

61st EIS Conference Presentation Highlights

Necrotizing Cutaneous Mucormycosis Following a Tornado — Joplin, Missouri, 2011

Author: Robyn Neblett Fanfair

Mucormycosis is a rare infection caused by Mucormycetes, a class of environmentally-acquired molds. We investigated an outbreak of cutaneous mucormycosis in persons who sustained trauma during the May 22, 2011 Joplin, Missouri tornado.



“This is important because this outbreak investigation represents the first cluster of cutaneous mucormycosis following a natural disaster in the US. Healthcare providers should consider environmental fungi as potential causes of necrotizing soft-tissue infections in patients injured during natural disasters, and should aggressively pursue diagnosis, since early treatment may improve outcomes.”

Robyn Neblett Fanfair

The Impact of Father Absence, Parental Monitoring, and Parenting Practices on Suicidal Behavior

Author: Asha Z. Ivey

This investigation highlights the importance of increased parental monitoring in moderating the relationship between father absence and suicidal behavior such that higher levels of parental monitoring buffer the effect of youth in father absent households from engaging in suicidal behavior. These findings help to inform primary prevention strategies in youth suicide prevention.



“What was surprising about this investigation is the study hypothesis that positive reinforcement would moderate the relationship between father absence and suicidal behavior, was not supported; however, it (positive reinforcement) still remained a significant predictor of suicidal behavior such that higher levels of positive reinforcement predicted lower levels of suicidal behavior (lower number of suicide attempts). Another important point to consider is the finding that when the father is absent from the household, additional parental monitoring can buffer the effect of father’s absence on suicidal behavior.”

Asha Z. Ivey

Usual Sodium Intake Among Preschool Children — United States 2001–2008

Author: Niu Tian

Most U.S. preschool children consume excessive sodium. Mean sodium intake and the prevalence of excess sodium intake are both highest among non-Hispanic black children. These findings suggest enhanced strategies are needed to reduce sodium intake among preschool children, and particularly among non-Hispanic black children.



“Too much sodium increases a person’s risk for high blood pressure. High blood pressure often leads to heart disease and stroke. This study shows the majority (>70%) of U.S. preschool children (as young as 1-3 years) consume too much sodium. The average sodium intake of children aged 4-5 years excluding salt added at the table is above upper levels for adults (2300 mg daily). Non-Hispanic black children have the highest sodium intakes. This is a concern given that sodium is related to blood pressure, and blood pressure tracks from childhood to adult years.”

Niu Tian

Evidence Against Serosorting Among HIV-Infected Persons with Syphilis — New York City, Philadelphia, and Washington, DC, 2009–2010

Author: Brooke E. Hoots

Syphilis has increased among men who have sex with men (MSM) since 1999. When HIV-infected MSM acquire syphilis it suggests they may have transmitted HIV. However, many do not consider syphilis a sentinel event for HIV transmission; they believe HIV-infected MSM practice serosorting (limiting unprotected sex to partners with the same HIV serostatus as them to prevent HIV transmission). We investigated if HIV-infected persons with syphilis reported HIV-uninfected sex partners and whether those partners also had syphilis, suggesting unprotected sex.



“While many in the public health community believe HIV-infected MSM limit unprotected sex to partners who are also HIV-infected to prevent HIV transmission, our study found that many HIV-infected MSM who contracted syphilis had HIV-uninfected sex partners with syphilis – implying unprotected sex and a risk of HIV transmission. Our research supports HIV prevention interventions targeted at MSM who acquire syphilis because they are either at high risk of acquiring HIV if they are uninfected or at high risk of transmitting HIV if they are infected.”

Brooke E. Hoots

Prevalence of Coal Workers' Pneumoconiosis Among Surface Coal Miners — 16 States, 2010–2011

Author: Cara N. Halldin

Inhalation of coal mine dust causes coal workers' pneumoconiosis (CWP), a chronic, occupational lung disease and progressive massive fibrosis (PMF), a severe form of CWP. In the last decade CWP prevalence and severity have increased among underground coal miners in central Appalachia (Kentucky, Virginia and West Virginia). No studies of CWP prevalence among surface miners have been conducted since 2002, though surface miners comprise 43% of the coal mining workforce. We investigated the prevalence, severity and geographic distribution of CWP in surface coal miners.



“Historically, compared to surface coal miners, underground coal miners were thought to bear a greater risk for developing coal workers’ pneumoconiosis because of their exposure to dusty, confined work spaces. Therefore, it was surprising to find surface coal miners, a majority of whom had little to no underground coal mining experience, with advanced and severe pneumoconiosis.”

Cara N. Halldin

Cryptococcus gattii: An Emerging Fungal Infection in the Pacific Northwest — Oregon and Washington, 2004–2011

Author: Rachel M. Smith

Cryptococcus gattii (Cg) causes meningoencephalitis in Oceania, where subtype VGI predominates. Cg infections, caused by novel VGII subtypes, emerged in Oregon and Washington (Pacific Northwest, PNW) beginning in 2004. To describe the epidemiology of PNW Cg infections, and understand their differences from previously-described infections, we conducted an investigation of Cg cases in the PNW.



“Cryptococcus gattii is an emerging infection in the Pacific Northwest states of Oregon and Washington. Characterizing the epidemiology of these ongoing infections and disseminating that information to clinicians and local health departments is critical. This will allow us to improve recognition, and ultimately treatment, of C. gattii infections in the future.”

Rachel Smith

Norovirus Outbreak at a Rehearsal Dinner — Connecticut, 2011

Author: Timothy Styles

In the United States, norovirus causes more than 50% of foodborne disease outbreaks with a known etiology and is the most common cause of epidemic and sporadic acute gastroenteritis. During August 2011, a gastroenteritis outbreak occurred among attendees of a rehearsal dinner at a Connecticut restaurant. We investigated to determine outbreak extent, source, and risk factors.



“What surprised us most about this investigation was the cause of the outbreak. A buffet style dinner where several attendees get ill typically points to a food item source, either contaminated before arrival at the restaurant or contaminated by a food handler during meal preparation, not to person to person spread. This investigation highlights the importance of good hygiene practices for consumers of food, as well as preparers of food.”

Timothy Styles

Adherence to Artemether-Lumefantrine in the Treatment of Uncomplicated Malaria — Ethiopia, 2010

Author: Melissa Briggs

Due to widespread resistance to single-dose sulfadoxine-pyrimethamine, six-dose artemether-lumefantrine (AL) became first-line treatment for uncomplicated malaria in Ethiopia in 2004. Determining adherence to AL is critical, as nonadherence can lead to treatment failure and promote the development of artemisinin-resistance. This study assessed factors associated with adherence to AL amongst patients in two health settings.



“We found that only about half of the participants were adherent, and people less likely to adhere were children and those who did not receive full instructions on how to take the medication. Our study points to a need to train health care workers to provide better instructions to patients they treat for malaria. Since most malaria deaths globally are in children, adherence is especially important in this group. This investigation can lead to steps that improve adherence and save lives.”

Melissa Briggs

Decline in Gastroenteritis and Rotavirus-Coded Hospitalizations Among U.S. Children After Implementation of Rotavirus Vaccine

Authors: Rishi Desai

Prior to rotavirus vaccine introduction in 2006, rotavirus gastroenteritis annually resulted in 55,000–70,000 hospitalizations and medical costs of \$300 million in U.S. children less than 5 years of age. We monitored trends in gastroenteritis-coded and rotavirus-coded hospitalizations, as well as associated hospital costs among U.S. children pre- and post-vaccine introduction.



“What was remarkable about this investigation was how fast the vaccine worked. Within 2-3 years of introducing the vaccine the leading cause of diarrhea (rotavirus) among children is almost gone. It was amazing to see firsthand how the rotavirus vaccine is doing a lot of good by preventing hospitalizations and saving almost 80 million dollars a year.”

Rishi Desai

Racial Disparities in Invasive Pneumococcal Disease — United States, 1998–2009

Author: Jonathan M. Wortham

Streptococcus pneumoniae (pneumococcus) causes approximately 43,000 invasive pneumococcal disease (IPD) cases annually in the United States and disproportionately effects blacks more than whites. PCV7, a vaccine introduced in 2000, protects against disease from seven of more than 90 pneumococcal serotypes. PCV13, introduced in 2010, protects against 6 additional serotypes. We estimated the potential benefit of PCV13 in reducing racial disparities in IPD.



“This investigation demonstrated that pneumococcal vaccines led to reductions of racial disparities in pneumococcal disease. We expect the latest pneumococcal vaccine, PCV13, to further reduce racial disparities in pneumococcal disease, helping to achieve important public health goals outlined by HHS in both the 2011 HHS Action Plan to Reduce Racial and Ethnic Health Disparities and Healthy People 2020.”

Jonathan M. Wortham

Rise in Risk of Pertussis in the Six Years Following Complete Diphtheria-Tetanus-Acellular-Pertussis (DTaP) Vaccination —Minnesota and Oregon, 2010

Author: Sara Y. Tartof

Despite high coverage with pertussis childhood vaccines, reported pertussis cases increased in 2010, particularly among children aged 7–10 years. Acellular pertussis vaccines (DTaP) were recommended for all 5 doses in 1997; the first cohorts to receive all DTaP are now 7–10 years old. Rising rates of pertussis in this age group may be due to waning immunity following the DTaP series.



“This study is among the first studies to look at duration of protection after acellular pertussis vaccination. Our demonstration of waning of immunity in the period that we expect children to be protected with DTaP vaccine does raise questions about the potential for future increases in disease among vaccinated children. For parents, it’s important to know that DTaP vaccines still do a great job overall of preventing pertussis, especially within the first couple of years after the fifth dose. Waning immunity also reinforces the need for the Tdap booster dose at 11-12 years of age.”

Sara Y. Tartof

BOTtoms Up!: Botulism Associated with Illicit Alcoholic Prison Beverage-Utah, 2011

Author: Maroya S. Walters

Foodborne botulism is a potentially lethal neuroparalytic illness that affected approximately 18 Americans annually in the last decade. Pruno, an illicit, anaerobically brewed alcoholic beverage, has been associated with botulism among prisoners when made with potatoes. On October 2, 2011, a prisoner at Prison A developed symptoms compatible with botulism shortly after drinking pruno; additional cases were identified within several days. We conducted an investigation to determine the cause and extent of the outbreak.



“This investigation was a collaborative effort between CDC, the Utah State Department of Health, the Salt Lake Valley Health Department, and Prison A. We identified eight inmates who had signs and symptoms of botulism, and we provided botulinum antitoxin for them. Without the antitoxin, they could have developed more severe or even fatal illness. The outbreak vehicle was pruno, which is an illicit, prison-brewed alcoholic beverage. We have been raising awareness at Prison A and the Association of State Correctional Associations about botulism and its association with pruno.”

Maroya S. Walters

Pyrrrolizidine Alkaloid Toxicity as the cause of Unknown Liver Disease — Tigray, Ethiopia (2007–2011)

Author: Danielle E. Buttke

Since 2002, more than 1000 persons have been diagnosed with a liver disease of unknown etiology (case fatality rate = 38%) in Tigray, Ethiopia. After multiple investigations, the leading hypothesis was a plant-source pyrrolizidine alkaloid (PA) exposure through contaminated food. However, confirmatory methods did not exist previously. We employed novel laboratory methods to assess community PA exposure and toxicity in both 2008 and 2011 samples.



“It was surprising that more than one plant is contaminating the local food with this toxin. I think this speaks to the difficulty of this long-standing investigation, and more broadly, identifying how environmental exposures cause disease. A lot of people have been sick, many for several years, with no explanation as to the cause of their liver disease. This investigation gave people answers.”

Danielle E. Buttke

All That Bugs Is Not in Bed: Bedbug Infestation of an Office Building — Clarksville, Tennessee, 2011

Author: Jane A.G. Baumblatt

Since 2000, a resurgence in bedbugs (*Cimex lectularius*) has occurred in the United States. Infestations of homes, hospitals, hotels, and offices have been described; detection and elimination are difficult. On September 1, 2011, the manager of Office A reported unexplained complaints of itching and bug bites among workers to the Tennessee Department of Health. We conducted a retrospective cohort study to determine the cause and recommend interventions.



Elevated Acanthamoeba Keratitis Incidence Despite a 2007 Outbreak-Associated Product Recall — A Multi-State Investigation, 2008–2011

Author: Allison C. Brown

Acanthamoeba, a free-living amoeba in the environment, can cause a rare form of keratitis (AK). In the United States, AK primarily affects contact lens (CL) wearers. Following a 2007 multi-state AK outbreak investigation, an implicated brand of CL disinfection solution was recalled but reported AK cases did not subsequently decrease as expected. An investigation was initiated to identify risk factors contributing to the persistence of AK that could be modified to prevent further cases.



What goes around comes around — Investigation of a group A streptococcal outbreak among residents of a skilled nursing facility, Georgia, 2009–2011

Author: Kathleen L. Dooling

Group A Streptococcus (GAS) cause approximately 12,000 invasive infections annually in the United States accompanied by high mortality. In October 2011, the Georgia Department of Public Health identified a protracted GAS outbreak in a skilled nursing facility (SNF). We sought to identify risk factors and stop transmission.



Treatment Quality for Children Seen by Health Workers Trained to Use Integrated Management of Childhood Illness Guidelines in Benin

Author: Laura C. Steinhardt

The aim of the World Health Organization's Integrated Management of Childhood Illness (IMCI) strategy is to improve treatment of leading causes of child deaths in developing countries. Although studies have found that training health workers (HWs) to use IMCI guidelines increases treatment quality, these studies also identified important deficiencies. To improve performance, clearer understanding of factors influencing HW practices is critical. Our study aimed to investigate associations of patient- and HW-level factors with recommended treatment for children 2–59 months old with potentially life-threatening illnesses in Benin.



Effect of Rotavirus Vaccination on Childhood Diarrhea-Related Mortality — Mexico, 2003–2010

Author: Paul A. Gastañaduy

In Mexico, substantial declines in diarrhea deaths have been documented since the introduction of rotavirus vaccine in 2007. Because of concerns about lower vaccine efficacy in poor populations with high mortality, we compared reductions in diarrhea mortality in lesser developed Southern regions compared to more developed Northern and Central regions of Mexico.



Birth-Year versus Traditional Risk Indicators Among Confirmed Cases of Chronic Hepatitis C Virus Infection from 6 Funded Hepatitis Surveillance Sites — United States, 2004–2010

Author: Reena Mahajan

There are an estimated 3 million cases of chronic hepatitis C virus (HCV) infection in the United States, most of which are in persons aged 45 to 64 years. CDC is developing guidance to recommend screening of persons born during 1945-1965, many of whom are unaware that they are infected. In this study, we ascertained birth-year and traditional risk indicators for testing among laboratory-confirmed cases reported in funded hepatitis surveillance jurisdictions.



Prevalence of Circumcision in Males Aged 14–59 Years — United States, 2005–2010

Author: Camille E. Introcaso

HIV is a major public health problem in the United States: an estimated 48,100 new infections occurred in 2009, and 3,590 of those were heterosexually acquired infections in men. Three randomized-controlled trials demonstrated that male circumcision decreased a man's risk for HIV infection through heterosexual sex. We sought to describe trends in circumcision prevalence in U.S. men and to determine circumcision prevalence among men potentially at increased risk for heterosexually acquired HIV infection.

