A Chikungunya Outbreak in the Metropolis of Chennai, India, 2006
Thomas Seyler
Patrick Sakdapolrak
S. Sanjeevi Prasad
R. Dhanraj

Abstract
In 2006, several southern states in India reported outbreaks of chikungunya. In the metropolis of Chennai, the first laboratory-confirmed chikungunya cases had an onset of symptoms at the end of May 2006. The authors reviewed surveillance data in which a suspected case of chikungunya was defined as a patient presenting with fever and arthralgia at a medical camp in Chennai on and after June 20, 2006. Over the same period, the authors reviewed surveillance data and larval indices for the vector *Aedes aegypti*. From June 20 to October 10, 2006, they reported 4,760 suspected cases of chikungunya (attack rate of 0.1%, no fatalities). Control measures included removal of breeding sites, daytime fogging against adult mosquitoes, and information campaigns. The early detection and effective prevention of future outbreaks rely on strengthened human and entomological surveillance, participation of private medical practitioners in case reporting, and community involvement to reduce potential breeding sites of the vector.

Mold Growth in On-Reserve Homes in Canada: The Need for Research, Education, Policy, and Funding
Michael Optis, MA
Karena Shaw, PhD
Peter Stephenson, PhD
Peter Wild, PhD

Abstract
The impact of mold growth in homes located on First Nations reserves in Canada is a part of a national housing crisis that has not been adequately studied. Nearly half of
homes on reserves contain mold at levels of contamination associated with high rates of respiratory and other illnesses to residents. Mold thrives due to increased moisture levels in building envelopes and interior spaces. Increased moisture stems from several deficiencies in housing conditions, including structural damage to the building envelope, overcrowding and insufficient use of ventilation systems, and other moisture-control strategies. These deficiencies have developed due to a series of historical and socioeconomic factors, including disenfranchisement from traditional territory, environmentally inappropriate construction, high unemployment rates, lack of home ownership, and insufficient federal funding for on-reserve housing and socioeconomic improvements.

The successful, long-term reduction of mold growth requires increased activity in several research and policy areas. First, the actual impacts on health need to be studied and associated with comprehensive experimental data on mold growth to understand the unique environmental conditions that permit the germination and growth of toxic mold species. Second, field data documenting the extent of mold growth in on-reserve homes do not exist but are essential in understanding the full extent of the crisis. Third, current government initiatives to educate homeowners in mold remediation and prevention techniques must be long lasting and effective. Finally, and most importantly, the federal government must make a renewed and lasting commitment to improve the socioeconomic conditions on reserves that perpetuate mold growth in homes. Without such improvement, the mold crisis will surely persist and likely worsen.

**Compendium—Asbestos in Public Hospitals: Are Employees at Risk?**

Henroy P. Scarlett, MPH, DrPH
Edward Postlethwait, PhD
Elizabeth Delzell, MSPH, SD
Nalini Sathiakumar, MD, DrPH
R. Kent Oestenstad, MSPH, PhD

**Abstract**

Asbestos is an established human carcinogen. Asbestos-containing building materials (ACBM) are used in surfacing materials, thermal system insulation (TSI), and miscellaneous materials, and they have been used in buildings in Jamaica in the past. The objective of the study described here was to identify ACBM, its characteristics, and its determinants in Jamaican hospitals. A walk-through survey of all hospitals was undertaken and 152 bulk samples were collected from 26 public and private hospitals. The samples were analyzed using polarized light microscopy. Sixteen (61.5%) hospitals had ACBM used mainly as TSI. The ACBM in most cases was friable and in a poor condition indicative of fiber release and contained the fibers chrysotile, amosite, and crocidolite. The age of hospitals was not associated with the presence of ACBM. Results indicated potential risk of asbestos exposure in hospitals. The hospital authorities should formulate and implement an asbestos policy for hospitals and undertake proper management of asbestos in all hospitals.

**Compendium—United States Import Safety, Environmental Health, and Food Safety Regulation in China**
Edward O. Nyambok
Justin J. Kastner, PhD

Abstract
China boasts a rapidly growing economy and is a leading food exporter. Since China has dominated world export markets in food, electronics, and toys, many safety concerns about Chinese exports have emerged. For example, many countries have had problems with Chinese food products and food-processing ingredients. Factors behind food safety and environmental health problems in China include poor industrial waste management, the use of counterfeit agricultural inputs, inadequate training of farmers on good farm management practices, and weak food safety laws and poor enforcement. In the face of rising import safety problems, the U.S. is now requiring certification of products and foreign importers, pursuing providing incentives to importers who uphold good safety practices, and considering publicizing the names of certified importers.

Compendium—Potential Health Hazards for Students Exposed to Formaldehyde in the Gross Anatomy Laboratory
Dewan S. Raja, MBBS, MPhil
Bahar Sultana, MBBS

Abstract
Formaldehyde, which has been a well-established preservative for cadavers in the anatomy laboratory for years, has an odor that many anatomy students find unpleasant. Anatomy faculty and students, embalmers in funeral homes, histopathology laboratory workers, and other biological researchers are continually exposed to the toxic vapors of formaldehyde. The immediate effects of that agent are nausea, headache, and ocular irritation that causes tear overflow and a burning sensation in the throat. Long-term exposure to formaldehyde can cause contact dermatitis, congenital defects, and cancer. This article discusses the adverse effects of continual exposure to formaldehyde and formalin and suggests various measures that can eliminate or minimize that danger to staff and students in gross anatomy laboratories.

Compendium—The 2011 Japanese Earthquake: An Overview of Environmental Health Impacts
Dhitinut Ratnapradipa, PhD, MCHES
James Condor, PhD
Ami Ruffing
Victor White, CHES

Abstract
A magnitude 9.0 earthquake rupturing the Earth’s crust nearly 130 km off the east coast of Japan on March 11, 2011, triggered a tsunami that reached the Japanese coast approximately 30 minutes later. The combined effects of the earthquake and tsunami (known as the Tohoku event) devastated the area of northeast Japan, resulting in widespread infrastructure destruction, loss of life, and environmental contamination. Perhaps the longest-lasting impact of the Tohoku event will result from the damage to the
nuclear power plants along the coast and the subsequent release of radioactive elements into the environment. This article describes the environmental impacts of the disaster and highlights the interconnectedness between the core areas of environmental health including air quality, water quality, weather/climate change, food safety, healthy housing, waste/sanitation, infectious disease/vector control, radiation, injury prevention, emergency preparedness, and toxicology. The purpose of this article is to provide an overview of the spectrum of the natural disaster and its environmental health impact to the human population. Future scientific analysis may confirm or challenge the information presented here.

March 2012

Sneakers and Spokes: An Assessment of the Walkability and Bikeability of U.S. Postsecondary Institutions
Tanya M. Horacek, PhD, RD
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Virginia M. Quick, RD
Jesse S. Morrell, MS
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Kendra. K. Kattelmann, PhD, RD
Minette S. Herrick
Karla P. Shelnutt, PhD, RD
Anne Mathews, PhD, RD
Beatrice W. Phillips, PhD, RD
Carol Byrd-Bredbenner, PhD, RD, FADA

Abstract
The purpose of the study described in this article was to assess the walkability and bikeability of 15 U.S. postsecondary education campuses. The Centers for Disease Control and Prevention’s evidence-based Healthier Worksite Initiative Walkability Audit was modified to rate campus walking and biking path segments for path safety, quality, and comfort. Universities (n = 13) assessed an average of 44 path segments, which earned a mean score of 72.71±10.77 SD (possible range 0 to 100). Postsecondary technical schools (n = 2) assessed 20 path segments, which received an average score of 76.56±13.15. About 70% of path segments received a grade A or B, but almost 1 in 10 received a failing or poor support score for walking and biking. Nearly half or more campus environments scored significantly below an acceptable score on many path safety and quality criteria. Postsecondary education campuses that are supportive of walking and biking offer numerous benefits to the environment and people. Findings from environmental assessments like the data reported here can provide valuable input to campus planners.
Lead in Drinking Water: Sampling in Primary Schools and Preschools in South Central Kansas
Anne R. Massey
Janet E. Steele, PhD

Abstract
Studies in Philadelphia, New York City, Houston, Washington, DC, and Greenville, North Carolina, have revealed high lead levels in drinking water. Unlike urban areas, lead levels in drinking water in suburban and rural areas have not been adequately studied. In the study described in this article, drinking water in primary schools and preschools in five suburban and rural south central Kansas towns was sampled to determine if any exceeded the U.S. Environmental Protection Agency (U.S. EPA) guidance level for schools and child care facilities of 20 parts per billion (ppb). The results showed a total of 32.1% of the samples had detectable lead levels and 3.6% exceeded the U.S. EPA guidance level for schools and child care providers of 20 ppb. These results indicate that about one-third of the drinking water consumed by children age six and under in the five suburban and rural south central Kansas towns studied has some lead contamination, exposing these children to both short-term and long-term health risks. The authors suggest a need for increased surveillance of children’s drinking water in these facilities.

The Potential for Community Exposures to Pathogens From an Urban Dairy
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Shawn G. Gibbs, MS, PhD, CIH
Angelina Gandara
Carissa Flores, MPH
William W. Hurd, MPH, MD
Christopher F. Green, MS, PhD

Abstract
The objectives of the study described in this article were to evaluate the variation and transport of fungal and bacterial concentrations in the air of a northern Mexico dairy cattle confined animal feeding operation (CAFO) and to determine the concentration and incidence of antibiotic-resistant Staphylococcus aureus isolates. Two-stage viable cascade impactors were used to measure the culturable airborne fungal organisms and bacteria. S. aureus resistant to penicillin, ampicillin, or cefaclor was identified. Samples were collected at three locations that were designated as on site, upwind of the cattle, and downwind of the cattle. The highest concentrations of culturable bacterial bioaerosols were consistently recovered from the on-site location. More than half of the organisms were antibiotic resistant at the on-site location. Elevated levels of culturable bacterial bioaerosols were recovered from the upwind site that may have been associated with the surrounding community. Bioaerosol concentrations were found in higher amounts than in a facility in the southwestern U.S. examined in the authors’ previous study. The urban setting of the CAFO resulted in a higher potential for immediate community exposures.
April 2012

The Dilemma of Promoting Green Products: What We Know and Don’t Know About Biobased Metalworking Fluids
Ephraim Massawe, ScD
Kenneth Geiser, PhD

Abstract
Advocates of “green products” argue that promoting these products can protect the environment, workers, and public health. Biobased metalworking fluids (MWFs) are among the products promoted as “green products.” The main question is, what constitutes a green product? To answer this question, the authors compared and contrasted the health and safety aspects of biobased and petroleum-based MWFs in terms of their additives. These two product categories of MWFs derived from various feedstocks were investigated through interviews and literature review. Three classes of biobased MWFs and four classes of petroleum-based MWFs were identified and compared. The little information available on the individual constituents for biobased MWFs indicates that they had biocides and preservatives, corrosion inhibitors, extreme pressure, and antiwear components, which are also common additives in petroleum-based MWFs. Precautionary approaches should be taken when promoting biobased MWFs as “green products” until individual components are evaluated for their health and safety impacts.

Fish Consumption and Advisory Awareness Among the Philadelphia Asian Community: A Pilot Study
Hernando Perez, PhD, MPH, CIH, CSP, HHS
Erin C. Sullivan, MPH
Karen Michael, MPH
Reginald Harris, MA

Abstract
Difficulties in the risk communication of fish consumption arise from the concept that this consumption can have both harmful and beneficial effects. This is particularly an issue among populations for which seafood is a major dietary and cultural component. Fish advisories are an important tool in preventing overconsumption of fish that have elevated concentrations of toxic contaminants. The exploratory pilot study described in this article examined fish consumption patterns and knowledge of the potential health risks associated with overconsumption of mercury-contaminated fish within a limited (N = 34) sample of the Philadelphia Asian-American population. Study data were used to evaluate the efficacy of state-issued advisories designed to encourage safe levels of fish consumption within the study population. Results indicate that while advisory awareness levels among study participants were greater than previously observed in Asian-American populations, consumption levels remained high. The limited findings of the
authors’ study, in combination with existing evidence, suggest the need for the development of more effective methods of disseminating advisory information.

A Survey of California Public School Districts’ Ant and Weed Management Practices and a Review of Their Use of IPM
Carole Barnes, PhD
Sandra Sutherland
Madeline Brattesani, PhD
Larry Wilhoit, PhD
Belinda Messenger, PhD

Abstract
The U.S. Environmental Protection Agency encourages school officials to adopt integrated pest management (IPM) to reduce children’s exposure to potentially harmful pesticides. In California, the Healthy Schools Act of 2000 (HSA) establishes right-to-know requirements for pesticide use in public schools; requires school districts to designate an IPM coordinator; and requires the California Department of Pesticide Regulation (DPR) to collect pesticide-use information from pest control businesses, conduct IPM training workshops, and promote least-toxic pest management practices. DPR periodically surveys school districts statewide to measure compliance with the HSA and the use of least-toxic management practices compatible with IPM and to guide DPR’s training and outreach efforts. Results from three surveys, conducted in 2001, 2002, and 2004, show that an increasing number of districts use ant management practices compatible with IPM; however, fewer districts use IPM-compatible weed management practices. DPR’s California School IPM program plans to develop technical materials and to conduct training workshops that will provide districts with more information about how to use an IPM program to prevent and manage weeds.

May 2012

Bacterial Amplification and In-Place Carpet Drying: Implications for Category 1 Water Intrusion Restoration
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John Banta, CAIH, RestCon Environmental
Boni Passmore, PhD, RCAnalytical
Mark Ayers, CAC, RestCon Environmental
Sean P. Abbott, PhD, Natural Link Mold Lab, Inc.
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Abstract
The study described in this article investigated whether in-place carpet drying processes resulted in bacterial amplification following water intrusion from a clean water source (category 1) in a residential indoor environment. Bacterial amplification was
examined after wetting a 10-year-old carpet and pad that had no history of water intrusion. Three test areas were extracted and dried using industry-recommended procedures for in-place drying and compared to a control area that was not extracted or dried. Results from carpet, pad, and subsurface dust demonstrated that bacterial amplification occurred in all test areas. CFUs of bacteria per gram of carpet surface dust and subsurface dust prior to water intrusion were lower than levels in subsurface dust after in-place drying. The authors’ study contributes to information regarding the restoration of water-based carpet damage by professional water damage restoration companies, building maintenance personnel, and housekeeping managers. Results suggest that the appropriate response time for carpet pad salvage is considerably shorter than the current industry recommendation of 72 hours.

2005 Hurricane Surveillance: Measures to Reduce Carbon Monoxide Poisoning in All Floridians
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T. Dark, PhD, Florida A&M University
T. Mason, PhD, University of South Florida
B. Goodwin, PhD, National Center for Advancing Translational Sciences

Abstract
The 2005 Florida hurricanes caused widespread power outages, increasing generator use that directly resulted in a surge in carbon monoxide (CO) poisonings. Of the 126 CO poisonings documented, 77% were related to generator use and 43% of these generators were placed outside but near a window. African-Americans and Latinos had a higher incidence of CO poisoning. The strength of the authors’ study described here was the inclusion of the first responder network in one surveillance system for hurricane response. Notable advances have occurred since the authors’ study, including CO poisoning listed as a reportable condition, regulation requiring CO detectors, CO generator warning labeling and the development of a local surveillance and classification program for the county health departments. To prepare for future multiple hurricane seasons, comprehensive outreach should be focused at the local level through the first responder network and community groups to reduce CO poisonings in all populations.

Occupational and Environmental Exposures Among Alaska Native and American Indian People Living in Alaska and the Southwest United States
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Michael Brubaker, MS, Alaska Native Tribal Health Consortium
Laurie Orell, MPH, Alaska Native Tribal Health Consortium
Lillian Tom-Orme, PhD, University of Utah
Carmen George, MS, University of Colorado Denver
Sandra Edwards, PhD, University of Utah
Martha Slattery, PhD, University of Utah

Abstract
Most occupational and environmental research describes associations between
specific occupational and environmental hazards and health outcomes, with little information available on population-level exposure, especially among unique subpopulations. The authors describe the prevalence of self-reported lifetime exposure to nine occupational and environmental hazards among 11,326 American Indian and Alaska Native (AI/AN) adults enrolled in the Education and Research Towards Health (EARTH) Study in the Southwest U.S. and Alaska. The top three hazards experienced by AI/AN people in Alaska were petroleum products, military chemicals, and asbestos. The top three hazards experienced by AI/AN living in the Southwest U.S. were pesticides, petroleum, and welding/silversmithing. The study described here found that male sex, lower educational attainment, AI/AN language use, and living in the Southwest U.S. (vs. Alaska) were all associated with an increased likelihood of hazard exposure. The authors’ study provides baseline data to facilitate future exposure-response analyses. Future studies should measure dose and duration as well as environmental hazards that occur in community settings.

June 2012

**Murder by Radiation Poisoning: Implications for Public Health**
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Carol McCurley, MS, Radiation Studies Branch, Division of Environmental Hazards and Health Effects, National Center for Environmental Health, Centers for Disease Control & Prevention
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**Abstract**

On November 23, 2006, former Russian military intelligence officer Alexander Litvinenko died in a London hospital. Authorities determined he was deliberately poisoned with the radionuclide Polonium-210 ($^{210}\text{Po}$). Police subsequently discovered that those involved in this crime had—apparently inadvertently—spread $^{210}\text{Po}$ over many locations in London. The United Kingdom Health Protection Agency (HPA) contacted many persons who might have been exposed to $^{210}\text{Po}$ and provided voluntary urine
testing. Some of those identified as potentially exposed were U.S. citizens, whom the HPA requested that the Centers for Disease Control and Prevention (CDC) assist in contacting. CDC also provided health care professionals and state and local public health officials with guidance as to how they might respond should a Litvinenko-like incident occur in the U.S. This guidance has resulted in the identification of a number of lessons that can be useful to public health and medical authorities in planning for radiological dispersion incidents. Eight such lessons are discussed in this article.

**Burning Man, Extreme Environmental Health**
Richard Elloyan, REHS, Nevada State Health Division

Abstract

The spectacle that pops up in the middle of the Black Rock Desert that is “Burning Man,” an annual eight-day festival in August and September 100 miles north of Reno, Nevada, produces what the author of this month’s cover feature calls “Burning Man, Extreme Environmental Health.” This guest commentary explains the unique environmental health challenges posed by the festival for the Nevada State Health Division, from food safety and temporary food vendor permits to portable toilet inspections to surveillance for possible foodborne illness outbreaks.

**The Impact of the Economic Downturn on Environmental Health Services and Professionals in North Carolina**
Paula Weston-Cox, MSEH, REHS, Guilford County Department of Public Health
Alice Anderson, PhD and Charles P. Humphrey, Jr., PhD, REHS, Department of Health Education and Promotion Environmental Health Sciences Program, East Carolina University

Abstract

The objective of the authors’ study was to examine the impact of the economic recession on the environmental health profession between budget year (BY) 2006–2007 and BY 2010–2011 in the following areas: (1) environmental health department fees for services; (2) changes in staffing levels, benefits, or pay; (3) changes in staff responsibilities; and (4) the impact to the private environmental sector compared to public environmental health professionals. Data were summarized from the following surveys: North Carolina Environmental Health Supervisors Association Fee and Economic Surveys; University of North Carolina Chapel Hill School of Government Current Salary Index; and a created online survey of private-sector environmental professionals. Total fees in the public sector for services have risen for most environmental health departments, but not enough to offset budget reductions. All of the counties that participated in the survey either have reduced staff, pay, or benefits due to budget cuts, and some counties utilized staff in other areas through cross-training. The private environmental sector also reduced staff in response to a reduced workload. Public sector employers may have difficulties retaining existing employees and recruiting new employees over the long term in the current economic climate.
Food Safety Issues and Information Needs: An Online Survey of Public Health Inspectors
Mai T. Pham, MSc, Centre for Public Health and Zoonoses, University of Guelph
Andria Q. Jones, DVM, PhD, Department of Population Medicine, University of Guelph
Jan M. Sargeant, MSc, DVM, PhD, Centre for Public Health and Zoonoses and Department of Population Medicine, Ontario Veterinary College, University of Guelph
Barbara J. Marshall, CPHI, MES, Centre for Food-borne, Environmental and Zoonotic Infectious Diseases, Public Health Agency of Canada
Catherine E. Dewey, MSc, DVM, PhD, Department of Population Medicine, University of Guelph

Abstract
In the study described in this article, the authors investigated the perceptions and needs of public health inspectors (PHIs) in the province of Ontario, Canada, with regard to food safety issues and information resources. A cross-sectional online survey of 239 Ontario PHIs was conducted between April and June 2009. Questions pertained to their perceptions of key food safety issues and foodborne pathogens, knowledge confidence, available resources, and resource needs. All respondents rated time-temperature abuse, inadequate hand washing, and cross contamination as important food safety issues. Salmonella, Campylobacter, and E. coli O157:H7 were pathogens reported to be of concern to 95% of respondents (221/233). Most respondents indicated that they were confident in their knowledge of food safety issues and foodborne pathogens, but wanted a central, online resource for food safety information and ongoing food safety education training for PHIs. The data from the authors’ study can be used in the development of information resources targeted to the needs of PHIs involved in food safety.

July/August 2012

Derby District Redevelopment in Colorado: Case Study on the Health Impact Assessment Process
Carol F. Maclennan, Tri-County Health Department
Tista S. Ghosh, Tri-County Health Department
Lara Juliusson, Tri-County Health Department
Tegan K. Boehmer, Centers for Disease Control and Prevention
Richard L. Vogt, Tri-County Health Department

Abstract
Health Impact Assessment (HIA) is a tool that is increasingly utilized in the U.S. to shape policies that may impact the public’s health. Domestic examples of HIAs and the process by which they were conducted, however, are rarely documented in the peer-reviewed literature. Through an existing relationship with the planning department in Commerce City, Colorado, Tri-County Health Department (TCHD) was able to identify a proposed redevelopment plan as a candidate for an HIA. The HIA focused on potential


effects of the proposed redevelopment of Commerce City’s historic Derby District on residents’ physical activity and nutrition-related behaviors. This article describes the HIA process used by TCHD.

Several sources of data were used, including participatory community input on walkability and safety, local health behavior data, and maps of health-influencing environmental characteristics. Using a variety of information sources including community input and local health behavior data can be useful in conducting HIAs and impacting policies. Local health departments should consider cultivating ongoing collaborative partnerships with municipal planning departments and community groups to conduct HIAs and to implement recommendations.

**Destination Tent City: Environmental Health Lessons From the Occupy Movement**
Marcy A. Barnett, MS, MA, REHS, California Department of Public Health

Abstract
Across the national last fall the Occupy Movement settled into cities for days, and in some places weeks, creating tent cities in the midst of urban centers. The author of this guest commentary found similarities between these tent cities and the encampments of displaced people often observed following disasters. The environmental health lessons learned from the Occupy Movement can help public health responders become better prepared for the next major disaster. This guest commentary outlines those lessons.

**Evaluating the Communication of Environmental Permitting Decisions in Diverse Communities**
Rosemary M. Caron, MPH, PhD, Department of Health Management and Policy, College of Health and Human Services, University of New Hampshire
Michael E. Rezaee, MPH, Center for Leadership and Improvement, The Dartmouth Institute

Abstract
Environmental communication plays a critical role in addressing the public’s growing awareness and apprehension about environmental health risks. Although opportunities for public participation in environmental health assessments have greatly increased, environmental communication among key stakeholders is an evolving process. The authors evaluated the communication that occurred among a state environmental agency, six Title V operating facilities, and the public concerning environmental permitting decisions perceived to impact environmental and human health. The authors identify environmental concerns of diverse communities, analyze communication among key stakeholders regarding environmental permitting decisions, and propose recommendations for practitioners to improve environmental communication strategies among these key stakeholders in either urban or rural communities.

**Setting a New Standard: Increasing Capacity at the Fort Drum Environmental Health Department**
MAJ Ronald W. Havard, MPH, Environmental Health Section, Fort Drum, U.S. Army
Abstract
This guest commentary covers how the environmental health program at the Fort Drum Medical Department Activity section has grown from being barely existent to cutting edge. Fort Drum’s environmental health program has become a model for other environmental health programs on U.S. Army installations by increasing soldiers’ technical skill sets, providing a wide range of training and education to the local population and command, becoming more involved with the local community, developing new processes and programs, and acquiring new equipment.

September 2012

An Investigation to Determine Association Between Foodborne Illness and Number of Citations in a Food Establishment
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Mohammad Alam, MSc, MS, PhD, RS, REHS, Cincinnati Health Department
Jun Ying, PhD, University of Cincinnati College of Medicine

Abstract
This article analyzes the inspectional data for the food protection program at the Cincinnati Health Department prior to the implementation of a standardization program for food inspections and food inspection training. The main objectives of the authors’ study were to assess if current foodborne illness risk factors were associated with different risk classes of food establishments and the relationships between foodborne illness risk factors using non-Centers for Disease Control and Prevention (CDC) foodborne illness risk factors and CDC foodborne illness risk factor criteria. Additionally, the authors’ study provides information on whether the standardization of staff reduced the number of risk factors at food establishments, reducing the opportunity for a foodborne illness. This research compares the mean number of violations cited per inspection at food establishments of various risk classes. The authors’ findings show that both CDC and non-CDC foodborne illness risk factors were positively associated to the risk class of the food establishment; however, more non-CDC than CDC foodborne illness risk factors were cited by the sanitarians at each level of risk class.

Are We Aware of Microbial Hotspots in Our Household?
Robert S. Donofrio, PhD, NSF International
Nabaneeta Saha, PhD, University of Calcutta
Robin Bechanko, NSF International
Nathan Hitt, NSF International
Kathy O’Malley, NSF International
Tamara Charnauski, NSF International
Loretta L. Bestervelt, PhD, NSF International
Ratul Saha, PhD, NSF International
Abstract

Household microorganisms are found in unexpected places. Therefore, the authors conducted a study to investigate the microbial hotspots and reveal the misconceptions regarding the most contaminated objects in the household. In the authors’ study, 26 daily use objects in 22 households were sampled to determine the levels of heterotrophic plate count (HPC), coliforms, E. coli, yeast and mold, and Staphylococcus aureus. High microbial concentration was found in the kitchen area and the dish sponge was the most contaminated item in the household, followed by the toothbrush holder. Coliforms were most prevalent in the kitchen on items such as sponges, sinks, and cutting boards. Yeast and molds were found on leather, fabric, porcelain, and laminate, and S. aureus was found on personal objects and pet’s items. Overall, HPC and the presence of coliforms were significantly related to surface type ($p < .05$). In the kitchen, cleaning frequency ($p < .03$) and type of cleaning ($p < .0003$) had significant effects on HPC. The authors’ study provides information that will help the general population to make an educated decision in developing a proper and routine cleaning regime in their homes. This baseline data might contribute to designing appropriate sanitation guidelines or standards that will help to implement proper sanitation practices in households and to conducting further research in the area of foodborne and household communicable diseases.

Microbial Contamination in 20-Peso Banknotes in Monterrey, Mexico
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Patricia Macías-Cárdenas, MES, Universidad Autónoma de Nuevo León
Jorge Canizales-Oviedo, QCB, Universidad Autónoma de Nuevo León
Elvira Garza-González, PhD, Universidad Autónoma de Nuevo León
Elsa Guadalupe Ramírez-Villarreal, MSc, Universidad Autónoma de Nuevo León

Abstract

The authors’ aim was to isolate and identify bacteria or yeast that may be present on the surface of 20-peso banknotes from the metropolitan area of Monterrey, Mexico. They randomly studied a total of 70 20-peso banknotes for the presence of bacteria and species of Candida by conventional methods. Out of the 70 banknotes, 48 (69%) were found to be contaminated. The most prevalent species observed was Candida krusei (19 bills, 27%) followed by Burkholderia cepacia (9 bills, 13%); 22 (31%) bills showed no growth. Of the 48 contaminated bills, four (5.7%) yielded bacteria considered pathogenic and the other 44 bills (63%) yielded bacteria considered potentially pathogenic. Eleven bills showed more than one microbial species. The results of the authors’ study show that contamination occurs of paper currency in the metropolitan area of Monterrey. The authors’ findings provide evidence that currency banknotes may represent a threat to human health.

Building Capacity for Community Disaster Preparedness: A Call for Collaboration Between Public Environmental Health and Emergency Preparedness and Response Programs
Thelma Gamboa-Maldonado, MPH, DrPH, CHES, Loma Linda University
Helen Hopp Marshak, PhD, CHES, Loma Linda University
Ryan Sinclair, MPH, PhD, Loma Linda University
David T. Dyjack, DrPH, CIH, National Association of County and City Health Officials
Susanne Montgomery, PhD, Loma Linda University

Abstract

Partnerships among local public environmental health (EH), emergency preparedness and response (EPR) programs, and the communities they serve have great potential to build community environmental health emergency preparedness (EHEP) capacity. In the study described in this article, the beliefs and organizational practices pertaining to community EHEP outreach and capacity were explored through key informant (KI) interviews ($N = 14$) with a sample of governmental EH and EPR administrators and top-level managers from Riverside and San Bernardino counties in Southern California. The results indicate that KIs were highly confident in their workforces’ efficacy, ability, willingness, and motivation to directly engage local communities in EHEP. Best practices to combat organizational and systematic barriers to community EHEP outreach were identified. Based on the authors’ results, training in participatory methods is needed to bridge technical knowledge in emergency management to daily practice. The lessons learned will form the basis of future interventions aimed to prepare EH and EPR professions to implement community-focused emergency preparedness strategies.

October 2012

Altitude and Environmental Climate Effects on Bronchiolitis Severity Among Children Presenting to the Emergency Department
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Christopher S. Cavagnaro, MD, Division of Pediatric Emergency Medicine, Children’s Hospital at Montefiore
Sunday Clark, ScD, Departments of Medicine and Epidemiology, University of Pittsburgh
Carlos A. Camargo, Jr., MD, DrPH, Department of Emergency Medicine, Massachusetts General Hospital
Jonathan M. Mansbach, MD, Department of Medicine, Children’s Hospital Boston

Abstract

Bronchiolitis, a respiratory illness, is the leading cause of hospitalization for infants. The authors examined whether environmental factors contributed to the severity of the bronchiolitis illness. They compiled environmental data (temperature, dew point, wind speed, precipitation, altitude, and barometric pressure) to augment clinical data from a 30-center prospective cohort study of emergency department patients with
bronchiolitis. They analyzed these data using multivariable logistic regression. Higher altitude was modestly associated with increased retractions (odds ratio \( OR = 1.6; 95\% 
\text{confidence interval } [CI] = 1.1–2.1; p < .001 \)) and decreased air entry (\( OR = 2.0; 95\% 
\text{CI} = 1.6–2.6; p < .001 \)). Increasing wind speed had a minor association with more severe retractions (\( OR = 1.3; 95\% 
\text{CI} = 1.1–1.7; p = .02 \)). Higher dew points had a minor association with lower admission rates (\( OR = 0.9; 95\% 
\text{CI} = 0.8–0.996; p = .04 \)). Altitude and environmental climate variables appear to have modest associations with the severity of bronchiolitis in the emergency department. Further studies need to be conducted, however, on limiting exposure to these environmental variables or increasing humidity before making broad recommendations.

**Evaluation of Fecal Coliform Samples From Oakland Bay, Washington, Using a New Sanitation Model**
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**Abstract**

The study described in this article analyzed the current statistical procedure used by the National Shellfish Sanitation Program (NSSP) to manage opening and closing of conditionally approved shellfish harvest areas and identified a deficiency in the statistical analytical method used by NSSP. The authors propose a new statistical model to address this deficiency. Over 2,100 fecal coliform samples, collected by the Washington Department of Public Health from 15 shellfish stations in Oakland Bay, Washington, over 10 years from January 13, 2000, to December 9, 2009, were analyzed. The results suggest that the estimated 90th percentile criterion, which is currently used by NSSP, is not sufficient to protect the public from risks caused by consumption of biologically contaminated shellfish. To reduce this risk, the NSSP procedure should be augmented by applying the upper limit of the estimated 90th percentile of fecal coliform samples at the .05 significance level.

**The Presence of Asbestos-Contaminated Vermiculite Attic Insulation or Other Asbestos-Containing Materials in Homes and the Potential for Living Space Contamination**
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Abstract

Asbestos-contaminated vermiculite attic insulation (VAI) produced from a mine near Libby, Montana, may be present in millions of homes along with other commercial asbestos-containing materials (ACM). The primary goal of the research described here was to develop and test procedures that would allow for the safe and effective weatherization of low-income homes with asbestos. The presence of asbestos insulation was confirmed by bulk sampling of the suspect asbestos material. The homes were then tested for the presence of asbestos fibers in the living spaces. All 40 homes containing VAI revealed the presence of amphibole asbestos in bulk samples. Asbestos (primarily chrysotile) was confirmed in bulk samples of ACM collected from 18 homes. Amphibole asbestos was detected in the living space of 12 (26%) homes, while chrysotile asbestos was detected in the living space of 45 (98%) homes. These results suggest that asbestos sources in homes can contribute to living space contamination.

Tattooing Regulations in U.S. States, 2011
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Abstract

Tattooing’s popularity has led to regulatory concerns because medical complications linked to unsanitary practices can have a lasting health impact. The authors’ study sought to determine whether existing state tattooing laws and regulations (rules) effectively protect public health. A 10-item checklist was created for each of three types of rules (sanitation, training, and infection control) identified as having the greatest public health impact. State rules were classified as effective if the state scored ≥7 on all three categories, moderate if ≥4 in all three categories, minimal if <4 in one or more categories, and ineffective if ≤2 in all three categories.

Forty-one states have at least one state statute regulating tattooing practice. On the basis of the authors’ study criteria, 36 states regulate sanitation effectively; 15 states regulate training effectively; and 26 states regulate infection control effectively. Fourteen states meet the criteria for regulating all three categories effectively. Specific rules vary substantially by state. Public health agencies should encourage states to adopt and enforce effective, evidence-based tattooing rules.

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A Summary of Health Outcomes: Multistate Foodborne Disease Outbreaks in the U.S., 1998–2007
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Abstract
Multistate foodborne disease outbreaks (FBDOs) pose a particular threat to public health. The study described in this article sought to describe the incidence and health outcomes of multistate FBDOs in the U.S. from 1998 to 2007. The Centers for Disease Control and Prevention’s (CDC’s) OutbreakNet Foodborne Outbreak online database was used to analyze FBDOs reported to and confirmed by CDC between 1998 and 2007. Univariate analysis and ANOVA were used to examine outcomes of illnesses, hospitalizations, and deaths. Over 100 multistate FBDOs occurred between 1998 and 2007, with a slight increase over time. Average illnesses, hospitalizations, and deaths were 74.075 (SD = 106.24), 14.11 (SD = 23.23), and 0.826 (SD = 2.88), respectively. Vectors most often identified as the cause of the FBDOs were Salmonella (n = 57) and E. coli (n = 30), making up 81% of all multistate outbreaks. Policy makers and health officials need to reconsider the means by which industry and government coordinate response to outbreaks—particularly across jurisdictions—to ensure an efficient and seamless system of response, particularly in the case of multistate outbreaks.

Outbreak of Cryptosporidiosis Associated With a Man-Made Chlorinated Lake—Tarrant County, Texas, 2008
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Abstract
In July 2008, clusters of laboratory-confirmed cryptosporidiosis cases and reports of gastrointestinal illness in persons who visited a lake were reported to Tarrant County Public Health. In response, epidemiologic, laboratory, and environmental health
investigations were initiated. A matched case-control study determined that swallowing the lake water was associated with illness (adjusted odds ratio = 16.3; 95% confidence interval: 2.5–infinity). The environmental health investigation narrowed down the potential sources of contamination. Laboratory testing detected Cryptosporidium hominis in case-patient stool specimens and Cryptosporidium species in lake water. It was only through the joint effort that epidemiologic, laboratory, and environmental health investigators could determine that >1 human diarrheal fecal incidents in the lake likely led to contamination of the water. This same collaborative effort will be needed to develop and maintain an effective national Model Aquatic Health Code.

The Need for Congressional Action to Finance Arsenic Reductions in Drinking Water
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Abstract
Many public water systems in the U.S. are unsafe because the communities cannot afford to comply with the current 10 parts per billion (ppb) federal arsenic standard for drinking water. Communities unable to afford improvements remain vulnerable to adverse health effects associated with higher levels of arsenic exposure. Scientific and bipartisan political consensus exists that the arsenic standard should not be less stringent than 10 ppb, and new data suggest additional adverse health effects related to arsenic exposure through drinking water.

Congress has failed to reauthorize the Drinking Water State Revolving Fund program to provide reliable funding to promote compliance and reduce the risk of adverse health effects. Congress’s recent ad hoc appropriations do not allow long-term planning and ongoing monitoring and maintenance. Investing in water infrastructure will lower health care costs and create American jobs. Delaying necessary upgrades will only increase the costs of improvements over time.

Craft Cocktail Considerations: Fundamental Food Sanitation for Modern “Mixology”
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Abstract
The advancement of most professions hinges heavily on its practitioners’ continual awareness of emerging trends and its community’s effectiveness in steering its work to the highest standards applicable. Observation, regulation, inspection, surveillance, and outreach are indispensable tools for environmental health practitioners but lose potency when activities of interest transpire while professionals are off duty and compliance legacy is indiscernible as communities had vanished long before applicable oversight was developed. The resurgence of “craft cocktails” in the U.S. will be the focus as this article attempts a cursory evaluation of this burgeoning industry’s unique exposures from the perspective of environmental health and food safety.
There’s an App for That?? Making Public Health Information Obtainable at the Touch of a Button
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Kari Wagner, REHS, County of Sacramento Environmental Management Department
Geoff Marsh, County of Sacramento Environmental Management Department

Abstract
Sacramento County’s Environmental Management Department (EMD) in California has been recognized for innovative firsts when it comes to communicating the health status of the over 5,000 retail food facilities throughout the county. In the last several years, the use of technology, the Internet, and social media tools to disseminate health messages has grown significantly and continues to trend upward. Using a combination of these tools has become an effective way to expand and increase access to credible, science-based health messages. EMD is reaching many more of its residents and visitors by making inspection results available at the touch of the screen on mobile devices (e.g., smartphones), by the use of Quick Response (QR) codes on posted placards, an online home kitchen food safety quiz, and an EMD Facebook page.

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Energy Conservation Awareness and Practice in Restaurants of Hennepin County, Minnesota
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Abstract
Greenhouse gases result mainly from the combustion of fossil fuels in energy use. Restaurants use large amounts of energy in their operation but systematically gathered information about such use is lacking. Hennepin County Human Services and Public Health Department surveyed owners of licensed restaurants to assess their energy use and awareness of energy conservation measures. Of 434 owners surveyed, 276 (63.6%) returned completed surveys. Responses indicated that large pluralities or majorities of restaurant owners often were aware of energy-efficient methods of operation and the means to achieve greater efficiency but used such means much less frequently. For example, 57% of respondents were familiar with the U.S. Environmental Protection Agency’s Energy Star® program, but only 33% of this group actually used Energy Star® appliances. Given the gap between awareness and practice, opportunities for consultation and outreach to restaurant owners about energy-efficient business operation are manifold.

Arsenic and Lead in Juice: Apple, Citrus, and Apple-Base
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Abstract
Exposure limits for arsenic and lead in drinking water have long been established by the U.S. Environmental Protection Agency and new regulations regarding the presence of these contaminants in bottled water went into effect in California in 2009. No comparable exposure limits or regulations are available, however, for juices and other beverages that may contain arsenic and lead. In the study described in this article, 20 apple juices (or ciders), 15 apple-containing juices, one grape, and one citrus juice were analyzed for arsenic and lead. Arsenic was detected in all juices while lead was detected in more than 94% of juices analyzed. Twelve samples (32%) demonstrated arsenic levels nearly at or above the drinking water exposure limit of 10 parts per billion. No juices contained lead above drinking water exposure limits. Expanding drinking water limits to include juices (and other frequently consumed beverages) would better protect consumers while regular testing of these juices would better inform consumers of the risks posed by specific juices and brands.

The Evolution of Septic Systems Practices in Ohio
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Abstract
Regulations that address management of wastewater in rural areas in Ohio are in the process of being updated. The study described in this article reviewed the legal and regulatory process that occurred in the past decade. Thirty percent of septic systems in Ohio are failing due to installation in shallow soils. The adoption of alternative treatment systems, however, is not widespread. Alternative systems are expensive and in many cases require larger surface areas to build and operate. The establishment of a technical advisory committee provided an avenue to approve new and innovative treatment systems that differ from the existing regulations while the countdown towards the proposed new regulations approached. A survey of county health officials in Ohio highlighted the need for training of regulators and delineation of responsibilities to avoid conflicts of interest. Adequate training of regulators will make the regulatory transition a successful venture.

Environmental Health in the South Pacific
LCDR Christopher T. Smith, REHS, MPH, DAAS, U.S. Public Health Service

Abstract
The author of this guest commentary shares with the reader his experiences as an environmental health officer participating in Pacific Partnership 2009. Pacific Partnership is the U.S. Navy’s humanitarian and civic assistance mission conducted with partner nations, nongovernmental organizations, and other U.S. government agencies to execute a variety of health care programs. Remote locations, logistical issues, and cultural
barriers made the aspects of environmental health a little bit different and more challenging.