

OUTSTANDING POSTERS

Poster Presenter

ANDRIA APOSTOLOU

New Jersey Department of Health and Senior Services

Abstract ID	1060553
Date/Time	June 13, 2011, 10:00 AM - 10:30 AM
Board Number	117
Title of Presentation	<i>Secondhand tobacco smoke: A source of lead exposure in US children and adolescents *</i>
Committee	Chronic Disease/Maternal and Child Health/Oral Health
Topic	Tobacco, alcohol, and substance use epidemiology
Keywords	Tobacco, Lead, Children and adolescents

BACKGROUND

Secondhand tobacco smoke (SHS) remains a major source of indoor air pollution worldwide, causing major health effects. In the U.S., around 20% of 3-11 year old children live with at least one smoker. Lead, a major neurocognitive and kidney toxicant for children at relatively low levels, is a tobacco constituent that is measured in mainstream and sidestream smoke, including the gas phase. Our objective was to evaluate the relationship between secondhand tobacco smoke (SHS) exposure and blood lead levels in U.S. children and adolescents who participated in the National Health and Nutrition Examination Survey, 1999-2004.

METHODS

We analyzed data from 6,830 participants 3 to 19 years of age who were not active smokers and had SHS exposure information and blood lead measurements. Linear regression models on log-transformed blood lead levels were evaluated with progressive levels of adjustment for demographic, household characteristics and for year the family house was built. In children 3 to 5 years of age with house dust samples available (N=791), we further adjusted for window and floor lead dust concentrations in the participant's home.

RESULTS

After multivariable adjustment, participants in the highest quartile of serum cotinine had 28% (95% CI 21-36%) higher blood lead levels compared to those in the lowest quartile. Similarly, blood lead levels in children who lived with 1 and ≥ 2 smokers were 14% and 24% higher, respectively, compared to those living with no smokers. In participants with lead dust information available, the association between SHS and blood lead levels remained similar before and after adjustment for lead dust concentrations.

CONCLUSIONS

SHS may contribute to increased blood lead levels in U.S. children. Lead dust does not appear to mediate this association, suggesting inhalation as a major pathway of exposure. Lead prevention programs need to incorporate strategies to prevent potential lead exposure from SHS, particularly in children who live with smokers. Smoke-free legislation initiatives in public places, motor vehicles and other environments where children are present could further prevent lead exposure. Furthermore, health care professionals should evaluate potential SHS exposure and provide recommendations to minimize exposure as part of children's medical care. Eliminating exposure to SHS in children could result in lower lead exposure and fewer adverse lead-related health effects, including neurocognitive effects.

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KATHERINE HARMON

North Carolina Department of Health and Human Services

Abstract ID 1061497
Date/Time June 13, 2011, 10:00 AM - 10:30 AM
Board Number 118
Title of Presentation *Leading causes of chronic disease and injury mortality in North Carolina: Persistence of spatial clusters, 1979-2009**
Committee Chronic Disease/Maternal and Child Health/Oral Health
Topic Applying new analytic methods and measures for CD/MCH/OrH epidemiology
Keywords Geographic Information Systems, Chronic diseases, Injury

BACKGROUND

In 2009, cancer, heart disease, stroke, chronic lower respiratory disease, and injury were the five leading causes of death in North Carolina (N.C.). Chronic disease and injury places a substantial burden on the health and welfare of North Carolinians; for example, in 2009, 57,920 individuals (75.3 percent of total deaths) died as a result of a chronic disease or injury. Chronic disease and injury can also lead to premature death. In N.C. for 2009, there were an estimated 258,437 total years of potential life lost due to a chronic disease- or injury- related cause. In N.C., certain geographic regions have had persistently higher rates of mortality for the five leading causes of chronic disease and injury. From a public health perspective, it is important to understand and characterize geographic and temporal changes in disease trends.

METHODS

The spatial autocorrelation tool Global Moran's I identified statistically significant relationships between location and age-adjusted mortality rates of chronic disease and injury for each five year time period between 1979 and 2009. If a significant spatial relationship was identified, ESRI's ArcGIS version 9.3.1 "Hot Spot Analysis" tool was used to display the spatial clustering. Each county received a numerical ranking for the persistence of spatial and temporal clustering. Analyses and county rankings were incorporated into a final thematic map to highlight "hot spots" of disease or injury that have persisted over the last thirty years.

RESULTS

Past research has indicated that certain chronic diseases display geographic patterns of mortality in N.C., for example, stroke mortality is higher in the coastal plain region of N.C.; however, these patterns may shift over time. Based on county ranking of chronic disease and injury persistence, a final map was created to document disease and injury persistence over both time and space for the leading causes of death in N.C.

CONCLUSIONS

Spatial tools are one method of detecting areas with the greatest need for public health resources. The identification of disease clusters can aid public health professionals in targeting interventions at the most vulnerable regions and populations for the optimal use of limited resources.

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MARY KLEYN

Michigan Department of Community Health

Abstract ID 1057710
Date/Time June 13, 2011, 10:00 AM - 10:30 AM
Board Number 116
Title of Presentation *Characteristics associated with failure to complete the pneumococcal vaccine series among children with sickle cell disease or sickle cell trait **
Committee Chronic Disease/Maternal and Child Health/Oral Health
Topic Emerging CD/MCH/OrH surveillance: New systems, methods, or use
Keywords Community health, Data/Surveillance, MCH Epidemiology

BACKGROUND

Children with sickle cell disease (SCD) are at increased risk of acquiring invasive infections. Timely completion of the pneumococcal vaccine series could reduce the number and burden of these invasive infections. This study was conducted among children with SCD or sickle cell trait (SCT) to determine what maternal and infant characteristics are associated with failure to complete the pneumococcal vaccine series.

METHODS

Newborn screening (NBS) records for all children born from 2004-2008 confirmed with SCD or SCT were linked with live birth certificate records. Through live births, NBS data were linked with the Michigan Care Improvement Registry (MCIR), a statewide web-based system where immunizations of Michigan residents are reported, and immunization data on pneumococcal vaccines were used. The characteristics came from either the birth certificate (birth date, race, maternal age at time of birth, gestational age, region of birth, sex, and neonatal intensive care unit admission) or immunization data (insurance and vaccine date). Age at time of vaccination was calculated using the birth date and vaccine date. Timely vaccine series completion was defined as receiving 4 pneumococcal vaccines before 18 months of age. Due to the small number of SCD children, SCD and SCT children were grouped together for analysis. Bivariate analyses were conducted; based on significance test results, multivariable models were constructed to assess characteristics associated with failure to complete the pneumococcal vaccine series.

RESULTS

A total of 14,827 newborns were diagnosed with SCD or SCT through NBS. Immunization data were retrieved for 12,743 of these children (85.9%). Overall, 55% of the infants had timely vaccine series completion. In the bivariate analyses, preterm delivery (OR=1.2, 95% CI [1.0, 1.3]), black race (OR=1.5, 95% CI [1.4, 1.7]), being born in Detroit (OR=1.7, 95% CI [1.6, 1.9]), and maternal age <30 years at birth (OR=1.3, 95% CI [1.2, 1.4]) were all significantly associated with increased odds of failing to complete the vaccine series in a timely manner. These characteristics were included in the multivariable model, and the associations remained significant.

CONCLUSIONS

The immunization coverage rates for children with SCD should be improved given their increased risk for infections. Several characteristics are associated with decreased completion rates for the pneumococcal vaccine series. Linkages between NBS, live births, and immunization data provide up-to-date, continued information on immunization status that should be used to develop targeted educational materials to meet the needs of specific high-risk populations.

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NANCY RALPH

CUNY School of Public Health

Abstract ID 1062144
Date/Time June 13, 2011, 10:00 AM - 10:30 AM
Board Number 119
Title of Presentation *Multiple chronic conditions and functionality in a community-based sample of older adults in New York City, 2009 **
Committee Chronic Disease/Maternal and Child Health/Oral Health
Topic Epidemiology of aging
Keywords Aging, Chronic diseases, Community health

BACKGROUND

Approximately 60-75% of older adults suffer from multiple chronic conditions (MCCs) in the United States, and prevalence is even greater in low-income communities. Yet to date, the epidemiology of MCCs and their contribution to functional limitations has not been well characterized outside of clinical samples.

METHODS

We examined the impact of MCCs on functionality using data from a 2009 simple random sample telephone survey of 1,036 racially and ethnically diverse adults aged 65 and older living in New York City (NYC) public housing. Chronic conditions assessed included arthritis, osteoporosis, hypertension, cholesterolemia and diabetes. Reports on limitations of any of 6 activities of daily living (ADL) were used to define functionality.

RESULTS

Preliminary data show that of older residents, 93% reported at least one diagnosed chronic condition, 79% reported MCCs, and 29% reported having any ADL limitations. Individuals with multiple conditions were more likely to report ADL limitations (prevalence for 1 to 5 chronic conditions, respectively: 16%, 21%, 27%, 44%, 59%). Adjusting for age, women were more likely than men to have any MCCs (Adjusted Odds Ratio [AOR], 3.0 95% confidence interval [CI] 2.2-4.2) and more likely to report any ADL limitations [AOR], 1.7, 95% confidence interval [CI] 1.2-2.3). Of conditions examined, the association was strongest between arthritis and any ADL limitations (OR, 3.4, 95% CI 2.4-5.0) and weakest for hypertension (OR, 1.6, 95% CI 1.0-2.3). The diabetes-ADL limitation association was weaker (OR, 1.7, 95% CI, 1.2-2.3) than for musculoskeletal factors, but stronger when restricted to those with serious diabetes-related sequelae (amputation, neuropathy, retinopathy) (OR 3.3 95% CI 1.9-5.7). Stratifying arthritis by presence or absence of osteoporosis, the association remained strong for those with both conditions (OR 4.1, 95% CI 1.8-9.5) but was attenuated for those without osteoporosis (OR 2.7, 95% CI 1.8-4.2). Further, the arthritis/osteoporosis combination was more common among Asian older adults (OR 3.2, 95% CI 1.7-6.2) compared with non-Asians, and among Hispanics (OR 1.6, 95% CI 1.1- 2.2) compared with non-Hispanics.

CONCLUSIONS

In older adults, loss of functionality is directly linked to number of chronic conditions. Women are at greater risk for both a greater number of MCCs and the associated loss of functionality than men. Further, arthritis combined with osteoporosis has the strongest effect on functionality, with Hispanics and Asians at increased risk of this MCC.

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EUGENE TULL

Virgin Islands Department of Health

Abstract ID 1056797
Date/Time June 13, 2011, 10:00 AM - 10:30 AM
Board Number 115
Title of Presentation *Differential effect of cigarette smoking on dyslipidemia in black Virgin Islanders with and without diabetes mellitus **
Committee Chronic Disease/Maternal and Child Health/Oral Health
Topic Tobacco, alcohol, and substance use epidemiology
Keywords Smoking, Minorities, Cardiovascular disease

BACKGROUND

The December 10, 2010 MMWR summary of the Centers for Disease Control's (CDC) BRFSS data reported that the prevalence of smoking (6.4%) and heart disease (5.1%) in the US Virgin Islands (USVI) are the lowest among US jurisdictions despite a high rate of diabetes in the Territory. Consequently, the value of conducting smoking interventions among diabetic patients in this predominantly Afro-Caribbean population has been questioned. This study was conducted to determine if 1) smoking has a differential effect on serum lipids associated with increased heart disease risk in diabetic and non-diabetic Afro-Caribbean persons living in the USVI and 2) implementation of smoking intervention among diabetic patients by the CDC sponsored Tobacco Prevention Program is warranted.

METHODS

Serum levels of triglycerides, HDL cholesterol, LDL cholesterol and total Cholesterol were determined for randomly selected population-based samples of 127 Afro-Caribbean diabetics and 626 Afro-Caribbean non-diabetics without diagnosed heart disease on the island of St. Croix, USVI. Age- and sex-adjusted mean lipid values were compared for smokers and non-smokers with and without diabetes. Statistical analyses were performed using Statistical Analysis Software (SAS).

RESULTS

The frequency of smoking was similar among diabetics and non-diabetics (5.51% vs 5.75%, respectively). There was no difference in mean values for total cholesterol and LDL between smokers and non-smokers in either study group. Among non-diabetics and diabetics, triglyceride values appeared higher for smokers than non smokers, although the differences were not statistically significant. However, HDL values were significantly ($p=.0185$) lower among smokers than non smokers in the diabetic group (0.96 mmol/l vs 1.25 mmol/l, respectively) while no significant difference in HDL values were observed between smokers and non-smokers in the non-diabetic group (1.23 mmol/l vs 1.27 mmol/l, respectively; $p=.4214$). These relationships did not change after adjustment for alcohol consumption.

CONCLUSIONS

Significantly reduced levels of HDL cholesterol are associated with smoking in Afro Caribbean diabetics compared to non-diabetics in the USVI. In a population with very low smoking prevalence, increased effort to curb smoking in diabetic patients is warranted.

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REBECCA COUGHLIN

Michigan Department of Community Health

Abstract ID 1060506
Date/Time June 13, 2011, 3:00 PM - 3:30 PM
Board Number 235
Title of Presentation *Using secondary data to monitor racial and ethnic minority health disparities in Michigan: The Michigan Health Equity Data Project **
Committee Cross Cutting
Topic Best epidemiologic practices to show health disparities
Keywords Health disparities, Minority Health, Data/Surveillance

BACKGROUND

African Americans, American Indians/Alaskan Natives, Arab Americans, Asian Americans, and Hispanics/Latinos together comprise 22.5% of Michigan's total population. Tracking racial/ethnic minority health disparities can be challenging due to variation in data available from varied and non-integrated sources. Information on race/ethnicity may be either missing or inaccurate, and reporting methods are inconsistent between sources. The Health Equity Data Project (HEDP) compiles data for eighteen priority indicators for each population across consistent time periods so that disparities can be identified and monitored.

METHODS

Eighteen indicators were chosen to provide a comprehensive description of health outcomes and health risks, including social determinants of health. Data were gathered from secondary data sources, including vital records, the Behavioral Risk Factor Survey, and census data. Four standard measures were used to evaluate health disparities: pairwise disparity, change in pairwise disparity over time, population-wide disparity, and change in population disparity over time. For each indicator, absolute and relative differences between each minority population and the reference white population were calculated for two time periods, 2000-2004 and 2005-2009. The percent change in the relative difference for each indicator was used to evaluate whether inequity for each population increased or decreased over time. In addition, an Index of Disparity (ID) was calculated to indicate subpopulation variation around the total population rate, which was used to assess population-wide disparity. Change in population-wide disparity over time was measured by the absolute difference in ID.

RESULTS

Among all pairwise comparisons, the smallest relative difference was unhealthy mental days between Asians and Whites; in 2001-2003 Asians had 0.2 times that of Whites. The largest relative difference was gonorrhea incidence between Blacks and Whites; in 2003 Blacks had 31.6 times that of Whites. Among all indicators, the largest population disparity was for gonorrhea incidence in 2003 (117.3%), while the smallest was for household income in 2000 (16.4%). Between 2000 and 2009, the indicator showing the greatest decrease in population disparity was unemployment rate (-37.6%), while the indicator showing the greatest increase was unhealthy physical days (18.7%).

CONCLUSIONS

There was great variation among populations and indicators in the magnitude of disparity and how disparity changed over time. The HEDP identifies disproportionate health exposures and outcomes in racial/ethnic minority populations and uses four standard measures to monitor progress toward reducing disparities. Results can be used to focus interventions to reduce disparities. These methods can be adopted by local health departments and by other states.

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KATY GONZALES

Michigan Department of Community Health

Abstract ID 1061391
Date/Time June 13, 2011, 3:00 PM - 3:30 PM
Board Number 233
Title of Presentation *Differences in risky behaviors between nondrinkers and current drinkers in Michigan youth - 2009 **
Committee Cross Cutting
Topic Substance abuse epidemiology
Keywords Alcohol Use, Adolescent health, Injury

BACKGROUND

Alcohol is the most commonly used substance among Michigan adolescents. A number of studies have shown the harmful health and social consequences of underage drinking, such as getting into fights or arguments, missing school, driving after drinking, engaging in suicidal behavior and risky sexual behavior. The leading causes of death for the teenage population throughout the period of 1999 through 2006 were: unintentional injuries, including motor vehicle crashes (48%), homicide (13%) and suicide (11%). The Youth Risk Behavior Surveillance System was created to monitor the prevalence of health-risk behaviors among high school youth that contribute to the leading causes of morbidity and mortality. The purpose of this analysis is to examine the prevalence of risky behaviors between drinking and nondrinking Michigan youth.

METHODS

Data were obtained from the Michigan Youth Risk Behavior Survey (MiYRBS), a biennial school-based anonymous survey of 9-12 grade students designed to produce representative statewide estimates of health risk behaviors among high school students. The self-administered questionnaire collects information on six health topics including 35 questions on risky behavior, including two on alcohol use. In 2009, 3,411 Michigan 9-12 grade students in 43 public schools completed the survey and were included in this analysis. SAS 9.2 was used to generate prevalence estimates from the weighted sample and chi-square tests were used to examine the associations between drinking and risky behavior. "Nondrinkers" reported not drinking any alcohol in the past 30 days. "Current drinkers" reported having at least one drink of alcohol in the past 30 days.

RESULTS

Current drinkers were significantly ($p < 0.05$) more likely to report engaging in 23 out of 35 risky behaviors compared to nondrinkers. Some examples of riskier behavior in drinkers compared to nondrinkers were: carrying a weapon (23.2% v. 10.1%), being in a physical fight (44.6% v. 20.0%), feeling sad for two consistent weeks (35.7% v. 21.4%), ever having sex (69.1% v. 28.9%), ever been physically forced to have sex (14.6% v. 6.2%), having four or more sexual partners (25.7% v. 6.0%), fasting for 24 or more hours (17.7% v. 7.5%), using diet pills to lose weight (9.4% v. 3.7%), riding with a drinking driver (17.2% v. 7.9%) and driving after drinking alcohol (8.6% v. 0.0%).

CONCLUSIONS

Michigan youth who consumed alcohol were more likely to engage in multiple risky behaviors, which were reported as two-to-four times more common in drinkers than in nondrinkers.

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THOMAS NEPHEW

Synectics for Management Decisions, Inc.

Abstract ID 1061584
Date/Time June 13, 2011, 10:00 AM - 10:30 AM
Board Number 234
Title of Presentation *Policy effects on young adult fatal alcohol-related crash rates: 1998-2006 **
Committee Cross Cutting
Topic Assessing the impact of public health laws and policies
Keywords Alcohol, Policy/Policy Development, Safety

BACKGROUND

How did the tightening of BAC standards affect young adult fatal alcohol crash rates between 1998 and 2006, and how did this compare with other policies?

METHODS

This study uses methods presented in 2009 and 2010 CSTE conference 'Policy effects on fatal alcohol-related crash rates' posters, focusing on young adult fatal crash rates. Annual county level young adult fatal alcohol-related accident rates were regressed by year against state BAC standards and other policy variables, alcohol sales per capita, vehicle miles traveled, and county young adult rates, among others.

RESULTS

These data and methods capture some of the variation in young adult fatal alcohol-related crash rates. While alcohol sales and vehicle miles traveled per capita had significant positive effects on alcohol-related fatal crash rates in most years, tightening BAC standards had a significant reductive effect in many years as well.

CONCLUSIONS

BAC standards were the most consistently significant policy predictor of young adult fatal alcohol-related crash rates by county, but other policies also showed reductive effects.

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JAN FRUSTAGLIA

New Mexico Department of Health

Abstract ID 1055917
Date/Time June 13, 2011, 3:00 PM - 3:30 PM
Board Number 227
Title of Presentation ***Mycobacterium avium complex respiratory disease from aerosolized water exposure in spa workers in New Mexico ****
Committee Environmental Health/Occupational Health/Injury
Topic Local/Regional occupational health issues
Keywords Occupational lung diseases, Waterborne disease, Collaboration

BACKGROUND

Two cases of lab-confirmed *Mycobacterium avium complex* (MAC) infection were reported to the New Mexico Department of Health. The two cases worked for the same employer, a spa with several outdoor tubs. Because of the suspected work-related nature of the illnesses, the cases were reported to the New Mexico Occupational Health Surveillance Program (NMOHSP), Epidemiology and Response Division (ERD) in February, 2010. The symptoms, exposures, and presence of MAC in the two workers were indicative of hot tub lung, a hypersensitivity pneumonitis (HP) - like granulomatous lung disease with non-tuberculous mycobacteria (NTM), that can occur from exposure to water aerosols from hot tubs and spas, therapy pools, showers, and indoor swimming pools.

METHODS

The NMOHSP contacted both the state OSHA and the NM Environment Department (NMED) Swimming Pool Program to collaborate on the investigation. The NMOHSP then 1) obtained medical records on the two MAC-positive patients 2) conducted in-person and telephone interviews with current and former employees to determine if there were further cases, and 3) conducted an observational investigation of the spa. From job tasks described by the participants, workers were categorized into three exposure level categories. A one-way analysis of variance (ANOVA) comparing the mean number of symptoms by exposure category was performed to assess if there was a significant difference among the three categories. In addition, water and biofilm swab samples were analyzed for MAC, then compared to sputum cultures from the two reported cases.

RESULTS

The ANOVA comparing the mean number of symptoms by exposure category resulted in a p-value of 0.008, with mean symptoms increasing with exposure. All current workers with water exposure were interviewed and no other confirmed cases were found. Pulsed-field gel electrophoresis (PFGE) of the tested patient isolates revealed diverse band patterns. Two environmental isolates, one from a cartridge filter in the cleaning process and another from a cold-water tub, were closely related to one of the patients.

CONCLUSIONS

The cases of MAC in the two workers were found to be associated with spray cleaning of dirty spa cartridge filters. Extensive collaboration with NMED Pools Program, NM-OSHA, internal DOH, CDC Environmental Microbiology Lab and NIOSH resulted in primary work practice recommendations, prevention recommendations, as well as lessons learned about interagency communication in response to occupational health issues.

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Poster Presenter

BONNIE HATCHER

Georgia Department of Community Health

Abstract ID 1060635
Date/Time June 13, 2011, 3:00 PM - 3:30 PM
Board Number 228
Title of Presentation *Blood alcohol testing among motor vehicle crash fatalities in Fulton County, Georgia, 1990-2007**
Committee Environmental Health/Occupational Health/Injury
Topic Injuries resulting from motor vehicle or other transportation modes (ATV, bike, etc.)
Keywords Alcohol Use, Motor vehicles, Surveillance

BACKGROUND

Alcohol-related motor vehicle crashes resulted in 11,773 deaths and accounted for 32% of all crash fatalities in the United States in 2008. The cost of alcohol-related motor vehicle crashes is estimated to be \$51 billion per year. We conducted a retrospective cross-sectional study to determine alcohol involvement in motor vehicle crash fatalities in Fulton County, Georgia. Our objectives were to obtain decedent characteristics, calculate ante- and postmortem blood alcohol testing prevalence, and assess the validity of postmortem blood alcohol testing among motor vehicle crash fatalities.

METHODS

Motor vehicle crash fatality data were obtained from the Fulton County Medical Examiner's Office for 1990-2007. Antemortem blood alcohol test results were collected from hospitals for decedents that survived long enough to enter the healthcare environment. Descriptive analyses were conducted to determine decedent characteristics, road user type, and to calculate the prevalence of ante- and postmortem blood alcohol testing among motor vehicle crash fatalities. A McNemar's test was used to assess the validity of postmortem blood alcohol testing. Analyses were conducted using SAS 9.1.

RESULTS

Of 1,007 motor vehicle crash fatalities during 1990-2007, 69% were male, 51% were drivers, 64% were taken to the main county hospital, and 48% survived more than six hours. Nineteen percent of decedents had antemortem blood alcohol testing, 69% had postmortem alcohol testing, and 11% had both ante- and postmortem blood alcohol testing. Forty percent of antemortem and 18% of postmortem tests indicated alcohol-impairment with a whole blood alcohol level ≥ 0.08 g/dL. There were too few motor vehicle crash fatalities ($N = 33$) with both ante- and postmortem blood alcohol test results to reliably assess the validity of postmortem blood alcohol testing.

CONCLUSIONS

Among Fulton County motor vehicle crash fatalities, the prevalence of antemortem blood alcohol testing was much lower than the prevalence in a national sample of trauma patients. Barriers to routine alcohol testing in trauma centers should be further explored, as this may be useful for improving surveillance of alcohol-related crash fatalities and identifying surviving problem drinkers for treatment.

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JOHN MYERS

Centers for Disease Control and Prevention

Abstract ID 1058214
Date/Time June 13, 2011, 10:00 AM - 10:30 AM
Board Number 225
Title of Presentation *Injuries to hired crop workers in the United States **
Committee Environmental Health/Occupational Health/Injury
Topic Occupational health disparities
Keywords Migrant Farm Workers, Agricultural work safety, Occupational injury and death

BACKGROUND

Little empirical data are available examining the injury experience of hired crop workers in the United States (US). This study analyzed work-related injury data collected on these workers from the National Agricultural Workers Survey (NAWS).

METHODS

Data were collected through the NAWS for the federal fiscal years 1999, 2002, 2003 and 2004. These data provided descriptive injury characteristics and rate estimates from a sample of 13,604 crop farm workers. SAS survey software was used to conduct the analyses to account for the complex NAWS sampling design

RESULTS

The worker-based injury rate was 2.6 injuries per 100 workers. When accounting for the number of weeks of farm work, the injury rate was 4.3 injuries per 100 full-time equivalents (FTEs). Injury rates per 100 FTEs did not vary significantly by age of the crop worker. The majority of the injuries occurred to male (84%) and Mexico-born (72%) workers. Settled farm workers accounted for the most injuries reported in the NAWS (60%), while shuttle migrants (those who travel more than 75 miles to find work, but do not migrate further once they have found work) had the highest injury rate at 7.2 injuries/100 FTEs. Workers reporting one or more health condition and workers reporting one or more musculoskeletal complaint had significantly higher injury rates compared to those with no health conditions or musculoskeletal complaints, respectively. Common injury events were overexertion from lifting (20%), being struck by hand held objects (13%), and falls to a lower level (10%). Injuries due to falls to a lower level accounted for the highest average number of restricted workdays (45 days).

CONCLUSIONS

The use of hand tools, falls, and lifting overexertion injuries were identified as significant causes of injury among hired crop workers. Increased injury risk was also seen for crop workers with existing health or musculoskeletal complaints. FTE-based injury rates differed significantly from worker population-based rates and were more meaningful in assessing injury risks for hired crop workers. These results are useful for targeting injury prevention efforts and future research needs for this unique worker population.

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NAOMI SHINODA

Minnesota Department of Health

Abstract ID 1060240
Date/Time June 13, 2011, 3:00 PM - 3:30 PM
Board Number 224
Title of Presentation ***Fine particle air pollution and cardiovascular health outcomes in Minnesota, 2003-2008****
Committee Environmental Health/Occupational Health/Injury
Topic Air and water quality related to environmental epidemiology
Keywords Air quality, Cardiovascular disease

BACKGROUND

Large, multi-city studies have shown small but significant adverse short-term impacts of fine particulate matter (PM_{2.5}) on cardiovascular morbidity and mortality. However, smaller local area analyses have shown more nuanced results. Studies conducted in New York City and Boston found that increases in 24-hour average PM_{2.5} concentrations were associated with increased cardiac deaths and emergency hospitalizations. In contrast, analyses in Seattle and Spokane, WA failed to detect associations between PM_{2.5} and cardiovascular hospitalizations and death. The Minneapolis-St. Paul (MSP) metropolitan area is in attainment with National Ambient Air Quality Standards for PM. However, previous investigations in this location have shown associations between PM_{2.5} and respiratory health, and studies consistently indicate that there is no threshold for PM health effects. The objective of this study was to investigate short-term impacts of daily ambient PM_{2.5} concentrations on daily measures of cardiovascular disease in the MSP metropolitan area.

METHODS

We assessed associations between daily 24-hour continuous PM_{2.5} monitoring data and cardiovascular hospitalizations (ICD-9: 390-448) and mortality (ICD-10: I00-I78) during the years 2003-2008 via time-stratified case-crossover analyses. Using conditional logistic regression models that adjust for temperature and relative humidity, we generated risk estimates for PM_{2.5} lags ranging from 0 to 4 days before the health event. For cardiovascular mortality analyses, we developed an overall model for the effect of PM_{2.5} on cardiovascular deaths, as well as separate models stratified by location of death.

RESULTS

Risk estimates for the association between cardiovascular hospitalizations and PM_{2.5} in the MSP metropolitan area during 2003-2008 exhibited peaks at later lags (lag 3), but were not statistically significant. The association between cardiovascular deaths and PM_{2.5} peaked at lag 1. The estimated percent increased risk of cardiovascular death per 10Mg/m³ increase in PM_{2.5} at lag 1 was 2.6% (95% CI = 0.2% - 5.1%). The association between PM_{2.5} and cardiovascular deaths that occurred in the emergency room also exhibited a lag structure that peaked at lag 1 (risk estimate not statistically significant). The subset of cardiovascular deaths that occurred among inpatient hospitalizations did not show this lag structure.

CONCLUSIONS

There was no consistent association between daily 24-hour PM_{2.5} levels and cardiovascular hospitalizations. The association between PM_{2.5} and cardiovascular deaths in the MSP metropolitan area was small, and most closely related with a lag of approximately one day. A similar lag structure was found for cardiovascular deaths that occurred in the emergency room, but not for deaths that occurred during inpatient hospitalizations.

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LAURA ZWOLINSKI

University of Michigan

Abstract ID 1054265
Date/Time June 13, 2011, 10:00 AM - 10:30 AM
Board Number 226
Title of Presentation *An evaluation of Michigan's potassium iodide (KI) distribution program**
Committee Environmental Health/Occupational Health/Injury
Topic Preparedness and environmental epidemiology
Keywords Preparedness, Evaluation, Bioterrorism

BACKGROUND

Potassium iodide (KI) is an antinuclear prophylactic capable of preventing thyroid cancer during a radiological release at a nuclear power plant (NPP). In 2009, the Michigan Department of Community Health (MDCH) made KI available at no cost to all residents living within a 10-mile radius of one of Michigan's three NPPs. These radii are known as Emergency Planning Zones (EPZs). KI vouchers, redeemable at collaborating pharmacies for a household supply of KI, were mailed to all EPZ addresses. To assess general nuclear preparedness among adult (≥ 18 years) Michigan EPZ residents and to identify program areas needing improvement for future KI distributions, MDCH conducted a small scale evaluation of the distribution project.

METHODS

A telephone survey instrument was developed to collect information on general nuclear preparedness knowledge, reasons for KI voucher use or non-use, KI use knowledge, and demographic data for consenting Michigan adult EPZ residents. Telephone interviews were conducted using a random sampling method stratified by EPZ and KI voucher use status to ensure that both KI voucher users and non-users from each Michigan EPZ were represented in the study sample.

RESULTS

A total of 153 Michigan residents completed the survey, including 78 KI voucher users and 75 KI voucher non-users. When residents were asked what they had done to prepare for a possible nuclear emergency event, 42.5% reported 'nothing', 26.1% reported they had 'purchased extra food or water', and 20.3% reported they had 'planned an evacuation route'. Of those respondents who redeemed a KI voucher, 57.7% correctly identified KI as protecting only the thyroid gland from radiation; however, 35.9% 'didn't know' which part of the body KI protects. Common reasons cited for KI program participation included 'to be prepared' (57.7%) and 'to be safe' (18.0%), while common reasons listed for non-participation were 'didn't know about the program' (36.0%) and 'failed to receive voucher' (12.0%).

CONCLUSIONS

Results emphasize the need for improved communications with Michigan EPZ residents during future KI distribution campaigns to ensure the provision of information sufficient to make an informed decision regarding participation in the KI distribution program. Additionally, a large percentage of EPZ residents claimed to have done 'nothing' in preparation for an emergency event, indicating the need for expanded community promotion of emergency preparedness awareness. A workgroup of state and county agencies involved in nuclear power plant emergency planning should develop programs to address issues with the KI voucher mailing and with emergency preparedness messages for the public.

OUTSTANDING POSTERS

Poster Presenter

NICOLE BRYAN

New York State Department of Health

Abstract ID 1060267
Date/Time June 13, 2011, 10:00 AM - 10:30 AM
Board Number 141
Title of Presentation *Hospital charges and length of stay associated with surgical site infections following coronary artery bypass grafts in New York State, 2008-2009 **
Committee Infectious Disease
Topic Healthcare-associated infections (HAI) surveillance/NHSN
Keywords Healthcare associated infections (HAI), Hospital data, Infection control

BACKGROUND

The financial burden of surgical site infections (SSIs) in the U.S. was estimated at \$1.6 billion annually in 1998. Individual and multi-center studies have evaluated the increase in hospital charges and length of stay (LOS) attributable to SSIs. This study used statewide data to determine the impact of SSIs of the chest following coronary artery bypass grafts (CABGs) on hospital charges and LOS in New York State (NYS).

METHODS

Data from the National Healthcare Safety Network, NYS Cardiac Surgery Reporting System, and Statewide Planning and Research Cooperative System were used to perform a statewide analysis of all patients who had CABGs in NYS in 2008 and 2009. The outcome variables were hospital charges and LOS following CABG, both of which included data for initial stay and readmission, and both of which were log-transformed to produce a normal distribution for regression analysis. Independent variables included chest infection status, age, sex, body mass index, duration of procedure, diabetes, congestive heart failure, renal disease, chronic obstructive pulmonary disease, respiratory failure, American Society of Anesthesiologists (ASA) score, and type of health insurance. Multiple linear regressions were used to estimate the mean increase in hospital charges and LOS attributable to CABG SSIs.

RESULTS

After eliminating 1772 cases with incomplete data, the analysis included 27,388 patients; 571 (2.2%) patients developed post-CABG SSIs. Patients who had SSIs following CABG had hospital charges that were 1.55 times higher ($p < .0001$, 95% CI 1.49, 1.62) and a LOS that was 2.15 times longer ($p < .0001$, 95% CI 2.05, 2.25) than patients who did not have SSIs. Twenty-nine million dollars (0.8%) in CABG-related hospital charges and over 4,800 (1.7%) hospital days after CABG statewide per year were attributable to SSIs of the chest. Although patients with SSIs comprised only 2.2% of the procedures, they accounted for 3.0% of the hospital charges and 3.9% of the hospital days. Government-funded health insurance programs were charged over \$21 million attributable to CABG SSIs.

CONCLUSIONS

In NYS, patients with SSIs following CABGs had significantly increased hospital charges and lengths of hospital stay compared to patients without SSIs. Public reporting of CABG SSIs may increase awareness and should prompt collaborations within the healthcare community to develop evidence-based interventions aimed at further reducing CABG SSIs.

OUTSTANDING POSTERS

Poster Presenter

NOELLE COCOROS

Massachusetts Department of Public Health

Abstract ID 1062089
Date/Time June 14, 2011, 3:00 PM - 3:30 PM
Board Number 241
Title of Presentation *Decreasing incidence of pertussis in Massachusetts following introduction of Tdap **
Committee Infectious Disease
Topic Vaccine-preventable diseases
Keywords Surveillance, Vaccination, Epidemiology

BACKGROUND

The Massachusetts Department of Public Health (MDPH) has conducted enhanced pertussis surveillance since the early 1990s. Since then, every laboratory-confirmed case has been investigated by an MDPH epidemiologist or an MDPH trained local board of health nurse. The MDPH Hinton State Laboratory Institute (HSLI) is the only state laboratory in the US that produces pertussis serology test results that are recognized by the Centers for Disease Control and Prevention as meeting the case definition of pertussis, allowing MDPH to capture cases with longer cough durations compared to PCR and culture testing alone. MDPH began providing Tdap for adolescents in the fall of 2005. There have been reports of increasing pertussis incidence in cities and states across the US in 2010 and early 2011, but this trend is not evident in Massachusetts. We hypothesize that the decrease in pertussis incidence is due to adolescent vaccination with Tdap, as demonstrated by the changing age distribution of cases.

METHODS

We calculated the incidence of confirmed pertussis cases from 2000 through 2010 in Massachusetts. We also evaluated the age distribution of cases during these years. A confirmed case must meet one of the following criteria: (1) culture confirmed, (2) serology positive at HSLI with at least 14 days of cough, (3) PCR positive with at least 14 days of cough plus an additional symptom (whoop, paroxysms, or post-tussive vomiting), or (4) meets clinical case definition in criteria 3 and is epi-linked to a lab-confirmed case. Tdap vaccination rates in 7th graders are captured by our annual survey of school nurses.

RESULTS

The highest annual incidence of pertussis in Massachusetts in recent years was in 2004, with an incidence of approximately 20 cases per 100,000. In comparison, there were approximately 12 cases/100,000 in 2008, 6 cases/100,000 in 2009, and 5 cases/100,000 in 2010. Since 2007, we have seen that adults aged 20 years and older make up an increasing proportion of the total cases while the proportion of cases among 11-19 year olds continues to decline.

CONCLUSIONS

Pertussis incidence has substantially declined since the introduction of Tdap. Annual school immunization surveys show that at least 78% of 7th grade children received a dose of Tdap in 2009. Given that there have been no significant changes to our enhanced surveillance methodology, and given the consistent change in the age of pertussis cases in Massachusetts in recent years, we believe the steady decline in pertussis incidence is likely due to the use of Tdap among adolescents.

OUTSTANDING POSTERS

Poster Presenter

JESSICA CUNNINGHAM

California Department of Public Health

Abstract ID 1025254
Date/Time June 14, 2011, 10:00 AM - 10:30 AM
Board Number 240
Title of Presentation *Implications of changes in the characteristics of homeless tuberculosis patients on tuberculosis prevention and control -- California, 1994 - 2008 **
Committee Infectious Disease
Topic Tuberculosis
Keywords Vulnerable populations, Infectious Diseases, Health disparities

BACKGROUND

Homelessness is a risk factor for tuberculosis. At least eight outbreaks in the homeless population have occurred in California in the last five years. Homelessness is a complex and changing issue that can challenge tuberculosis control and successful treatment of tuberculosis patients.

METHODS

We analyzed routine surveillance data reported to the California Department of Public Health during 1994 to 2008. Trends in demographic characteristics, risk factors, and outcomes of tuberculosis patients who were reported as experiencing homelessness in the 12 months prior to diagnosis were evaluated. We also compared characteristics of homeless and non-homeless tuberculosis patients reported in 2006 through 2008.

RESULTS

The number of homeless cases decreased 58%, from 390 in 1994 to 164 in 2008. Of all tuberculosis cases, the percentage that were homeless decreased from 8.1 in 1994 to 6.1 in 2008 (p -value for trend <0.0001). Homeless cases were decreasingly African American and increasingly older, Hispanic, and foreign-born (all p -values <0.0001). No change over time was observed for gender or substance use. There was a nonsignificant trend towards increasing infectiousness based on sputum smear positivity among homeless pulmonary tuberculosis patients ($p=0.0846$). Homeless patients were increasingly likely to receive some directly observed therapy and to complete treatment (both $p<0.0001$), and decreasingly likely to die ($p=0.0039$). Compared to non-homeless tuberculosis patients, homeless patients reported between 2006 and 2008 were significantly more likely to be male, United States (US)-born, sputum smear positive, substance users, and directly observed therapy recipients (all p -values <0.001). Homeless patients were less likely to complete treatment than non-homeless patients ($p=0.0022$). The difference in treatment completion was accounted for by foreign-born homeless patients, who were more likely than US-born homeless patients to be lost after beginning treatment. US-born homeless tuberculosis patients completed treatment at similar percentages as non-homeless tuberculosis patients.

CONCLUSIONS

Despite shifting demographics and improving treatment outcomes, homeless tuberculosis patients remain different from non-homeless tuberculosis patients. Our results show that providers successfully treat most homeless tuberculosis patients, with the exception being recent decreases in treatment completion for foreign-born homeless persons. Homeless patients likely require more resources as indicated by the more frequent use of directly observed therapy than in non-homeless patients. Tuberculosis control strategies for homeless patients need to take shifting demographics into account.

OUTSTANDING POSTERS

Poster Presenter

KATHERINE HENRY

Maryland Department of Health and Mental Hygiene

Abstract ID 1062313
Date/Time June 14, 2011, 3:00 PM - 3:30 PM
Board Number 242
Title of Presentation *Creation of a statewide prevention collaborative regarding multidrug-resistant organisms (MDRO) **
Committee Infectious Disease
Topic Multi-Drug Resistant Organisms (MDROs)/Carbapenem-resistant Enterobacteriaceae (CRE)
Keywords Collaboration, Antibiotic resistance, Infection control

BACKGROUND

In 2009, the Maryland Department of Health and Mental Hygiene formed a multidisciplinary advisory group of healthcare partners to address surveillance and prevention of multidrug-resistant organisms (MDROs), initially focusing on multidrug-resistant *Acinetobacter baumannii* (MDR-Ab). MDR-Ab is a rapidly emerging pathogen in a variety of healthcare settings, and is an important patient safety concern. Several acute care hospitals and other healthcare facilities in Maryland identified MDR-Ab as a problem and expressed a desire to address surveillance and infection control concerns in a collaborative fashion.

METHODS

A diverse, experienced group of healthcare professionals including epidemiologists, physicians, laboratorians, infection preventionists, representatives from state agencies, and acute care hospitals were convened to establish an MDRO prevention collaborative. By consensus, the members determined as its first priority the establishment of baseline MDR-Ab prevalence among mechanically ventilated patients, via a statewide MDR-Ab prevalence survey. The Collaborative regularly met throughout the year to establish priorities and design a survey protocol. All 46 acute care and 12 long term care facilities (LTCF) were invited to participate in the survey, which resulted in the participation of 30 acute care and 10 LTCF. Concurrently, the Collaborative prepared and disseminated a questionnaire to assess MDRO surveillance and prevention practices in these facilities. All 46 acute care hospitals and all 12 LTCF with ventilator beds completed this questionnaire.

RESULTS

The MDR-Ab prevalence survey was conducted in August 2010, in which sputum and peri-anal samples were collected from mechanically ventilated patients. Overall, 33% of patients surveyed were positive for *A. baumannii*. Of those testing positive, 54% were MDR-Ab. In acute care hospitals and LTCF, *A. baumannii* was isolated in 17% and 63% of patients, respectively. Facility-specific results were provided to participating facilities, and aggregate survey results were shared with acute care hospitals. The statewide questionnaire results highlighted disparities in facilities' MDRO screening policies via active surveillance cultures.

CONCLUSIONS

The MDR-Ab prevalence survey was a successful project due to the combined expertise of the MDRO/MDR-Ab Prevention Collaborative members and the statewide participation of both acute care and LTCF. The survey revealed higher than expected rates of MDR-Ab. Based on the high prevalence rates seen among the mechanically ventilated patient population, the Collaborative is exploring factors potentially contributing to the spread of MDR-Ab, including respiratory personnel and equipment. This project demonstrates that collaborative efforts may serve to direct state priorities in MDRO surveillance, prevention, and control.

OUTSTANDING POSTERS

Poster Presenter

YI-CHUN LO

Centers for Disease Control and Prevention

Abstract ID 1060062
Date/Time June 13, 2011, 10:00 AM - 10:30 AM
Board Number 140
Title of Presentation *Human paragonimiasis - Missouri, July 2006-October 2010 **
Committee Infectious Disease
Topic Foodborne disease
Keywords Foodborne disease, Emerging infections

BACKGROUND

Paragonimus is a lung parasite acquired through eating raw or undercooked freshwater crustaceans. Only six nonimported U.S. cases were reported during 1965-2007. In 2009, physicians published a report of three paragonimiasis cases diagnosed in Missouri during 2006-2008. We enhanced case finding and investigated epidemiologic characteristics.

METHODS

We collaborated with two medical centers to collect clinical and exposure information retrospectively and prospectively through chart review and patient/parent interview. A clinical case was defined as fever, pneumonia or pleural effusion, eosinophilia (>500 eosinophils/mm³ in peripheral blood), and a prompt response to praziquantel, the recommended paragonimiasis treatment. Cases were confirmed if testing revealed Paragonimus eggs in respiratory specimens (sputum, bronchoalveolar lavage fluid, or tissue) or antibodies in serum.

RESULTS

During July 2006-October 2010, 8 laboratory-confirmed and 2 additional clinical cases were identified. All 10 patients, aged 10-32 years, had eaten raw or undercooked crayfish collected from Missouri rivers while canoeing or camping. Seven patients had been intoxicated by alcohol; 2 had eaten raw crayfish as dares, and 1 had eaten raw crayfish to demonstrate survival skills. Three patients had undergone multiple clinical tests and empiric treatments 9-11 months before paragonimiasis was diagnosed; four experienced severe manifestations: pneumothorax (1), cardiac tamponade (1), and cerebral lesions causing blurred vision (2).

CONCLUSIONS

Paragonimiasis cases reported in Missouri occurred after eating raw or undercooked crayfish. Delayed diagnosis and severe manifestations were common. Health-care providers should consider paragonimiasis and inquire about eating raw or undercooked crayfish among patients with unexplained fever, pneumonia or pleural effusion, and eosinophilia. Owners and patrons of campgrounds and canoe rental businesses should be alerted that crayfish should be thoroughly cooked before ingestion.

OUTSTANDING POSTERS

Poster Presenter

GABRIELA CANTU

Dallas County Health and Human Services

Abstract ID 1058670
Date/Time June 13, 2011, 10:00 AM - 10:30 AM
Board Number 104
Title of Presentation ***Finding the needle in the haystack: Effective use of a syndromic surveillance system for active case-finding during investigation of a cluster of sodium azide poisoning cases ****
Committee Surveillance/Informatics
Topic Effective interactions between epidemiology and informatics
Keywords Epidemiologic methods, Electronic case reporting, Outbreak investigations

BACKGROUND

Although the focus of syndromic surveillance systems (SSS) has been early detection of outbreaks, the capture of real-time pre-diagnostic chief complaint data, and rapid accessibility of such health information may also serve other valuable functions during the course of outbreak investigations. Use of SSS for additional active case finding during the course of an outbreak has not been well described. In 2010, Health Department investigation of a point-source cluster of poisoning cases with unusual neurological manifestations provided an opportunity to explore the utility of SSS data for additional case-finding during an investigation.

METHODS

The outbreak investigation was initiated after four cases of acute illnesses with specific significant neurological symptoms were reported from unrelated patrons of a restaurant establishment. Based on initial clinical information, epidemiologic investigation and case-control study, a point-source food item was implicated and a toxicologic agent was considered as the likely etiology for the cluster. In order to quickly find additional potential cases and assess the extent to which other persons may have been affected, the Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE) database was mined to search for patients who may have presented to any of 18 area Emergency Departments (ED) with similar chief complaints within the designated timeframe.

RESULTS

A possible case was defined as any patient presenting to an area ED within the known temporal window of exposure, with chief complaints of either altered mental status (AMS), syncope, dizziness, tingling in the extremities, or low blood pressure (LBP). From the 1,827 total ED visits recorded in ESSENCE for that date, 81 possible cases were identified as presenting with at least one of the following chief complaints using this definition: AMS (38), dizziness (16), syncope (9), tingling (7), LBP (11). ED records for these patients were requested, and cases were excluded from further investigation if alternate diagnoses were well-documented on chart review. Of 29 cases which were subsequently selected for further investigation and interview, one additional new case belonging to this cluster was identified and confirmed.

CONCLUSIONS

Syndromic Surveillance System data provided an expedient, accessible, and effective means for additional case-finding during the course of this outbreak investigation. Utilization of SSS databases may be a valuable adjunctive epidemiologic tool alongside traditional epidemiologic techniques in select circumstances.

OUTSTANDING POSTERS

Poster Presenter

KATE GOODIN

Florida Department of Health

Abstract ID 1055718
Date/Time June 13, 2011, 10:00 AM - 10:30 AM
Board Number 105
Title of Presentation *Utilization of electronic laboratory results in real-world public health surveillance**
Committee Surveillance/Informatics
Topic Electronic reporting: Including ELR, electronic case reporting, etc.
Keywords Electronic laboratory reporting (ELR), Surveillance

BACKGROUND

Electronic laboratory results (ELRs), are becoming increasingly more common as inputs to public health surveillance. The expectation is that receipt of electronic laboratory results should result in more complete and timely case reporting and more accurate data. ELRs are received by the Florida Department of Health (FDOH) on a daily basis. Results which meet the threshold for public health reporting are then included in the state's reportable disease surveillance system (Merlin) where they are immediately available to public health investigators. Results from laboratories not participating in ELR are entered by hand by public health staff.

METHODS

Cases of reportable diseases with attached laboratory results entered into Merlin between 2005 and 2010 were extracted, excluding chronic hepatitis B and C and lead poisoning. Cases and laboratory results were then analyzed for the presence or absence of electronic laboratory results as compared to hand-entered results. The two categories of laboratory results were then compared within each reporting year for timeliness, data element completeness, and changes in reporting volume over time (results pending).

RESULTS

In 2005, Merlin received approximately 3,000 ELRs from the state's public health lab, FDOH's only ELR partner at the time. The number of records sent and consumed did not change much until 2007 when a large commercial reference laboratory was integrated into the ELR process. The number of ELRs consumed in Merlin rose to over 11,000 by 2010, representing eight laboratories. The proportion of laboratory results that are received electronically as well as the number of reported cases with ELRs has also increased. In 2005, 18% of laboratory results associated with reported cases were ELRs. That proportion rose to 50% in 2010. In 2005, 17% of reported cases in Merlin had at least one ELR record associated with the case; that proportion rose to 46% in 2010. There are still some hand-entered laboratory results (N=229) from laboratory systems which are also sending their results electronically.

CONCLUSIONS

As of the end of 2010, FDOH is receiving ELRs from laboratory systems which represent approximately 60% of the state's estimated reportable disease testing volume. This is close to the real-world observed proportion of reported cases with associated ELRs, which was 50% in 2010. Possible duplicate electronic and manual entry of results requires further investigation.

OUTSTANDING POSTERS

Poster Presenter

JASON JACOBS

University of Utah

Abstract ID 1060387
Date/Time June 13, 2011, 10:00 AM - 10:30 AM
Board Number 101
Title of Presentation ***A Framework for modeling data elements used for public health case reporting****
Committee Surveillance/Informatics
Topic Electronic reporting: Including ELR, electronic case reporting, etc.
Keywords Electronic case reporting, Standards, Health information exchange

BACKGROUND

When healthcare providers encounter a patient with a reportable disease (e.g., hepatitis A), public health authorities request selected information in the public health case report (PHCR). The CSTE Position Statements for reportable conditions include a section where the author specifies the requested information in an unstructured format, leading to unintended ambiguity and unnecessary variation in the data requested from an electronic health record. CDC/CSTE Case Report Standardization Workgroup (CRSWg) identified a need for standardization of the data elements across CSTE Position Statements. We aimed to evaluate the data elements requested in the 2010 CSTE Position Statements and propose a framework for ongoing development and maintenance of data elements requested in PHCRs.

METHODS

We analyzed data elements (section VI-C) found within 10 CSTE 2010 Position Statements for reportable conditions. We grouped data elements based upon their typical location within EHR modules. Then, we identified different data elements indicating the same concept across different Position Statements. We took the data element terms specified and modeled the information into question and answer lists using vocabulary standards. Data elements were matched to LOINC codes for questions and other coding systems (e.g., SNOMED-CT) for answers. We will compare results of this analysis with sections identified in HL7 structured documents and the CDA Implementation Guide for Public Health Case Reporting.

RESULTS

For the 10 Position Statements, there were 107 unique data elements specified. Most data elements can be mapped using the proposed framework, reducing the number of concepts requested and better matching expectations of EHR data. For example, upon review of data elements for history of exposure for procedures in the five Hepatitis position statements, we harmonized fifteen unique data elements into one question and six concepts within one answer list. We modeled data to account for the time frame of interest for each disease without requiring a new LOINC code for each disease specific data element. We obtained similar results for risk factors and other data elements. We will request that the Clinical LOINC committee review our models; updated recommendations will be presented at CSTE.

CONCLUSIONS

The framework will help epidemiologists to create, review, and revise case report content for PHCRs and implementers to map CSTE data elements to EHR data elements. Coding helps eliminate unclear semantics, clarifying reporting requirements. Mapping each data element to a standard vocabulary facilitates data exchange, public health decision support, and case notification.

OUTSTANDING POSTERS

Poster Presenter

JON REID

Utah Department of Health

Abstract ID 1062845
Date/Time June 13, 2011, 10:00 AM - 10:30 AM
Board Number 102
Title of Presentation *Assessment of laboratory reporting sensitivity using ELR in Utah **
Committee Surveillance/Informatics
Topic Electronic reporting: Including ELR, electronic case reporting, etc.
Keywords Electronic laboratory reporting (ELR), Surveillance, Assessments

BACKGROUND

Utah's NEDSS-compliant system was released in 2009. Since then, we have been developing the capacity to import electronic lab reporting (ELR) messages into UT-NEDSS. Currently we receive both electronic and traditional (faxed/emailed) reports for laboratory-reportable conditions from three labs. Sensitivity and specificity of notifiable condition reports drive the efficiency of public health surveillance. Reporting non-required tests will waste public health resources to remove them from the system. Conversely, incomplete detection will lead to under-reporting. We are using received ELR reports as a 'proxy' for determining a laboratory's detection algorithm. By identifying 'holes' in reporting, we may provide feedback to laboratories that will assist them with refining their detection logic.

METHODS

We reviewed incoming reports from 1/1/2010 - 12/15/2010 related to over 2800 reports stored in UT-NEDSS. Among the 77 reportable diseases in Utah, we focused on 55 laboratory-reportable diseases that are relevant for ELR. Disease assignments for the ELR messages were determined by linking the LOINC codes in the ELR message with codes in published CSTE Position Statement technical implementation guides. We performed an automatic record match by patient name and specimen collection date. We manually reviewed and verified any mismatches. We compared the reports received by traditional methods with those created from ELR messages, and evaluated the detection logic and sensitivity of the ELR reporting. We describe the discrepancies between the number of cases reported by the traditional vs. ELR method below.

RESULTS

Lab A reported 42 different conditions by either method: 17 of these conditions were never reported by ELR, 8 conditions were reported with ELR messages only 20% of the time. Similarly, Lab B reported 26 different conditions by either method: 10 of these conditions were never reported by ELR, 9 conditions were reported with ELR messages only 20% of the time. Finally, Lab C reported only 19 conditions by either method: 9 of these conditions were never reported by ELR, 4 conditions were reported with ELR messages only 20% of the time.

CONCLUSIONS

Our finding may indicate inaccurate and incomplete detection algorithms at the laboratories. Our study demonstrates the importance of auditing ELR messages and assisting laboratories to improve their detection logic. As there are many different laboratory tests that can be performed for a single notifiable condition, laboratories might not include all possible laboratory tests in their detection logic. Another major need is to help laboratories know what tests map to a notifiable condition. Through this study, we will provide feedback and create meaningful dialogue about detection logic with many laboratories.

OUTSTANDING POSTERS

Poster Presenter

LAURA VONNAHME

Centers for Disease Control and Prevention

Abstract ID 1058446
Date/Time June 13, 2011, 10:00 AM - 10:30 AM
Board Number 103
Title of Presentation *Evaluation of tuberculosis surveillance systems utilized in Washington State for migrant populations**
Committee Surveillance/Informatics
Topic Electronic disease surveillance systems (EDSS, NEDSS, etc.)
Keywords Data/Surveillance, Evaluation, Immigration

BACKGROUND

Foreign-born (FB) persons account for over half of all tuberculosis (TB) cases in Washington State. From 2008 to 2009, a 12.3% increase in TB cases was reported; 78% (256 cases) were among FB persons. Health surveillance systems in Washington State monitor TB classifications in migrants to ensure they receive timely health care. We evaluated the CDC Electronic Disease Notification system (EDN), which notifies states of migrants' arrivals to the U.S., as a notification and surveillance system for Washington State. We also evaluated the Washington TB database and processing of migrants with TB classifications.

METHODS

Evaluation was based on *CDC Guidelines for Evaluating Public Health Surveillance Systems*. Data on a migrant cohort that arrived in Washington State in FY 2010 were extracted from EDN and the Washington TB database to evaluate timeliness and data quality. To evaluate timeliness, cohort data from EDN were compared with a FY 2005 cohort when the previous Information of Migration Population (IMP) system was used. Stakeholders at Washington State Department of Health (DOH) were surveyed to assess their perceptions of each system's usefulness, simplicity, acceptability, and stability.

RESULTS

Median time between migrant's arrival and state notification by EDN (10 days, N=928) was not significantly shorter than when IMP was used (11 days, N=333) ($z=1.19$, $p=0.24$). Median time between notification and TB follow-up was 27 days with EDN (N=747). Median time from arrival to follow-up was 40 days, significantly higher than the recommended 30 days ($t=15.69$, $p<0.0001$). Completeness of data in the FY 2010 cohort did not differ significantly between variables common to both systems ($t=1.67$, $p=0.16$). Follow-up data regarding treatment were <21% complete in EDN and not recorded in the Washington TB database. Five stakeholders were surveyed with 100% response rate. Stakeholders felt both surveillance systems are useful; 75% wanted additional capacity for data analysis in EDN. Stakeholders felt EDN's limited accessibility in Washington State hindered its usefulness and access should be extended to local health departments and TB clinics. All stakeholders agreed that data entry into both systems is important and should be completed daily.

CONCLUSIONS

Additional effort is needed to decrease time between migrant arrival and TB follow-up to the recommended 30 days. Adding analytic capability to EDN might eliminate the need to maintain the Washington TB database. Increased accessibility of EDN to local health departments and TB clinics may improve entry of TB follow-up data in EDN and allow local DOH employees access to migrant information.