. By decreasing unnecessary LTBI testing, cost-savings will help Wyoming adjust to the projected decreases in funding without sacrificing public health.

---

**Presenting Author(s):**

**Kerry Pride**
CDC-EISO, Wyoming Department of
Health, Cheyenne, WY
hgp3@cdc.gov

**Contributing Authors**

Canyon Hardesty, MS, CHES, STD/TB/Viral Hepatitis Program Manager, Wyoming Department of Health; Clayton K. Van Houten, Jr. M.S., Emerging Diseases/Health Statistics Section Chief, Wyoming Department of Health; Tracy D. Murphy, MD, State Epidemiologist, W

**Abstract ID:** 1315496 **Presentation Type:** Breakout Presentation
**Title:** Campylobacter jejuni Infections Associated with Sheep Castration — Wyoming, 2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Zoonoses
**Keywords:** Zoonotic disease

**Background:**
Worldwide, Campylobacter jejuni is a leading bacterial cause of gastroenteritis; it is commonly associated with poultry, but has also been associated with multiple other animals and food products. Of the states that submit Campylobacter cases to PulseNet, Wyoming is the third highest contributor and has reported 667 campylobacteriosis cases since 2004. In late June, 2 cases of laboratory-confirmed C. jejuni infection in an employee and a resident of a sheep ranch were reported to the Wyoming Department of Health. We investigated to determine the source of infection and to prevent further cases.

**Methods:**
We conducted patient interviews to assess potential exposures; focusing on animals and food products. We visited the ranch and collected fecal samples from 5 recently weaned lambs on the ranch. Isolates were subtyped by using pulse-field gel electrophoresis (PFGE) and compared them with other PFGE patterns in the PulseNet database since 2004.

**Results:**
Interviews revealed a common source exposure to sheep: both patients reported having used their teeth to castrate lambs in mid-June. The 2 human isolates and a C. jejuni isolate from 1 lamb were indistinguishable by PFGE. This C. jejuni PFGE pattern had not been documented previously among Wyoming isolates and was represented in only 8 (0.09%) of 8,817 C. jejuni cases in PulseNet; none of these 8 cases was associated with animals.

**Conclusions:**
Animal fecal sampling in an investigation might help identify the source of C. jejuni in recently reported cases. Asking specific questions regarding animal husbandry might reveal novel exposures. Livestock producers should be educated about safe and humane castration methods to reduce exposure to C. jejuni and other pathogens.

---

**Presenting Author(s):**

**Kerry Pride**
Wyoming Department of Health,
Centers for Disease Control and
Prevention, Cheyenne, WY
hgp3@cdc.gov

**Contributing Authors**

Kelly N. Weidenbach-Vigil, MPH, Infectious Disease Epidemiology Program, Wyoming Department of Health; Aimee Geissler, PhD, MPH, Centers for Disease Control and Prevention; Tracy D. Murphy, MD, State Epidemiologist, Wyoming Department of Health; Wanda Man

**Abstract ID:** 1326817 **Presentation Type:** Breakout Presentation
**Title:** An examination of external cause of injury coding among acute care emergency departments for the purposes of improved injury data and surveillance in North Carolina
**Committee:** Injury Control and Prevention Sub-Committee
**Topic:** Other injury epidemiology issues or topics
**Keywords:** Injury|Data/Surveillance|E code

**Background:**
Injury fatalities account for only a fraction of the annual number of injuries in North Carolina. To capture the true burden of injury on the population, we must also monitor nonfatal events. NC collects information on 99.5% of acute care emergency department (ED) visits across the state through the state's electronic public health surveillance system, the NC Disease Event Tracking and Epidemiologic Collection Tool (NC DETECT). The utility of NC DETECT for injury surveillance relies on the completeness and accuracy of ED records. The International Classification of Diseases, 9th Revision, Clinical Modification (ICD-9-CM) stipulates the use of an external cause of injury code (E-code) with any diagnosis code in the range of 800-999. NC DETECT requires hospitals to submit all electronically captured E-codes as part of ED data submission. This study assesses the completeness of E-coding among EDs in NC to inform surveillance quality improvement efforts.

**Methods:**
We examined all 2010 ED visits with an ICD-9-CM injury diagnosis code (between 800 and 999) and/or an E-code. ED visits missing either an E-code or an injury diagnosis code were flagged for further review. Summary statistics were generated for these visits; visits were stratified by hospital, sex, age, location, and trauma center designation. Among ED visits with a valid E-code, information conveyed by the code was examined.

**Results:**
There were 4,405,739 ED visits reported in 2010. Of these, 1,090,482 visits were injury-related (visits containing a diagnosis code of 800-999 and/or an E-code). Among all injury-related ED visits, 122,880 visits (11%) did not contain an E-code. Of the 967,682 visits with an E-code, 161,448 visits (17%) were missing a diagnosis code between 800 and 999. Although most of the E-codes specified a general injury group (fall, motor vehicle, overexertion, etc.), many of the codes were for unspecified sub-classifications within these general groups. Among ED visits with a valid E-code, 84,001 (9%) contained an E-code that did not specify an injury mechanism. Much of the missing data was attributed to a small number of facilities.

**Conclusions:**
The completeness of E-code reporting varies between hospitals. Results will be shared with under-reporting hospitals to address data quality issues for the purpose of improving E-coding and, therefore, the quality of injury data available in the state. These methods may be useful to states planning evaluations of injury surveillance systems.

---

**Presenting Author(s):**

**Scott Proescholdbell**
Injury and Violence Prevention
Branch, Chronic Disease and Injury
Section, North Carolina Department of
Health and Human Services, Raleigh,
NC
scott.proescholdbell@dhhs.nc.gov

**Contributing Authors**

Katherine J. Harmon, MPH, University of North Carolina Gillings School of Global Public Health, Chapel Hill, NC, USA Clifton Barnett, MSIS, Carolina Center for Health Informatics, Chapel Hill, NC, USA Anna Waller, ScD, Carolina Center for Health Informati

**Abstract ID:** 1282070 **Presentation Type:** Breakout Presentation
**Title:** Florida Epidemic Intelligence Service Program graduates' initial and current employment and career choices: Meeting the mission of increasing epidemiology capacity in public health?
**Committee:** Cross Cutting Sub-Committee
**Topic:** Epidemiology capacity
**Keywords:** Epidemiology capacity|Workforce development|Professional development

**Background:**
The Florida Epidemic Intelligence Service Program was created in 2001 to increase epidemiologic capacity within the state. Patterned after applied epidemiology training programs such as the Centers for Disease Control and Prevention's Epidemic Intelligence Service and the California Epidemiologic Investigation Service, the mission of the two year post-graduate program is to prepare epidemiologists for leadership positions in public health in Florida. In the ten year history of the program, seven classes have been admitted (N = 51). Since 2008, the program has been impacted by state fiscal constraints that have decreased available enrollment and training opportunities. This follow-up evaluation will explore short and long term program graduate outcomes.

**Methods:**
To assess program success in meeting its mission, initial graduate employment and career choices of all program alumni and current graduate employment and career choices for those who completed at least three years ago were tracked though a survey, networking, and personal communication since inception of the program. Frequency data are calculated.

**Results:**
As of 2011, six classes have graduated. Of the 43 graduates (*not including one lost to attrition and one still completing in 2011), 79% (N=34) were hired as epidemiologists for their initial post-graduate position. Of these, 62% (27) stayed in Florida, with 52% employed by their fellowship host county. Five graduates (11.6%) initially enrolled in doctoral degree programs upon completion, including medicine, veterinary medicine and epidemiology (N=3). Follow-up of the five classes graduating during 2004-2009 (N=35) showed that 57% (20/35) are currently employed as epidemiologists, 50% (10/20) in Florida. The remainder are in closely aligned careers/pursuits: 17% have pursued health careers (N = 6), 9% are enrolled in epidemiology doctoral programs (N = 3), two are infection prevention specialists, two are in clinical research trials, one teaches epidemiology part-time and one completed law school.

**Conclusions:**
Despite recent challenges such as state fiscal constraints that have limited enrollment and training opportunities, the program continues to be a source for enhancing public health epidemiologic capacity in Florida and beyond. Initial graduate employment is more likely to be as a practicing epidemiologist, whereas current employment/career choice of graduates at least three years out finds over 40% have pursued additional education or have changed to positions that are closely aligned but rely on epidemiology skills. The pursuit of doctoral level degrees in epidemiology by graduates will further increase capacity.

---

**Presenting Author(s):**

**Patti Ragan**
Bureau of Epidemiology, Florida
Department of Health, Tallahassee, FL
pragan@elon.edu

**Contributing Authors**

Robyn Kay, MPH, Florida Department of Health Mary Hilton, MNO, Florida Department of Health

**Abstract ID:** 1333005 **Presentation Type:** Breakout Presentation
**Title:** Maximizing the outcome of mail follow-up surveys to BRFSS non-respondents
**Committee:** Surveillance/Informatics
**Topic:** Novel surveillance methods and data sources
**Keywords:** Behavioral research|Data/Surveillance


**Background:**
Decreasing response rates to the Hawaii BRFSS has created a pressing need for transition to a mixed mode survey design. Previous studies of mail surveys have ameliorated response rates; however, the resultant datasets show respondent bias. The potential impact of mail follow-up surveys for the subset of respondents that could not be reached by traditional Computer Assisted Telephone Interviewing (CATI) methods remains largely unknown; no previous study has analyzed the combined impact of optimizing survey formatting and use of response enhancements on BRFSS data.

**Methods:**
In 2009, mail follow-up surveys were sent to BRFSS CATI non-respondents. A focus group of responders and non-responders was conducted to identify strategies to improve response rates, and findings were used to optimize the survey's formatting. Between March and September 2010, 44.7% (N=4,837) of CATI non-respondents for whom valid addresses were available were randomly assigned to a control group that received the 2009-like BRFSS follow-up survey, or a treatment group that received an optimized loose-leaf or a booklet-style questionnaire. In addition, incentives, advance-notification postcards, and reminder postcards were implemented with a subset of treatment surveys. The impact of different treatment protocols on response rates was analyzed, and demographic and key health characteristics of the mail follow-up survey respondents were compared to CATI respondents.

**Results:**
During the study period, 14,856 respondents were contacted by CATI yielding 4,025 (27.1%) complete surveys. In addition, 1,436 (29.7%) completed surveys were returned by mail. Significantly more treatment surveys (N=849) than control surveys (N=587) were returned. Of 26 demographic/health variables analyzed, only one difference in respondent characteristics (asthma prevalence, p=.02) was found between the groups. The use of advanced notification and reminder postcards enhanced response rates by 9.7% and 8.5% respectively, and incentive by 8.9%. The optimized survey formats respectively increased response rates by 6.9% (loose leaf) and 6.5% (booklet). Significant differences were found in respondent characteristics when comparing landline and mail follow-up survey respondents. However, when the sub-group of working-age adults was parsed out of mail survey respondents and compared to the corresponding group of CATI respondents, the groups closely resembled one another.

**Conclusions:**
Mail follow-up surveys can contribute meaningfully to BRFSS data. Different weighting criteria may need to be applied to the data to compensate for skewing. If mail follow-up surveys are used, a combination of response enhancement strategies is recommended for maximizing returns. Making translations available may increase the representativeness of mail follow-up surveys.


---


**Presenting Author(s):**

**Ranjani Rajan**
Hawaii State Department of Health,
Honolulu, HI
ranjani.rajan@doh.hawaii.gov

**Contributing Authors**

Florentina Salvail DungHahn Nguyen Shu Liang

**Abstract ID:** 1324471 **Presentation Type:** Breakout Presentation
**Title:** Self-reported bedbug infestation among New York City residents: Prevalence and risk factors, 2009
**Committee:** Environmental Health Sub-Committee
**Topic:** Other Emerging Environmental Epidemiology Issues
**Keywords:** Emerging health issues|Epidemiology|Environmental Health

**Background:**
Since 2004, bedbug infestations have risen precipitously in urban areas. Although bedbugs have not been shown to transmit disease, bites may cause dermatological reactions and mental stress. Little is known about overall prevalence of and risk factors for infestations.

**Methods:**
In the 2009 Community Health Survey of New York City (NYC), an annual cross-sectional, representative study of non-institutionalized adults, 9,934 participants reported on bedbug infestation requiring an exterminator in the past year. We used logistic regression to model infestation with demographic, behavioral and environmental factors, and to model health outcomes with bedbugs as a predictor adjusting for possible confounders.

**Results:**
In 2009, 6.7% of individuals reported bedbug infestations. In a multivariable model, bedbug infestations were associated with age (18-24 and 25-44 vs. 65+ Adjusted Odds Ratio [AOR] 2.0, 95% Confidence Interval [CI], 1.4-2.9 and AOR 1.8, 95% CI 1.1-2.9, respectively), poverty (<200% Federal Poverty Level [FPL] vs. >=200% FPL, AOR 2.7, 95% CI 1.9-3.9), 3+ adults in household vs. 1 (AOR 1.6, 95% CI 1.1-2.4), and neighborhoods with highest poverty tertile vs. lowest (AOR 1.9, 95% CI 1.1-3.1). Living in buildings with <2 units vs. 50+ units was protective. Diabetes, asthma and depression were not associated with reported infestations.

**Conclusions:**
We found risk differences by individual, household, building and neighborhood characteristics . Exactly why risk is elevated among younger adults, low-income households and low-income communities is not well characterized.

---

**Presenting Author(s):**

**Nancy Ralph**
Urban Public Health, CUNY School of
Public Health, New York, NY
nlralph@gmail.com

**Contributing Authors**

Jones HE, PhD, CUNY School of Public Health Thorpe LE, PhD, CUNY School of Public Health

**Abstract ID:** 1327425 **Presentation Type:** Poster Presentation
**Title:** Extermination strategies reported in NYC Health and Nutrition Examination Survey, 2004: Prevalence and correlates
**Committee:** Environmental Health Sub-Committee
**Topic:** Healthy Homes
**Keywords:** Pesticides|Behavior based safety|Environmental exposures

**Background:**
Household extermination delivers the highest dose of pesticide exposure for urban residents. Professional and consumer pest-control strategies may result in different pesticide exposure risks. Despite near-universal and high-level pesticide exposure, little is known about the predictors of pest-control strategies in New York City (NYC).

**Methods:**
Study data is from the 2004 NYC Health and Nutrition Examination Surveys (NYC HANES), a cross-sectional, population-based study using a three-stage sampling scheme. Logistic regression was used to identify predictors of pesticide use overall, and of application strategy: (1) consumer-applied pesticides, (2) use of a professional exterminator, or (3) both.

**Results:**
Consumer-administered extermination was more prevalent than professional or both professional and consumer (39.9% vs. 27.8% and 15.9%, respectively). In multivariate models among those who used any extermination, consumer-administration was associated with age 60+, being black or Asian, and being widowed, divorced or single. Lower income households were more likely to use both strategies, and less likely to use professional extermination only.

**Conclusions:**
As regional and local infestation profiles change, NYC residents may benefit from targeted education on how and when to self-apply pesticides, particularly in the face of rising bedbug infestations, where consumer application is not recommended. Higher prevalence of consumer-administered and conjoint consumer and professionally administered extermination in low-income households may reflect both lack of financial resources and a higher infestation levels in poor neighborhoods. Interventions designed for reducing health risks from infestation and pesticide exposure should take these extermination practices into account.

---

**Presenting Author(s):**

**Nancy Ralph**
Urban Public Health, CUNY School of
Public Health, New York, NY
nlralph@gmail.com

**Contributing Authors**

Kelvin, EA PhD, CUNY School of Public Health

**Abstract ID:** 1357345 **Presentation Type:** Breakout Presentation
**Title:** Incidence of undiagnosed meningococcal meningitis in New York City
**Committee:** Student Section
**Topic:** Infectious Diseases
**Keywords:** Surveillance|Communicable disease|Epidemiology

**Background:**
Suspected and confirmed bacterial and viral meningitis are reportable in New York City (NYC). Prompt administration of antibiotics often renders culture tests negative. We hypothesized that up to 10% of Neisseria meningiditis (Nm) meningitis cases may be undiagnosed and reported as meningitis due to viral or other bacterial causes. We tested this hypothesis by performing additional diagnostic testing on specimens from reported meningitis cases.

**Methods:**
All reported cases of bacterial meningitis and a random sample of viral meningitis for the period March 1, 2011- February 28, 2012 were included in this investigation. We contacted hospital laboratories to obtain cerebrospinal fluid (CSF) for nucleic acid testing (NAT) performed at the New York State Wadsworth Center Laboratory. Specimens were first tested by real-time polymerase chain reaction for Nm. If the test did not detect Nm DNA, we then tested for: S. pneumoniae, H. influenzae, S. agalacticae and S. aureus. If negative, 16S rDNA sequencing was performed to identify the bacterial species. We report preliminary results from the first nine months of this investigation.

**Results:**
As of December 31, 2011, we received 185 reports of meningitis. Of 94 available specimens, 35 were bacterial culture negative at hospital laboratories and NAT found: S. pneumoniae (4), S. agalacticae (1), H. influenza (1), E. meningoseptica (1), S. maltophilia (1), Enterococcus sp. (1), NAT negative (20), pending (6). No unreported cases of Nm meningitis were detected from samples in which the hospital made another diagnosis (N=30, Pending =29).

**Conclusions:**
This investigation is part of a larger effort to determine the quality of Nm reporting. Preliminary results suggest that our surveillance system is not missing Nm diagnoses and opportunities to prevent meningococcal transmission.

---

**Presenting Author(s):**

**Arianne Ramautar**
Bureau of Communicable Disease,
New York City Department of Health,
New York City, NY
aramautar@health.nyc.gov

**Contributing Authors**

Lola Arakaki (DOHMH), Danielle Wroblewski, M.S. (NYSDOH), Michelle Dickinson, M.P.H (NYSDOH), Elizabeth Nazarian, M.T.(NYSDOH), Tanya Halse (NYSDOH), Lillian Lee, M.S. (DOHMH), Jennifer Rakeman, PhD. (DOHMH), Don Weiss, M.D., M.P.H. (DOHMH)

**Abstract ID:** 1331681 **Presentation Type:** Poster Presentation
**Title:** Extracting influenza-like illness (ILI) data from two outpatient clinic networks' electronic health record systems (EHRs)
**Committee:** Surveillance/Informatics
**Topic:** Other surveillance/informatics
**Keywords:** Electronic data |Influenza surveillance|Collaboration

**Background:**
The main objective of this project was to electronically extract ILI data from two different outpatient health networks' EHRs and to compare these data to data included in the CDC Influenza-like Illness Network (ILINet). The Chicago Department of Public Health (CDPH) assisted each network in developing and implementing their own data extraction process.

**Methods:**
CDPH consulted with CDC to obtain requirements for electronic ILI data to be included in ILINet and to determine the data validation process. To determine best practices and obstacles encountered in establishing ILI extraction processes from EHRs, CDPH contacted several state health departments that have successfully extracted EHR data to populate ILINet. CDPH worked with programmers and report analysts of the health networks to discuss and develop algorithms best suited to each EHR (i.e., EPIC and Centricity). Each network searched 'Review of Systems', 'Chief Complaint', and 'Reason for Visit' modules within their EHR. Network A used a combination of key word searches and ICD-9 codes that were consistent with CDC ILI definition. Network B used a series of SQL server queries to perform key word searches that were consistent with CDC ILI definition. Algorithms were tested and modified based on published work and feedback from the CDPH.

**Results:**
Network A has 39 clinics in the Chicago area. Of these, 13 clinics have fully implemented EPIC. Network A submitted data for the past two influenza seasons to CDC for validation. Network A has automated the reporting process and has been reporting ILI data to ILINet for an average of 2,323 patient visits per week since 10/02/2011. Network B has 28 clinics in the Chicago area using Centricity. Network B submitted data for the past three influenza seasons to CDC for validation. All clinics have been providing ILI data for an average of 5,779 patient visits per week. CDC is currently validating these data.

**Conclusions:**
Sustaining an outpatient ILI surveillance system based on manual reporting is labor intensive for public health departments and healthcare providers. Using data extracted from EHRs is a more efficient method for obtaining and reporting ILI data. By collaborating with local health departments, outpatient networks can develop and implement their own data extraction and reporting processes. Outpatient networks can also use this process as a quality feedback tool and further build syndromic surveillance activities into their EHRs.

---

**Presenting Author(s):**

**Enrique Ramirez**
Chicago Department of Health,
Chicago, IL
ramirez_enrique@cdph.org

**Contributing Authors**

Julie Morita, MD, Chicago Department of Public Health, Joan Bryar Angeletti, RN, MSN, Access Community Health Network, Anand Reddy, MD, Access Community Health Network, Nathan Taylor, MPH, MSMIS, Alliance of Chicago Community Health Services, Erin Kaleba,

**Abstract ID:** 1333041 **Presentation Type:** Poster Presentation
**Title:** Survey of state healthcare-associated infection (HAI) reporting mandates and data validation efforts
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Healthcare associated infections (HAI)|Surveillance

**Background:**
The National Healthcare Safety Network (NHSN) is a public health surveillance system that CDC's Division of Healthcare Quality Promotion (DHQP) maintains and supports as a mainstay of its healthcare-associated infection (HAI) prevention program. Since 2006 states have elected to use NHSN as the technical infrastructure by which they collected HAI data from healthcare facilities in their jurisdictions. As of January 2012, 29 U.S. states or territories use NHSN to collect HAI data that is required to be reported under a legislative mandate, but reporting requirements and data validation efforts vary greatly between states.

**Methods:**
A survey was distributed to the HAI Coordinator in each state, as well as Washington, DC and Puerto Rico. The purpose of the survey was to obtain detailed information about state mandates for HAI reporting via NHSN and to obtain detailed information about state HAI data validation activities that have been completed or are ongoing. The information collected was used to help populate tables in the 2010 state-specific standardized infection ratio (SIR) report, as well as to create datasets for other analyses and to inform future data validation guidance and planning activities.

**Results:**
All 50 states, Puerto Rico, and Washington, DC responded to the survey. Twenty nine respondents indicated that they have a state mandate to report any HAI data to the state health department using NHSN as of January 2012. Twenty eight of the 29 require reporting of central line-associated blood stream infections (CLABSIs), and 24 require reporting of surgical site infections (SSIs). All respondents that required reporting of CLABSIs required reporting from intensive care unit (ICU) locations, though several respondents also require, or have plans to require, reporting from non-ICU hospital locations. Sixteen states reported completion of any of the following validation studies of NHSN data reported prior to January 2011: data quality assessment of missing or implausible values, detection of outlier facilities (number of infections, rates, denominators), and/or an audit of medical records. Some states without mandatory reporting performed validation on NHSN data that was voluntarily shared with them by facilities. Other similarities and differences between state-specific HAI reporting mandates and data validation efforts will be presented and discussed.

**Conclusions:**
There is a great deal of variation in how state HAI surveillance programs have been implemented throughout the U.S. The results of this survey will contribute to standardization of HAI reporting and to the coordination of state and federal validation activities.

---

**Presenting Author(s):**

**Catherine Rebmann**
Centers for Disease Control and
Prevention, Atlanta, GA
csr9@cdc.gov

**Contributing Authors**

Paul Malpiedi, MPH, Centers for Disease Control and Prevention, Division of Healthcare Quality Promotion Kathryn E. Arnold, MD, Centers for Disease Control and Prevention, Division of Healthcare Quality Promotion

**Abstract ID:** 1323570 **Presentation Type:** Breakout Presentation
**Title:** Progress toward routine estimation of the seasonal burden of influenza in the United States
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Influenza
**Keywords:** Influenza surveillance|Data/Surveillance

**Background:**
The burden of influenza varies by season, and sources such as death certificate and hospital discharge data lack timeliness in estimating influenza-related hospitalizations and deaths. To provide more timely estimates of the burden of influenza-related outcomes in the United States during the 2009 H1N1 pandemic, CDC developed a probabilistic model using a series of "multipliers" which account for under-detection of influenza. We piloted the collection of additional data during the 2010/11 influenza season to recalculate the multipliers used in the model and further refine this methodology for annual estimation of the seasonal influenza disease burden in the United States.

**Methods:**
To calculate preliminary estimates for the 2010/11 influenza season, we used 2010/11 rates of laboratory-confirmed influenza hospitalization collected through the Emerging Infections Program (EIP) Influenza Surveillance Network. We extrapolated population-based EIP rates to the US population and corrected using the probabilistic approach developed in 2009 with three multipliers to estimate cases, hospitalizations, and deaths by age group. Five EIP sites collected additional data (reviews of in-hospital influenza testing practices, and physician and community surveys) to improve the accuracy of the multipliers for a non-pandemic season.

**Results:**
We calculated three multipliers to adjust the EIP surveillance data by age group. First, we developed a correction-factor for under-detection to adjust for the number of expected influenza-associated hospitalizations based on the frequency and sensitivity of in-hospital influenza testing (median: age <18 = 2.8, age 18-64 = 3.0, age 65+ = 4.4). We also estimated a ratio of deaths to hospitalizations (median: age <18 = 1%, age 18-64 = 4.4%, age 65+ = 5.9%) and a ratio of cases to hospitalizations (median: age <18 = 286, age 18-64 = 146, age 65+ = 65). From October 1, 2010 – April 30, 2011, preliminary burden estimates in the US included: 31 million influenza-associated illnesses (range: 29-33 million), with 205,000 hospitalizations (range: 193,000-213,000) and 8,800 deaths (range: 7,200-10,400).

**Conclusions:**
Timely estimates of the influenza disease burden each year provide public health officials with information to evaluate annual programs and allocate resources. Using multiplier values from the pandemic to calculate the seasonal influenza disease burden, however, could produce biased estimates if decreased public awareness of seasonal influenza led to lower levels of influenza detection and reporting. Data collected in a post-pandemic season, in multiple sites and age groups, improve our understanding of influenza detection and reporting and allow for better estimates of the annual disease burden of influenza.

---

**Presenting Author(s):**

**Carrie Reed**
Influenza Division, Centers for Disease Control and Prevention, Atlanta, GA
creed1@cdc.gov

**Contributing Authors**

Martin I. Meltzer, PhD, CDC; Pam Daily Kirley, MPH, Ruth Emerson, California Emerging Infections Program; Deborah Aragon, MSPH, Colorado Department of Public Health and Environment; Emily B. Hancock, MS, Lisa Butler, MPH, Joan Baumbach, MD, New Mexico Dep

**Abstract ID:** 1323826 **Presentation Type:** Poster Presentation

**Title:** Disparities in health behaviors related to HIV among men who have sex with men: A comparison of racial groups in Houston, Texas

**Committee:** Infectious Diseases Sub-Committee

**Topic:** HIV

**Keywords:** Behavioral health|HIV/AIDS|Sexually Transmitted Diseases

**Background:**
In Texas, the rate of people living with HIV among blacks in 2010 (852.4 per 100,000) was over four times the rate for whites (191.2 per 100,000) or Hispanics (175.4 per 100,000), and the most common exposure group (55%) was men who have sex with men (MSM). In the Houston area, the rate of living HIV cases among blacks was 1,132.6 per 100,000 and one in 32 black men between the ages of 45 and 54 years was living with HIV. About half of these men were MSM. The objectives of this study are to study the differences in health behaviors related to HIV infection among MSM within different racial groups in Houston. The wide-ranging differences in HIV rates among different racial groups of MSM may be linked to disparities in health behaviors, access to and utilization of healthcare services among these groups.

**Methods:**
Data collected for the National HIV Behavioral Surveillance project in Houston among 531 MSM in 2011 was used for this study. The cohort was divided into three racial/ethnic groups, whites, blacks and Hispanics. Chi square and other tests were performed to compare the health behaviors related to HIV infection among the three groups and if the differences are statistically significant.

**Results:**
Among racial groups, statistically significant ($p<0.05$) differences exist for having health insurance, visiting a healthcare provider in last one year, the provider offering an HIV test, ever testing for HIV, testing for Hepatitis C and B, and ever circumcised. In particular, whites (81%) were more likely to a visit healthcare provider in last 12 months compared to Hispanics (70%) or blacks (71%) ($P=0.02$). Whites (69%) were also more likely than blacks (59%) and Hispanics (56%) to have health insurance ($P=0.02$). A higher percentage of whites (95%) have ever tested for HIV than Hispanics (88%) and blacks (86%).

**Conclusions:**
Racial differences in health behaviors among men who have sex with men identified in this data may be mirrored among men who have sex with men with new HIV diagnoses. The disparities in new HIV diagnoses in Houston area appear to reflect racial differences in health behaviors among men who have sex with men. The lower prevalence of health behaviors and use of healthcare facilities among MSM of minority groups may account for higher HIV rates among these groups and needs to be further investigated.

---

**Presenting Author(s):**

**Hafeez Rehman**
Epidemiology, Houston Department of Health and Human Services, Houston, TX
Hafeez.Rehman@houstontx.gov

**Contributing Authors**

Marcia Wolverton, MPH, Houston Department of Health and Human Services. Karen Chronister PhD, Houston Department of Health and Human Services.

**Abstract ID:** 1323870 **Presentation Type:** Poster Presentation
**Title:** Mortality differences of male AIDS patients with time-to-event analysis in Houston/Harris County, 2000-2009
**Committee:** Infectious Diseases Sub-Committee
**Topic:** HIV
**Keywords:** HIV/AIDS|Infectious Diseases|Chronic diseases

**Background:**
Pneumocystis Jiroveci Pneumonia (PJP) was the most common opportunistic infection among AIDS patients during the pre-HAART era. The advent of HAART witnessed a decrease in PJP incidence. PJP among individuals with unknown HIV infections, non-compliant patients and individuals with restricted or no access to medical care remains a public health concern. Given the predominance of the HIV/AIDS epidemic among the MSM risk group, understanding the morbidity and mortality of MSM and non-MSM males is critical to the development of effective interventions.

**Methods:**
In this retrospective study, we collected morbidity and mortality data of male AIDS patients from 2000 to 2009 in Houston, TX. HDHHS Researchers completed time-to-event analysis and compared the mortality of patients diagnosed with or without PJP. Researchers divided the cohort into two groups, MSM and non-MSM. The non-MSM group includes males who reported injection drug use, heterosexual transmission, and other/undisclosed risk. Researchers also analyzed the concurrent diagnoses of HIV and AIDS within 30 days and the concurrent diagnoses of AIDS and PJP within 30 days among three race/ethnicity groups, white, African American and Hispanic people.

**Results:**
The relative risk for mortality with time-to-event regression analysis is 1.6 times higher for patients diagnosed with PJP than patients without PJP (P=0.008; 95% C.I = 1.12 - 2.14). The competitive risk analysis shows significantly higher mortality among non-MSM versus MSM AIDS patients (1.3; 95% C.I = 1.16 - 1.50). Concurrent diagnosis of HIV and AIDS within 30 days is higher among Hispanics (78%) compared to whites (59%) and African American people (62%). The concurrent diagnosis of PJP and AIDS is also higher for Hispanic people (87%) compared to white people (82%) and African American people (77%).

**Conclusions:**
These findings indicate the importance of continued monitoring of HIV cases for diagnoses of PJP, especially among non-MSMs. Although detection of PJP is an important priority among all HIV patients, surveillance efforts should be devoted to focus PJP among non-MSM patients. The findings also suggest enhanced testing and treatment programs for Hispanic males who have higher rates of concurrent diagnoses of HIV with AIDS or PJP, who are unaware of their HIV infections, who fail to access medical care, and who fail to adhere to treatments or prophylaxes.

---

**Presenting Author(s):**

**Hafeez Rehman**
Houston Department of Health and
Human Services, Houston, TX
Hafeez.Rehman@houstontx.gov

**Contributing Authors**

James Gomez, MPH; Houston Department of Health and Human Services. Karen Chronister PhD; Houston Department of Health and Human Services. Marcia Wolverton, MPH.Houston Department of Health and Human Services.

**Abstract ID:** 1331867 **Presentation Type:** Poster Presentation
**Title:** Impact of outliers of weight on health indicator estimates at county level – Florida 2010 BRFSS data analyses
**Committee:** Surveillance/Informatics
**Topic:** General surveillance topics
**Keywords:** Surveillance|Chronic diseases|Research

**Background:**
The 2010 Florida behavioral risk factor surveillance system (BRFSS) was designed to estimate health indicator at county level. About 500 households were sampled at each county among landline phone uses. However, due to the residential movement together with the phone numbers, some participants with phones originally registered at one county with a high-density population would result in extreme large weights when they actually lived in another county with a low-density population, which would result in the incorrect estimates due to chance. This study is to evaluate impact of outliers of weight on health indicator estimates in Florida.

**Methods:**
The outliers of original weights in 2010 Florida BRFSS were identified using 99 percentiles as cutoffs in individual counties. The data were re-weighted to make the distributions the same as the population at the own counties based on age, gender and ethnicity/race. The new weights were used to estimate health indicators.

**Results:**
Among 67 counties, 31 counties had observations with weights beyond 99 percentiles. Three counties had the 1 largest observation whose weight was over 10 percent of total weights in their own counties and 7 counties had 2 observations whose weights were over 10% of the total weights. After reweighting, the estimates of health indicators were changed significantly in some counties. For example, prevalence of asthma for life time among adults in a county was 22.2% using original weights and 25.2% using reweighted weights.

**Conclusions:**
Outliers of weights significantly impacted health indicator estimates for BRFSS survey at county level.

---

**Presenting Author(s):**

**Cizao Ren**
Bureau of Epidemiology, Florida
Department of Health, Tallahassee, FL
rencizao@yahoo.com

**Contributing Authors**

Bonnie Yu, MS, MAS, Kimberly Cohen, JD, MSW, Youjie Huang, MD, Dr.PH, Bureau of Epidemiology, Florida Department of Health

**Abstract ID:** 1322315 **Presentation Type:** Breakout Presentation
**Title:** Evaluation of a state-based cervical cancer screening and diagnosis program—Indiana, 2009
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Evaluating CD/MCH/OrH programs
**Keywords:** Cancer|Program evaluation|Screening

**Background:**
Cervical cancer is almost entirely preventable. However, during 2004–2008, 1,291 diagnoses and 423 deaths occurred among Indiana females. The Indiana Breast and Cervical Cancer Program (BCCP) funds cervical cancer screening (i.e., Pap tests) and diagnostic testing for women ages 40–64 years, ?200% of poverty, and uninsured or underinsured. We evaluated this program to explore factors impacting diagnostic follow-up and target group appropriateness.

**Methods:**
We defined a case as a Pap test result of a "high-grade" lesion [i.e., high-grade squamous intraepithelial lesion (HSIL); atypical glandular cells of undetermined significance; atypical cells of undetermined significance (ASCUS), cannot exclude HSIL] or "low-grade" lesion [i.e., low-grade squamous intraepithelial lesion; ASCUS] among a BCCP-sponsored patient during 2009. We assessed risk factors' impact on diagnostic follow-up and timeliness using BCCP records from January 1, 2009–March 1, 2010. We queried the Indiana State Cancer Registry to determine age groups most at risk for cervical cancer during 2004–2008.

**Results:**
During 2009, 4,069 BCCP-sponsored patients were screened; one received an immediate cancer diagnosis and 285 cases were identified as high-grade (18.2%) or low-grade (81.8%). Of the 285 cases, 37.9% received follow-up diagnostic testing, including 82.7% of high-grade and 27.9% of low-grade cases and 41.5% of cases among whites and 18.9% among non-whites. Timeliness between screening and diagnostic testing (median = 46.5 days, range: 0–327 days) was highly correlated (R2 = 0.80) with driving distance to diagnostic clinic and most impacted by residence location [urban (42.7 days) versus rural (55.1 days)]; receiving both tests at same or different clinics (40.1 versus 53.2 days, respectively); and whether screening clinics were considered high (performed ?50 tests during 2009) or low volume (39.9 versus 54.9 days, respectively). Overall, 77.8% of high-grade and 44.6% of low-grade cases with follow-up diagnostic testing were identified as being precancerous or cancerous. In Indiana, the two age groups most at risk for cervical cancer were 30–39 and 40–64 year olds (20.7% and 53.6% of diagnoses, respectively).

**Conclusions:**
During 2009, the Indiana BCCP identified 65 women with precancerous or cancerous cervical conditions. To improve service and coverage they should consider actions that: improve follow-up status among non-white populations and patients with low-grade Pap results, almost half, of which, were precancerous or cancerous upon diagnostic follow-up; increase recruitment of high volume clinics that provide both screening and diagnostic services; improve rural area access; and expand coverage to include 30–39 year olds.

---

**Presenting Author(s):**

**Matthew Ritchey**
Indiana State Dept of Health
(Assignee), Centers for Disease
Control and Prevention, Indianapolis,
IN
hha7@cdc.gov

**Contributing Authors**

Christopher Waldron, GISP, Indiana State Department of Health; Erin Triplet, MPH, Indiana State Department of Health

**Abstract ID:** 1322333 **Presentation Type:** Breakout Presentation
**Title:** Determining Ozone's Impact on Asthma Emergency Department Rates Using Concentration-Response Functions Reported in the Literature—Indianapolis Metropolitan Statistical Area, 2007–2009
**Committee:** Environmental Health Sub-Committee
**Topic:** Air/Water quality related to environmental epidemiology and health
**Keywords:** Air quality|Asthma|Children and adolescents

**Background:**
Increased ozone levels have been shown to exacerbate asthma symptoms and lead to increased emergency department (ED) encounters. Public health departments often lack capacity to develop complex statistical models to explain local relationships between air quality (e.g., ozone) levels and chronic disease events (e.g., asthma exacerbations). Therefore, we explored using concentration-response (CR) functions reported in the literature for other communities to estimate the potential number of asthma ED encounters prevented had ozone levels been reduced in the Indianapolis Metropolitan Statistical Area (Indy-MSA).

**Methods:**
We defined a case as an ED encounter by an Indy-MSA resident, 5–17 years of age, with an International Classification of Diseases (9th Revision) code of 493 within the first three diagnoses fields of the Indiana Hospital Discharge Database that occurred during April–September of 2007–2009. We selected Strickland's CR function (Atlanta, 2010) because the study's demographic characteristics, air pollution patterns (e.g. number of unhealthy air days), and geographic area (e.g., large urban center with surrounding suburbs) were similar to the Indy-MSA's. We inputted daily eight-hour maximum ozone concentrations obtained from 12 regional monitors into the Environmental Benefits Mapping and Analysis Program [BenMAP] (U.S. Environmental Protection Agency, Version 4.0.35) to determine the inverse-distance weighted average values for the Indy-MSA's 128 zip codes. These values, in addition to zip code-level population density and average daily asthma ED rates and Strickland's CR function, were used in BenMAP to calculate and map the estimated number of cases prevented if 10% or 25% ozone level reductions occurred throughout the Indy-MSA and in each zip code.

**Results:**
Overall, 9,033 cases were identified. During 2007–2009, a 10% or 25% ozone reduction in the Indy-MSA would have prevented an estimated 99 or 244 cases, respectively, and, annually, an estimated 0–6 cases per zip code. The greatest number of prevented cases would have occurred in southeast Marion County.

**Conclusions:**
During 2007–2009, 10–25% ozone level reductions in the Indy-MSA would have prevented upwards of 3% of the asthma ED visits among children ages 5–17 years. While this methodology is limited by the assumptions made about the similarities between the reference and local populations, it allows for a relatively simple mechanism to calculate local ozone-related asthma ED burden estimates using CR functions reported in peer-reviewed studies. A sensitivity analysis or a comparison of these results to an Indy-MSA-specific model should be conducted to explore the validity of this methodology.

---

**Presenting Author(s):**

**Matthew Ritchey**
Indiana State Dept of Health
(Assignee), Centers for Disease
Control and Prevention, Indianapolis,
IN
hha7@cdc.gov

**Contributing Authors**

Christopher Waldron, GISP, Indiana State Department of Health

**Abstract ID:** 1323894 **Presentation Type:** Breakout Presentation
**Title:** Association of patterns of HIV primary care on durable viral suppression
**Committee:** Infectious Diseases Sub-Committee
**Topic:** HIV
**Keywords:** HIV/AIDS


**Background:**
Federal guidelines recommend timely initiation of HIV primary care after diagnosis, regular primary care visits with monitoring of CD4 lymphocytes and viral load (VL), and initiation of antiretroviral therapy at specified thresholds. A consistently suppressed VL is associated with reduced morbidity and a lower probability of transmitting HIV to partners. The objective of this analysis was to describe the relationship between care patterns and durable viral suppression in New York City (NYC).

**Methods:**
The population analyzed included persons diagnosed July 1, 2005, to June 30, 2009, residing in NYC, having at least 2 VL measures from July 1, 2005 to March 31, 2011, achieving virologic suppression (defined as a VL ? 400 copies/mL during July 1, 2005 to March 31, 2011) and reported to the NYC HIV/AIDS surveillance registry as of March 31, 2011. Durable suppression was defined as no VL > 1,000 copies/mL after initial virologic suppression. Continuous regular care was defined as 2 VL measures at least 3 months apart in the first and second years after diagnosis. Predictors of failure to achieve and maintain durable suppression, identified through univariate methods, were entered by backward elimination into a logistic regression model.

**Results:**
Overall, 10,184 persons were included in the analysis; 68% maintained continuous care; and 68 % had durable suppression. Failure to achieve durable suppression was associated with not maintaining continuous care (adjusted Odds Ratio (aOR) 1.4, 95% Confidence Interval (CI) 1.3, 1.6) versus maintaining continuous care.

**Conclusions:**
One third of people with HIV failed to maintain a suppressed VL. Persons who do not receive continuous care have a greater odds of not having durable suppression. Public health interventions that support patients in keeping their appointments may facilitate sustained viral suppression, reducing morbidity from and transmission of HIV.


---


**Presenting Author(s):**

**McKaylee Robertson**
Bureau of HIV Prevention and Control,
New York City Department of Health
and Mental Hygiene, New York City ,
NY
mckayleerobertson@gmail.com

**Contributing Authors**

Fabienne Laraque MD, MPH; Heather Mavronicolas PhD, MPH; Sarah Braunstein PhD MPH; and Lucia Torian PhD: New York City Department of Health and Mental Hygiene

**Abstract ID:** 1326859 **Presentation Type:** Breakout Presentation
**Title:** H3N2 swine origin influenza A – Maine, 2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Influenza
**Keywords:** Influenza surveillance|Veterinary Public Health|Emerging diseases

**Background:**
Maine detected two cases of H3N2 swine origin influenza A in October, 2011. These cases were the 7th and 8th cases of infection with this particular influenza A H3 virus in the United States in 2011. The first case became symptomatic on 10/7, and the second case on 10/22. Both cases were confirmed as triple reassortant influenza A(H3N2) with the 2009 pH1N1 matrix gene by federal CDC. Both cases had significant swine exposure.

**Methods:**
Maine Center for Disease Control and Prevention and the Maine Department of Agriculture immediately began human and animal contact investigations. To determine if there was person to person transmission, we recommended any close contacts with influenza-like illness be tested by PCR. We advised families and close contacts to watch for illness and get PCR testing if they became symptomatic. We notified the schools both cases attended and recommended enhanced surveillance as well as PCR testing for ill individuals. The Department of Agriculture contacted eight swine exhibitors to determine if they had any ill pigs, as well as to inquire about any ill human family members or animal workers. Ill pigs were swabbed for influenza, and ill humans were recommended to see their provider for PCR testing. A health alert was sent state-wide to recommend influenza testing by PCR, and to improve awareness of the novel strain.

**Results:**
There were no ill contacts of either case patient who tested positive for influenza. All ill individuals with swine exposure who were tested for influenza tested negative. Two pigs that were swabbed for influenza were inconclusive, all others tested negative.

**Conclusions:**
Identification and case investigations around novel influenza can be complicated and require good interstate agency collaboration. We were unable to document human to human transmission, although we identified multiple persons with influenza like illness. PCR testing is necessary to identify novel strains of influenza, and should be encouraged. Agricultural sampling is also challenging. We were unable to isolate influenza from any ill pig, Increased awareness and increased testing among both human and animal providers is important to help monitor for potential novel influenza strains.

---

**Presenting Author(s):**

**Sara Robinson**
Maine Center for Disease Control and
Prevention, Augusta, ME
sara.robinson@maine.gov

**Contributing Authors**

Stephen Sears, MD. MPH. Maine DHHS Lauren Ball, DO, MPH, Maine DHHS Peter Smith, PhD, Maine DHHS Donald Hoenig, VMD, Maine Department of Agriculture Katherine Colby, MPH, Maine DHHS and USM Heidi Mallis, MPH, Maine DHHS and USM Brian Bernier, MPH, Maine D

**Abstract ID:** 1308700 **Presentation Type:** Poster Presentation
**Title:** Eastern equine encephalitis in Maine, 2009-2010
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Vectorborne
**Keywords:** Emerging infections|Vectorborne disease|Arbovirus

**Background:**
Eastern equine encephalitis (EEE) is a rare but serious arboviral disease. This virus is transmitted through the bite of an infected mosquito. Approximately 1/3 of all people who acquire this disease will die, and a remaining 1/3 will have long term neurological problems. In 2009, Maine experienced a EEE outbreak among non humans including 15 horses, 1 llama, 3 flocks of pheasants and 2 pools of mosquitoes. The outbreak in 2009 demonstrated a wider range than was previously expected. In order to determine the extent of the range of EEE in Maine, Maine CDC partnered with federal CDC and Maine Medical Center Research Institute (MMCRI)'s vector borne lab to conduct a deer serosurvey.

**Methods:**
During the fall of 2009 and 2010 volunteers manned tagging stations across the state. In 2009 sampling was limited to white tail deer, but in 2010 sampling increased to include moose. Volunteers took samples of blood from the animal's body cavity, or extracted blood from the heart if available, and had the hunter mark the spot of the kill on a map. Federal CDC analyzed the blood samples for EEE by Plaque Reduction Neutralization Test (PRNT), and geocoded the location of the kill.

**Results:**
In 2009, 226 deer were sampled and 20 tested positive for EEE (8.85%). In 2010, 335 deer were sampled and 45 tested positive for EEE (13.6%); and 145 moose were sampled with 15 testing positive for EEE (10.3%). Samples were collected from 15 of Maine's 16 counties, and positives were found in 10 counties

**Conclusions:**
Through this serosurvey project we learned that the risk area for EEE is far larger than originally thought. This information allowed Maine CDC to expand our educational efforts statewide. Further serosurveys are in progress or are planned to better understand the risks for EEE in Maine.

---

**Presenting Author(s):**

**Sara Robinson**
Infectious Disease Epidemiology,
Maine Center for Disease Control and
Prevention, Augusta, ME
sara.robinson@maine.gov

**Contributing Authors**

Charles Lubelczyk, Maine Medical Center Reserach Institute. Lee Kantar, Maine Department of Inland Fisheries and Wildlife.

**Abstract ID:** 1332863 **Presentation Type:** Poster Presentation
**Title:** Near-real time surveillance of influenza vaccine uptake with an immunization registry: Lessons learned and future potential
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Generating and using county and local-level data for CD/MCH/OrH epidemiology
**Keywords:** Immunization|Influenza surveillance|Epidemiologic methods


**Background:**
The ability to effectively respond to a pandemic or outbreak scenario is directly impacted by the ability to produce timely assessments of vaccination uptake in a population. The Oregon ALERT Immunization Information System (ALERT IIS) is a population-based immunization registry. ALERT expanded to adults in 2006 and presently contains immunization records for over 1.3 million adults. For current Oregon residents, over 92% of children, (18 and under) and 49% of adults have immunizations in ALERT. To assess the feasability of using a state IIS for near real-time surveillance in future pandemic or outbreak scenarios, a study of influenza vaccination uptake was initiated in ALERT for the 2011-2012 season.

**Methods:**
The primary objective of this study was to evaluate the ALERT IIS's ability to provide near real-time influenza uptake estimates for the 2011-2012 influenza season. This was accomplished by pulling seasonal influenza vaccination running totals by immunization date, age, gender and county of residence on a refreshed weekly basis across the 2011-2012 influenza vaccination period; with new comparisons for the entire season made with each weekly pull. Secondarily, a method for correcting for lagged reporting for weekly totals was explored by comparing the ratio of counts across selected reference non-influenza vaccinations for matched weeks of the current influenza season to the prior season (2010-2011).

**Results:**
This study found that ALERT data consistently measured trends in seasonal influenza vaccine uptake when a four week delay in reporting was employed. All weekly results beyond the week of Oct 22nd to 29th indicated that weekly vaccine receipt peaked during the week of Oct 9th to 15th. The reference comparison of non-influenza vaccinations also suggested that lagged report effects stabilized substantially after four weeks; with a one week lag in reporting, measurable immunization levels were low by a factor of 3.2; for a 4 week lag this factor declined to 1.3, and by 8 weeks to 1.2. Adjusting for lag in reporting allowed for consistent reporting of changes in influenza vaccine uptake with less than a four week lag from the present.

**Conclusions:**
The ALERT IIS was able to produce near real-time estimates of influenza vaccination uptake. WIth adjustment for lag, consistent estimates of trend and comparitive ratios among populations were obtained with a two to four week lag from the present. However developing point estimates for rates instead of comparative ratios requires further study. Further improvements in adult data capture will improve this capacity.


---


**Presenting Author(s):**

**Steve Robison**
Immunization Program, Oregon
Department of Human Services,
Portland, OR
steve.g.robison@state.or.us

**Contributing Authors**

Deborah Rochet, Oregon Health Division, Immunization Program

**Abstract ID:** 1315187 **Presentation Type:** Breakout Presentation
**Title:** Bordetella holmesii epidemiology during an outbreak of pertussis-like illness — Ohio, 2010–2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Laboratory test methods & their impact on surveillance
**Keywords:** Outbreak investigations |Respiratory diseases: Non-influenza|Emerging infections

**Background:**
During May 2010–May 2011, Franklin County, Ohio experienced an outbreak of pertussis with an incidence of 80/100,000 persons. The majority of cases were identified by a highly sensitive single-target polymerase chain reaction (PCR) (IS481) that does not differentiate among Bordetella species.

**Methods:**
We described the outbreak and conducted additional diagnostic testing to confirm etiology. We ascertained cases by using the Council of State and Territorial Epidemiologists case definition, and evaluated demographics, clinical features, and vaccination status. We tested sera for antipertussis toxin antibodies and used multitarget PCR to differentiate among Bordetella species.

**Results:**
Reported cases totaled 918; 5/10 samples tested had discordant serology and IS481 PCR results, indicating that B. holmesii might be the etiologic agent. Of 298 specimens tested by multitarget PCR, B. pertussis and B. holmesii were detected among 138 (46%) and 53 (18%), respectively; 5 (2%) registered both. Among 53 patients with B. holmesii, 60% were aged 11–18 years, compared with 34% of 138 patients with B. pertussis ($P < .001$). Pertussis symptoms were similar among B. holmesii and B. pertussis cases; paroxysms, 88% versus 81%; posttussive vomiting, 44% versus 38%; and whoop, 23% versus 20%, respectively. Among patients aged 11–18 years with B. holmesii, 18/31 (58%) had received an adolescent pertussis booster, compared with 20/45 (44%) patients with B. pertussis ($P = .24$).

**Conclusions:**
We report the first documented mixed outbreak of B. pertussis and B. holmesii, with B. holmesii particularly affecting adolescents. Influence of B. holmesii on public health is undetermined; routine use of multitarget PCR for clinical diagnosis might be nonfeasible, but limited use through enhanced surveillance activities might improve understanding of B. holmesii burden.

---

**Presenting Author(s):**

**Loren Rodgers**
CDC/Ohio Department of Health,
Columbus, OH
izj8@cdc.gov

**Contributing Authors**

Amanda Cohn, MD 1; Stacey Martin, MSc 1; Thomas Clark, MD, MPH 1; Andrew Terranella, MD, MPH 1; Sema Mandal, MD 1; Londell McGlone MPH 1; Lucia Tondella, PhD 1; Lucia Pawloski, PhD 1; Kathi Tatti, PhD 1; Jeremy Budd, BS 2; Mario Marcon, PhD 3; Kevin Spice

**Abstract ID:** 1333092 **Presentation Type:** Breakout Presentation
**Title:** Impact of inclusion of Indian Health Service hospitalizations on surveillance of alcohol-related chronic disease hospitalizations in New Mexico
**Committee:** Cross Cutting Sub-Committee
**Topic:** Substance abuse epidemiology: Burden of alcohol and opiate use, Polices related to substance abuse
**Keywords:** Alcohol|Chronic diseases|Data sharing

**Background:**
The burden of alcohol-related chronic disease (ARCD) mortality in New Mexico (NM) has been well-characterized using Vital Statistics data. These data show particularly high rates of ARCD mortality in the northwest region of the state, driven by high mortality rates in the American Indian/Alaskan Native (AI/AN) population. Until recently, surveillance of ARCD morbidity has been hampered by the exclusion of Federal hospital discharges from the NM Hospital Inpatient Discharge Dataset (HIDD). NM's ARCD hospitalization rate has been underestimated, particularly in the Northwest region and among the AI/AN population. Recently the state health department entered into data-sharing agreements with the Indian Health Service (IHS) that have enabled its use of hospitalization data from IHS hospitals in NM. This paper will present preliminary analyses of ARCD hospitalizations using combined HIDD and IHS data.

**Methods:**
New Mexico HIDD, Albuquerque Area IHS, and Navajo Area IHS hospital discharge datasets were combined. The IHS datasets included all discharges from seven IHS hospitals in NM. One year of combined hospitalization data (2009) was analyzed. International Classification of Disease (ICD-9) codes in the primary diagnosis field were used to determine whether the discharge was associated with ARCD, as defined by the CDC's Alcohol-Related Disease Impact (ARDI) site. ARDI alcohol-attributable fractions were used to estimate ARCD hospital discharges; and post-censal population estimates were used to calculate ARCD hospital discharge rates. The impact of the inclusion of IHS hospitalizations on NM ARCD rates by age, sex, race/ethnicity, and region was assessed.

**Results:**
In 2009, inclusion of IHS hospital discharges added 11,059 (5.4% more) all-cause and 226 (7.1% more) ARCD hospital discharges. The combined (HIDD plus IHS) ARCD hospital discharge rate was 7.3% higher than the HIDD-only rate. Inclusion of IHS hospital discharges increased the statewide AI/AN ARCD rate by 50.2% (59.6% among males, 31.2% among females); the northwest region ARCD rate by 29.0%; and the northwest region AI/AN ARCD rate by 71.0%. The ARCD rate ranking of the two largest northwest NM counties increased from 10th to 2nd and 28th to 17th, respectively. This inclusion added a substantial number of discharges for several leading causes of ARCD hospitalization (alcoholic psychosis, alcohol dependence, alcohol abuse); but few for the second-leading cause of ARCD hospitalization (and leading cause of ARCD mortality) alcohol-related chronic liver disease.

**Conclusions:**
Inclusion of IHS data adds substantially to completeness of ARCD surveillance in New Mexico, correcting previous underestimates of serious ARCD morbidity by race/ethnicity and region. Cross-agency collaboration can facilitate data-sharing that supports inclusion of Federal hospital discharge data in state surveillance efforts.

---

**Presenting Author(s):**

**Jim Roeber**
Epidemiology and Response Division,
New Mexico Department of Health,
Santa Fe, NM
jim.roeber@state.nm.us

**Abstract ID:** 1328194 **Presentation Type:** Breakout Presentation
**Title:** That must have been some toothache! Establishing state-based epidemiologic surveillance of dental complaints in emergency departments
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Oral health epidemiology
**Keywords:** Oral health|Data/Surveillance|Injury surveillance

**Background:**
Pain from toothaches represents a significant problem. People lacking access to private dental services may use hospital emergency departments (EDs) for both traumatic and non-traumatic dental care. Prior studies indicate that ED visits and hospital admissions for dental problems have been increasing and that the majority of dental problems are non-traumatic in nature. As part of establishing an ongoing epidemiologic surveillance system for oral health, we determined baseline incidence and characteristics of both traumatic and non-traumatic dental emergencies that present to Minnesota's EDs

**Methods:**
We used statewide Minnesota hospital treatment and discharge data. Hospital treated cases were identified using ICD-9-CM diagnostic codes, V-codes, and procedure codes. Using 2007-2011 data, we describe non-traumatic dental related complaints. We also analyzed the incidence and characteristics of trauma related dental data, beginning in 1998.

**Results:**
Bivariate and multivariate analyses of the data will be presented. Results include calculation of risk ratios and trends of selected population groups presenting to the ED.

**Conclusions:**
Oral pain from toothache and other causes is a significant problem. Prior studies indicate that ED visits and hospital admissions for dental problems have been increasing and that most are non-traumatic in nature. EDs are an important point of care for dental-related complaints, particularly for individuals who lack private insurance. ED providers regularly triage, diagnose, provide basic treatment, and ensure appropriate follow-up care for dental problems. More training for emergency medicine providers about the importance of dental care during and after ED visits is needed. Use of risk ratios allow identification of high risk groups that may benefit from targeted interventions and early and ongoing preventative dental care.

---

**Presenting Author(s):**

**Jon Roesler**
Center for Health Promotion,
Minnesota Department of Health, St.
Paul, MN
jon.roesler@state.mn.us

**Contributing Authors**

Ayo Adeniyi, MBBS, MPH, Minnesota Department of Health Colette Che, RN, BSN, Minnesota Department of Health

**Abstract ID:** 1328174 **Presentation Type:** Breakout Presentation
**Title:** Is it the boomers and their harleys?Increasing trends in motorcycle crash injury
**Committee:** Injury Control and Prevention Sub-Committee
**Topic:** Injuries resulting from motor vehicle or other transportation modes
**Keywords:** Injury surveillance|Motor vehicles|Surveillance

**Background:**
Motorcycles are the most dangerous type of motor vehicle to drive. Nationally, these vehicles are involved in fatal crashes at a rate of 35.0 per 100 million miles of travel, compared with a rate of 1.7 per 100 million miles of travel for passenger cars. The National Highway Traffic Safety Administration (NHTSA) has noted an increasing trend in the numbers of motorcycle deaths in recent years, especially among persons aged >40 years. Motorcycle crashes are also a leading cause of mortality, morbidity, and disability for children and teens. From 1997-2006 the number of licensed motorcycle operators in Minnesota increased by 20%, roughly proportionate to the growth in population. However, during the same time period the number of licensed motorcycles increased by 75% and the number of fatalities increased by 183%. A better understanding of the problem of motorcycle crashes is needed to address this rapidly growing problem.

**Methods:**
A NHTSA-funded Crash Outcomes Data Evaluation System (CODES) project was implemented in Minnesota. Under CODES, motor vehicle traffic crash data for individuals (provided by law enforcement) are linked with hospital emergency department (ED) / inpatient treatment information. Other data are linked as well, including the vehicle characteristics, traumatic brain registry outcomes, and trauma center data. For this investigation, the 2004-2005 CODES data for traffic crashes involving motorcycles was examined, as well as hospital data going back to 1998, the traumatic brain and spinal cord injury registry going back to 1993, and death certificate data going back to 1990.

**Results:**
The results provide insight and update into the continued increasing trend in motorcycle rider mortality, morbidity, and disability. The results will explore in detail the interaction between operator age, speed, and injury severity with the type and manufacturer of motorcycles. We will look at how these variables impact longer term outcomes. Additional variables examined and discussed include hospital charges, helmet use, speed, time to the hospital, type of crash, and road and weather conditions.

**Conclusions:**
This analysis will provide both epidemiologic understanding and potential policy implications. Attendees will be able to identify those risk factors, both behavioral (such as helmet and alcohol usage) and immutable (such as age and gender), and their impact on hospital charges. Discussion will include possible policy, educational, enforcement and other interventional strategies incorporating these findings.

---

**Presenting Author(s):**

**Jon Roesler**
Minnesota Department of Health, St.
Paul, MN
jon.roesler@state.mn.us

**Contributing Authors**

Leslie Seymour, MD, MPH, Minnesota Department of Health Anna Gaichas, MS, Minnesota Department of Health Ayo Adeniyi, MBBS, MPH, Minnesota Department of Health Mark Kinde, MPH, Minnesota Department of Health

**Abstract ID:** 1324355 **Presentation Type:** Breakout Presentation
**Title:** Using a maternally-linked longitudinal birth dataset for program planning
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Generating and using county and local-level data for CD/MCH/OrH epidemiology
**Keywords:** Local epidemiology


**Background:**
In 2007 the city of Racine, Wisconsin, began a local home visiting initiative to address disparities and reduce fetal and infant mortality and morbidity by serving high-risk pregnant women. In the fall of 2011, program caseload targets and enrollment priority categories were reviewed, requiring an estimate of the potential pool of high-risk women (those with a prior poor birth outcome) in the target geographic area. The only documentation of prior negative outcome on birth certificates is for preterm birth and has been shown to be an underestimate.

**Methods:**
An existing linked dataset of Wisconsin births to the same mother across time (1998-2009) was used to estimate the number of women giving birth in 2009 who would have qualified as the highest priority for enrollment in this program: non-Hispanic black pregnant women residing in 5 target zip codes who had a prior poor birth outcome. Each prior birth with a negative outcome (preterm, low birthweight, or infant death as noted on the birth certificate) was identified. All non-Hispanic black 2009 births to residents of the target zip codes with a linked prior poor outcome or documentation of "prior preterm birth" on the current certificate were considered to have been eligible for the highest priority enrollment.

**Results:**
Out of 420 births to non-Hispanic black women in the target zip codes in 2009, 82 women (20%) were identified who would have qualified for the highest priority enrollment group. Only 40% (N=33) of the identified target population would have been counted without the linked file. The prior preterm birth certificate indicator missed about half (49%) of the total prior preterm births identified using both methods (N=65), although 11 women (17%) with prior preterm births were identified only by the birth certificate indicator and not in the linked file. These findings were used to inform overall caseload targets for the home visiting program, as well as to set minimum thresholds for the proportion of enrollees who should come from the highest risk priority group.

**Conclusions:**
Maternally-linked birth certificate data provide a more complete estimate of women who have had a prior poor outcome than unlinked birth certificates alone. Such data can be used to inform program development and operations. The above results are likely a conservative estimate of eligible women because the method did not fully capture all prior poor outcomes, specifically infant deaths not noted on the birth certificate, fetal losses, and births that occurred outside of Wisconsin.


---


**Presenting Author(s):**

**Angela Rohan**
Wisconsin Department of Health and
Family Services, Madison, WI
angela.rohan@dhs.wisconsin.gov

**Contributing Authors**

Richard Miller, MS, Wisconsin Division of Public Health Jessica Seay, MPH, Wisconsin Division of Public Health

**Abstract ID:** 1366649 **Presentation Type:** Roundtable Presentation
**Title:** Disaster Epidemiology at CSTE
**Committee:** Environmental Health Sub-Committee
**Topic:** Disaster epidemiology: tools, data, experiences, and challenges
**Keywords:** Disasters|Epidemiology

**Brief Summary:**
The Disaster Epidemiology Subcommittee of CSTE will report on the recent national workshop and share findings from the regional training that brought together representatives from state and local epidemiologists to learn about disaster epidemiology generally and 1) rapid needs assessment, 2) responder tracking before, during and post deployment, and 3) response approaches to chemical or radiological release events, specifically. We will also discuss future directions and efforts to help jurisdictions improve their response capabilities and identify ways to engage epidemiologists across subject matter disciplines and in collaboration with academic and emergency management partners.

**Key Objectives:**
During this session, participants will be able to:: -Define disaster epidemiology -Discuss the outcomes of the inaugural disaster epidemiology regional training and national disaster epidemiology workshop -Learn about training opportunities and tools available for disaster epidemiology and surveillance

---

**Presenting Author(s):**

**Rachel Roisman**
California Department of Public Health, Richmond, CA
Rachel.Roisman@cdph.ca.gov

**Michael Heumann**
Lead Consultant, Portland, OR
heumannhealth@gmail.com

**Abstract ID:** 1331968 **Presentation Type:** Poster Presentation
**Title:** Viral hemorrhagic fevers (VHF): Laboratory diagnosis timing and interpretation
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Zoonoses
**Keywords:** Emerging infections|Zoonotic disease

**Background:**
In regions where hemorrhagic fever (HF) viruses (including Ebola, Marburg, Lassa, Machupo, and Crimean-Congo HF) are endemic and/or have caused outbreaks previously, the index of suspicion for HF viruses as etiologic agents is often high. In such settings, experienced clinicians may be remarkably accurate in rendering correct clinical diagnoses for fully developed cases. However, confirming early clinical impressions or atypical clinical cases requires further, specific virologic and serologic testing, as other local diseases can mimic VHF infections. Early recognition of VHF infection is valuable, as it can trigger strict isolation procedures, thus preventing or limiting the spread of disease, and allowing specific treatment, when available, to be initiated early in the infectious process.

**Methods:**
In well-known and newly described HFs, a correct understanding of the order of appearance and persistence of RNA, antigen, virus, antibodies in blood, secretions, tissues over the period of the infectious process, as well as accurate knowledge of a patient's clinical status, is important to understand and interpret laboratory results. A combination of several laboratory techniques should be used to confirm any clinical suspicion of HF. Since patients with most of the severe and fatal forms of these diseases can die without developing detectable levels of antibody, timely diagnosis requires a means of detecting infectious virus, RNA or antigen. Because of the time required for culture and the associated biohazard, virus isolation data for these viruses are usually available only retrospectively. The amplification and sequence of viral genome are certainly the most sensitive assays, assuming that the primers "match" with an eventual new virus. The antigen-capture ELISAs seem to be less strain-specific and readily detect antigen during the obvious clinical phase of disease.

**Results:**
For the filoviruses (Ebola, Marburg), a combination of antigen detection, classical or real-time PCR, and IgM titer is optimal for accurate diagnosis of acute-cases. Later on, a rising IgM or IgG (less species-specific) ELISA titer constitutes a strong presumptive diagnosis. Among arenavirus infections, Lassa virus is usually recovered from acute-phase sera of hospitalized patients soon after admission, frequently in the presence of specific IgM antibody. A detectable antibody response does not necessarily signal imminent recovery; viremia frequently persists, and some patients die despite an antibody response.

**Conclusions:**
In conclusion, the recent emergences of new viruses (Lujo, Bundibugyo) serve as important reminders that broadly reactive, grouping reagents and an inventory of mature, time-tested assays are still required to augment the newly evolving tools of nucleic acid detection based on extremely specific gene sequences. The highest priority for future development is the continued refinement of existing diagnostic tools, allowing rapid and definitive virus identification in the field.

---

**Presenting Author(s):**

**Pierre Rollin**
Centers for Disease Control and
Prevention, Atlanta, GA
prollin@cdc.gov

**Abstract ID:** 1331202 **Presentation Type:** Breakout Presentation
**Title:** State trainings to improve outbreak response using the CIFOR Guidelines to Improve Foodborne Disease Outbreak Response
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Foodborne/waterborne disease
**Keywords:** Foodborne disease|Training|Outbreak investigations

**Background:**
To improve the investigation and control of foodborne disease outbreaks, the multidisciplinary Council to Improve Foodborne Outbreak Response (CIFOR) released consensus guidelines in 2009. The Guidelines describe critical elements of local and state food safety programs in public health, environmental health, and agriculture agencies. The Guidelines also outline model practices on preparing for, detecting, and controlling foodborne disease outbreaks.

**Methods:**
To facilitate implementation, a Toolkit was developed to introduce local foodborne disease response staff and teams to the Guidelines. CSTE funded over ten jurisdictions to conduct multidisciplinary trainings in states and large cities to use the Guidelines in finding specific actionable steps to improve foodborne disease outbreak response. The purpose of these subgrants was to provide support to states and large urban health departments to provide a training workshop using the Guidelines and the Toolkit with the aim of integrating recommendations from the Guidelines into the activities of their departments.

**Results:**
CSTE funded 19 sites to conduct trainings on the CIFOR Guidelines using the Toolkit: 14 states, 2 county-based areas, and 3 urban areas. Each site conducted a multidisciplinary training using the Toolkit to identify recommendations from the Guidelines to implement. An evaluation form and summary report were required upon the completion of the training. The trainings took place between April and September 2011, and all 19 trainings are now complete. 876 people participated in the state-based trainings.

**Conclusions:**
The sites appreciated the opportunity to conduct the trainings and learn about their jursidiction's outbreak response activities. CSTE is funding 2 sites to conduct trainings in Winter 2012. Additional sites may receive funding to conduct trainings as well in Spring 2012. CSTE will follow up with the 19 original sites to gauge progress on their action plans created as part of the Toolkit process. These trainings have helped multidisciplinary teams make progress towards improving foodborne disease outbreak response in their jurisdictions.

---

**Presenting Author(s):**

**Lauren Rosenberg**
Council of State and Territorial
Epidemiologists, Atlanta, GA
lrosenberg@cste.org

**Abstract ID:** 1348370 **Presentation Type:** Roundtable Presentation
**Title:** Infectious disease steering committee roundtable
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Miscellaneous infectious disease
**Keywords:** Infectious Diseases|Epidemiology

**Brief Summary:**
CSTE members and conference attendees can attend this roundtable discussion to learn about the current infectious disease steering committee activities and to discuss priorities for the coming year.

**Key Objectives:**
This roundtable will discuss issues of importance related to infectious disease.

---

**Presenting Author(s):**

**Lauren Rosenberg**
Council of State and Territorial Epidemiologists, Atlanta, GA
lrosenberg@cste.org

**Alfred DeMaria**
Massachusetts Department of Public Health, Jamaica Plain, MA
alfred.demaria@state.ma.us

**Abstract ID:** 1366684 **Presentation Type:** Breakout Presentation
**Title:** CSTE Occupational Health Subcommittee Meeting
**Committee:** Occupational Health Sub-Committee
**Topic:** Other occupational health issues
**Keywords:** Occupational Health

**Background:**
The purpose of this meeting is to discuss surveillance issues of related concern between NIOSH and states.

**Methods:**
The meeting will be a mix of discussion and short breakout presentations.

**Results:**
Workgroup leads will report on their activities and participants will discuss other collaborations and objectives for the next fiscal year.

**Conclusions:**
Notes will be provided by CSTE national office staff.

---

**Presenting Author(s):**

**Kenneth Rosenman**
Division of Occupational and
Environmental Medicine, Michigan
State University, East Lansing, MI
rosenman@msu.edu

**Abstract ID:** 1316227 **Presentation Type:** Poster Presentation
**Title:** Using surveillance indicators for Vaccine-Preventable Diseases (VPDs): National Notifiable Diseases Surveillance System (NNDSS), 2001-2010
**Committee:** Surveillance/Informatics
**Topic:** Surveillance indicators
**Keywords:** Surveillance|NNDSS|Indicators

**Background:**
The National Notifiable Diseases Surveillance System (NNDSS) supports assessment of epidemiologic trends and programmatic impact. NNDSS data are used by states/jurisdictions and are transmitted to CDC through the National Electronic Telecommunications System for Surveillance (NETSS) or the National Electronic Disease Surveillance System (NEDSS). Variations in VPD reporting and notification may be due to disease/condition characteristics (e.g., symptoms, incidence, severity), availability of laboratory diagnostics, patient and provider awareness, jurisdiction attributes (e.g., laws, regulations), disease transmission setting, and capacity for electronic data exchange. Surveillance indicators can assess infrastructure, practices/procedures, thoroughness and appropriateness of case investigation, laboratory performance, and completeness of case reporting.

**Methods:**
Analyses used NNDSS data from MMWR (2001-2010). Specific indicators included overall completeness of epidemiologically important information, timeliness of reporting and notification, appropriateness and completeness of laboratory testing, completeness of vaccination history, and importation status.

**Results:**
Final NNDSS data suggest that annually, for H. influenzae, the percent of cases <5 years with serotype testing was 40-63% (range by year) and with complete vaccine history was 15-22%. For measles, overall completeness of data was 48-87%, importation status was known for 18-73% of cases, and laboratory testing was done at CDC for 21-70% of cases. For pertussis, 17-47% of children <7 years had complete vaccine history. For rubella, pregnancy status was known for 33-75% of cases and importation status was known for 0-60% of cases. For mumps, overall data completeness was 40-60%.

**Conclusions:**
Surveillance indicators using the NNDSS data set from MMWR can assess the quality of the national electronic surveillance data. Although these indicators may not accurately reflect state-based data or surveillance effort in certain situations, the indicators are useful for identifying components of surveillance and electronic data exchange that need improvement at the local, state, and/or federal levels.

---

**Presenting Author(s):**

**Sandra Roush**
Centers for Disease Control and
Prevention, Atlanta, GA
swr1@cdc.gov

**Contributing Authors**

Linda Baldy, MPH; Susan B. Redd; Albert Barskey, MPH; Amanda Faulkner, MPH; and Grace Ejigiri, MPH; National Center for Immunization and Respiratory Diseases, Centers for Disease Control and Prevention, Atlanta, GA

**Abstract ID:** 1319160 **Presentation Type:** Breakout Presentation
**Title:** Using chemical release surveillance data to evaluate the public health impacts of chlorine and chlorine alternatives
**Committee:** Environmental Health Sub-Committee
**Topic:** Surveillance and response to chemical/radiologic emergencies, including National Toxic Substance Incidents Program (NTSIP)
**Keywords:** Chemical and biological exposures|Environmental exposures|Surveillance

**Background:**
According to the Center for American Progress, more than 80 million Americans are at risk of a chemical exposure because they live near one of the 101 most hazardous chemical facilities or near railroads and highways used to transport hazardous chemicals. Recently, some facilities and transporters have begun implementing hazard reduction and inherently safer technology to prevent or minimize chemical exposures, accidents, waste, and environmental contamination. One approach to hazard reduction involves using less toxic alternatives. Chlorine was identified as one of the chemicals posing the greatest public health danger. Alternatives to chlorine include sodium hypochlorite, calcium hypochlorite, and chlorine dioxide for water disinfection; sodium hydrosulfite and hydrogen peroxide as bleaching agents for paper; and sodium chlorate in copper etching for circuit boards.

**Methods:**
We analyzed data collected during 1993-2008 by 17 state health departments participating in the Agency for Toxic Substances and Disease Registry's (ATSDR) active chemical surveillance program to compare the public health impacts of chlorine releases to releases of potentially less toxic chlorine alternatives. Descriptive analyses were performed to evaluate if the alternatives resulted in fewer incidents or in less severe incidents. Public health outcomes that were analyzed included the number of injured persons, evacuations, and decontaminations; type of industries involved; and the types and severity of injuries. Chi square and z-tests analyses were used to test significance.

**Results:**
The incident data reported to ATSDR during 1993-2008 showed that 2,040 events involved chlorine and 1,317 events involved chlorine alternatives. Nearly 30% of chlorine releases resulted in injured persons compared with 13% for chlorine alternatives. A comparison of the medical outcomes for persons injured in chlorine or chlorine alternative incidents showed that a similar proportion were treated at the scene (18% and 20%, respectively) and at a hospital (61% and 56%, respectively). However, the percentage of hospital admissions following chlorine releases was more than double that of releases of chlorine alternatives (10 % vs. 4%) ($p < 0.01$). When specific industries were examined, there were significantly fewer victims per event for hydrogen peroxide (0.06) compared with chlorine (0.9) in paper and printing manufacturing, and for sodium hypochlorite (0.07) compared with chlorine (0.4) in the utilities industry.

**Conclusions:**
Exposures to chlorine alternatives resulted in fewer adverse public health outcomes, specifically a lower proportion of exposed persons requiring hospital admission. To reduce acute public health injuries associated with chemical exposures, a chlorine alternative should be considered when feasible.

---

**Presenting Author(s):**

**Perri Ruckart**
Agency for Toxic Substances and
Disease Registry, Atlanta, GA
afp4@cdc.gov

**Contributing Authors**

Ayana Anderson, MPH ATSDR Wanda Welles, PhD New York State Department of Health

**Abstract ID:** 1332684 **Presentation Type:** Poster Presentation
**Title:** Efforts at reducing brucella exposures in clinical laboratories
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Zoonoses
**Keywords:** Zoonotic disease|Infection control|Infectious Diseases

**Background:**
In 2009 and 2010, North Carolina and Florida experienced laboratory exposures to the highly infectious and relatively rare Gram negative bacterium Brucella in multiple facilities. Over 200 individuals, including at least 3 pregnant women, were exposed in this timeframe, which resulted in one infection. Exposures cost the affected laboratories valuable time, money and threats to employee health. Negative impacts of exposures are amplified by contraindications to prophylaxis and resulting disease. Secondary exposures resulting from an initial laboratory acquired case are not uncommon.

**Methods:**
A Brucella Workgroup (WG) composed of clinical laboratory directors, supervisors, and technologists; veterinary and public health (PH) laboratorians; and PH veterinarians and physicians at the local and state level was formed from the NC Laboratory Response Forum.

**Results:**
The WG developed practical guidelines to prevent occupational exposures to Brucella species in the clinical lab and aid PH staff to mitigate the exposures and prevent infections. The CDC was invited to participate and contributed a liaison to the WG. The broad diversity of the workgroup, which included a mix of laboratorians, some of which experienced Brucella exposures, enabled rapid and expert development of the recommendations. The work of this group was built on the work of the CDC, ASM and other institutions committed to laboratory safety, and adapted to best help local laboratories prevent exposures as well as respond to them. Our recommendations for prevention are derived from the experiences of Brucella exposures occurring in the absence of suspicion of brucellosis by the clinician and before Brucella is suspected by the laboratorian. If any bench work occurs with propagated organism outside a safety cabinet and/or without appropriate personal protective equipment, exposure to the laboratorian is assured. By processing all sterile site bacterial culture requests in a biosafety cabinet until the laboratorian can safely rule out Brucella using existing American Society for Microbiology guidelines, the likelihood of exposure is significantly, although not completely, reduced.

**Conclusions:**
The guidance will be disseminated during planned laboratory outreach visits and preparedness workshops.

---

**Presenting Author(s):**

**J. Royden Saah**
Bioterrorism & Emerging Pathogens
Unit, North Carolina State Laboratory
of Public Health, Raleigh, NC
royden.saah@dhhs.nc.gov

**Contributing Authors**

Carl Williams, DVM, NC Division of Public Health La'Vonda Benbow, BS, NC Division of Public Health Danielle Stanek, DVM, Florida Department of Health Phil Lee, MSc, Florida Department of Health

**Abstract ID:** 1326396 **Presentation Type:** Breakout Presentation
**Title:** National estimates of morbidity burden associated with extreme temperature
**Committee:** Environmental Health Sub-Committee
**Topic:** Climate change epidemiology and public health
**Keywords:** Climate|Vulnerable populations|Environmental Health

**Background:**
Abnormally high or low ambient temperature often causes physiological complications that warrant hospitalization. With extreme heat and cold episodes increasing in frequency and intensity, adverse health outcomes associated with anomalous fluctuations in temperature could increase. We use information from 2006, 2007 and 2008 to derive national estimates of the health burden attributed to hyperthermia and hypothermia. These estimates represent the number of hospital admissions, associated costs, and the geographic and demographic distribution of cases.

**Methods:**
The Health Care Utilization Project (HCUP) provides a 20% sample of hospital admissions in the United States. We use a combination of ICD9 codes and E-codes to identify admissions due to heat and cold (for heat, ICD9 = 992 and E-code = E900.0, E900.9; for cold, ICD9 = 991 and E-code = E901.0, E901.9). In order to further ensure that we identify admissions related to environmental causes, we restrict admissions to months of May to September for heat-related cases and October to March for cold-related cases. Cost-to-charge ratio files provided by HCUP were used to calculate the healthcare cost associated with each episode. All estimates are appropriately weighted to account for sampling design. Logistic regressions were used to investigate whether there were patterns in hyperthermia and hypothermia cases across gender, age groups, regions, urban-rural continuum, median household income and insurance status to inform possible interventions.

**Results:**
The estimated total number of heat-related cases with 95% confidence intervals considering only principal diagnosis were 4610 [4149, 5072], 3654 [3267, 4042] and 3158 [ 2832, 3483] in 2006, 2007 and 2008 respectively. The corresponding numbers for cold-related cases were 2362 [2056, 2668], 3146 [2788, 3504] and 3054 [2654, 3456]. If case definitions mentioned above are applied to all available diagnoses instead of the principal diagnosis, the number of cases is twice as large for heat-related cases and six times larger for cold-related cases. The direct cost of heat-related hospital admissions with 95% confidence intervals were 25.5 [21.3, 29.7], 17.5 [14.3, 20.7] and 15.9 [13.3, 18.6] million USD in 2006, 2007 and 2008 respectively. The corresponding numbers for cold-related cases were 25.4 [19.8, 31.1], 27.9 [22.5, 33.4] and 28.1 [21.7, 34.6] million USD. When considering all diagnoses, these figures are 2.5 times higher for heat-related cases and eight times for cold-related cases. Compared to younger age groups, seniors (above 65 years) had to be most frequently hospitalized for both type of events. Hospitals in rural locations had more frequent admissions compared to those in urban areas. Admissions were most frequent from zip-codes falling in the lowest median income quartile. Heat-related admissions were more frequent in the South region, while cold-related frequency was higher in the Midwest region. While 40% of the admissions were Medicare patients, around 15% were uninsured.

**Conclusions:**
We find a substantial health burden related to heat and cold. The demographic and geographic variation in hospital admission provides inputs for tailoring adaptation strategies across different regions. The estimates are highly sensitive to the choice between principal and secondary diagnosis that have methodological implications for case identification in future research.

---

**Presenting Author(s):**

**Shubhayu Saha**
Centers for Disease Control and
Prevention , Atlanta, GA
hsf5@cdc.gov

**Abstract ID:** 1332194 **Presentation Type:** Poster Presentation
**Title:** Local data systems: Finding gaps/opportunities for building community-linked health research infrastructure for South Omaha, Nebraska
**Committee:** Student Section
**Topic:** Other
**Keywords:** Local epidemiology|Data sharing|Collaboration

**Background:**
Health information is key to the identification of priority health issues and planning for interventions to improve a community's health. However, potential data users, including community organizations and researchers, are often not aware what kind of local-level data already exists and what strengths and weaknesses each data source has. A gap analysis of local data was conducted as part of the Plaza Partnership project, a 3-year project funded by the National Institutes of Health to develop a sustainable academic-community research partnership. The focus of this project is a southeast sector of Omaha, Nebraska ("South Omaha", population 71,160) where the Hispanic population comprises 43% of the residents and where 15% of all families live in poverty.

**Methods:**
Information about data sources was collected from four "Plaza Partners" - (1) the state's largest federally qualified health center, (2) the local governmental public health agency, (3) an independent non-profit community based health and wellness coalition, and (4) public academic health sciences center. Data sources were identified by conducting personal and phone interviews and also by using contacts across the Plaza partners.

**Results:**
Forty-six data sources were identified. The majority of data were collected by governmental public health agencies (56%). The second largest data collector was the academic health science center (20%). Health survey was found to be the most common mode of data collection, but it was difficult to generalize the survey data due to the small sample sizes. Disease incidence and health behaviors were common among the health information collected, whereas the oral and mental health information were uncommon. Although the majority of the databases contained geographical information, it was difficult to describe the health status of specific subpopulation based on this information because of small sample sizes.

**Conclusions:**
An integrated data system which can promote effective communication, avoid duplication, and identify and evaluate research data that can be used to address community research priorities can narrow down these gaps to better serve the community.

---

**Presenting Author(s):**

**Mahua Saha**
University of Nebraska Medical
Center, Omaha, NE
mahua.saha@unmc.edu

**Contributing Authors**

Shinobu Watanabe-Galloway, PhD - University of Nebraska Medical Center Anne O'Keefe, MD, PhD - Douglas County Health Department

**Abstract ID:** 1326288 **Presentation Type:** Poster Presentation
**Title:** Legionella outbreak associated with solar rooftop water heating system—Maryland, 2011 *
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Respiratory diseases, non-influenza
**Keywords:** Waterborne disease|Outbreaks|Respiratory diseases: Non-influenza

**Background:**
During September 2011, the Maryland Department of Health and Mental Hygiene (DHMH) identified a Legionnaires disease (LD) case associated with Ocean City Hotel A. Because exposure to aerosolized Legionella can cause severe pneumonia, we investigated to identify additional cases, assess exposure sources, and implement control measures.

**Methods:**
Cases were defined by radiographic pneumonia with laboratory identification of Legionella by culture, urine antigen testing (UAT), or seroconversion. Cases were identified through local case reporting, notification of hotel guests during the previous month, media, and Epi-X posting. Patients were interviewed by using a standard questionnaire. Environmental investigation included a walk-through evaluation and potable water testing for Legionella by established DHMH protocols.

**Results:**
Legionella pneumophila serogroup 1 (Lp1) was identified by UAT in 7 patients from 3 states; no cultures were performed. Six were hospitalized; of these 1 died. All had been Hotel A guests without other common exposures. Hotel A's potable water system was unusual for having an extensive, intermittently used, rooftop piping network using solar energy to preheat municipal water. Subsequent water temperatures were ?44°C before distribution to individual rooms; industry guidelines recommend hot water storage at ?60°C. Residual chlorine levels were as low as 0.01 mg/L (World Health Organization standard ?0.2 mg/L). Lp1 was cultured from multiple sites, including within the rooftop piping. Incoming municipal water was negative for Legionella.

**Conclusions:**
Multiple LD cases were linked to a complex potable water system whose nontraditional solar heating component was colonized with Lp1. Remediation of the hotel's water system was required. Solar systems might be increasingly used for energy conservation; however, their ability to harbor and amplify Legionella merits further study and, possibly, Legionella control standards.

---

**Presenting Author(s):**

**Maria Said**
Maryland Department of Health and
Mental Hygiene, Baltimore, MD
msaid@dhmh.state.md.us

**Contributing Authors**

Alvina Chu, MHS (Maryland Department of Health and Mental Hygiene) Lucy Wilson, MD, ScM (Maryland Department of Health and Mental Hygiene) Rene Najera, MT, MPH (Maryland Department of Health and Mental Hygiene) Ruth Thompson (Maryland Department of Heal

**Abstract ID:** 1332764 **Presentation Type:** Poster Presentation
**Title:** Multiple births in the District of Columbia: A 10-year snapshot
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Maternal & child health epidemiology
**Keywords:** Birth outcomes|Infant mortality|Pregnancy

**Background:**
Over the last three decades, an upsurge in the rates of multiple births has been observed in the United States. In the District of Columbia, the rate of twin births has increased by 71.8% from 1980 to 2009 (NCHS 2012). Risks associated with multiple gestation include complications of the fetus and newborn, maternal morbidity, and in some cases, infant death. This study will provide a 10-year snapshot of plural pregnancies in the District of Columbia, and assess the impact of plurality on gestational outcomes.

**Methods:**
Birth data on individuals born between 2000 to 2009 were collected from birth certificates registered in the District of Columbia Vital Records Division (DC VRD). DC VRD data includes infant and maternal demographic information, maternal risk factors, and pregnancy characteristics. Infant death data were also obtained from death certificates filed in DC VRD. Frequencies of responses were analyzed using SAS version 9.3. Logistic regression was performed to determine associations between plural pregnancies and birth outcomes.

**Results:**
There were 81,808 babies born to DC resident mothers from 2000-2009. Of these, 3.6% (n=2,973) were from plural pregnancies, the majority (97.6%) of which were twins. Mothers who had multiple births were 51.9% black and 90.2% non-Hispanic; more than half were married (53.2%) and received post-secondary level education (53.4%). Median age was 31 years for mothers who had multiple births, and 28 years for those who had single births. When comparing gestational outcomes between plural and single pregnancies, babies delivered from plural pregnancies were more likely to be born prematurely (OR: 3.8; 95%CI 3.4-4.3) and have low birth weight (OR: 5.7; 95%CI 5.1-6.4). In 2009*, 17.3% of mothers who had plural pregnancies received infertility treatment or fertility-enhancing drugs, compared to only 1.2% of mothers who had single births. Also in 2009, 16.9% of infant deaths reported in the District were from multiple births, a 70.7% increase from the proportion of infant deaths resulting from multiple births in 2000.

**Conclusions:**
Recent trends in child-bearing practices resulting in higher rates of multiple births present challenges and potential risks to perinatal health outcomes. Understanding the relationship between plurality and birth outcomes will be necessary to assist with current and future maternal and child health program initiatives, as well as efforts to reduce infant mortality.

---

**Presenting Author(s):**

**Rowena Samala**
CPPE, District of Columbia
Department of Health, Washington,
DC
rowena.samala@dc.gov

**Contributing Authors**

Fern Johnson-Clarke, PhD (Center for Policy, Planning, and Evaluation, District of Columbia Department of Health) John Davies-Cole, PhD, MPH (Center for Policy, Planning, and Evaluation, District of Columbia Department of Health) Nikhil Roy (Center for Po

**Abstract ID:** 1330508 **Presentation Type:** Breakout Presentation
**Title:** ELR decreases the time required to process cases at state and local public health agencies in North Carolina, 2010
**Committee:** Surveillance/Informatics
**Topic:** Electronic laboratory reporting
**Keywords:** Electronic laboratory reporting (ELR)|Surveillance|Workflow Analysis


**Background:**
Electronic laboratory reporting (ELR) has been shown to reduce the time between diagnosis of notifiable communicable diseases and reporting of these cases to public health agencies. However, automated reporting increases the total number of cases reported and can increase the number of reports not meeting reportable disease case definitions, potentially increasing the time it takes public health personnel to process reports. This study describes the effect of ELR on the timeliness of communicable disease case processing at the state and local level in North Carolina.

**Methods:**
Data from the North Carolina Electronic Disease Surveillance System (NC EDSS) from May-August 2010 were analyzed to compare the time between receiving ELR cases and non-ELR cases at the local health department (LHD) and reporting the cases to state (first stage of reporting) and national (second stage) authorities. The number of days between stages in the reporting process were calculated. Mann-Whitney tests and z tests were used to assess differences in time intervals and proportions.

**Results:**
ELR cases and non-ELR cases took approximately the same time to be submitted by LHD staff to the state (median 13 days for ELR vs. 15 days for non-ELR; P=.18), but a higher proportion of ELR cases were submitted to the state within the state rule of 30 days from initial receipt (73% of ELR records vs. 66% of non-ELR, P=.05). The median time between receipt at the state public health agency and submission to CDC was shorter for ELR records (median 31 days vs. 46 days for non-ELR; P<.001), and the total time between receipt of cases at the LHD and submission to the CDC was shorter for ELR cases (median 55 vs. 69 days for non-ELR; P<.001). While the time between receipt of the case at the LHD and reporting to the CDC was equal or shorter for ELR cases for the majority of conditions, public health handling time was longer for ELR cases of Lyme disease, Rocky Mountain spotted fever (RMSF), and non-gonococcal urethritis.

**Conclusions:**
Our findings suggest that ELR is associated with reduced time for public health case processing. However, the time required to process some complex cases, such as RMSF and Lyme disease, was greater for ELR cases. Improvements to case definitions and to the ELR process could make handling of these ELR cases more efficient.


---


**Presenting Author(s):**

**Erika Samoff**
Gillings School of Global Public Health,
University of North Carolina, Chapel
Hill, NC
erika.samoff@unc.edu

**Contributing Authors**

Mary T. Fangman, BS, University of North Carolina Gillings School of Global Public Health Aaron T. Fleischauer, Ph D, North Carolina Division of Public Health and Centers for Disease Control and Prevention Anna E. Waller, University of North Carolina Dep

**Abstract ID:** 1327882 **Presentation Type:** Poster Presentation
**Title:** Strengthening North Carolina?s National Toxic Substance Incidents Program through partnerships and regional hazardous materials studies
**Committee:** Environmental Health Sub-Committee
**Topic:** Surveillance and response to chemical/radiologic emergencies, including National Toxic Substance Incidents Program (NTSIP)
**Keywords:** Environmental Health hazards|Surveillance|Risk Assessment

**Background:**
The North Carolina National Toxic Substance Incidents Program (NC NTSIP), one of seven ATSDR funded states, conducts surveillance on acute toxic chemical releases and the associated public health impacts. Building off the Hazardous Substances Emergency Events Surveillance System, NC NTSIP develops partnerships to produce statewide recommendations on inherently safer alternative technologies and chemical release prevention strategies.

**Methods:**
NC NTSIP has partnered with North Carolina Emergency Management, the North Carolina Department of Environment & Natural Resources, and the disaster management firm IEM to form a Hazardous Materials Taskforce. The Taskforce used datasets from US Environmental Protection Agency, Tier II reports, Risk Management Plans and Toxic Release Inventories to look at populations vulnerable to hazardous chemical releases at facilities and along transportation routes. The Taskforce divided the study area into nine Domestic Preparedness Regions (DPRs), each comprised of ten to thirteen NC counties.

**Results:**
As of November 2011 six DPRs have been studied by the Taskforce. One impact from the study was a recommendation in DPR 3 to reroute shipment of Silicone Tetra fluoride (SiF4) from a two lane route to a four lane route as a safer alternative. This route change was approved and adopted by carriers. Recommendations are continuing to be developed and will be implemented for the other DPRs.

**Conclusions:**
The Taskforce study is providing risk and vulnerability information for planning and response efforts in the event of a chemical release. The next step is to incorporate NC NTSIP surveillance data to develop a standard risk assessment process. Partnerships ultimately increase the strength of NC NTSIP by bringing together stakeholders through regional studies, ensuring that common goals and community needs are met.

---

**Presenting Author(s):**

**Arunachalam Sasidevi**
OEE/NTSIP Division of Public Health,
North Carolina Department of Health
and Human Services, Raleigh, NC
a.sasidevi@dhhs.nc.gov

**Contributing Authors**

1.Jennifer McNew, BS North Carolina Department of Health & Human Services 2.Mina Shehee, PhD North Carolina Department of Health & Human Services

**Abstract ID:** 1329511 **Presentation Type:** Poster Presentation
**Title:** Infection prevention for outpatient settings: What are the minimum expectations for safe care?
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Infectious disease and ethical/legal issues
**Keywords:** Infectious Diseases|Outbreak investigations |Evidence based practice

**Background:**
Over the past decade, there has been a significant shift in healthcare delivery from the acute, inpatient setting to a variety of ambulatory and community-based settings. Compared to hospitals, outpatient settings have traditionally lacked infrastructure and resources to support infection prevention and surveillance activities. Further, regulatory oversight of most outpatient settings is limited or lacking altogether, which has presented challenges to health departments responding to complaints or outbreaks.

**Methods:**
CDC recently released an infection prevention guide and checklist for outpatient settings, which are based upon Standard Precautions and summarize existing evidence-based infection prevention recommendations. Key recommendations from these documents will be described and discussed in the context of infection prevention lapses identified in recent outbreaks and patient notification events.

**Results:**
The CDC speaker will summarize infection prevention lapses identified in recent outbreak and patient notification events occurring in outpatient settings. The speaker will also describe how, in response to outbreaks, several states have increased regulatory requirements for outpatient facilities. Finally, the speaker will present key elements from the CDC infection prevention guide and checklist for outpatient settings including: Administrative Measures, Education and Training of Healthcare Personnel, Monitoring and Reporting of Healthcare-associated Infections, and Adherence to Standard Precautions and will describe how these infection prevention resources have been used by health departments during outbreak investigations.

**Conclusions:**
At the conclusion of this presentation, attendees will recognize some of the recurring infection prevention lapses putting patients at risk in outpatient settings. In addition, they will have an understanding as to how the CDC Guide and checklist can be used both for infection prevention activities and to assist with outbreak investigations in outpatient settings.

---

**Presenting Author(s):**

**Melissa Schaefer**
Centers for Disease Control and
Prevention, Atlanta, GA
ggj3@cdc.gov

**Abstract ID:** 1364415 **Presentation Type:** Poster Presentation

**Title:** Association between spatial clustering of the dengue virus vector Aedes aegypti and the characteristics of breeding containers in a Coastal Ecuadorian town

**Committee:** Student Section

**Topic:** Infectious Diseases

**Keywords:** Vectorborne disease|Infectious Diseases|Environment

**Background:**
Management of the Aedes aegypti mosquitos that vector the dengue virus is a key method of controlling dengue transmission; this requires detailed knowledge of population biology. Our study follows others that have assessed spatial clustering of Ae. aegypti populations. In it, we attempt to answer the question of what specific spatial factors cause this clustering.

**Methods:**
We surveyed 199 randomly sampled houses in Borbon, Ecuador (~1175 households). Water containers in and around households were assessed for their characteristics (ex. size, chlorine usage, presence of ABATE larvicide, covered/uncovered, indoor/outdoor) and for the presence of juvenile mosquitoes. We used logistic regression analysis to assess clustering of Ae. aegypti-positive containers and households within radius intervals of 10m (ex. 0-10m, 10-20m, etc). This allowed us to determine whether there was an increase in odds of a container/household being positive if neighbored by another positive container/household in a specific radius interval. We adjusted for the aforementioned container variables as potential confounders in our analysis of container level clustering. We also stratified by container size in this analysis (?40L or <40L).

**Results:**
We found strong and significant evidence of clustering of positive containers and households up to 20m and weaker evidence up to 40m that persisted when adjusting for potential confounders in our container analysis. This association was stronger in containers ?40L (0-10m OR=6.13 [3.09, 12.17]; 10-20m OR=4.19 [2.25, 7.82]; 20-30m OR=0.88 [0.45, 1.73]; 30-40m OR=2.52 [1.58, 4.01]) than those <40L (0-10m OR=2.55 [1.68, 3.87]; 10-20m OR=1.40 [0.94, 2.07]; 20-30m OR=1.27 [0.62, 2.58]; 30-40m OR=1.45 [0.89, 2.37]).

**Conclusions:**
Our results support the hypothesis that clustering of Ae. aegypti is attributable to typically short dispersal distances rather than shared environmental characteristics of containers in certain areas. Furthermore, they indicate that large containers may play a more important role in Ae. aegypti spatial clustering than small containers; as these containers are often more productive, they may act as key sources of females which oviposit in nearby containers. These results have implications for the targeting of vector management campaigns for dengue control.

---

**Presenting Author(s):**

**Nathaniel Schafrick**
University of Michigan, Ann Arbor, MI
natescha@umich.edu

**Contributing Authors**

Joseph Eisenberg, Ph.D., M.P.H; University of Michigan School of Public Health, Dept. of Epidemiology

**Abstract ID:** 1319149 **Presentation Type:** Software Demonstration
**Title:** Interactive atlas of heart disease and stroke
**Committee:**
**Topic:**
**Keywords:** Cardiovascular disease|Data/Surveillance|Geographic Information Systems

**Brief Summary:**
The web based Interactive Atlas of Heart Disease and Stroke was created by the Division for Heart Disease and Stroke Prevention at the Centers for Disease Control and Prevention (CDC) to present county, state and national estimates focused on nine cardiovascular disease outcomes in both mapped and tabular formats by race/ethnicity, age group, and gender. The Interactive Atlas also displays information regarding social determinants of health and health services and provides overlay capabilities for congressional boundaries and health care facilities. Age-adjusted county-level rates are presented as both spatially smoothed (using spatial empirical Bayesian smoothing) and unsmoothed rates. The intended audience includes public health professionals in federal, state and local health agencies, GIS analysts, epidemiologists, program evaluators, academics, hospital administrators and community leaders. This Atlas supersedes a previous web based atlas, providing the user with a modern interface which supports an intuitive interactive experience with the data and makes it easy to create, download and print local-level maps of heart disease, stroke and relevant community characteristics. The Interactive Atlas of Heart Disease and Stroke is also an important tool for guiding and supporting activities that address the Million Hearts Campaign.

**Key Objectives:**
Familiarize attendees with the Interactive Atlas of Heart Disease and Stroke, solicit feedback, and encourage use of the site for documenting geographic variations, informing policy and program decisions, enhancing partnerships and generating hypotheses related to heart disease and stroke.

---

**Presenting Author(s):**

**Linda Schieb**
Division for Heart Disease and Stroke
Prevention, Centers for Disease
Control and Prevention, Atlanta, GA
ekf7@cdc.gov

**Contributing Authors**

Greg Schwartz, MS,* Sophia Greer, MPH,* Michele Casper, PhD* *Division for Heart Disease and Stroke Prevention, Centers for Disease Control and Prevention

**Abstract ID:** 1332923 **Presentation Type:** Breakout Presentation
**Title:** Occupational lead exposure and blood lead levels in Washington State, 2007-2011
**Committee:** Occupational Health Sub-Committee
**Topic:** Lead exposure surveillance (ABLES)
**Keywords:** Lead|Occupational exposure|Surveillance

**Background:**
Currently 41 states manage Adult Blood Lead Epidemiology (ABLES) Programs to track and report occupational blood lead levels (BLLs). In Washington State, the ABLES Program and the Division of Occupational Safety and Health (DOSH) operate within the State Department of Labor and Industries. DOSH measures workplace personal exposures to lead in a variety of high risk industries across Washington State which can be compared with worker BLLs at the industry, occupation, and in some cases, the individual and task level. The purpose of this research is to investigate the potential for integrating DOSH exposure data with ABLES surveillance data and to identify new exposures and priority industries.

**Methods:**
Five years of worker lead exposure measurements and BLLs were collected resulting in 170 personal exposure samples and 1589 elevated (?10µg/dl) BLL reports from 796 individuals. BLL reports were collected through the ABLES Program which receives laboratory results of all adult blood lead tests in accordance with Washington State law. Personal exposure air samples were collected by DOSH Industrial Hygienists and analyzed for lead by the state industrial hygiene laboratory in accordance with NIOSH sampling method 7300 for elements. Exposure samples and BLLs were coded for industry using the North American Industrial Classification System (NAICS).

**Results:**
Results of exposure sampling from 27 industries indicated that workers with the highest median exposure to airborne lead were in the electrical contractors industry. In total, seven industries had median exposure levels in excess of the action level. Twenty samples exceeded the action level with seven of these collected from workers at indoor shooting ranges. Analysis by job title and task description shows that workers engaged in torch cutting, grinding, and welding on metal and painted surfaces also had median exposures exceeding the action level. Job titles with potentially previously uncharacterized exposure levels of concern include drywall installers installing lead-containing drywall into x-ray rooms and manufacturing workers cutting lead-containing insulation. Six individuals had matched exposure and BLLs measurements that were positively correlated. Lead exposures and BLLs common across ten industries were compared and showed no positive correlations but did reveal industries with large differentials between measured personal exposures and BLLs.

**Conclusions:**
These data did not demonstrate a strong lead exposure and BLL response relationship. The magnitude and variability in BLLs may be better explained by differences in establishment, job title, and task. Previously uncharacterized and high exposure industries, occupations, and tasks can be identified with similar exposure data.

---

**Presenting Author(s):**

**Todd Schoonover**
SHARP Program, Olympia, WA
scto235@lni.wa.gov

**Abstract ID:** 1331642 **Presentation Type:** Poster Presentation
**Title:** Diagnosis and treatment of Hansen's Disease in the United States, 2001-2010
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Miscellaneous infectious disease
**Keywords:** Infectious Diseases|Communicable disease|Surveillance

**Background:**
Hansen's Disease (HD, aka leprosy) has been documented in the USA for over 200 years, and with the availability of curative medical treatment, disease management has transitioned from quarantined inpatient treatment to outpatient care all over the country. This study examined the current status of diagnosis and treatment of HD and contrasted it with previous efforts.

**Methods:**
Data from the registry of the National Hansen's Disease Programs (NHDP) from 2001-2010 were analyzed with respect to total patient numbers, country of origin, and location in the USA. These were compared with data from the Centers for Disease Control and Prevention (CDC) Nationally Notifiable Disease Surveillance System (NNDSS). A telephone survey of the most recent 100 private and academic physicians treating HD patients was done to determine the specialties of physicians treating HD in the US today.

**Results:**
The number of cases reported annually to the NHDP ranged from 150-250, and has been greatly influenced by operational factors. During the same years, 73-111 cases were reported annually to the CDC through the NNDSS. Patients originate from many countries, but the largest single source by country is the USA itself. Changes in the number of patients per year are not correlated with changes in the number of immigrants. During this decade, 435 private and academic physicians in 48 states treated 566 new or active patients from 48 states. Among private and academic physicians treating HD in the US, the number of specialists in dermatology and infectious disease were almost equal, with substantial numbers of physicians in family medicine and internal medicine also treating patients.

**Conclusions:**
HD patients are diagnosed and treated in almost all states, in many cases with the assistance of the State Health Departments. Physicians other than dermatologists are playing an major role in the care of HD in the US. Several cases occur each year among US-born individuals who have not travelled. Recent findings indicate that HD is a zoonosis in the USA; most autochthonous cases share the same strain of M. leprae found in nine-banded armadillos. Reporting to the NHDP and to the CDC has not been consistent. Improved early diagnosis and reporting can address this inconsistency and will thus aid in improving treatment and reducing the long-term disabilities of HD.

---

**Presenting Author(s):**

**David Scollard**
National Hansen's Disease Programs,
Baton Rouge, LA
dscollard@hrsa.gov

**Contributing Authors**

James Krahenbuhl, PhD, National Hansen's Disease Programs Irma Guerra, RN, National Hansen's Disease Programs Richard Truman, PhD, National Hansen's Disease Programs David Blaney, MD, Centers for Disease Control and Prevention

**Abstract ID:** 1324189 **Presentation Type:** Breakout Presentation
**Title:** Work-related asthma in the retail trade industry — California, Massachusetts, Michigan, and New Jersey, 1993–2006
**Committee:** Occupational Health Sub-Committee
**Topic:** Occupational lung diseases
**Keywords:** Occupational lung diseases|Asthma|Occupational Surveillance

**Background:**
Background: Retail trade is the second largest industry in the United States (17 million workers) and employs a diverse workforce. Causes of injuries (e.g., overexertion, repetitive trauma) among retail trade industry workers have been documented in the literature and the overall incidence rate for nonfatal injury/illness of 4.1/100 Full-Time Equivalent (FTE) is above the average for all industries combined (3.8/100 FTE). Information on illnesses, including work-related asthma (WRA), among retail trade workers is limited. The objective of this study is to characterize WRA among retail trade workers to gain a better understanding of the burden of WRA and their associated exposures.

**Methods:**
Methods: We analyzed state-based sentinel surveillance data on confirmed WRA cases collected from California, Massachusetts, Michigan, and New Jersey during 1993–2006. Information on industry and occupation was coded using the 2002 North American Industry Classification System and the 2000 U.S. Bureau of the Census Occupation Codes, respectively. Up to three putative agents associated with WRA were reported for a single case. Agents were coded and grouped using the Association of Occupational and Environmental Clinics exposure coding scheme.

**Results:**
Results: Of the 6,762 confirmed WRA cases, 251 (4%) were in the retail trade industry. Of the 251 cases, 159 (63%) were females and 62 (25%) were aged 25–34 years; ages ranged from 17?76 years; median: 38 years. Ninety (36%) cases were classified as new-onset asthma (i.e., asthma caused by workplace exposure to sensitizers or irritants), 63 (25%) as work-aggravated asthma (i.e., preexisting asthma exacerbated by workplace exposures), and 98 (39%) had insufficient data to classify. By industry subsector, individuals were primarily employed in food and beverage stores (n=71, 28%). By occupation, individuals were primarily employed as retail salespersons (n=38, 15%). WRA cases were associated with exposure to 97 unique agents combined in 27 groups. Agent groups most frequently associated with WRA include cleaning materials (86 cases; 34%); mineral and inorganic dusts (43; 17%); and miscellaneous chemicals, e.g., cosmetics, perfume, and indoor air pollutants (38, 15%). Several agents include products sold or handled in the workplace, e.g., fertilizer sold at home centers.

**Conclusions:**
Conclusions: Sentinel surveillance data from four states indicates that workers in the retail trade industry are exposed to a wide range of agents associated with WRA. These results help increase understanding of the burden of WRA in the retail trade industry and provide direction for prevention efforts.

---

**Presenting Author(s):**

**Christen Seaman**
Division of Respiratory Disease Studies, CDC/National Institute for Occupational Safety and Health,
Morgantown, WV
cseaman@cdc.gov

**Contributing Authors**

Margaret S. Filios, SM, RN - National Institute for Occupational Safety and Health Elise Pechter, MPH, CIH - Massachusetts Department of Public Health Kathleen Fitzsimmons, MPH - Massachusetts Department of Public Health Letitia K. Davis, EdM, ScD - Mass

**Abstract ID:** 1322509 **Presentation Type:** Breakout Presentation
**Title:** UV radiation induced photokeratitis associated with a metal halide bulb in a school gymnasium, Philadelphia, PA
**Committee:** Environmental Health Sub-Committee
**Topic:** Other Emerging Environmental Epidemiology Issues
**Keywords:** Emergency response|Radiation |Outbreak investigations

**Background:**
Studies have documented outbreaks of photokeratitis and burns caused by ultraviolet (UV) radiation from damaged metal halide bulbs in gymnasiums. The Food and Drug Administration (FDA) has published guidance on metal halide bulbs, because certain types emit UV radiation if the protective outer casing is broken. On December 5th, 2011, a Hazmat investigation was initiated after a cluster of eye irritation emergency department (ED) visits was recognized in attendees of a cheerleading competition on December 4th, 2011. The Philadelphia Department of Public Health (PDPH) conducted an investigation to characterize the exposure and symptom history of approximately 1,000 competition attendees.

**Methods:**
Philadelphia Police, Fire, and Health Departments completed an in-depth examination of the high school gymnasium, which included reviewing video footage and testing for hazardous chemicals. A web-based survey was distributed on December 7th to capture attendees' exposure and symptom history. A case was defined as a person with 2 or more acute eye symptoms who attended the competition.

**Results:**
Surveys were completed by 760 persons, representing approximately 76% of attendees. Two hundred forty two (32%) respondents met the case definition. Acute eye symptoms among cases included burning eyes (96%), red eyes (89%), tearing eyes (82%), foreign body sensation (82%), blurry vision (57%), and eyelid swelling (51%). Of the 127 individuals who sought care, 99 (78%) went to EDs. The median time between arriving at the gym and symptom onset was 9 hours (range: <1-72 hours). Risk of becoming a case was increased in persons who spent longer time in the gym -- a mean of 5 hours versus 3 hours respectively ($p<0.01$), and in those who sat in the bleachers (RR=1.65; 95% CI=1.31-2.08). Persons wearing contact lenses or glasses were at decreased risk (RR=0.66; 95% CI=0.49-0.89). In the gymnasium, tests for chemical agents were negative and a metal halide bulb with a broken outer casing was found. Video footage of the event confirmed that the bulb was in use during the competition.

**Conclusions:**
UV radiation from a damaged metal halide bulb in a school gymnasium caused this outbreak of photokeratitis. Such UV exposures can be prevented through use of self-extinguishing metal halide bulbs and enclosed fixtures. Health departments can help reduce these exposures by educating school administrators about maintenance and safety for metal halide bulbs.

---

**Presenting Author(s):**

**Jennifer Sears**
Division of Disease Control,
Philadelphia Department of Public
Health, Philadelphia, PA
jennifer.sears@phila.gov

**Contributing Authors**

E. Claire Newbern, PhD, MPH, Philadelphia Department of Public Health, Division of Disease Control; Steve Alles, MD, MS, Philadelphia Department of Public Health, Division of Disease Control; Naomi Mirowitz, MPH, Philadelphia Department of Public Health,

**Abstract ID:** 1307417 **Presentation Type:** Breakout Presentation
**Title:** Evaluation of animal exposure surveillance – Philadelphia, PA, 2007-2010
**Committee:** Surveillance/Informatics
**Topic:** General surveillance topics
**Keywords:** Animals and Public Health|Surveillance|Evaluation

**Background:**
The Philadelphia Department of Public Health (PDPH) conducts mandated surveillance of human exposure to animals to prevent human rabies and help ensure appropriate use of rabies post-exposure prophylaxis (PEP). Entities participating in this surveillance system include the PDPH Acute Communicable Disease Program (ACD), Public Health Laboratory, and animal control agencies. ACD follows up with bite victims and animal owners through letters, phone calls, or in-person visits, to make quarantine and PEP recommendations. The system was evaluated for performance.

**Methods:**
Animal exposure reports and rabies test results from 2007-2010 were analyzed and in-person stakeholder interviews were conducted. The number of reports was compared with animal exposure related emergency department (ED) chief complaints identified through syndromic surveillance.

**Results:**
From 2007-2010, 6,526 animal exposures (mean: 1,632 per year) were reported, primarily from hospitals (44%) and animal control agencies (29%). Sixty-six percent of reports occurred within 1 day of exposure. PDPH confirmed the absence of clinical rabies in 94% of the 3,365 (median: 857 per year) animals referred for observation 10 days following exposure. If tested, the median time from animal exposure report to receipt of rabies test results was 5 days. Breed was missing for 78% (3,712) of dog-related reports. A total of 3,734 dog and cat exposures were reported to PDPH from hospitals participating in syndromic surveillance compared with 10,579 dog and cat bite-related ED complaints. When matched by hospital (N=19), the four-year percent of reported cases of dog bite-related ED complaints ranged from 2% to 74% (median: 27%) and 2% to 60% (median: 20%) for cat bite-related cases. All five stakeholders interviewed reported overall satisfaction with the system. One interview cited timeliness of letter generation and completeness of animal description as factors in locating animals after a bite occurs.

**Conclusions:**
Many fields are poorly documented on case report forms including breed of animal and treatment received by human victims. Underreporting was evidenced by a greater number of animal exposures found with syndromic surveillance. Letters to animal owners should be sent in a more timely fashion and animal descriptions should be more complete in order to enable PDPH to document the animal's health, thereby saving victims from receiving unnecessary PEP. Based on this evaluation, PDPH plans to educate ED staff regarding appropriate rabies PEP use and reporting, train internal staff and animal control agency staff to improve completeness of critical fields, and alert data entry clerks of the need for immediate letter generation.

---

**Presenting Author(s):**

**Jennifer Sears**
Division of Disease Control,
Philadelphia Department of Public
Health, Philadelphia, PA
jennifer.sears@phila.gov

**Contributing Authors**

Ami Patel, PhD, MPH, Philadelphia Department of Public Health & Centers for Disease Control and Prevention; E. Claire Newbern, PhD, MPH, Philadelphia Department of Public Health

**Abstract ID:** 1330321 **Presentation Type:** Breakout Presentation
**Title:** Surveillance of health and disability in Wisconsin: Using population-based survey data to identify health disparities and inform program planning
**Committee:** Cross Cutting Sub-Committee
**Topic:** Health disparities: Racial/ethnic and socioeconomic, Best epidemiologic practices
**Keywords:** Disability|Health disparities|Surveillance

**Background:**
Wisconsin's 2020 State Health Plan identifies the elimination of health disparities as a top focus area, including disparities between individuals with and without disabilities. While public health has traditionally viewed disability as an undesired outcome, emerging views recognize that having a disability does not preclude health and wellness. However, the health status of individuals with disabilities has not been regularly monitored in the state. Therefore, we examined differences in demographic/socioeconomic features, health status, and health care access and utilization between Wisconsin adults with and without a disability.

**Methods:**
The population-based 2009 Wisconsin Family Health Survey was used to examine the prevalence of population and health characteristics among adults, ages 18-64 (N=3,686), by disability status. Information on each household member was collected from a single representative respondent via telephone interview. Disability status was defined as a limitation in activities of daily living, limitation due to emotional or mental health condition, or limitation preventing working or going to school. Weighted frequencies, 95% confidence intervals, and chi-square tests were obtained in SAS 9.2 using complex survey procedures.

**Results:**
In 2009, an estimated 14.3% (95% CI 12.8–15.7) of Wisconsin adults, ages 18-64, had a disability. A significantly greater proportion of those with a disability compared to those without a disability were black (8.9% vs. 4.9%), had less than a high school education (22.6% vs. 6.1%), lived below 200% of the poverty level (55.4% vs. 19.1%), and were unemployed (63.0% vs. 21.2%). Adults with a disability were less likely to report their health status as good, very good, or excellent (42.2% vs. 94.6%), and less likely to perceive their community as good or excellent (79.3% vs. 89.4%). They were more likely to be treated in an emergency room in the past year (37.2% vs. 11.9%), not get needed care (12.6% vs. 1.7%), and have trouble paying medical bills (40.8% vs. 19.1%). People with a disability were also less likely to receive dental care in the past year (56.8% vs. 72.7%). No differences were found with respect to having a usual place of medical care or continuous health insurance coverage over the past year.

**Conclusions:**
A number of significant health and demographic differences were identified between Wisconsin adults with and without a disability. These gaps highlight several health needs and areas for improvement, and may help programs focus efforts to reduce health disparities and improve the overall health and wellbeing of Wisconsin residents.

---

**Presenting Author(s):**

**Jessica Seay**
Wisconsin Department of Health and
Family Services, Madison, WI
jessica.seay@dhs.wisconsin.gov

**Contributing Authors**

Ann K Buedel, Wisconsin Division of Public Health Angela M K Rohan, PhD, Wisconsin Division of Public Health Murray L Katcher, MD PhD, Wisconsin Division of Public Health

**Abstract ID:** 1330910 **Presentation Type:** Roundtable Presentation
**Title:** Roundup of Developments in Public Health Law, 2011
**Committee:** Cross Cutting Sub-Committee
**Topic:** Public health laws and policies: Role of epidemiology and data
**Keywords:** Public health law|Law|Regulations

**Brief Summary:**
Over the past ten years, public health law has risen in importance as a discipline within public health. This session will review the top developments in public health law for 2011, plus some late-breaker developments for the first half of 2012. Two public health law experts together will review the most important court decisions, reports, and academic papers of the previous year, commenting briefly on their findings or holdings and their importance to the field. Examples of items to be reviewed include: Sorrell v. IMS Health, Inc., NFIB v. Sebelius, and the Institute of Medicine's report, "For the Public's Health: Revitalizing Law and Policy to Meet New Challenges."

**Key Objectives:**
The purpose of the session will be to update attendees about the most important public health law developments of the year and to explain the main points for non-lawyers.

---

**Presenting Author(s):**

**Frederic Shaw**
Centers for Disease Control and Prevention, Atlanta, GA
fshaw@cdc.gov

**Matthew Penn**
Centers for Disease Control and Prevention, Atlanta, GA
itv1@cdc.gov

**Abstract ID:** 1331942 **Presentation Type:** Poster Presentation
**Title:** Isolation and characterization of Shiga toxin-producing Escherichia coli from clinical samples: Public Health Laboratory Guidelines
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Laboratory test methods & their impact on surveillance
**Keywords:** Foodborne disease|Guidelines|Assessments

**Background:**
CDC recommends that clinical laboratories simultaneously test all stool samples submitted for the routine diagnosis of acute, community-acquired diarrhea for Escherichia coli O157:H7 (O157 STEC) by culture (MMWR Recomm Rep, 2009. 58(RR-12): p. 1-14). In addition, samples should be screened for non-O157 STEC by an assay that detects Shiga toxins or the genes encoding these toxins regardless of patient age, time of year, or presence or absence of blood in the stool. Further recommendations are that clinical laboratories forward, as soon as possible, all O157 STEC isolates and Shiga toxin-positive broths that do not yield O157 STEC to a public health laboratory (PHL) for organism isolation and characterization. Evidence indicates that the use of enzyme immunoassays (EIA) for screening, in conjunction with culture and molecular characterization of isolates at the PHL, provides increased diagnostic sensitivity compared with the use of either method alone (Diagn Microbiol Infect Dis, 2008. 62(1): p. 7-10).

**Methods:**
In response to the 2009 recommendations, the Association of Public Health Laboratories convened an STEC Workgroup of 16 subject matter experts from CDC and across the country. The workgroup was tasked with writing guidance for PHL's regarding the isolation of STEC from Shiga toxin-positive stools/specimens and for the characterization of isolates including identification, virulence gene detection, and pulsed-field gel electrophoresis (PFGE) analysis. Prior to distribution of these guidelines, APHL conducted a short assessment of current STEC testing practices in state and local PHL's.

**Results:**
The PHL guidance recommends that “all presumptive Shiga toxin-positive enrichment broth cultures and clinical specimens should be cultured for O157 STEC using selective media designed for recovery of O157 STEC. If cultures are negative for O157 STEC, isolation of non-O157 STEC should be attempted by screening individual organisms for Shiga toxin production or the presence of Shiga toxin genes. If STEC is not isolated and the specimen is from an HUS patient, immunomagnetic separation methods for O157, O111, O145, O103, and O26 should be attempted or the specimen should be forwarded to a laboratory with this testing capability. All presumptive STEC isolates should be confirmed as Escherichia coli, tested for the most prevalent and virulent O serogroup (O157) or the 6 most common non-O157 serogroups present in the United States, subtyped by PFGE, and tested for Shiga toxin production or the presence of Shiga toxin genes.” The 2011 APHL STEC assessment was designed to 1) evaluate awareness of the 2009 clinical guidelines and 2) compare PHL practices with those recommended in the new guidelines. A survey report will be available in March 2012. A second assessment will be conducted in 2013 to measure the impact of the guidelines, to assess PHL progress in implementing the recommendations, and to identify barriers to implementation.

**Conclusions:**
These public health recommendations, in conjunction with the recommendations for clinical laboratories, provide a solid framework for the efficient and rapid diagnosis of STEC. Uniform adoption of these recommendations nationwide will lead to improved comparability of laboratory findings between jurisdictions for surveillance purposes and outbreak investigations.

---

**Presenting Author(s):**

**Sharon Shea**
Food Safety, Association of Public Health Laboratories, Silver Spring, MD
sharon.shea@aphl.org

**Contributing Authors**

Presented on behalf of the Association of Public Health Laboratories STEC Workgroup, Chaired by Robyn Atkinson, PhD, HCLD, Director, Unified State Laboratories: Public Health, Utah Department of Health

**Abstract ID:** 1326480 **Presentation Type:** Software Demonstration
**Title:** Public health data exchange for epidemiologically important results: Data needs for interoperability
**Committee:**
**Topic:**
**Keywords:** Infectious Diseases|Surveillance|Electronic data

**Brief Summary:**
Epidemiological surveillance data is often linked to clinical specimen data in order to detect novel disease events or possible outbreak situations in a timely fashion. Combined in aggregate form, enhanced surveillance data is used to inform clinical care and public health decisions. The need for the rapid exchange of this data is ever increasing, especially as the national health information landscape expands and Meaningful Use objective deadlines approach. In order to demonstrate a real-world example of the complexity of surveillance and public health interoperability, a virtual reportable condition notification case will be simulated. Data will be transmitted from one virtual customer to another; data will be translated and transformed; and delivered in a consumable format by the receiver. Adjustments to the data flow will be explored in order to best capture the necessary data elements to support clinicians, epidemiologists, and laboratorians alike.

**Key Objectives:**
Demonstrate the utility of a reusable software application based on integrated technologies developed by the Centers for Disease Control and Prevention for epidemiological and laboratory data exchange. Demonstrate an example data flow for epidemiologically important organisms from Public Health Laboratory to Public Health Agency or Clinical partner including: Salmonella and rabies specimens, but can be generalized for other notifiable conditions. Exhibit how data flows from one partner organization to another, regardless of Information Technology infrastructure. Incorporate standardized message code translation and format transformation for the benefit of the audience to understand the flexibility of architectural methodologies for electronic data exchange and achieving 'interoperability'. Educate audience participants on the multifaceted approaches and sustainable solutions that work across partner organizations to achieve the same results: consistent, timely, accurate, and secure electronic public health disease data transmission.

---

**Presenting Author(s):**

**David Sheesley**
Labpoint, Omaha, NE
dsheesley@labpoint.com

**David Sanderson**
Labpoint, Omaha, NE
dsanderson@labpoint.com

**Abstract ID:** 1329984 **Presentation Type:** Poster Presentation
**Title:** Developing a cross-system matching process to establish priorities for PCSI analysis and interventions
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Sexually transmitted infections
**Keywords:** Co-morbidity|Viral hepatitis|Sexually Transmitted Diseases

**Background:**
Program Collaboration and Service Integration (PCSI) is a CDC initiative to increase collaboration and service integration between HIV/AIDS, viral hepatitis, STD, and Tuberculosis programs in order to better identify and serve individuals infected or at risk for these infections. Analysis of co-infections and disease co-occurrence is the foundation for all PCSI activities. Annually, PCSI demonstration sites assess co-infections, which include over 25 2-way matches. Due to the labor-intensive matching process and lists of follow-up analyses that can be generated, a clear plan needs to be established to help prioritize matches and subsequent analyses. This plan must balance stakeholders' priorities, epidemiologic resources, data limitations, and activities to be based off such analyses. As one of the PCSI demonstration sites, the Philadelphia Department of Public Health (PDPH) is using the first round of matches to develop and refine such a process to guide further PCSI activities.

**Methods:**
Methods include semi-automated, deterministic matching procedures in SAS 9.1 with manual match review, basic descriptive analysis, and mapping using ArcGIS 9.3. Data management and analytic projects are tracked using MS Access and Project.

**Results:**
First, we identified appropriate case definitions for each condition and established time frames based on longevity of diseases (chronic vs. acute), data availability, and data quality. Second, matches were run for available data. Since the launch of the Philadelphia PCSI initiative, the PCSI epidemiologist completed 14 2-way matches. Third, we compared co-infection rates for all completed matches. HCV-Syphilis had the highest co-infection rate (7% amongst those with Syphilis infected with HCV) compared with <2% for other co-infections. Fourth, we stratified diseases with high co-infection rates by ZIP code to assess large area geographic clustering. Syphilis had a substantially higher ZIP code level coinfection rate (36% in highest ZIP code) than CT or GC (9%, 3%, respectively). Finally, we generated census tract level maps with provider sites overlaid for co-infections with ZIP code clustering to identify areas for intervention. Results of all matching analyses were shared with Program representatives for subsequent action and planning.

**Conclusions:**
PCSI analytic priorities are a balance between local disease burden, resource availability, and stakeholder interests. Implementation of systematic, locally appropriate methods for prioritizing matches and follow-up analysis will help assure the most efficient use of health department resources.

---

**Presenting Author(s):**

**Seth Sheffler-Collins**
Phliadelphia Department of Public
Health, Philadelphia , PA
seth.sheffler-collins@phila.gov

**Contributing Authors**

Fernandez-Viña MH, Newbern EC, Anschuetz GL, Madera R, Johnson CC

**Abstract ID:** 1366566 **Presentation Type:** Breakout Presentation

**Title:** Safe States Alliance Seventh Injury Surveillance Workgroup (ISW7) on poisoning has new recommendations for poisoning surveillance

**Committee:**

**Topic:**

**Keywords:**

**Background:**

**Methods:**

---


**Presenting Author(s):**

**Monique Sheppard**
Econometrica, Inc., Bethesda, MD;
msheppard@econometricainc.com

**Scott Proescholdbell**
North Carolina Department of Health and Human Services, Durham, NC;
scott.proescholdbell@dhhs.nc.gov

**Abstract ID:** 1366545 **Presentation Type:** Roundtable Presentation

**Title:** Safe States Alliance Seventh Injury Surveillance Workgroup (ISW7) on poisoning has new recommendations for poisoning surveillance

**Committee:**

**Topic:**

**Keywords:**

**Background:**

**Methods:**

---


**Presenting Author(s):**

**Monique Sheppard**
Econometrica, Inc., Bethesda, MD;
msheppard@econometricainc.com

**Scott Proescholdbell**
North Carolina Department of Health and Human Services, Durham, NC;
scott.proescholdbell@dhhs.nc.gov

**Abstract ID:** 1332991 **Presentation Type:** Breakout Presentation
**Title:** Community–level Indicators for Occupational Health
**Committee:** Occupational Health Sub-Committee
**Topic:** Improving occupational health surveillance
**Keywords:** Indicators|Occupational Health|Community health

**Background:**
Community level health indicators have become widely used metrics of risk factors and health within the public health community. The Robert Wood Johnson Foundation's County Health Rankings project and the US Health and Human Services' Community Health Data Initiative serve as examples of community level indicator initiatives at the national/multi¬–state level. Absent from these indicator initiatives are measures of occupational safety and health, leaving workers' health ignored within these gauges of community health. Of immediate relevance, the Health Care and Education Reconciliation Act of 2010 has resulted in 3000+ non–profit hospitals in the US urgently needing to conduct individual community health assessments to qualify for tax exempt status. Measures of community health outcomes and their determinants (risk factors) are essential components of these assessments and established public health indicators will likely serve as de facto metrics of community health. The absence of community level occupational health indicators serves, in effect, to devalue workers' health; this gap should be promptly addressed within the occupational health community.

**Methods:**
National Institute for Occupational Safety and Health (NIOSH) researchers are seeking to work with state and academic partners to expeditiously advance our current occupational health indicators, where amenable, into community level occupational health indicators (OHIs). Other, existing data sets are being pursued to create readily calculable community level OHIs. Subsequent to a request from the US Internal Revenue Service, Offices (e.g. OSELS, OSTLTS et al) of the Centers for Disease Control and Prevention (CDC) are currently working with partners to create 'best practices' documents and other tools (e.g. the EPI INFO 7, Community Health Module) to help agencies (e.g. health departments) and private entities (e.g. non-profit hospitals) with their community health assessments. CDC representatives (non-NIOSH) recognize the need for occupational health indicators within community health indicator initiatives, but the onus of recommending community level OHIs falls to the occupational health community.

**Results:**
Results of our evaluation of existing OHIs and their use as community level OHIs will be presented along with our evaluation of other existing data (e.g. OSHA–IMIS/ODI, BLS-CPS, Census–ACS) for calculating community level OHIs.

**Conclusions:**
There is an urgent need for occupational health indicators at the community level and the absence of community level OHIs may have significant repercussions to how workers' health is valued within community health assessments. Our evaluations of OHIs, calculable at the community level, help to meet this need.

---

**Presenting Author(s):**

**Jeffrey Shire**
Division of Surveillance, Hazard Evaluations, and Field Studies,
CDC/National Institute for Occupational Safety and Health,
Cincinnati, OH
jshire@cdc.gov

**Abstract ID:** 1366680 **Presentation Type:** Breakout Presentation
**Title:** Occupational Health Surveillance Partners Meeting
**Committee:** Occupational Health Sub-Committee
**Topic:** Other occupational health issues
**Keywords:** Occupational Health

**Background:**
NIOSH sponsored meeting for occupational health surveillance program grantees and other interested parties.

**Methods:**
A formal agenda and presentations will be provided.

**Results:**
Participants will discuss issues of relevance to occupational health, including but not limited to joint projects.

**Conclusions:**
Notes will be distributed by NIOSH after the meeting.

---

**Presenting Author(s):**

**Jeffrey Shire**
National Institute for Occupational
Safety and Health, CDC, Morgantown,
WV
jshire@cdc.gov

**Abstract ID:** 1331850 **Presentation Type:** Poster Presentation
**Title:** Racial and socioeconomic disparities in health conditions, behaviors and risk factors related to cardiovascular disease among Mississippi Delta adults
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Examining social determinants of health and health disparities in CD/MCH/OrH
**Keywords:** Cardiovascular disease|Health disparities

**Background:**
The 18-county Mississippi Delta is one of the most disadvantaged regions in the U.S., with more than one-third of the population living in poverty. Rates of cardiovascular disease (CVD)-related deaths in the Delta are among the highest in the nation. Moreover, the burden of CVD is disproportionately distributed across the population; CVD death rates are 1.4 times higher for blacks than whites. While national studies have shown that socioeconomic status (SES) underlies a portion of the higher rate of CVD in minorities, little is known about how SES influences cardiovascular health in the Delta. Therefore, we examined racial and socioeconomic disparities in CVD-related health conditions and risk factors in the Delta.

**Methods:**
We analyzed 2007-2010 MS Behavioral Risk Factor Surveillance System data from 3,519 blacks and 4,236 whites aged > 18 years living in the Delta. Poverty level, based on household size and income, was used as a measure of SES. Respondents were assigned as having household incomes < 100%, 100-199%, 200-399%, or > 400% of the federal poverty level. Prevalence estimates and 95% confidence intervals (CIs) were calculated for health status, health care coverage, hypertension, high cholesterol, BMI, fruit/vegetable consumption, physical activity, smoking, alcohol use, and history of heart disease, stroke, and diabetes. Differences in variable distributions between blacks and whites were tested using Chi-square statistics. Among blacks, multivariate logistic regression models were used to examine differences by SES.

**Results:**
Compared to whites, blacks were significantly more likely to report fair/poor health status (20.2% vs. 12.3%, p<0.0001), no health care coverage (30.5% vs. 15.1%, p<0.0001), hypertension (41.0% vs. 33.4%, p<0.0001), diabetes (14.9% vs. 9.3%, p<0.0001), overweight/obesity (72.5% vs. 64.1%, p<0.0001), and physical inactivity (36.6% vs. 30.5%, p=0.0002). Among blacks, there were strong and consistent trends of increasing prevalence of health conditions and risk factors with decreasing SES. Those with the lowest SES were significantly more likely to report fair/poor health status (AOR 5.4, 95% CI 3.1-9.6), no health care coverage (AOR 7.2, 95% CI 3.6-4.5), hypertension (AOR 1.9, 95% CI 1.2-3.1), heart disease (AOR 4.2, 95% CI 1.6-11.1), stroke (AOR 2.7, 95% CI 1.3-5.5), diabetes (AOR 2.9, 95% CI 1.8-4.5), physically inactivity (AOR 2.7, 95% CI 1.8-4.1) and smoking (AOR 3.7, 95% CI 2.1-6.6) compared to those with the highest SES.

**Conclusions:**
There are significant racial and socioeconomic disparities in CVD-related health conditions and risk factors in the MS Delta. Focusing public health efforts on lower-SES groups may help to reduce such disparities.

---

**Presenting Author(s):**

**Vanessa Short**
Mississippi State Department of
Health, Jackson, MS
Vanessa.Short@msdh.state.ms.us

**Contributing Authors**

Larry Smith, PhD (Mississippi State Department of Health), Vincent Mendy, MPH, CPH (Mississippi State Department of Health)

**Abstract ID:** 1332090 **Presentation Type:** Roundtable Presentation
**Title:** The CDC National Healthcare Safety Network: Planned Changes and Improvements and the Impact of State Mandates and CMS Rules
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Surveillance|Epidemiology|Electronic data

**Brief Summary:**
The collaborations that the Centers for Disease Control and Prevention's (CDC's) National Healthcare Safety Network (NHSN) Team has with the Council of State and Territorial Epidemiologists (CSTE) and the Centers for Medicare and Medicaid Services (CMS) provide important momentum for advances in healthcare-associated infection (HAI) surveillance at the local, state, and federal levels. The work that has been accomplished and new efforts underway are extending NHSN's capacity to produce accurate and valid surveillance data for effective prevention of HAIs in a variety of healthcare settings. As a result of state and CMS requirements, NHSN has emerged as the primary system used for HAI surveillance and reporting in the U.S. This development, in turn, has led to important changes and improvements to NHSN. These changes have been implemented for the purposes of reducing subjectivity, maximizing standardization, preventing data entry errors, improving simplicity and completeness of data entry, and more accurately defining the facility types and locations from which data are reported. The major enhancements include improved alerts and reporting of no events, template control for data sharing transferred to groups, revisions made to HAI criteria and definitions, additional output options for analysis and reports, expansion of custom fields, and movement of some defined locations into unique facility types. The NHSN system has also been stabilized with additional servers and architecture upgrades. Electronic reporting capability through Clinical Document Architecture (CDA) has been expanded to include LabID Event denominators, Dialysis Events, and Antimicrobial Use reporting. New additions coming soon to the NHSN system include the Long-Term Care Component and an Ambulatory Procedure Module. Together these revisions serve to improve the user interaction and experience with NHSN and the quality of the data that are analyzed and reported out of the system. During this session users will be asked to provide feedback and input on current and future enhancements to the NHSN system. The impact of state mandates and CMS rules to users, stakeholders, and the system will be discussed as a group. The intent is to make this an informative and interactive NHSN presentation and discussion.

**Key Objectives:**
1. Present major NHSN updates, changes, and improvements that have been recently deployed or that are planned for the system. 2. Review how mandates and rules from states and CMS affect NHSN and drive some of the changes. 3. Discuss the impact these changes have on data collection, entry, analysis, and reports.

---

**Presenting Author(s):**

**Dawn Sievert**
Centers for Disease Control and Prevention, Atlanta, GA
dsievert@cdc.gov

**Abstract ID:** 1326756 **Presentation Type:** Roundtable Presentation
**Title:** Listeriosis Surveillance and Outbreak Response using the Listeria Initiative
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Foodborne/waterborne disease
**Keywords:** Foodborne disease|Surveillance|Outbreaks

**Brief Summary:**
CDC established the Listeria Initiative in 2004 on behalf of the Council of State and Territorial Epidemiologists (CSTE) to aid investigations of listeriosis clusters by using a standardized, extended questionnaire to obtain timely food exposure histories from all persons with listeriosis reported in the United States. Invasive listeriosis generally affects certain subpopulations at higher risk (i.e., older adults, persons with immunocompromising conditions, and pregnant women, fetuses, and newborns). Clinical isolates of Listeria monocytogenes are submitted to PulseNet, the National Molecular Subtyping Network for Foodborne Disease Surveillance, for pulsed-field gel electrophoresis (PFGE) subtyping to identify clusters of PFGE-matched isolates in the PulseNet database. Epidemiological information from the LI database is combined with PFGE information, allowing for epidemiological investigation of listeriosis clusters with PFGE-matched isolates. The detailed food consumption data in the LI database can be used to rapidly generate and test hypotheses during investigations. The use of sporadic listeriosis cases (i.e., cases not associated with any cluster), as a comparison group for hypothesis testing during investigations, is especially useful because appropriate controls for a typical case-control study are difficult to identify and recruit. The 2011 multi-state outbreak of listeriosis, which was associated with whole cantaloupe from a single farm in Colorado, was the deadliest foodborne disease outbreak in the United States in nearly 90 years. The public health investigation, including analysis of LI data showing association with cantaloupe, led to a recall of this cantaloupe within 10 days of CDC notification of the outbreak. This rapid response prevented additional cases and deaths. National and state-specific summaries of LI reporting timeliness and LI questionnaire completeness will be provided. A review of data on reporting timeliness and completeness will be used to generate discussion on states' participation in the LI, including barriers to reporting and isolate submission to PulseNet.

**Key Objectives:**
The key objective of this discussion is to determine how best to build on the successes of the Listeria Initiative by maintaining and improving timely and complete participation of state and local health departments in the Listeria Initiative (LI). Specific discussion points will include: 1. Utility of LI in outbreak response – example of recent multistate listeriosis outbreak 2. Review reporting timeliness (case interview and submission of the LI form to CDC) nationally and by state 3. Review completeness of demographic, clinical, and food history data nationally and by state 4. Barriers to LI reporting and isolate submission to PulseNet

---

**Presenting Author(s):**

**Benjamin Silk**
Centers for Disease Control and Prevention, Atlanta, GA
bsilk@cdc.gov

**Katie Fullerton**
Centers for Disease Control and Prevention, Atlanta, GA
kfullerton@cdc.gov

**Contributing Authors**

Kelly Jackson, MPH, CDC

**Abstract ID:** 1331772 **Presentation Type:** Breakout Presentation
**Title:** CSTE/ CDC Guidelines for Investigating Cancer Clusters
**Committee:** Environmental Health Sub-Committee
**Topic:** Cancer and other disease cluster investigations
**Keywords:** Cancer|Epidemiologic methods|CDC Guidelines

**Background:**
In 1990, the Centers for Disease Control and Prevention (CDC) published a Morbidity and Mortality Weekly Report (MMWR) entitled "Guidelines for Investigating Clusters of Health Events." Since this time, continued attention has been given to suspected cancer clusters nationwide. Concurrently, many improvements in data resources, investigative techniques and analytic/statistical methods have occurred and much has been learned from both large- and small-scale cancer cluster investigations. To provide practical public health guidance to state and local health departments that respond to inquiries about suspected cancer clusters, CSTE and CDC convened a working group of state and federal epidemiologists and subject matter experts in 2010 to update these guidelines.

**Methods:**
The scope of these guidelines is limited to suspect cancer cluster investigations in residential or community settings. The guidelines are divided into five sections: definitions and characteristics, a four-step process, communication strategies, useful resources, and statistical and epidemiologic approaches. The four-step process includes initial contact and response, assessment, determining the feasibility of conducting an epidemiologic study, and conducting an analytic epidemiologic study to assess the association between cancers and environmental causes.

**Results:**
N/A

**Conclusions:**
The purpose of the presentation is to describe the updated guidelines and discuss how state and local public health official who respond to public concerns related to cancer can incorporate the approach outlined in the guidance. This information will complement the pre-conference workshop on public health response to cancer clusters by focusing on specific aspects of the investigations such as the values and pitfalls of statistical analysis.

---

**Presenting Author(s):**

**Kanta Sircar**
Centers for Disease Control and
Prevention, Chamblee, GA
ddq0@cdc.gov

**Contributing Authors**

Lauren Lewis Carina Blackmore Martha Stanbury

**Abstract ID:** 1331714 **Presentation Type:** Poster Presentation
**Title:** Investigation of a giardia cluster associated with a private club, Cook County, Illinois, 2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Foodborne/waterborne disease
**Keywords:** Waterborne disease|Collaboration|Outbreak investigations

**Background:**
Giardia, the most common intestinal human parasite, is often associated with contaminated water exposure. Outbreaks are not frequently identified but have been linked to treated and untreated recreational water. In September 2011, the Cook County Department of Public Health (CCDPH) determined that five individuals diagnosed with giardiasis resided in two households on one block. Household members belonged to a private sports club (Club A) with recreational water facilities. One month later, two additional Giardia cases were reported from two different households; also Club A members. CCDPH, the Illinois Department of Public Health (IDPH) and the Centers for Disease Control and Prevention (CDC) initiated an investigation to determine the extent of the outbreak.

**Methods:**
Letters were sent to all Club A members and staff requesting that any person experiencing diarrheal illness for >=3 days since August 1 contact CCDPH. A probable case was defined as a person who had contact with Club A lake and experienced diarrhea or bloating since August 1. A confirmed case was defined as a probable case with a positive Giardia test result by microscopy or EIA antigen. CCDPH Environmental Health inspected the kitchen facilities, whirlpool spa, and indoor pool. CCDPH and IDPH collected water samples in November from the pool (filter backwash), whirlpool filter, water fountain, lake (bathing beach) and lake (swimming buoy). CDC tested water samples with real-time PCR and fluorescence microscopy.

**Results:**
Eight confirmed and two probable cases were identified. Two of three case-patients identified through active case-finding remained symptomatic during the investigation and reported intermittent gastrointestinal symptoms 4-6 weeks prior. Both individuals experienced extensive gastrointestinal workups and severe dietary restrictions, but were not tested for Giardia. All case-patients reported Club A lake water exposure , one case-patient reported pool exposure, and one case-patient reported spa exposure in the month prior to illness onset. Upon inspection, the pool had a malfunctioning drain and the whirlpool spa contained turbid water. Giardia was not detected in the water samples.

**Conclusions:**
It is possible that a transient fecal contamination episode introduced Giardia into the lake, but a detectable level of Giardia was not present when samples were collected. The finding of three additional cases during this investigation demonstrates the value of active case-finding when investigating Giardia clusters. This outbreak investigation highlights the importance of Giardia surveillance and supports the rationale for keeping giardiasis as a reportable disease in Illinois.

---

**Presenting Author(s):**

**Alicia Siston**
Cook County Department of Public
Health, Oak Forest, IL
asiston@yahoo.com

**Contributing Authors**

Vincent Hill, PhD, PE, Centers for Disease Control and Prevention (CDC), Connie Austin, DVM, MPH, PhD, Illinois Department of Public Health (IDPH), Lihua X. Xiao, DVM, PhD, CDC, Mark Matuck, MPH Cook County Department of Public Health (CCDPH), John Mickle

**Abstract ID:** 1330792 **Presentation Type:** Breakout Presentation
**Title:** Pertussis in infants: Source of infection following Tdap introduction
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Vaccine preventable diseases
**Keywords:** Infectious Diseases|Surveillance|Immunization

**Background:**
Pertussis is a poorly-controlled vaccine-preventable disease with the highest rates of morbidity and mortality among infants. Although the source of infant pertussis is often unknown, when identified, mothers have been the most common reservoir of transmission. Tdap (acellular pertussis vaccines combined with tetanus and diphtheria toxoids) was licensed in 2005 for use among adolescents and adults. While adolescent Tdap coverage continues to increase, vaccine uptake remains low in adults. We sought to determine if the source of infant pertussis has changed in the U.S. following Tdap introduction.

**Methods:**
Cases in infants <1 year old that met the CSTE confirmed or probable case definition were identified through routine surveillance in seven Enhanced Pertussis Surveillance (EPS) sites between 1/1/2006-12/31/2010 (Massachusetts), 1/1/2006-10/30/2011 (Minnesota), 1/1/2010-10/30/2011 (Oregon) and 1/1/2011-10/30/2011 (Colorado, Connecticut, New Mexico, New York). The source of infection (SOI) was collected during patient interview and was defined as a person with cough illness who had contact with the infant case 7-20 days before date of infant cough onset; relationship and source age were also collected. Chi-square test was used for the comparison of proportions.

**Results:**
A total of 611 pertussis cases in infants <1 year old were identified during the study period; 94.3% were confirmed and 5.7% were probable. Overall, a SOI was identified for 315 (51.6%) cases. When stratified by age, infants 0-1 months were significantly more likely to have a source identified than infants 2-11 months old (115/193 (59.6%), 200/418 (47.9%), respectively; p=0.007). More than 72% of SOIs were identified as family members; the most common SOI was sibling (96/315 (30.5%)), mother (79/315 (25.1%)), other source (59/315 (18.7%), and father (29/315 (9.2%)). Overall, the median SOI age was 16 years (243/315 with known age). While adults 20-54 years old accounted for the largest proportion of identified SOIs each year between 2006-2009 (range 41.2%-47.4%); in 2010 and 2011, children 1-10 years old were the most common SOI (51.1%, 46.0%, respectively).

**Conclusions:**
In contrast to previous studies, our data suggest that the most common source of infant pertussis is now siblings. While continued monitoring of the source of infant pertussis is critical in order to optimize pertussis prevention strategies for infants, recent ACIP recommendations for maternal vaccination during pregnancy should directly increase protection of infants, regardless of source of infection.

---

**Presenting Author(s):**

**Tami Skoff**
Centers for Disease Control and
Prevention, Atlanta, GA
tlh9@cdc.gov

**Contributing Authors**

Cynthia Kenyon, MPH, Minnesota Department of Health, St. Paul, MN; Noelle Cocoros, DSc, MPH, Massachusetts Department of Public Health, Jamaica Plain, MA; Gretchen Barron, RN, BSN, Multnomah County Health Department, Portland, OR; Meghan Barnes, MSPH, Co

**Abstract ID:** 1316055 **Presentation Type:** Software Demonstration
**Title:** Disability surveillance presented interactively: The Disability and Health Data System
**Committee:**
**Topic:**
**Keywords:** Data/Surveillance|Disability|World Wide Web

**Brief Summary:**
In 1991 the Institute of Medicine emphasized the need for a disability surveillance system to assist in the understanding and monitoring of the health of people with disabilities. The Centers for Disease Control and Prevention has developed the Disability and Health Data System (DHDS) to fill this void and provide a disability surveillance tool for state partners, advocates, researchers, and others. Users can customize how they view disability and health data, making it easier to understand health disparity information, identify trends, and support the development of fiscally-responsible, evidence-based programs, services and policies. The Disability and Health Data System is an interactive, web-based system which presents Behavioral Risk Factor Surveillance System data from 2004-2010. Data for 79 health and demographic indicators stratified by disability status are presented as single survey year, 5 year average, and 5 year average stratified by demographic groups. For the 2007 single survey year, 49 indicators are separately stratified by psychological distress. It also contains data on disability-associated health care expenditures. The Disability and Health Data System provides users the ability to access disability data and choose the display that is best for their needs. Data can be displayed through interactive maps, a customizable data table, or by downloading indicator data to your computer. An interactive map is available to visually explore data values about an indicator for a state or region. State performance can be mapped and compared to other states. An interactive comparison map is available to visually compare two pieces of information about an indicator for states or regions, and allows both pieces of data to be displayed in one table. A customizable data table can be generated to include specific pieces of data for the selected indicator, including response levels, years, and associated data. Once a table is created, it can be exported to Microsoft® Excel (a spreadsheet application) or emailed for later access.

**Key Objectives:**
Demonstrate how the Disability and Health Data System can be used to locate and display indicator data for a state or region.

---

**Presenting Author(s):**

**Michelle Sloan**
Science Applications International Corporation Contractor, NCBDDD/Centers for Disease Control and Prevention, Atlanta, GA
jtq4@cdc.gov

**Alissa Cyrus**
National Center on Birth Defects and Developmental Disabilities, Centers for Disease Control and Prevention, Atlanta, GA
fdx7@cdc.gov

**Contributing Authors**

Brian Armour, PhD, Centers from Disease Control and Prevention

**Abstract ID:** 1313364 **Presentation Type:** Poster Presentation
**Title:** Descriptive evaluation of measles post-exposure prophylaxis efficacy during two 2011 outbreaks in Pennsylvania
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Vaccine preventable diseases
**Keywords:** Outbreaks|Infectious Diseases|Communicable disease

**Background:**
Measles is a highly transmissible, vaccine-preventable viral infection. Measles has been eliminated from the Western Hemisphere; however importations from other parts of the world continue. In Pennsylvania, persons who were born before 1957, have a history of physician-diagnosed measles, can document >1 dose of measles, mumps, rubella (MMR) vaccine, or have serologic evidence of measles immunity are considered immune to measles. Post-exposure prophylaxis (PEP) is recommended for exposed non-immune persons, using MMR vaccine or Immune Globulin (IG) within 72 hours or 6 days, respectively. In Pennsylvania, exposed susceptible persons who do not receive PEP are quarantined from day 8--21 post-exposure. This study reviewed contact tracing, PEP administration, and PEP efficacy in preventing measles disease during two outbreaks occurring in Pennsylvania in 2011.

**Methods:**
Locations where measles patients were present while infectious were identified. Immunity status was evaluated for all identified exposed contacts. PEP administration during each outbreak was assessed for timeliness and outcome. PEP failures were evaluated and further transmission assessed. Analysis was conducted using SAS 9.2.

**Results:**
During Outbreak A, 6 confirmed measles cases (1 primary, 4 secondary, 1 tertiary) occurred. Of 290 total identified exposed contacts, only 48% were considered immune. Fifty-four contacts received PEP (4 MMR, 50 IG); 96% of doses were given within the recommended timeframe. Persons in 43 households were quarantined. One PEP failure (98% efficacy) was reported, in a day 6 post-exposure IG recipient. During Outbreak B, 4 confirmed cases (1 primary, 3 secondary) occurred. Of 403 identified exposed persons, 70% were considered immune. Forty-three contacts received PEP (11 MMR, 32 IG); 95% was given within the recommended timeframe. Persons in 36 households were quarantined. One PEP failure (98% efficacy) was reported in a contact who received MMR on day 2 post-exposure. Two secondary cases occurred among index case household contacts who received MMR on day 7 after initial exposure.

**Conclusions:**
Two outbreaks involving a large number of susceptible contacts were investigated in Pennsylvania during 2011. Among the 693 exposed persons, 97 (14%) were given PEP, with 96% of doses given within the recommended timeframe. Only two PEP failures were reported (98% efficacy), although two persons given PEP outside the recommended timeframe also developed measles. These findings demonstrate that pockets of under-immunized populations exist in the United States, and emphasize the importance of prompt Identification and follow-up of susceptible exposed contacts during measles investigations.

---

**Presenting Author(s):**

**Erica Smith**
Bureau of Epidemiology, Division of
Infectious Disease Epidemiology,
Pennsylvania Department of Health,
Harrisburg, PA
c-erismith@state.pa.us

**Contributing Authors**

Smee, Aaron, MPH, Pennsylvania Department of Health, Bureau of Epidemiology; Lurie, Perrianne, MD, MPH, Pennsylvania Department of Health, Bureau of Epidemiology; Ostroff, Stephen, MD, Pennsylvania Department of Health, Bureau of Epidemiology

**Abstract ID:** 1332262 **Presentation Type:** Poster Presentation
**Title:** Travel-associated Legionellosis in New York State
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Respiratory diseases, non-influenza
**Keywords:** Respiratory diseases: Non-influenza|Communicable disease|Surveillance


**Background:**
In April 2010 New York State Department of Health (NYSDOH) introduced a new standardized case report form (CRF) for Legionellosis surveillance to collect important clinical and epidemiologic data, including travel history. Travel history can help identify epidemiologically linked cases and indicate the presence of a common environmental source. Timely source identification allows for prompt implementation of control measures. Analysis was performed to evaluate travel history data collected for Legionellosis in New York State (NYS).

**Methods:**
Local health department (LHD) staff completed case report forms on the NYSDOH Communicable Disease Electronic Surveillance System for all confirmed Legionellosis cases reported from April 1, 2010 – December 31, 2011. Analysis was limited to community-acquired Legionellosis cases (individuals with infection but no history of exposure to a health care facility). Travel was defined as one or more nights away from home in the 14-days prior to symptom onset and a travel-associated cluster as two or more Legionellosis cases staying in the same hotel/motel or aboard the same cruise ship within a 12-month period. Legionellosis cases with in-state travel are assessed to identify links to common locations within NYS. Information on Legionellosis cases with travel history to another state or country is also provided weekly to the Centers for Disease Control and Prevention to identify travel-associated clusters at the national level.

**Results:**
Of 652 Legionellosis cases reported, 36 (6%) were determined not to be community-acquired and were excluded from analysis. Among the 616 community-acquired cases, 610 (99%) had CRF's, identifying 157 (26%) cases with travel history; 321 (53%) who did not travel and 132 (22%) with missing or unknown travel history. Travel to another state or country was documented for 86 (55%) cases; 68 with travel to 26 states and 18 with travel to 15 countries. The remaining 71 (45%) cases traveled within NYS between one or more counties. Since implementation of the Legionellosis case report form, one NYS specific cluster has been identified. Data provided to CDC led to identification of four additional clusters in the Continental United States (US) and US Virgin Islands.

**Conclusions:**
Institution of the Legionellosis case report form has improved surveillance and cluster identification in NYS. NYSDOH will continue to actively monitor travel history collected on cases of Legionellosis, striving to reduce the percentage with missing or unknown data.


---

**Presenting Author(s):**


**Jamie Sommer**
New York City Department of Health
and Mental Hygiene, Albany, NY
jns03@health.state.ny.us


**Contributing Authors**


Dina Hoefer MPH, Deena Reyes BS, Alexandra Newman DVM, MPH New York State Department of Health

**Abstract ID:** 1330200 **Presentation Type:** Roundtable Presentation
**Title:** Occupational information in the EHR: State pilots, projects and progress
**Committee:** Occupational Health Sub-Committee
**Topic:** The role of Information Technology - including electronic medical records - in occupational health surveillance
**Keywords:** Information technology|Occupational Health|Health care

**Brief Summary:**
The national effort by the occupational health community to ensure that electronic health records capture information about patients' work includes national and state efforts. Ongoing projects by state health department and other personnel are critical to demonstrating the meaningful use of work information in the health care setting and the feasibilty of collecting and using information about patient's work, work setting,workplace exposures etc. The objectives of this roundtable session are to share information about ongoing projects, discuss common and unique challenges, and further harmonize work between state and federal partners.

**Key Objectives:**
Learn about ongoing state projects to incorporate work information into electronic health records systems. -Consider next steps for addressing project challenges -Discuss possible cross-state and state-national coordination of efforts to incorporate occupational information into the EHR.

---

**Presenting Author(s):**

**Kerry Souza**
CDC/National Institute for Occupational Safety and Health, Washington, DC
ksouza@cdc.gov

**Margaret Filios**
CDC/National Institute for Occupational Safety and Health, Morgantown, WV
msf0@cdc.gov

**Abstract ID:** 1330938 **Presentation Type:** Poster Presentation
**Title:** Evaluation of the contribution of Field Services Unit interview data to the New York City HIV/AIDS Surveillance Registry
**Committee:** Surveillance/Informatics
**Topic:** Other surveillance/informatics
**Keywords:** HIV/AIDS|Surveillance|Evaluation

**Background:**
The CDC has encouraged health departments to integrate surveillance and partner services programs to maximize efficiency and increase the proportion of persons receiving services. The New York City (NYC) HIV Surveillance Registry (HARS) includes all cases of HIV/AIDS diagnosed and reported in NYC. Sources of case information include electronic laboratory reporting, field investigation, provider report forms, and active surveillance. The HIV Surveillance Unit performs medical record abstraction during field investigation of all non-HARS-matching laboratory reports. The HIV Field Services Unit (FSU) performs active surveillance, including medical record abstraction and case interviews, for new HIV cases at hospitals and affiliated sites located in areas most affected by the epidemic, with a primary purpose of increasing HIV partner services in NYC. Case information collected by the Surveillance Unit and FSU are held in separate databases before they are integrated into HARS. We compared these two components of the NYC HIV surveillance system with respect to timing and efficiency of case ascertainment.

**Methods:**
Data collected from Surveillance Unit field investigations were merged with data from FSU active surveillance investigations for newly-reported HIV cases in NYC. We compared assignment dates for cases investigated by both units from July 1, 2006 through December 13, 2011. Additionally, the Surveillance Unit assignment date was compared with FSU interview date for cases investigated by both units.

**Results:**
There were 34,344 newly-reported cases overall. Of these, 5,722 (17%) were investigated by both units and, among this group, 4,596 (13%) additionally had FSU interview data. The FSU assignment date was earlier than the Surveillance Unit assignment date for 64% of cases investigated by both units, with a median interval between dates of 17 days (range 1-1,736 days). The FSU interview date also preceded the Surveillance Unit assignment date for 53% of cases with interview data, with a median interval between dates of 15 days (range 1-1,710 days).

**Conclusions:**
HIV cases detected through partner services during FSU active surveillance were investigated earlier than were those detected through laboratory report-prompted medical record review by HIV surveillance staff. Newly-reported HIV cases assigned for a medical record review and/or interview by partner services staff may not need an additional medical record review by surveillance staff. Efficiency gains may be achieved through more rapid integration of partner services information into HARS. Next steps are to compare completeness and consistency of data collected by FSU and Surveillance Unit staff for cases investigated by both units.

---

**Presenting Author(s):**

**Laura Stadelmann**
HIV Epidemiology and Field Services
Program, New York City Department
of Health and Mental Hygiene,
Queens, NY
lstadelmann@health.nyc.gov

**Contributing Authors**

Sara Bodach, MPH, NYC Department of Health and Mental Hygiene (DOHMH); Angelica Bocour, MPH, NYC DOHMH; Tamar Renaud, MPH, NYC DOHMH; Sarah Braunstein, PhD, MPH, NYC DOHMH; Colin Shepard, MD, NYC DOHMH

**Abstract ID:** 1367293 **Presentation Type:** Roundtable Presentation
**Title:** Environmental Health / Occupational Health / Injury Steering Committee Update
**Committee:**
**Topic:**
**Keywords:**

**Background:**

**Methods:**

---

**Presenting Author(s):**

**Martha Stanbury**
Michigan Department of Community
Health, Lansing, MI;
stanburym@michigan.gov

**Abstract ID:** 1333001 **Presentation Type:** Breakout Presentation
**Title:** Locally acquired dengue cases in Florida
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Vectorborne
**Keywords:** Vectorborne disease|Emerging diseases

**Background:**
In 2009-2010 an outbreak of local dengue fever with 93 cases occurred in Key West after more than 60 years without detected local dengue transmission in the state. Subsequent increased surveillance has uncovered at least eight additional dengue virus introductions. Epidemiologic, ecologic, and laboratory findings from these introductions and associated prevention efforts are discussed.

**Methods:**
Data were collected by the Florida Department of Health (FDOH) Vectorborne Disease Surveillance Program from county health departments and local mosquito control programs. Laboratory testing was performed at FDOH Bureau of Laboratories or Centers for Disease Control (CDC) per national guidelines.

**Results:**
Introductions occurred in 6 of Florida's 67 counties: Broward (1), Hillsborough (1), Martin (1), Miami-Dade (3 or 4), Monroe (1) and Palm Beach (2). It was not established whether two cases in Miami-Dade were linked or were individual introductions. In all other instances, virus typing and epidemiological data confirmed that cases were isolated. In two instances (Martin and Hillsborough) autochthonous infections followed international travel by another household member. While at least six introductions occurred in counties with the highest number of imported dengue cases (Miami-Dade, Broward and Palm Beach), two were in counties with relatively low numbers of imported cases detected (Martin and Monroe). In two instances the outbreak area included popular domestic and international tourist destinations (Monroe and Miami). Likely exposure for index cases occurred while at the case home (6 or 7), lodging at a bed and breakfast (1), engaged in an out-of-doors occupation (1), and socializing outside a popular restaurant (1). Exposure sites for all cases primarily were in neighborhoods with yards and ample vegetation. Other exposure sites involved an urban apartment complex, a downtown area with abandoned buildings, tourist area, and a construction site. Aedes albopictus was believed to have been the primary vector in Martin County and for least one of the Palm Beach introductions. Aedes aegypti appeared to be most important in the others and is the only dengue vector present in Monroe County.

**Conclusions:**
Prevention efforts targeting travelers, international airports and cruise ship ports are needed. Emphasis should also be placed on using prevention practices when travelers become sick after returning home. Outreach is particularly important in counties with high numbers of imported dengue cases or that have robust populations of Ae. aegypti.

---

**Presenting Author(s):**

**Danielle Stanek**
Florida Department of Health,
Tallahassee, FL
Danielle_Stanek@doh.state.fl.us

**Contributing Authors**

Lillian Stark, PhD, MPH, MS, Florida Department of Health, Bureau of Laboratories Leena Anil, MVSc, PhD, Florida Department of Health, Bureau of Environmental Public Health Medicine Carina Blackmore, DVM, PhD, Dip ACVPM, Florida Department of Health, Bure

**Abstract ID:** 1331314 **Presentation Type:** Poster Presentation
**Title:** Incidence of post-surgical infections after low-risk, short-stay surgeries performed in ambulatory and inpatient settings
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Healthcare associated infections (HAI)

**Background:**
Healthcare-associated infections rank among the leading causes of death in the U.S. and are a growing public health concern. Limited information is available on post-surgical infections following short-stay surgeries. The objective of this study was to determine the incidence of post-surgical infections across a spectrum of low-risk procedures routinely performed in ambulatory surgery centers (ASCs) and short-stay (less than two days) hospitalizations.

**Methods:**
Surgical procedures across body systems, general and gender-specific (e.g., cholecystectomy, hernia repair, anterior cruciate ligament (ACL) repair, hysterectomy, and transurethral prostatectomy (TURP)) were selected. The study included patients from eight states (CA, FL, GA, HI, MO, NE, NY, TN) that participate in the Healthcare Cost and Utilization Project (HCUP). Surgeries were performed in hospital-owned ASCs or community hospitals between February and November 2009 in which the patient was discharged with no indication of infection. State Inpatient, Ambulatory Surgery, and Emergency Department Databases with verified, synthetic person identifiers were used to identify surgeries and track infections. Post-surgical 14- and 30-day rates per 1,000 surgeries were calculated for each surgery and setting. We differentiated the rates for directly-related surgical site infections (SSIs), such as wound infections, indirectly-related infections such as pneumonia, and post-surgical hospital care for any cause.

**Results:**
The rate of directly-related SSIs within 14 days per 1,000 ASC surgeries varied from 1.3 (laproscopic inguinal or femoral hernia repair) to 9.7 (laproscopic incisional or abdominal hernia repair), while indirectly-related SSIs within 14 days ranged from 1.1 (ACL repair) to 21.3 (TURP). The average directly-related rate increased from 4.9 to 7.8 when the time frame was extended to 30 days; and the indirectly-related rate increased from 6.4 to 9.6. The average rate of all-cause, post-surgical hospital care per 1,000 ASC surgeries was 58.2 (14 days) and 88.8 (30 days) and included visits primarily for pain. Surgeries performed as a short-stay inpatient often resulted in the same or higher infection rates as those in an ASC.

**Conclusions:**
This study provides baseline estimates of post-surgical infections following low-risk, short stay surgeries performed in ambulatory and inpatient settings. Although there is a range of rates across type of surgery, infection, and setting, the rates are relatively low, and much lower that the any-cause post-surgical hospital care. Inpatient hospitals with strict infection control standards did not demonstrate lower infection rates than ASCs. Further investigation is needed to determine whether inpatient cases were more complicated, and therefore, at higher risk of infection.

---

**Presenting Author(s):**

**Claudia Steiner**
Agency for Healthcare Research and
Quality, Rockville, MD
claudia.steiner@ahrq.hhs.gov

**Contributing Authors**

Pamela L. Owens, PhD, Consultant to AHRQ Marguerite L. Barrett, MS, M.L. Barrett, Inc. Del Mar, CA

**Abstract ID:** 1366701 **Presentation Type:** Software Demonstration
**Title:** WHONET – Software to support laboratory-based public health reporting
**Committee:**
**Topic:**
**Keywords:** Antimicrobial resistance

**Brief Summary:**
The free WHONET software has been developed by the WHO Collaboration Centre for Surveillance of Antimicrobial Resistance since 1989. At present, it is used in over 110 countries to support local, national, and regional surveillance collaborations involving over 1300 clinical, public health, veterinary, and food laboratories. Priority areas supported by the software include tracking of evolving microbial populations, characterization of trends in disease etiologies and in antimicrobial resistance; guidance for therapeutic and resistance containment strategies; and detection and investigation of pathogen outbreaks in community and hospital settings; and evaluation of interventions. Over the past few years, WHONET has been adapted to support public health reporting requirements in the United States, including the reporting of healthcare-associated infections to the CDC National Healthcare Safety Network and notifiable community infections to state health departments. This presentation will include background information about WHONET activities and a live demonstration of software capabilities.

**Key Objectives:**
During this sessions, attendees will: -- learn of the history of free WHONET software development and its use around the world -- follow a live-demonstration of the WHONET software, including applications in public health reporting to the CDC (National Healthcare Safety Network) and state health departments (electronic laboratory reporting of notifiable communicable diseases) -- hear about our experiences with the integrated WHONET and SaTScan package for automated detection of community and healthcare-associated outbreaks

---

**Presenting Author(s):**

**John Stelling**
WHO Collaborating Centre for
Surveillance of Antimicrobial
Resistance, Brigham and Women's
Hospital, Harvard Medical School,
Boston, MA
jstelling@whonet.org

**Abstract ID:** 1326715 **Presentation Type:** Poster Presentation
**Title:** Population-based sentinel surveillance among persons Reported with N. gonorrhoeae; Addressing gaps in case reporting data with the STD Surveillance Network (SSuN) *
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Sexually transmitted infections
**Keywords:** Sexually Transmitted Diseases|Surveillance|Data/Surveillance


**Background:**
National case reporting is often incomplete with respect to essential case characteristics such as race and Hispanic ethnicity. These data are essential for revealing inequalities in disease burden and planning effective disease control interventions.

**Methods:**
Gonorrhea cases reported from 12 sites participating in the STD Surveillance Network (SSuN) were screened for eligibility (reported within 60 days of diagnosis and resident in the jurisdiction). A random sample was drawn from eligible cases and health department staff attempted to contact selected patients for a brief demographic and behavioral interview. Weighted interview data were used to estimate gonorrhea incidence rates by race and Hispanic ethnicity across SSuN jurisdictions; these estimates were compared to rates calculated using national case report data with unknown race/ethnicity redistributed by the proportion of known cases.

**Results:**
Of gonorrhea cases reported in SSuN jurisdictions in 2010 (N=68,700), 81% (55,637) were eligible for sampling. A random sample of 8,737 (15.7%) cases was drawn and interviews attempted. Participating jurisdictions successfully interviewed 3,471 patients for an overall interview completion rate of 39.7% (range 17 – 82%). Among cases reported in SSuN jurisdictions, 30% of initial case reports were missing race and 51% were missing Hispanic ethnicity. Among interviewed cases, race and/or Hispanic ethnicity was complete for 98.7%. Rates per 100,000 for Non-Hispanic Asians and Non-Hispanic Whites were comparable between SSuN estimates and NETSS cases with race redistributed (21.5 vs. 22.8 and 40.6 vs. 39.7, respectively). However, SSuN estimates for Non-Hispanic Blacks were lower (455.4 vs. 514.8 per 100,000) and higher for American Indian/Alaska Natives and Hispanics (102.4 vs. 52.7 and 73.3 vs. 61.2, respectively). Moreover, using SSuN estimates, relative ranking between groups changed. Native American/Alaska Natives ranked second in incidence behind Non-Hispanic Blacks whereas rates calculated using NETSS data place Hispanics second.

**Conclusions:**
Data from a random sample of cases may provide information to better estimate gonorrhea incidence rates by race and Hispanic ethnicity. While additional work is needed to improve interview completion rates and assess potential response bias in the STD Surveillance Network, these data may be invaluable for more accurately monitoring inequalities in disease burden by race and Hispanic ethnicity and serve as an evaluation tool for assessing the validity of routine case reporting.


---

**Presenting Author(s):**


**Mark Stenger**
Division of STD Prevention, Centers
for Disease Control and Prevention,
Atlanta, GA
zpl4@cdc.gov


**Contributing Authors**


Llata, Lisa, MD, U.S. Centers for Disease Control and Prevention Weinstock, Hillard, MD, U.S. Centers for Disease Control and Prevention

**Abstract ID:** 1312924 **Presentation Type:** Poster Presentation
**Title:** Trends in rotavirus vaccine coverage and risk factors associated with partial or no coverage, Washington State 2007 – 2010
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Vaccine preventable diseases
**Keywords:** Immunization|Risk factors|Epidemiology

**Background:**
The National Immunization Survey (NIS) estimates for rotavirus vaccine coverage rank Washington State among the lowest in the nation. In the 2009 estimate, 20.9% of Washington children were fully immunized for rotavirus by 7 months 0 days of age, a proportion that increased to 50.4% in the 2010 estimate. The Washington Immunization Information System (IIS) is a secure web-based immunization registry with 95% provider participation covering 98% of vaccine doses ordered through the Washington State Department of Health, which provides vaccine for all children in the state less than 18 years of age. We utilized data from the Washington IIS and birth registry to estimate trends in rotavirus vaccine coverage and identify risk factors associated with partial or no vaccine coverage.

**Methods:**
Rotavirus dose data from the Washington IIS for three full-year cohorts of children born 2007 through 2010 were retrospectively analyzed to estimate trends in complete and partial rotavirus vaccine coverage. To assess maternal and child risk factors associated with partial or no coverage, immunization records were linked with birth certificates. Full coverage was defined as three doses of RotaTeq® [RV5] by 8 months 0 days of age, partial coverage was defined as at least one RV5 dose, and no coverage was defined as no dose of rotavirus vaccine but documentation of at least one other vaccine administered between 6 and 15 weeks of age. Analyses were completed using SAS 9.2 and LinkPlus.

**Results:**
We estimated complete rotavirus vaccine coverage among cohorts to be 33%, 51%, and 56%, respectively. Of children who received any rotavirus dose among cohorts, an estimated 67%, 73%, and 74% completed the series, respectively. Complete coverage in all three cohorts was higher in western Washington than in eastern Washington. Risk factor analysis results will be presented.

**Conclusions:**
While rotavirus vaccine coverage has increased substantially during the last three years, almost half of Washington children do not achieve full coverage. A better understanding of maternal and child risk factors for partial or no rotavirus vaccine coverage can guide public health interventions.

---

**Presenting Author(s):**

**Kathleen Stigi**
Communicable Disease Epidemiology,
Washington State Department of
Health, Shoreline, WA
katie.stigi@doh.wa.gov

**Contributing Authors**

Chas DeBolt, RN MPH - Washington State Department of Health Kathy Lofy, MD- Washington State Department of Health

**Abstract ID:** 1332618 **Presentation Type:** Breakout Presentation
**Title:** Evaluating progress among hospitals in collecting improved race, ethnicity and tribal data in New Mexico
**Committee:** Cross Cutting Sub-Committee
**Topic:** Health disparities: Racial/ethnic and socioeconomic, Best epidemiologic practices
**Keywords:** Data collection|Hospital data

**Background:**
We conducted a preliminary analysis of the impact of interventions used to improve race and ethnicity data collection in the New Mexico Hospital Inpatient Discharge Dataset (HIDD). As of 2011 all non-federal New Mexico Hospitals must collect refined race, ethnicity and tribal data, using the 1997 Office of Management and Budget (OMB) guidelines, which was enacted by statute requirement. In this project, funded by the Agency for Healthcare Research and Quality (AHRQ), we evaluated completeness, timeliness and quality of HIDD race and ethnicity data submitted by 37 acute hospitals representing 98,861 admissions during the first two quarters of 2011.

**Methods:**
We used descriptive techniques to evaluate the impact of administrative code and reporting frequency changes. We compared the quality of race and ethnicity data by location (rural vs. urban) and bed numbers (<100 vs. >=100). We characterized hospital data quality using 12 ordinal categories ranging from 1 (fully compliant) to 12 (no data submitted) with grades indicating “multiple race not reported”, “ethnicity missing in all fields”, or “Native American race indicated but no tribal affiliation”. To assess reporting improvement, change in compliance was evaluated comparing “change in assigned category” versus “no change” between quarter 1 and 2 using Fisher’s exact test.

**Results:**
During the first 2 quarters of 2011 we received data from 36 (97%) hospitals. Rural hospitals (n=26) were more likely to report than those in urban areas (72% vs. 27%), as were those with greater than 100 beds (n=23, 64%). Those that improved in quality (n=13, 36%, range 1-3 grades), tended to have more than 100 beds and be located in an urban area. Those hospitals that decreased in data quality (n=2, 5.6%, decrease of 1 grade) were all rural. In these preliminary analyses no changes in compliance category were significant at the 0.05 level although the submission time from quarter 1 to 2 did decrease for most hospitals (quarter 1: range -144 to 70 days, quarter 2: -53 days to 81 days).

**Conclusions:**
Targeted interventions to improve the completeness and timeliness of hospital discharge data in New Mexico appear to be improving quality of reported race and ethnicity, although these efforts are in their infancy. Continued surveillance, in conjunction with more training in the hospitals, should improve these data.

---

**Presenting Author(s):**

**Sue Noell Stone**
Epidemiology and Response Division,
New Mexico Department of Health,
Santa Fe, NM
noell.stone@state.nm.us

**Contributing Authors**

Nicole Katz, MPH, New Mexico Department of Health; Terry Reusser, MBA, New Mexico Department of Health; Michael Landen, MD, MPH, New Mexico Department of Health

**Abstract ID:** 1341074 **Presentation Type:** Roundtable Presentation
**Title:** Hospital infection preventionists (IPs) and their relationship with state/local health departments
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Healthcare associated infections (HAI)|Surveillance

**Background:**
More than half the states and the federal government have enacted legislation requiring mandatory, public reporting of healthcare-associated infections (HAIs). In most states, the sole source of funding for HAI efforts has been the American Recovery and Reinvestment Act of 2009 (ARRA). In order to gain a better understanding of the impact of ARRA funding and the involvement of state and local health department HAI efforts on the hospital-based infection prevention community, a survey was developed by the Association for Professionals in Infection Control and Epidemiology (APIC) in conjunction with the Centers for Disease Control and Prevention (CDC) and Council of State and Territorial Epidemiologists.

**Methods:**
In June 2011, an electronic survey was issued to hospital infection preventionists (IPs) to collect demographic information, ascertain frequency and types of interaction with state and local public health, and seek recommendations for improvement.

**Results:**
1334 surveys (30% ACHs) were submitted and met the criteria for inclusion. There were 4-82 responses from each state and two responses from Washington DC. Thirty-seven percent had reported an HAI outbreak in the past two years. Epidemiologic assistance was most frequently provided by the state (52 percent) or local DOH (55 percent). Overall, respondents stated that public health laboratory support was available from the state (71 percent) or local DOH (23 percent). Infection preventionists in states without mandatory, public reporting were more likely to have reported an increase in infection prevention resources than IPs in states with mandatory, public HAI reporting but the difference was not statistically significant. Eighty percent reported contact with their state DOH and 94 percent with their local DOH in the last year. Four percent needed prior approval to contact the DOH. Less than one percent had no contact with a state or local DOHs in the past year. IPs were more likely to have a specific contact person at the local DOH when compared to the state DOH but the specific person at the state was almost twice as likely to have HAI expertise (65 versus 39 percent). IPs reported spending a mean of 25 hours per month reporting, range was 0 – 605 hours. The mean number of hours per occupied bed per month was 0.25 hours. The most hours were spent by IPs in Pennsylvania where all HAIs are reportable. The infection prevention and control program is responsible for general communicable disease reporting and reported spending an average of nine hours per month on communicable disease reporting (0 – 200 hours per month). Factors considered the most important in establishing an effective relationship between the local and/or state health departments and hospitals will also be presented.

**Conclusions:**
This IP survey provides insight into the relationship between IPs and the public health communities. The information on a state level can be used to enhance collaboration and identify areas for improvement. At the national level, the information can serve as a baseline for future efforts and as an indicator of the response to ARRA funding.

---

**Presenting Author(s):**

**Rachel Stricof**
Council of State and Territorial
Epidemiologists, Atlanta, GA
rstricof@gmail.com

**Contributing Authors**

Marilyn Hanchett, Jennifer Beaumont PhD, Denise Graham and Arjun Srinivasan, MD

**Abstract ID:** 1332606 **Presentation Type:** Poster Presentation
**Title:** Detection of respiratory viruses in an outpatient clinic setting in Iowa
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Influenza
**Keywords:** Infectious Diseases|Influenza / Pandemic influenza|Influenza surveillance


**Background:**
The Iowa Department of Public Health and the State Hygienic have participated in the Influenza Incidence Surveillance Project (IISP) supported by the Council of State and Territorial Epidemiologists and Centers for Disease Control and Prevention (CDC). Five outpatient clinics in Iowa participated in IISP during the 2010-2011 project surveillance period (8/10-7/11) and reported weekly the number of Acute Respiratory Infection (ARI), Influenza-like Illness (ILI) and total patient visits. Demographic and clinical data were recorded and each week respiratory specimens were collected from the first 10 ILI and ARI patients. Specimens were tested for influenza and other respiratory viruses by real-time RT-PCR and virus culture. This report compares the performance of the CDC's real-time RT-PCR panel with culture and summarizes the seasonality of viruses.

**Methods:**
Nasopharyngeal swabs were collected in M4-RT viral transport medium. All were tested for influenza A and B by real-time RT-PCR and positive influenza A subtyped (H1, H3, H1N1 pdm09). Influenza negative specimens were tested by the CDC's real-time RT-PCR panel for additional respiratory viruses including respiratory syncytial virus (RSV), adenovirus, parainfluenza viruses 1-3, human metapneumovirus (hMPV), and rhinovirus/enterovirus. Specimens were also tested by R-Mix Too shell vial culture and for hMPV by DFA, both from Diagnostic Hybrids.

**Results:**
1046 patients (380 ARL and 666 ILI) were tested for influenza by RT-PCR: 150 influenza A (98 H1N1 pdm09 and 47 H3) and 115 influenza B were detected. In addition, 370 other respiratory viruses were detected by RT-PCR and the percentage that were also positive by culture was determined (shown in parenthesis): 170 rhinovirus (13%), 63 adenovirus (61%), 62 RSV (2%), 4 parainfluenza 1 (25%), 22 parainfluenza 2 (62%), 30 parainfluenza 3 (56%), and 19 hMPV (16% positive by DFA). Ten were positive for culture and not by RT-PCR: 7 adenovirus, 1 parainfluenza 2 and 2 parainfluenza 3. In addition, considerable patients had co-infections: 10 adenovirus with rhinovirus, 7 rhinovirus with RSV, 3 adenovirus with RSV, 2 adenovirus with parainfluenza 3, 1 parainfluenza 2 with 3 and 1 parainfluenza 3 with RSV. The viruses appeared in distinct waves throughout the season: rhinovirus and parainfluenza 2 peaked in September; influenza and RSV peaked in January and February; and adenovirus, parainfluenza 3 and hMPV peaked in late February and March.

**Conclusions:**
CDC's real time RT-PCR panel testing for respiratory viruses detected more viruses than R Mix Too, especially for rhinovirus and RSV. The discordant results need further investigation.


---


**Presenting Author(s):**

**Yumei Sun**
Iowa Department of Public Health,
Des Moines, IA
yumei.sun@idph.iowa.gov

**Contributing Authors**

Lucy E DesJardin, Ph.D., State Hygienic Laboratory at the University of Iowa Anna Yakos, State Hygienic Laboratory at the University of Iowa Kemi Oni, MPH, Iowa Department of Public Health Jeff Benfer, MB, State Hygienic Laboratory at the University of Io

**Abstract ID:** 1330233 **Presentation Type:** Breakout Presentation
**Title:** BRFSS and Work-related Variables: Understanding the impact of work on health
**Committee:** Occupational Health Sub-Committee
**Topic:** Improving occupational health surveillance
**Keywords:** Occupational Surveillance|Risk factors|Chronic illness

**Background:**
The relationship between occupation and diseases has been recognized since Hippocrates (370 BC) who observed severe colic in a lead miner. Further research and observations over the intervening years demonstrate that work also contributes to social status, educational attainment, and access to private health care and wellness services, among others. Thus, in 2007, the World Health Organization noted that 'occupation or work' is an important social determinant of health, and as such, should be measured to understand factors related to personal health status. While the United States has no national health survey of workers to tease out these complex relationships, there are a number of health surveys of the general population, such as the Behavioral Risk Factor Surveillance System (BRFSS), that provide the opportunity to explore the interplay between work and health. BRFSS is unique in that it concentrates on personal risk factors that may be mitigated or exacerbated by work.A strategic goal of the National Institute for Occupational Safety and Health (NIOSH) surveillance program is to better quantify health risk factors, health status, health behaviors and chronic diseases among a population-based sample of U.S. workers, including self-employed, small businesses, and independent contractors. To that end, NIOSH is adding questions to the BRFSS in years 2013-2016 to improve understanding of the relationship between work and health.

**Methods:**
NIOSH is currently providing technical assistance to 9 states that will be adding industry and occupation (I/O) as state-added questions in 2012 BRFSS; three of these states also asked those questions in 2011. NIOSH is developing interviewer training materials and a new computerized coding system specifically for the I/O data.

**Results:**
Currently, NIOSH and participating states are planning for the 2013 BRFSS I/O module. After 2012 BRFSS is completed, NIOSH will have information about the percentage of I/O data that can be coded from multiple states using the new system. NIOSH coding of the I/O data will facilitate the best use of this information about work by states and others.

**Conclusions:**
This presentation will explore how the inclusion of two variables about work in BRFSS can advance occupational health objectives within state occupational health programs.

---

**Presenting Author(s):**

**Marie Sweeney**
DHHS/CDC, CDC/National Institute for
Occupational Safety and Health,
Cincinnati, OH
mhs2@cdc.gov

**Contributing Authors**

Aaron Sussell, PhD, MPH CDC/National Institute for Occupational Safety and Health

**Abstract ID:** 1323431 **Presentation Type:** Poster Presentation
**Title:** Fatal Rabies in a U.S. Army Soldier
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Zoonoses
**Keywords:** Rabies|Risk Assessment|Risk communication

**Background:**
Although human cases are rare in the United States, >55,000 persons die from rabies annually in canine rabies endemic regions. Human rabies is preventable with timely post-exposure prophylaxis (PEP). In August 2011, rabies was diagnosed in a soldier several months after return from deployment. The initial public health response to this case will be described.

**Methods:**
State, local, federal, and military public health officials collaborated through daily conference calls, email, and other communication tools to investigate the exposure source and conduct risk assessments of case contacts. The patient's laboratory specimens, medical records, and travel history were reviewed. The patient and his close family and friends were interviewed regarding his exposure and PEP history. Contacts' exposure risks were assessed and PEP recommendations were provided.

**Results:**
The patient reported sustaining a dog bite during December 2010–January 2011 while in Afghanistan. Genetic sequencing of the virus indicated a variant associated with Afghan dogs. The patient's family believed that he received partial PEP, but this could not be substantiated as no rabies virus neutralizing antibodies were detected in a post-deployment banked serum specimen. Eighty-nine contacts in 2 countries were interviewed; 29 contacts received PEP. Additionally, 10 members of the patient's former Army unit had sustained previously unreported animal bites and received PEP. Based on these findings, military and CDC personnel collaborated to create educational materials for providers and preventive messaging for service members that were distributed through active and reserve military channels and Veterans Affairs.

**Conclusions:**
This case stresses the need to avoid animal contact while in rabies-endemic regions and to seek prompt medical evaluation following any animal bite or suspected rabies exposure. Close collaboration between local, state, federal and military public health is essential to ensuring seamless, robust responses to disease threats.

---

**Presenting Author(s):**

**Danielle Tack**
Poxvirus and Rabies Branch, Centers
for Disease Control and Prevention,
Atlanta, GA
dot7@cdc.gov

**Contributing Authors**

Angela M. Maxted, DVM, PhD New York State Department of Health, Albany, NY; Epidemic Intelligence Service, Centers for Disease Control Prevention, Atlanta, Georgia Laura A. Pacha, MD, MPH US Army Public Health Command, Aberdeen Proving Ground, Maryland

**Abstract ID:** 1329732 **Presentation Type:** Breakout Presentation
**Title:** Impact of misclassified amputations on the estimate of work-related amputation injuries; Capture-recapture analysis of Massachusetts data, 2007-2008
**Committee:** Occupational Health Sub-Committee
**Topic:** Underreporting: occupational injuries, illnesses, and data limitations
**Keywords:** Occupational Surveillance|Occupational injury and death|Epidemiologic methods

**Background:**
A few studies have used capture-recapture analysis to examine the magnitude of work related injuries and illnesses. No studies have used this method to examine specific work related injuries such as amputations. We aimed to estimate the total number of work-related amputations in Massachusetts that occurred in 2007 and 2008. Because amputations are selected based on a set of criteria, misclassification occurs. We have examined the impact of misclassified amputations on the estimate of total number of work related amputations.

**Methods:**
Eligible amputation cases include those with injury event dates during 2007 and 2008 and the event occurred while working. The Massachusetts Bureau of labor Statistics (BLS) samples and workers' compensation records (WC) of lost time cases were used to perform a capture-recapture analysis. Records were reconciled using a specific set of matching criteria using FRIL® (v3.2). Case capture rates by data source were calculated. Because the WC amputation cases are all cases resulting in five or more lost workdays, it was necessary to restrict the BLS cases resulting in five or more lost workdays. In addition, BLS cases are selected from a sampling strategy therefore have sampling weights. WC cases were restricted to those reported from the same establishments sampled by BLS and BLS sampling weights applied. The total number of work related amputations was estimated using the Lincoln-Petersen (LP) estimator. We searched the full WC and BLS datasets to see if some of the unmatched cases were captured by the other data source but not initially selected into our study because they were not categorized as amputations. We reassigned such cases as amputations and recalculated the total number of cases using the LP estimator.

**Results:**
A total of 44 (223 weighted) BLS sample and 45 (214 weighted) WC cases were used in the analysis. A total of 22 BLS cases were found to be categorized as other injuries in WC data, and 20 WC cases were identified as other injuries in BLS. Depending on how we treat these cases, our estimates of total number of work related amputations ranged from 247 to 384 cases which also yield dramatically different capture rates ranging from 34% to 90% for each data source.

**Conclusions:**
Biased measures of work related amputations due to misclassification would subsequently be misleading if used for prevention and evaluation purposes. Our findings highlight the importance of accurately classifying work related injuries and illnesses and caution researchers that potential misclassification of such cases can bias the estimates significantly and therefore they should do their due diligence in finding all the potential cases in capture-recapture analysis.

---

**Presenting Author(s):**

**Sangwoo Tak**
MDPH, Massachusetts Department of
Public Health, Boston, MA
Sangwoo.Tak@state.ma.us

**Contributing Authors**

Occupational Health Surveillance Program, Massachusetts Dept. of Public Health: Kathleen Grattan, MPH Lucy Bullock, BA Letitia Davis, ScD, EdM Boston University: Leslie Boden, PhD Children's Hospital, Boston MA: Al Ozonoff, PhD

**Abstract ID:** 1319431 **Presentation Type:** Breakout Presentation
**Title:** An evaluation of pertussis PCR cycle threshold values by case classification, Washington State, 2007-2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Vaccine preventable diseases
**Keywords:** Epidemiologic methods|Surveillance|Infectious Diseases

**Background:**
Cases testing positive for pertussis by PCR but not meeting clinical case definition are an important part of pertussis surveillance. A comparison of 2007-2010 Washington State (WA) confirmed and PCR-positive suspect pertussis cases found no differences in most case characteristics and outcomes. PCR-positive suspect cases were treated with antibiotics significantly earlier than confirmed cases, which may have contributed to shorter cough duration and modification of other case-defining symptoms. We now include pertussis PCR cycle threshold (Ct) values in an updated evaluation of 2007-2011 reports.

**Methods:**
All 2007-2011 cases with WA Public Health Laboratories (PHL) PCR (single-target IS481 assay) were analyzed. Ct values were categorized as <20, 20-32, 33-37, and undetected/negative (?38). Select factors that could affect pertussis DNA sample amount were evaluated: age, onset to antibiotic use, and onset to testing.

**Results:**
Of 2,472 total case reports tested by PCR, 419 (17%) were performed by PHL: 252 confirmed (83% positive), 94 probable (0% positive), and 73 suspect (27% positive). Among PCR-positive cases with available Ct values, proportions of confirmed (n=201) and suspect (n=20) cases in each Ct value category were as follows: <20: 20% and 10%; 20-32: 54% and 35%; 33-37: 26% and 55%. Suspect cases had lower median onset to antibiotic use and testing than confirmed cases (5 vs. 12 days and 5 vs. 14 days, respectively). Mean and median age was positively correlated with Ct values for both groups. The mean Ct value for confirmed cases was significantly lower than that for suspect cases (27.1 versus 31.0, $p<0.005$), but when adjusted for age, the difference was no longer significant.

**Conclusions:**
Nearly half of the PCR-positive suspect cases had a Ct value of 32 or lower, and likely represent true infection with pertussis. The inclusion of PCR Ct values, when adjusted for age, did not show a significant difference when comparing PCR-positive suspect and confirmed cases.

---

**Presenting Author(s):**

**Azadeh Tasslimi**
Communicable Disease Epidemiology,
Washington State Department of
Health, Shoreline, WA
Azadeh.Tasslimi@doh.wa.gov

**Contributing Authors**

Chas DeBolt, RN, MPH, Washington State Department of Health

**Abstract ID:** 1327722 **Presentation Type:** Breakout Presentation
**Title:** Echinococcus granulosus: Identifying and managing modern day public health risks in Idaho
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Zoonoses
**Keywords:** Zoonotic disease|Animals and Public Health|Surveillance


**Background:**
Echinococcus granulosus (EG), a diminutive zoonotic tapeworm found worldwide, causes unilocular hydatid disease. The definitive hosts are wild or domestic canids, which shed infectious eggs and predate ungulate intermediate hosts. Although rarely detected, two North American biotypes exist: the sylvatic, detected in wolves, dogs, and wild ungulates; and the pastoral, detected in dogs and sheep. Humans are infected by accidentally consuming EG eggs in contaminated food or water, or by contact with egg-contaminated surfaces (e.g., soil, fur). Infected persons may be asymptomatic or have life-threatening infections, depending on the location of the hydatid cyst, the biotype, and the duration of infection. Diagnosis is complex. Published case series of EG in the United States have usually been in immigrants infected abroad, although domestic cases have occurred, especially in Utah and Alaska. Reducing dog exposure to sheep carcasses and use of antiparasiticals reduced human exposure to EG in Utah. However, interest in public health risks associated with EG has increased in Idaho due to the reintroduction of wolves beginning in 1995 and the initiation of wolf hunting seasons in 2009. In 2009, Foreyt, et al, reported the presence of EG in a number of ungulates and approximately 62.6% of necropsied ID and MT wolves. EG is not reportable in states other than Alaska and Utah; the Centers for Disease Control and Prevention do not collect case reports; and routine veterinary and slaughter surveillance does not occur.

**Methods:**
Beginning in 2009, multidisciplinary awareness and surveillance efforts were launched by Idaho public health, wildlife, and agriculture agencies. The Idaho Department of Health and Welfare requested physicians, via newsletter, to report cases voluntarily, and conducted active statewide case finding with infectious disease physicians. The Idaho Department of Fish and Game conducted and maintains ongoing wildlife surveillance by sampling available ungulates and wolves. The Idaho State Department of Agriculture included EG information in several veterinary newsletters and conducted educational outreach to livestock producers.

**Results:**
Nine human cases were discovered by active case finding, all with foreign exposures.

**Conclusions:**
EG appears to be an emerging infection in Idaho in wildlife. Active surveillance was effective in determining that human cases diagnosed in the state continue to be due to foreign exposures, and currently no evidence exists of a human health threat from the presence of wolves in the state. Awareness campaigns, developed to reduce risks associated with outdoor activities and exposures to infected canids, should help avert new infections.


---


**Presenting Author(s):**

**Leslie Tengelsen**
Office of Epidemiology, Food
Protection, and Immunization, Idaho
Department of Health and Welfare,
Boise, ID
tengelse@dhw.idaho.gov

**Contributing Authors**

Christine G Hahn, MD, Idaho Department of Health and Welfare Bill Barton, DVM, Idaho State Department of Agriculture Marilyn M. Simunich, DVM, DACVPM, Idaho State Department of Agriculture Mark Drew, DVM, Idaho Department of Fish and Game

**Abstract ID:** 1329607 **Presentation Type:** Breakout Presentation
**Title:** Climate change and public health in North Carolina: Developing indicators, working with stakeholders
**Committee:** Environmental Health Sub-Committee
**Topic:** Climate change epidemiology and public health
**Keywords:** Climate change|Environmental Health|Indicators

**Background:**
Future climate change is predicted to have large impacts on public health, necessitating timely public health adaptations at the local level. In order to develop appropriate responses, indicators are being piloted to monitor climate-related health outcomes in North Carolina.

**Methods:**
Utilizing the Council for State and Territorial Epidemiologists State Environmental Health Indicator Collaborative, as well as input from stakeholders in North Carolina, we developed indicators to collect baseline data on the effects of climate on the health of North Carolinians. The indicators spanned public health disciplines including: asthma, chronic disease, infectious disease, environmental health, mitigation, adaptation, and policy.

**Results:**
Baseline climate change health indicator data included trends in weather-related outcomes, arboviral disease data, and local government participation in climate change activities. For example, during 1995 to 2009, heat-related morbidity and mortality showed no overall increasing trend. Peaks from mortality data were identified in 1999, 2005, and 2008. During 1999-2008, the prevalence trends of West Nile Virus in mosquitoes mirrored those in sentinel chickens; peaks were identified in 2003, with a consistent decline to zero positives in 2008. Forty-three city and county governments had representatives participate in the United States Conference of Mayors Climate Protection Agreement. Ten city and county governments, representing 20% of NC's population, participate in the International Council for Local Environmental Initiatives, a national climate change group comprising of local government leaders.

**Conclusions:**
Baseline data from a few indicators among areas that will likely be affected by climate change serves as the start of measuring subtle changes in climate-related health over time. In addition to developing indicators, North Carolina has focused on engaging stakeholders with addressing climate-related health. For example, through this process, it was identified that the State Hazard Mitigation Plan has identified extreme heat and climate change as hazards, although the plan did not include cooling centers as a mitigation strategy. As a result, we are developing a more comprehensive heat response plan. The climate change health indicators are being implemented and evaluated to monitor changes over time, and to inform public health adaptations at the regional, state, and local levels.

---

**Presenting Author(s):**

**Lauren Thie**
North Carolina Health and Human Services, North Carolina Department of Health and Human Services, Chapel Hill, NC
thie27@gmail.com

**Contributing Authors**

Melissa Tinling, MPH, North Carolina Department of Health and Human Services; Mina Shehee, PhD, North Carolina Department of Health and Human Services; Rick Langley, MD, North Carolina Department of Health and Human Services; Heather Vaughan-Batten, North

**Abstract ID:** 1332297 **Presentation Type:** Breakout Presentation
**Title:** Identification of a pseudo-epidemic of pertussis in West Virginia, 2010-2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Vaccine preventable diseases
**Keywords:** Infectious Diseases|Outbreak investigations |Epidemiology

**Background:**
In 2010, West Virginia investigated five pertussis outbreaks. Two of these outbreaks involved patients from Health Facility A (HF-A). Despite resolution of these outbreaks, there was a sustained increase in the number of pertussis reports from HF-A. 93% (63/68) of reported patients had positive pertussis polymerase chain reaction (PCR) test results; and 40% (25/63) of these met the CDC surveillance case definition. Local health educated the facility on best practices for using PCR to diagnose pertussis, and the number of reported patients decreased. However, a second increase was observed in the fall of 2011. The WV Division of Infectious Disease Epidemiology was interested in how HF-A patients may be different from other patients reported for pertussis in the state.

**Methods:**
Data on reported pertussis cases <19 years of age were analyzed from 1/1/2008 through 10/31/2011 for the region (where HF-A is located) and state, using ?2 and ANOVA where appropriate. A site visit was conducted in December 2011. Information about the epidemiology and testing for pertussis was provided. HF-A staff were also interviewed about diagnostic and infection control practices.

**Results:**
HF-A reported zero pertussis patients in 2008 and 2009, twice as many patients as other providers in their region in 2010 (68 vs. 36), and over seven times as many in 2011 (150 vs. 22). Combined 2010/2011 data show HF-A patients were more likely to be male (56% vs. 46%, p=0.04) and younger (p<0.0001); have shorter cough duration (14 vs. 29 days, p<0.0001); were less likely to report cough (91% vs. 96%, p=0.01) or cough at final interview (29% vs. 65%, p<0.0001); and were less likely to meet the CDC case definitions for pertussis (25% vs. 66%, p<0.0001). Of patients with positive PCR and/or culture results, HF-A patients were less likely to have positive culture results (0% vs. 7%, p<0.0001). The vaccine preparation area at HF-A was located on the same countertop as the specimen collection media storage/processing area, and hand hygiene practices were inadequate. After the site visit, no further reports of pertussis have been received from HF-A to date.

**Conclusions:**
This pseudo-epidemic of pertussis was likely due to inappropriate use of PCR for testing mildly ill persons and inadequate health facility infection control. Provider education was critical to the resolution of the situation.

---

**Presenting Author(s):**

**Carrie Thomas**
Division of Infectious Disease
Epidemiology, West Virginia
Department of Health and Human
Resources, Charleston, WV
Carrie.A.Thomas@wv.gov

**Contributing Authors**

Claire Dye, MSPH-WVDHHR Ofc of Epidemiology and Prevention Services, Charleston, WV Stephanie McLemore, RN-WVDHHR Div of Infectious Disease Epidemiology, Charleston, WV Maria del Rosario, MD, MPH-WVDHHR Division of Infectious Disease Epidemiology, Charles

**Abstract ID:** 1327207 **Presentation Type:** Poster Presentation
**Title:** Campylobacter outbreak among students consuming raw milk during a field trip
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Foodborne/waterborne disease
**Keywords:** Infectious Diseases|Foodborne disease

**Background:**
On Dec. 9th 2010, the Vermont Department of Health received reports of a middle-school student and teacher presenting to an emergency department with gastrointestinal symptoms. Both reported going on a field trip to a dairy farm where they consumed raw milk. Both tested positive for Campylobacter jejuni.

**Methods:**
The school nurse, the principal, and the teachers were interviewed. All field trip attendees were asked to complete a questionnaire containing questions about clinical symptoms and exposures prior, during and following the field trip. A case was defined as an attendee of the farm field trip with onset of diarrhea between Dec. 4th and Dec. 10th 2010 or a laboratory-confirmed positive stool sample for Campylobacter jejuni. During an inspection of the farm, environmental, fecal and bulk tank milk samples were collected for Campylobacter jejuni testing at the VDH and NYSDOH laboratories.

**Results:**
Among attendees of the field trip, 35 (54%) students and 7 (100%) staff completed a questionnaire. Eleven people met the case definition for this study, and all 11 cases reported drinking raw milk during the field trip. Of the 11 cases, 7 (64%) reported drinking more than one cup of raw milk as compared to 20% of controls (relative risk of illness 2.8, 95% CI 1.1, 7.2). The campylobacter isolates from the student and teacher matched two isolates collected from the farm when analyzed by pulsed field gel electrophoresis (PFGE). At the time of this report, 26 environmental isolates have been analyzed by PFGE. Of these isolates, 6 (23%) were newly identified patterns and 3 (12%) were previously shown to be associated with raw milk exposure. Campylobacter sp. was not isolated from the milk samples.

**Conclusions:**
This was a small campylobacter outbreak in students and school staff who visited a local farm. Although the study was too small to be definitive, and the proportion of survey responses was low, consumption of raw milk was the most likely route of exposure.

---

**Presenting Author(s):**

**Matthew Thomas**
Health Surveillance, Vermont Department
of Health, Burlington , VT
Matthew.Thomas@partner.ahs.state.vt.us

**Contributing Authors**

Matthew Thomas Ph.D., Valarie Devlin B.S., Keeley Weening B.S., Erica Berl D.V.M., Vermont Department of Health Laboratory and Infectious Disease Section

**Abstract ID:** 1332036 **Presentation Type:** Poster Presentation
**Title:** Tracking Houston's food safety progress against the 2010 and 2020 healthy people goals
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Foodborne/waterborne disease
**Keywords:** Food safety|Enteric infectious diseases|Foodborne disease

**Background:**
Periodically, the epidemiology of reportable diseases in the City of Houston is analyzed within the Bureau of Epidemiology, Houston Department of Health and Human Services. The last comparison of Houston data and Healthy People 2010 data was done in 2006. This poster project will present selected food borne incidence rates in Houston for certain years in comparison to the 'Healthy People 2010' goals and 'Healthy People 2020' goals in the food safety focus area. The objectives of this poster presentation are: 1. To present a summation of progress achieved in meeting the targets of selected objectives in the Food Safety focus area of "Healthy People 2010" and "Health People 2020." 2. To present the incidence rates of key foodborne pathogens that were reported to the City of Houston, Bureau of Epidemiology in 2009, 2010 and 2011 and tracked by "Healthy People 2010" and "Healthy People 2020" 3. To present public health actions and strategies needed as indicated by the data.

**Methods:**
Enteric data for selected years will be extracted using the report toolbar of the Houston Electronic Disease Surveillance System (HEDSS) into an Excel spreadsheet. HEDSS is the repository database used by the Bureau of Epidemiology, Houston Department of Health and Human Services for most of the reportable diseases in the state of Texas. The pivot table function of Excel will be used to summarize the data. Population estimates and census population will be used to calculate rates. The enteric data will be compared to 2010 and 2020 Healthy People goals.

**Results:**
In 2004, the City of Houston has met the Healthy People 2010 goals for Campylobacter, E. coli O157:H7 and Listeriosis but not for Salmonellosis. An updated analysis will determine ongoing progress.

**Conclusions:**
Based on the data, current best practices will be kept and strategies to address challenges will be formulated.

---

**Presenting Author(s):**

**Brenda Thorne**
Bureau of Epidemiology, Houston Department of Health and Human Services, Houston, TX
brenda.thorne@houstontx.gov

**Contributing Authors**

William Bryant, MA

**Abstract ID:** 1327513 **Presentation Type:** Breakout Presentation
**Title:** Evaluation of Listeriosis surveillance in San Diego County, 2005–2010
**Committee:** Surveillance/Informatics
**Topic:** General surveillance topics
**Keywords:** Surveillance|Evaluation|Infectious Diseases

**Background:**
Listeriosis is caused by infection with Listeria monocytogenes, usually through the ingestion of contaminated food or neonatal transmission. The disease typically affects those who are immuno-compromised, have underlying medical conditions, or are pregnant. Severe infections can cause death or fetal loss. Rates in San Diego County (SDC) are higher than state and nationwide rates, and those of Hispanic ethnicity account for 70% and 85% of cases among pregnant women and newborns, respectively. Therefore, strong surveillance systems are needed as effective tools for public health. The system in SDC was evaluated according to CDC guidelines to characterize its attributes and assess its performance relative to its objectives.

**Methods:**
The evaluation included the analysis of 2005-2010 data from SDC's disease registry, California Office of Statewide Health Planning and Development (OSHPD) hospital discharge records, patient hospital and laboratory records, and discussions with county epidemiology staff.

**Results:**
A total of 107 cases were identified from 2005-2010, and of these, 93 (87%) were reported to the public health department. Fifty-seven percent of cases (8/14) not captured by the system occurred in newborns or pregnant women. Despite the surveillance system's incomplete case ascertainment, the characteristics of the full population of cases (107) were similar to the subset (93) the system identified. Sixty-six percent of cases were reported to the Health Department within one day of laboratory diagnosis. Investigations of Listeriosis cases are time consuming, and involve the completion of detailed and redundant risk-history questionnaires. An assessment of questionnaire completeness found average completion rates of 80% or higher in 8 of 10 sections. However, the completeness of a "pregnancy status" question on the county's electronic disease registry (WebCMR) was low; of 13 pregnant women with Listeriosis, only 5 were categorized as such.

**Conclusions:**
SDC's Listeriosis surveillance system is an effective public health tool, accented by detailed risk-history interviews and timely reporting. Sensitivity is also high; however, despite legal reporting requirements cases are missed, especially among newborns and pregnant women. The necessity to report these cases should be re-affirmed with providers and laboratories. Likewise, further attention must be given to correctly classify a case's "pregnancy status" in WebCMR. Finally, in order to make more efficient use of county resources, multiple risk-history questionnaires should be condensed to a single questionnaire, with a supplement to capture local risk. This will provide greater comparability of variables during local, state, and national outbreak investigations.

---

**Presenting Author(s):**

**Andy Thornton**
Epidemiology Program, San Diego
County Health and Human Services
Agency, San Diego, CA
Andrew.Thornton@sdcounty.ca.gov

**Contributing Authors**

Michele Ginsberg, MD, San Diego County Health and Human Services Agency Annie Kao, PhD, MPH, MS, San Diego County Health and Human Services Agency Stephen Waterman, MD, MPH, Division of Global Migration and Quarantine, Centers for Disease Control and Prev

**Abstract ID:** 1326840 **Presentation Type:** Breakout Presentation
**Title:** Building epidemiologic capacity in Kentucky: Collaboration and communication, 2005-2011
**Committee:** Cross Cutting Sub-Committee
**Topic:** Epidemiology capacity
**Keywords:** Epidemiology capacity|Core functions|Challenges and Opportunities

**Background:**
Kentucky, like many states, faces challenges building and maintaining the epidemiologic capacity needed to identify, investigate, and control public health events and crises. Budget challenges, workforce turnover, varied missions for academic, private, and public health organizations, and changing allocation of federal and state resources affect epidemiologic workforce growth and sustainability.

**Methods:**
The Building Epidemiologic Capacity in Kentucky (BECKY) project was initiated in 2005 by Kentucky's CDC-assigned Career Epidemiology Field Officer (CEFO) to generate ideas about strengthening and increasing epidemiologic capacity across the state in light of personnel and budget limitations. Throughout the past six years, epidemiologists and other key public health partners from state, local, and federal public health (PH) agencies, hospitals, academia, and private sector organizations have participated annually in full-day events to identify capacity-building needs and available resources, to establish priorities in building epidemiologic capacity, and to move ahead on priority initiatives. Meeting strategies have included small group guided discussions, exercises, large group discussion, and formation of subcommittees to advance priority areas. Continuing education training has offered career advancement for attending epidemiologists.

**Results:**
Initiatives arose from the first BECKY meeting, such as assessing baseline epidemiologic capacity, standardizing existing epidemiologist roles, and building collaborations with universities. Successive meetings expanded these original initiatives and advanced further efforts. Positive outcomes to date include: revitalizing Kentucky's Epi Rapid Response Team program, training over 200 local health department (LHD) personnel in field epidemiology; establishing affiliation agreements between the Kentucky Department for Public Health (KDPH) and four university schools of public health; tie-ins with national epidemiologic capacity initiatives such as CSTE's epidemiology capacity assessment and development of applied epidemiology competencies; creating a standard process to fill practicum placements at KDPH for master's and doctoral students, substantially increasing KDPH's small project capacity; working with universities to increase applied epidemiology coursework to better prepare the incoming workforce; taking initial steps to create a public health certificate program for KDPH and local health department (LHD) workers to increase their epidemiologic skills; increasing the number of public health master's and doctoral level graduates who take state and LHD positions in Kentucky; and genesis of an environmental public health tracking network.

**Conclusions:**
The BECKY program has enhanced epidemiologic capacity through sharing and leveraging resources, increased collaboration, and resourcefulness. For little cost, this model of gathering agency representatives with varied backgrounds and representatives from diverse organizational and professional entities successfully generates practical ideas for advancement of epidemiology in Kentucky.

---

**Presenting Author(s):**

**Doug Thoroughman**
Division of Epidemiology and Health Planning, Kentucky Department for Public Health, Frankfort, KY
douglas.thoroughman@ky.gov

**Abstract ID:** 1332123 **Presentation Type:** Breakout Presentation
**Title:** Transmission of hepatitis C infection via organ transplantation, Kentucky, 2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Viral hepatitis|Healthcare associated infections (HAI)|Epidemiology

**Background:**
Organ and tissue transplantation provide life-saving benefits, but also have risks. Though risks are primarily from non-infectious related adverse events, transmission of communicable diseases has been documented, even after required donor screening. In March 2011, a Kentucky resident suffered a traumatic death. He received blood transfusions immediately before death; at the time of organ procurement, his father was interviewed regarding HCV risk factors and reported no recent risk factors. At the time of death, he was screened for HCV by antibody and nucleic acid testing (NAT), which were reported as negative; shortly thereafter, his kidneys and liver were transplanted into three different recipients. In September 2011, both kidney recipients were diagnosed with HCV infection post-transplantation, leading to investigation of potential virus transmission from a common donor.

**Methods:**
We considered false negative screening results, transfusion-related infection and breaches in infection control as possible sources for infection. We requested repeat testing of donor serum, reviewed organ procurement and tissue bank tests and procedures, and traced transplant recipients and requested they be tested for HCV infection. Interviews with the donor's closest relative were conducted to investigate risk factor history of the donor.

**Results:**
The donor's post-transfusion serum was HCV NAT positive upon re-testing, and antibody negative, suggesting recent infection. Re-interview of the donor's father revealed he had limited recent contact with his son and was unfamiliar with his behaviors. As required, the organ procurement organization tested only for antibody. While the tissue bank tested for both antibody and NAT, the NAT was incorrectly read. Both kidney recipients had tested negative for HCV before transplant, whereas the liver recipient had a pre-transplant diagnosis of chronic HCV infection. Forty-four tissues were distributed from this donor; 16 were found to be implanted, including a cardiopulmonary patch implanted in a patient after the first reported positive test result in a kidney recipient. This patient was subsequently found to be infected with HCV. Viral genetic sequences isolated from the kidney recipients and the cardiopulmonary patch recipient shared identical key sequences, indicating a common source. Sequences isolated from the previously infected liver transplant patient did not match the HCV strain of the other patients.

**Conclusions:**
This report highlights the importance of appropriate and accurate screening for organ donors and the difficulty of obtaining accurate risk factor information from family members. HCV antibody testing may not identify recent infection, indicating the usefulness of NAT. Algorithms to aid accurate test reading might help reduce human error. Coordinated communication and standardized reporting and tracking of transplant-related adverse events between transplant centers, physicians implanting tissue, and tissue banks could further reduce the risk of avoidable transplant-associated HCV infections.

---

**Presenting Author(s):**

**Doug Thoroughman**
Division of Epidemiology and Health Planning, Kentucky Department for Public Health, Frankfort, KY
douglas.thoroughman@ky.gov

**Contributing Authors**

Kraig Humbaugh, MD, MPH (Will be presenting also) Robert Brawley, MD, MPH, FSHEA Sharon Green, RN, BSN Fontaine Sands, DrPH, MSN, CIC Tennis Sugg, MPH Deborah Taylor, RN, MSN

**Abstract ID:** 1364673 **Presentation Type:** Poster Presentation
**Title:** Association of cardiopulmonary emergency department visits with exposure to wildfire smoke in North Carolina
**Committee:** Student Section
**Topic:** Environmental Health
**Keywords:** Air pollutants|Respiratory diseases: Non-influenza|Environmental exposures


**Background:**
Wildfires in eastern North Carolina (NC) in the summer of 2011 caused recurrent population exposure to particulate matter concentrations greatly exceeding the National Ambient Air Quality Standards. One peat wildfire near Pains Bay (May-June 2011) particularly impacted visibility and daily activities in the region. In 2008 a similar wildfire in the immediate vicinity of Pains Bay resulted in increased cardiac and respiratory outcomes in the affected population. Objectives: We investigate associations between fine particulate matter (PM) concentrations attributed to wildfire smoke and cardiopulmonary outcomes in the affected eastern NC population between May 5 and June 30, 2011. We seek to compare results with those found for the 2008 fire.

**Methods:**
We conducted a population-based epidemiologic investigation of 73,901 cardiopulmonary emergency department visits collected through syndromic surveillance by NC DETECT (Disease Event Tracking and Epidemiologic Collection Tool) in 43 counties of eastern NC. We estimated daily smoke exposure using modeled PM concentrations attributed to the fires, generated by HYSPLIT (HYbrid Single-Particle Lagrangian Integrated Trajectory). County average concentrations were determined using geospatial methods. We estimated cumulative relative risk for several cardiopulmonary outcomes using a Poisson regression model, controlling for meteorological conditions.

**Results:**
We expect to find whether cardiopulmonary outcomes in the affected population are associated with peat wildfire smoke exposure. During the study period asthma accounted for 15% of cardiopulmonary ED visits. PM concentration attributed to smoke exceeded the 35 μg/m3 standard on over 30 county-days.

**Conclusions:**
Results have potential implications for targeted public health communication during future peat fires in this rural eastern NC population. (Disclaimer: The NC DETECT Data Oversight Committee does not take responsibility for the scientific validity or accuracy of methodology, results, statistical analyses, or conclusions presented. This abstract of a proposed presentation does not necessarily reflect views and opinions of EPA.)


---

**Presenting Author(s):**


**Melissa Tinling**
Environmental Science & Engineering,
Gillings School of Global Public Health,
University of North Carolina, Chapel
Hill, NC
mtinling@email.unc.edu


**Contributing Authors**


Ana G Rappold, US EPA, Environmental Public Health Division, National Health and Environmental Effects Research Laboratory, Research Triangle Park, NC, USA; J. Jason West, Environmental Sciences and Engineering, Gillings School of Global Public Health, Un

**Abstract ID:** 1319314 **Presentation Type:** Breakout Presentation
**Title:** An evaluation of the effect of new Behavioral Risk Factor Surveillance System weights on estimates of chronic disease prevalence, related risk and protective factors, and demographics
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** CD/MCH/OrH surveillance
**Keywords:** Chronic diseases|Surveillance|Risk factors

**Background:**
Beginning with 2011 data, the Behavioral Risk Factor Surveillance System (BRFSS) will implement an enhanced weighting technique known as “raking”. Raking will likely provide more accurate estimates of population characteristics. The objective of our study was to assess potential changes in estimates of chronic disease prevalence, risk and protective behaviors, and demographics in New Mexico that may result from the new raked weighting methods.

**Methods:**
We used data from the 2009 and 2010 New Mexico BRFSS and piloted raked weights to estimate the absolute and relative differences in prevalence estimates using traditional and raked weights.

**Results:**
We found that estimates of cancer, diabetes, pre-diabetes, arthritis, and cardiovascular disease prevalence are unlikely to change meaningfully. However, many important demographic characteristics and risk factors have been underestimated when using the traditional weighting system. These include: having less than a high school education (underestimated by 15 percentage points), poor or fair health (6 points), lacking healthcare coverage (6 points), unemployment (5 points), annual household income of less than $10,000 (4 points), current smoking (4 points), and obesity (2 points). Conversely, current colorectal cancer screening has been overestimated by 6 percentage points, mammography by 4 points and Pap smears by 2 points.

**Conclusions:**
These results may assist public health officials in anticipating potential changes in data trends and in planning an effective communication strategy. They may also assist public health programs, communities, and policymakers anticipate adjustments in resource allocations.

---

**Presenting Author(s):**

**Laura Tomedi**
New Mexico Department of Health,
Albuquerque, NM
laura.tomedi@state.nm.us

**Contributing Authors**

Susan Baum, MD, MPH, New Mexico Department of Health; Wayne A. Honey, MPH, New Mexico Department of Health

**Abstract ID:** 1327393 **Presentation Type:** Breakout Presentation
**Title:** The chronic disease epidemiologist's guide to geographic information systems (GIS)
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Using Geographic Information Systems (GIS) for CD/MCH/OrH Epidemiology
**Keywords:** Geographic Information Systems|Epidemiology capacity|Chronic diseases

**Background:**
While GIS based techniques have been widely adopted and applied in the fields of infectious disease epidemiology and environmental epidemiology, their use in chronic disease epidemiology is still relatively new. The US Centers for Disease Control and Prevention, Division for Heart Disease and Stroke Prevention (CDC) has worked collaboratively with National Association of Chronic Disease Directors (NACDD), Duke University, and the University of Michigan to enhance the capacity of state health departments to take advantage of the many benefits GIS has to offer for chronic diseases. The aim of this collaboration is to provide staff in state health departments with the tools needed to integrate the use of GIS into daily operations that support existing priorities for surveillance and prevention of heart disease, stroke, and other chronic diseases. Three cohorts of state health departments have participated in this project. In this session, we will share the key GIS skills that have proven to be most important for using GIS for chronic disease surveillance in state health departments, based upon the experience of the three cohorts.

**Methods:**
In developing the GIS curriculum that is tailored to the needs of state health department public health professionals working on chronic diseases we undertook the following steps with each cohort of state health departments that participated in the project: 1) needs assessment of existing GIS capacity and anticipated needs, 2) on-going feedback on relevance and usability of specific GIS techniques, and 3) post-project evaluation of key elements of technical GIS capacity.

**Results:**
Over the course of the three cohorts (which included a total of 13 state health departments) we found recurring GIS capacities that were often associated with high impact work. These capacities were grouped into one of three GIS skill domains: Data Display (i.e. display of quantitative/qualitative maps); Data management (i.e. georeferenceing and metadata management); and Data Analysis (i.e. network and hotspot analysis). During this presentation we will describe selected GIS skills that were key for chronic disease surveillance and show examples of how state health department staff used these skills to address existing priorities for heart disease, stroke and other chronic diseases.

**Conclusions:**
GIS offers a diverse set of tools that promise increased efficacy for chronic disease epidemiologists and program staff in state health departments. We have identified a set of high impact GIS skills for public health professionals in state health departments that that can be mastered and applied over a relatively short period of time.

---

**Presenting Author(s):**

**Joshua Tootoo**
University of Michigan, Ann Arbor, MI
jltootoo@umich.edu

**Contributing Authors**

Michele Casper, PhD. Division of Heart Disease and Stroke Prevention, CDC Marie Lynn Miranda, PhD School of Natural Resources and Environment, University of Michigan

**Abstract ID:** 1327297 **Presentation Type:** Poster Presentation
**Title:** Getting here from there: Examples of how state health departments are using GIS to address heart disease, stroke and other chronic diseases *
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Using Geographic Information Systems (GIS) for CD/MCH/OrH Epidemiology
**Keywords:** Chronic diseases|Geographic Information Systems|Communication


**Background:**
In recognition of the importance of geographic information systems (GIS) for the surveillance of heart disease, stroke and other chronic diseases, the US Centers for Disease Control and Prevention (CDC) in collaboration with the National Association of Chronic Disease Directors (NACDD), Duke University and the University of Michigan has developed a project to enhance the capacity of public health professionals in state health departments to integrate the use of GIS into ongoing daily operations that address existing priorities for heart disease, stroke and other chronic diseases.

**Methods:**
In 2011, the following five state health departments were competitively selected to participate in the GIS Surveillance Project for Heart Disease, Stroke and other Chronic Diseases: Idaho, Indiana, Louisiana, Maine and New York. During the course of this nine month project, four staff members from each of these state health departments learned key GIS techniques to use for public health surveillance of chronic diseases and produced maps that address existing chronic disease priorities within each state health department. The set of maps included in this poster were selected to highlight the breadth of GIS applications across groups.

**Results:**
Together with extended GIS teams that the participants established in each state health department, the newly acquired GIS skills were used to produce maps that addressed one or more of the following themes: document geographic disparities in heart disease, stroke and other chronic diseases; inform policy and program decision making; enhance partnerships with outside organizations; and facilitate collaborations among chronic disease units within each state health department. We offer these highlights of the maps produced, along with information on how they were used, to illustrate their capacity for effective communication.

**Conclusions:**
The maps of heart disease, stroke and other chronic diseases presented here highlight opportunities for state health departments to use GIS to address existing priorities in the prevention and treatment of heart disease, stroke and other chronic diseases. These examples offer a useful roadmap for other health departments interested in building this type of GIS institutional capacity. More work from participants in this GIS capacity building project, along with members of the broader community of health professionals using GIS to address chronic diseases, can be viewed on the Chronic Disease GIS Exchange: http://www.cdc.gov/dhdsp/maps/gisx/


---


**Presenting Author(s):**

**Joshua Tootoo**
School of Natural Resources and
Environment, University of Michigan,
Ann Arbor, MI
jltootoo@umich.edu

**Contributing Authors**

Michele Casper, PhD; DHDSP, CDC; Marie Lynn Miranda PhD,SNRE, University of Michigan;Ian Brissette PhD, New York State Department of Health ,Bureau of Chronic Disease Epidemiology and Surveillance, Division of Chronic Disease and Injury Prevention; Robert

**Abstract ID:** 1326552 **Presentation Type:** Breakout Presentation
**Title:** Patient characteristics of repeat induced terminations of pregnancy — New York City, 2010
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Maternal & child health epidemiology
**Keywords:** Birth outcomes|Maternal and Child Health|Local epidemiology

**Background:**
Unintended pregnancy, linked to prematurity and negative child-development outcomes, is generally preventable with effective contraception. Repeat induced termination of pregnancy (ITOP) is an indicator of repeat unintended pregnancy. We describe repeat ITOP by patient characteristics.

**Methods:**
ITOP is reportable in New York City (NYC). We analyzed 2010 ITOP data to characterize repeat ITOP, defined as ITOP with the patient reporting ?1 past ITOP, among NYC residents. Proportion of repeat ITOP among all ITOP was calculated by patient characteristics. Multivariate linear regression with total number of ITOP as outcome was used to obtain adjusted estimates of association.

**Results:**
Of 76,614 reported ITOP, 43,567 (57%) were repeat terminations. Among all ITOP patients, 25% reported 1 prior termination, 15% reported 2 prior terminations, 8% reported 3 prior terminations, and 9% reported ?4 prior terminations. Each 1-year increase in patient age and each additional living child were associated with a 6% and 48% increase in likelihood of repeat ITOP, respectively. Repeat ITOP comprised 66% of total ITOP among non-Hispanic blacks, 65% among Puerto Ricans, 55% among other Hispanics, 45% among non-Hispanic whites, and 43% among Asian-Pacific Islanders. Repeat ITOP comprised 52% of self-paid ITOP, 62% of Medicaid-paid ITOP, and 63% of ITOP paid by other insurance. Repeat ITOP comprised 63% and 50% of total ITOP among women living in high- and low-poverty areas, respectively. In multivariate analysis, all of these predictors remained significantly associated with likelihood of repeat ITOP.

**Conclusions:**
The proportion of ITOP that are repeat procedures is high across all groups. Postabortion care should include comprehensive contraception education and services. A question regarding postabortion contraception provision will be added to NYC's ITOP reporting form in 2012.

---

**Presenting Author(s):**

**Amita Toprani**
Epidemic Intelligence Service, Centers
for Disease Control and Prevention,
New York, NY
atoprani@health.nyc.gov

**Contributing Authors**

Wenhui Li PhD, New York City Department of Health and Mental Hygiene Carolyn Greene MD, New York City Department of Health and Mental Hygiene Elizabeth Begier MD, MPH, New York City Department of Health and Mental Hygiene

**Abstract ID:** 1321700 **Presentation Type:** Poster Presentation
**Title:** Evaluation of nursing home healthcare-associated infection reporting through Pennsylvania Patient Safety Reporting System
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Healthcare associated infections (HAI)|Data/Surveillance|Evaluation

**Background:**
Under the Pennsylvania Health Care-Associated Infection Prevention and Control Act of 2007, all 714 licensed nursing homes in PA are required to report healthcare associated infections (HAI) to the Pennsylvania Patient Safety Reporting System (PA-PSRS). Although a large number of HAI reports have been received, data quality has not been systematically evaluated. To promote the accuracy of PA-PSRS HAI data, we assessed facility characteristics associated with inaccurate reporting.

**Methods:**
The Pennsylvania Department of Health (PADOH) generated PA-PSRS data integrity and validity reports using logic checks to identify errors made in HAIs or utilization data (patient and catheter days) reported in 2010. Errors were determined to be definite (requiring correction) or possible (requiring review and correction if needed). Facilities were designated as having either a high or low number of errors in both the definite (HD or LD) category and the possible (HP or LP) category. Facility status was determined by whether the number of identified errors was above or less than/equal to the median number for that category. Facility characteristics examined included ownership (for-profit, non-profit, and government), bed size, and total number of submitted reports. SAS 9.2 was used to compute all analyses.

**Results:**
In 2010, there were a total of 64,880 (34,501 HAIs and 30,379 utilization) reports submitted by nursing homes. A total of 243 definite (median 1 per facility) and 1,712 possible (median 5) errors were found, with 34 (5%) facilities designated as HD and 80 (11%) designated as HP (14 facilities were both HD and HP). The number of HAIs reported by a facility did not correlate with designation status. For the definite error category, ownership and bed size were also not associated with designation status. However, HP facilities were more likely (RR 1.7, 95% CI 1.1—2.7) than LP facilities to be for-profit rather than non-profit, and more likely government than non-profit (RR 1.6, 95% CI 0.6—3.9). When compared to facilities with <50 beds, bed size also correlated with HP status: 51-- 100 beds (RR 4.4, 95% CI 1.4—14.4), 101--200 beds (RR 4.2, 95% CI 1.3—13.3), and >200 beds (RR 5.5, 95% CI 1.6—19.0).

**Conclusions:**
Facility characteristics may predict the likelihood of errors in HAI data reporting. Understanding these differences is important to properly target data quality improvement and reduce the number of identified errors. It is also necessary to properly analyze and interpret HAI data.

---

**Presenting Author(s):**

**Lauren Torso**
Centers for Disease Control and
Prevention, Atlanta, GA
c-ltorso@pa.gov

**Contributing Authors**

Stephen Ostroff, MD, Pennsylvania Department of Health Zeenat Rahman, MBBS, MPH, Pennsylvania Department of Health Kim Buffington, BS, Pennsylvania Department of Health Atmaram Nambiar, MD, MPH, Pennsylvania Department of Health

**Abstract ID:** 1367172 **Presentation Type:** Breakout Presentation
**Title:** A Perspective on Rule Making for Adult Blood Lead Test Reporting
**Committee:** Occupational Health Sub-Committee
**Topic:** Lead exposure surveillance (ABLES)
**Keywords:** Lead

**Background:**
In 2011, Colorado began working with their Board of Health to update the state's reportable conditions rules to require laboratory reporting of blood lead level (BLL) tests ?10 µg/dL for ages >18. The existing reporting thresholds were >25 µg/dL for ages >18, and all BLL tests for ages ?18.

**Methods:**
This was a collaborative process.

**Results:**
Participants of this session will learn about the rationale supporting this rule change, the process to secure a Rule Making Hearing, the concerns voiced by Board members and stakeholders, and the outcome and impacts on surveillance.

**Conclusions:**
Colorado will share their personal experience with breakout participants.

---

**Presenting Author(s):**

**Meredith Towle**
Occupational Health and Safety Surveillance Program, Colorado Department of Public Health and Environment, Denver, CO
meredith.towle@state.co.us

**Abstract ID:** 1383431 **Presentation Type:** Breakout Presentation
**Title:** Occupational health indicators utilizing workers' compensation data
**Committee:**
**Topic:**
**Keywords:**

**Background:**

**Methods:**

---

**Presenting Author(s):**

**Meredith Towle**
Colorado Department of Public Health
and Environment, Denver, CO;
meredith.towle@state.co.us

**Abstract ID:** 1366642 **Presentation Type:** Roundtable Presentation
**Title:** Occupational Health Indicators Workgroup Meeting
**Committee:** Occupational Health Sub-Committee
**Topic:** Other occupational health issues
**Keywords:** Indicators

**Brief Summary:**
This is a special, in-person session for the CSTE Occupational Health Indicators (OHI) Workgroup. Workgroup members and others interested in the calculation and interpretation of OHI data should attend.

**Key Objectives:**
-Provide updates on indicator workgroup activities -Review and revise list of to do's and action items -Discuss issues related to occupational health indicators and answer questions from participants

---

**Presenting Author(s):**

**Meredith Towle**
Colorado Department of Public Health
and Environment, Denver, CO
meredith.towle@state.co.us

**Abstract ID:** 1324543 **Presentation Type:** Breakout Presentation
**Title:** Epidemiologic review of work-related poisoning exposures reported to a poison center helpline: Colorado, 2000-2010
**Committee:** Student Section
**Topic:** Occupational Health
**Keywords:** Occupational injury and death|Unintentional/intentional poisoning |Occupational Surveillance

**Background:**
In 2010, the Bureau of Labor Statistics reported 52,730 cases of workplace poisoning exposures nationwide, comprising 4.4% of all nonfatal occupational injuries and illnesses. As a similar estimate for Colorado is not readily available, this study examined the magnitude and distribution of poisoning exposures among Colorado's employed population. The objective was to better understand characteristics and risk factors associated with work-related poisoning exposures to inform public health surveillance efforts.

**Methods:**
Rocky Mountain Poison Center (RMPC) Colorado data obtained from the National Poison Data System (NPDS) were analyzed to assess annual numbers, rates, and geo-spatial distribution of occupational poisoning exposures. The NPDS contains case-report data on exposure phone calls made to RMPC, allowing easy access to demographic, exposure, substance, and health outcome descriptions. The case definition was derived from the Council of State and Territorial Epidemiologists guidelines for Occupational Health Indicator surveillance, which includes work-related pesticide poisoning. Both single and multiple substance exposures were included.

**Results:**
From 2000 through 2010, 8,367 occupational poisoning exposures were reported to RMPC by Colorado residents. Since 2001, rates have steadily declined from a high of 43.8 to 21.8 exposures per 100,000 employed. Although nearly a quarter of all poisoning exposures occurred among workers age 25-34 years, the youngest age group (16-19 years) experienced the highest rate (54.0 per 100,000). Most cases were male (59.3%) compared to female (38.3%). Exposures to chemicals, gases, household cleaning substances, hydrocarbons, pharmaceuticals, and pesticides were most prevalent. Top exposure routes included inhalation/nasal (42.1%), ocular (19.3%), dermal (17.9%), and ingestion (9.0%), leading to the most common clinical effects of ocular or dermal injury, headache, nausea, and throat irritation. 76% of health outcomes were minor or not followed due to minimal clinical effects.

**Conclusions:**
RMPC NPDS data indicate a significant burden of occupational injury which may not require medical treatment or hospitalization, and thus may not be captured in surveillance systems that rely on medical, workplace injury, or workers' compensation reports. Males experienced higher overall exposure rates, as well as more severe medical outcomes. Poisoning exposure rates were inversely related to age group, however, the reverse trend is observed in other occupational injury datasets. These findings suggest that poisoning prevention efforts should target males and young workers. The value of NPDS data in occupational injury surveillance would be greatly enhanced with the inclusion of industry and occupation variables to aid root cause investigation of workplace poisoning exposures.

---

**Presenting Author(s):**

**Amanda Tran**
University of Colorado, Aurora, CO
amanda.tran@ucdenver.edu

**Contributing Authors**

Meredith Towle, MPH, Colorado Department of Public Health and Environment Amy Warner, MPH, Colorado Department of Public Health and Environment

**Abstract ID:** 1315682 **Presentation Type:** Breakout Presentation
**Title:** Brucella laboratory exposures 2008-2011: Updated guidelines
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Miscellaneous infectious disease
**Keywords:** Occupational exposure|Zoonotic disease|Guidelines

**Background:**
Brucellosis, an uncommon bacterial disease in the United States, can cause severe illness and may become chronic if not treated appropriately. In contrast, brucellosis is a frequently reported laboratory-acquired infection. Laboratorians are at risk for brucellosis when Brucella species are manipulated outside of Biosafety Level 3 conditions. Brucella exposure incidents were investigated by the Centers for Disease Control and Prevention (CDC) to evaluate prevention, treatment, and post-exposure prophylaxis (PEP) guidelines. Laboratory exposure data from 2008-2011 are presented here, along with updated post-exposure guidelines.

**Methods:**
Laboratory exposure incidents during 2008 -2011 were identified through three sources: 1) requests to CDC for assistance involving laboratory exposure incidents and brucellosis cases; 2) National Select Agent Registry notifications; and 3) sera and isolate submissions to CDC for identification or confirmation. Exposure risk assessments were performed according to CDC-recommended protocol and exposed laboratory worker outcomes were evaluated. A literature review of laboratory-acquired brucellosis case reports was performed to determine the most beneficial serological monitoring timeline.

**Results:**
Between 2008 and 2011, CDC received 151 reports of exposure incidents involving 177 laboratories and 1,680 individuals. Sixty-nine exposure incidents were attributed to B. melitensis, 39 to B. suis, 18 to B. abortus, 9 to B. canis, and 4 to unidentified Brucella spp. There were 815 workers classified with high-risk exposures and 734 with low-risk exposures; 131 exposure classifications were not reported to CDC. Antimicrobial PEP was offered to exposed staff by 152 of 160 laboratories; 17 laboratories did not report PEP availability. Five laboratory-acquired cases were reported to CDC, only one of whom took PEP which was begun two weeks after the exposure occurred. Laboratory diagnostics associated with these cases resulted in 23 additional exposures. The review of the literature of laboratory-acquired cases found a median incubation period of 9.5 weeks (n=84), 80% of which had symptom onset by 12 weeks.

**Conclusions:**
Laboratory exposures to Brucella species and laboratory-acquired brucellosis continue to have an impact on laboratory workers and public health. Current PEP duration guidelines appear sufficient to prevent infection, since only one case occurred following delayed PEP. CDC has updated the symptom and serological monitoring guidelines to reflect information obtained from the laboratory-acquired cases and the literature review findings. CDC will continue to monitor exposures to Brucella species. Also, CDC will continue to evaluate the effectiveness of the post-exposure guidelines to prevent infections and additional exposures.

---

**Presenting Author(s):**

**Rita Traxler**
Bacterial Special Pathogens Branch,
Centers for Disease Control and
Prevention, Atlanta, GA
Rtraxler@cdc.gov

**Contributing Authors**

Meredith Morrow, MSPH, CDC; Tina Benoit, MPH, CDC; David Blaney, MD MPH, CDC; Sean Shadomy DVM MPH, CDC; Robyn Stoddard, DVM PhD, CDC; William Bower, MD, CDC; Marta Guerra, DVM PhD MPH, CDC; Theresa Smith, MD MPH, CDC

**Abstract ID:** 1326748 **Presentation Type:** Poster Presentation
**Title:** Leptospirosis: A National Picture?
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Zoonoses
**Keywords:** Zoonotic disease|Surveillance

**Background:**
Leptospirosis is considered a re-emerging zoonotic disease. Incidence is typically greatest in the summer and fall in temperate climates or during the rainy season in tropical climates. National surveillance was discontinued in 1994 in the United States, when the incidence was 0.02/100,000 population. Though no longer notifiable, leptospirosis remains reportable in 36 states and territories; nevertheless, many still submit case notifications to CDC via the Nationally Notifiable Disease Surveillance System (NNDSS). These data were analyzed to estimate national disease burden.

**Methods:**
A descriptive analysis was conducted on leptospirosis case notifications in NNDSS from 1999-2010. Variables include state, case status, sex, age, outbreak, imported disease, and event date (date of onset, diagnosis, laboratory confirmation, or report to state or county). U.S. Census Bureau population estimates were used to calculate incidence.

**Results:**
Between 1999 and 2010, 691 case notifications were submitted from 32 states and territories; Puerto Rico (486, 70%), Hawaii (52, 8%) and Pennsylvania (17, 2%) submitted the majority of cases. Median annual case count was 53 (range 24-108); the mean annual incidence was 0.02/100,000 population. Two hundred fifteen (31%) of the cases were submitted between 2006 and 2007; 86% were from Puerto Rico. The incidence for this time period was 0.04/100,000 population. Of the submitted cases, 510 (74%) were classified as confirmed, 149 (22%) were probable, and 19 (3%) were suspect; the remaining cases were classified as unknown. Males accounted for 566 cases (82%); median age was 42 years (range 1-87). Event date, excluding report date, was available for 663 cases (96%); 68% of cases occurred between August and January, with a peak in November.

**Conclusions:**
As expected, leptospirosis case notifications were predominantly from tropical areas of the United States, though the number of cases submitted by Pennsylvania was unexpected. The demographic profile and seasonality of disease are consistent with those reported in the literature. Though no longer notifiable, leptospirosis remains reportable in 36 states and territories and many states still submit case notifications to CDC via the NNDSS. Despite continued voluntary submissions of leptospirosis case notifications by some states to CDC, these NNDSS data do not provide an accurate picture of leptospirosis in the United States. Reinstatement of national surveillance and development of a standardized case report form would provide data to determine a more accurate national estimate of disease burden and develop prevention strategies.

---

**Presenting Author(s):**

**Rita Traxler**
Division of High Consequence
Pathogens and Pathology, Centers for
Disease Control and Prevention,
Atlanta, GA
Rtraxler@cdc.gov

**Contributing Authors**

Sean V. Shadomy, DVM MPH, CDC William A. Bower, MD, CDC Marta A. Guerra, DVM MPH PhD, CDC

**Abstract ID:** 1333201 **Presentation Type:** Breakout Presentation
**Title:** Epidemiology of human illnesses and animal deaths associated with harmful algal blooms — Kansas, 2011
**Committee:** Environmental Health Sub-Committee
**Topic:** Other Emerging Environmental Epidemiology Issues
**Keywords:** Water|Environmental Health|One Health

**Background:**
Freshwater Harmful Algal Bloom (HAB) toxins have been associated with human illness and animal deaths in at least 36 states in the United States; the total number of illnesses and deaths is unknown. HABs are more likely to occur during hot, dry weather, coinciding with peak recreational water use. During 2011, the Kansas Department of Health and Environment (KDHE) requested HAB associated illnesses and deaths in humans and animals be reported to KDHE. An investigation was initiated for each report to determine the source of exposure and to initiate public health mitigation actions.

**Methods:**
A letter was sent to healthcare providers and veterinarians to alert them to signs and symptoms of HAB related illness and to encourage them to report cases to KDHE. Each report was reviewed by an epidemiologist, and KDHE Environmental Field Services staff collected water samples for HAB confirmation. A case was defined as exposure to a confirmed HAB with associated signs and symptoms of illness, HAB toxins in a clinical specimen, and no other cause of illness identified.

**Results:**
From June 1st – October 1st there were 34 reports of human and animal HAB associated illness: 1 suspect, 5 probable and 7 confirmed human illnesses and 1 suspect and 1 confirmed dog illness and 5 confirmed dog deaths. Thirteen human and one animal illness were classified as not a case. Five confirmed human illnesses, 2 dog illnesses and 5 dog deaths were associated with one reservoir. Four dog deaths occurred in August and one in September. Of the confirmed human illnesses, the median age was 40 years (range 17-63); 71% (5/7) were male and 29% (2/7) were hospitalized with no deaths. Three reported exposure to a reservoir after a health alert had been issued. Primary symptoms included: 71% (5/7) eye and upper respiratory irritation, 29% (2/7) rash, and 14% (1/7) gastrointestinal. Of the confirmed dog illnesses and deaths, the median age was 1 year (range 4 months – 6 years) and 57% (5/7) were male. All seven dogs were exposed after a health alert had been issued for the reservoir.

**Conclusions:**
HABs in Kansas caused human illness and animal deaths. The nearly 1.9 million people who recreate in Kansas lakes and reservoirs are at risk. Public health officials need to increase awareness of the risks to the public, educate healthcare providers and veterinarians on HAB related illness and encourage timely reporting to public health authorities.

---

**Presenting Author(s):**

**Ingrid Trevino-Garrison**
Kansas Department of Health and
Environment, Topeka, KS
igarrison@kdheks.gov

**Contributing Authors**

Jamie DeMent, MNS (Kansas Department of Health and Environment), Deon van der Merwe, BVSc, PhD (Kansas State Veterinary Diagnostic Laboratory), Farah Ahmed, MPH, PhD (Kansas Department of health and Environment), Henri Ménager, MPH (Kansas Department of H

**Abstract ID:** 1333138 **Presentation Type:** Breakout Presentation
**Title:** Assessment of countywide rabies vaccination Laws — Kansas, 2006-2010
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Zoonoses
**Keywords:** Rabies|Law|One Health

**Background:**
During 2006-2010, rabid cats represented the majority of rabid domestic animals in the U.S. and Kansas. Thirty-eight states had mandatory rabies vaccination laws for dogs but only 31 had a law for cats; Kansas does not have a statewide rabies vaccination law. We assessed countywide rabies vaccination laws and rabies test data to determine the effectiveness of vaccination laws to prevent cases of rabies among dogs and cats.

**Methods:**
An electronic animal rabies vaccination survey was administered to all 105 local health departments. Rabies test data was obtained from Kansas State University Rabies Laboratory for all dogs and cats submitted during 2006-2010. Counties were grouped into standardized peer groups based on population. County-specific dog and cat population was estimated by number of households.

**Results:**
There was a 97% (102/105) survey response rate. Only 22 counties had a rabies vaccination law, 22 (100%) for dogs and 12 (55%) for cats. Vaccination law for dogs was present in 83% (5/6) of urban counties, 40% (4/10) semi-urban, 20% (4/20) densely-settled rural, 12% (4/33) rural and 14% (5/36) of frontier counties. For cats, only 50% (3/6) of urban, 40% (4/10) semi-urban, 15% (3/20) densely-settled rural, 6% (2/33) rural, and zero frontier counties had a law. During 2006-2010 a total of 1,636 dogs and 1,987 cats were submitted for testing from 105 counties. The submission rates for dogs and cats were; 3.8 (urban), 5.9 (semi-urban), 5.4 (densely-settled rural), 6.9 (rural), and 7.5 (frontier) per 10,000. There were 45 positive tests; 8 dogs and 37 cats. Counties with a dog law had a test positive rate of 53.3/10,000 tests (95% CI 6.6, 99.9) compared to 29.3/10,000 (95%CI 11.3, 70.0) counties with no law however this was not statistically significant. Counties with a cat law had a test positive rate of 107.1/10,000 tests (95% CI, 40.7, 173.4) compared to 266.5/10,000 (95% CI 157.6, 375.4) among counties with no law; this was statistically significant.

**Conclusions:**
A higher proportion of the dog population resided in counties with a vaccination law than cats. Densely-settled rural, rural and frontier counties were less likely to have a vaccination law than urban and semi-urban counties. Submission rates were higher in counties with no law. Counties with a cat vaccination law had lower rates of rabies test positive cats than those with no law. A statewide mandatory vaccination law could reduce the number of rabid dogs and cats and potential transmission of the disease to humans.

---

**Presenting Author(s):**

**Ingrid Trevino-Garrison**
Kansas Department of Health and
Environment, Topeka, KS
igarrison@kdheks.gov

**Contributing Authors**

Chelsea Raybern, MPH (Kansas Department of Health and Environment), Rolan Davis, MS (Kansas State University Rabies Laboratory), Michael Moore, DVM (Kansas State University Rabies Laboratory), Cathleen Hanlon, VMD, PhD (Kansas State University Rabies Labo

**Abstract ID:** 1330947 **Presentation Type:** Breakout Presentation
**Title:** Prevalence of childhood asthma in Washington State: Comparison of Healthy Youth Survey and BRFSS estimates
**Committee:** Environmental Health Sub-Committee
**Topic:** Environmental Public Health Tracking
**Keywords:** Asthma|Surveillance|Evaluation

**Background:**
Washington State's asthma rate is higher than the national average. To monitor asthma prevalence in Washington, the state collects information on childhood asthma using both its school-based Healthy Youth Survey (HYS) and the Behavioral Risk Factor Surveillance System (BRFSS). The purpose of this study is to assess if different survey methods influence the prevalence estimates of childhood asthma.

**Methods:**
We compared the prevalence of current asthma from the 2010 administrations of HYS and BRFSS using four age categories: 11–12-year-olds, 13–14-year-olds, 15–16-year-olds, and 17-year-olds. In HYS, students in grades 6, 8, 10 and 12 complete a self-administered paper survey that includes asthma questions from the Youth Risk Behavior Survey (YRBS),"Has a nurse or doctor ever told you that you have asthma?" and "Do you still have asthma?" In BRFSS, parents answer the same questions about a randomly selected child during a phone interview, except that the BRFSS question for ever being diagnosed with asthma also includes "other health professional." We report on current asthma because students might not know if they were diagnosed with asthma, but outgrew it, at a very young age.

**Results:**
The 2010 HYS estimates of current childhood asthma in Washington State were statistically significantly higher ($p<0.05$) than those from BRFSS across all age categories. In HYS, estimates ranged from 10.3% (95% confidence interval [CI]: 9.6%–11.0%) for ages 11–12 to 12.8% (CI: 11.3%–14.2%) for ages 15–16; in BRFSS, estimates ranged from 6.7% (CI: 4.9%–9.0%) for ages 11–12 to 9.5% (CI: 7.2%–12.4%) for ages 15–16. For all age groups, HYS estimates were about 50% higher than BRFSS estimates. A similar study comparing Washington YRBS and BRFSS in 1999 found similar results, but a greater magnitude of difference.

**Conclusions:**
Based on the 1999 and current studies, HYS gives higher estimates of childhood asthma prevalence than does BRFSS for Washington State. There are no readily available datasets that serve as a gold standard for assessing which surveillance system estimates childhood asthma more accurately. The consistency of the findings in two different time periods may indicate that, without knowing absolute prevalence, both surveys can be used to track trends over time. Future studies should assess the usefulness of these systems for identifying high-risk populations, as well as sources of sample bias or reporting error that contribute to these differences. Similar studies from other states could inform surveillance for this environmentally-related disease.

---

**Presenting Author(s):**

**Juliet Van Eenwyk**
Division of Disease Control and Health
Statistics, Washington State
Department of Health, Tumwater, WA
juliet.vaneenwyk@doh.wa.gov

**Contributing Authors**

Reed Sorensen, MPH, Washington State Department of Health

**Abstract ID:** 1324503 **Presentation Type:** Breakout Presentation
**Title:** Strategic prevention framework (SPF): Relationship between community-level characteristics and processes on population-level outcomes
**Committee:** Cross Cutting Sub-Committee
**Topic:** Substance abuse epidemiology: Burden of alcohol and opiate use, Polices related to substance abuse
**Keywords:** Prevention|Substance abuse |Outcome Measures

**Background:**
The Strategic Prevention Framework State Incentive Grant (SPF SIG) is a Substance Abuse and Mental Health Services Administration/Center for Substance Abuse Prevention (SAMHSA/CSAP) Initiative that involves convening community-stakeholders in a five-step data oriented process for the purpose of achieving population-level outcomes. Using the five-step SPF process communities assess local needs and resources, identify the priority (e.g., underage use of alcohol) to be addressed with SPF SIG grant funds, and select interventions that fill identified gaps in their prevention plans. Since 2004 SAMHSA/CSAP has funded 5 Cohorts of SPF SIG grantees involving over 600 subrecipient communities across 77 states, territories, and tribes/tribal organizations. A national cross-site evaluation of Cohorts III, IV, and V SPF SIG grantees is underway. The evaluation collects information about community-level characteristics, the implementation of the SPF steps, and community-level epidemiological data specific to the communities' identified targeted outcomes. This paper examines the relationship between community-level characteristics and processes on population-level outcomes. Analyses are limited to Cohort III subrecipients submitting baseline and follow-up outcome data.

**Methods:**
Cohort III includes 181 subrecipient communities across 16 grantees. On average, Cohort III grantees funded their subrecipient communities approximately two years following their SPF SIG awards and subrecipient communities began implementing interventions approximately 6 months later. Following 5 years of SPF SIG funding, baseline and follow-up community-level outcome data were available from 98 (54%) communities across 9 (56 %) grantees; 60 (33%) communities across 5 (31%) grantees submitted survey data and 75 (41%) communities across 9 (56%) grantees submitted event data. Because survey data reflected changes in consumption patterns (i.e., 30 day use), whereas event data reflected changes in alcohol-/drug-related consequences, change scores were computed and analyses were conducted separately for the two data types. All baseline data were collected prior to subrecipient funding and follow-up data were collected at least 11 months post-funding, with a range from 13 to 24 months post-funding for survey data and 11 to 20 months for event data. For survey data, improvement was calculated as a change score from baseline to follow-up such that negative outcome numbers represent decreases in 30-day use. Change scores for event data were anchored within a priority, within a grantee by grouping level of change into quartiles based on change that occurred within that group. Independent samples t tests compared communities with coalition partnerships to those without and communities with strong relationships with law enforcement agencies to those with moderate-weak relationships. Bivariate correlations assessed the relationship between the age of the community coalition and the time lag between baseline and follow up data collection with community outcomes.

**Results:**
Several key community-level factors were found to be associated with greater improvements in community outcomes. Specifically, communities that are partnered with a community coalition (n = 35) experienced a greater reduction in alcohol/drug related consequences compared to those who were not partnered with a coalition (n = 34) [$t(67) = -2.23$, $p = .029$]. Of particular importance appears to be a community's partnership and relationship with law enforcement.. An independent-samples t test found a significant difference in decreases in consumption patterns over time [$t(49) = 2.16$, $p = .036$] indicating that communities with strong relationships with law enforcement reported better outcomes. Specifically, communities using law enforcement data in needs and resources assessments, actively partnering with law enforcement, and not lacking trust in law enforcement (n = 21) reported an average of 5.59% decrease in the percent of respondents using alcohol or prescription drugs in the past 30 days, as compared to communities reporting a lack of trust in law enforcement and/or not using law enforcement data, nor including law enforcement in the community coalition (n = 30) which reported a 2.52% average decrease. Finally, communities involving coalitions that have a longer history are associated with greater desired changes in consumption patterns (n = 54, $r = -.28$, $p = .04$) as compared to coalitions that have been operating for fewer years. A more refined examination of consumption pattern data by targeted substance revealed that significant findings were primarily attributable to the decrease in the percentage of

people using alcohol in the past 30 days (n = 51; average decrease of 4.29%), as opposed to the relatively stable percentage of people using prescription drugs in the past 30 days (n = 8; average increase of 0.20%).

**Conclusions:**
Results point to several key community-level factors that are positively related to the reduction of alcohol and drug related consumption patterns and consequences one to two years following the flow of SPF dollars into the subrecipient communities. The time lag between the baseline and follow-up measure was not associated with greater improvement. Preliminary analyses suggest that partnerships with experienced community coalitions and strong relationships with law enforcement are important contributors to community-level improvement. These findings suggest that a community's organizational infrastructure is important to consider when enacting strategic planning processes.

---

**Presenting Author(s):**

**Kelly Vander Ley**
RMC Research Corporation, Portland,
OR
kvanderley@rmccorp.com

**Contributing Authors**

Mary Gray, MS, RMC Research Corporation; Kelly Jarvis, PhD, RMC Research Corporation; Gillian Leichtling, BA, RMC Research Corporation; Alison Martin, PhD, RMC Research Corporation; Frank Winn, PhD, CSAP/SAMHSA

**Abstract ID:** 1330534 **Presentation Type:** Poster Presentation
**Title:** Identifying children not up-to-date with lead testing by matching to the citywide immunization registry – Philadelphia, PA
**Committee:** Environmental Health Sub-Committee
**Topic:** Healthy Homes
**Keywords:** Lead|Vaccination|Epidemiologic methods

**Background:**
Philadelphia is ranked 5th among U.S. cities for elevated blood lead levels (BLLs) among children. Although BLLs as low as 10 ?g/dl can impair development, clinical symptoms are rarely observed below 70 ?g/dl. Testing is therefore critical for identifying asymptomatic children with unsafe BLLs. Although many local health departments, including the Philadelphia Department of Public Health (PDPH), require universal screening of children at both 1 and 2 years of age, there is concern that as lead poisoning rates have declined, the proportion of children tested will also decrease. To assess overall lead testing coverage (?1 test) among 2 year-olds we explored factors associated with up-to-date (UTD) lead testing status.

**Methods:**
To identify children not UTD with lead testing, we matched blood lead testing reports from the Pennsylvania Electronic Disease Surveillance System (PA-NEDSS) and the PDPH KIDS Immunization Registry, a database containing vital statistic and immunization information for children born in Philadelphia. Deterministic matching for children born in 2009 was conducted in SAS using individual dates of birth, names, residential addresses, and gender. Manual review of automated matches was performed. Additional characteristics were obtained from birth certificates. We determined the proportion of children with immunization and lead records, those with only immunizations, and only lead testing. Demographic and maternal characteristics were compared across groups.

**Results:**
Of 26,009 children found in either dataset, 62% had both an immunization record and a lead test; whereas, 28% only had immunization records, and 10% only had lead tests. Gender, ethnicity, and mother's education were equivalent for children with immunization records regardless of lead testing status. However, children with no lead test were more often non- black (56%) than children with a lead test (44%; $p<0.001$). Untested children were also less likely to have had MMR vaccine than children with a lead test (89% vs. 57% respectively; $p<0.0001$), and had a lower mean number of vaccines recorded in KIDS (14 vs. 20; $p<0.001$).

**Conclusions:**
By matching lead testing reports and immunization records, we identified a population of 2 year olds in Philadelphia not UTD with lead testing. Many of these children were also not UTD with their immunizations, and could benefit from combined services and education aimed to increase awareness of and access to lead testing and vaccination. These methods could be applied elsewhere to identify children missing critical pediatric health-care services.

---

**Presenting Author(s):**

**Kendra Viner**
Disease Control, Philadelphia
Department of Public Health,
Philadelphia, PA
kendra.viner@phila.gov

**Contributing Authors**

Palak Raval-Nelson, PhD, MPH - Director of Environmental Health Services, Philadelphia Department of Public Health Nan Feyler, JD, MPH - Chief of Staff, Philadelphia Dept of Public Health Caroline Johnson, MD - Director of Division of Disease Control, Phi

**Abstract ID:** 1327597 **Presentation Type:** Breakout Presentation
**Title:** Epidemiologic profile of refugees arriving in Washington State
**Committee:** Cross Cutting Sub-Committee
**Topic:** Importation of Diseases Across Borders: Asylees, Immigrants, Refugees, Travelers, Veterans, and More
**Keywords:** Epidemiology|Screening|Vulnerable populations

**Background:**
Washington is among the top 10 states for refugee arrivals. In fiscal year (FY) 2010, 3003 refugees settled there, an 18% increase from FY 2009. We profiled the health of refugees in Washington State to guide improvement of health screening services for refugees in the 6 local health jurisdictions (LHJs).

**Methods:**
We reviewed results of health screening completed shortly after refugees settled in Washington in FY 2010. Health screening data included demographics; test results for tuberculosis (TB), hepatitis B virus (HBV), intestinal parasites, and sexually transmitted infections; and screening for chronic conditions (e.g., hypertension and diabetes). We calculated demographically stratified frequencies of health conditions.

**Results:**
Domestic health screening results were compiled for 2906 refugees in the 6 regions of Washington State. The 3 largest populations were Burmese (25%), Iraqis (21%), and Bhutanese (18%). At initial assessment, 64% of refugees had available test results for HBV, 3% had evidence of acute or chronic infection. An additional 18% had immunity to HBV due to vaccination or prior infection. Most (90%) of refugees had test results for TB available; of the 21% who had a positive interferon-gamma release assay or tuberculin skin test, 11% had available chest radiograph results (6 positive). All regions had guidelines stating that refugees aged > 13 years (n=2095) should be were tested for HIV, but only 28% had results available (3 positive). Syphilis testing is performed in 2 regions for refugees aged > 13 years (n=160); 90% had results available (one positive). Stool testing for ova and parasites is performed in 3 regions on refugees of all ages (n=716); results were available for 91% of refugees, with 28% testing positive. Among refugees aged > 18 years, 12% had hypertension and 3% were diagnosed with diabetes.

**Conclusions:**
Health screening and reporting for refugees were not uniform among LHJs in Washington State. Of concern was the low frequency of testing and lack of available results for HBV and HIV. Given the high prevalence of ova and parasites, universal screening in all regions is recommended. Although positivity was high for latent TB infection, follow-up results for TB were generally unavailable, as most refugees were referred to other facilities for further evaluation. Chronic conditions are currently not a priority, but should be considered as these diseases can progress and they are a long-term expense for LHJs and society. CDC Standard guidelines for domestic screening of refugees should be utilized in Washington State.

---

**Presenting Author(s):**

**Laura Vonnahme**
Division of Global Migration and
Quarantine, Centers for Disease
Control and Prevention, Seattle, WA
kdy1@cdc.gov

**Contributing Authors**

Peter Houck, MD, Centers for Disease Control and Prevention Heather Burke, MPH, Centers for Disease Control and Prevention Emad Yanni, MD, Centers for Disease Control and Prevention Heather Hastings, MPH, Centers for Disease Control and Prevention Sherril

**Abstract ID:** 1327618 **Presentation Type:** Breakout Presentation
**Title:** Vaccination status and evidence of immunity in refugees in Washington State
**Committee:** Cross Cutting Sub-Committee
**Topic:** Importation of Diseases Across Borders: Asylees, Immigrants, Refugees, Travelers, Veterans, and More
**Keywords:** Vaccination|Vulnerable populations|Screening

**Background:**
Although immunization is recommended, U.S.-bound refugees are not required to meet Advisory Committee on Immunization Practices (ACIP) recommendations until 1 year after arrival. Under-vaccinated populations are at increased risk of vaccine preventable diseases (VPDs). Our objective was to determine the vaccination status and immunity to VPDs in the refugee population upon arrival to Washington State.

**Methods:**
We reviewed records at six local health jurisdictions (LHJs) in Washington that perform domestic health screenings for refugees. Records for refugees who settled in Washington from October 2009 to September 2010 were reviewed for demographics, vaccinations received abroad in accordance with ACIP recommendations, and laboratory evidence of immunity to measles, mumps, and rubella (MMR), hepatitis A virus (HAV), hepatitis B virus (HBV) and varicella . We calculated the percentage of refugees with up-to-date vaccination status based on serology results, number of vaccine doses received, and dose interval.

**Results:**
Domestic and/or overseas vaccination records were available for 2804 (96%) of 2906 refugees. Of these, 44% had a documented immunization history upon arrival . Based on immunization history and serologic testing, upon arrival none of the adult refugees (> 18 years) (n=1782) were up to date on all vaccinations recommended by the ACIP. No adults had a documented history for vaccination against influenza . Only 16 (0.9%) had completed the vaccination series for diphtheria, pertussis, and tetanus, and just 1.9 had completed the vaccine series for polio. Serologic testing was performed on refugees of all ages. All regions performed serologic testing for HBV; 64% of refugee records had available results, 3% had evidence of acute or chronic infection and 18% indicated immunity due to vaccination or prior infection. Of the 257 refugees in the two regions that tested for immunity to HAV, 93% had available results, 55% of which had evidence of immunity. Four regions tested for immunity to varicella (n=2235); of the 50% with available results, 88% had evidence of immunity. Testing for immunity to MMR was performed in 2 regions (n=203); 82% had available results, and 81% of those had immunity .

**Conclusions:**
Serologic testing and reporting of results for refugees were not uniform among LHJs in Washington State. The majority of refugees had available domestic and/or overseas vaccination records, but fewer than half had documented overseas vaccination history upon arrival. Based on serologic results and unavailable overseas vaccination records, arriving refugees are at risk for VPDs due to under vaccination, which can affect individual and public health.

---

**Presenting Author(s):**

**Laura Vonnahme**
Centers for Disease Control and
Prevention, Seattle, WA
kdy1@cdc.gov

**Contributing Authors**

Peter Houck, MD, Centers for Disease Control and Prevention Heather Burke, MPH, Centers for Disease Control and Prevention Emad Yanni, MD, Centers for Disease Control and Prevention Heather Hastings, MPH, Centers for Disease Control and Prevention Sherril

**Abstract ID:** 1332763 **Presentation Type:** Poster Presentation

**Title:** Effects of a changing climate on public health – Use of environmental public health indicators as components of the Michigan Climate Change Surveillance System

**Committee:** Environmental Health Sub-Committee

**Topic:** Climate change epidemiology and public health

**Keywords:** Climate change|Indicators|Environmental Health

**Background:**
According to the Intergovernmental Panel on Climate Change (IPCC), changes in temperature, precipitation, and other weather variables due to climate change "are likely to affect the health status of millions of people." In 2004, the Council of State and Territorial Epidemiologists (CSTE) established the State Environmental Public Health Indicators Collaborative (SEHIC), which included state-level epidemiologists. SEHIC workgroups developed indicators (quantitative summary measures used to track changes in conditions by person, place, and time) for environmental health surveillance and practice.

**Methods:**
Interest in the changing climate increased, and, in 2008, SEHIC initiated a workgroup to develop four categories of indicators related to climate change. Indicator templates, which described indicator significance, background, data sources and quality, and limitations, and "how-to guides," which outlined systematic calculation methods, were developed for each of 25 indicators. In May 2011, five states, including Michigan, pilot-tested the process of generating these indicators.

**Results:**
SELECTED MICHIGAN RESULTS BY CATEGORY Environmental Indicators - Greenhouse gas (GHG) emissions declined from nearly 195 million metric tons in 2000 to approximately 176 million metric tons in 2008. Wildfire Characteristics: Average acres burned per wildfire have been increasing since 2002; compared with other Midwest states, Michigan experienced higher average acres burned per fire. Health Outcome Indicators - The number and rate of heat-related hospitalizations has no consistent trends from 2001-2009. Of all heat-related hospitalizations, 35-40% are ? 65 years of age. Human Cases of Lyme Disease have been increasing since 1999. Mitigation Indicators - Renewable Energy Generation, at 0.36-0.39 thousand kilowatt hours per person from 2006-2008, is less than the U.S. average of 1.17-1.29. Adaptation Indicators - Development of a State Adaptation Plan. The Michigan Climate Action Plan, released March 2009, outlined policy recommendations to reduce GHG emissions. January 2011, MDCH released the Michigan Climate and Health Adaptation Plan. Policy Indicators - Completion of a Greenhouse Gas Inventory. Michigan is one of 46 states to complete a state greenhouse gas (GHG) inventory as of 2009.

**Conclusions:**
Indicators vary in difficulty to generate results and in utility. For example, testing for human cases of Lyme disease is dependent on available state and local resources, which vary year to year; interpret results cautiously. Heat-related hospitalization numbers and rates pose difficulties due to small numbers. Despite limitations, surveillance of changes in climatic conditions and health effects are essential to quantify impacts on human health, predict future impacts, and guide public health adaptation strategies.

---

**Presenting Author(s):**

**Robert Wahl**
Michigan Department of Community
Health, Lansing, MI
wahlr@Michigan.gov

**Contributing Authors**

Bethany Waterbury,DVM, Michigan Department of Community Health (MDCH); Robert Kononowech, University of Michigan; Martha Stanbury, MSPH, MDCH; Lorri Cameron, MPH, PhD, MDCH

**Abstract ID:** 1311347 **Presentation Type:** Poster Presentation
**Title:** Challenges to measles control in the elimination era
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Vaccine preventable diseases
**Keywords:** Infectious Diseases|Data/Surveillance|Challenges and Opportunities

**Background:**
Endemic measles transmission was declared eliminated in the United States in 2000, but importations of measles virus continue to occur. Measles case investigations are resource intensive and it is increasingly challenging to maintain efforts with restricted resource at the State and local level. These issues are highlighted in 2011 by the highest number of reported measles cases reported since 1996 (222 as of December 2, 2011).

**Methods:**
Confirmed measles cases reported to the Centers for Disease Control and Prevention were reviewed from 2001 to 2011. Incidence rates were calculated based on US census data. Challenge issues for measles surveillance and case investigations are identified from recent outbreak investigations.

**Results:**
During January 1-December 2, 2011, measles incidence (0.72/million) was 3 times higher than the average incidence during 2001-2010 (0.24/million). Among the 196 US residents with measles, 166 (85%) were unvaccinated or had unknown vaccination status, 27 (14%) were aged <12 months, 52 (27%) were aged 1-4 years, 42 (21%) were aged 5-19 years, and 75 (38%) were aged ?20 years. Age-specific incidence was highest among infants age 12-15 months (10/million), followed by those age 9-11 months (6.5/million), and those aged 16 months-4 years (5.3/million). In 2011, there were 72 importations, the most reported during 2001-2011. Of these, 52 (72%) were among US residents who had traveled abroad. The WHO European region was the source of 33 (46%) importations and genotype D4 was isolated in 19 (26%) importations. Half (50%) of the 222 cases reported in 2011 were associated with 17 outbreaks defined as ?3 cases that are linked in time or place. The following areas were identified as the most important determinants of resource requirements for measles investigations: duration of infectious period; duration of incubation period; exposure definition and follow-up required; guidelines for post-exposure interventions.

**Conclusions:**
The increased incidence of measles thus far in 2011 is related to increases in measles in countries visited by US travelers and highlights the challenges for maintaining measles elimination. Identifying the most efficient uses of resources while maintaining measles control requires continued evaluation.

---

**Presenting Author(s):**

**Gregory Wallace**
Centers for Disease Control and
Prevention, Atlanta, GA
gsw2@cdc.gov

**Abstract ID:** 1322254 **Presentation Type:** Poster Presentation
**Title:** Use of Complementary and Alternative Medicine Among Kansas Adults with Arthritis
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Other CD/MCH/OrH epidemiology
**Keywords:** Arthritis|Alternative Medicine/Therapies|Data/Surveillance

**Background:**
The use of complementary and alternative medicine (CAM) for chronic conditions such as arthritis has increased in recent years. There is no state-wide information, however, on CAM use among Kansas adults with arthritis. Objective: Assess correlates of CAM use among adults with arthritis in Kansas.

**Methods:**
2009 data on persons with arthritis from the Kansas Arthritis Call Back Survey (n=2075) were analyzed using frequency methods for weighted data. CAM use included: taking herbs and/or vitamins and/or receiving acupuncture, acupressure, homeopathy, naturopathy and/or reflexology treatments for arthritis or joint symptoms.

**Results:**
Kansas adults who were more likely to have used at least two types of CAM included non-Hispanic adults, as compared to Hispanic adults (16% versus 5%; p=0.006); those who were less than 65 years of age, as compared to those aged 65 years and older (18% versus 11%; p=0.001); those who regularly used over the counter medications for their arthritis symptoms in the past year, as compared to those who did not (17% versus 8%; p=0.005); and those who were dissatisfied or had neutral feelings with the level of attention their health care provider paid to their arthritis, as compared to those who were satisfied (26% & 27%, respectively, versus 15%; p=0.004).

**Conclusions:**
Demographic correlates of CAM use among Kansas adults includes non-Hispanic ethnicity and being less than 65 years of age. Other correlates included use of over the counter medications and not being satisfied with the level of attention their health care provider pays to their arthritis.

---

**Presenting Author(s):**

**Elizabeth Walsh**
Health Promotion, Kansas Department of Health and Environment, Topeka, KS
ewalsh@kdheks.gov

**Contributing Authors**

Ghazala Perveen, MBBS, PhD, MPH

**Abstract ID:** 1330009 **Presentation Type:** Poster Presentation
**Title:** Distinguishing epidemiologic features of foodborne outbreaks due to Clostridium perfringens, Staphylococcus aureus, and Bacillus cereus illnesses — United States, 1998 — 2008
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Foodborne/waterborne disease
**Keywords:** Foodborne disease|Epidemiology|NORS (National Outbreak Reporting System)

**Background:**
An estimated 12% of foodborne illnesses with a known pathogen result from bacterial toxin illnesses caused by Clostridium perfringens (10%), Stapylococcus aureus (3%), or Bacillus cereus (<1%). The toxins produced by these pathogens cause syndromes with similar epidemiologic characteristics, and laboratory confirmation is often not available. This complicates distinguishing the etiologic agent in an outbreak setting.

**Methods:**
We reviewed foodborne outbreaks due to C. perfringens, S. aureus, and B. cereus reported by state and local health departments to CDC's Foodborne Disease Outbreak Surveillance System (FDOSS) from 1998-2008. We classified outbreaks as having a confirmed etiology if at least one pathogen was laboratory-confirmed. If no etiology was laboratory-confirmed but an etiology was reported based on clinical or epidemiologic features, the outbreak was considered to have a suspected etiology.

**Results:**
During 1998-2008, 1,690 (13%) of 13,405 reported foodborne outbreaks were caused by bacterial toxins, of which 494 (29%) were confirmed and 1,196 (71%) were suspected. In 461 (27%) outbreaks, a bacterial toxin was reported to FDOSS, but the specific pathogen was unknown. Of the 1,229 (73%) outbreaks with a single pathogen reported, most were due to C. perfringens (44%), followed by S. aureus (37%), and B. cereus (19%). The median incubation period among confirmed outbreaks was longer for C. perfringens (11hrs, range: 4-20) than S. aureus (4hrs, range: 2-6), but B. cereus (5hrs, range: 3-10) overlapped with both. The median duration of illness in outbreaks due to C. perfringens was 23 hours (range: 3-51), to S. aureus was 12 hours (range: 1-120), and to B. cereus was 18 hours (range: 2-84). The median proportion of cases for which vomiting was reported was much lower for C. perfringens outbreaks (9%) than for S. aureus (87%) or B. cereus (75%) outbreaks. Among the 439 outbreaks in which a food was reported, C. perfringens was most commonly associated with beef and poultry (78%), S. aureus with pork (65%), and B. cereus with grains/beans (67%).

**Conclusions:**
Bacterial toxin outbreaks continue to be an important public health problem. Because laboratory confirmation is complex and challenging, the etiology is often not laboratory-confirmed. Dissemination of knowledge regarding key differences, such as the very short incubation period for S. aureus and its common association with pork, and the low frequency of vomiting and longer incubation with C. perfringens can help investigators identify the likely pathogen involved in the outbreak and strengthen surveillance and reporting.

---

**Presenting Author(s):**

**Kelly Walsh**
National Center for Emerging and Zoonotic Infectious Diseases/Division of Foodborne, Waterborne, and Environmental Diseases/Enteric Diseases Epidemiology Branch/Outbreak Surveillance and Analytics, Centers for Disease Control and Prevention, Atlanta, GA
uzx2@cdc.gov

**Contributing Authors**

Sarah D. Bennett, MD, MPH Centers for Disease Control and Prevention L.H. Gould, PhD, MS Centers for Disease Control and Prevention

**Abstract ID:** 1331927 **Presentation Type:** Poster Presentation
**Title:** Identifying trends in vaccine exemptions in HISD schools from 2007-2011 and correlations with clusters of vaccine-preventable disease
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Vaccine preventable diseases
**Keywords:** Vaccination|School health|Epidemiology

**Background:**
Public school immunization requirements play a vital role in controlling vaccine-preventable diseases (VPD) in the United States. In 2003, Texas passed a law to allow parents to exempt their children from vaccines on the basis of nonmedical reasons, also known as conscientious exemptions. The burden of VPDs can be seen in the number of total pertussis cases in the state of Texas: the number rose from 670 cases in 2003 to 2,848 cases in 2010 – a 425% increase. With the allowance of conscientious exemptions coupled with the burden of VPD in Texas makes the case that an analysis needs to be done to see if there is a similar increase in nonmedical exemptions the Houston area and if so, whether that has any correlation or impact on cases of VPD. Data will be provided by the Houston Independent School District (HISD). The HISD and Houston Department of Health and Human Services (HDHHS) collaborates on many projects for the purpose of protecting the health of children in Houston. Learning objectives: 1) Identify any trends in HISD schools regarding vaccination exemptions. 2) Identify any correlations with vaccine-preventable disease rates

**Methods:**
School vaccination exemption data was provided by HISD's Health and Medical Services. Schools and its surrounding zones in addition to clusters of pertussis will be mapped with the use of ArcGIS.

**Results:**
Of the 313 public schools in HISD, 88 (28%) schools were fully vaccinated, receiving zero vaccination exemptions from students in 2007, compared to just 30 (9.5%) schools in 2011. Of the vaccination exemptions received by schools (which includes reasons due to medical, religious, military, conscience, and provisional), exemptions due to reasons of conscience rose 370%, from 111 exemptions in 2007 to 411 in 2011.When the specific vaccination protecting for pertussis is analyzed (DTP/DTaP), exemptions from this vaccine rose from just 70 exemptions in 2007 to 289 exemptions in 2011, indicating a 413% increase. Results, including any pertussis trends specific to Houston, will be included in the final presentation.

**Conclusions:**
It is important to identify which areas in Houston have the highest risk of a potential outbreak of vaccine-preventable disease such as pertussis in order to effectively protect the public's health in Houston. Collaboration with schools is a necessary component to safeguarding the welfare of the citizens of Houston as well as preventing any potential outbreaks.

---

**Presenting Author(s):**

**Nathan Wang**
Bureau of Epidemiology, Houston
Department of Health and Human
Services, Houston, TX
nathan.wang@houstontx.gov

**Contributing Authors**

Mary Jane Lowery, RN; Yufang Zhang, MD; Salma Khuwaja, MD, DrPH; Raouf Arafat, MD, MPH - HDHHS

**Abstract ID:** 1330745 **Presentation Type:** Breakout Presentation
**Title:** Variations in the quality of the national data for drug poisoning surveillance, National Vital Statistics System, 2007-2008
**Committee:** Injury Control and Prevention Sub-Committee
**Topic:** Unintentional drug poisonings deaths
**Keywords:** Injury surveillance|Substance abuse |Epidemiologic methods

**Background:**
As poisoning is now the leading cause of injury death in the US, the quality of the National Vital Statistics System (NVSS), multiple cause of death (MCOD) data, the only national source for fatal poisoning surveillance, should be evaluated. The goal of this paper is present issues with the US data and note variation between states.

**Methods:**
The 2007-2008 NVSS-MCOD files were analyzed. Poisoning deaths were defined as having ICD-10 underlying cause of death: X40-X49 (unintentional), X60-X69 (suicide), X85 (homicide), Y10-Y14 (undetermined intent) and Y35.2, *U01.6-*U01.7 (legal intervention/war). Among drug poisoning deaths (X40-44, X60-X64, X85, Y10-Y14), deaths with only non-specified drug(s) involved were those with only T50.9 and no other MCOD in the range T36-T50. Numbers and age-adjusted death rates were calculated by specificity of ICD codes for specific drugs, coding of intent, use of autopsy, pending certificates, and other quality indicators. State estimates were compared to the US estimate and differences were evaluated.

**Results:**
For 25% of drug poisoning deaths in the US, the type of drug(s) involved was not specified on the death certificate; the percent with an unspecified type of drug varied by state, ranging from 5%-60% of drug poisoning deaths. For 9% of the drug poisoning deaths in the US, the intent was not determined; the state with the highest percentage was 86%, followed by 54%, and 34%. In 3 states, less than 1% were of undetermined intent. In the US, about 80% of the death certificates indicated that an autopsy was performed for drug poisoning deaths. In 16 states, fewer than 75% of deaths autopsied.

**Conclusions:**
Variations by state in reporting of the specificity of drugs involved, manner of death, and other factors may lead to incorrect assumptions regarding state variations in rates of drug poisoning deaths. For example, when presenting comparisons of drug poisoning deaths, including all manners of deaths is prudent due to the variations by state in deaths certified as undetermined intent. In addition to death certification practices, the variations in the data may be due to death investigation practices. For example, the percent of autopsies performed varied by state. Medical examiners and coroners should consider reviewing their investigation and reporting methods. In the meantime, users of the MCOD data should be aware of the data quality issues when they draw conclusions.

---

**Presenting Author(s):**

**Margaret Warner**
National Center for Health Statistics,
Centers for Disease Control and
Prevention, Hyattsville, MD
mwarner@cdc.gov

**Contributing Authors**

Li-Hui Chen, PhD, National Center for Health Statistics, Centers for Disease Control

**Abstract ID:** 1332871 **Presentation Type:** Roundtable Presentation
**Title:** U.S. - Mexico binational case and outbreak notification communication pathway pilot
**Committee:** Surveillance/Informatics
**Topic:** General surveillance topics
**Keywords:** Surveillance|International|Infectious Diseases


**Background:**
Incidence of Infectious diseases such as foodborne and zoonotic diseases has been documented to be high on the U.S. - Mexico border and binational outbreaks affect both countries beyond the international frontier. In June 2011 CSTE endorsed a binational pilot project for binational case and outbreak notifications using a communication pathway developed by the U.S. - Mexico Binational Technical Work Group Infectious Disease Section as a step to implementation of previously CSTE endorsed guidelines document for cooperation on epidemiologic events of mutual importance. The team developed a list of binatioally notifiable conditions and a protocol was implemented by Texas, New Mexico, Arizona, and Sonora, CDC and the Mexico Directorate of Epidemiology in late November, 2011 (epidemiologic week 47). Additional non-border states from the U.S. and Mexico have been solicited for the initial pilot which will continue through May 2011.

**Methods:**
U.S. binational reports are documented by the CDC Division of Global Migration and Quarantine. An evaluation of the pilot will be performed looking at timeliness, acceptability, completeness, workload, etc. Initial binational reports for the last 6 weeks of 2011 are summarized. Pilot results and evaluation after 6 months of implementation will be presented.

**Results:**
Seven binational events were notified by the three participating border states and CDC during the last 6 weeks of 2011 including two outbreaks and confirmed cases of botulism, murine typhus, a probable case of West Nile Virus encephalitis, and suspect pertussis cases later ruled out. The outbreaks included a border outbreak of Rocky Mountain Spotted Fever and an apparent shigella outbreak among travelers from multiple U.S. states to a tourist destination in Jalisco, Mexico.

**Conclusions:**
Preliminary binational notifications using the pilot communication protocol suggest binational reporting is feasible and will improve documentation of binational morbidity, and provide more timely and complete sharing of information for appropriate public health action.


---


**Presenting Author(s):**

**Steve Waterman**
Centers for Disease Control and
Prevention, San Diego, CA
shw2@cdc.gov

**Contributing Authors**

K Komatsu, AZ Dept Health Services, P Dulin, New Mexico Department of Health, A Banicki, Texas Department of State Health Services, P Smith, CSTE, A Thornton, CSTE, J Alomia, Sonora Department of Health, R Cortes, Directorate of Epidemiology, Mexico Secre

**Abstract ID:** 1331725 **Presentation Type:** Poster Presentation
**Title:** Cluster of influenza co-infections identified at a New York State university through routine ILINet surveillance
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Influenza
**Keywords:** Influenza surveillance|Communicable disease|Surveillance

**Background:**
Human co-infections with different influenza types, subtypes, and other respiratory viruses are uncommon but not unheard of. In January 2011, as part of routine ILINet surveillance, the New York State Department of Health (NYSDOH) identified seven PCR-confirmed influenza co-infections occurring within 16 days of each other in students attending the same university in New York State (NYS).

**Methods:**
Providers in the NYSDOH ILINet Program report their influenza-like illness (ILI) activity weekly to the Centers for Disease Control and Prevention (CDC). Providers submit patient respiratory specimens to the NYSDOH Virology Laboratory at the Wadsworth Center for influenza and other respiratory virus testing. The laboratory performs PCR and culture testing for influenza and several other respiratory pathogens. The student health service at the university has participated in ILINet since 2000, reporting their ILI activity weekly to CDC and routinely submitting patient respiratory specimens for testing.

**Results:**
The ILI rate as reported by the student health service increased sharply during January 2011, peaking at 9.27% of all patient visits for the week ending January 29, 2011. This contrasted with a peak ILI rate of 4.03% among all ILINet providers in NYS occurring the week ending February 19, 2011. Between January 24, 2011 and February 9, 2011, the student health service submitted 32 respiratory specimens for testing, of which 29 were positive for influenza. Seven influenza co-infections were identified: three for A (H1N1) and B, one for A (H3) and B, two for A (unspecified) and B, and one for A (H1N1) and A (H3). Two of the A/B co-infections were also positive for other respiratory viruses. None of the co-infected students had been vaccinated for influenza that season. The director of the student health service reported that “rush week” for fraternities and sororities occurred at the university the week prior to the increase in ILI visits.

**Conclusions:**
Identification of this cluster demonstrates the value of the NYSDOH ILINet Program both for identifying ILI activity in a community, as well as detecting circulating influenza viruses. Intermingling of students from multiple states and countries during traditional influenza season, and especially during a “rush week,” may have contributed to increased respiratory virus circulation among students, resulting in an epidemic increase in influenza infections and co-infections.

---

**Presenting Author(s):**

**Christine Waters**
New York State Department of Health,
Albany, NY
clw06@health.state.ny.us

**Contributing Authors**

Christine Waters, RN, BS, Bryan Cherry, VMD, PhD, Debra Blog, MD, MPH, Michael D. Popowich, BS, Meghan E. Fuschino, MS, Kirsten St. George, PhD, MAppSc, and Daniel J. Kuhles, MD, MPH; New York State Department of Health

**Abstract ID:** 1332868 **Presentation Type:** Breakout Presentation
**Title:** Florida's updated response to community concerns located near a National Priority Listing (NPL) site: Review of cancer data and communications strategy
**Committee:** Environmental Health Sub-Committee
**Topic:** Cancer and other disease cluster investigations
**Keywords:** Cancer|Environmental exposures|Risk communication

**Background:**
Florida investigated reports of increased cancer in a neighborhood adjacent to a site on the National Priority List for decades. The long-standing community is small and directly adjacent to a pine-stump processing and wood-treatment facility operating since early 1900. Environmental assessment has been on-going for many years; dioxins/furans, arsenic and polyaromatic hydrocarbons are primary contaminants. Advocacy/activist groups are involved. Fears associated with environmental contamination have resulted in declining property values and lawsuits.

**Methods:**
Florida participated in the workgroup drafting revision to the CDC's 1990 Guidelines for Investigating Disease Clusters. Using these draft steps/criteria in the revised document (MMWR, 2012) a cancer rate review was undertaken. The Florida cancer registry was accessed to find all area cancer cases. Analysis was by census tract (rather than by neighborhood). Analysis was provided in two parts: 1981-2000 and 2001-2008. Post-2000 was done at a later date to allow for use of 2010 census data with detailed breakdowns by census tract. Standardized incidence ratios (SIRs) were calculated for five-year periods for a number of cancers with state rates used for comparison.

**Results:**
For periods encompassing 1981-2000, elevated cancer rates were generally not seen in the census tract. The only elevation occurred during 1981-1985 among individuals age 65 or older for esophageal cancer. Analysis for the periods 2001-2008 revealed a small recent (2006-2008) increase in liver and pancreatic cancers but only for all ages combined. Uterine cancer also showed an increase among ages 45-64 (2006-2008, 1981-2008), as did oral cancers among those age 65 and older (2006-2008), and esophageal cancers among those age 65 and older (1981-2008). However, many cancers showed significantly lower overall rates in the community. Specific SIRs and analysis will be presented.

**Conclusions:**
Although a few elevations in specific cancers were observed; no overall pattern of an increase in cancer rates, nor a pattern of increases in specific cancers were noted and findings were not consistent. Recent small increases in various cancers are expected to create community concern and require intensive communication strategies. Use of the newly revised cluster investigation criteria and recommendations was felt to improve analysis and communications with the community. Specifically, restriction of the analysis area to the census tract (rather than the smaller neighborhood), production of analysis in two phases (to allow for more detailed census data), partnership with the County Health Department, discussion with community advocates, and release of findings in a community open-house format were felt to improve the overall process.

---

**Presenting Author(s):**

**Sharon Watkins**
Florida Department of Health,
Tallahassee, FL
Sharon_Watkins@doh.state.fl.us

**Contributing Authors**

Anil Nair, PhD, Carina Blackmore, DVM, PhD, Dipl. ACVPM

**Abstract ID:** 1331857 **Presentation Type:** Breakout Presentation
**Title:** Review of occupational indicators in Florida over time (2000-2007) in order to drive next steps in data analysis
**Committee:** Occupational Health Sub-Committee
**Topic:** Successes, lessons learned, and challenges in occupational health surveillance
**Keywords:** Occupational Surveillance|Occupational injury and death

**Background:**
Surveillance for occupational injuries and illness is a newly funded Florida program awarded from the National Institute of Occupational Safety and Health (NIOSH). As a geographically large state with large workforce (nearly 9 million) and diverse work population (18% non-white, 22% Hispanic ethnicity), Florida represents a complex environment for occupational surveillance. In order to better understand basic trends and statistics, Florida completed a summary report presenting 17 of 19 occupational indicators for 2000–2007. One purpose of the report was to highlight where additional analysis was needed.

**Methods:**
Data needed for completion of the 17 occupational indicators was compiled and analyzed including Bureau of Labor (BOL) Statistics Current Population Survey, BOL Annual Survey of Occupational Injuries and Illnesses (SOII), hospitalization discharge data, Census of Fatal Occupational Injuries (CFOI), vital statistics, census data, and others. Data were presented graphically over time.

**Results:**
Florida workers are more often employed in education/health care, leisure/hospitality, retail trade, and business/professional services with fewer employed in manufacturing or mining than the national average. Florida's rate of non-fatal work injuries/illnesses has been declining, following national trends. Florida's rate of work-related hospitalizations has also been declining but was above national rates until 2007. In contrast, Florida averages 369 work-related deaths per year with the fatality rate being consistently above the national average (4.1 per 100,000 employed persons in 2007). Florida has a lower rate of amputations than the nation (as are rates for hospitalizations for burns, days away from work due to musculoskeletal disorders), perhaps reflecting the fewer manufacturing/production industries in the state. Other indicators will be presented.

**Conclusions:**
Highlights include that Florida has a higher than national average of work-related fatalities despite having less than the national average of workers employed in occupations/industries at high risk for occupational mortality. In reviewing this fatality rate, Florida decided to further analyze CFOI and other data to better describe risk factors for fatality. Although rates for amputations, burns and musculoskeletal injuries/ illnesses were below (or just below) national averages, the lower proportion of injuries associated with manufacturing and other industries more commonly linked to these suggested further analysis. In addition, racial differences were noted among the most common types of industry/occupations in Florida. These factors pointed to a second special-topics analysis which will explore many of the occupational indicators by race and ethnicity and discusses disparities. In conclusion, Florida has successfully used review of occupational indicators over time to drive next program steps.

---

**Presenting Author(s):**

**Sharon Watkins**
Florida Department of Health,
Tallahassee, FL
Sharon_Watkins@doh.state.fl.us

**Contributing Authors**

Juanita Chalmers, MPH, Anil Nair, PhD, Carina Blackmore, DVM, PhD, Dipl. ACVPM

**Abstract ID:** 1331105 **Presentation Type:** Breakout Presentation
**Title:** Hep, hep, hooray: An outbreak of hepatitis B virus in an assisted living facility
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Viral hepatitis
**Keywords:** Viral hepatitis|Infection control|Outbreak investigations

**Background:**
In June 2010, a Virginia Department of Health (VDH) epidemiologist was notified of an assisted living facility (ALF) resident with acute hepatitis B virus (HBV) infection. VDH conducted an investigation to identify additional cases, ascertain risk factors associated with infection, and prevent further illness.

**Methods:**
Interviews with staff and medical providers, facility inspections, and medical record reviews were performed to determine possible risk factors, including blood glucose monitoring (BGM) and podiatry and wound care services. VDH and the Centers for Disease Control and Prevention coordinated HBV and hepatitis C virus testing of all potentially exposed individuals residing at the facility during October 2009 – October 2010 to identify acute, chronic, or resolved infection and to conduct molecular genotyping. All susceptible persons were offered HBV vaccination.

**Results:**
Among 231 potentially exposed persons, 152 (66%) underwent HBV testing. Six (4%) acute and seven (5%) resolved HBV infections were identified; all acute and two resolved infections were among diabetics who received fingerstick BGM (OR = 5.68; p value < 0.05). No other risk factors were associated with HBV infection. Molecular typing of isolates revealed HBV DNA patterns that were indistinguishable or closely related.

**Conclusions:**
BGM was identified as a likely risk factor for HBV transmission among diabetic ALF residents. Molecular genotyping results suggest a common origin of infection and emphasize the importance of transition of care among ALF patients. ALF staff should comply with infection control requirements, including not sharing fingerstick devices during BGM. Further measures implemented to prevent HBV transmission included instituting the use of retractable lancets, administration of HBV vaccine, and educating ALF staff about blood-borne pathogen infection control.

---

**Presenting Author(s):**

**Jessica Watson**
Henrico Health District, Virginia
Department of Health, Richmond, VA
jessica.watson@vdh.virginia.gov

**Contributing Authors**

Angela West, MPH, Virginia Department of Health

**Abstract ID:** 1291619 **Presentation Type:** Breakout Presentation
**Title:** Fire and feces: Cryptosporidium parvum outbreak associated with fighting a barn fire — Indiana and Michigan, June 2011
**Committee:** Occupational Health Sub-Committee
**Topic:** Other occupational health issues
**Keywords:** Outbreak investigations |Animals and Public Health|Occupational exposure

**Background:**
Cryptosporidium species have caused outbreaks of diarrheal illness involving recreational waterparks, municipal water, and exposure to livestock. On June 6, 2011, a total of 34 firefighters from Michigan and Indiana responded to a calf barn fire in Michigan. Shortly after, gastrointestinal illnesses among responding firefighters were reported. The Michigan Department of Community Health investigated to identify the outbreak source and assess risk factors.

**Methods:**
A retrospective cohort study of responding firefighters was performed. Potential exposure information was collected through standardized telephone interviews. A clinical case was defined as diarrhea or ?4 other gastrointestinal symptoms in a person within 12 days after responding to the June 6 fire; confirmed cases tested positive by any of multiple diagnostic assays, and probable cases had epidemiologic links to a confirmed case but no laboratory confirmation. Environmental sampling at the farm was performed.

**Results:**
Of 34 firefighters, 33 were interviewed; 20 (61%) cases (3 confirmed, 17 probable) were identified. Median age was 33 (range: 21–58) years. Median time from exposure to illness onset was 5 (range: 2–10) days. Among 17 patients whose illness had resolved by time of interview, median illness duration was 4 (range: 0.5–15) days. One patient was hospitalized; none died. Cases were more likely than noncases to have had direct calf contact (risk ratio: 2.88; 95% confidence interval: 1.04–12.76). Cryptosporidium parvum was detected in calf feces and pond water.

**Conclusions:**
Calf feces and pond water likely contributed to this first-ever reported cryptosporidiosis outbreak attributable to occupational exposure among firefighters. Firefighting equipment and clothing should be decontaminated at the scene, especially if grossly contaminated with feces, to prevent cryptosporidiosis and other gastrointestinal illnesses.

---

**Presenting Author(s):**

**Jenna Webeck**
Communicable Disease Division,
Michigan Department of Community
Health, Lansing, MI
hwk5@cdc.gov

**Contributing Authors**

Susan Peters, DVM, Michigan Department of Community Health; Tiffany Henderson, MPH, Michigan Department of Community Health; Jennifer House, DVM, MPH, DACVPM, Indiana State Department of Health

**Abstract ID:** 1331661 **Presentation Type:** Breakout Presentation
**Title:** Follow up of US-bound immigrants and refugees with TB weems
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Respiratory diseases, non-influenza
**Keywords:** Immigration|Global health

**Background:**
Immigrants and refugees are required to undergo TB screening before arriving in the United States. Those with culture-or smear-positive TB are treated prior to arrival. After arrival, CDC's Electronic Disease Notification system (EDN) notifies health departments (HD) of the results of overseas exams. For those with an abnormal chest radiograph or other indication of TB in the overseas examination, CDC recommends a follow-up TB examination within 30 days of arrival. HD are requested to enter results of post-arrival TB evaluations into EDN.

**Methods:**
We assessed the number of EDN TB notifications for immigrants and refugees who arrived from October 1, 2010, through September 30, 2011. Class B TB was defined as having radiographic TB without positive smear or culture for TB (Class B1), or LTBI (Class B2), or contact with a TB case (Class B3). We also assessed the results of HD TB evaluations for those arriving during the same time period.

**Results:**
EDN reported 22,387 TB notifications to 225 state/local HDs. Of the 18,005 immigrant arrivals with Class B TB, 8,056 (44.7%) were from the Philippines, 2,731 (15.2%) from Vietnam, and 2,448 (13.6%) from Mexico. Of the 4,382 refugees with Class B TB, 1,605 (37.7%) were from Myanmar, 1,377 (31.4%) from Bhutan, and 381 (8.7%) from Nepal. Among 22,387 immigrants and refugees with a Class B TB notification who arrived October 1, 2010, through March 31, 2011, post arrival evaluations were known for 13,900 (62.1%).

**Conclusions:**
Through EDN, CDC provides HD an opportunity to re-evaluate persons with suspected TB arriving in the United States. Over half of all TB notifications from EDN to HD were for immigrants arriving from the Philippines, Vietnam, or Mexico. All persons with TB classifications should have a follow-up examination after arriving in the United States, and efforts should be made to ensure completion of TB follow-up examinations by state and local Health Departments.

---

**Presenting Author(s):**

**Meghan Weems**
DGMQ, Centers for Disease Control
and Prevention, Atlanta, GA
zav1@cdc.gov

**Abstract ID:** 1326861 **Presentation Type:** Breakout Presentation
**Title:** From tracking to prevention: Pesticide illness investigation and subsequent public health campaign
**Committee:** Occupational Health Sub-Committee
**Topic:** Acute pesticide poisoning surveillance
**Keywords:** Pesticides|Interventions|Occupational exposure

**Background:**
The California Department of Public Health (CDPH) tracks cases of occupational pesticide illness and investigates select incidents. These efforts are supported with funding from the National Institute for Occupational Safety and Health (NIOSH). Case ascertainment demonstrated that indoor pesticide use is an important source of pesticide exposure and accounts for nearly one-fifth of all work-related pesticide illnesses in California. The investigation of several incidents prompted CDPH to develop a public health campaign to educate employers, employees, and building managers about the risks from pesticide exposure indoors and how to prevent pesticide-related illnesses. We will highlight one key incident where a bank was fumigated with sulfuryl fluoride to treat termites, and employees became ill.

**Methods:**
CDPH used the NIOSH Case Classification System to evaluate reports of occupational pesticide illnesses. Case finding led CDPH to conduct a site visit of the bank and to interview employees, management, and other key responders and witnesses. Medical records were obtained and reviewed.

**Results:**
There were 2,108 cases of occupational pesticide illness reported to CDPH from 1998 to 2011. Nearly one-fifth (18%) of cases were exposed to pesticides through indoor air. Building fumigation was involved in 7% of these cases. Additional information, including adverse health effects, illness severity, activity at time of exposure, industry, and occupation will be presented. The CDPH investigation identified several factors that contributed to employee illness at the bank, including inadequate aeration, lack of monitoring for chemicals, inadequate hazard communication, and inappropriate emergency response.

**Conclusions:**
Tracking pesticide-related illnesses revealed an important cause of work-related illness in California and prompted CDPH to make indoor pesticide use, and safer alternatives for indoor pest control, an area of focus. CDPH developed a fact sheet about the bank incident and a plan to disseminate it to banks and other businesses in California. CDPH also collaborated with the California Department of Pesticide Regulation to develop two fact sheets about indoor pesticide use. CDPH developed a webpage about indoor pesticide use and a dissemination plan to target relevant stakeholders. CDPH is also exploring whether there are regulatory changes that could better protect workers from indoor pesticide exposures. These efforts demonstrate the ways in which surveillance data can be used to develop public health prevention campaigns.

---

**Presenting Author(s):**

**Justine Weinberg**
California Department of Public Health, California Department of Public Health, Richmond, CA
justine.weinberg@cdph.ca.gov

**Contributing Authors**

John Beckman BS, Egils Kronlins BA, Christine Hannigan BA, Faith Raider MA, Public Health Institute/California Department of Public Health, Occupational Health Branch; Rachel Roisman MD, MPH, California Department of Public Health, Occupational Health Bra

**Abstract ID:** 1319286 **Presentation Type:** Breakout Presentation
**Title:** A qualitative examination of health and health care utilization after the September 11th terror attacks among World Trade Center Health Registry enrollees
**Committee:** Environmental Health Sub-Committee
**Topic:** Disaster epidemiology: tools, data, experiences, and challenges
**Keywords:** Disasters|Health care|Special populations

**Background:**
The World Trade Center (WTC) Health Registry (Registry) is a cohort study of long-term physical and mental health outcomes in 71,437 survivors of the terrorist attacks of September 11, 2001. Registry follow-up data gathered in 2006-07 showed a high prevalence (19.5%) of 9/11-related probable posttraumatic stress disorder as well as numerous reports of continuing 9/11-related respiratory and reflux symptoms. Registry data also indicate that at least one-fourth of individuals with 9/11-related symptoms and illnesses did not use 9/11-related health care services, despite extensive education and outreach efforts. Since 2009, the Registry's Treatment Referral Program (TRP) has encouraged enrollees and others with 9/11-related physical or mental health conditions to seek 9/11 specialty care. We sought to improve the quality of the program through a better understanding of low health care utilization by enrollees and barriers to service utilization.

**Methods:**
Six focus groups were conducted in January 2010 with diverse subgroups of enrollees, who were likely eligible for 9/11-related treatment services. The 48 participants were of differing race/ethnicities, ages, and boroughs of residence. Qualitative analysis of focus group transcripts was conducted using open coding and the identification of recurring themes.

**Results:**
Participants described a variety of physical and mental health symptoms and conditions, yet their knowledge and utilization of 9/11 healthcare services were low. Participants highlighted numerous barriers to accessing 9/11 services, including programmatic barriers (lack of program visibility and accessibility), personal barriers such as stigmatization and unfamiliarity with 9/11-related health problems and services, and a lack of referrals from their primary care providers. Many participants were reluctant to connect their symptoms to the events of 9/11 due to lack of knowledge, the amount of time that had elapsed since 9/11, and the attribution of current health symptoms to the aging process.

**Conclusions:**
Knowledge of barriers to 9/11-related health care has led to improvements in the Registry's ability to refer eligible enrollees to appropriate treatment programs. For example, the Registry has placed additional emphasis on specialized training of staff to enhance motivational interviewing skills to better educate enrollees on the possible connection between their symptoms and the 9/11 disaster and minimize feelings of apprehension about the connection, and has conducted outreach to area medical providers. Moreover, these findings highlight areas for consideration in the implementation of the new federal WTC Health Program, now funded under the James Zadroga 9/11 Health and Compensation Act (H.R.847), which includes provisions for outreach and education.

---

**Presenting Author(s):**

**Alice Welch**
World Trade Center Health Registry,
New York City Department of Health
and Mental Hygiene, Queens, NY
awelch1@health.nyc.gov

**Contributing Authors**

Kimberly Caramanica, MPH, Indira Debchoudhury, MPH, Allison Pulizzi, PhD, Mark R. Farfel, ScD, Steven D. Stellman, PhD, MPH, James E. Cone, MD, MPH  All with the NYC Department of Health and Mental Hygiene

**Abstract ID:** 1330778 **Presentation Type:** Breakout Presentation

**Title:** Using chemical release surveillance data to identify the public health impacts of pool chemical releases and guide a targeted outreach and prevention program

**Committee:** Environmental Health Sub-Committee

**Topic:** Surveillance and response to chemical/radiologic emergencies, including National Toxic Substance Incidents Program (NTSIP)

**Keywords:** Data/Surveillance|Geographic Information Systems|Injury prevention

**Background:**

Chemicals are essential to maintain pool water quality. Certified pool operators and private pool owners use various chemicals to adjust pH, continuously kill bacteria through disinfection, and provide shock treatment that oxidizes pool contaminants and replenishes chlorine levels. New York State National Toxic Substance Incidents Program (NTSIP) staff noted that of the 10,899 incidents reported to the Hazardous Substances Emergency Events Surveillance (HSEES) program during 2000-2009, 12% resulted in injured persons compared to 51% of the 101 pool chemical incidents. This disproportionate injury outcome indicated an area for further evaluation and outreach.

**Methods:**

Pool chemical events in the HSEES database for 2000-2009 were identified using both Chemical Abstract Service (CAS) numbers for relevant chemicals and key words in the synopsis and comment fields of the incident record. The chemicals most frequently associated with pool chemical events were sodium hypochlorite, calcium hypochlorite, hydrochloric acid and chlorine. Data were analyzed using Statistical Analysis Software (SAS). Facilities that manufacture or distribute pool chemicals and retailers that sell pool chemicals were identified through federal and other databases, and mapped. Addresses at the zip code level for about one-half million private pools in New York State were located and mapped. Census data provided population densities at zip code level. Data on swimming pools and population densities were superimposed on a state map of pool chemical incidents.

**Results:**

From 2000 to 2009, there were 101 events that resulted in the release of at least one chemical intended for pool use. The 52 pool chemical incidents that involved injury resulted in 173 injured persons. More than half of the injured persons were members of the public; the other victims were employees, students and responders such as firefighters. Thirty-five percent of the pool chemical incidents and 43% of the victims were in water parks and public pools, and 26% of the incidents and 15% of the victims were in private residences. The data were used to devise and guide an outreach strategy to prevent future pool chemical incidents. Program staff undertook several approaches: contact with industry and a professional pool association, mapping to identify vulnerable areas, and the development of factsheets and social media messages for private pool owners that will be released for the 2012 pool season.

**Conclusions:**

Combining surveillance data and mapping capabilities indicated areas with increased public health impacts, and guided the design and delivery a multi-pronged and targeted outreach program.

---

**Presenting Author(s):**

**Wanda Welles**
Center for Environmental Health, New
York State Department of Health,
Troy, NY
wlw02@health.state.ny.us

**Contributing Authors**

Sherrie L. Strain, MPH New York State Department of Health Center for Environmental Health

**Abstract ID:** 1325990 **Presentation Type:** Poster Presentation
**Title:** Cancer survivors in Kansas, 2010
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Epidemiology of chronic conditions
**Keywords:** Cancer


**Background:**
Due to advances in early detection and treatment, the number of cancer survivors in the United States has increased significantly over the past 40 years from 3 to nearly 12 million people. From 1998 to 2008, approximately 130,000 Kansans were diagnosed with malignant cancer. The purpose of this study was to examine the demographic and diagnostic characteristics of cancer survivors in Kansas who were diagnosed during this time period.

**Methods:**
Cancer survivors were defined as Kansas residents diagnosed with malignant cancer between 1998 and 2008 who did not have a date of death indicated in the Kansas Cancer Registry (KCR) data base as of September 2, 2010. Records were de-duplicated so that patients with multiple records were counted as one patient record containing their first malignant tumor diagnosis. Descriptive statistics were computed to characterize the distribution of age at diagnosis, sex, race, and ethnicity of cancer survivors. T-tests and chi-square tests were used to determine statistically significant differences in selected characteristics by cancer survivor status. In addition, logistic regression main effect models calculated the odds of being a survivor based on stage of tumor at diagnosis, controlling for age at diagnosis.

**Results:**
Among the 130,655 Kansans diagnosed with malignant cancer between 1998 and 2008, 66,030 (50.5%) were still alive at the end of the study period (i.e. September 2, 2010). The mean age at first diagnosis for cancer survivors was 60 years. Approximately 51% of cancer survivors were female, 91% white, and 3% Hispanic. Nearly two-thirds (66%) of primary tumors among cancer survivors were staged as localized, 21% regional, 8% distant, and 5% unstaged. The three most common types of cancer among survivors were prostate (23%), female breast (22%), and colorectal (10%). Statistical tests showed significant group differences between cancer survivors and those who were not still alive at the end of the study period for mean age at diagnosis, as well as the distributions of gender, race, ethnicity, stage at diagnosis, and type of cancer. The odds of not being alive at the end of the study period for persons whose tumor was diagnosed at a distant stage were 12.7 times the odds of not being alive at the end of the study period for those whose tumor was diagnosed at a localized stage (95% confidence interval: 12.2-13.2).

**Conclusions:**
The distribution of demographic and diagnostic characteristics among cancer survivors in Kansas mirrors national SEER Program data. As early detection and treatment continues to advance, the epidemiology of cancer survivors in Kansas is sure to change, necessitating its continued surveillance for public health programming development and evaluation purposes.


---


**Presenting Author(s):**

**Ericka Welsh**
Bureau of Health Promotion, Kansas
Department of Health and
Environment, Topeka, KS
ewelsh@kdheks.gov

**Contributing Authors**

Ghazala Perveen, MBBS, PhD, Kansas Department of Health and Environment

**Abstract ID:** 1332258 **Presentation Type:** Breakout Presentation
**Title:** Design and implementation of beach quality module in environmental public health tracking portals in Wisconsin
**Committee:** Environmental Health Sub-Committee
**Topic:** Environmental Public Health Tracking
**Keywords:** Environmental Health|Waterborne disease|Surveillance

**Background:**
With the development and launch of state-based environmental public health tracking (EPHT) portals to facilitate access to data on environmental quality and related health outcomes, there is growing interest in incorporating new types of environmental health data into EPHT portals to increase their availability and accessibility for technical and general audiences. With support from the U.S. Environmental Protection Agency, the Wisconsin Division of Public Health has undertaken an initiative to incorporate data on beach water quality testing and related parameters to increase the utility of state surface water quality for local health agencies and others to make appropriate public health decisions regarding beaches in their communities.

**Methods:**
As a first step, a detailed, statewide inventory of potential beach quality data sources was conducted in order to characterize the quality and breadth of beach-related data in Wisconsin. EPHT and beach quality program staff then led interactive group feedback sessions with potential data providers and potential portal users in order to prioritize beach-related data and information for inclusion in an EPHT module. To further ensure that project efforts matched the interests of local stakeholders, three local health departments with jurisdiction over Lake Michigan and Lake Superior beaches were enlisted to provide specific guidance during prototype development and evaluation efforts.

**Results:**
An inventory of existing relevant data identified several primary data sets for consideration as source data for portal development, including data from federal, state and local sources. Feedback from potential data providers and data users revealed specific interest in portal content such as mapped delineation of beach boundaries and sampling sites, data from sanitary surveys, and information about cyanobacterial blooms and algal species such as Cladophora. Other desired outcomes included providing source data for use in predictive models for beach conditions and encouraging the adoption of same-day beach testing and analysis methods.

**Conclusions:**
EPHT portals and modules may provide an important pathway for beach quality data to local public health agencies and others who are charged with making public health decisions related to beaches. A major challenge to the incorporation of beach quality data into EPHT programming is the daily variation in beach conditions and the need to update data accordingly. Using EPHT platforms to both connect audiences with daily data from existing web services and provide access to summary measures and information that are of value to technical and general audiences may be necessary to achieve success.

---

**Presenting Author(s):**

**Mark Werner**
Wisconsin Department of Health and
Family Services, Madison, WI
mark.werner@wisconsin.gov

**Contributing Authors**

Katie Gajeski, M.S., Wisconsin Division of Public Health

**Abstract ID:** 1331839 **Presentation Type:** Roundtable Presentation
**Title:** Health Impact Assessments in communities with identified health disparities: A partnership between public health, planning agencies, and community partners in Omaha, Nebraska
**Committee:** Environmental Health Sub-Committee
**Topic:** Health impact assessments
**Keywords:** Built environment |Collaboration|Health disparities

**Brief Summary:**
During the late 19th and early 20th centuries, efforts to control infectious diseases resulted in substantial collaboration between public health, urban planning, and civil engineering. In response to chronic disease epidemics, rising healthcare costs, and unyielding health disparities, collaboration between these disciplines is necessary to design and build communities that make it easier for people to lead healthy lives. Health Impact Assessments (HIAs), which evaluate the likely effects on health of a proposed project, program, or policy change, are increasingly being advanced as an effective means for including health in community design decisions. The Douglas County Health Department has established a partnership with the City of Omaha (Planning, Public Works, Parks and Mayor's Office), the Nebraska Department of Health and Human Services, the Metropolitan Area Planning Agency, and Omaha by Design in order to complete Health Impact Assessments (HIAs) on major community projects. Using funding and training from the CDC's Healthy Community Design Initiative, this partnership will conduct nine HIAs over three years focusing on transportation, parks & public spaces, and housing & land use. The first two HIAs examine a major park renovation in a predominantly African-American community and a proposed "road diet" to the primary street connecting the major Latino commercial district to downtown.

**Key Objectives:**
Explore connections between community design, health, and health equity; Promote discussion of how health impact assessments can facilitate interdisciplinary dialogue/partnerships as well as the inclusion of health in community design decision-making, which can lead to neighborhoods and cities that better support physical activity, healthy eating, safety, and environmental justice.

---

**Presenting Author(s):**

**Andrew Wessel**
Douglas County Health Department,
Omaha, NE
andy.wessel@douglascounty-ne.gov

**Contributing Authors**

Carlos Morales (Omaha Planning Department); Heather Tippey-Pierce (Omaha Public Works); Pat Slavin and Kayla Meyer (Omaha Parks Department); Alec Gorynski (Omaha Mayor's Office); Sloan Dawson (Metropolitan Area Planning Agency) Brian Coyle & Kelly Bouxsein (Nebraska Department of Health and Human Services); Mary Balluff (Douglas County Health Department)

**Abstract ID:** 1324531 **Presentation Type:** Breakout Presentation
**Title:** Impacts of New York City's carbon monoxide alarm law on morbidity and mortality
**Committee:** Environmental Health Sub-Committee
**Topic:** Environmental Public Health Tracking
**Keywords:** Environmental Health|Public health law|Interventions

**Background:**
In 2004, New York City (NYC) Council enacted legislation requiring carbon monoxide (CO) alarms in most residential buildings as well as hospitals, hotels, nursing homes, day care centers, and school dormitories. At the same time, the NYC Health Code was updated to make CO poisoning explicitly and immediately reportable to the NYC Poison Control Center (NYCPCC). We extended a previously-presented (2006) evaluation with additional years of data as well as hospital admission and mortality data.

**Methods:**
Through our Environmental Public Health Tracking surveillance activities, CO exposure and poisoning data were obtained from the NYCPCC, hospital discharge records, deaths, and fire department investigations; data from the heating season months (October-March) for 2000 through 2009 were analyzed. We polled residents in the 2009 Community Health Survey (CHS) about CO and smoke alarm use. Monthly counts of CO poisoning were modeled using Poisson regression, controlling for the year and number of heating days in the month (below 40°F) to estimate the effect of the alarm law. We described individual and neighborhood characteristics associated with CO incidents and with alarm installation.

**Results:**
Immediately after the 2004 CO alarm law was enacted, there was a five-fold increase in the detection of CO hazards by the fire department. We observed small declines in the frequency of serious CO poisoning outcomes; however they were not statistically significant. The number of heating days was a significant predictor of monthly CO poisoning cases (RR = 1.02, 95% CI 1.01-1.04). At the neighborhood level, CO incidents were associated with poverty, housing disrepair and use of supplemental heat. In 2009, over 80% of NYC residents reported having a CO alarm in their home.

**Conclusions:**
NYC's CO alarm law resulted in a striking increase in the detection of CO hazards, while a small, not statistically significant decline in serious CO poisoning outcomes was observed. We suspect that the true underlying rate of CO poisoning was even higher before the law, but went undetected and underreported more often. Continued surveillance can help identify where intervention is needed to further promote the installation and maintenance of CO alarms and awareness of their purpose.

---

**Presenting Author(s):**

**Katherine Wheeler**
Environmental Surveillance and Policy,
New York City Department of Health
and Mental Hygiene, New York, NY
kwheeler@health.nyc.gov

**Abstract ID:** 1330268 **Presentation Type:** Poster Presentation
**Title:** Review of the adequacy of ground beef production records at retail markets for traceback activities during foodborne disease investigations
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Foodborne/waterborne disease
**Keywords:** Food safety|Outbreak investigations

**Background:**
Ground beef contaminated with bacteria, typically E. coli O157:H7, is a significant cause of foodborne illness. In order to recall contaminated product from commerce and identify opportunities to improve product safety, the Food Safety and Inspection Service (FSIS) investigates reports of foodborne illness possibly associated with FSIS-regulated products. In many circumstances where ground beef was purchased at retail stores, investigators are only provided with purchase information (e.g., date and location of purchase, type of ground beef). Investigators must then rely heavily on retail production records (grinding logs) kept in retail stores and meat markets to gather the information needed to undertake traceback actions.

**Methods:**
FSIS conducted a retrospective review of 30 investigations from October 2007 to January 2012 in which beef products were ground or reground at retail stores to describe their beef grinding and record-keeping practices. To be included, case-patients must have provided information adequate to facilitate identification of the product in question, both the product identity and date and location of purchase. This was typically accomplished through purchase receipts, shoppers' cards, and credit card records.

**Results:**
Most (24/30, 80%) of the investigations involved E. coli O157:H7; the remaining 6 investigations involved Salmonella spp. In only 11 of 30 (37%) investigations were grinding logs kept, complete, and accurate enough to identify the source of products used to make ground beef at retail facilities. Production records were either incomplete or not kept at retail in the 19 other investigations. In six of the 11 (55%) investigations with complete production logs, FSIS successfully traced product back to source establishments and recalled potentially contaminated products. In contrast, FSIS conducted only one recall in the remaining 19 investigations.

**Conclusions:**
The review of ground beef production records in retail facilities during foodborne illness outbreaks shows they are frequently not accomplished and those that were kept are frequently not complete or accurate enough to identify the source product. Inadequate records impeded the agency's ability to quickly respond during foodborne disease investigations. Detailed retail grinding logs and policies that prevent cross-contamination between batches of ground beef products are crucial in the identification of contaminated beef products associated with foodborne illness. Clear guidance or best practices regarding proper in-store production records will prompt needed changes in retail markets' ground beef policies and recordkeeping activities.

---

**Presenting Author(s):**

**Patricia White**
United States Department of Agriculture, Food Safety and Inspection Service, Omaha, NE
patsy.white@fsis.usda.gov

**Contributing Authors**

TIMOTHY C. (Tim) IHRY, DVM, MSA, DACVPM Applied Epidemiology Division, FSIS OPHS

**Abstract ID:** 1360199 **Presentation Type:** Poster Presentation
**Title:** Pesticide mixtures in cord blood in relation to birth weight: Pilot study in rural Zhejiang Province, China
**Committee:** Student Section
**Topic:** Environmental Health
**Keywords:** Pesticides|Birth outcomes|Environmental exposures

**Background:**
Previous research has shown that prenatal exposure to pesticides may be associated with decreased fetal growth. The specific pesticides investigated and results reported across studies have been inconsistent. There is a need for the consideration of mixtures rather than individual agents in studies of health outcomes in relation to environmental exposures.

**Methods:**
We conducted a pilot study as part of an ongoing study in rural Zhejiang Province, China, measuring 20 non-persistent pesticides (10 insecticides, 6 herbicides, 3 fungicides, and 1 repellant) in umbilical cord blood of 112 full term (>37 weeks) infants. Three sets of multivariate analyses were conducted to assess the linear association between birth weight and pesticide exposure. First, individual pesticides were assessed as dichotomous and continuous or 3-level ordinal variables, categorized by increasing concentration level. Second, exposure was assessed by pesticide type and stratified by exposure level. Third, the number of pesticides detected in cord serum was assessed as a continuous variable.

**Results:**
The pesticides detected with the greatest frequency were diethyltoluamide (DEET) (73%), a repellant, and vinclozolin (49%), a fungicide. The samples had detectable concentrations for a mean of 4.6 pesticides (SD=1.9) with a maximum of 10. No significant associations were seen between birth weight and individual pesticides assessed as continuous or 3-level ordinal variables. For individual pesticides analyzed as dichotomous (detect vs. non-detect) variables, only vinclozolin ($p = 0.01$) and acetochlor ($p = 0.04$) were significantly associated with reduced birth weight. When assessing associations by pesticide type, detection of fungicides was associated with decreased birth weight ($p = 0.02$). Lastly, newborn birth weight was inversely associated with the number of pesticides detected in cord blood ($p = 0.04$); birth weight decreased by a mean of 37.1 grams (95% CI, -72.5 to -1.8) for each detected pesticide.

**Conclusions:**
Our findings indicate that exposure to fungicides may adversely impact fetal growth. Exposure to mixtures of multiple pesticides may also be of health concern for pregnant women and developing fetuses and should be explored in addition to exposure to individual pesticides. Additional research is needed to establish causality and to understand the function and impact of fungicides and pesticide mixtures on fetal development.

---

**Presenting Author(s):**

**Erin Wickerham**
Epidemiology, University of Michigan
School of Public Health, Ann Arbor, MI
erinwick@umich.edu

**Contributing Authors**

John D. Meeker, Sc.D., C.I.H., Department of Environmental Health Sciences, University of Michigan School of Public Health; Betsy Lozoff, M.D., Center for Human Growth and Development, University of Michigan; Jie Shao, M.D., Department of Child Health Ca

**Abstract ID:** 1333123 **Presentation Type:** Breakout Presentation
**Title:** A regional excess of mesothelioma attributable to two occupational cohorts in Minnesota
**Committee:** Occupational Health Sub-Committee
**Topic:** Occupational lung diseases
**Keywords:** Cancer|Asbestos|Occupational lung diseases

**Background:**
Mesothelioma is a rare and usually fatal cancer that affects the lining of the lungs or abdomen. Unlike lung cancer, which is primarily due to smoking, mesothelioma represents an almost unique "indicator" of previous asbestos exposure. In Minnesota, a regional two-fold excess of mesothelioma among males was first identified in 1997. The region where the excess occurred (NE Minnesota) is home to a variety of industries, including a ceiling tile manufacturing plant (Conwed) as well as Minnesota's iron mining industry. While a previous MDH study confirmed that Conwed workers were exposed to asbestos prior to 1974, previously published studies of iron miners did not report mesotheliomas. These findings led to state funding to examine the mesothelioma excess.

**Methods:**
Record linkage studies were initially conducted in 1998 utilizing the state cancer registry and rosters of Conwed workers and taconite miners. The roster of Conwed workers (N=5,200) had been created in a state-funded screening and notification program in 1988-93. The roster of taconite miners (N=72,000) was created in the early 1980's by the Univ. of Minnesota as part of an industry-wide study of taconite miners. Following the record linkage studies, job titles of miners with mesothelioma were evaluated for potential exposure to commercial asbestos. Record linkage studies were again conducted in 2006-2007 in preparation for additional studies.

**Results:**
The initial record linkage studies identified 17 cases of mesothelioma among former miners diagnosed in MN from 1988-1996. 11 cases were identified among former Conwed workers. Commercial asbestos exposure was determined to be possible or probable for 15 of the 17 mesothelioma cases among miners. Additional record linkages in 2006-2007 increased the number of mesotheliomas among taconite miners to 58. Among former Conwed workers, the number of mesotheliomas increased to 25 cases. Most of the cases still resided in NE MN at the time of diagnosis, thus accounting for the regional excess.

**Conclusions:**
State cancer surveillance data was useful in identifying a regional excess of a cancer (mesothelioma) that is primarily caused by an occupational exposure (asbestos). Linkage studies identified two industries related to the excess, one of which was not previously associated with this cancer. Subsequent linkage studies revealed a dramatic increase in the number of mesotheliomas among miners which led to a $4.9 million state grant to the Univ. of Minnesota to conduct further studies of taconite miners. Preliminary results of these studies are expected in 2012.

---

**Presenting Author(s):**

**Allan Williams**
Minnesota Department of Health, St.
Paul, MN
allan.williams@state.mn.us

**Contributing Authors**

Wendy M. Brunner, MS, PhD – Minnesota Department of Health Alan P. Bender, DVM, PhD – Minnesota Department of Health

**Abstract ID:** 1332822 **Presentation Type:** Poster Presentation
**Title:** Enhanced respiratory disease surveillance in Hawai‘i, December 2010–April 2012
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Respiratory diseases, non-influenza
**Keywords:** Respiratory diseases: Non-influenza|Surveillance

**Background:**
Hawai‘i has a longstanding robust influenza surveillance system; however, the potential contribution of other pathogens to the epidemiology of respiratory disease have been neglected. Using recently available technological capabilities and resources, expanded respiratory testing was completed on a sampling of influenza negative specimens. The purpose of this project was to identify other circulating pathogens that might be contributing to the respiratory disease spectrum in Hawai‘i.

**Methods:**
From December 2010 through April 2012, the Hawai‘i Department of Health Disease Outbreak Control Division in collaboration with the State Laboratories Division and two clinical commercial laboratories conducted expanded respiratory assays on specimens testing negative for influenza by PCR or rapid testing. Testing was completed by one laboratory using QIAGEN QIAplex ResPlex and by the other, Luminex xTAG Respiratory Viral Panel. Specimens were obtained from various collection points (i.e., the Centers for Disease Control and Prevention’s Division of Global Migration and Quarantine station at the Honolulu International Airport, sentinel providers, and hospitals). For the purposes of this study, results from both laboratories were combined and analyzed as a whole.

**Results:**
From December 2010 through December 2011, a total of 166 respiratory specimens were tested. Of these, 95 (57.2%) specimens tested negative for other respiratory pathogens, 26 (15.7%) rhinovirus, 3 (31.8%) coxsackieviruses/echovirus, 9 (5.4%) metapneumovirus, 4 (2.4%) parainfluenza virus, 3 (1.8%) respiratory syncytial virus, and 2 (1.2%) coronavirus. The cases from whom specimens were collected were distributed among Hawai‘i counties as follows: 135 (81.3%) Honolulu County, 22 (13.3%) Hawaii County, 4 (2.4%) Kauai County, and 1 (0.6%) Maui County, and their ages ranged from 29 days–96 years old.

**Conclusions:**
Our findings demonstrate that a number of respiratory pathogens may be circulating in addition to influenza. An active and comprehensive respiratory surveillance system can advise health professionals regarding which respiratory diseases are circulating within the community and thereby inform and guide both clinicians and public health personnel regarding appropriate management, prevention, and control measures.

---

**Presenting Author(s):**

**Brittany Winston**
Disease Outbreak Control Division,
Hawaii State Department of Health,
Honolulu, HI
brittany.winston@doh.hawaii.gov

**Contributing Authors**

Myra Ching-Lee, Howard He, Sarah Y. Park

**Abstract ID:** 1315670 **Presentation Type:** Breakout Presentation
**Title:** Developing infrastructure for estimation of healthcare-associated infection burden at the national and state level
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Hospital data |Healthcare associated infections (HAI)|Policy/Policy Development

**Background:**
Quantifying the burden of healthcare-associated infections (HAIs) provides important information for prevention and policymaking. HAI surveillance data have been reported to the Centers for Disease Control and Prevention (CDC) since the 1970s and have been reported to the CDC's National Healthcare Safety Network (NHSN) since 2005. Hospital participation in NHSN has grown rapidly but does not include comprehensive reporting from all facilities for all HAI types. However, additional data sources can provide critical information for burden estimation not available through NHSN. Our objective was to create an analytic framework for state and national HAI burden estimates.

**Methods:**
Patient-day and surgical procedure denominator data were obtained from the Centers for Medicare and Medicaid Services Hospital Cost Report (HCR) and the Agency of Healthcare Research and Quality Healthcare Cost and Utilization Project (HCUP). We obtained surveillance data on infection rates, medical device utilization, and surgical procedures (restricted to cardiac, gynecologic, colorectal, orthopedic, and vascular procedures) from NHSN. Burden estimates were generated by applying NHSN infection rates to estimated national device and procedure denominators.

**Results:**
We estimated that there were 186 million inpatient-days in non-neonatal settings the US in 2010. By applying device utilization ratios to patient-days, we estimated that there were 34.0 million central line-days, 42.5 million urinary catheter-days, and 15.5 million ventilator-days. NHSN coverage of these patient exposures was estimated to be 26%, 12%, and 12%, respectively. The estimated burden of hospital-onset device-associated infections in inpatient settings in 2010 was 37,000 central line-associated bloodstream infections, 72,000 symptomatic catheter-associated urinary tract infections, and 20,000 ventilator-associated pneumonias. We estimated that the five procedure categories accounted for 3.0 million surgical procedures in 2010. NHSN catchment of these procedures was 15% overall, but varied from 2% for vascular procedures to 25% for orthopedic procedures. The estimated burden of surgical site infections (including superficial infections) following these procedures was 66,000 in 2010. State-specific patient-day and surgical procedure denominator data were available from HCR and HCUP, but the amount of state-specific HAI surveillance data varied substantially across states.

**Conclusions:**
Sufficient data are available to generate estimates of national burden for some HAI types, but the amount of surveillance data available on a state-by-state basis was variable, hindering generation of state-specific burden. Increases in state-specific NHSN coverage and expansion of surveillance to new infections and settings (e.g., outpatient and long-term care) in the coming years will allow for more comprehensive national HAI burden estimation as well as state-level tracking of burden to inform prevention initiatives and policies.

---

**Presenting Author(s):**

**Matthew Wise**
Division of Healthcare Quality Promotion, Centers for Disease Control and Prevention, Atlanta, GA
cxx4@cdc.gov

**Abstract ID:** 1323607 **Presentation Type:** Breakout Presentation
**Title:** A state-wide evaluation of youth camp injuries and illnesses in Maryland, 2008-2011
**Committee:** Injury Control and Prevention Sub-Committee
**Topic:** Other injury epidemiology issues or topics
**Keywords:** Injury surveillance|Children and adolescents

**Background:**
In Maryland, youth camps are regulated by the Maryland Department of Health and Mental Hygiene (DHMH). To assess health and safety at these camps, the DHMH collects Injury or Illness Reports (IIRs) from all licensed camps on any incident that requires CPR, admission to a hospital, treatment at an off-site medical facility, as well as reportable illnesses or outbreaks, medication errors and any incident that results in a death. Additionally an Annual Report (AR) summarizing the number of campers, staff members and days camp was in session is collected from all camps at the end of each camp season. We conducted the first ever systematic evaluation of the youth camp injury and illness data captured by the surveillance system, since its inception in the early 1990s. The injury and illness information collected has the potential to contribute to an understanding of the risks involved with youth camps and can help to target intervention activities and policy implementation, making the camp experience healthier and safer.

**Methods:**
In order to assess the Youth Camp Surveillance data collected in Maryland, we designed a database to analyze all IIRs and ARs received from 2008-2011. We used univariate and stratified analysis techniques to summarize the data and look for trends in the types of reported incidents and the circumstances surrounding these incidents. For injury reports, we examined the activity the camper was involved in at the time of injury as well as the type of injury and how the injury occurred. Further, we investigated comparisons between day and residential camps, to assess possible differences in injury or illness in these settings.

**Results:**
From 2008-2011 over 1,900 IIRs were received from 290 of the licensed youth camps across Maryland. The majority of these reports were for injuries (65%). Of the reported injuries, 23% were confirmed fractures, 11% were confirmed lacerations requiring stitches and 6% were confirmed sprains. Of these injuries, 30% occurred while the individual was participating in a competitive sport or game and 48% were the result of a fall, trip or slip. The remaining 35% of the reports were for illnesses, of which 33% had no confirmed diagnosis listed on the IIR.

**Conclusions:**
This analysis represents the first comprehensive evaluation of the overall picture of injuries occurring at youth camps in Maryland. These findings have implications on future prevention activities and also help to inform future surveillance activities relating to youth camps in Maryland.

---

**Presenting Author(s):**

**Sybil Wojcio**
Maryland Department of Health and
Mental Hygiene, Baltimore, MD
SWojcio@dhmh.state.md.us

**Contributing Authors**

Joseph T. McKenzie, III, B.S., R.S., REHS/RS-Maryland Department of Health and Mental Hygiene Linda Rudie, R.S. - Maryland Department of Health and Mental Hygiene Clifford Mitchell, MS, MD, MPH, Maryland Department of Health and Mental Hygiene

**Abstract ID:** 1323805 **Presentation Type:** Breakout Presentation
**Title:** Increase in ectopic pregnancy mortality in Florida, 2009-2010
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Maternal & child health epidemiology
**Keywords:** MCH Epidemiology|Pregnancy|Substance abuse

**Background:**
Florida's ectopic pregnancy mortality ratio (EMR) was similar to the U.S. ratio of 0.6 deaths per 100,000 live births during 1999-2008, but increased abruptly to 2.5 during 2009-2010 (p=0.001). Our study objective was to identify risk factors associated with Florida's increased EMR and corresponding prevention opportunities.

**Methods:**
Florida's Pregnancy-Associated Mortality Review (PAMR) identified ectopic pregnancy deaths during 1999-2010 through its routine surveillance process of identifying pregnancy-related deaths. PAMR then abstracts physician, hospital, health department, prenatal screening, medical examiner, and other records for all pregnancy-related deaths. A multidisciplinary investigation committee reviewed ectopic pregnancy deaths for cause of death, risk factors, and prevention opportunities. EMRs were calculated as numbers of deaths per 100,000 live births using natality files for the denominator. Significance testing was performed using Mid-P exact ($P<0.05$).

**Results:**
From 1999-2008, 13 ectopic pregnancy deaths were identified in Florida by PAMR, comprising 3.5% of all pregnancy-related deaths. In 2009-2010, 11 ectopic pregnancy deaths were identified, comprising 10.8% of all pregnancy-related deaths. In comparison with the earlier time period, EMRs for 2009-2010 were significantly higher among women who were non-Hispanic white (2.0 versus 0.3 deaths per 100,000 live births), Hispanic (3.3 versus 0.0), unmarried (4.8 versus 0.7), without insurance or health coverage (17.6 versus 1.8), and not high school graduates (6.4 versus 0.8). During 2009-2010, women were more likely to have physically collapsed, presumably from hemorrhage associated with acute tubal rupture, prior to seeking health care compared with women in 1999-2008 (1.8 versus 0.3). Of the eight women who collapsed in 2009-2010, six women tested positive for illicit drug use at autopsy with four testing positive for cocaine. Illicit drug exposure for one death was unknown. Comparable data on the frequency of illicit drug use among women who died in 1999-2008 was not available because testing for illicit drug use was performed substantially less often in this earlier time period. Among the three women who sought care prior to collapse in 2009-2010, two experienced a delay in medical diagnosis. Five of six women experienced similar delays in medical diagnosis in 1999-2008.

**Conclusions:**
The increase in ectopic mortality appears to be associated with illicit drug use and not seeking health care early. The findings underscore the importance of ongoing, state-based identification and review of pregnancy-related deaths. Promoting awareness about early pregnancy testing and ectopic pregnancy risk, ensuring early access to care, and taking actions to reduce substance abuse are needed to prevent future deaths.

---

**Presenting Author(s):**

**Lindsay Womack**
Florida Department of Health,
Tallahassee, FL
Lindsay_Womack@doh.state.fl.us

**Contributing Authors**

William M. Sappenfield, MD, MPH - Florida Pregnancy Associated Mortality Review Team Deborah Burch, RN - Florida Department of Health Leticia Hernandez, PhD - Florida Department of Health Dani Noell, ARNP - Florida Pregnancy Associated Mortality Review Te

**Abstract ID:** 1319239 **Presentation Type:** Breakout Presentation
**Title:** Developing the public health workforce in non-traditional settings: A summary of 3 pilot training programs at the National Park Service
**Committee:** Cross Cutting Sub-Committee
**Topic:** Workforce Development
**Keywords:** Workforce development|Epidemiology capacity|Training

**Background:**
Expanding training opportunities for public health professionals is a frequently cited solution for addressing the public health workforce shortage and crisis. Although workforce development efforts have focused on large governmental health agencies, such as the Centers for Disease Control and Prevention (CDC) and the National Institutes of Health (NIH), fostering and implementing training opportunities, wherever possible, is a critical challenge for the entire public health community.

**Methods:**
The National Park Service (NPS) Office of Public Health hired its first epidemiologist in May 2006. During 2007–2011, several NPS programs were implemented to both increase park-based public health capacity and provide unique training opportunities for epidemiologists with varying experience and skillsets. I describe sample projects and summarize the accomplishments of 3 pilots: 1) the volunteer Epidemiologist-in-Residence program, primarily targeted for retired epidemiologists, 2) the NPS–CDC Epidemic Intelligence Service (EIS) collaboration, and 3) the Embedded Intern program, designed for masters-level students who are embedded in state/local health departments to work on public health issues germane to both NPS and the co-hosting jurisdiction.

**Results:**
Since 2007, 12 individuals (4 retired epidemiologists, 6 EIS officers, and 2 masters-level students) have led public health projects involving 51 parks and 35 states. Projects have been varied and have included environmental tick studies, a national assessment of the nutrition environment in national parks, and risk communication of a purported cancer cluster among employees working in a historical building. The NPS medical epidemiologist developed and co-supervised all projects in collaboration with park managers and other partnering agencies. Minimal NPS funding, if any, was available for these projects (highest funded project: $10K). Most project resources, including staff time and local travel expenses, were provided in kind. Eight manuscripts (2 published, 6 in preparation) are being developed for peer-reviewed journals.

**Conclusions:**
National parks are important and desirable venues for training public health professionals and for conducting applied public health research and practice activities. The NPS and other non-traditional health partners should be included in the dialogue and strategy to reverse the public health workforce shortage. Formal partnership agreements, as promoted by the Council on Linkages, are needed to sustain and expand these pilot training efforts.

---

**Presenting Author(s):**

**David Wong**
Office of Public Health, National Park Service, Albuquerque, NM
david_wong@nps.gov

**Abstract ID:** 1320363 **Presentation Type:** Roundtable Presentation
**Title:** Extreme makeover, surveillance edition: Can travel history become more than a second-rate case investigation variable?
**Committee:** Cross Cutting Sub-Committee
**Topic:** Workforce Development
**Keywords:** Surveillance|Local epidemiology|Infectious Diseases

**Brief Summary:**
Travel history is a standard component of infectious disease case investigations and is an important surveillance tool for identifying common-source exposures and linking multi-jurisdictional cases. However, anecdotal reports and a recent analysis in New Mexico indicate that travel history data are often inconsistently collected and/or lack detailed information essential for state health departments to identify emerging patterns in disease transmission. In this roundtable, we propose several interventions that can potentially improve how travel history data are collected, recorded, and submitted to state health departments by field-based disease investigators. These interventions include: 1) Developing standard definitions for travel history, 2) Developing travel history-specific training modules for field investigators and state surveillance coordinators, 3) Exploring the use of travel-related categorical questions to supplement narrative text fields, and 4) Exploring the development and implementation of electronic tools to mine and analyze unstructured data. We recognize that these and other potential interventions will require substantial coordination and collaboration between primary disease investigators (often employed by local health jurisdictions) and state-based surveillance coordinators and epidemiologists. Thus, one critical discussion point of this roundtable is to explore the feasibility of and next steps for developing a joint CSTE–NACCHO travel history working group. To our knowledge, such a working group would be the first of its kind and might be a pioneering model for how other overarching local-state public health issues can be addressed in the future.

**Key Objectives:**
1. Review key findings from a travel history data analysis (2006–2009) of select notifiable diseases in New Mexico 2. Propose potential interventions to improve travel history data collection; elicit feedback and other ideas from participants 3. Explore the feasibility and buy-in for developing a joint Council of State and Territorial Epidemiologists (CSTE) and National Association of County and City Health Officials (NACCHO) working group to address this issue

---

**Presenting Author(s):**

**David Wong**
National Park Service , Albuquerque,
NM
david_wong@nps.gov

**Contributing Authors**

Jessie Clippard, MPH, Michigan Department of Community Health

**Abstract ID:** 1326170 **Presentation Type:** Poster Presentation
**Title:** Hazardous chemical incidents in K-12 school science classes—United States, 2002-2010
**Committee:** Environmental Health Sub-Committee
**Topic:** Surveillance and response to chemical/radiologic emergencies, including National Toxic Substance Incidents Program (NTSIP)
**Keywords:** School health|Hazards|Surveillance

**Background:**
Little government oversight of K-12 classroom chemistry labs exists and no government agency tracks all injuries in schools. The Agency for Toxic Substances and Disease Registry (ATSDR) conducts chemical incident surveillance in select states and uses the data for outreach and intervention to reduce public health consequences. During 2002—2007, approximately 1% (n=423) of the 43,766 chemical incidents identified by ATSDR surveillance occurred in K-12 schools. Mercury was the most commonly released substance (29%). Hydrochloric acid, a common lab chemical, resulted in the most injuries.1

**Methods:**
Surveillance data from ATSDR's Hazardous Substances Emergency Events Surveillance system (2002-2009) and National Toxic Substance Incidents Program (2010) were analyzed for school science class incidents. The comments field of incidents with industry codes for K-12 schools was reviewed to identify incidents that appear to have been in a science class. Descriptive data were analyzed.

**Results:**
One-hundred-sixty five science class incidents and 150 victims were identified. As in the previous analysis, mercury was the most common substance released (n=91 incidents), but only had 2 victim. Incidents involving chemical reactions caused the most victims (n=26). Sixty-four of the incidents involved mercury containing measuring gauges (e.g. thermometer). The majority of the incidents were caused by human error (n=152), with equipment failure (n=38) and improper mixing (n=8) contributing to many. Eighty incidents involved an evacuation: mean length 38.5 hours. Ninety-three victims were students, 51 employees, 5 public, and 1 responder. Respiratory irritation was the most frequent injury (n=63), followed by skin irritation (n=37) and burns (n=36). Most victims were seen at a hospital and released (n=72), none died, but 10 injuries were serious enough to be admitted to the hospital.

**Conclusions:**
This is a likely underreport of the number of school lab incidents in surveillance states. Many incidents involved mercury, particularly breaking fragile gauges for which non-hazardous alternatives are available. Many of the ATSDR funded states and other agencies, like the Environmental Protection Agency, have conducted outreach to eliminate mercury and other hazards from schools. Some states have passed legislation to remove mercury from schools. Regulations that protect workers from chemical hazards are unclear on their applicability to schools and students, therefore their adoption and enforcement in schools vary by state.

---

**Presenting Author(s):**

**Jenny Wu**
DHS/SRB, CDC/Agency for Toxic Substances and Disease Registry,
Atlanta, GA
azw5@cdc.gov

**Contributing Authors**

Maureen Orr, MS; Centers for Disease Control and Prevention, Agency for Toxic Substances and Disease Registry, Division of Health Studies, Atlanta, GA

**Abstract ID:** 1332751 **Presentation Type:** Breakout Presentation
**Title:** Occupational injury recordkeeping knowledge and practices: Lessons from interviews with employers
**Committee:** Occupational Health Sub-Committee
**Topic:** Underreporting: occupational injuries, illnesses, and data limitations
**Keywords:** Occupational Surveillance

**Background:**
According to multiple studies, Bureau of Labor Statistics (BLS) estimates of occupational injuries and illnesses are lower than estimates from other data sources, including workers' compensation (WC) data. Findings from studies linking BLS Survey of Occupational Injuries and Illnesses (SOII) cases to WC claims suggest that some injuries are captured by one system and absent from the other. To identify possible explanations for lower SOII estimates and unmatched injury records, we interviewed SOII respondents about their injury recordkeeping knowledge and practices.

**Methods:**
Respondents to the Washington State 2008 SOII were recruited to participate in a semi-structured in-person interview to discuss injury and illness recordkeeping practices. Topics covered during the interview included: recordkeeping criteria, data sources, timelines, and training for SOII, OSHA logs, and WC claims. Establishments were selected for participation based on industry, employment size, and number of locations. Interviews were conducted between April 2011 and December 2011. Content analysis was used to identify themes discussed in the interviews.

**Results:**
Interviews were conducted with respondents from 113 sampled establishments across the state of Washington. Themes identified from the interviews suggested a strong correlation in many industries between workers' compensation claims and OSHA recordable cases. Some respondents had little familiarity with OSHA logs and instead, completed the SOII at the end of the survey period using their WC claims data. Few participants expressed extensive knowledge of OSHA recordkeeping regulations; nuanced understanding of OSHA recordkeeping regulations tended to be concentrated among large multi-site employers in manufacturing and construction. Misunderstandings of OSHA recordkeeping regulations surrounding recordability criteria, counting days of missed work, updating entries, and recording injuries among temp workers were common.

**Conclusions:**
In Washington, SOII sampled establishments use their workers' compensation claims data to complete OSHA logs (which are then used to complete the SOII) or to directly complete the SOII. Some discrepancy between SOII and WC data may be explained by this observation; employers who wait to record a case on the OSHA log until a WC claim has been filed or until a claim has been accepted may not record the incident on the OSHA log until after the SOII survey period has ended. The study is limited by our inability to assess recordkeeping practices among sampled establishments who refused to be interviewed and the degree to which their recordkeeping practices differ from study participants. Also, our findings may not be generalizable to other states with different WC systems.

---

**Presenting Author(s):**

**Sara Wuellner**
SHARP Program, Washington State
Department of Labor and Industries,
Olympia, WA
wues235@lni.wa.gov

**Contributing Authors**

David Bonauto, MD MPH, SHARP Program, Washington State Dept. of Labor & Industries

**Abstract ID:** 1331413 **Presentation Type:** Poster Presentation
**Title:** Six year trends in healthcare personnel exposures to respiratory infectious hazards
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Respiratory diseases, non-influenza
**Keywords:** Health care|Information systems|Infectious Diseases

**Background:**
Objective: In order to evaluate the efficacy of respiratory protective interventions for healthcare personnel (HCP), it is necessary to understand the types of hazards endemic to the medical work environment, and the disease outcomes related to those hazards. In this paper, we assess the frequency and outcomes of occupational exposures to respiratory infectious illnesses in a large academic medical center.

**Methods:**
Methods: Vanderbilt University Medical Center HCP Exposure Events to respiratory infectious hazards were analyzed over a six year period for frequency and disease outcomes.

**Results:**
Results: There were 1844 HCP exposed to tuberculosis, with 9 tuberculosis outcomes; 17 HCP exposed to measles, with 0 disease outcomes; 1434 HCP exposed to varicella, with 0 disease outcomes; and 818 exposed to pertussis, with 2 disease outcomes.

**Conclusions:**
Conclusion: Tuberculosis remains the most common respiratory infectious hazard for healthcare personnel, and the only hazard with significant risk of disease development secondary to a known patient exposure. HCP with unprotected exposures to measles, varicella and pertussis are the next most common, but the risk of secondary disease development is low.

---

**Presenting Author(s):**

**Mary Yarbrough**
Vanderbilt University, Nashville, TN
mary.yarbrough@vanderbilt.edu

**Contributing Authors**

Michele Bruer, RN, MSN Paula McGown, RN, MSN, CPA Melanie Swift, MD, FACOEM

**Abstract ID:** 1294852 **Presentation Type:** Breakout Presentation
**Title:** Pertussis transmission in a neonatal intensive care unit — Arizona, 2011
**Committee:** Infectious Diseases Sub-Committee
**Topic:** Healthcare-associated infections
**Keywords:** Healthcare associated infections (HAI)|Infectious Diseases|Neonatal

**Background:**
During 2010 in the United States, 3,350 pertussis cases and 25 deaths among infants aged ?6 months were reported; adults are often the transmission source of infant pertussis. During September 13–15, 2011, hospital B reported 3 pertussis cases, including 1 confirmed by Bordetella pertussis isolation, among infants discharged ?30 days previously from a 71-bed neonatal intensive care unit (NICU A). We investigated NICU A to determine the extent of the outbreak, assess factors contributing to transmission and determine costs associated with outbreak response.

**Methods:**
Case definition was a cough ?14 days with onset during July 28–September 15 in an NICU-associated person. We observed NICU A practices and interviewed 35 health care workers (HCW) furloughed for cough illness and parents of 35 hospitalized infants. Costs were calculated by using HCW wages, time furloughed, vaccine, chemoprophylaxis, diagnostic testing, and hospital B labor costs. To estimate the dollar value of furloughed personnel time, we used the mean hourly earnings for full-time hospital HCWs and technical occupations in Arizona as reported by the United States Bureau of Labor Statistics, multiplied by the number of hours lost in furloughs.

**Results:**
We identified 16 patients; 5 infants (aged 5–19 weeks; 5 female), 11 HCWs (aged 29–50 years; 6 female). The index patient was an infant aged 11 weeks (gestational age 28 weeks) who experienced apnea on July 28 and cough on August 14 in NICU A; she had not been isolated. She was transferred to hospital B on September 9 where pertussis was diagnosed. Spacing of NICU A beds (16 inches apart), a 4:1 patient-to-nurse ratio, and absence of personal protective equipment (PPE) use were observed. Laboratory testing ($7,240) and chemoprophylaxis ($5,297) was provided to 365 HCWs and 40 infants. Of 365 HCWs, 330 required pertussis booster vaccine ($12,870); 39 HCWs received work furloughs (1560 hours; $55,349). Staff worked 455 hours on outbreak management ($16,809). The cost to NICU A was $97,744.

**Conclusions:**
Conclusion: Although the source could not be identified, this costly healthcare-associated pertussis outbreak might have been prevented with heightened awareness of apnea as a pertussis sign, isolation when cough began, compliance with HCW pertussis vaccination recommendations, and enforcement of PPE for HCWs with cough illness.

---

**Presenting Author(s):**

**Seema Yasmin**
Epidemic Intelligence Service, Centers
for Disease Control and Prevention,
Atlanta, GA
seema.yasmin@azdhs.gov

**Contributing Authors**

Rebecca Sunenshine, MD, Maricopa County Department of Public Health, Arizona Kristine M Bisgard, DVM, MPH, Centers for Disease Control and Prevention Caleb Wiedeman, MPH, Arizona Department of Health Services Shoana Anderson, MPH, Arizona Department of H

**Abstract ID:** 1308734 **Presentation Type:** Breakout Presentation
**Title:** Characterizing alcohol-related injuries in New York City
**Committee:** Injury Control and Prevention Sub-Committee
**Topic:** Other injury epidemiology issues or topics
**Keywords:** Alcohol|Injury|Local epidemiology

**Background:**
Excessive alcohol use contributes to 79,000 deaths annually in the United States. In New York City (NYC), alcohol is the fourth leading cause of premature death and disability; injuries and poisoning comprise 46% of NYC's alcohol-attributable deaths. From 2000-2009 alcohol-related injury hospitalizations increased by 30%. In order to understand current demographic and incident characteristics driving this increase, we explored NYC hospital and EMS data.

**Methods:**
Data derived from two data sources were used to identify alcohol-related injury: 1) the Statewide Planning and Research Cooperative System (SPARCS) and 2) New York City Fire Department's (FDNY) electronic patient care report (ePCR) data system. SPARCS is an administrative data system maintained by New York State (NYS) Department of Health that captures all hospitalizations in New York State. For this study, we limited our SPARCS analyses to live injury hospitalizations of NYC residents 12 years or older discharged from 2008 through 2009 in any NYS hospital. ePCR contains records where municipal ambulance services respond to a computer-aided dispatch. We limited our ePCR analyses to records where a patient 12 years or older was transported to a medical facility for an injury from 2008 through 2010. Data analyses were run on SAS 9.2.

**Results:**
From 2008 through 2009, there were 124,000 injury hospitalizations; 14% of these (n=18,000) were alcohol-related. Differences in prevalence of injury hospitalizations involving alcohol varied by sociodemographic characteristics: 21% and 7% of injury hospitalizations were alcohol-related among men and women, respectively; New Yorkers aged 35 to 54 years old had the highest prevalence of alcohol-related injury hospitalization (27%). New Yorkers living in the lowest income neighborhoods had the greatest proportion of alcohol-related injury hospitalizations (20%). From 2008 through 2010, there were approximately 19,000 patients who used FDNY EMS services for alcohol-related injuries, representing 4% of all patients seen for injuries. Leading causes of alcohol-related injuries were falls (54%) and fights (29%). Prevalence of alcohol-related injury varied by neighborhood.

**Conclusions:**
Alcohol-related injuries have steadily increased in NYC over the past decade. Prevalence of alcohol-related injury varies by sociodemographic characteristics and injury causes. In order to decrease the number of alcohol-related injuries policymakers and regulators should support evidence-based interventions that reduce harmful drinking, the alcohol industry should monitor and control alcohol sales and service, and healthcare providers should incorporate universal screening for alcohol problems and injury risk into medical care settings.

---

**Presenting Author(s):**

**Rebecca Yau**
Injury Surveillance and Prevention Program, New York City Department of Health and Mental Hygiene, New York, NY
ryau@health.nyc.gov

**Contributing Authors**

Catherine Stayton, DrPH, MPH, New York City (NYC) Department of Health and Mental Hygiene (DOHMH), Injury Surveillance and Prevention Program (ISPP); Denise Paone, EdD, NYC DOHMH, Bureau of Alcohol and Drug Use Prevention, Care and Treatment (BADUPCT); Da

**Abstract ID:** 1322239 **Presentation Type:** Breakout Presentation
**Title:** Improvement in data quality of pilot acute coronary heart disease surveillance system after system changes — Nebraska, 2011
**Committee:** Surveillance/Informatics
**Topic:** Electronic disease surveillance systems (e.g., EDSS, NEDSS, etc.)
**Keywords:** Cardiovascular disease|Surveillance

**Background:**
Coronary heart disease (CHD) is Nebraska's leading cause of death and hospitalization. For more timely data, the Nebraska Department of Health and Human Services (NDHHS) initiated pilot surveillance on July 20, 2011 to identify acute CHD through automated data transfer from tertiary-care Hospital A. We evaluated system performance initially and after improvements were implemented.

**Methods:**
During July 20–September 13 (initial operation), Hospital A transmitted each hospitalization record (N = 1,789) to NDHHS on day 14 postdischarge; during October 1–October 31, to address missing data from coding delays, records (N = 1,676) were transmitted 1 day after International Classification of Diseases (9th rev.) (ICD-9) coding. An NDHHS SAS® program identified presumed acute CHD hospitalizations (i.e., ICD-9 discharge codes matching myocardial infarction [MI], percutaneous transluminal coronary angioplasty [PTCA], or coronary artery bypass grafting [CABG]). Data were compared with Hospital A's internal cardiovascular registry for MI, PTCA, and CABG.

**Results:**
During initial operation, NDHHS identified 39 hospitalizations (34 in registry, 5 others miscoded as acute CHD). Of an additional 63 registry records, 2 were missed by surveillance, and 61 were not transmitted to NDHHS. After system changes, NDHHS identified 37 hospitalizations (33 in registry, 4 miscoded). Of an additional 17 registry records, 2 were missed by surveillance, and 15 (all observation patients) were not transmitted. Records lacking ICD-9 codes decreased from 12% to 6%. Sensitivity improved from 36% to 66% and predictive value positive from 87% to 89%.

**Conclusions:**
This system is not ready for expansion to additional hospitals. Modifying record transmission timing improved sensitivity, but data-extraction algorithm changes are necessary to capture observation patients. Our findings demonstrate the importance of evaluating pilot surveillance systems.

---

**Presenting Author(s):**

**Kristin Yeoman**
Division of Public Health, Nebraska
Department of Health and Human
Services, Lincoln, NE
kristin.yeoman@nebraska.gov

**Contributing Authors**

Thomas Safranek, MD State epidemiologist, Nebraska Department of Health and Human Services Bryan Buss, DVM, MPH Career epidemiology field officer, CDC, Nebraska Department of Health and Human Services Eryn Murphy, MPH Epidemiology syndromic surveillance

**Abstract ID:** 1324736 **Presentation Type:** Poster Presentation
**Title:** Evaluation of the Alaska hair mercury biomonitoring program
**Committee:** Environmental Health Sub-Committee
**Topic:** Biomonitoring in Environmental Public Health Practice
**Keywords:** Surveillance|Biomonitoring|CDC Guidelines

**Background:**
Each year, approximately 300,000 U.S. infants are placed at increased risk for adverse neurodevelopmental events due to in utero exposure to methyl mercury. In Alaska, concerns about fetal exposure to mercury from maternal consumption of subsistence foods prompted the creation of the Statewide Maternal Hair Mercury Biomonitoring Program in 2002. This program enables Alaskan women to assess their mercury exposure level and to learn whether dietary changes are necessary. We reviewed the effectiveness of this program.

**Methods:**
The program was evaluated for system attributes such as simplicity, flexibility, data quality, acceptability, sensitivity, representativeness, timeliness, and stability as described in the CDC 2001 Updated Guidelines for Evaluating Public Health Surveillance Systems.

**Results:**
The program operates as a passive surveillance system intermittently augmented by active data gathering. All samples were analyzed and reported within one month of collection. The median mercury concentration was 0.46 parts per million (range: 0.01–7.87 ppm). Of 813 hair samples analyzed from July 2002 to May 2010, 457 (56%) were obtained from women living in rural communities. Each of Alaska's six regions submitted at least 50 specimens, but many rural communities did not submit samples.

**Conclusions:**
The Alaska Statewide Maternal Hair Mercury Biomonitoring Program is a simple, flexible, and informative surveillance system. Program strengths include the prompt testing and reporting of results. Sustainability and representativeness are the main limitations of this surveillance program since many rural communities are not included in surveillance results. The Environmental Public Health Program could improve representativeness through active surveillance in rural communities; however, this goal would require supplemental funds.

---

**Presenting Author(s):**

**Sarah Yoder**
Section of Epidemiology, Alaska Department of Health and Social Services, Anchorage, AK
sarah.yoder@alaska.gov

**Contributing Authors**

Paul Anderson, M.D., M.P.H., Alaska Department of Health and Social Services, Division of Public Health, Section of Epidemiology; Joseph McLaughlin, M.D., M.P.H., Alaska Department of Health and Social Services, Division of Public Health, Section of Epide

**Abstract ID:** 1333239 **Presentation Type:** Poster Presentation
**Title:** The impact of psychosocial and behavioral health factors on employee chronic conditions and productivity in Kent County, Maryland
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** Chronic disease risk factors: tobacco, physical activity, nutrition, and obesity epidemiology
**Keywords:** Behavioral health|Mental health |Obesity

**Background:**
Studies suggest that obesity-attributed health problems, including physical, mental and emotional problems, increase health care costs, decrease productivity, and reduce quality of life. Mental illness and stress are also major causes of disability and productivity loss among working-age adults. The mental health of employees has become an area of increasing concern to organizations. Yet little is known about the effects of mental/social health factors and behavioral changes on clinical outcomes and employee productivity. The study objectives are to assess the risk factors of poor employee health and employee productivity loss by using clinical test results, sick days and job productivity information.

**Methods:**
Wellness surveillance data was collected from the 2010 personal wellness profiles of 390 employees at 5 companies participating in the Healthiest Maryland Businesses initiative in Kent County, Maryland. Clinical test results included in the profiles were glucose concentration, cholesterol levels and blood pressure. Job productivity information studied included the number of sick days reported during the past 12 months, the percentage of job limitation (work output impaired or decreased), and the number of days of decreased work productivity due to poor physical or mental health over the past 4 weeks. Descriptive analysis, Chi-square test, Wilcoxon rank-sum test, relative risk test, and different types of regression analyses were conducted with SAS and STATA to determine the association of risk behaviors and mental/social health factors with clinical measures and work productivity indicators.

**Results:**
Sick days and various job satisfaction indicators were compared between gender, age and race. Black employees had higher rates in the number of days of decreased productivity than white employees. The significant correlation was identified between several outcomes (clinical test results and employee productivity) and risk factors such as physical activity, eating practices, smoking, mental/social health factors, and behavior change readiness. Results showed that mental and social health factors such as traumatic life events (loss of loved one, divorce, loss of job, finances crisis, severe conflict and, major illness), stress at home and related to finances were significantly positively correlated to the percentage of employees using sick days. Furthermore, this relationship was dependent on the magnitude of the stressful events when compared to those without a stressful event. The percentage of employees using over 5-6 sick days in 2009 was significantly increased in relation to the severity of traumatic life events (22.6% vs. 7.4%), home stress (26.2% vs. 6.5%), work stress (16.7% vs. 9.5%) and finance-related stress (25.4% vs. 7.5%). The percentage of employees reporting decreased job productivity days during the past 4 work weeks also increased in relation to these stress factors. Compared to employees of normal weight, obese employees had higher rates of high blood glucose, high non-HDL cholesterol and high blood pressure and were also more likely to use sick days. Participants with self-identified plans to practice healthier behaviors, cope better with stress, and maintain healthy blood pressure and healthy cholesterol levels showed a tendency toward improving clinical test results, obesity rates, and job productivity.

**Conclusions:**
Mental and social health factors are critical contributors to worksite productivity. Characterizing racial and gender disparities with regard to risk factors, such as unhealthy eating habits, low levels of physical activity, and mental/social health factors in the worksite may help to further elucidate the complex factors that contribute to chronic conditions, obesity and decreased employee productivity. In addition, this data from Healthiest Maryland Businesses pilot study in Kent County could help State and local health departments and private-sector employers to create and implement effective, evidence-driven policy and environmental changes that can help overcome many challenges in achieving a healthy and productive workforce. Specifically, this strategy to address mental health and obesity-attributed productivity loss should be prioritized.

**Presenting Author(s):**

**Xiao-Ying Yu**
Office of Chronic Disease Prevention,
Maryland Department of Health and
Mental Hygiene, Baltimore, MD
XYu@dhmh.state.md.us

**Contributing Authors**

Nicole Morris, MS, RN, Chronic Disease Prevention Program, Kent County (Maryland) Health Department; Katie Jones, MSW, Office of Chronic Disease Prevention, Maryland Department of Health and Mental Hygiene; Travis Hobart, MD, MPH, Office of Chronic Diseas

**Abstract ID:** 1330711 **Presentation Type:** Breakout Presentation
**Title:** Don't let distraction take your life away: Distracted driving in Nebraska (2006-2010)
**Committee:** Injury Control and Prevention Sub-Committee
**Topic:** Injuries resulting from motor vehicle or other transportation modes
**Keywords:** Motor vehicles|Injury surveillance

**Background:**
Distracted driving is a specific type of inattention that occurs when drivers divert their attention from the driving task to focus on some other activity instead. It is a dangerous epidemic on America's roadways, and has raised growing concerns in public health and traffic safety communities. The National Highway Traffic Safety Administration (NHTSA) estimated that about 1 in 6 fatal crashes and 20% of injury crashes in the United States resulted from a driver being distracted from driving. Nationally, 5,474 people were killed and an estimated additional 448,000 more were injured in crashes caused by distracted driving in 2009. The purpose of this study is to describe injury burdens resulted from distracted driving in Nebraska from 2006 to 2010.

**Methods:**
Five years (2006-2010) of Nebraska crash data, linking to hospital discharge data, were used. Crash injures resulted from distracted driving were cross tabulated with injury severity, age group, gender, year, month, hour, and location (rural vs. urban). Hospital charges were calculated from crash records that were linked to hospital discharge data. Economic cost of distracted driving was estimated from injury severity.

**Results:**
From 2006 to 2010, close to 20% of motor vehicle crashes occurred in Nebraska could be attributed to distracted driving, which resulted in about 200 deaths and 14,000 injuries. These deaths and injuries translated into an economic lost of over 1.7 billion dollars. Teen drivers and elderly drivers (>60 years old) were more likely to engage in distracted driving behavior in other age groups. Distracted driving was more likely to be found in summer months and 3-4pm during the day. Reduction in distracted driving has not yet to be observed since the new state law banning texting while driving went in to effect on July 1, 2010.

**Conclusions:**
Reducing distracted driving requires concerted action at every level. Educational intervention, laws and enforcement, and new technologies should work together to reduce the risk of distracted driving.

---

**Presenting Author(s):**

**Ying Zhang**
Division of Public Health, Nebraska
Department of Health and Human
Services, Lincoln, NE
ying.zhang@nebraska.gov

**Contributing Authors**

Ming Qu, PhD, Nebraska Department of Health and Human Services Guangming Han, MS, Nebraska Department of Health and Human Services

**Abstract ID:** 1330787 **Presentation Type:** Breakout Presentation
**Title:** Racial disparities in non-fatal motor vehicle crash injuries in Nebraska
**Committee:** Injury Control and Prevention Sub-Committee
**Topic:** Health disparities related to injuries
**Keywords:** Health disparities|Motor vehicles|Minority Health

**Background:**
Persistent disparities in motor vehicle crash (MVC) injuries are a major public health challenge. Racial disparities have been consistently found in health outcomes related with MVC injuries, where African Americans and American Indians had higher risk of occupant fatalities. Meanwhile, almost all previous studies have been focusing on fatal injuries, partly because of data availability from the Fatality Analysis Reporting System (FARS). In this study, we explored racial disparities in non-fatal injuries among Nebraska drivers. We hypothesized a similar pattern of racial differences existed in non-fatal MVC injuries.

**Methods:**
Five years (2006-2010) of Nebraska motor vehicle crash data and drivers' license data were used for this study. Since race information mostly comes from drivers' license data, only non-fatal injuries among Nebraska drivers were studied. Descriptive analysis and logistic regression were conducted to explore radical disparities.

**Results:**
African Americans and American Indians who were involved in motor vehicle crashes had higher percentage of non-fatal injuries than drivers of other racial groups. Compared with white drivers, African American drivers were more likely to be involved in multi-vehicle crashes, and crashes in urban areas. American Indian drivers were more likely to be found in crashes due to drunk driving. After controlling for other risk factors (age, gender, seatbelt use, alcohol involvement, posted speed limit, etc.), racial group remained significant in the logistic model predicting MVC injury severity.

**Conclusions:**
Racial disparities exist in non-fatal MVC injuries among Nebraska drivers. African American and American Indian drivers were at higher risk of non-fatal injuries compared with white drivers. We suggest that future intervention should target on certain risky behaviors among these minority groups, such as speeding, seatbelt use, and drunk driving.

---

**Presenting Author(s):**

**Ying Zhang**
Division of Public Health, Nebraska
Department of Health and Human
Services, Lincoln, NE
ying.zhang@nebraska.gov

**Contributing Authors**

Ge Lin, PhD, University of Nebraska Medical Center Jianhua Qin, MS, University of Nebraska Medical Center Ming Qu, PhD, Nebraska Department of Health and Human Services Guangming Han, MS, University of Nebraska Medical Center

**Abstract ID:** 1298572 **Presentation Type:** Roundtable Presentation
**Title:** Building epidemiology capacity in reproductive health preparedness science
**Committee:** Chronic Disease/Maternal and Child Health/Oral Health Sub-Committee
**Topic:** CD/MCH/OrH surveillance
**Keywords:** Emergency preparedness|MCH Epidemiology|Indicators

**Brief Summary:**
During the past 15 years, the United States (US) has averaged 58 major federally declared disasters per year that have affected all states and territories. Disasters are associated with adverse health effects on pregnant women, including hypertensive disorders and anemia during pregnancy, and adverse birth outcomes such as low birth weight or preterm births. Our knowledge about these adverse health effects is still elementary. Even though pregnant women are classified as "at-risk individuals" in the 2006 Pandemic and All-Hazards Preparedness Act, post-disaster data about pregnant women are often not collected and if collected, not used. Moreover, we have not had sufficient population-based studies after major disasters to accurately determine post-disaster risk factors for adverse birth outcomes among pregnant women. Lastly, we have little literature describing how disaster affects reproductive health among women of reproductive age. Due to these knowledge gaps, the Division of Reproductive Health (DRH) at the Centers for Disease Control and Prevention initiated its Program for Emergency Preparedness and Response to prepare to respond to reproductive health needs of the US population after natural or man-made catastrophic events. One program goal is to engage Maternal and Child Health (MCH) partners to identify salient post-disaster reproductive health indicators and advise as DRH creates a research and surveillance agenda. For one year, DRH will seek input from more than 1,000 federal, state, local, tribal and territorial practitioners who focus on MCH, public health and/or disaster. DRH will host interactive sessions at the 2011 MCH Epidemiology Conference, the 2012 AMCHP Annual Conference, and use web strategies to solicit input regarding pertinent post-disaster maternal risk factors and infant outcomes; salient topics and approaches for conducting assessments, research, and surveillance; and strategies to enhance partner collaboration in building reproductive health preparedness science. This CSTE roundtable will be the culmination of the year-long process. Participants in the discussion forum will help DRH finalize the indicators and future research and surveillance agenda by reviewing proposed indicators and topics for the research surveillance agenda, identifying gaps, ranking indicators according to perceived priority, and providing rationale for their conclusions.

**Key Objectives:**
To seek input from local, state, tribal and federal perspectives regarding critical post-disaster reproductive health indicators among pregnant and postpartum women, infants, and women of reproductive age; suggested topics and approaches for conducting assessments, research and surveillance; and strategies to enhance partner collaboration in building capacity in reproductive health preparedness science.

---

**Presenting Author(s):**

**Marianne Zotti**
Centers for Disease Control and Prevention, Atlanta, GA
Mzotti@cdc.gov

**Denise Giles**
Centers for Disease Control and Prevention, Atlanta, GA
dqg4@cdc.gov