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CONTROL ID: 1055756

TITLE: Asthma and air pollution: Associations between asthma emergency department visits, $PM_{2.5}$ levels, and temperature inversions in Salt Lake County, Utah

CURRENT TOPIC: Air and water quality related to environmental epidemiology

ABSTRACT BODY:

BACKGROUND (study objectives, hypothesis, or a description of the problem): Temperature inversions are common in Salt Lake County, Utah, specifically during the winter months December – February. Inversions contribute to poor air quality, primarily increased levels of particulate matter. In Salt Lake County, Utah, the degree to which people with asthma are affected by exposure to increased pollution levels during inversions, including $PM_{2.5}$, has previously been unknown. The objective of this study was to assess the risk of emergency department (ED) visits for asthma associated with temperature inversions and increases in $PM_{2.5}$ levels.

METHODS (study design and appropriate statistical analysis): ED visits for asthma and data on demographics, weather, inversions, and air pollutants (CO, SO_2, NO_2, PM_{10}, and O_3) were obtained for Salt Lake County during December-February, 2006-2007 and 2007-2008. During that time period, 1,373 records with a primary diagnosis of asthma were identified using ICD-9 code 493. A time-stratified case-crossover design was used to identify index times and referent times for each asthma visit. Odds ratios estimating the relative risk of an asthma ED visit due to inversions and $PM_{2.5}$ levels were derived using conditional logistic regression.

RESULTS (specific results in summary form): After adjustment for temperature and air pollutants (NO_2, SO_2, O_3), an ED visit with a primary diagnosis of asthma showed no association with increases in ambient $PM_{2.5}$ levels, including up to three days lag time. An association was found between prolonged inversions and primary ED visits for asthma. The odds of an ED visit for asthma during the 5th-7th day of a continuous inversion were 1.42 (1.02-1.96) times the odds of an ED visit for asthma on a day when there was no inversion. No correlation was found between days 1-2 or 3-4 of an inversion and ED visits for asthma.

CONCLUSIONS (description of the main outcome of the study): We found no evidence of an association between increases in ambient $PM_{2.5}$ levels and ED visits for asthma. We did find an association between asthma ED visits and prolonged inversions lasting 5-7 days, indicating that the length of an inversion is more highly associated with asthma ED visits rather than merely the presence of an inversion. Results suggest that prolonged exposure to air pollutants during a lengthy inversion may have a cumulative effect on one's asthma.

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CONTROL ID: 1055439
TITLE: Chemical mapping: Using geographic information system within the National Toxic Substance Incidents Program to identify vulnerabilities and set priorities
CURRENT TOPIC: Preparedness and environmental epidemiology
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): In January 2010, the Agency for Toxic Substances and Disease Registry (ATSDR) established the National Toxic Substance Incidents Program (NTSIP). NTSIP uses a comprehensive approach to collect and combine information from many resources to protect people from harm caused by toxic substance releases. NTSIP has three components: a national database, state surveillance, and incident investigations.

Seven states: Louisiana, New York, North Carolina, Oregon, Tennessee, Utah, Wisconsin contribute data to the state surveillance component. The objectives of the state surveillance component are to: 1) describe toxic substance releases and the public health consequences, 2) map location and movement of toxic substances throughout communities, 3) identify and prioritize vulnerabilities in industry, transportation, and communities related to toxic substance releases, and 4) identify, develop, and promote strategies that could prevent exposures to toxic substances and resultant health effects. This presentation will demonstrate how four NTSIP states (Louisiana, Utah, New York, and Tennessee) are using geographic information systems (GIS) to identify locations of toxic substances and associated vulnerabilities. Additionally, the presentation will show how ATSDR models the data, using GIS, in the national database.
METHODS (study design and appropriate statistical analysis): The states use a variety of GIS strategies to identify vulnerable populations. Louisiana and Utah used population demographics to identify vulnerabilities. Louisiana mapped population demographics surrounding several wastewater treatment facilities. Utah mapped population demographics in Salt Lake County, site of the most chemical releases in Utah. New York mapped swimming pool chemical incidents and manufacturers, distributors, and retailers of these substances. Tennessee used a social vulnerability index (SVI) to identify vulnerable communities. SVI refers to sensitivity of hazardous substance exposures based on population and housing characteristics, including age, low income, disability, and home value.
RESULTS (specific results in summary form): In Louisiana, some wastewater facilities are already in the process of shutting down because of potential danger to surrounding populations. Utah's map demonstrates that chemical incidents occurred more often near frequently traveled roads and rail lines. New York's maps identified the origins and distribution of pool chemicals and the areas with the highest density of private pools for targeted education and outreach. Tennessee's maps show that the majority of toxic chemical incidents occurred in areas of mid-range to high levels of vulnerability.
CONCLUSIONS (description of the main outcome of the study): Using GIS to locate toxic substances, surrounding infrastructure and population density is beneficial in developing plans to prevent future releases, such as promotion of inherently safer technologies. These data and strategies are being used as models for national surveillance.
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CONTROL ID: 1058335
TITLE: Public Health Consequences from Chlorine Released at a Metal Recycling Facility — California, 2010
CURRENT TOPIC: Preparedness and environmental epidemiology
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): Among other adverse health effects, chlorine gas can cause severe respiratory symptoms. On June 8, 2010, chlorine gas unintentionally released from a ruptured 1-ton, low-pressure tank at a California recycling facility. This accident affected 29 persons; 23 were admitted to seven area hospitals. The California Department of Public Health (CDPH), with assistance from the Agency for Toxic Substances and Disease Registry (ATSDR) and the Centers for Disease Control and Prevention (CDC), began immediately to determine the total extent of exposure from the chlorine gas release and associated health effects.
METHODS (study design and appropriate statistical analysis): We interviewed exposed persons for demographic information, exposure characteristics, symptoms experienced, health services used, and medical history. To do this we used ATSDR's Assessment of Chemical Exposures (ACE) survey. We also obtained medical charts for exposed persons treated at area hospitals. We used Chi-square analyses to compare exposure characteristics of hospitalized and non-hospitalized persons.
RESULTS (specific results in summary form): We used the ACE survey to interview 27 (93.1%; 16 employees, 11 non-employees) of 29 exposed persons. Of the 27, thirteen (48.1%) were exposed to chlorine gas for ≥30 minutes before decontamination, and 23 (85.1%) reported experiencing acute health effects within 24 hours of the chlorine release. Of all 29 exposed persons, 23 (79.3%) received care at a hospital; 17 (58.6%) were treated and discharged from the emergency department, 6 (20.7%) were hospitalized. All hospitalized persons received nebulized β2-agonists, 5 (83.4%) received oxygen, and 1 (16.7%) required mechanical ventilation for 4 days. We observed no statistically significant associations between exposure time, proximity to the explosion, or preexisting medical conditions and hospitalization.
CONCLUSIONS (description of the main outcome of the study): The rapid investigation revealed significant morbidity associated with the accidental release of chlorine gas and described exposed persons' characteristics. The CDPH created and mailed a Chemical Release Alert to >1200 recycling facilities in California to educate them on how to prevent future incidents and health effects from releases—whether accidental or intentional—of hazardous chemicals.
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CONTROL ID: 1059046
TITLE: Enbridge oil spill: Public health surveillance investigation of acute health effects
CURRENT TOPIC: Preparedness and environmental epidemiology
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): On July 26, 2010, Enbridge Energy Partners, L.P., reported the burst of their 30-inch pipeline near Marshall, Michigan, in Calhoun County. An estimated 819,000 gallons of crude oil spilled into the Talmadge Creek, a waterway that feeds the Kalamazoo River. The contamination ultimately affected 30 miles of the creek and river. On July 26, individuals living near the spill began reporting strong, noxious odors and associated health symptoms to the Calhoun County Public Health Department and the Michigan Poison Control Center (PCC). To characterize the health impact of the oil spill on exposed communities, the state and local health departments developed and implemented a public health surveillance system to collect data on individuals reporting adverse health outcomes from exposure to spilled oil and its vapors.
METHODS (study design and appropriate statistical analysis): The surveillance system included three components: (1) active surveillance of health care provider reports, under legal authority of the Public Health Code, (2) monitoring daily counts of self-reported illnesses based on calls to the PCC, and (3) door-to-door health surveys in August in four communities impacted by the spill and one comparison community. The PCC acted as a central data repository for the health care provider reports. Community household survey and health care provider data were analyzed to calculate frequencies related to demographics, types of symptoms, health effects, and related information. Differences in reported symptoms between exposed and comparison communities were tested for significance using a two-tailed chi-square test.
RESULTS (specific results in summary form): The surveillance system received 147 health care provider reports on 145 patients. Neurological (64.8%), gastrointestinal (59.3%), and respiratory (46.9%) clinical symptoms were reported most frequently by patients. A total of 41 calls were received from the public by the PCC. Health information was collected from 201 households in the four exposed communities, with 320 (58.2%) of 550 individuals reporting adverse health effects. Headache (34.5%), respiratory (29.6%), and gastrointestinal (21.6%) symptoms were the symptoms exposed individuals most predominantly reported. The proportion of exposed residents reporting any symptom was significantly greater than the proportion in the comparison community ($p < .0001$).
CONCLUSIONS (description of the main outcome of the study): The multi-component surveillance system allowed for a comprehensive and timely response to assess the short term health outcomes related to the oil spill. Utilization of the PCC as the repository for health care provider reports served as an innovative and efficient method for collecting data. Symptoms reported by community residents were consistent with published reports of health effects associated with acute exposure to crude oil.
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CONTROL ID: 1059355
TITLE: Disaster-related carbon monoxide exposures: surveillance, epidemiology, and opportunities for prevention
CURRENT TOPIC: Preparedness and environmental epidemiology
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): Unintentional, non-fire-related (UNFR) carbon monoxide (CO) poisoning is a leading cause of mortality and morbidity in the wake of natural disasters. Poisonings commonly occur during power outages as a result improper placement of gasoline powered generators and use of alternative fuels for heating and cooking, such as the use of space heaters and charcoal grills/briquettes indoors. Understanding the overall magnitude of the problem, affected populations, sources of exposure, and the time and place that these exposures occur can help to identify prevention opportunities and develop public health messages.
METHODS (study design and appropriate statistical analysis): We conducted a literature review to characterize disaster-related UNFR CO poisonings in the United States from 1990–2009. The primary literature search was conducted using major scientific literature databases (e.g., MEDLINE, Science Direct) and applying appropriate search methods based on well-defined keywords (e.g., Carbon monoxide, storms/hurricanes). Additional searches were conducted on PubMed, Google, and other internet search engines. Forty-three articles were identified and 28 articles were selected for review based on relevance and completeness of data.
RESULTS (specific results in summary form): Data from 24 different disaster events were represented (e.g., hurricanes, ice/winter storms, and floods) in the review. A total of 1,880 UNFR CO poisonings were reported; of which, 4% (n=75) were fatal, 6% were hospitalized, and 20% were reported to have received hyperbaric oxygen therapy. Headache (73%) and nausea (54%) were the most commonly reported symptoms. Most poisonings (78% fatal; 58% non-fatal) occurred within three days of disaster onset. Fatalities were primarily among adults (≥18 years) (88%) and men (79%). In contrast, 58% of the non-fatal poisonings were among females. Hispanics and Asians, as well as immigrant, non-English speaking minorities were disproportionately affected by CO poisoning. Over all, improper placement of generators was the predominant source of exposure for both fatal (85%) and non-fatal (55%) poisonings. However, indoor use of charcoal grills was the most common source of exposure (73%) during ice/winter storms. Poisonings primarily occurred (91%) in residential settings.
CONCLUSIONS (description of the main outcome of the study): These estimates are likely an underestimation of the overall burden of disaster-related UNFR CO exposures due to limited reporting of CO poisoning cases. Our findings suggest that culturally sensitive interventions and multilingual warning labels on generators, charcoal grills, or other fuel-burning appliances and tools may reduce the risk of disaster-related CO exposures in some communities. Pre-disaster communication and promotion of installation of battery operated CO alarms and safe appliance use at home may be effective as most of the exposures occur at home within days of disaster onset.
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CONTROL ID: 1060334
TITLE: Investigating the Health Effects of an Ammonia Release at a Refrigeration Facility — Alabama, 2010
CURRENT TOPIC: Preparedness and environmental epidemiology
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): In August 2010, a pipe ruptured on the roof of an Alabama refrigeration facility, releasing an estimated 250-600 gallons of anhydrous ammonia. The incident occurred across a canal from two facilities involved in clean-up after the Deepwater Horizon Oil Spill. In response to the release, the county health department requested assistance from the Agency for Toxic Substances and Disease Registry Assessment of Chemical Exposures (ACE) program to determine the health effects associated with the exposure.
METHODS (study design and appropriate statistical analysis): Investigators gathered information on exposure, treatment, and outcome through interviews of persons exposed at their place of employment using the ACE questionnaire. Medical chart abstractions were performed at the hospitals identified as treating patients exposed to the ammonia. Data analysis included a descriptive analysis and a comparison of symptom data obtained from questionnaires and medical record reviews for patients both interviewed and treated at a hospital.
RESULTS (specific results in summary form): In addition to a few persons exposed at the company and those present on 2 ships docked at the facility, 801 oil spill clean-up workers were potentially exposed to the ammonia. A convenience sample of 116 oil spill workers was interviewed. The most commonly reported symptoms were headache (77%), shortness of breath (72%), coughing (69%), and burning of the nose, throat, or lungs (68%). One hundred fifty-two persons sought medical care at 5 local hospitals: 121 were treated in emergency departments and 31 were admitted for a mean of 2 nights (range 1-7). There was poor agreement between symptoms recorded on medical records and those reported during interviews for the 36 patients whose symptoms were obtained by both methods (kappa=0.21). Medical records had a 29% sensitivity for listing symptoms that were described during interviews. In contrast, there was excellent agreement (kappa=0.80) and a sensitivity of 92% for medical records reporting current smoking status and preexisting medical conditions (high blood pressure, diabetes, asthma, cancer).
CONCLUSIONS (description of the main outcome of the study): A large number of persons were exposed to ammonia in this accidental release, with many experiencing symptoms and requiring medical care for their health effects. Medical records are considered a good source of data on health effects of chemical release events since they are not subject to recall bias; however, for various reasons they may fail to capture all symptoms experienced. Therefore, the best method of obtaining information on symptoms resulting from a chemical exposure is an interview conducted soon after the incident.
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CONTROL ID: 1061507
TITLE: National Alliance for Radiation Readiness
CURRENT TOPIC: Preparedness and environmental epidemiology
ABSTRACT BODY:
KEY OBJECTIVES: Participants will:
1. Understand the evolution and purpose of the National Alliance for Radiation Readiness
2. Understand the current state of radiological preparedness as evidenced by the results of the 2010 CSTE self-assement of state-level radiation emergency preparedness and response capabilities
3. Recognize opportunities to contribute to, and benefit from the activities of the National Alliance for Radiation Readiness
4. Articulate radiological preparedness needs in the field and identify potential products and services to meet those needs
BRIEF SUMMARY: The National Alliance for Radiation Readiness (NARR) is a coalition of public health, health care and emergency management organizations seeking to build radiological preparedness, response and recovery capacity and capabilities by supporting the sharing of resources and tools, identification and dissemination of useful practices, and definition of and education on the roles and responsibilities of different entities in radiological emergencies. The NARR also seeks to serve as the collective “voice of health” in radiological preparedness through participation in national dialogues; provision of thoughtful feedback on documents, policies, and guidelines; and convening of partners to raise awareness of and resolve issues associated with radiation and nuclear public health preparedness. The session will discuss recent efforts of the NARR, the need for such a coalition as evidenced by the results of a 2010 CSTE self-assessment of state public health capacity and capability to respond to a major radiation emergency event. Iterative discussions among partner organizations on ways to improve cooperation and collaboration in radiological preparedness and response will be summarized. The session will also introduce participants to the suite of resources currently being developed by the NARR, including a disaster epidemiology tracking tool, a population monitoring toolkit, a model radiological preparedness plan, and an online clearinghouse to disseminate these and other practical tools. Participants will be encouraged to discuss their perspectives on gaps and needs in radiological planning and response and how the NARR can support the development of tools, share best or promising practices and how best to have an impact on relevant policies to close those gaps. Funded by the Center for Disease Control and Prevention National Center for Environmental Health-Radiation Studies Branch, the NARR Steering Committee is made up of representatives of the American Medical Association, the Association of Public Health Laboratories, the Association of State and Territorial Health Officials, the Conference of Radiation Control Program Directors, the Council of State and Territorial Epidemiologists, the National Association of County and City Health Officials, and the National Emergency Management Association.
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CONTROL ID: 1062535
TITLE: Exposure roster process for population tracking during and following a large scale emergency
CURRENT TOPIC: Preparedness and environmental epidemiology
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): Planning for collection of population exposure information and clinical samples for communities located immediately around the Umatilla Chemical Weapons Depot in North Central Oregon created an opportunity for Oregon Public Health Division (OPHD) to develop and exercise a special "Exposure Rostering System" to be used if there was an accidental release of chemical warfare agents stored and processed for disposal on site. The Exposure Rostering and Laboratory Sampling plan was created to improve situational awareness and populate ongoing tracking. It was tested during a recent community-wide workshop and exercise. This presentation will focus on the process of exposure rostering as part of Oregon's disaster epidemiology capabilities.
METHODS (study design and appropriate statistical analysis): Beginning with a 2008 exercise, OPHD began developing an exposure rostering system. Information to be gathered on all impacted individuals includes 1) core identifiers, 2) normal and alternate contact data (physical and electronic addresses and phone), 3) location during the incident, and 4) injury status. Plans deploy roster teams to data on paper forms at likely contrgating areas (hospitals, shelters and decontamination centers). In addition to the data, collection of clinical samples (if determined necessary) would also be carried out to the extent practical. A web-based version of the form was developed for those sheltering in-place or who self-evacuate.
RESULTS (specific results in summary form): Twenty organizations participating in the workshop and exercise were familiarized with the exposure rostering and laboratory sampling plan. The plan was applied to a challenging hazmat scenario that tested its many elements. Potential gaps in planning, processes, resources and supporting materials related to rostering and sampling were identified.
CONCLUSIONS (description of the main outcome of the study): Major observations included: 1)An on-going need to exercise the Exposure Roster /Lab Sampling Plan at frequent intervals; 2) more effective means to notify local and jurisdictions on rostering and tracking of affected individuals in transit need to be developed (including adjacent communities and states); and 3) public information requirements related to exposure rostering / lab sampling are intensive and need to be refined, e.g., prescripted messages. The exposure rostering process has been formally included in the State All-Hazard Response Plan.
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CONTROL ID: 1062611
TITLE: Six month follow-up after a chlorine gas release at a recycling facility — California, 2010
CURRENT TOPIC: Preparedness and environmental epidemiology
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): On June 8, 2010, chlorine gas was released from a ruptured 1-ton tank at a California recycling facility affecting 29 employees, customers, and bystanders and sending 23 (85.1%) to local hospitals with acute health effects. While chemical releases garner immediate widespread media attention, often little is known about the presence of longer-term sequelae and the quality of medical care received in the aftermath of these events. Following the release, the California Department of Public Health (CDPH), with assistance from the Agency for Toxic Substances and Disease Registry and the Centers for Disease Control and Prevention, interviewed 27 (93.1%) victims and reviewed their medical records to assess exposure and immediate health effects. Six months later, CDPH re-interviewed victims and reviewed medical records to assess longer-term health effects and the adequacy of medical care received.
METHODS (study design and appropriate statistical analysis): The 27 victims initially interviewed were contacted six months later and asked to complete a questionnaire over the phone. The questionnaire inquired about the presence and duration of symptoms, medical care sought, satisfaction with care, and included a posttraumatic stress disorder (PTSD) assessment tool. Medical records are also being reviewed.
RESULTS (specific results in summary form): Interviews are still being conducted. Of those interviewed (n=14), 71% sought medical care beyond that received immediately following the release, and 21% were still receiving medical care for problems related to the release at the time of interview. Seventy-nine percent were still experiencing symptoms related to the release and half of those interviewed were still experiencing difficulty breathing. Twenty-eight percent of those interviewed screened positive for PTSD. Of those who sought additional medical care, 60% were dissatisfied with the care they received.
CONCLUSIONS (description of the main outcome of the study): A substantial proportion of those interviewed had symptoms that persisted six months post-release. Due to the prevalence of ongoing symptoms, dissatisfaction with current care, and the possibility of PTSD, CDPH is attempting to ensure that these victims receive adequate and satisfactory medical and mental health care. This follow-up study suggests that acute exposure events may cause a longer lasting burden of illness than has been conventionally recognized. CDPH plans to improve tools for monitoring and evaluating the longer-term medical consequences of airborne releases with acute health impacts. Public health authorities and clinicians should anticipate the possibility of longer-term health effects and medical needs in the aftermath of future toxic chemical releases.
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CONTROL ID: 1054265
TITLE: An evaluation of Michigan’s potassium iodide (KI) distribution program
CURRENT TOPIC: Preparedness and environmental epidemiology
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): 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 (study design and appropriate statistical analysis): 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 (specific results in summary form): 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 (description of the main outcome of the study): 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.
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CONTROL ID: 1055905
TITLE: A Searchable Spatial Database for Pennsylvania Health Assessment Program Documents and Integration with the Environmental Public Health Tracking Program
CURRENT TOPIC: Practical application of health impact assessments
ABSTRACT BODY:
KEY OBJECTIVES: To enable a DOH investigator, petitioner, or the public to access related information spread across a multitude of documents to address concerns related to toxic hazards and generate new information concerning the public health consequences of environmental contamination.
BRIEF SUMMARY: With 280 sites, Pennsylvania ranks second in the nation in Environmental Protection Agency (EPA) designated toxic waste sites including 95 current and 2 proposed on the National Priority List (NPL, Superfund). The Pennsylvania Health Assessment Program (HAP) produces a variety of documents on its investigations. The content of each document is searchable but searches are confined only to that report. Searches across all documents for common keywords, locations, time periods, and other parameters cannot be performed. We describe the design of a system to search multiple documents using common variables that include a spatial component.

A template is being designed to search HAP's 129 current documents by time periods, locations, chemicals, actions, effects, and other details, singly or as a combination to enable abstraction of information common to all documents. The searchable fields include: location (latitude, longitude); petitioner type; NPL or non-NPL site; air, water or soil contamination; date of initial complaint; requester type (agency or individual petitioner); key chemicals/classes of chemicals/heavy metals of concern; tests done at site; site(s) currently undergoing remediation activities by the EPA; sites with water contamination issues; sites with quality of life (e.g. odor or sound). The template can also be modified to query for additional factors. This project leverages the spatial data infrastructure of the PA Environmental Public Health Tracking Program (EPHT).

The template is currently under development but will result in efficient, contextual retrieval of information that increases the power of interpretation and correlation with spatial, temporal, and other environmental and demographic factors. The database can also be compared with other datasets (e.g. a cancer registry) with similar parameters to generate hypotheses, new knowledge, and situational awareness.
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CONTROL ID: 1057855
TITLE: Alaska's Early Experience with a State Health Impact Assessment (HIA) Program
CURRENT TOPIC: Practical application of health impact assessments
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): Health impact assessment (HIA) is a new component in the suite of impact assessments already conducted under the National Environmental Policy Act of 1969 (NEPA). Despite the highly developed impact assessment (IA) process for environmental (EIA) and social (SIA) and economic (EIA) impacts, explicit impacts to human health have not been addressed despite the widely recognized influence of policies, programs, and development projects on human well-being. A host of well-developed international guidelines for HIA fail to address many of NEPA's technical requirements. International guidance provides even less information for states like Alaska that face unique health concerns such as the nutritional importance of traditional subsistence foods and the importance of subsistence activities for Alaska Native cultural cohesion and identity. For these reasons, the State of Alaska proactively developed an HIA program and state-specific HIA guidance to ensure that the human health and safety of Alaskans is protected during the permitting process for large natural resource development projects.
METHODS (study design and appropriate statistical analysis): The Alaska Division of Public Health formally established an HIA program within its Epidemiology Section. A medical epidemiologist manages the program, which is funded through a combination of state general funds and reimbursable service agreements.
RESULTS (specific results in summary form): In 6 months, the HIA program completed an HIA for a development project on Alaska's North Slope. This stand-alone report informs the health sections of the Environmental Impact Statement (EIS) required by NEPA and exists as a technical appendix. State health surveillance data as well as surveillance information from Alaska Native health systems was used in the report. The Alaska HIA program works with the state's permitting team and with industry on HIAs for several major resource development projects. The program also collaborates with tribal groups and federal agencies to develop an Alaska-specific HIA toolkit that provides detailed technical guidance and sets performance benchmarks for statewide HIA practice.
CONCLUSIONS (description of the main outcome of the study): : HIA programs situated within state health departments have unique advantages that include a) direct access to numerous health databases and health experts; b) established external public health partnerships that facilitate HIA work; and c) neutrality and credibility with local, regional, and national stakeholders. The Alaska HIA Program‘s approach to funding and organizing HIA work is a viable model for other states interested in creating an HIA program.
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CONTROL ID: 1060508
TITLE: Health Impact Assessment in Action in Wisconsin
CURRENT TOPIC: Practical application of health impact assessments
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): Health Impact Assessment (HIA) is a framework for inserting health into policy conversations where it has previously been absent (e.g., land use, transportation, climate change). The Wisconsin Bureau of Environmental and Occupational Health (BEOH) received a second year of HIA funding from the Association of State and Territorial Health Officials (ASTHO), and is working to enhance the collaborative networks and capabilities among state and local partners to implement HIA. This presentation will give an overview of HIA and HIA capacity building and implementation efforts in Wisconsin.
METHODS (study design and appropriate statistical analysis): The main capacity building initiatives were to provide three local health departments (LHDs) with funding to conduct rapid HIAs, continue training LHDs and state level employees, and develop HIA indicators. A training was developed and conducted specifically for the Communities Putting Prevention to Work grantees and their partners. HIA training and technical assistance were provided to the mini-grant recipients, their community stakeholders, and other partners as needed. Case studies relevant to current Wisconsin issues were developed for the training with the intention of jumpstarting a rapid HIA. In-depth interviews with training participants and mini grant recipients were conducted to evaluate the trainings and technical assistance provided.
RESULTS (specific results in summary form): Three Wisconsin LHDs were funded ($10,000 each) to conduct rapid HIAs focused on a proposed concentrated animal feeding operation, alcohol outlet density policies, and open air burning policies. The mini-grants were implemented from November 15th, 2010 to May 15th, 2011. An overview and lessons learned from these projects will be presented. In addition, outreach activities to housing authorities, social development organizations, and new public health employees will be discussed, as well as the development of HIA indicators. Several new partnerships were developed and existing relationships fortified with state agencies, including the Wisconsin Departments of Administration, Energy Independence, Natural Resources, and Transportation, along with local agencies, including non-profit/advocacy groups, planning commissions, and transit authorities.
CONCLUSIONS (description of the main outcome of the study): Wisconsin's Bureau of Environmental and Occupational Health has been significantly involved in building HIA capacity throughout the state over the last 2 years. Lessons learned from this initiative, Wisconsin-specific examples of HIA case studies, a Wisconsin-specific HIA toolkit, and current and future opportunities for implementation will help provide guidance to other states looking to build HIA capacity.
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CONTROL ID: 1061423

TITLE: Assessment of Community Awareness of Health Impacts from Proposed Coal Gasification Plants in Western Kentucky

CURRENT TOPIC: Practical application of health impact assessments

ABSTRACT BODY:

BACKGROUND (study objectives, hypothesis, or a description of the problem): In June 2010, the Green River District Health Department (GRDHD) in western Kentucky that serves a population of over 219,000 began conducting a health impact assessment (HIA) regarding two coal gasification plants to be built in the region. Proponents contend the process will have limited environmental or health impacts in areas where the plants are proposed for development and will provide increased job opportunities. Opponents contend that environmental effects from these projects are harmful to the community and that the benefits do not outweigh the risks. As part of the HIA, during November 29—December 1, 2010, the GRDHD and state and federal public health officials conducted a community assessment in seven counties. The objectives were to measure the level of awareness by residents of plans for coal gasification plants in the region, to assess perceptions about potential health risks or benefits and to identify preferred communication media.

METHODS (study design and appropriate statistical analysis): We developed a questionnaire focusing on, health risk and awareness of coal gasification plants. Using a two-stage cluster sampling methodology, 30 census block groups were randomly selected in the Green River District and seven households were selected randomly from each cluster to interview. We used handheld computer to collect data and analyzed it with EpiInfo.

RESULTS (specific results in summary form): We collected data for 181 households with 57% of households at least moderately aware of the coal gasification plant projects; 8% were opposed, 35% were in favor and 56% were without enough information or unsure about the plants being built. Thirty-seven percent of the households believe that potential risks of these plants were harming air quality, water quality or both. The most commonly reported benefits were bringing jobs to the region (78%) and supporting Kentucky's coal industry (50%). Fifty-three percent of households perceived that benefits of the plants outweighed the risks, 9% believed risks outweighed benefits, and 38% did not know. Most households received their health and community information from TV (41%) and local newspaper (34%).

CONCLUSIONS (description of the main outcome of the study): Most households were aware of the proposed coal gasification plants but did not have enough knowledge to make an informed decision about the impact of the plants for the community. To increase awareness about health impacts of coal gasification plants in this community, TV and local newspaper can deliver public health messages and other information on the risks and benefits.

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CONTROL ID: 1017501

TITLE: Hoarding and public health: a case report

CURRENT TOPIC: Practical application of health impact assessments

ABSTRACT BODY:

BACKGROUND (study objectives, hypothesis, or a description of the problem): Behavioral health experts have indicated that compulsive hoarding can occur when individuals acquire and fail to discard an excessive number of items. While this condition is not new, recently it has come to the forefront as communities began recognizing it as a disorder that impacts the health, welfare, and safety of the public. Each case of hoarding has a unique set of circumstances.

METHODS (study design and appropriate statistical analysis): Epidemiologists at the Sedgwick County Health Department (SCHD) were asked by the SC Department of Code Enforcement to prepare a public health assessment of a 2.5 acre property, owned by the same individual, for 15 years. The purpose of this assessment was to determine the public health risk to the community from this property.

RESULTS (specific results in summary form): Six primary public health concerns to the surrounding community were identified: (1) risk of vector-borne diseases;(2) risk of toxic inhalation hazards due to burning tires; (3) risk of explosion or possible hazardous waste exposure; (4) fire risk due to flammable materials; (5) multiple physical hazards; (6) unrestricted access to trespassers, nearby residents, children.

CONCLUSIONS (description of the main outcome of the study): Although community members may generally understand that the accumulation of large amounts of “personally collected items” may place neighborhoods at risk due to unsanitary and dangerous conditions, such risks may not be clearly understood or prioritized by residents. Locally, procedures for prevention have only recently been put into place. Because hoarding cases are often complex, an appropriate response is likely to be prolonged, expensive and require strong and well defined inter-agency collaboration.

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CONTROL ID: 1054584

TITLE: Building upon the Poison Center and Public Health Collaborations Community of Practice: Use of data from Poison Centers for hazardous exposure and illness surveillance

CURRENT TOPIC: Other Emerging Environmental Epidemiology Issues

ABSTRACT BODY:

KEY OBJECTIVES: - To provide an overview of activities and accomplishments of the community of practice since the kickoff meeting in June 2010

- To identify other state and local PH officials and regional PCs who are interested in participating in the community of practice
- To facilitate discussion for changes to improve the current community of practice
- To identify future topics of interest for the community of practice presentations and topics for discussion on www.phConnect.com

BRIEF SUMMARY: The Council of State and Territorial Epidemiologists (CSTE) identified the National Poison Data System (NPDS), managed by the American Association of Poison Control Centers (AAPCC) and the CDC Health Studies Branch, as an important national public health (PH) surveillance system. CSTE members are interested in building a community of practice to share experiences, identify best practices, and facilitate relationships among federal, state and local PH departments and regional Poison Centers (PCs). A kick-off roundtable discussion was held at the CSTE Conference in June, 2010 and was attended by approximately 50 participants from federal, state, local public health agencies, AAPCC, and regional PCs.

Due to outstanding attendance and enthusiasm from the CSTE community of practice kick-off discussion, this roundtable discussion aims to build upon the last session by discussing possible changes to improve the current community of practice and to further encourage involvement from PH departments and regional PCs. The accomplishments are listed to date:

- The first webinar was held on August, 2010, and CDC presented “Use of the National Poison Data System for National Public Health Chemical Exposure and Illness Surveillance”. The webinar had approximately 125 participants.
- The second webinar was held on October, 2010, and NYC DHMH presented “Camphor-Related Seizures – A Bronx Tale: One Case Study of NYC’s PCC Surveillance”. The webinar had approximately 85 participants.
- A web-based community of practice forum on www.phConnect.org was established to enable posting of documents and exchange of information across jurisdictions. Currently, over 50 members are enrolled on the community of practice forum.

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CONTROL ID: 1055902
TITLE: 2006 – 2009 Pennsylvania inpatient hospitalizations rates with a primary discharge diagnosis of asthma
CURRENT TOPIC: Other Emerging Environmental Epidemiology Issues
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): Asthma is a chronic and potentially serious respiratory disease that, if not treated, can cause permanent lung damage, disability and even death. According to reports from the Centers for Disease Control and Prevention, every year a hundred thousand hospitalizations due to asthma occur in the USA. Data were reviewed for the years 2006-2009 to assess asthma hospitalization rates and patterns in Pennsylvania's general population.
METHODS (study design and appropriate statistical analysis): Asthma hospitalization data were provided by the Pennsylvania Health Care Cost Containment Council (PHC4). The unit of analysis for this report is asthma as the primary discharge diagnosis, ICD-9 (493.00-493.99). Only Pennsylvania residents who were admitted to hospitals in the Commonwealth are included. Data were analyzed using SAS 9.1.3 and Excel. Rates were age adjusted to the 2000 US standard population using the direct method. Crude rates were calculated per 10,000 Pennsylvania residents.
RESULTS (specific results in summary form): Over the 4-year period, hospitalizations rates for the five age groups were: 0-4 (45.7 per 10,000), 5-14 (18.5), 15-34 (8.2), 35-64 (18.9) and 65+ (28.2). The lowest overall rate of hospitalization occurred in 2007 (18.4) while the highest was in 2009 (19.4). Overall hospitalization rates were consistently higher for females (22.6) than males (14.7); although rates were higher for younger males than females (57.1 per 10,000 vs. 33.7 per 10,000 for age group 0-4), and higher for older females than males (35.4 vs. 17.9 in those aged 65 years and over). Blacks were significantly more likely to be hospitalized for asthma than whites (60.9 vs. 11.7).
CONCLUSIONS (description of the main outcome of the study): The patterns of asthma hospitalization in Pennsylvania suggest that the very young and elderly, females and minorities are more likely to be hospitalized for asthma than the rest of the population. These findings are similar to national patterns. For 2006-2008, overall hospitalization rates in PA are higher than national estimates. Further studies are needed to assess the factors responsible for these demographic differences.
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CONTROL ID: 1059375
TITLE: Carbon monoxide alarm ordinance: Who's aware and who adheres?
CURRENT TOPIC: Other Emerging Environmental Epidemiology Issues
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): Unintentional carbon monoxide (CO) poisoning is a leading cause of poisoning in the United States. Most poisoning cases occur in residential settings and the presence of a working CO alarm may prevent many of these events. The use of a CO alarm is mandated in many parts of the country; however, little is known about the compliance and adoption of such ordinances at the population level. Since 2000, Mecklenburg County, NC (MC) has had an ordinance mandating CO alarms in residences. The objective of this study was to determine the overall prevalence of CO alarms in MC as well as to identify socio-demographic factors associated with having a CO alarm.
METHODS (study design and appropriate statistical analysis): A random sample of households stratified by housing type (e.g., single family house, multi-family homes) was included in a cross-sectional survey. One adult respondent from each household was administered a questionnaire that included information on socio-demographic and household characteristics, presence of a CO alarm, awareness of the CO ordinance, and history of CO exposure in the household. Data were analyzed using univariate statistics and multivariate stratified conditional logistic regression.

RESULTS (specific results in summary form): Among 214 participating households, 145 (67.8%) reported having at least one working CO alarm in their home and 79 (36.9%) respondents reported being aware of the CO ordinance. Awareness of the CO ordinance was not associated with any socio-demographic (e.g., age, sex, race, education, income) or household (e.g., home ownership, year of home construction) characteristics. However, respondents who were aware of the CO ordinance were more than nine times (95% confidence interval [CI] = 3.3, 25.9) more likely to report having a working CO alarm in their home compared to those who were not aware of the ordinance. Also, households with attached garages had more than two times higher odds (95% CI =1.0, 6.2) of having a CO alarm compared to those without attached garages.
CONCLUSIONS (description of the main outcome of the study): The proportion of households in MC reporting having a CO alarm was higher than the reported national average (30%–40%). The ordinance may have played a role in the installation of a CO alarm and participants were more likely to comply if they were aware of the ordinance. There is, however, a continued need for public health education and communication so that awareness reaches a larger segment of the population. Public health efforts can benefit from enacting similar regulations aimed at population-level adoption of preventive health behaviors.
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CONTROL ID: 1059415

TITLE: Recent estimates from the national surveillance framework for unintentional, non-fire related carbon monoxide poisoning

CURRENT TOPIC: Other Emerging Environmental Epidemiology Issues

ABSTRACT BODY:

BACKGROUND (study objectives, hypothesis, or a description of the problem): Unintentional, non-fire related (UNFR) carbon monoxide (CO) poisoning is a leading cause of poisoning in the US. Due to the event frequency, outcome severity, exposure preventability, and effectiveness of simple preventive measures, CO poisoning is a critical issue for public health surveillance. To more comprehensively depict the national burden of CO, the Centers for Disease Control and Prevention (CDC) developed a national surveillance framework for UNFR CO poisoning through the identification and analysis of data from several sources.

METHODS (study design and appropriate statistical analysis): The data sources identified for national estimates of CO-related morbidity and mortality include: National Poison Data System (NPDS), Health Care Utilization Project's Nationwide Inpatient (NIS) and Nationwide Emergency Department (NEDS) Samples, reports from hyperbaric oxygen treatment facilities, and National Vital Statistics System. CDC analyzed data from NPDS, NEDS, NIS, and hyperbaric oxygen facilities. Rates were calculated using US Census Bureau population estimates.

RESULTS (specific results in summary form): From 2000 to 2009, there were 68,316 calls to US poison centers for UNFR CO exposure. The greatest number of calls regarded exposures in children <18 years (18,896 [28%]). Fifty percent (N=34,356) of calls regarded females that were exposed, 44% regarded males (30,257), and gender was not noted for 6%.Two hundred thirty-five deaths were reported.

In 2007, there were an estimated 21,304 emergency department visits (71 visits/million, 95% CI: (69, 72)) and 2,302 hospitalizations (8 stays/million, CI: (6, 9)) for confirmed UNFR poisonings. The highest rate of emergency department visits was among those 18-44 years (87 visits/million, CI: (79, 96)); the highest hospitalization rate was among those ≥85 years (18 stays/million, CI: (9, 27)). Females visited emergency departments more than males; males were more likely to be hospitalized. The estimated overall cost of CO-related hospitalization was >$23 million.

From August 2008-January 2010, 864 patients received hyperbaric oxygen treatment for UNFR CO poisoning. The majority of patients were male (57%), non-Hispanic white (54%), aged 18-64 (71%), with a high school education or less (49%). English was the primary language for 81% of those treated. Forty-one percent of patients were hospitalized after treatment and 55% were discharged.

CONCLUSIONS (description of the main outcome of the study): This analysis of UNFR CO exposures represents the first summary that includes a ten-year period of CO poison center data, the most comprehensive and recent national estimates of emergency department visits and hospitalizations, and the most detailed information on patients treated with hyperbaric oxygen. Findings from this surveillance system are crucial for prevention efforts as the results will contribute to a better understanding of CO poisoning in the US.

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CONTROL ID: 1061500
TITLE: Development and implementation of a national harmful algal bloom exposure and illness surveillance system
CURRENT TOPIC: Other Emerging Environmental Epidemiology Issues
ABSTRACT BODY:
KEY OBJECTIVES: Attendees will be able to (1) describe the hazard posed by harmful algal blooms in marine and freshwater environments;
(2) characterize the key features of HABISS as an environmental public health surveillance system; and (3) list and evaluate various approaches taken by state health agencies to obtain case information about algal bloom and toxin exposure events
BRIEF SUMMARY: The extent of human illness caused by environmental exposure to algal toxins in drinking and recreational waters is unknown. There are no U.S. federal regulations, and no official guidance has been developed by U.S. EPA specifying allowable concentrations of algal toxins in surface waters and drinking water. In response to the need to support public health decisions related to algal bloom exposure, CDC's National Center for Environmental Health has developed the Harmful Algal Bloom-related Illness Surveillance System (HABISS), a unique surveillance system that includes the collection of data on both human and animal health events related to algal bloom and toxin exposure, as well as environmental data about harmful algal blooms. To support data collection, NCEH has established cooperative agreements with participating state health agencies; these agreements have furthered efforts to identify water bodies associated with particularly acute HAB hazards and have helped provide data to anchor outreach, prevention and control efforts. Since data collection began in 2009, over 200 reports of human illnesses, 80 reports of animal illnesses, and summaries of several hundred HABs have been added. Technical assistance has been provided to non-participating states to utilize this resource to respond to HAB-related events, and several states have developed comprehensive HAB response and outreach plans.

The development and implementation of HABISS has provided a new national surveillance infrastructure for algal bloom surveillance. This infrastructure has led to increased data quality and quantity within state agencies, and has led to highly-coordinated interagency response activities in participating states. As data continue to be collected, analyzed and disseminated, it is hoped and expected that new insights into factors governing the occurrence, severity and control of harmful algal blooms will be identified.

A roundtable discussion of HABISS and tools for response activities will allow attendees to gain information about resources that state public health partners will need to respond quickly and efficiently if and when a HAB occurs. The discussion will include HAB experience and response plans from current grantees and others states, and CDC's development of easily accessible information and tools to utilize in HAB-related events.
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CONTROL ID: 1062163
TITLE: Two Vermont scenarios of drinking water contamination from pentachlorophenol-treated utility poles
CURRENT TOPIC: Other Emerging Environmental Epidemiology Issues
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): Pentachlorophenol (PCP) is an organochlorine wood preservative commonly used to treat utility poles in the United States. In 2009, the Vermont Department of Health (VDH) received two unrelated phone calls from residents who were concerned about an odor in their private drinking water. Utility poles had recently been replaced at both properties in close proximity to shallow onsite water sources. VDH advised residents not to use their water for drinking or bathing. In both instances, laboratory tests confirmed the presence of PCP in the drinking water sources.

The objectives of this report are to describe the details of how PCP-treated poles may have contaminated the two private drinking water sources, and to raise awareness of this possible exposure and potential health effects.
METHODS (study design and appropriate statistical analysis): Interviews were conducted with state agency staff involved in managing the two scenarios. Records and literature were reviewed.
RESULTS (specific results in summary form): PCP is water-soluble and can migrate from treated poles to drinking water sources under certain environmental conditions. In both instances described, PCP migrated from treated utility poles into the private drinking water sources. Initial samples of the residents' tap water had 2,060 parts per billion (ppb) and 6 ppb PCP respectively. The current EPA Maximum Contaminant Limit (MCL) for PCP in drinking water is 1 ppb. A coordinated state agency response identified regulatory limitations.
CONCLUSIONS (description of the main outcome of the study): With increasing development and focus on service reliability, utility poles in Vermont are being relocated from relatively uninhabited areas to road rights-of-way, which are closer to homes and private drinking water sources. This could result in increasing exposure to PCP. The toxicity of PCP has been extensively studied, and a multitude of acute and chronic health effects of PCP have been observed. Health professionals should be aware of treated poles as a possible source of PCP exposure. Vermont agencies will continue to work together to address regulatory limitations to protect the population of Vermont.
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CONTROL ID: 1062440
TITLE: Groundwater contamination susceptibility, livestock density, and gastrointestinal illness in Wisconsin

CURRENT TOPIC: Other Emerging Environmental Epidemiology Issues
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): Gastrointestinal (GI) illness can be a significant public health burden, particularly for children and the elderly. One route of transmission for pathogens that cause GI illness is drinking water, particularly groundwater contaminated with pathogens of fecal origin. Certain geologic features may make groundwater more susceptible to contamination, and those living close to such features, particularly in areas with high livestock density, may have increased risk for endemic and epidemic GI illness. Climate change models predict increases in heavy rain events with resulting runoff, ground saturation and flooding that may also increase groundwater contamination. This study is one component in a climate change public health impact cooperative agreement examining whether groundwater susceptibility and livestock density are risk factors for GI illness in Wisconsin.
METHODS (study design and appropriate statistical analysis): The Wisconsin Department of Natural Resources and Wisconsin Geological and Natural History Survey has developed a Groundwater Contamination Susceptibility (GCS) model based on various geologic features, resulting in small-area polygons with susceptibility scores. These scores are matched to address-level and zip code-level GI illness data from reportable disease records and statewide hospitalization and emergency department records. Exact case definitions are dependent on the data source, but focus on giardiasis, cryptosporidiosis, and ICD-9 codes 001-009.3, 558.9, and 787.91. Cattle and hog densities are derived from the 2007 U.S. Census of Agriculture.

Exposure risk estimation is done at the address and zip code-levels with the merging of health data and respective GCS values for each case, as well as corresponding livestock density values. The data are analyzed with a Poisson regression model including the use of geographic centroids for GCS polygons, zip codes, and counties to address spatial autocorrelation.
RESULTS (specific results in summary form): A challenge in conducting this study is the differing levels of geographic resolution of the data. Environmental data are available at a sub-zip code level and a county level, whereas health data are available at an address level and zip code level. Detailed analysis and model fitting is ongoing and results are forthcoming.
CONCLUSIONS (description of the main outcome of the study): Heavy precipitation events that are predicted in climate change models are likely to impact the types of contaminants that penetrate into groundwater, particularly in geographic areas where environmental factors increase contamination vulnerability. Geologic characteristics and livestock density are two possible variables that increase risk. The results of this study can be applied as one component of a vulnerability assessment to help identify areas likely to be most affected by climate change factors such as extreme precipitation events.
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CONTROL ID: 1053996
TITLE: Unregulated Drinking Water Initiative for Environmental Surveillance and Public Health (UDWI)
CURRENT TOPIC: Other Emerging Environmental Epidemiology Issues
ABSTRACT BODY:
KEY OBJECTIVES: The key objectives for this roundtable discussion are to: 1). Allow states currently funded through the UDWI to share progress and lessons learned through their activities to locate, describe, and access data on unregulated drinking water systems (UDWS) in their state and 2). Engage states who are interested in determining how they can best participate in and benefit from the UDWI.
BRIEF SUMMARY: A significant percentage (13 percent) of the US population relies on drinking water sources (primarily private wells) not regulated by the U.S. Environmental Protection Agency's Safe Drinking Water Act. We know relatively little comprehensively about the characteristics of these drinking water sources and the related potential public health issues that may require attention and resources. The National Center for Environmental Health, Centers for Disease Control and Prevention has created the UDWI to address this deficiency. Activities supported by the UDWI include using information to assess the current states of non-federally regulated drinking water sources, sharing information among public health practitioners, and identifying potential courses of action to address public health concerns and to ensure the safety of these water systems.

While relatively little is currently known about private wells collectively, there is some information about the quality of the groundwater that serves these wells. State environmental management and resource agencies (DEPs, DNRs, etc) and the USGS have documented general groundwater quality throughout much of the nation. Uncertainty in potential hazards and pollutants comes from differences in well construction, land uses, and localized geologic conditions. Characterization of many of these hazards has been done and will be utilized to the extent feasible in the evolution of this UDWI.
Public health practitioners recognize that addressing health concerns in private wells is a fundamentally different activity from dealing with public water systems (given coverage under the Safe Drinking Water Act for these latter wells). The UDWI requires that public health practitioners begin to develop detailed information, consider behavioral and social strategies in distributing information and raising awareness, and institutional approaches to foster action.
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CONTROL ID: 1054767
TITLE: Reportable Diseases Imported to Florida from Haiti Following the 2010 Earthquake
CURRENT TOPIC: Natural disasters: surveillance and monitoring
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): On 1/12/10 an earthquake struck near the Haitian capital of Port-au-Prince, creating enormous devastation. Florida's close proximity to Haiti resulted in >22,000 people entering Florida from Haiti as part of federal repatriation and humanitarian parolee efforts. Travel between Florida and Haiti is common and reportable diseases introduced by travelers returning from Haiti are identified every year. Due to the anticipated large influx of persons into Florida from Haiti post-earthquake, Florida enhanced surveillance efforts.
METHODS (study design and appropriate statistical analysis): Merlin, a statewide, web-based surveillance system used to routinely capture reportable disease data for Florida residents, was used to document cases of reportable diseases in people coming to Florida who were in Haiti at the time of or after the earthquake. Cases were documented in both Florida residents and non-residents. A user-driven, flexible module within Merlin allows users to create survey questions that are immediately accessible to all other users. This module was used to capture data on Haiti travel, medical condition upon entry into the U.S., and citizenship. The distribution of reportable diseases acquired in Haiti during the post-earthquake period (1/12/10-3/12/10) was compared to a 2009 reference period (1/12/09-3/12/09).
RESULTS (specific results in summary form): Only 20 reportable disease cases imported from Haiti were recorded during the 2009 reference period, with malaria accounting for 15 (75%) and giardiasis two (10%). During the post-earthquake period, 51 cases were recorded; lead poisoning accounting for 21 (41%) cases and malaria 15 (29%). An additional 31 cases in non-Florida residents were recorded during the post-earthquake period, with malaria contributing 13 (42%) and lead poisoning 6 (19%).

Survey data was collected for 64 cases. Upon arrival, 38% of the people with reportable diseases needed acute medical care; of those, 64% required care for their suspected infectious illness, 18% for trauma/injury, 9% for dehydration/malnutrition, and 10% for other reasons.

Malaria cases continued to be imported throughout 2010, with >60 imported cases in Florida residents and non-residents.
CONCLUSIONS (description of the main outcome of the study): Having a dynamic statewide reportable disease system allowed Florida to capture cases of disease imported from Haiti in both Florida residents and non-residents, and provided an efficient way to gather additional data on those cases, which could be used for important public health messaging. The influx of people arriving from Haiti resulted in a substantial increase in reportable diseases. A significant minority of cases were detected in people who sought care for other reasons. This type of information may be useful in response planning for similar events in the future.
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CONTROL ID: 1054691
TITLE: American Red Cross disaster-related mortality surveillance system during Hurricane Ike — Texas, 2008
CURRENT TOPIC: Natural disasters: surveillance and monitoring
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): Disaster-related mortality is preventable by understanding the common circumstances that cause deaths during a disaster. Although frequency of disaster-related deaths is recorded, circumstances surrounding deaths rarely are. American Red Cross, with CDC collaboration, conducts disaster-related mortality surveillance in all states. Texas' Department of State Health Services (DSHS) also conducts active disaster-related mortality surveillance. During Hurricane Ike, both systems were activated. We compared results from the systems to assess quality, validity, and representativeness of data collected in the Red Cross system.
METHODS (study design and appropriate statistical analysis): We interviewed Red Cross and CDC staff responsible for the system and additional stakeholders. We compared Ike-related data captured by Red Cross with DSHS data, using DSHS as the gold standard. To assess data quality, we calculated proportion of deaths with complete data for key variables (e.g. cause and circumstances of death), and percentage concordance between data in the Red Cross and DSHS systems. To assess validity, we calculated sensitivity and positive predictive value (PPV) of Red Cross data. To assess representativeness, we compared geographic distribution of deaths captured by both systems.
RESULTS (specific results in summary form): During Hurricane Ike risk period (September 11–October 6, 2008), Red Cross captured 38 deaths, whereas DSHS identified 74 deaths (sensitivity: 47%; PPV: 92%). Variable completeness in the Red Cross system ranged from 61% to 87%, and we observed 83– 97% concordance for key variables. Red Cross missed 39 deaths that the DSHS system identified. Of 16 counties where deaths occurred, Red Cross missed deaths in 8.
CONCLUSIONS (description of the main outcome of the study): We recommend establishing written guidelines to improve quality and representativeness of Red Cross data. Because Red Cross provides valuable information on disaster-related mortality, improvements to their surveillance system will benefit all stakeholders; moreover, the data can be used to prevent future deaths.
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CONTROL ID: 1047255
TITLE: Evaluation: Vermont Adult Blood Lead Epidemiology and Surveillance (ABLES) Program
CURRENT TOPIC: Local/Regional Environmental Epidemiology
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): The ABLES Program involves state-based surveillance of laboratory-reported adult blood lead levels. The Vermont ABLES Program began surveillance in January 2007. Elevated blood lead levels (BLLs) can cause adverse acute and chronic health effects, including neurologic, gastrointestinal, renal, cardiovascular and reproductive effects. The program objective is to build state capacity to initiate, expand, or improve adult blood lead surveillance in order to accurately measure trends in adult BLLs and effectively intervene to prevent lead over-exposures. The main aims of this evaluation are to identify strengths and limitations of the Vermont ABLES program and to recommend potential improvements.
METHODS (study design and appropriate statistical analysis): Evaluation followed the CDC 2001 Updated Guidelines for Evaluating Public Health Surveillance Systems, including analysis of descriptive statistics.
RESULTS (specific results in summary form): The 2009 prevalence rate of elevated adult BLLs (≥25µg/dL) in Vermont was 9.47 per 100,000, which is slightly higher than the CDC's most recently published national average rate of 7.4 per 100,000 for 2007. Main strengths of the ABLES program include providing referrals to the Occupational Safety and Health Administration (OSHA) for consultation and enforcement, and a custom Microsoft Access database. Main limitations identified are: potential under-detection of Vermonters who are over-exposed to lead but have no symptoms, are self-employed, or are exposed through hobbies; and inadequate funding and resources to develop and disseminate educational materials and outreach, investigate exposure sites, and provide technical assistance and long-term case follow-up with affected Vermonters, their physicians, and employers.
CONCLUSIONS (description of the main outcome of the study): The VT ABLES program can improve detection and case management through education and outreach to the general public, cases, physicians and employers.
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CONTROL ID: 1060451
TITLE: Mental health needs assessment after the Gulf Coast oil spill — Alabama and Mississippi, 2010
CURRENT TOPIC: Lessons learned in epidemiology response to the Gulf coast oil spill and other Gulf-related environmental health issues
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): On April 20, 2010, the Deepwater Horizon drilling unit exploded 40 miles 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).
METHODS (study design and appropriate statistical analysis): We used a two-stage cluster sampling method to select a representative sample of 210 households from three separate sampling frames, two in Alabama and one in Mississippi. We administered a questionnaire that included questions about exposure; physical and behavioral symptoms; and 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.
RESULTS (specific results in summary form): Among the sampling frames, 15.4–24.5% of individuals reported depressive symptoms, with 21.4–31.5% reporting symptoms consistent with an anxiety disorder, and 16.3–22.8% reporting 14 or more mentally unhealthy days in the past 30 days. Overall, a higher proportion of negative quality of life indicators and social context outcomes were reported as compared to BRFSS surveys. Between 32.1 and 35.7% of all households reported decreased income since the oil spill, and 35.5 to 38.2% of all households reported being exposed to oil.
CONCLUSIONS (description of the main outcome of the study): The increased prevalence of negative quality of life indicators, depressive and anxiety symptoms, suggest that the public heath response should include mental health intervention. This illustrates a novel use of CASPER methodology.
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CONTROL ID: 1062553

TITLE: Alabama Department of Public Health's surveillance for public health effects following the 2010 Gulf Oil Spill

CURRENT TOPIC: Lessons learned in epidemiology response to the Gulf coast oil spill and other Gulf-related environmental health issues

ABSTRACT BODY:

BACKGROUND (study objectives, hypothesis, or a description of the problem): On April 20, 2010, the Deepwater Horizon rig exploded in the Gulf of Mexico, releasing oil and chemicals of public health concern off the shores of Texas, Louisiana, Mississippi, Alabama, and Florida. The Alabama Department of Public Health (ADPH) utilized several mechanisms during the five months of surveillance for monitoring direct and indirect health effects, as well as impact on the local healthcare system due to increase in patient volume: drop-in surveillance at emergency departments, urgent care facilities, and community health centers; worker safety incidents reports; reports of Poison Control Center calls; review of ambulance run data logs; and anomaly reports from BioSense. This report will focus on ADPH's efforts from the drop-in surveillance and what we learned.

METHODS (study design and appropriate statistical analysis): On May 14, ADPH implemented a drop-in surveillance system in two coastal areas, Baldwin and Mobile Counties, in order to detect healthcare visits attributed to affects from the oil spill. Twenty-five ambulatory care providers volunteered to provide daily reports to ADPH May 14 through October 1, 2010. A line list form was provided to the facilities to record total number of patients seen each day and details about patients reporting symptoms due to known or suspected exposure: type of exposure, age, resident status, worker status, and symptoms reported/exhibited.

RESULTS (specific results in summary form): In the 1,726 reports received from the 25 participating facilities, 285 of 104,168 patients (0.27%) reported health effects due to known or suspected, direct or indirect exposure. Among the patients with reported exposure (PWRE), indirect was the most common single route reported (61.4%), followed by inhalation (20.0%), contact (13.7%), and ingestion (1.8%). Multiple routes were reported by 3.2% of the patients. Most PWRE were in the 25-49 year old age group (47.7%), followed by 5-24 yrs (22.5%) and 50-64 yrs (19.3%). Respiratory symptoms were the most prominent (44.6%). Other reported symptoms included skin irritations, nausea/vomiting, headaches, mental health conditions, and cardiac issues.

No burden on the healthcare system was detected.

CONCLUSIONS (description of the main outcome of the study): ADPH's drop-in surveillance system successfully monitored the health effects reported at the community-level in the Gulf Coast areas and surge on the healthcare system. Although not comprehensive, the information received from the participating facilities provided adequate insight into the effects on the community.

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CONTROL ID: 1059077
TITLE: Surveillance of acute health effects among the general population during the Deepwater Horizon oil spill
CURRENT TOPIC: Lessons learned in epidemiology response to the Gulf coast oil spill and other Gulf-related environmental health issues
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): On April 20, 2010, an explosion of the Deepwater Horizon oil rig in the Gulf of Mexico caused the largest marine petroleum release in history and raised concerns about potential human health effects among those residing in the impacted coastal regions. In response to the public health concerns, public health officials from CDC's Division of Environmental Hazards and Health Effects collaborated with four Gulf Coast state partners to track acute health effects potentially associated with environmental exposures to the oil spill among the general population.
METHODS (study design and appropriate statistical analysis): National and state-based surveillance systems were used to track symptoms and complaints potentially related to oil, dispersants, or contaminated seafood through inhalation, dermal contact, or ingestion. These health effects included worsening of asthma, cough, chest pain, headache, and nausea. The National Poison Data System (NPDS) was used to track health effects of oil-spill related calls received by all US poison centers (PCs), including the seven PCs in 4 affected Gulf Coast states. BioSense, a national program that conducts electronic surveillance of health information, tracked more than 80 specific syndromes (groupings of signs and symptoms) such as rash from the 86 federal healthcare facilities in five Gulf States, including Texas. State-based surveillance systems were created or modified to assist health departments in detecting possible oil-spill related health impacts on communities. The individual surveillance systems used data collected from emergency departments, urgent care facilities, and PCs.
RESULTS (specific results in summary form): This collaborative effort permitted the timely sharing of data between CDC and Gulf Coast state partners. CDC summarized and shared weekly reports with Alabama, Florida, Louisiana, Mississippi, and Texas which included data from national and state-based surveillance activities. From these data, it was observed that headache and nausea were the most common reported symptoms, but other clusters of symptoms such as rash were also identified. Using these data, state health officials were able to identify groups of people with symptoms and investigate as needed to determine whether these symptoms were associated with the oil spill.
CONCLUSIONS (description of the main outcome of the study): Partnerships with state public health authorities and PCs allowed CDC to rapidly develop a flexible and expandable approach to monitor oil spill-related health effects among the general population immediately following the Deepwater Horizon explosion. These coordinated efforts were beneficial to emergency response activities and allowed CDC and the state health departments to respond promptly to specific requests that arose from the public, media, and senior government officials.
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CONTROL ID: 1060521

TITLE: Using data to inform public health interventions and messages: drinking water quality and private well testing in Wisconsin

CURRENT TOPIC: Environmental Public Health Tracking

ABSTRACT BODY:

BACKGROUND (study objectives, hypothesis, or a description of the problem): In Wisconsin, approximately 30% of the population gets water from private wells and the majority of them drink plain tap water. Despite potential risks to public health, very little objective data are available to practitioners in local health departments (LHDs) to identify risks of exposure to contaminants in these wells. Local health partners have consistently indicated a need for more complete and detailed data related to private well drinking water quality. The overall objective for this project was to better define the data needs of our LHDs, inventory the data sources throughout the state, and assess the potential for partnering with multiple data stewards to fill data gaps.

METHODS (study design and appropriate statistical analysis): Wisconsin Environmental Public Health Tracking staff and a trained facilitator conducted two full day workshops in the spring of 2010 with attendees that included local public health practitioners from across the state and representatives from a number of agencies with private well water testing data, including the Department of Agriculture, Trade, and Consumer Protection (DATCP); the State Laboratory of Hygiene; and a private laboratory representative. The first workshop included structured, interactive exercises to identify the types of data local health personnel would like, and gather examples for how those data could be utilized. The second workshop further delineated the types of datasets that would be useful and the potential for data stewards to collaborate and deliver such a dataset.

RESULTS (specific results in summary form): During the workshops, participants agreed that data would be used in activities aimed at: educating the public about drinking water quality issues, increasing the number of people that test their wells, and identifying specific contaminants as priorities for certain geographic areas. The collaborative spirit of all participants was evident and it was agreed that a pilot project was needed. As a result, representatives from DATCP and the Central Wisconsin Groundwater Center agreed to pilot test the feasibility of integrating their respective datasets and making those data available to public health partners via an innovative mapping tool.

CONCLUSIONS (description of the main outcome of the study): LHDs are very interested in a comprehensive private well drinking water quality database. They have several concrete ways to use the data for surveillance, public health education, and other outreach activities. Statewide workshops designed to convene diverse stakeholders including both data users and data stewards proved to be an effective way to identify and define data needs, as well as generate the momentum necessary to pilot test dataset integration.

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CONTROL ID: 1061489

TITLE: Building Environmental Public Health Tracking Capacity in Non-Grantee States: ASTHO's State-to-State Peer Fellowship Program

CURRENT TOPIC: Environmental Public Health Tracking

ABSTRACT BODY:

BACKGROUND (study objectives, hypothesis, or a description of the problem): The Association of State and Territorial Health Officials (ASTHO) has partnered with CDC's National Environmental Public Health Tracking (EPHT) Network since 2002 and has played an important role in guiding its development. The Network is a web-based, surveillance system that involves the ongoing collection, integration, analysis, interpretation and dissemination of data on environmental hazards, exposure to those hazards, and related health effects. Since its official launch in 2009, the Network has proven invaluable in advancing environmental epidemiological capacity and continues to evolve considerably. Recently, CDC has added seven additional states to the Network and now provides funding to 23 states and one city to build and maintain state-wide networks as components of Network. To aid in this progress and to help bridge the gap between grantees and non-grantee tracking states and territories, ASTHO launched its Environmental Public Health Tracking: State-to–State Peer Fellowship Program in 2009. ASTHO's Tracking Fellowship Program has since helped build capacity of non-grantee states and territories by providing principal investigators with opportunities to gain first-hand tracking experience from peers in funded states and develop a small project that would advance EPHT. ASTHO's Fellowship Program has supported a total of 13 Tracking Fellows. In the application year 2009, ASTHO awarded three fellowships to principal investigators from Louisiana, Michigan, and District of Columbia state health departments. In 2010, investigators from Delaware, Georgia, North Carolina, Kentucky, and West Virginia state health departments were awarded fellowships, and in its third installment of the fellowship program, ASTHO awarded fellowships to Virginia, Ohio, Arizona, Indiana, and Cincinnati. This presentation will highlight environmental epidemiology/data collection projects that former Tracking Fellows have piloted through the program in topic areas, such as 1) climate indicators and harmful algal events, 2) ambient air pollutants and chronic respiratory disease outcomes, and 3) residential blood mercury levels and its relation with fish consumption. The presentation will also report on the benefit and utility of EPHT and opportunities that ASTHO's Tracking Fellowship Program offers on an annual basis.

METHODS (study design and appropriate statistical analysis): Environmental public health tracking or the linking of environmental hazards with human health data involves a multi-disciplinary collaboration among local, state, and federal agencies and the ongoing collection, integration, analyses, interpretation, and dissemination of environmental hazards and exposure data.

RESULTS (specific results in summary form): Establishing an EPHT network at the state and national levels will enable public health professionals to examine the link between exposures and health outcomes, rapidly detect emerging environmental public health threats, and develop, implement, and evaluate the efficacy of control strategies or targeted outreach efforts, for environmental concerns most relevant to their specific populations.

CONCLUSIONS (description of the main outcome of the study): Information from the EPHT Network has afforded many tracking states with the capacity to effectively plan, apply, and evaluate public health actions to prevent and control environmentally related diseases and has proven to be invaluable in advancing environmental epidemiological capacity. For states currently not funded by CDC to engage in tracking activities, the State-to-State Peer Fellowship Program offers non-grantee states opportunities for mentorship and lasting support to aid in their pioneering efforts.

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CONTROL ID: 1062099
TITLE: Fish Consumption and hair mercury levels in women of childbearing age, Martin County, Florida
CURRENT TOPIC: Environmental Public Health Tracking
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): Consumption of fish with elevated mercury levels is associated with mercury poisoning. This study sought to understand the demographic and fish-consumption patterns of women of childbearing age in Martin County, Florida, determine mercury levels in participants' hair and explore associations through survey responses.
METHODS (study design and appropriate statistical analysis): Mercury concentrations in hair samples of 408 volunteer women (age 18-50 y) from Martin County, Florida were assessed. Information on demographic factors, fish consumption patterns, and awareness of fish advisories were collected during personal interviews. Data were analyzed using descriptive statistics and multivariate logistic regression analysis (Proc freq, Proc logistic, SAS V 9.2). For logistic regression, mercury concentration was dichotomized based on the median value of 0.468 µ/ g.
RESULTS (specific results in summary form): The majority of respondents were non-Hispanic (87%) and of White/ Caucasian race (85%). Only 3% had less than a high school education, 56% were college graduates or had some post-college education. More than 70% of respondents had an annual income > $35,000. The median and geometric mean mercury concentrations were 0.468 (0.0113 – 4.6200) and 0.403 µg/ g, respectively. 25% of the respondents had a concentration ≥ 1 µg/ g (EPA Reference Dose Level).

Fish consumption was reported by 91% of respondents and 72% of respondents were aware of the need to limit fish consumption. However, only 42% were aware of local fish advisories. 44% reported consuming fish high in mercury in the last 60 days; 32% reported consuming locally-caught fish high in mercury. Tuna and Grouper were the most widely consumed fish types.

For every unit increase in total fish consumption per month, the likelihood of higher hair mercury level (above the median) increased (P<0.05) by 3%. Those who did not eat fish high in mercury were 18% less likely (P<0.05) to have higher hair mercury concentrations. Blacks were 85% less likely (P<0.05) to have higher mercury concentration than Whites. Women with incomes < $ 25,000 and incomes between 25,000-34,999 were 74 and 63% less likely to have higher mercury concentrations respectively than those with income ≥ 75000 (P<0.05 for both).
CONCLUSIONS (description of the main outcome of the study): Levels of mercury found in hair samples in this study were generally lower than the EPA reference dose level, but higher than levels reported previously in other Florida counties or by NHANES at the national level. Women of higher income were aware of the need to limit fish consumption but uncertain about specific species, indicating the need for education on local fish advisories.
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CONTROL ID: 1062173

TITLE: Tracking's approach to addressing gaps in data, methods, and tools for integrating environmental and health data to drive public health action

CURRENT TOPIC: Environmental Public Health Tracking

ABSTRACT BODY:

BACKGROUND (study objectives, hypothesis, or a description of the problem): The Centers for Disease Control and Prevention (CDC) National Environmental Public Health Tracking Program strives to provide information communities can use to improve their health. Early state and local pilot projects in environmental public health tracking laid the groundwork for the Tracking Network and identified critical data, methods, and analysis needs of environmental public health practitioners. To address these needs, CDC has taken a multipronged approach; engaging partners across disciplines, leveraging resources and expertise, and fostering collaboration and capacity building.

METHODS (study design and appropriate statistical analysis): CDC has focused on filling gaps in environmental monitoring data through partnerships with EPA, NASA, NOAA, and USGS and the use of modeling and non-traditional data such as satellite observations. Analytic tools to examine temporal and geospatial relationships between health and environmental hazards have been developed in collaboration with state and academic partners. Current academic partners will continue development of methods and tools that can be applied at the national, state, and local levels to link health and environmental data and better characterize population exposure. CDC is also working to help health departments and communities quantify how efforts to reduce air pollution can impact health.

RESULTS (specific results in summary form): Collaborations with federal partners have provided useful estimates of drinking water contamination and modeled ozone and PM2.5 concentrations for counties without monitors for use on the National Public Portal and in academic research projects. Modeled air data are also being used in health impact assessments. Remote sensing data has been used to fill gaps in air monitoring data for a project linking PM 2.5 and asthma related emergency department visits and to identify heat events in a climate change module. The Rapid Inquiry Facility (RIF), which can be used to calculate rates and risk, has been enhanced through collaborations with the Imperial College of London. It has been used by states to examine trends in cancer and birth defects and by CDC to evaluate childhood lead poisoning. Current projects include efforts to develop methods for local ambient air quality health impact assessment and for linking drinking water and birth outcome data and linking PM2.5 and cardiovascular outcome data.

CONCLUSIONS (description of the main outcome of the study): Engaging partners with various expertises has expanded capacity, fostered an extended community of practice, and advanced development of tools and 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 the understanding of the relationship between environmental factors and disease.

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CONTROL ID: 1062355
TITLE: Estimating the Mortality Burden Attributable to Fine Particulate Air Pollution in New York City
CURRENT TOPIC: Environmental Public Health Tracking
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): Fine particulate matter (PM2.5) is an important combustion related pollutant that contributes to increased morbidity and premature mortality. The very old and young and those with chronic cardiopulmonary conditions are most susceptible to PM2.5 effects. Quantifying the burden from different public health problems can be useful in engaging public officials and community stakeholders and establishing local policy. We used evidence from published studies with local data on air quality and mortality rates to estimate the number of deaths attributable to current ambient PM2.5 exposure in New York City overall and the distribution of PM2.5-attributable mortality by neighborhood and by age.
METHODS (study design and appropriate statistical analysis): Our base-case analysis used a relative risk function derived from a published 2009 analysis of the American Cancer Society cohort, New York City metro area routine PM2.5 monitoring data from 2005-2007, and EPA modeled estimates of natural background PM2.5 concentrations to estimate the proportion of deaths attributable to current PM2.5 levels compared to natural background. These attributable fractions were applied to mortality rates and population estimates by age and by each of 42 zip-code based New York City neighborhoods. Sensitivity analyses were conducted to assess the influence of choice of epidemiological study and background scenario. The US EPA's Benefits Mapping and Analysis Program (BenMAP), developed to support national ambient air quality standards, was used to implement the analysis and track all assumptions behind our estimates.
RESULTS (specific results in summary form): We estimate that more than 3000 deaths annually are attributable to current PM2.5 levels in New York City, or about 6% of total mortality. The estimated rates of PM2.5-attributable deaths vary more than two-fold across neighborhoods and are highest in neighborhoods with the greatest concentration of poverty. The majority of PM2.5-attributable deaths occur in persons greater than 70 years of age. As expected, estimates were sensitive to choice of epidemiological study and background scenario. Because the American Cancer Society cohort under-represents more vulnerable low income populations, our estimate may be conservative.
CONCLUSIONS (description of the main outcome of the study): Overall, PM2.5 is an important cause of premature death in New York City and the burden is unevenly distributed throughout the city, disproportionally impacting high poverty neighborhoods and elderly populations. While achieving natural background PM2.5 concentrations is not feasible, even modest improvements can have large public health benefits.
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CONTROL ID: 1062428
TITLE: Utilizing an existing state public health data warehouse to build an Environmental Public Health Tracking Network
CURRENT TOPIC: Environmental Public Health Tracking
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): In December 2007, the Iowa Public Health Standards, the state criteria for public health accreditation, outlined the need for the development of a statewide public health data warehouse. Since the publication of the Iowa Public Health Standards, the Iowa Department of Public Health (IDPH) has been working to build a public health data warehouse. The data warehouse shall organize and store data from a variety of datasets with health outcomes and allow for data dissemination via a Web-based application.

In August 2010, IDPH was awarded funding from the Centers for Disease Control to develop an Environmental Public Health Tracking (Tracking) Network. The Tracking Network is a collection of national, state, and local web-based portals that provide access to data about environmental hazards, exposures, and health outcomes. The mission and goals of the Tracking Network align closely with the Iowa public health data warehouse project.
METHODS (study design and appropriate statistical analysis): To plan for the integration and implementation of the Tracking Network at IDPH, the authors conducted a SWOT (Strengths, Weaknesses, Opportunities and Threats) analysis of utilizing the existing public health data warehouse at IDPH to build the Tracking Network.
RESULTS (specific results in summary form): The outcomes of the SWOT analysis identified several strengths and opportunities for using the data warehouse to build the Tracking Network and minimal weaknesses and threats. Strengths include increased efficiency and consolidation of resources while weaknesses identified include potential differing of goals of the final product. Opportunities include having environmental and health data in one location, and being able to have a comprehensive and expandable final product. Threats identified include assuring consistent and sustainable funding over three different divisions within the department. A visual representation of the SWOT analysis and the organizational structure of the Iowa Tracking Network will be presented at the CSTE conference.
CONCLUSIONS (description of the main outcome of the study): The SWOT analysis allowed for strategic planning for the Iowa Tracking Network, and it shows that integrating the Iowa Tracking network into the existing data warehouse would be the most effective way to meet both the requirements of the Tracking Program and the needs identified in the Iowa Public Health Standards.
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CONTROL ID: 1062498

TITLE: Sport-caught Fish Consumption Patterns of South Carolina Women in Regions at-risk for Methyl Mercury Contamination

CURRENT TOPIC: Environmental Public Health Tracking

ABSTRACT BODY:

BACKGROUND (study objectives, hypothesis, or a description of the problem): Methylmercury is a toxic contaminant that bioaccumulates within the aquatic food chain. Older and larger fish can accumulate enough mercury to cause health problems among those who routinely consume contaminated fish. Within the coastal plain, the ecosystem is exceptionally efficient at methylating mercury deposited after atmospheric release. Most of the mercury deposited in South Carolina originates from coal combustion outside of the state and not local spills or releases. Because of the potential health risks to the developing fetus, state public health authorities have advised women who are pregnant or plan to soon become pregnant to avoid eating all fish from most water bodies within the Coastal Plain region.

METHODS (study design and appropriate statistical analysis): Two cross sectional telephone surveys were used to assess consumption patterns of local sport-caught fish. In 2008 a pilot survey was conducted in the coastal plain community of Walterboro, SC. In 2010, fish consumption questions were added to the routinely collected state-wide Behavioral Risk Factors Surveillance System (BRFSS) questionnaire. For this study, resulting data from these two surveys was subset for women of child bearing age (18 to 44). Herein we report findings for 301 women from our pilot survey and third quarter preliminary findings for 554 women residing in the coastal plain from the 2010 SC BRFSS survey.

RESULTS (specific results in summary form): Locally caught fish consumption recommendations for pregnant or breastfeeding women was zero fish meals per month. Women from Walterboro ate 1.9 fish meals per month. Women across the coastal plain region ate 0.55 fish meals per month. There were differences in fish meals consumed per month by race with black women consuming more fish in the inland coastal plains and lower Edisto/Savannah region while white women consumed more fish in the greater Myrtle Beach/Georgetown/Charleston areas. Women of higher socioeconomic status (education level or income) ate both more fish meals per month and more of the fish species which were more likely to be contaminated. Women of the lowest socioeconomic status ate more fish meals per month than middle-status women, but more often of the less likely contaminated fish species.

CONCLUSIONS (description of the main outcome of the study): While fish consumption by women of child-bearing age was relatively low within the South Carolina Coastal Plain our results suggest that some women are consuming wild caught freshwater fish from regions where fish tissue mercury levels are high. State public health officials will continue to refine and focus its fish consumption messages for the populations needing them most.

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CONTROL ID: 1051532

TITLE: BRFSS methodology used to evaluate EPHT outcome measures and health care access disparities in Spanish-only Speakers Living in Baltimore City or Baltimore County

CURRENT TOPIC: Environmental Public Health Tracking

ABSTRACT BODY:

BACKGROUND (study objectives, hypothesis, or a description of the problem): The Environmental Public Health Tracking (EPHT) initiative is currently utilizing retrospectively obtained measures for a variety of environmental hazards and chronic diseases or other health outcomes. EPHT data can be used to document how environmental hazards are associated with different health outcomes in populations. Based on Maryland Tracking Network (MTN) public portal data, http://eh.dhmh.md.gov/tracking/, between 2000 and 2006 for asthma, acute Myocardial Infarction, births and deaths, the average increase was 125.3% for Hispanics and 0.8% for non-Hispanics. The Behavioral Risk Factor Surveillance System (BRFSS) is another source of EPHT-relevant information as well as information about barriers to health care access. The BRFSS is administered by telephone each year in all of the states in the USA. The BRFSS questionnaire is administered in English, Spanish and many other languages. This poster will describe how the BRFSS instrument and methodology are now being used to evaluate EPHT-like measures and barriers to health care access in Spanish-only speakers who live in Baltimore City or Baltimore County.

METHODS (study design and appropriate statistical analysis): The Environmental Health Spanish Survey (EHSS) includes 33 BRFSS questions and seven BRFSS-formatted items written by the authors in English and translated into Spanish spoken in the Americas. The EHSS is administered to clients of a not-for-profit service referral agency in Baltimore, Maryland. Client recruitment and testing are in Spanish. Environmental hazards questions focused on pesticides and the chronic disease of interest was asthma. The EHSS can be administered in less than 20 minutes. The surveillance protocol was approved by the Maryland Department of Health and Mental Hygiene (DHMH) Institutional Review Board (IRB).

RESULTS (specific results in summary form): Of the 266 persons who were asked to participate, 178 (66.9%) agreed. Of the study participants, 177 (99.4%) completed the EHSS--one did not. Only minor adjustments have been made to the testing protocol. Based on reports from the trained bi-lingual English-Spanish EHSS survey administrators, lack of time determined why 88 (33.1%) of the approached clients declined participation. For some participants, the administrators had to explain the difference between a land-line telephone and a cellular telephone, and how Health Maintenance Organization (HMO) insurance coverage is different from private health insurance. No adverse outcomes have occurred.

CONCLUSIONS (description of the main outcome of the study): This study demonstrated that is it possible to use the BRFSS questionnaire and methodology to obtain EPHT prevalence data and evaluate risk behaviors and preventive health practices from Spanish-only speakers in a community setting.

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CONTROL ID: 1060482
TITLE: Meta-analysis of Health Effects Associated with Proximity to Traffic Emissions
CURRENT TOPIC: Environmental justice
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): A growing body of research suggests an association between residential proximity to traffic emissions and various health outcomes, including asthma and respiratory symptoms, cardiovascular disease, adverse reproductive outcomes, and premature mortality. Additionally, low-income and minority populations are more likely to live near heavily trafficked roadways. However, there are no national policies and very few state policies designed to reduce these exposures and the associated health effects. To address this issue, the Centers for Disease Control and Prevention conducted a systematic review and meta-analysis to assess the body of scientific evidence and quantify the health burden associated with exposure to traffic emissions.

METHODS (study design and appropriate statistical analysis): We searched 15 electronic databases for original peer-reviewed articles, abstracts, and dissertations published during 1980–2008. Each article was screened for inclusion, abstracted, and assessed for study quality independently by two authors. Separate meta-analyses were conducted for each health outcome. We calculated weighted pooled odds ratios for health outcome categories with a sufficient number of unique studies, assessed heterogeneity among studies, conducted subgroup analyses by study design, exposure assessment, and quality score, and assessed the potential for publication bias. A random effects model was used to address variability in study characteristics, such as population, location, and exposure assessment.
RESULTS (specific results in summary form): We identified 149 articles addressing various health outcomes: 84 respiratory and allergic diseases, 22 cancer, 10 cardiovascular diseases, 9 reproductive outcomes, 8 mortality, and 16 other. The results of this meta-analysis will be available by June 2011.
CONCLUSIONS (description of the main outcome of the study): Living near heavy traffic is associated with a significant burden of disease in the United States and this burden is disproportionately shared by low-income and minority populations. Findings from this study can be used to develop national, state, and local policies to improve population health and address health disparities. For example, the estimate for the total US population that lives within 500 feet of the National Highway Planning Network's roads designated as interstates, US highways, and state highways is 30,295,465. Additionally, approximately 12 percent of all public and private schools in the US are located within 500 feet of an interstate or highway. Further study is needed to identify effective mechanisms to reduce exposure for these populations, such as constructing highway barriers with vegetation. Policies that would reduce exposure to traffic pollution include restricting the siting of schools and other facilities used by vulnerable populations near busy roads and reducing motor vehicle traffic on roads near populations.
AUTHORS (list collaborator name, degree and agency): Authors: Vickie Boothe, MPH; Tegan Boehmer, PhD, MPH; Arthur Wendel, MD, MPH; Fuyuen Yip, PhD, MPH

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AUTHORS (FIRST NAME, LAST NAME): Vickie Boothe

CONTROL ID: 1060226
TITLE: The house that hurt me: Cluster of illnesses related to pesticide exposure
CURRENT TOPIC: Disease cluster investigations
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): On October 18, 2010, the Tennessee Department of Health (TDOH) was notified by a regional health department of 3 Tennessee residents with similar symptoms upon presentation to a local hospital. All 3 were hospitalized. The residents were siblings, and in the process of renovating a century-old farmhouse. Five family canines, also living on the premises of the house, were recently deceased.
METHODS (study design and appropriate statistical analysis): As part of a multidisciplinary investigation that included poison control consultants and law enforcement, we performed active case finding. Family members and friends residing in and around the farmhouse were interviewed about potential infectious and environmental exposures, including pesticide use and human or canine illness. We obtained clinical specimens, performed environmental sampling and conducted a necropsy on the most recently deceased canine.
RESULTS (specific results in summary form): Five persons stayed overnight in the farmhouse during the previous 3 weeks. Four (80%) of them experienced illness, including chills, nausea, vomiting, uncontrolled diarrhea, increased salivation, confusion, incoherent speech, and neuromuscular symptoms. Time of illness onset ranged from October 3–17. The median age of subjects was 51 years (range, 12–54 years). Three of the four were hospitalized; 2 required mechanical ventilation.

Cholinesterase levels (serum, plasma, and RBC) from all 4 symptomatic persons revealed ≥ 50% cholinesterase inhibition from the lower range of normal. One of the four had a urine pesticide screen positive for propoxur (a carbamate pesticide). Screening of 53 household environmental samples identified traces of disulfoton (an organophosphate pesticide) in the contents of a vacuum cleaner bag. Of 7 water samples tested, all were negative for heavy metals and pesticides. Ephedrine and cocaine were detected in surface wipe samples in the house. Canine necropsy identified no evidence of organophosphates, but one canine reportedly died with rat poison in its mouth.

Potential toxins (e.g., pesticides, rat poison) were reported to have been used in the home, including pesticides for ‘flea infestation’ in a bedroom. During the investigation, opened containers of pesticides were noted inside and outside the home.
CONCLUSIONS (description of the main outcome of the study): This outbreak was probably caused by exposure to a cholinesterase inhibitor pesticide; toxicology consultants indicated chronic exposure with possible acute intermittent exposure was most likely. Adherence to manufacturer guidelines for pesticide application is recommended. Close attention is advised to wearing of personal protective equipment, proper ventilation, and timing between pesticide applications.
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CONTROL ID: 1060401

TITLE: Prevalence of the JAK2V617F mutation and the 46/1 haplotype in a select population in Northeast Pennsylvania

CURRENT TOPIC: Disease cluster investigations

ABSTRACT BODY:

BACKGROUND (study objectives, hypothesis, or a description of the problem): In 2008, a Polycythemia Vera (PV) cancer cluster was identified at the nexus of three counties in Northeast Pennsylvania. The close proximity of this cluster to known areas of hazardous waste materials raised concern that environmental exposures may play a role in the onset of PV. The discovery of an acquired point mutation in the JAK2 gene has led to greater insights into this disease and aided in the correct diagnosis of PV. The recurring JAK2 mutation consists of a valine to phenylalanine change in position 617 and is found in approximately 97% of PV cases. The objective of our study was to validate test methods to detect and quantitate the JAK2V617F mutation, and to determine the prevalence of the JAK2V617F mutation and the 46/1 risk haplotype in persons living both inside and outside the Northeast Pennsylvania cluster area.

METHODS (study design and appropriate statistical analysis): Patients enrolled in a regional tissue bank at Geisinger Health Systems were selected to participate in the study. Blood samples, 4 ml, were collected from each patient via venipuncture. Qiagen MagAttract kits were used to extract and purify DNA from each blood sample. Geisinger Health Systems Laboratory conducted real-time polymerase-chain-reaction (PCR) and single nucleotide polymorphism (SNP) analyses to confirm the JAK2 mutation. The JAK2V617F allele burden was confirmed by Mt. Sinai School of Medicine's Molecular Pathology Laboratory (MSSM). Quality control (QC) samples of DNA containing JAK2V617F mutation loads ranging from 0% to 2% were prepared by CDC's Molecular Risk Assessment Laboratory (MRAL) and analyzed as blind specimens by MSSM and Geisinger Health System's Laboratory. The results were reported to CDC's MRAL.

RESULTS (specific results in summary form): Both Geisinger laboratory and MSSM demonstrated acceptable performance on the QC specimens with all positive samples detected. The JAK2V617 mutation was confirmed in, 42 (1.4%) of the 3095 samples collected from residents outside the cluster area. For the 3013 samples analyzed for the risk haplotype, 252 (8.5%) were homozygous and 1118 (37.1%) were heterozygous. The samples collected from residents inside the cluster area are currently being analyzed.

CONCLUSIONS (description of the main outcome of the study): To date, the JAK2V617F mutation analysis shows a mutation rate of 1.4% which is similar to previous reports from Spain and China. The prevalence of the risk haplotype is also similar to that found in other populations. To confirm that a high rate of the JAK2V617F mutation is present in this cluster area, baseline rates of the mutation must also be determined. The analysis of the prevalence of JAK2 mutation in this cluster area will lead to a better understanding of the etiology of myeloproliferative disorders and associated genetic risk factors. Analysis of JAK2 mutation rates regionally and nationally will provide necessary public health information that may lead to improved treatment and prevention strategies.

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CONTROL ID: 1056761
TITLE: Legionella Cluster in a Rural Utah
CURRENT TOPIC: Disease cluster investigations
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): Legionnaires' disease was named after an outbreak that occurred among people attending a convention of the American Legion in Philadelphia in 1976. Legionellosis has a worldwide distribution. An estimated 8,000–18,000 people develop Legionnaires' disease in the U.S. each year. Most of these are single, isolated cases that are not associated with an outbreak. The Utah Department of Health was alerted by the Centers for Disease Control and Prevention (CDC) of two cases of Legionella associated with a rural Utah hotel in November 2009. The objective for this study was to summarize the investigation of, response to and epidemilogy of a Legionela outbreak in a rural health department.
METHODS (study design and appropriate statistical analysis): The study design was observational. An Epicurve and descriptive statistics were used to describe the outbreak.
RESULTS (specific results in summary form): In the course of the investigation, 3 more cases were identified who noted the same exposure. The Utah Department of Health, Central Utah Public Health Department, and Unified State Laboratories: Public Health collaborated in investigating and responding to this situation.
This results of the study provide an overview of a Legionella outbreak investigation, discussion of the epidemiology of Legionella, the steps of an environmental assessment for Legionella, legal issues that arose during this investigation, remediation and post- remediation recommendations and actions, and lessons learned regarding interventions and remediation efforts.
CONCLUSIONS (description of the main outcome of the study): This cluster investigation displayed the benefits of good working relationships between the Local Health Department, the State Health Department, environmental sanitation specialists, CDC, and the Unified State Laboratories: Public Health.
AUTHORS (list collaborator name, degree and agency): Louise Saw, MPH; Regional Epidemiologist for Central Utah Public Health Department
Felicia Alvarez, MPH; Utah Department of Health
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CONTROL ID: 1060492

TITLE: Florida's Surveillance Efforts related to the Gulf Oil Spill

CURRENT TOPIC: Disaster epidemiology: best practices, long term studies, and lessons learned

ABSTRACT BODY:

BACKGROUND (study objectives, hypothesis, or a description of the problem): The mobile drilling platform, Deep Water Horizon, sank April 20 off the Louisiana coast. Monitoring of syndromic surveillance systems for detection of adverse health effects due to exposure to crude oil, crude oil by-products, pollutants, distillates and dispersal agents reported from gulf-coast counties began in Florida 2 weeks later: May 6-September 11, 2010.

METHODS (study design and appropriate statistical analysis): Florida utilized syndromic surveillance consisting of hospital Emergency Department (ED) chief complaints and Poison Information Center data. Health effect and substance based searches were created to identify oil spill-related exposures and to create periodic summary reports. Active solicitation of physicians to report possible cases of oil-related illness or review of hospital records was not conducted.

RESULTS (specific results in summary form): 250 reports of individuals with symptoms potentially related to the spill were received by the Florida Poison Information Center Network (FPICN): 221 Florida residents, nine visitors, one healthcare provider and fifteen oil workers. Inhalational exposures (158) were reported by the majority of callers followed by dermal exposures (46) and multiple exposure routes (e.g. ingestion/dermal, ingestion/inhalational/dermal (30)). Throat or ocular irritation, dizziness, shortness of breath, nausea, vomiting, diarrhea, cough, bronchospasm, headache, chest pain and rash were frequently reported symptoms. Most reports came from gulf coast counties.

Seventeen reports were identified from ED chief complaint data, including twelve reports from oil clean-up workers. Chest pain, headache and heat-related illness were cited in at least four of the visits. Difficulty breathing, shortness of breath, dry cough, dizziness, rash, chest pain, hypertension, headache and muscle sprain were listed as chief complaints in these ED visits. Four Florida residents reported symptoms such as nausea and vomiting, shortness of breath, chafing or blisters after contact with tar balls, crude oil or after walking on the beach.

CONCLUSIONS (description of the main outcome of the study): Near real-time access to ED chief complaint and FPICN data provided situational awareness and assisted public health planning and decision making. Limitations included incomplete hospital coverage in the syndromic network, difficulties in linking symptoms to oil exposure using these passive data sets, and the inherent uncertainties in using syndromic surveillance particularly in a novel situation. Comparison to findings from a state using active surveillance (Louisiana) will be discussed. Details on FPICN partnerships, creation of queries used in syndromic surveillance, Florida's overall surveillance approach and the gaps and limitations of these efforts in the gulf oil event will be presented.

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CONTROL ID: 1060593
TITLE: Postdisaster Health Communication and the Use of Students in Postdisaster Assessments
CURRENT TOPIC: Disaster epidemiology: best practices, long term studies, and lessons learned
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): In June 2008, floods occurred in Eastern Iowa, resulting in multiple public health messages being released. An emergency study was performed, by using students from 3 Iowa Universities over the Forth of July holiday, on the efficacy of the public health messages.
METHODS (study design and appropriate statistical analysis): At 327 flood area households, one occupant was interviewed in person by the students. Information on demographics, houseing, health information sources, and 8 specific public health issues was solicited.
RESULTS (specific results in summary form): Almost all (99%) had received information on at least 1 of the public health issues (most had recieved information on vaccination, mold, well water, mask use, and stress). Television was the primary source (54.7%) and the preferred source (60.2%)of information, followed by the internet.
CONCLUSIONS (description of the main outcome of the study): Public health messages were received by a wide audience in the flood affected communities, dispite the disaster. Emergency use of public health and medical student volunteers, allowed rapid, low cost, and effective surveying of flooded areas in 4 eastern Iowa counties.
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CONTROL ID: 1061605

TITLE: Unique usage of Community Assessment for Public Health Emergency Response to identify behavioral health needs After Gulf Oil Spill

CURRENT TOPIC: Disaster epidemiology: best practices, long term studies, and lessons learned

ABSTRACT BODY:

BACKGROUND (study objectives, hypothesis, or a description of the problem): Along with the 11 oil workers who died on April 20, 2010, countless others were affected in the Gulf Region when the Deepwater Horizon drilling rig exploded. As millions of liters of crude oil spewed into the waters it became one of largest environmental disasters in U.S. history. With each day the catastrophic spill continued the devastation grew exponentially among the families, businesses and communities in the gulf region. Public health issues became a concern for local, state and federal authorities.

The Mississippi Department of Mental Health partnered with the state health department and Centers for Disease Control in a unique use of the Community Assessment for Public Health Emergency Response (CASPER) to assess the behavioral health needs of the Mississippi Gulf Coast.

The Mississippi Department of Mental Health was awarded funds from British Petroleum to be used for prevention and mitigation of mental health problems associated with the oil spill. Shortly after the disaster local mental health services providers on the Mississippi Gulf Coast revealed that they continue to suffer from the disruption of Hurricane Katrina and felt overwhelmed by the potential increased need for services associated with the spill. The literature on previous oil spill disasters has consistently demonstrated negative mental health outcomes in affected communities.

METHODS (study design and appropriate statistical analysis): Through collaboration among agencies, the CASPER was utilized in a rather unique manner in Mississippi to assess behavioral health needs of the coastal communities. The only variation from the typical CASPER protocol was the addition of standardized behavioral health questions to better identify adult and children's behavioral health needed.

RESULTS (specific results in summary form): The specific results of the CASPER findings are beyond the scope of this particular presentation and are reported in a separate proposal. The Department of Mental Health received valuable information concerning the behavioral health needs in the effected area which guided the allocation of BP grant funds to address risk factors, prevention and mitigation of mental health issues associated with the Gulf oil spill. Specific interventions were developed based on the findings of the CASPER.

CONCLUSIONS (description of the main outcome of the study): This unique project has increased awareness of providers in the value of integration of behavioral health surveillance and intervention within the broader public health arena. The widely known interactions between physical and behavioral health is often overlooked due to governmental turfs or responsibilities. This project opens the door to conversations that would benefit the citizens we all serve.

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CONTROL ID: 1062331
TITLE: Florida's ESSENCE System – An Information System used in Post-Disaster Surveillance
CURRENT TOPIC: Disaster epidemiology: best practices, long term studies, and lessons learned
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): In the last decade Florida experienced a number of hurricanes, wildfires, and other emerging health threats that required urgent public health response. Florida implemented the Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE) in 2007 for early event detection and situation awareness based on emergency department (ED) chief complaints. It now includes routine descriptive epidemiologic analysis, data visualization, and reporting using four different data sources, building on tools originally developed for syndromic surveillance.
METHODS (study design and appropriate statistical analysis): The Florida ESSENCE system is a multi-tiered, automated, and secure (https) web-based application. Microsoft SQL databases are used in data ingestion, statistical analysis, and web databases. System development is primarily in Java. Enhancements to the system are developed through close collaboration with the Johns Hopkins University Applied Physics Laboratory, paying close attention to feedback from state and local epidemiologists in Florida.
RESULTS (specific results in summary form): The system includes four data sources: 1) ED record data from 152 hospitals; 2) Reportable disease case data from the Merlin system; 3) Florida Poison Information Network call data; and, 4) Florida Office of Vital Statistics death data. Users can produce time series graphs, summary charts, maps, and tables by a number of possible stratification variables drawing on multiple data sources at once. Automated analyses can be configured on any data source to run on user defined queries customized for a particular event. Alerts populate "myalerts" tables which may suggest the need for additional drill-down. All output can be extracted and included in routine reports to stakeholders.
CONCLUSIONS (description of the main outcome of the study): We have moved from a time- and resource-intensive "paper and pen" disaster surveillance system to a single web-based statewide syndromic surveillance system, and finally to a single statewide biosurveillance system. This approach creates one location where users can access data and create epidemiologic reports and "data dashboards" that describe the morbidity and mortality for a given region in Florida. This functionality has allowed for more timely and routine analysis of data that was previously not available or required significant effort to access, and has helped close the public health surveillance loop with our partners in the clinical community. Automated data collection and analysis systems should be implemented and monitored outside of events so system use is routine during events, but can only be used when the normal health care system is functioning. Florida's response to hurricanes, tropical storms, wildfires, and the 2010 earthquake and cholera outbreak in Haiti highlight the importance of these factors.
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CONTROL ID: 1062499
TITLE: Disaster epidemiology roundtable discussion
CURRENT TOPIC: Disaster epidemiology: best practices, long term studies, and lessons learned
ABSTRACT BODY:
KEY OBJECTIVES: 1. Inform participants about the CSTE Disaster Epidemiology Subcommittee, its mission and accomplishments thus far;
2. Present the CSTE Disaster Epidemiology Subcommittee's current focus spreading information about the operational objectives of epidemiology during public health agency planning, response, and recovery phases of any all-hazard emergency;
3. Discuss successes and barriers to integrating epidemiologists from across disciplines within the state public health agency; and
4. Discuss lessons learned and next steps based on the May 2011 CSTE Disaster Epidemiology Subcommittee conference in Atlanta, GA.
BRIEF SUMMARY: The CSTE Disaster Epidemiology Subcommittee is in its second year of existance under the Environmental Epidemiology Committee. Our members represent the various epidemiologic disciplines including acute and communicable, environmental, occupational, chronic, injury, and behavioral public health. An overriding objective of the committee is to convene these disciplines to improve the timeliness and effectiveness of public health response following natural disasters and other emergencies. The Disaster Epidemiology subcommittee is moving forward with our efforts to develop a unified and collaborative response to public health disaster emergencies at the local, state, regional, and national levels. The goal of a coordinated response during a disaster is to provide timely and actionable information to inform public health and emergency management decision-making, especially regarding the human impacts from the incident. Surveillance and tracking efforts can provide useful information through all phases of the emergency. We seek input from as many states as possible to better understand the successes and barriers faced in building epidemiology as an active contributor in all-hazard response environment. During this Round table will also review what was learned from the May 2011 National Disaster Epidemiology Workshop in Atlanta to the larger CSTE audience.
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Sara Vagi, Ph.D., National Center for Environmental Health, Centers for Disease Control and Prevention
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CONTROL ID: 1059452

TITLE: Design and testing of epidemiological tools used in radiation emergencies

CURRENT TOPIC: Disaster epidemiology: best practices, long term studies, and lessons learned

ABSTRACT BODY:

BACKGROUND (study objectives, hypothesis, or a description of the problem): Epidemiological tools can be used to identify at-risk populations, prioritize the use of limited resources, and create registries for follow-up activities during the response phase of a radiation emergency. These tools can be deployed in a variety of settings, including community reception centers (CRCs). CRCs may be established shortly after a radiation emergency to conduct population monitoring activities and decontamination procedures for affected individuals who are not seriously injured. In addition, potentially-impacted individuals need to be prioritized for further bioassay testing, medical treatment, and follow-up, especially when medical and pharmaceutical resources are limited. Urine bioassay testing is used to screen people for internal contamination and identify those who could benefit the most from medical intervention. The Health Studies Branch (HSB) of the National Center for Environmental Health at the Centers for Disease Control and Prevention developed data collection forms and a urine bioassay prioritization approach for integration with the CRC population monitoring process.

METHODS (study design and appropriate statistical analysis): HSB staff worked with state and local public health officials to implement epidemiological tools at CRCs during two radiation exercises – a full-scale field exercise in Albany, New York, involving an explosive radiological dispersion device and a limited-scale field exercise in Barstow, California, involving detonation of an improvised nuclear device. Information collected included elements that were used to: 1) describe the affected population(s), including vulnerable populations, 2) identify those at increased risk of internal contamination, 3) prioritize samples for urine bioassay testing, 4) improve dose estimation associated with bioassay results, and 5) enable short- and long-term follow-up.

RESULTS (specific results in summary form): Epidemiological tools were successfully incorporated into the population monitoring process. HSB staff worked alongside state and local public health officials to administer the forms. Data were collected using both electronic and paper-based methods. Data elements collected include: 1) contact information, 2) demographics, 3) specific exposure variables, 4) radiological survey results, and 5) clinical symptom information. Key variables were identified and used for medical screening, follow-up, and prioritization of urine bioassay collection.

CONCLUSIONS (description of the main outcome of the study): Following a radiation emergency, the collection of information may be useful both in the initial and recovery phases of a public health response. Collection of data can be used to increase situational awareness, prioritize resources, create a post-event registry, and support epidemiologic studies. Pre-developed, modifiable epidemiological tools can facilitate implementation of these processes during a large-scale public health emergency response to a radiation event; examples used during the exercises will be available to conference participants.

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AUTHORS (FIRST NAME, LAST NAME): Michelle N. Podgornik

CONTROL ID: 1060067

TITLE: Climate Change Adaptation: Examining the Partnership between Public Health Preparedness and Environmental Health in Reducing Health Risks from Climate Change

CURRENT TOPIC: Climate change epidemiology and public health

ABSTRACT BODY:

BACKGROUND (study objectives, hypothesis, or a description of the problem): A fundamental component of climate change response is adaptation. Climate change adaptation is the ability to adjust to the impacts of climate change and lessen potential damage to the public's health. This similar concept is acknowledged by the public health preparedness community in that, while not all negative outcomes can be prevented, they can be reduced and managed. Adaptation is a key element of community resilience, which is one of the primary goals of the National Health Security Strategy. By employing these analogous schools of thought, the public health impacts of climate change, including the introduction or re-introduction of infectious diseases, heat-related illnesses or injuries, health effects related to extreme weather events, respiratory illnesses, and more, can be reduced.

METHODS (study design and appropriate statistical analysis): Links between climate change and public health preparedness are drawn by canvassing state and territorial health agencies' response activities.

RESULTS (specific results in summary form): Response models to prevent injuries, illnesses and death are delineated, and activities in which both the public health preparedness responders and environmental health specialists can participate.

CONCLUSIONS (description of the main outcome of the study): This study will demonstrate how leaders in public health preparedness can participate and collaborate in effective climate change adaptation strategies.

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CONTROL ID: 1060072
TITLE: Climate Trends in Indices for Temperature and Precipitation across New York State, 1900-2008
CURRENT TOPIC: Climate change epidemiology and public health
ABSTRACT BODY:

BACKGROUND (study objectives, hypothesis, or a description of the problem): New York State (NYS) is a geographically diverse area susceptible to climate change but trends in climate extreme indicators have not been extensively studied. Our objectives are to describe temporal trends in average annual and seasonal weather indicators, to compare various extreme indicators and their sensitivity to climate change and to demonstrate geographic differences in indicator trends in NYS.
METHODS (study design and appropriate statistical analysis): We analyzed data from the US historical Climatology Network for NYS from 1900-2008. We utilized 15 temperature and 11 precipitation indicators using linear regression with bootstrapping in SAS and Rclimdex software.
RESULTS (specific results in summary form): The indicators showing maximum change per decade were the growing season length (+ 1.2 days), the number of warm days (+0.23 days), number of cool days (-0.61 days) and the temperature of the coldest night of the month (+ 0.24 C). For precipitation indicators, the number of heavy precipitation days (+0.4 days), consecutive wet days (+ 0.33 days) and the annual total precipitation (+11.03 mm) showed the most change per decade. The most sensitive indicators that showed significant positive trends for more than half of the stations were growing season length, number of warm nights, a decline in cold days and ice days and increase in total precipitation and simple daily intensity index for precipitation. The most sensitive regions for changes in extreme indicators were the eastern and western parts of NYS. The Adirondack, Coastal New York and Great Lakes regions showed some of the highest increases in warming indicators. In contrast, the Central Lakes and Western Plateau regions showed some significant cooling trends especially during the winter.
CONCLUSIONS (description of the main outcome of the study): There were consistent temporal trends of warming and increasing precipitation in NYS with large geographic variation. The indicators we have identified should be further evaluated and assessed for their health impact. Geographical differences in climate trends may be of use in informing policy and planning allocation of resources to mitigate climate change impacts.

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CONTROL ID: 1060436

TITLE: Climate change and respiratory hospitalizations in New York State: Estimating the current and future health burden of increasing temperature

CURRENT TOPIC: Climate change epidemiology and public health

ABSTRACT BODY:

BACKGROUND (study objectives, hypothesis, or a description of the problem): The global average surface temperature is likely to rise by 2 to 11.5°F at the end of 21st century relative to 1980-1999, and heat waves will be more intense, frequent and longer in the future warmer climate. Although several studies have projected heat-related mortality, few have evaluated morbidity and other public health burden. A number of studies have demonstrated a strong relationship between respiratory hospitalizations and extreme heat. Because it is important for public health preparedness, our objective was to assess the excess current and future public health impacts (50 years and 100 years) of respiratory disease attributable to extreme heat in summer, including the number of hospitalizations, treatment costs, and lost workdays in New York State and its geographic regions.

METHODS (study design and appropriate statistical analysis): Previously, we reported the apparent temperature (AT) threshold and percent risk change above the threshold for New York State and its regions. Here we projected change in temperature and other climate properties using a global climate model under various climate scenarios. The scenarios are plausible future trajectories for social, economic and technological development. The future climate was derived by shifting the baseline climate distribution according to these changes. Effects of extreme high AT in summer on respiratory hospitalizations, treatment costs, and lost workdays in 1991-2004, 2046-2065 and 2080-2099 were estimated according to the risk change and the increased AT above threshold under three climate scenarios.

RESULTS (specific results in summary form): The New York State public health burden of respiratory disease attributable to extreme high AT in summer was estimated to be 100 hospitalizations, $1 million in treatment costs, and 615 lost workdays per year in 1991-2004. The LaGuardia region had the highest burden, and health impacts were much higher in females than in males. According to the three climate scenarios, the 100-year projection of public health burden attributable to extreme high AT was estimated to range from 259-796 hospitalizations, $2.7-$8.3 million in treatment costs, and 1587-4833 lost workdays per year for respiratory diseases.

CONCLUSIONS (description of the main outcome of the study): This study estimated a 2.6 to 8-fold increase in the public health burden of respiratory hospitalizations due to global warming in the coming 100 years. If combined with other diseases and mortality, the health impacts would be more evident. As climate change is anticipated to increase the frequency and intensity of extreme heat events, public health agencies need to monitor heat-related health effects in order to prevent, mitigate, or plan for the increased public health burden due to increasing temperature.

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CONTROL ID: 1062328
TITLE: Climate Change Adaptation: Addressing heat related morbidity and mortality among seniors in New York City
CURRENT TOPIC: Climate change epidemiology and public health
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): On average, more U.S. residents die from extreme heat events (EHE) than all other natural disasters combined. Considering predicted climate change and increased severity of EHEs, adaptive strategies to minimize excess mortality are required. In such large cities as New York City (NYC) urban heat island effect and social isolation of low-income seniors further contribute to adverse outcomes. Investigations of fatalities following EHEs in NYC identified key risk factors, including age >65 years, having multiple medical conditions or a psychiatric disorder, and lacking home air conditioning. A recent investigation noted that half of decedents lived with someone and almost all had relatives in the metro area.
METHODS (study design and appropriate statistical analysis): Starting in 2008, the NYC Department of Health and Mental Hygiene piloted an adaptive strategy to prevent heat-related mortality among low-income adults aged >65 years. Strategy components include: (1) Targeted education and outreach through the media, community based leaders, public health detailing, mailings, print and web-based materials to heighten awareness and perceived risk and to provide links to resources; (2) Promoting structural interventions, such as opening of cooling centers and provision of free air conditioners (3) Releasing notifications, including modification of the National Weather Service heat advisory threshold and health alerts and; (4) Ongoing surveillance, including monitoring of use of emergency medical services and heat stroke death investigations.
RESULTS (specific results in summary form): Overall, this strategy reached a large proportion of the NYC population with the assistance of over 1000 faith-based leaders, over 230 health care providers, over 100 community based organizations and hundreds of additional special service providers. Over 65,000 pieces of educational materials were distributed and about 6,000 air conditioners were installed in the homes of low income seniors.
CONCLUSIONS (description of the main outcome of the study): A diversified approach to outreach combined with surveillance and structural interventions is a necessary adjunct to heat emergency planning in large urban areas to reach vulnerable populations.
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CONTROL ID: 1062501
TITLE: Tracking heat: Metrics for extreme heat surveillance from modeled meteorological data
CURRENT TOPIC: Climate change epidemiology and public health
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): High ambient temperatures can cause health effects such as heat cramps, heat exhaustion, heat syncope and heat stroke. In order to monitor health effects associated with extreme heat, temperature and relative humidity data are needed at highly resolved spatio-temporal scale. Currently, reliable temperature and relative humidity data are available from first-order network of weather stations. These stations are sited to provide climatological observations, and many of these stations are not located close to population centers. North American Land Data Assimilation System (NLDAS) provides modeled meteorological data that is quality-controlled, spatially and temporally continuous, and available by 1/8th-degree grid covering the conterminous United States. This presentation deals with development of county-level metrics of extreme heat for the CDC Tracking Network using modeled meteorological data.
METHODS (study design and appropriate statistical analysis): NLDAS data, available at the 1/8th-degree grid, consist of 103936 grid cells that cover the entire conterminous United States. We selected the daily maximum and minimum temperatures from the hourly NLDAS data. We also calculated a daily maximum heat index taking into account relative humidity and temperature. We converted grid-level data to county-level estimates to ascertain population exposure to extreme heat and enable linkage with health datasets. We used a 3-step geo-imputation approach to convert grid-level meteorological data to county-level estimates. First, we created a population-weighted centroid for each county in the conterminous United States and identified the grid-cell that contained the population-weighted centroid. Subsequently, for each grid cell containing the population weighted centroid, we identified all the adjacent grid-cells. Finally, we calculated daily county-level estimate s by averaging values from all the adjacent grid cells. We compared the daily county-level modeled meteorological data with data from the nearest weather monitor, and computed reliability statistics. Further In order to track population exposure to extreme heat, we generated county-level metrics to identify extreme heat episodes and understand daily maximum distribution of temperature and heat index.
RESULTS (specific results in summary form): Daily county-level estimates of temperature and heat index from NLDAS data cover all of the 3109 counties in the conterminous United States. The geo-imputation approach identified population centers and adequately characterized the prevailing heat exposure of each county. The county-level metrics explained temporal patterns of heat exposure and identified heat episodes. The metrics served as a screening tool to identify the at-risk population to extreme heat exposures.
CONCLUSIONS (description of the main outcome of the study): refer results section
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AUTHORS (FIRST NAME, LAST NAME): Ambarish Vaidyanathan

CONTROL ID: 1062586
TITLE: Michigan's state and local public health response to climate change
CURRENT TOPIC: Climate change epidemiology and public health
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): Climate change can affect human health by increasing exposure to biological and chemical agents in the air and water, by causing more severe weather such as floods and heat waves, and by increasing the range and persistence of vector-borne infectious diseases. The Association of State and Territorial Health Officials (ASTHO) funded Michigan for a one-year planning project to address climate change and its impact on public health.
METHODS (study design and appropriate statistical analysis): The grant involved: 1) A public health needs assessment of knowledge and capacity to respond to climate change; 2) Creation of a strategic plan to address knowledge and capacity gaps; 3) Training to public health practitioners; and 3) Evaluation of the process.

The needs assessment involved 34 local health department (LHD) staff interviews, mainly health officers and environmental health directors, in-person or via a web-based tool. In addition, 15 public health partners received in-person key informant interviews, which were one-hour structured interviews with key informants from State of Michigan departments of health, environment, and agriculture; academics working on climate change research; environmental and health advocacy groups; and non-governmental organizations. Furthermore, local public health emergency response plans were reviewed and surveillance data systems were identified and reviewed.
RESULTS (specific results in summary form): Seventy-nine percent of LHD staff reported that they were knowledgeable about climate change; 38% thought their jurisdiction would experience public health effects from climate change over the next 20 years; 4% stated that climate change was one of the top 10 priorities in their agency; and 30% felt their agency had the resources to address the public health effects from climate change. Participants in the key informant interviews were interested in climate change and wanted to learn more, had activities in areas impacted by climate change, and felt their organization could contribute to the response. The strategic plan was developed by 35 stakeholders over two one-day meetings and included 3 long-term goals.
CONCLUSIONS (description of the main outcome of the study): Knowledge about public health effects from climate change is evolving rapidly and public health practitioners must be involved in decision-making. Key partners are vital to the planning process and need to be kept current on activities and information. Partners are necessary to advocate for resources; collaborate on grants and projects; and conduct research relevant to local issues. Education of public health staff, policy-makers, and the public is a key unmet need, and tools for local health assessments are needed. With 3-year CDC funding, Michigan will implement their strategic plan.
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CONTROL ID: 1053958
TITLE: Climate Ready States and Cities: Charting a course for climate change and health in state and local health agencies
CURRENT TOPIC: Climate change epidemiology and public health
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): While there is scientific consensus that climate change will have significant effects on human health, there are significant challenges for public health agencies in being able to anticipate, prepare for and respond to the effects. In response to the need for a comprehensive approach to tackle the health effects of climate change, the U.S. Centers for Disease Control and Prevention (CDC) has instigated the Climate Ready States and Cities Initiative.
METHODS (study design and appropriate statistical analysis): This presentation will showcase the elements that make up the Climate Ready States and Cities Initiative. The first component of the initiative is to translate atmospheric and climactic science, and to develop related tools that are tailored for use by the public health community for planning purposes. The second component of the initiative centers upon building climate change capabilities within state and local health agencies.
RESULTS (specific results in summary form): In the presentation, the speaker will describe a range of CDC led initiatives that are closing the gap between climate science and public health practice including enhancing surveillance activities, developing strategies to model vulnerability to climate-sensitive health outcomes, and promoting workforce development.

The speaker will discuss grants awarded to state and city health agencies to forecast the most likely health impacts from climate change within their area, identify communities and systems most at risk, and apply this learning to enhance public health preparedness planning and response.

The presentation will also highlight CDC's 5 stage guidance for building climate ready state and local health agencies. The 5 stage guidance is being developed to support states and cities to:
build understanding of climate scenarios;
develop tools and models that assist with anticipating the most likely health impacts;
identifying vulnerable populations;
planning and prioritization of response;
response/intervention
CONCLUSIONS (description of the main outcome of the study): This initiative is ongoing.
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CONTROL ID: 1065617

TITLE: Mercury Exposure Among Users and Nonusers of Skin-Lightening Creams —Virginia, 2010

CURRENT TOPIC: Challenging state-based environmental epidemiology investigations: lessons learned and collaborative efforts

ABSTRACT BODY:

BACKGROUND (study objectives, hypothesis, or a description of the problem): Mercury exposure has been reported among users of skin-lightening creams produced outside the United States but not among their household contacts. In March 2010, following participation in a health survey, 4 Mexican-American family members learned they had elevated mercury levels and contacted health agencies where they lived in California. The Virginia Department of Health assessed mercury exposure in their Virginia relatives.

METHODS (study design and appropriate statistical analysis): Health department staff interviewed Virginia relatives. All 10 persons provided first-morning–void urine samples; urinary mercury concentrations >5 µg/g creatinine (or >20 µg/L) constituted mercury exposure. Skin-lightening creams were analyzed by inductively coupled mass spectrometry. Mercury contamination in homes was measured by using portable vapor detectors.

RESULTS (specific results in summary form): Persons interviewed denied most forms of mercury exposure, but 3 reported using unlabeled skin-lightening creams produced in Mexico. Five users had elevated urinary mercury concentrations (range: 27–133 µg/g), including 3 who reported nonspecific symptoms consistent with chronic mercury exposure: numbness (1 user), tingling (1), dizziness (1), forgetfulness (2), headaches (1), and depression (1). Two asymptomatic nonusers had elevated urinary mercury concentrations: a 26 year old (20 µg/g) and an 18 month old child (276 µg/g). Creams contained 3.1%–4.7% mercury. Mercury vapor was detected near a dresser where the cream was stored (50 µg/m^3), a nightstand (38 µg/m^3), and other items frequently touched by cream users.

CONCLUSIONS (description of the main outcome of the study): Skin-lightening creams produced in Mexico were the source of mercury exposure for users and nonusers in the same households. Nonusers were asymptomatic but had mercury levels associated elsewhere with symptoms. State and local health departments advised residents to discontinue using these creams and issued health alerts.

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CONTROL ID: 1061822

TITLE: Elevated Blood Lead Levels Among Refugee Children in Florida: Is Country of Origin a Significant Risk Factor?

CURRENT TOPIC: Challenging state-based environmental epidemiology investigations: lessons learned and collaborative efforts

ABSTRACT BODY:

BACKGROUND (study objectives, hypothesis, or a description of the problem): Refugee children may be at higher risk for lead poisoning than children born in the United States (US), (Schwemberger et al., 2005). Refugees are presumed to have been exposed to lead in their country of origin from a variety of sources such as leaded gasoline and industrial lead exhaust. Cultural practices such as use of herbal remedies, cosmetics, and spices containing lead are also potential sources for lead exposure among refugees (Romieu et al., 199). Generally, refugees resettle in the US into older, inner-city housing with a high potential for exposure to lead-based paints (Schwemberger et al., 2005). The CDC recommended that all refugee children 6 months to 16 years should receive lead poisoning screening within 90 days after arrival into the US and refugee children 6 months to 6 years should receive follow up blood lead tests 3 to 6 months after placement in a permanent US residence,(CDC, 2005).

METHODS (study design and appropriate statistical analysis): A cross-sectional study design was employed to determine the prevalence of elevated BLLs among refugee children upon arrival and after resettlement in Florida. The Refugee health assessment data for the period October 1, 2008 to, September 30, 2009 were linked to the childhood blood lead test data for the period October 1, 2008 to December 31, 2009 to obtain refugee children with reported initial and follow up blood lead test results. Analyses were conducted to determine the demographic characteristics and lead exposure risks among the refugee children sampled. The hypothesis that country of origin is a significant risk factor for elevated BLLs among refugee children was tested using multivariate logistic regression models. Age and gender were also examined as potential predictors of elevated BLLs.

RESULTS (specific results in summary form): Initial blood lead test data were available for 564 (51 percent) of newly arrived refugee children, ages 6 months to 16 years old. Ninety nine percent of the matched refugee children received an initial blood lead test within the required timeframe of 90 days upon arrival in Florida. Of these 564 refugee children, 3.0 percent (n=17) had elevated BLLs ≥ 10µg/dL. Fifteen (8.5 percent) of 176 refugee children, ages 6 months to 5 years old, received follow blood lead tests within six months of arrival regardless of initial BLLs. Elevated BLLs was found to be significantly associated with country of origin among refugee children with reported blood lead tests. Refugee children that emigrated from countries other than Cuba were 90 percent less likely to have elevated BLLs. Conversely, age and gender were not found to be associated with elevated BLLs.

CONCLUSIONS (description of the main outcome of the study): Three percent of refugee children who received initial blood lead tests in Florida had an elevated BLL. This rate was higher than the rates reported for the general population of children who were tested for lead poisoning in Florida in 2009. Refugee children who arrived from countries other than Cuba were less likely to have elevated BLLs.

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CONTROL ID: 1056819
TITLE: The Washington State Environmental Biomonitoring Survey - WEBS
CURRENT TOPIC: Biomonitoring
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): In 2009, the Centers for Disease Control and Prevention awarded the Washington State Department of Health (WS-DOH) Public Health Laboratory (PHL) a five-year cooperative agreement to increase PHL capacity to conduct biomonitoring and provide state and local comparisons to national biomonitoring data. WS-DOH laboratorians, epidemiologists, toxicologists and Washington's Environmental Public Health Tracking Network (WTN) collaborate to develop and implement activities. Year 1 goals included measuring urinary total and speciated arsenic, other metals, and organophosphate and pyrethroid pesticide metabolites in the general population. We selected these objectives by combining priorities in the 2003 state biomonitoring plan with new input from key informants from other state agencies, universities, local health, and non-governmental organizations. WTN added tap water collection to assess levels of arsenic and other metals. An advisory committee, similar in composition to the key informants, provides recommendations for additional activities. Year 2 objectives include enlarging the initial sample, adding bisphenol A analysis, and assessing populations at high risk for arsenic exposure through drinking water.
METHODS (study design and appropriate statistical analysis): For the general population sample, WEBS has used a two-stage cluster sampling design, randomly selecting census block groups and housing units within block groups. Field staff enroll participants, asking household members ages six and older to provide first morning void urine samples and answer questions about potential exposures. All procedures occur in participants' homes. Participants currently receive feedback on total arsenic and selected metals. They will also receive feedback on pesticide metabolites when those data are available. Speciated arsenic will allow us to understand potential exposures among those with high total arsenic levels.
RESULTS (specific results in summary form): As of December 2010, WEBS collected about 800 urine and 200 water samples from 350 households. The PHL analyzed samples for total arsenic and selected metals, and urine samples for creatinine to normalize levels. We expect to compare Washington to national data and begin analyses for speciated arsenic and pyrethroid metabolites in early 2011. Organophosphate metabolite and bisphenol A analyses will occur later in 2011.
CONCLUSIONS (description of the main outcome of the study): WEBS provides an opportunity to expand PHL's biomonitoring capacity, while assessing environmental exposures potentially important for health in Washington. Collaborations within WS-DOH and with external stakeholders are essential for developing scientifically sound procedures and focusing on the most important potential exposures within budgetary constraints.
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CONTROL ID: 1058176
TITLE: Communicating biomonitoring study results: A case study on one state's experience
CURRENT TOPIC: Biomonitoring
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): In their 2006 report, Human Biomonitoring for Environmental Chemicals, the National Research Council describes communicating biomonitoring results as the most challenging issue facing the field, yet critical to the accurate interpretation and use of biomonitoring data. The dearth of research in this area has hindered progress toward filling the gap in knowledge about how to communicate effectively about biomonitoring and the results of biomonitoring studies with lay audiences and others outside the field. In 2008-09, the Minnesota Department of Health conducted a biomonitoring study among residents of two communities in the Minneapolis-St. Paul metropolitan area who were exposed to perfluorochemicals through contamination of their drinking water. This study provided the Centers for Disease Control and Prevention's National Biomonitoring Program with a case for documentation of the process, characteristics, and effects of strategic communication implemented to support a community based biomonitoring study.
METHODS (study design and appropriate statistical analysis): This case study research used qualitative methods to explore and describe communication practices before, during, and after a biomonitoring study through collection and analysis of primary and secondary data. A review of documents and archival records contributed to an understanding of the context of the study and chronology of events. In-depth interviews with key informants provided insight into the knowledge, attitudes, perceptions, and responses of the target audiences that participated or had vested interest in the local biomonitoring study and its findings. These informants included participants in the community based biomonitoring study, state public health officials, state legislators, advocates, and industry representatives. The data was analyzed using a descriptive framework based on chronologic and thematic organization, classification, and presentation of the case.
RESULTS (specific results in summary form): The primary data collected from over 20 in-depth interviews combined with the data from secondary sources supported development of a narrative that describes a biomonitoring communication process generally characterized as collaborative and open and the variable responses of key audiences to the local biomonitoring study communication activities, messages, and materials.
CONCLUSIONS (description of the main outcome of the study): The case study provides empirical evidence of the need for and value of integrating strategic communication planning, implementation, and evaluation into the broader planning of biomonitoring studies. The study also highlights how communication needs across key audiences can vary and the importance of understanding and addressing such variations during development and implementation of communication plans. This case study contributes to the formation of a database for future comparison and theory building for development of best practices in biomonitoring communication.
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CONTROL ID: 1061409
TITLE: Evaluation of Biomonitoring Communications in a Minnesota Community with Contaminated Water
CURRENT TOPIC: Biomonitoring
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): The Minnesota Department of Health (MDH) conducted a state-funded biomonitoring pilot project that measured exposure to seven perflourochemicals (PFCs) in a community with contaminated drinking water. State law requires that biomonitoring subjects, recruited through an informed consent process, receive information about program findings and, if they choose, their individual results (PFC serum levels). Following the dissemination of results, MDH evaluated participants' responses to information provided and methods used for communicating the findings.
METHODS (study design and appropriate statistical analysis): Following IRB approval adult community members were selected at random, contacted by introductory letter and invited to participate. A total of 196 returned the signed consent document and received a second letter with instructions for obtaining the blood specimen. All 196 participants elected to receive the results of their PFC blood levels. Letters comparing individual PFC blood level results to national PFC exposure distributions reported by the CDC were mailed along with a booklet about PFCs and health to aide with interpretation. A physician consultant was available for counseling and concerned participants were encouraged to share results with their health care providers. Group results were shared in a report and at community meetings. Following the dissemination of results, a survey was mailed to participants asking them to evaluate project communications, including perceptions about the letters, booklet, community meetings, findings, the benefits of the project and actions taken since receiving their results.
RESULTS (specific results in summary form): Out of 196 participants, 119 completed the survey; 53 men and 66 women. Most (90%) strongly agreed or agreed that they understood the project and that the information provided was easy to understand (82%). Results were mixed as to whether participants felt that the PFC exposure was a cause for concern about their health (39% strongly agreed or agreed, 27% were neutral, and 34% disagreed, strongly disagreed, or were unsure). Most participants (84%) were glad that their PFC levels had been measured, though open ended questions revealed concerns about the uncertainty of scientific information on health effects, the need for more actions or studies in the community, and requests for individual counseling.
CONCLUSIONS (description of the main outcome of the study): Participants expressed overall satisfaction with the information received and their participation in the project. Uncertainty about the health effects of PFCs remained, a concern that could not be addressed by the project. Public health practitioners should continue to evaluate the benefits and risks of community-based biomonitoring of contaminants to individual participants and communities.
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CONTROL ID: 1061418
TITLE: What would a National Biomonitoring System look like?
CURRENT TOPIC: Biomonitoring
ABSTRACT BODY:
KEY OBJECTIVES: This presentation will focus on the benefits a National Biomonitoring System offers over current biomonitoring programs. Discussion will also answer some of the questions about infrastructure, resources, and next steps in creating the National Biomonitoring System. Participants will also learn about the APHL National Biomonitoring System guidance document and how laboratories and epidemiologists can work together to accomplish biomonitoring projects.
BRIEF SUMMARY: Chemicals have improved the efficiency and quality of our lives, yet their presence in consumer products and the environment is raising concerns among public health professionals, policymakers and the public. Bisphenol-A, dioxins, brominated flame retardants and many more chemicals appear in the media, scientific journals and state legislation due to potentially harmful health effects, especially in children. While we know these chemicals are toxic at high levels, we have less information about effects related to ongoing exposures at lower levels. The Association of Public Health Laboratories (APHL) believes biomonitoring is the best way to estimate exposure to these and many more chemicals.
Biomonitoring studies are the gold standard to measure chemical exposures in people. While CDC and other federal agencies conduct biomonitoring studies, these national-level studies only provide population-based estimates. In order for states to be able to examine data at community and individual levels, they need the capability and capacity to conduct biomonitoring studies. This will allow States to respond to community and political concerns regarding chemical exposures and will establish background levels for emergency response events such as an oil spill, chemical plant explosion, train derailment and more.
In order to establish capacity and capability at the state level, APHL developed the Five-Year Plan for Building a National Biomonitoring Network of Public Health Laboratories. This plan calls for the establishment of a network of public health laboratories able to provide accurate human exposure data that will inform public health decisions through biomonitoring.
In keeping with the National Biomonitoring Plan, APHL's Biomonitoring Subcommittee developed a guidance document for laboratories interested in creating or expanding biomonitoring programs. Subcommittee members, who include laboratorians and epidemiologists from across the country, provided their expertise to write and edit each section of the guidance.
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CONTROL ID: 1061569
TITLE: Relationship between prenatal lead exposure and infant blood lead levels
CURRENT TOPIC: Biomonitoring
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): Risk of exposure to lead in the environment increases as children become more mobile. Most babies begin walking between 9 and 12 months and are walking well by 14 or 15 months, usually resulting in peak blood lead levels at around 2 years of age. In accordance with the risk, the American Academy of Pediatrics, CDC, and the state of Texas recommend that blood lead levels should ideally be tested at 1 and 2 years of age. Each year Texas receives blood lead reports for over 375,000 children six and under, approximately 3,000 of which are elevated. Regardless of the recommendations, Texas periodically receives blood lead test results for children less than six months of age. The source of exposure in these young infants is unknown, but we hypothesized they were prenatal rather than environmental. The purpose of this study was to evaluate the relationship between prenatal exposure to lead (measured by newborn dried blood spot results) and blood lead levels in infants 6 months of age or younger, using public health registry data for infants born in Texas from July 2002 through July 2006.
METHODS (study design and appropriate statistical analysis): The Texas Child Lead Registry was used to identify infants with documented elevated blood lead levels of 10 µg/dL or higher as well as infants with documented low blood lead levels. Blood lead levels for these children were compared to their corresponding newborn dried blood spot results using Pearson correlation coefficients and exact logistic regression models.
RESULTS (specific results in summary form): Overall, a significant but weak positive correlation was found between infant blood lead levels and corresponding newborn dried blood spot lead levels (r = 0.48). However, the odds of an infant with an elevated newborn dried blood spot lead level having an elevated blood lead level at 6 months of age or younger were much greater than the odds for an infant with a low newborn dried blood spot lead level of <5 µg/dL (adjusted odds ratio 27.95, 95% CI: 5.52–277.28).
CONCLUSIONS (description of the main outcome of the study): Although an association was observed between newborn dried blood spot lead levels and blood lead levels in infants, our findings indicate that prenatal exposure may not be the only significant source of lead exposure for infants < 6 months of age. Results suggest that a number of infants may be exposed to lead after birth, which underscores the importance of testing young children for lead poisoning.
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CONTROL ID: 1062063
TITLE: NYS Great Lakes Biomonitoring Project
CURRENT TOPIC: Biomonitoring
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): The New York State Department of Health (NYS DOH) has been funded by the Agency for Toxic Substances and Disease Registry (ATSDR) to provide a baseline assessment of exposures to legacy contaminants associated with past industrial pollution of the Great Lakes. There are five active Great Lakes Areas of Concern (AOC) in NYS. The AOCs are the most severely impacted areas in the Great Lakes Basin with regard to aquatic life and associated human exposure risks. Four of the five active AOCs in NYS are in the State's Western Region: the Buffalo River, Niagara River, Eighteenmile Creek; and Rochester Embayment on Lake Ontario.
METHODS (study design and appropriate statistical analysis): Anglers are assumed to be the population at highest risk of exposure to Great Lakes legacy contaminants. NYS DOH is developing a plan to conduct biomonitoring among NYS anglers who fish in the Western Region. The NYS fishing license database will be used to identify the primary sampling frame for people who fish in bodies of water in Western NY, including the four AOCs. Because subsistence anglers, who are less likely to have fishing licenses, may be the population most susceptible to elevated exposures from Great Lakes pollutants, alternative methods, including response driven sampling and possibly venue sampling, will be used to assure participation of subsistence anglers. The program requires evaluation of the following analytes: eight PCB congeners, mercury and lead, mirex, hexacholorbenzene (HCB), and DDT/DDE. NYS also plans to include the following: 22 additional PCB congeners, polybrominated diphenyl ethers (PBDEs), cadmium, perfluorinated compounds (PFCs), benzo(a)pyrene, dieldrin, toxaphene, chlordane, omega-3 fatty acids, blood lipids, and urine creatinine. Combinations of the proposed analytes are found in all of the NYS AOCs.
RESULTS (specific results in summary form): To date, NYS is working closely with ATSDR and two other states funded by this program to develop appropriate elements of a common approach, such as standardized questionnaire modules to facilitate pooling of appropriate information for the baseline assessment of body burdens for some analytes. Some large differences in approach among the three states are reflected in other plans that are unique to each state.
CONCLUSIONS (description of the main outcome of the study): The overarching goal of the biomonitoring program is to develop information and actions that can contribute to reducing and preventing exposures to Great Lakes contaminants. Careful attention is being paid to current fish advisory information and communication strategies, and how this project may contribute to improving the information provided or the methods of disseminating such information.
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CONTROL ID: 1062200

TITLE: California mercury poisonings from unlabeled skin lightening creams made in Mexico - an exposure investigation

CURRENT TOPIC: Biomonitoring

ABSTRACT BODY:

BACKGROUND (study objectives, hypothesis, or a description of the problem): Several cases of mercury poisoning were identified in California when a 39-year-old Mexican-American mother and her three children participated in a community-based health survey. The mother's urine mercury level was 482 µg/L, over 100 times expected background levels. Even after repeated washings, high levels of mercury were detected on her hands and in her home. The California Department of Public Health (CDPH) worked with the local health department to identify the source of mercury exposure and help guide clinical case management.

METHODS (study design and appropriate statistical analysis): A survey, administered in Spanish, included questions about symptoms in adults and young children, potential exposure through occupation, personal care products, pharmaceuticals, hobbies, activities, and ritualistic or spiritual uses of mercury. Urine samples were collected and analyzed, and health care providers were linked with specialists to guide the clinical management of affected individuals. Physicians statewide were notified through a health alert, an educational flyer was developed in English and Spanish, and a paid broadcast advising against the use of unlabeled skin-lightening creams was aired on Spanish-language radio during peak commute times. Seven unlabeled containers of creams were collected and analyzed in the CDPH Food and Drug Laboratory.

RESULTS (specific results in summary form): Six adults and six children from three families were exposed to mercury from homemade skin creams from Mexico. Five individuals (three women, one man and a teenage boy) used the cream up to twice daily to whiten skin, remove freckles or blotches, or treat acne. Three women who used the cream daily for three to five years had generalized central nervous system symptoms such as headache, irritability, tremors and depression. Their urine mercury levels ranged from 12 to 482 µg/L. Elevated urine levels (12 to 107 µg/L) were also found in three children aged eight months to eight years who did not use the creams. Collected creams contained between 20,000 ppm and 57,000 ppm of mercury.

CONCLUSIONS (description of the main outcome of the study): Despite a US regulation prohibiting more than 1 ppm in skin-care products, use of mercury-containing creams continues, most likely because mercury blocks melanin production and therefore is an effective skin lightener. Dermal absorption of mercury can adversely affect both users of skin-lightening creams and non-users. Affected children in this investigation, who did not themselves use the creams, were most likely exposed through dermal contact and through breastfeeding. The use of such products should be considered in cases of mercury poisoning, even among children who may be passively exposed.

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CONTROL ID: 1062698
TITLE: Biomonitoring California: Moving towards a representative California sample
CURRENT TOPIC: Biomonitoring
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): Established through legislation in 2006, Biomonitoring California is the nation's only ongoing state-mandated biomonitoring program. Its goals are to determine the levels of chemicals in California residents, establish trends in these levels over time, and assess the effectiveness of public health efforts and regulatory programs to reduce exposures. The legislation requires that biomonitoring be conducted on a statewide representative population, as well as through community studies. Due to resource constraints, the program has delayed the implementation of a statewide survey and has focused on capacity-building and method-testing with community studies and collaborations with other programs.
METHODS (study design and appropriate statistical analysis): Biomonitoring California initially collaborated with the California Environmental Health Tracking Program (CEHTP) and other researchers who had archived biological samples available to analyze. With support from the Centers for Disease Control and Prevention, we have been able to collect biological samples and questionnaire data as part of two community projects: (1) pregnant women and their newborns recruited though a clinic in northern California; and (2) a cohort of fire fighters in southern California. Finally, through a collaboration with Kaiser Permanente Northern California (KPNC), we will pilot our ability to undertake biomonitoring in a representative sample of Californians. We will recruit, enroll, and collect biological samples and questionnaire data from adults randomly selected from the KPNC member database, stratified by age, sex, and residential location.
RESULTS (specific results in summary form): For our collaboration with CEHTP, we analyzed urine samples from 34 participants for a metabolite of the pesticide chlorpyrifos and compared our results with national data. We continue to recruit participants to meet our target recruitment goals for the two community studies: up to 75 pregnant women and their newborns and up to 100 fire fighters. We will be analyzing blood and urine samples from both of these study populations. We will compare questionnaire information focusing on specific routes of exposure for selected chemicals with measured chemical levels to identify, where possible, the leading sources of exposure. We will return results to participants using templates based on ongoing usability testing and focus groups. As part of this presentation, we will present selected analyte data and report progress on the KPNC study.
CONCLUSIONS (description of the main outcome of the study): Biomonitoring California has developed program infrastructure and successfully demonstrated the ability to collect and analyze exposure data and biological samples. Through multiple collaborative projects, we continue to make progress towards a cost-effective, representative biomonitoring study of California residents.
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CONTROL ID: 1062855
TITLE: Minnesota's Biomonitoring Pilot Program: Successes and Challenges
CURRENT TOPIC: Biomonitoring
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): Minnesota's 2009 Environmental Public Health Tracking and Biomonitoring legislation established a state biomonitoring pilot program to conduct four community-based pilot projects and to build state capacity for an ongoing program. Projects were designed to measure the distribution of exposure in selected communities identified as "likely to be exposed" to specified contaminants. Two pilot projects are completed: The Minneapolis Children's Arsenic study and the East Metro Perfluorochemicals (PFCs) study. A scientific advisory panel representing external stakeholder groups has guided program recommendations including the selection of study communities and chemicals, and the interpretation and communication of results.
METHODS (study design and appropriate statistical analysis): Project communities and methods varied. In Minneapolis, children were recruited from homes with known soil arsenic contamination using letters, household surveys and home visits. With parental consent, each of 65 children provided 2 consecutive first morning void urine specimens. Speciated arsenic was measured where total arsenic exceeded 15 µg/g. In the Eastern suburbs of Minneapolis-St. Paul, 196 adults from two communities with drinking water contamination were recruited and provided serum samples for measuring 7 PFCs. Individual results for both projects were communicated via mailed letters, and community meetings were held to share aggregate results.
RESULTS (specific results in summary form): Children's arsenic levels were below levels of health concern, though three specimens exceeded the CDC action level of 50 µg/g creatinine. Levels were comparable to similar urban population levels in other studies. Urinary arsenic levels did not correlate with soil arsenic levels. Three PFCs (PFOA, PFOS, and PFHxS) were detected in all 196 participants and geometric mean levels were elevated compared to CDC published levels for the US population.
CONCLUSIONS (description of the main outcome of the study): Lessons learned from the pilot program have included review of recruitment methods, design, resources, governance, analytic methods, data interpretation, and communications. Data interpretation, or communicating the health implications of results to the individual and communities, remains a significant challenge. A strategic planning process with the Advisory Panel has developed a vision, purpose and framework for biomonitoring in Minnesota so that a state program can meet the challenge of informing public health practice.
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CONTROL ID: 1064436
TITLE: CSTE-APHL Biomonitoring Guidelines
CURRENT TOPIC: Biomonitoring
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): The purpose of this oral presentation is to provide a 10 minute overview of CSTE activities in biomonitoring and introduce state activities. The Association of Public Health Laboratories (APHL) has developed a five year plan to establish a National Biomonitoring Network of public health laboratories. CSTE is working in collaboration with APHL to develop epidemiological standards for designing studies, collecting samples, and the statistical analyses & interpretation involved in biomonitoring programs.
METHODS (study design and appropriate statistical analysis): APHL has met with their members to discuss the development of new analytical methods, quality assurance for testing, data reporting requirements and other laboratory-related concerns for a national system. APHL recognizes that biomonitoring goes beyond the laboratory and that an effective national biomonitoring system requires the skills, expertise, and supporting infrastructure of a variety of additional entities and individuals. CSTE members are collaborating with APHL to develop guidelines for epidemiologists in state health departments interested in biomonitoring projects. CSTE assembled state volunteers with experience in biomonitoring activities who agreed to participate in a webinar, in-person meeting, conference calls, and draft language for a guidance document publication. Activities have been ongoing from July 2010 through present day.
RESULTS (specific results in summary form): Guidance includes information on study planning and organization, biomarker selection, community engagement, sample collection and storage, and statistical analysis & interpretation of biomonitoring results.
CONCLUSIONS (description of the main outcome of the study): The final document will be distributed Spring 2011.
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CONTROL ID: 1054966

TITLE: Accidental chemical release of 2-chloro-6-fluorophenol in the Village of Holley, New York: Results from the biomonitoring and evaluation of the community response

CURRENT TOPIC: Biomonitoring

ABSTRACT BODY:

BACKGROUND (study objectives, hypothesis, or a description of the problem): On January 5, 2002, a storage vessel at the Diaz Chemical Corp. ruptured, releasing 80 gallons of liquid and steam containing primarily toluene and 2-chloro-6-fluorophenol (CFP) into the neighboring residential area. A rapid response biomonitoring program was initiated by New York State Department of Health to measure urine CFP among residents of the village between January and December 2002. About 7 years after the release, the Department of Health conducted a survey of residents who had participated in the program to learn about their experience with the release and the biomonitoring program.

METHODS (study design and appropriate statistical analysis): Five rounds of urine sampling were conducted: rounds 1-3 were directed to persons with higher potential for exposure, specific health concerns, or detectable CFP levels in a previous round (n=36, 16, and 25, respectively); round 4 was offered to all persons living/working in the Village (n=250); round 5 was offered to persons with detectable levels in their most recent sample (n=10). The survey (comprised of five questions with some narrative responses) was completed by 114 adults from among 211 who had provided urine.

RESULTS (specific results in summary form): Urine CFP was a qualitative measure of exposure and there is very limited information about CFP toxicity. The biomonitoring program found that people living within a few blocks of the facility were more likely to have detectable levels of CFP, low level exposure may have occurred in a few individuals almost a year after the release, but CFP urine levels were decreasing over time. Preliminary findings from the survey are that three-quarters of respondents said the release had been stressful, a small number understood the limitations of the urine sampling, and many participated for their own reasons or perceptions.

CONCLUSIONS (description of the main outcome of the study): Although little is known about CFP's toxicity and, among residents with levels above the detection limit, levels dropped over time, participants in the survey expressed a strong desire to know their CFP levels.

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CONTROL ID: 1055250

TITLE: Investigation of a TCE site in Pennsylvania

CURRENT TOPIC: ATSDR's Health Assessment Program: An update on state activities, collaboration, challenges, opportunities for the future

ABSTRACT BODY:

BACKGROUND (study objectives, hypothesis, or a description of the problem): For decades, trichloroethylene (TCE) was commonly used as an industrial solvent in the United States. Seepage from industrial sources into surrounding groundwater makes TCE one of the most common chemicals of concern from hazardous waste sites, including those in Pennsylvania. Communities often petition health agencies alleging detrimental health impacts from TCE exposure, leading to extended investigations. The Pennsylvania Department of Health's (PADOH's) and Agency for Toxic Substances and Disease Registry's (ATSDR's) assessment of one such site in northeastern PA where residents claimed cancerous and non-cancerous health effects is described. This site involves a manufacturing plant of large pressure vessels that closed in 1984 from which a plume of TCE contaminated groundwater of the surrounding community. To reduce exposure risks, affected homes were removed from private wells and placed on municipal water.

METHODS (study design and appropriate statistical analysis): In 2010, available surface water, groundwater, and soil/gas indoor air sampling data were reviewed and theoretical exposure doses for cancerous and non-cancerous effects were calculated. To assess cancer incidence, state cancer registry data for 1996-2007 were reviewed for the surrounding zip code and compared to statewide rates to calculate standardized mortality ratios (SMRs).

RESULTS (specific results in summary form): A total of 29 residential wells near the site were contaminated with TCE above EPA's Safe Drinking Water Act maximum contaminant level, but since residents do not drink this water, no risk for this route of exposure was identified. Residential air sampling found the highest detected level of TCE (7µg/m3) was 70 times lower than the minimum risk level. TCE was identified in 31% of surface water samples, but this is not considered a significant route of exposure. The overall SMR for the local zip code was 0.89; the distribution of cancer types and SMRs showed no unusual deviations from statewide patterns.

CONCLUSIONS (description of the main outcome of the study): Despite high levels of TCE in well water, the switch to municipal water and lack of TCE exposure through other routes (e.g. air) led to a conclusion that water sources in the community are not expected to harm the public's health. Availability of cancer registry data supported this conclusion by finding no evidence of unusual incidence or patterns of cancer in the surrounding community. Multiple reports have been published and public meetings conducted to convey this information to the community. This approach can be adapted to a wide variety of settings when community concerns about TCE arise.

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CONTROL ID: 1058366
TITLE: Recreational water illness prevention: The purpose and status of the Model Aquatic Health Code project
CURRENT TOPIC: Air and water quality related to environmental epidemiology
ABSTRACT BODY:
KEY OBJECTIVES: To discuss the purpose, status, and implications for CSTE of the Model Aquatic Health Code project, which is an effort to improve treated aquatic environments for healthy swimming and reduce risk of recreational water illness and injury
BRIEF SUMMARY: Recreational water illness (RWI) reporting has increased substantially in the United States over the past several decades. During 2005–2006, a total of 78 waterborne disease outbreaks associated with recreational water occurred in 31 states causing illness in 4,412 persons. This represents an increase from 62 outbreaks reported in 2003–2004, and is the largest number of outbreaks in a 2-year period since reporting began in 1978. Illness was primarily gastroenteritis (61.5% of outbreaks) with *Cryptosporidium* being the most common causal agent (64.6% of gastroenteritis outbreaks). The upsurge in RWI outbreaks emphasizes the importance of proper design, maintenance, and operation of swimming pools, water parks, and interactive fountains to promote healthy aquatic activities.

In the absence of uniform national guidelines or a designated federal enforcement agency, state and local jurisdictions have developed their own environmental health regulations for recreational water venues leading to widely disparate standards and enforcement. In 2004, CSTE recommended that the Centers for Disease Control and Prevention (CDC) sponsor development of a national strategic plan to address the prevention and control of RWIs. This strategic plan proposed creation of a Model Aquatic Health Code (MAHC) to serve as a voluntary, national guideline for state and local agencies when crafting or revising regulations for recreational water venues. With an initial grant from the National Swimming Pool Foundation, CDC has been working with a multidisciplinary group of public health professionals, industry representatives, academicians, and aquatic interest groups to develop data-driven, knowledge-based guidelines. The MAHC is modular in design, with sections on recreational water venue design and construction, operation and maintenance, and policies and management which will undergo regular review and revision on a continuous basis to keep pace with emerging technology and best practices. To date, modules have been released regarding operator training and response to contamination incidents; other modules are scheduled for release in 2011. To reduce future outbreaks, disease, and injury, CSTE will need to play a continual role in the MAHC revision process (just as for the food code), providing the latest epidemiologic, environmental, and laboratory data to ensure that the MAHC remains data driven in the future to protect the swimming public and reduce RWIs.
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CONTROL ID: 1060240
TITLE: Fine particle air pollution and cardiovascular health outcomes in Minnesota, 2003-2008
CURRENT TOPIC: Air and water quality related to environmental epidemiology
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): 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 (study design and appropriate statistical analysis): 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 (specific results in summary form): 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 10-$\mu g/m^3$ 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 (description of the main outcome of the study): 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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CONTROL ID: 1061518

TITLE: Relationship between vapor intrusion and human exposures

CURRENT TOPIC: Air and water quality related to environmental epidemiology

ABSTRACT BODY:

BACKGROUND (study objectives, hypothesis, or a description of the problem): Trichloroethylene groundwater plumes have been identified in three areas in Grand Prairie, Texas. The purpose of this investigation was to determine whether residents living above these groundwater plumes had higher levels of trichloroethylene in their bodies as compared to residents not living above a plume (comparison area). A secondary purpose was to provide information on the relationship between human exposures and the vapor intrusion pathway. For this investigation vapor intrusion is defined as the movement of trichloroethylene vapors from the contaminated groundwater through the soil into the homes.

METHODS (study design and appropriate statistical analysis): Tap water, indoor air, outdoor air, and soil gas samples were collected in and around 40 homes in 4 neighborhoods in Grand Prairie. Blood and urine samples were obtained from 74 people living in these homes. Environmental and blood samples were analyzed for trichloroethylene and urine samples were analyzed for trichloroacetic acid (a metabolite of trichloroethylene). Descriptive statistics were reported for each community. Non-parametric tests (Kruskal-Wallis and Wilcoxon rank-sum) were used to test differences in the number of detected samples between the three plume areas and the comparison population. Multiple linear regression analyses were performed in order to determine associations between environmental levels of trichloroethylene (in indoor air, outdoor air, and soil gas) and levels of trichloroethylene in residents' blood.

RESULTS (specific results in summary form): Residents living above one of the groundwater plumes had significantly higher levels of trichloroethylene in their blood than residents living in the comparison area ($p=0.0238$). In addition, the percentage of people with detectable levels of trichloroethylene in their blood was greater among those living over this plume (45%) than those living in the comparison area (5.9%). The multiple linear regression analysis indicated that the indoor air level of trichloroethylene was the best predictor of the blood trichloroethylene level. This relationship was most apparent in the area where the soil gas levels and indoor air levels were highest.

CONCLUSIONS (description of the main outcome of the study): Vapor intrusion and human exposure is occurring in one of the three groundwater plume areas. Although trichloroethylene was detected in the indoor air of some residences, the levels found were below those previously associated with adverse health effects. Nevertheless, EPA Region 6 is taking a health protective approach by offering mitigation systems to any homeowner in the area with evidence of significant vapor intrusion.

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CONTROL ID: 1062625
TITLE: Effects of Particulate Air Pollution on Cardiovascular Health: A Population Health Risk Assessment
CURRENT TOPIC: Air and water quality related to environmental epidemiology
ABSTRACT BODY:
BACKGROUND (study objectives, hypothesis, or a description of the problem): Particulate matter (PM) air pollution is increasingly recognized as an important and modifiable risk factor for adverse health outcomes including cardiovascular disease (CVD). However, there are still gaps regarding large population risk assessment. Results from the nationwide Behavioral Risk Factor Surveillance System (BRFSS) can be used along with air quality monitoring measurements to implement systematic evaluation of PM-related CVD risks at national and regional scales.
METHODS (study design and appropriate statistical analysis): CVD status and individual-level risk factors were collected from more than 500,000 BRFSS respondents across 2,231 contiguous U.S. counties for 2007 and 2009. Chronic exposures to PM pollutants were estimated with geospatial modeling from measurement data. CVD outcomes attributable to PM pollutants were assessed by mixed-effects and latent class regression (LCR), with adjustment for multicausality.
RESULTS (specific results in summary form): There were positive associations between CVD and PM after accounting for competing risk factors: multivariable-adjusted odds for the multiplicity of CVD outcomes increased by 1.31 (95% confidence interval: 1.21-1.42) and 1.14 (1.06-1.21) times per 10 μg/m3 increase in PM2.5 and PM10 respectively in LCR analyses. The spatially adjusted risk estimates remained robust for multiple cardiovascular manifestations. PM also showed stronger associations with CVD in the eastern-central United States.
CONCLUSIONS (description of the main outcome of the study): Chronic exposures to ambient particulates are important environmental risk factors for cardiovascular morbidity.
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