

Section 5

Notable Outbreaks & Case Investigations 2010

Listed alphabetically by disease or surveillance system

In Florida, any disease outbreak in a community, hospital, or institution, as well as any grouping or clustering of patients having similar disease, symptoms, syndromes, or etiological agents that may indicate the presence of an outbreak is reportable, as per Florida Administrative Code, Chapter 64D-3. Selected outbreaks or case investigations of public health interest that occurred in 2010 are briefly summarized below. Following many investigation summaries are citations or links where additional information can be found about the event. Investigation summaries are organized by disease name. Within each disease category investigations are listed chronologically (January through December, 2010).

Additional disease summaries and information describing epidemiologic events in Florida can be found in issues of *Epi Update*. *Epi Update*, a publication of the Bureau of Epidemiology, Florida Department of Health, can be accessed through the following site: http://www.doh.state.fl.us/disease_ctrl/epi/Epi_Updates/index.html.

Food and waterborne disease outbreaks in Florida are summarized in annual reports produced by the Bureau of Environmental Public Health Medicine accessible via the following site: <http://www.doh.state.fl.us/environment/community/foodsurveillance/annualreports.htm>. Annual food and waterborne reports include overall statewide data, as well as summaries of selected outbreaks. In addition, a bibliography of journal and *Epi Update* articles on food and waterborne disease can be found at the following site: <http://www.doh.state.fl.us/environment/medicine/foodsurveillance/annualreports.htm>.

Bacillus cereus

***Bacillus cereus* Outbreak Involving Supermarket Catered Meats, Orange County, January 2010**

On January 11, 2010 the Orange County Health Department (OCHD) was notified through the Florida Poison Information Center Network of a suspect foodborne illness outbreak. At least 14 people experienced diarrhea, abdominal pain, and fatigue, starting 6-8 hours after a birthday party on January 9, 2010. Meats, desserts, and snacks at the party were purchased at a local grocery store, while the remaining items were provided by friends and family members. An outbreak investigation was initiated involving the OCHD Epidemiology and Environmental Health Programs, the regulatory agency for grocery stores, and the Department of Agriculture and Consumer Services (DACs). A list of guests and a menu of the catered and homemade foods were provided by the person filing the complaint. A questionnaire was developed and phone interviews of party guests were conducted by OCHD Epidemiology Program staff. In addition, samples of the leftover pork and baked chicken, along with stool samples from two ill guests, were shipped to the Florida Bureau of Laboratories (BOL) for testing.

Seventeen out of twenty-six guests interviewed reported becoming ill. Statistical analysis demonstrated a significant association between illness and consumption of the baked chicken and pork from the supermarket. The food samples tested at the BOL were positive for the presence of *Bacillus cereus*. The submitted stool samples tested negative for norovirus, *Salmonella*, *Shigella*, *E.coli* O157:H7, and *Campylobacter*. There is no testing available through BOL for *Bacillus cereus* in stool samples, but the clinical syndrome is consistent with infection by this agent. A joint inspection of the supermarket was conducted by OCHD and DACs on January 12, 2010; during this time 23 violations were identified. The violations included employees improperly washing hands before and after changing gloves, paper towels not available at all hand wash sinks, no date mark on multiple ready-to-eat foods, and pork and chicken products held at temperatures below appropriate temperatures (135 degrees Fahrenheit). The epidemiological investigation, laboratory findings, and data analysis indicated an association between this outbreak of *Bacillus cereus* in party attendees and catered meats purchased and consumed from the supermarket on January 9, 2010.

Bacillus cereus is a Gram-positive bacteria that is associated with temperature abuse of food items like meats, milk, vegetables, fish, rice, pasta, potatoes, and cheese products.

Brucellosis

Confirmed Brucellosis with Hospital and Laboratory Exposures, Escambia County, October 2010

The Escambia County Health Department (ECHD) Epidemiology Program received a call on October 27, 2010 from a local hospital concerning a possible positive *Brucella* culture from an Alabama resident. The investigation was initiated immediately with the cooperation of the Alabama Department of Public Health (ADPH), the local hospital infection control practitioners (ICPs), and laboratory personnel. The ADPH stated that this person reported flu-like symptoms beginning in February 2010, and has had chronic back pain since that time.

It was reported by the hospital ICPs that on October 6, the person presented to the Escambia County hospital for a needle biopsy of a vertebral abscess. Fluid from the abscess was extracted and introduced onto culture media in the operating room. The culture results were inconclusive. On October 22, the person returned to the hospital for a core biopsy using a surgical drill. A sample of cerebrospinal fluid (CSF) and a bone specimen were collected. The microbiology laboratory reported heavy bacterial growth in the culture media. This specimen was forwarded to the Bureau of Laboratories in Pensacola and was positive via polymerase chain reaction (PCR) for *Brucella* on October 27. Subsequently, the specimen was typed as *Brucella suis* Biovar 1, which was later confirmed by the Centers for Disease Control and Prevention (CDC).

There were several factors considered in the identification of all potentially exposed hospital staff. The unusually heavy bacterial growth from the CSF culture indicated there was a high risk of the bacteria artificially aerosolizing during both of the previous medical procedures creating possible exposures among health care staff. There were also possible exposures in those who were in contact with the biopsy specimens and/or the pure bacterial culture. The ICPs identified all hospital staff recorded as being present during the October 6 and October 22 procedures, as well as all microbiology and pathology laboratory workers who were exposed to the biopsy specimens and/or pure bacterial culture. Those identified were assessed for their need to begin CDC recommended prophylaxis, fever watch, and serological follow-up.

A total of 28 individuals were identified as being possibly exposed. This included 25 medical personnel classified as having had a high risk exposure and three with low risk exposures. Twenty-three individuals accepted prophylaxis, including one pregnant laboratory worker and one laboratory student who was breastfeeding. There were three individuals with high risk exposures who refused prophylaxis.

The ill person had a previous history of hunting and butchering pigs, foreign missionary travel, and consuming ice cream made from un-pasteurized milk. Due to the multiple risk factors associated with this case, a bioterrorism threat was not suspected. As a precaution, and since *Brucella* is a Category B bioterrorism agent, the Public Health Preparedness Division and the Regional Emergency Response Advisor (RERA) were notified of this case.

Brucellosis Case with Lab Exposures, Highlands County, July 2010

On Tuesday, July 6, the Highlands County Health Department (HCHD) was notified by a local hospital infection control practitioner (ICP) of a suspect brucellosis case in a man aged 50 years. An investigation in conjunction with the ICP, the hospital laboratory, the Orange County Health Department and the Bureau of Laboratories - Jacksonville (BOL) was initiated. On July 15, 2010 speciation testing at BOL confirmed that the organism was *Brucella suis*.

The man presented to the emergency department on June 26 with a six-month history of intermittent high fever and a dry cough. Other symptoms included sweating, malaise, headache, and loss of appetite. Blood samples for culture were obtained at the local hospital A, located in Highlands County, with initial Gram staining conducted on July 2. The sample was forwarded to another hospital laboratory B, located in Orange County, for further testing. The man was treated with Doxycycline and Rifampin and was released from the hospital with a 34-day regimen of antibiotics. He is a regular hunter with exposures to secretions of wild pigs and went hunting almost weekly during the winter months. He did not report any recent travel or consumption of unpasteurized foods. He has no occupational risk, and no known contacts with similar symptoms.

Neither of the hospital laboratories used the appropriate precautions when handling the specimen and performing the blood culture, as the treating physician did not notify the laboratory that brucellosis was part of the differential diagnoses for this case. Risk assessment and post exposure prophylaxis considerations were evaluated for those exposed to the culture at both hospital A and hospital B. There were two laboratory workers identified at hospital A who met the definition of high risk, and five high-risk exposures were identified at hospital B. There were no low risk exposures identified. Both hospitals were provided guidance on the prophylaxis and testing of exposed staff. No evidence of brucellosis transmission was reported and all exposed laboratory workers had negative serologic test results at week 24.

Laboratory exposures to the sample could have been eliminated or reduced if suspicion of brucellosis had been communicated to the testing laboratory so that appropriate precautions could be taken when handling the culture. Education on the risk of exposures to laboratory workers was provided to the hospital and to the treating physician. This investigation underscores the need for effective communication methods and good laboratory training as *Brucella suis* is endemic in Florida's wild pig population.

Campylobacteriosis

***Campylobacter jejuni* at a Correctional Facility, Sumter County, August 2010**

The Sumter County Health Department (SCHD) Epidemiology Program was contacted by a nursing supervisor at a Sumter County Correctional Institution (CI) on August 19, 2010. The nursing supervisor reported an increase in gastrointestinal illnesses (GI) at the CI. During the initial telephone call, seven illnesses were reported. The total CI population was 1,694 inmates with 432 staff members. The CI conducted enhanced surveillance by surveying inmates in their dormitories, identifying all who experienced either vomiting or diarrhea during the week of August 16 - 20. Following the survey, the number of GI illnesses reported at the CI increased to 75 inmates.

A team of SCHD Epidemiology and Environmental Health staff and the Regional Environmental Epidemiologist (REE) completed an environmental assessment of the CI kitchen on August 24. The team also conducted in-person interviews with a random selection of inmates who met the definition for the outbreak, which was defined as inmates who experienced either diarrhea or vomiting from August 17-20. On August 25, an additional 22 interviews with non-ill inmates (controls) were completed by the Department of Corrections (DOC) staff.

The SCHD picked up six stool specimens from the CI Medical Unit on August 20. One additional specimen was forwarded from the CI's hospital laboratory to a private laboratory for a total of seven specimens. Specimens were shipped to the Florida Department of Health Bureau of Laboratories - Jacksonville and analyzed for *Salmonella*, *Shigella*, *Campylobacter*, *E.coli* O157:H7, *Shigella*, and norovirus organisms. Five of the six stool samples tested positive for *Campylobacter jejuni* on August 26. One additional specimen tested at a local hospital laboratory was also positive, resulting in six confirmed cases.

Forty-four interviews with 22 ill people and 22 controls were completed. Two of the inmates interviewed were categorized as secondary cases and one case was excluded due to missing information, for a total of 19 cases for analysis. Nineteen interviews were selected from the control group for comparison. The 19 cases were all men who resided in multiple dormitories and had a mean age of 36 (range=19-59). Symptoms reported included: diarrhea (100%) (19), abdominal cramps (95%) (N=18), chills (95%) (N=18); fever (90%) (N=17), sweating (90%) (N=17), nausea (79%) (N=15), fatigue (74%) (N=14); muscle aches (58%) (N=11), dizziness (53%) (N=10), vomiting (26%) (N=5), numbness or tingling (21%) (N=4), and bloody diarrhea (6%) (N=1). The mean incubation reported was 68 hours (range=49-98 hours) with a mean duration of illnesses of 97 hours (range=51-145 hours). Illness onsets peaked on August 18.

Respondents were surveyed about food items they consumed during the five days prior to the peak in onsets on August 18. Each day, three meals were served. The meal with the highest odds ratios was dinner on August 15, with four items that produced elevated odds ratios (coleslaw, mashed potatoes, broccoli, and gravy). Each item was statistically significant with odds ratios, confidence intervals, and p-values as follows: coleslaw 8.7, 2.1-42.5, p-value 0.002; mashed potatoes 8.5, 1.7-66.7, p-value 0.0075; broccoli 8.0, 1.8-44.2, p-value 0.0043; and gravy 4.68, 1.2-21.6, p-value 0.0281.

The Food Service Manager was interviewed to determine how the foods with elevated odds ratios had been prepared. Both the broccoli and gravy required only minimal hand contact during food preparation. The broccoli was received frozen and reheated. A dry powder mix was used to make the gravy. The mashed potatoes were boiled and a powder dairy mix was added to the final product. The coleslaw, which had the highest odds ratio, was prepared from scratch. To make the coleslaw, staff combined chopped lettuce, carrots, and mayonnaise and hand tossed the mixture in shallow pans. Kitchen staff members were required to wear gloves when preparing the coleslaw, but the manager said it is possible the staff member who mixed the coleslaw did not wear gloves. The majority of the kitchen staff members were inmates of the CI.

During the SCHD environmental assessment completed at CI on August 24, several food safety issues were identified. These issues included a lack of sanitizer detected in kitchen cleaning solutions, improper hand-hygiene by staff members, food storage in non-food grade containers, improper food container labeling, and dirty equipment. During the assessment, one inmate was observed washing his hands without soap and then dried his hands on his shirt. Hand towels were missing near the staff sink. When possible, the issues were corrected immediately on-site.

To prevent further disease transmission, the CI placed a movement restriction on inmates at the facility with GI symptoms starting on August 20. Inmates in dormitories with an isolation and/or restriction were not permitted to participate in visitation and were restricted from attending meals in the dining hall. Strict hand-washing precautions were enforced for inmates, staff, and visitors at the CI.

Carbon Monoxide

Carbon Monoxide Poisonings in Homes with Attached Garages, Palm Beach County, May 2010

In May, the Palm Beach County Health Department (PBCHD) Division of Epidemiology and Disease Control investigated several cases of carbon monoxide poisoning. These cases involved exposure in homes with cars left running in attached garages.

The first incident was reported on May 6. Four individuals were exposed when a car was left running in the garage for one and one half hours. Two women, aged 78 and 82 years, reported symptoms of headache and dizziness and were taken to a local hospital Emergency Room. Their carboxyhemoglobin (COHb) levels tested at the hospital were within normal levels (<9%). Oxygen was administered and they were observed until asymptomatic and then discharged.

The second incident was reported May 19. A woman aged 74 years was exposed when a car was left running in the garage for over three hours. She reported symptoms of dizziness, weakness, headache, and nausea. Testing completed in a local hospital emergency room found a COHb level of 28%. The patient was admitted to the hospital. Oxygen and IV fluids were administered and the individual was discharged asymptomatic the following day.

Throughout 2010, the PBCHD Division of Epidemiology and Disease Control saw an increase in the number of carbon monoxide poisoning cases identified. PBCHD investigated 39 reported cases of carbon monoxide poisoning as compared to four in 2009. Of the cases reported in 2010, 20 cases were related to automobiles left running accidentally in homes with attached garages, nine were related to using improperly vented cooking equipment, two were related to the use of a generator in a boat, and one case occurred as part of a residential fire. Overall, seven of the cases were identified as intentional. There were six carbon monoxide related fatalities of which two were unintentional. All 13 unintentional cases were in people aged >65 years who accidentally left a car running in an attached garage.

In an effort to raise carbon monoxide poisoning awareness within the community and throughout the state, PBCHD coordinated with print, broadcast, and other media to provide prevention information. In addition, PBCHD worked with the state health office to better understand possible automobile related issues and risk factors. Investigations included whether automobiles with push button starters or remote starters and distractions such as cell phone use were associated with the increase in vehicles left running. Results are pending.

Chikungunya Fever

Chikungunya Fever Case Imported from India, Miami-Dade County, January 2010

The Miami-Dade County Health Department was notified of a chikungunya fever case on January 25, 2010. The patient was a woman aged 54 years who had spent one month in India, returning January 5. She developed symptoms on January 9 with neck pain, bilateral shoulder pain, bilateral knee pain, and bilateral wrist and hand pain. The next day she had a fever (up to 103-104 degrees Fahrenheit), chills, headache, and nausea, but no vomiting. On January 11 she developed a generalized maculopapular erythematous rash that began in the face and spread down to her lower extremities and abdomen. She was admitted to a local hospital on January 13 where the physician suspected chikungunya or dengue fevers. Serological studies were ordered to confirm or eliminate these diseases. Results from a commercial laboratory indicated a chikungunya IgM antibody titer of 1:160 and IgG antibody titer of 1:40. Dengue IgG antibody titer was consistent with an acute chikungunya virus infection and past infection with dengue virus. The laboratory specimen was forwarded to the Bureau of Laboratories and then on to the Centers for Disease Control and Prevention where acute chikungunya virus infection was confirmed and dengue infection was ruled-out.

The patient travels every year to India to visit her parents. She never takes any prophylaxis prior to traveling. There were no sick contacts identified. The Mosquito Control Division inspected 52 premises near the case's residence between January 29 and February 1. At that time, two containers (buckets) were breeding *Aedes aegypti* mosquitoes, a competent vector for chikungunya. After discovery, this was corrected and all basins in the area were treated with pesticides.

Infection with chikungunya virus is a risk for travelers to endemic countries, primarily in Asia and Africa. The incubation period is usually 3-7 days, but can be 2-12 days. Symptoms include fever, headache, nausea, vomiting, muscle pain, rash, and joint pain. It can be easily confused with other illnesses such as dengue. The viremic period typically lasts about four days, beginning with onset of symptoms. This woman returned to Florida during that time period, so transmission to local mosquitoes is possible. It is important to notify local mosquito control promptly when cases of chikungunya are identified to limit the potential for local transmission.

Cholera

First Imported Cholera Case in Florida and the United States from the 2010 Epidemic in Haiti, Collier County, November 2010

Cholera is an acute diarrheal illness caused by infection of the intestine with toxigenic *Vibrio cholerae*, a bacterium. A person can develop cholera after eating food or drinking water that has been contaminated with the bacteria. Water or food sources can become contaminated by feces from a person infected with cholera. According to the Centers for Disease Control and Prevention (CDC), an outbreak of cholera was confirmed in Haiti on October 21, 2010. Following the earthquake in Haiti in January 2010, a significant disruption in sanitation, hygiene, and water access had occurred. Although it is not clearly understood how cholera was re-introduced into this region after no documented cases had been noted for decades, the conditions were suitable for such an outbreak to occur.

On November 4, 2010 the Epidemiology and Health Assessment Program of the Collier County Health Department (CCHD) received a report of a suspected cholera case from the Infection Control Department of a major local hospital. The suspected case was in an elderly woman that had returned to Florida from Haiti on November 1 due to diarrheal illness.

The patient had onset of watery diarrhea on October 23, 2010 while visiting her family in Gonaives, Haiti. Gonaives is in the Artibonite Department which was the epicenter of the 2010 Cholera outbreak in Haiti. While in Haiti she had used the community well for drinking and bathing. After returning to Florida, she was hospitalized on November 4 for the management of diarrhea, nausea, vomiting, and abdominal pain. She was treated with doxycycline, intravenous hydration, and antiemetics. She was discharged to her home on November 9. Stool specimens collected at the time of hospital admission were forwarded to the Bureau of Laboratories in Jacksonville and tested positive for *Vibrio cholerae* O1, serotype Ogawa. Specimens were transported to the CDC for further characterization including toxigenicity testing. On November 16, 2010 the CDC confirmed toxigenic *V. cholerae* O1, serotype Ogawa, biotype El Tor which was the same strain found in the 2010 Haitian epidemic.

The patient lived with five other family members: her son, daughter-in-law, and their three children aged 15 and 13 years and 18 months. The daughter-in-law, a previous Certified Nursing Assistant, was knowledgeable on basic infection control procedures. The patient utilized a separate bathroom in the house while symptomatic. The daughter-in-law regularly cleaned the home with bleach after her mother-in-law was discharged home. No secondary transmission occurred as a result of this confirmed case.

Imported Cholera Case from Haiti in Orange County, November 2010

On November 17, 2010 the Orange County Health Department (OCHD) received notification from a local hospital of a suspected cholera case in a nine year-old black girl from Haiti. OCHD began an epidemiologic investigation and found that the patient was born and raised in Haiti. She traveled alone from Gonaives, Haiti to Orlando on November 9. The patient's father stated her symptoms began on November 9 after her arrival in Orlando. The patient had diarrhea, abdominal pain, nausea and vomiting. She was initially seen in the emergency department (ED) at a local hospital on November 11. The patient was diagnosed with diarrhea attributed to an unknown viral pathogen and discharged home. On November 13 she returned to the ED at the same hospital and was admitted due to dehydration, abdominal pain, nausea, vomiting, lethargy, and diarrhea that had become more watery. Upon admission to the hospital it was discovered that the patient had recently moved from Haiti, which prompted *V. cholerae* testing. She was treated and discharged from the hospital once symptoms improved. The patient's father stated nobody else around the patient in Haiti was ill with diarrhea. He did not know what type of water or food she had consumed in Haiti. The patient's household contacts in Orlando remained asymptomatic. Prevention of illness with good hand hygiene was discussed with the patient's father.

The laboratory at the admitting hospital reported light growth of *V. cholerae* from a stool culture on November 17. An isolate from the hospital laboratory was confirmed as *V. cholerae* O1, serotype Ogawa by the Bureau of Laboratories in Jacksonville on November 22. On November 24, 2010 the isolate was confirmed by the Centers for Disease Control and Prevention as toxigenic *V. cholerae* O1, serotype Ogawa. The strain identified matched the strain found in Haiti which linked the Orange County case to the Haiti outbreak.

On November 29, 2010 OCHD issued a press release about the confirmed cholera case. OCHD enhanced surveillance efforts and disseminated cholera updates and health information to local health care providers in an effort to locate any additional cases.

Dengue Fever

Imported Dengue Fever in a College Student, Alachua County, March 2010

On March 26, 2010 the Alachua County Health Department (ACHD) Epidemiology Program received a report from a local university student health care center of a female university student aged 26 years who traveled to Colombia from March 4 - 12, 2010.

The patient presented on March 19 with symptoms of fever, chills, joint pains, diarrhea, muscle aches, bright red macular and papular rash on her face and upper body, eye pain, nausea, and vomiting. Thrombocytopenia and leucopenia were also noted. Blood drawn for antibody testing was sent to the Centers for Disease Control and Prevention's Dengue Laboratory in San Juan, Puerto Rico. On April 18, IgG and IgM tests for dengue antibodies were positive and dengue virus type 1 was identified.

The patient reported that she and her professor were doing ecology field work in the cities of Medellin and Villavicencio. The patient reported that while she was in Colombia she used DEET intermittently and did not use any mosquito netting. The patient did wear long pants and long sleeved shirts. An interview was also conducted with the professor who traveled with the patient. He reported that he remained asymptomatic. He stated that he was from Colombia and has no history of dengue fever.

Imported Dengue Hemorrhagic Fever, Duval County, May 2010

On June 10, the Duval County Health Department (DCHD) Epidemiology Program received an electronic laboratory result from a commercial laboratory for a man aged 52 years which was IgM positive for dengue fever virus. The patient was previously known to DCHD as a suspected case of typhoid fever.

The man traveled to Costa Rica with his wife from May 15 – 22, 2010 to a remote area in the eastern coastal area of Costa Rica near the Panama border. They rented a home in the jungle, walked through a stream to reach their home, and participated in many outdoor activities, including snorkeling and hiking. The patient and his wife both noted mosquito bites on their legs. The couple moved to a location on the Pacific side of the country after three days.

On May 19, the fifth day of their trip, the patient developed fever, diarrhea, and nausea. He remained in his hotel room for two days and felt well enough to return home on May 22. The next day the patient's fever increased and he complained that his bones hurt. During this time, the patient continued to have intermittent diarrhea and nausea, and did not eat in order to avoid vomiting. The patient went to his primary physician on May 27, and later to the emergency department (ED) after he developed worsening pain in his bones, and his wife noted several short bouts of confusion. The patient was evaluated, treated with quinine and doxycycline, and discharged to his home from the ED. His condition continued to worsen and he was admitted to the hospital on May 30 with body aches, joint pain, loss of appetite, generalized weakness, ringing and pressure in his ears, and a slight rash on the chest. He developed thrombocytopenia and evidence of plasma leakage. He later developed a petechial rash on the extremities and trunk of his body.

The patient was initially reported to Duval County Health Department (DCHD) Epidemiology Program in early June with a positive serum agglutination test (Widal Test) suggestive of typhoid fever. Inquiries were made regarding additional stool and blood specimens, but none had been obtained. The patient did not meet the case definition for typhoid fever. After receipt of the laboratory results suggestive of dengue fever, DCHD requested that the commercial laboratory forward the specimen to the Bureau of Laboratories - Jacksonville for confirmation. The specimen was confirmed IgM and IgG positive for dengue fever.

It is common for individuals with dengue to have non-specific symptoms, like fever, at the beginning of illness and develop more characteristic symptoms like bone pain and rash over the next few days. In severe cases of dengue, the fever often resolves within 2 to 7 days and then warning signs like abdominal pain, vomiting, bleeding, and decrease in platelet count develop, signaling the critical stage of illness when patients may manifest the hemorrhagic fever or shock syndrome associated with infection. If the fever lasts longer than seven days, it is evidence of misdiagnosis or co-infection. In this case the patient may have had both dengue and typhoid fever.

Eastern Equine Encephalitis

Fatal Case of Eastern Equine Encephalitis, Hillsborough County, July 2010

A middle-aged woman from Hillsborough County with previous underlying medical conditions died as a result of Eastern Equine Encephalitis (EEE).

On July 12, the HCHD Epidemiology Program was contacted by the county Medical Examiner after a woman died from encephalitis of unknown etiology. The Medical Examiner asked the HCHD for recommendations for further testing of the frozen Cerebral Spinal Fluid (CSF) of the deceased. The only arboviral test that had been performed at the hospital was for West Nile virus, which was negative. HCHD recommended an arboviral panel and the specimen was sent to the Bureau of Laboratories - Tampa (BOL).

On June 21, the patient presented to the emergency department (ED) with high fever and headache and was admitted to the hospital. She was started on empiric antibiotic therapy with ceftriaxone. She later developed a stiff neck and altered mental status. The patient had a lumbar puncture and results were consistent with meningitis. The patient subsequently developed respiratory failure, which required mechanical ventilation and later died.

On Friday, July 16, BOL reported a strongly positive EEE IgM antibody test from the cerebral spinal fluid of the deceased. The EEE PCR test was equivocal. The clinical presentation and the positive IgM test met the case definition for a confirmed case of EEE. This was the first reported case of EEE in Florida in 2010.

The deceased had no travel history within the two weeks prior to her onset and was also unemployed. Her children reported that she spent significant time sitting outside her home, and she was often bitten by mosquitoes.

During the summer of 2010, both sentinel chickens and horses in Hillsborough County tested positive for EEE. Hillsborough County was already under a mosquito-borne disease advisory; the HCHD reissued the advisory on July 20, 2010. The advisory focused on getting people to protect themselves from mosquitoes. Mosquito control was notified of the EEE case and sprayed the area where the woman was likely infected.

Ehrlichiosis

Ehrlichiosis Imported from North Carolina, Martin County, June 2010

On June 7, 2010 the Martin County Health Department (MCHD) Epidemiology Division received an *Ehrlichia chaffeensis* positive laboratory result from a local hospital. The report indicated that titers for *E. chaffeensis* were IgG <1:64, IgM <1:64. The patient was a white woman aged 79 years who presented with anorexia, nausea, malaise, and a persistent fever (maximum of 101.3 degrees Fahrenheit). Illness onset was May 29.

She had recently traveled to visit her son in North Carolina, returning to Florida approximately one week prior to the onset of symptoms. She noted on May 27 that there were two engorged ticks on her body, which she removed herself. The areas surrounding the tick bite were still erythematous when she presented at the emergency room on June 2.

The remainder of the acute sample was sent to the Bureau of Laboratories - Jacksonville, along with a convalescent serum specimen collected on June 12 for titer comparison. *Ehrlichia chaffeensis* was confirmed with a four-fold rise in IgG titer to 1:256.

Haiti

Reportable Diseases Imported to Florida from Haiti Following an Earthquake, Statewide, 2010

On January 12, 2010 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 has been common for many years and reportable diseases introduced by travelers returning from Haiti are frequently identified. Due to the anticipated large influx of persons into Florida from Haiti after the earthquake, Florida enhanced surveillance efforts for reportable disease cases.

Merlin 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, regardless of residency. The Outbreak Module within Florida's reportable disease surveillance system, Merlin, was used to capture data on Haitian travel, medical condition upon entry into the U.S., citizenship, and residency. The distribution of reportable diseases acquired in Haiti during the post-earthquake period (January 12, 2010-March 12, 2010) was compared to a 2009 reference period (January 12, 2009-March 12, 2009). 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 in Florida residents, 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%). Malaria cases continued to be imported throughout 2010, with >60 imported cases in Florida residents and non-residents.

Survey data was collected for 64 cases, some in Florida residents and some in non-residents. 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.

Merlin 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.

Hepatitis

Hepatitis A Outbreak in Men who have Sexual Contact with Men, Orange County, May-September 2010

In 2010, there were a total of 19 cases of hepatitis A reported to the Orange County Health Department (OCHD), of which 12 had occurred in men who had sexual contact with men (MSM). Historically, most people with hepatitis A reported in Orange County have traveled outside of the U.S., where exposure was likely. However, none of the 12 affected people in the MSM population reported foreign travel during their exposure period. A common link among all 12 men was not identified. No common food or water source was implicated in this outbreak. A few of the men were sexual contacts or acquaintances of each other. All twelve men reported frequenting several restaurants, bars, and clubs in Orange County. It is possible that hepatitis A transmission occurred through social gatherings. The onset of illness ranged from May 3 to September 11, 2010. Three of the cases were in food handlers and one was in a healthcare worker. The Department of Business and Professional Regulation along with Environmental Health inspected the restaurants and the hospital infection control department was notified of the ill employee. Close contacts of the people with hepatitis A were offered prophylaxis if they were inside the window for prophylaxis.

The Orange County Health Department increased educational outreach in the MSM population. The STD Disease Intervention Specialists distributed information on hepatitis A in the MSM population on field visits to frequented establishments. The Hepatitis Prevention Program coordinator continued vaccination outreach events to high-risk populations, including “Come Out With Pride” on October 10, 2010, “Rainbow Health Fair” on November 6, 2010, drug treatment centers, homeless shelters, and jails. OCHD attempted to publish awareness articles in local newspapers and to coordinate a vaccination outreach event at a local theme park where one of the ill people was employed.

Hepatitis B Outbreak Associated with Home Health Care Agency, Palm Beach County, October 2010

Between October 30 and the end of December 2010, the Palm Beach County Health Department (PBCHD) identified a cluster of three people residing at two Assisted Living Facilities (ALFs) with positive serology results for acute hepatitis B. Two of these resided at ALF 1 and one at ALF 2. The two facilities were linked because they both received skilled nursing services from the same home health agency (HHA).

The exposure period for this outbreak was estimated to be between May 1, 2009 and December 31, 2009. Site visits to both ALFs were conducted to identify potential sources of blood borne pathogen exposure and to evaluate infection control practices, specifically diabetes care procedures. A retrospective analysis of risk factors among the infected and non-infected residents in ALF 1 was done to determine the most probable source of hepatitis B transmission in the facility. Relative risks (RRs), 95% confidence intervals (CIs), and p-values were calculated for the exposures at ALF 1. Medical records review, a behavioral risk factor survey, and a survey of the nurses working for the HHA during the exposure period were conducted. At ALF 2, only specific data were abstracted from the medical records of insulin dependent diabetic residents, based on preliminary results from ALF 1. Testing for hepatitis B was done for all residents at ALF 1. At ALF 2, testing for hepatitis B was done on diabetic patients receiving insulin and glucose monitoring.

Forty-eight residents were tested for viral hepatitis in ALF 1. Five residents were positive for acute hepatitis B. Two residents showed recent infection with hepatitis B virus and were immune. Six cases were diabetic and had received glucose monitoring or insulin administration during the exposure period. Only one case was not diabetic but was the sexual partner of one of the cases. All the cases had resided at the facility longer than six months prior to positive testing. At ALF 2, ten diabetic patients were tested. In addition to the initial acute infected person, who was also a diabetic, a chronic case was found. Molecular gene sequencing performed at the Centers for Disease Control and Prevention showed that the virus from specimens collected at both facilities was identical. Residents in ALF 1 who were diabetic were found to be fourteen times more likely than

those who did not, to have acute or recent HBV infection. The association was statistically significant with a p-value <0.05. Other health care procedures did not show an association with HBV infection. Several infection control deficiencies related to diabetes care were found in ALF 1 and 2 including cross-contamination, improper cleaning and storage of glucometers, and lancing devices.

The most probable route of transmission of HBV in ALF 1 was from resident to resident during fingerstick glucose monitoring and/or insulin administration. The HBV DNA sequencing results among residents in ALF 1 supported the hypothesis of transmission within the facility. Epidemiologic data and infection control deficiencies found during the site visits also support this hypothesis. Transmission *between* the two facilities was also supported by the HBV DNA molecular sequencing results, the infection control deficiencies, and the movement of nursing personnel between the two ALFs evidenced in the review of the HHA nurses schedules. Furthermore, the results of the HHA nursing survey showed that some of the HHA nurses used the same lancing device and glucometer for several residents.

Based on the findings during the investigation, several recommendations to the administrators of the ALFs and the HHA were provided. Hepatitis B vaccination for all susceptible residents at ALF 1 and susceptible diabetic residents receiving glucose monitoring in ALF 2 was implemented. Training on infection control for bloodborne pathogens and diabetes care procedures was recommended and completed by the HHA nurses. The facilities changed the use of spring-loaded reusable finger stick devices to auto-disable, single use lancets to collect specimens for glucose monitoring. No new cases were reported after the last testing was conducted during the investigation.

Hepatitis C Cluster Associated with a Healthcare Facility, Duval County, 2010

Three cases of hepatitis C infection occurred over a three-year period in patients treated at a Duval County healthcare facility. An epidemiologic investigation in coordination with the healthcare facility, the Florida Department of Health, and the Centers for Disease Control and Prevention determined that the three hepatitis C virus strains from these cases were genetically related. The three cases did not have any behavioral risk factors for infection or any obvious lapses in infection control at the healthcare facility. In 2010, the investigators focused on the interventional radiology area since all three patients had undergone procedures within that area at different times over the three-year period. An employee in the interventional radiology unit tested positive for the hepatitis C virus in the spring of 2010. On July 26, 2010 the hepatitis C virus strain from the employee was found to be genetically related to the strains from the three patients. The healthcare facility launched an internal investigation and the employee admitted to drug diversion in the interventional radiology unit. The healthcare facility sent over 3,200 letters to individuals who may have been at risk due to this former employee's actions, and recommended testing for blood borne pathogens.

Influenza

Influenza A Outbreak at a Correctional Detention Center, Miami-Dade County, March 2010

On March 16, 2010 the Miami-Dade County Health Department (MDCHD), Epidemiology, Disease Control and Immunization Services (EDC-IS) received a report from a local detention center nurse that five inmates had been admitted to a local hospital with influenza-like illness (ILI): two inmates out of 68 in one unit, and three inmates out of 62 in another unit. After further investigation with the infection control practitioner of the correctional facility, it was determined that there were a total of nine inmates involved in this outbreak.

Based on investigations with the detention center, the earliest onset of symptoms was March 9. Five inmates at the detention facility were sent to a local hospital, were admitted, and had positive rapid tests for influenza A. The Bureau of Laboratories - Miami branch confirmed three specimens positive for 2009 influenza A H1N1. One inmate who tested negative (rapid test) for influenza was also sent to the hospital, but was not originally

reported. Three additional inmates from different units, with symptoms of ILI, also tested negative and were not sent to the hospital. All ill inmates were part of the general inmate population. Those who had been in contact with the sick inmates were put on restrictive movement.

A recommendation letter was sent to the correctional institution encouraging good hygiene practices among inmates and staff and removal of symptomatic inmates from dormitories until at least 24 hours after fever has ceased. No additional cases were identified.

Workplace Cluster of Influenza, Palm Beach County, May 2010

On May 5, 2010 the Palm Beach County Health Department (PBCHD) received a report of several workers experiencing respiratory symptoms at a local business. The report was triggered by a positive influenza A H1N1 PCR in one of the workers and the increasing number of employees reporting illness. A private physician diagnosed the positive individual with influenza-like illness (ILI) on April 30, 2010 and a positive influenza A H1N1 PCR result was reported on May 5, 2010. The worker was not hospitalized.

There were 83 exposed employees congregated in a two-story building. The main area reporting sick workers was located on the north side of the first floor of the building. An individual was classified as having a case of influenza-like illness (ILI) if they reported having fever of >100 degrees Fahrenheit plus cough, sore throat or other respiratory symptoms. Between April 30 and May 7, 2010 twenty-seven workers were classified as having cases (attack rate 29%). The Guidance for Businesses and Employers to Plan and Respond to the 2009 – 2010 Influenza Season was provided to the employees' physician for implementation. By Friday, May 7, 2010 all the ill workers had been excluded from work and advised to return to work according to Centers for Disease Control and Prevention (CDC) guidelines. Symptomatic employees were recommended to see their private physician to evaluate need for treatment and to obtain a nasopharyngeal swab for PCR testing.

The non-ill workers were provided information about ILI symptoms, and were advised to see their private physician and stay home if they became sick. Measures such as routine environmental cleaning, instruction on proper hand washing, respiratory etiquette, and hand sanitizer availability were implemented. Screening employees who reported to work for ILI was conducted daily. As part of the outbreak control measures, the PBCHD provided the H1N1 vaccine to the employees' physician office in order to vaccinate non-ill workers who were not previously vaccinated. Thirty-nine doses of the vaccine were administered between May 6 - 11. No new cases were reported after May 11, 2010. No nasopharyngeal swabs for PCR testing were ordered by the primary care doctors who saw symptomatic workers.

Investigation of a Multi-State Influenza Outbreak in a Medical Missionary Group, Statewide, July 2010

On July 28, 2010, a St. Johns County resident aged 70 years was confirmed PCR-positive for H3N2 influenza A by the Bureau of Laboratories (BOL). Vigilance for, and follow-up on, unusual influenza results was heightened due to the recent influenza pandemic. Summer months are not typical periods of influenza activity. Because of this, the St. Johns County Health Department (SJCHD) investigated the laboratory result.

The individual had been part of a medical mission group to Panama from July 16 - 24. The group consisted of approximately 75 missionaries from multiple states, including 10 Florida residents. A church in Georgia sponsored the medical mission as part of their Central American missions program, and the patient gave SJCHD the contact information for the trip coordinator.

The Bureau of Epidemiology contacted the Georgia Department of Community Health, Division of Public Health (DPH), and notified them of the mission trip and the trip coordinator's contact information. After interviewing the trip coordinator, a Georgia resident, the Georgia DPH found that the mission group travelers came from 10 states across the southern U.S., and the trip coordinator reported that missionaries from other

states also became ill after the trip. Georgia DPH notified the Centers for Disease Control and Prevention (CDC), Influenza Division, as well as influenza coordinators in affected states, and collected data on influenza-like illness (ILI) in the travelers from each state.

SJCHD followed up with all 10 Florida residents who traveled to Panama as part of the mission trip. It was not possible to collect additional specimens, but interviews showed that seven of the 10 Florida travelers experienced influenza-like illness (ILI) symptoms as early as July 24, including weakness/malaise, sore throat, cough, fever of 101-102 degrees Fahrenheit lasting 4 to 5 days, sporadic diarrhea, and less commonly, headache and chills. A household contact of one of the travelers also became ill and tested rapid-antigen positive for influenza A.

In total, 19 of the 75 missionaries from five of the 10 states became ill with ILI following the mission trip. One non-Florida resident received a rapid influenza test, and tested negative. No other travelers were tested.

Klebsiella pneumoniae

Outbreak of Infections Due to Carbapenem-resistant *Klebsiella pneumoniae* (CRKP) in a Long-term Acute Care Hospital in a Central Florida County, July 2010

Carbapenems are a class of β -lactam antimicrobials with broad-spectrum activity that are often used as a last-line treatment for serious healthcare-associated infections caused by *Enterobacteriaceae* and other bacteria. In recent years, carbapenem-resistant *Enterobacteriaceae* (CRE), which are commonly resistant to almost all antimicrobial agents, have emerged worldwide. CREs are associated with substantial morbidity and mortality and are difficult pathogens to control as they spread easily within healthcare settings. Resistance to carbapenems in the U.S. is most often mediated by the production of the *K. pneumoniae* carbapenemase (KPC) family of serine β -lactamases. KPC enzymes are found on plasmids, confer resistance to all β -lactam antimicrobials, and are the primary mechanism for carbapenem resistance among CRKP.

During July 2010, the Florida Department of Health (FDOH) was contacted by staff at a long-term acute care hospital (LTACH A) in a central Florida County regarding the identification of CRE. LTACHs are extended-stay hospitals that care for complex patients who most often are transferred from acute care hospital intensive care units (ICUs) for continued management of chronic, intensive medical needs (e.g., ventilator dependence, chronic wounds, and intravenous medications).

Staff from the responsible county health department (CHD) and FDOH met with staff at LTACH A to review infection control procedures and recommended implementing CDC's guidance for preventing CRE in acute care facilities (<http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5810a4.htm>), including conducting a point prevalence survey for CRE via rectal swabs. In August, after 10 (25%) of 40 patients who underwent active surveillance testing at LTACH A were found to be positive for CRKP, FDOH and CHD staff again met with the facility staff and presented an action plan to prevent further CRE infections and transmission. In addition to improving infection control practices, the plan included continued active surveillance testing for CRE at admission, active surveillance testing at two-week intervals for all patients not known to be positive for CRE, and maintenance of a running line list of CRE positive patients.

CRE has been present in LTACH A and acute care hospitals in the surrounding area since 2009, and transmission of CRE is ongoing in LTACH A. Ninety-nine LTACH A-onset CRE cases have been detected since March 2009, 34 were classified as probable transmission CRE cases detected since August 2010. The number of blood cultures positive for multi-drug-resistant organisms in LTACH A was as high as 10 per month. CRE cases have made up a substantial proportion (10-50%) of these since 2010, suggesting that transmission of CRE is associated with infections causing morbidity and mortality. CRE is also being imported into LTACH A

from other facilities, contributing to the overall burden of CRE in LTACH A, increasing the risk of transmission. Molecular typing suggests a dominant strain for the majority of isolates tested. Since few samples were obtained from patients who were positive at admission to LTACH A and other LTACHs, and because the diversity of *K. pneumoniae* isolates in this and surrounding counties is not known, we are unable to determine if the same strain of *K. pneumoniae* has been circulating among other healthcare facilities.

Lapses in multiple infection prevention practices, including hand hygiene, personal protective equipment use, device maintenance, and environmental cleaning practices, likely are contributing to transmission of CRE in LTACH A. Increased attention to infection prevention practices in LTACH A and among facilities across the healthcare continuum in this county and Florida are needed to prevent transmissions and infections associated with CRE.

Legionellosis

Legionnaires' Disease Outbreak Associated with a Health Fitness Club, Orange County, April 2010

On April 5, 2010 the Orange County Health Department (OCHD) Epidemiology Program was notified by a local hospital of a laboratory-confirmed case of Legionnaires' disease with illness onset on March 31. During the interview, the aged 72 years man reported frequenting a local fitness club every day until March 30. He did not report having any water exposures. On April 7, the OCHD Epidemiology Program was notified of another laboratory-confirmed case of Legionnaires' disease with illness onset of April 2. This aged 69 years woman reported frequenting the same fitness club as the previously reported patient three times a week, with the last exposure on March 31. The patient reported exposures to the pool, whirlpool spa, and shower.

An environmental health inspection of the fitness club was conducted on April 9 in response to the initial *Legionella* case and found multiple violations. As a result of the potential cluster of two or more similar illnesses linked to a common source, the OCHD Epidemiology Program initiated further investigation. The facility was re-assessed on April 13. Based on the environmental assessment and epidemiological data, environmental samples were collected from the whirlpool spa, water filter, and from the interior of the shower heads in both the male and female showers, and shipped to the Bureau of Laboratories for analysis. All environmental samples obtained from the fitness club collected on April 13 were culture negative for *Legionella pneumophila*.

Epidemiologic data indicate that the source of the *Legionella* outbreak was the fitness club in Orlando, Florida. The only common exposure that may contribute to Legionnaire's disease among the two cases was visiting the facility during the 14 days prior to the reported illness onset. Environmental inspection observations at the fitness club whirlpool spa indicated conditions that could possibly support biofilm production and the harboring of *Legionella* bacteria. Maintenance logs consistently indicated chlorine levels in the spas below 2.0 ppm from March 20 to March 27 (recommended levels are between 2.0 -10.0 ppm).

Legionnaires' disease is a common cause of community-acquired pneumonia, with an estimated 8,000 to 18,000 cases in the United States each year. This disease is caused by *Legionella* bacteria, which can be found naturally in the environment, particularly in the type of warm water found in whirlpool spas, cooling towers, hot water tanks, large plumbing systems, or parts of big air conditioner systems of large buildings.

Malaria

Imported Malaria in a Flight Attendant, Hillsborough County, July 2010

On July 16, 2010 the Hillsborough County Health Department (HCHD) Epidemiology Program was notified by the Bureau of Epidemiology of a discharge diagnosis of "malaria" found in ESSENCE, Florida's syndromic

surveillance system. Follow up with the hospital determined that the patient did in fact have malaria and the case had not been previously reported.

A woman aged 35 years worked as a flight attendant for a major U.S. airline. Her recent travel history included multiple layovers in Abuja, Nigeria and one layover in Dakar, Senegal. Her last three-day layover was in Abuja and ended on July 6.

On July 13, the patient developed night sweats. On July 14, she experienced one bout of diarrhea as well as a headache. She presented to the emergency department on July 15 with a fever of 102 degrees Fahrenheit, chills, profuse sweats, neck pain, fatigue, mild nausea, and mild abdominal pain. The patient was concerned that she had malaria because she had not taken antimalarial medication while in Africa, and several of her coworkers (pilots and flight attendants) who fly this route had developed malaria in the past two years.

The malaria smears were positive at the hospital laboratory (0.2% parasitemia). The slides were forwarded to the Bureau of Laboratories - Jacksonville where the species was identified as *Plasmodium falciparum*. The patient was treated with doxycycline and the anti-malarial drug atovaquone-proguanil.

The patient was interviewed by HCHD staff. She reported difficulty in taking anti-malarials with her work schedule. She reported that she would need to be on them nearly all the time. She also stated that it is logistically difficult to get to a physician all the time for requisite prescriptions. While on her layovers in Nigeria, she does not leave the hotel. She occasionally visits the pool in the late afternoon. She does use a DEET based mosquito repellent or a anti-mosquito clip-on belt. She did not recall any mosquito bites. The patient recovered and was discharged from the hospital on July 21.

Upon learning of the malaria diagnosis on July 16, mosquito control was contacted and sprayed the area where the patient lives.

Measles

Measles Case in an Adult Traveler, Duval County, June 2010

On June 2, 2010 a physician notified the Duval County Health Department (DCHD) Epidemiology Program of a suspected measles case. The physician's patient aged 63 years reported a fever onset on May 8, a rash onset on May 11, and cough, anorexia, conjunctivitis, coryza, and severe malaise that continued for at least three weeks after symptoms onset. Initial laboratory tests done by a commercial laboratory on May 24 were positive for IgM and IgG against the measles virus and were subsequently confirmed positive at the Bureau of Laboratories - Jacksonville (BOL). A second serum sample was requested by BOL, and drawn by DCHD on June 4. The second specimen was also positive for measles IgM and IgG.

The man had no measles vaccination history but did have natural immunity to varicella and mumps. He lived in Chile, Venezuela, and Mexico until he was aged 13 years and moved to the U.S. in 1960. His exposure period was estimated to be from April 23 to May 4. During this estimated exposure period, the patient and his wife traveled to Italy and Switzerland from April 15–26, 2010 with a tour group of approximately 30 people. Neither the man nor his wife noticed anyone ill on the trip or after they returned to Jacksonville. The man went to the doctor on April 29 for a leg infection and was treated with an antibiotic. He returned to the doctor for two appointments during the time when he could have potentially exposed other people. Due to the antibiotic prescribed on April 29 for the leg infection, the initial diagnosis by the physician was a drug reaction. When the patient returned to the office with a rash, the physician ordered testing for measles and advised the case to practice self-isolation.

All of the identified contacts were interviewed including: the tour group manager, the physician office staff and patients, family members, fellow employees, and the manager of a local business where the patient and a family member had spent time together. No other measles cases were found during the investigation.

Meningococcal Disease

Fatal Meningococcal Disease in a Student, Collier County, November 2010

On November 25, 2010 the Collier County Health Department (CCHD) received a report from the infection control nurse at a local hospital that a man aged 20 years died, and the emergency room physician suspected it was due to meningococemia. When he presented to the hospital emergency department at 11:10 pm on November 24, the young man was awake, but the nurse was not able to obtain a blood pressure. His skin was cold, mottled and cyanotic. Seventeen hours prior to arriving at the hospital, he had onset of nausea, vomiting, and diarrhea, followed later (6:00 pm) by fever, light-headedness and a rash. Blood cultures were obtained and antibiotics were administered. The patient became unresponsive and resuscitation was attempted, but was unsuccessful. He died less than 20 hours after onset of symptoms.

The patient was a student at a state university located in another county, and had received meningococcal disease vaccination in 2008. He was a member of a fraternity at school and resided in a house with three roommates. While attending school, he worked at the school recreation department approximately two hours per day. He also refereed football and soccer games at night. He rode for several hours in a car with a friend traveling from school to Naples on November 20, and then stayed at his parents' home in Naples. He attended many gatherings while in Naples.

CCHD interviewed 73 people, and the investigation identified 46 close contacts who received antibiotic prophylaxis. The County Health Department serving his university spoke with a roommate and fraternity brother who reported the patient visited the fraternity house about once a week although sometimes more frequently. The president of the fraternity was also contacted. He reported the fraternity brothers were aware of the patient's death and they had contacted their private physicians to obtain prophylaxis. The Palm Beach County Health Department assisted CCHD with prophylaxis for the patient's three roommates who were in Palm Beach County for the holiday weekend. The hospital provided prophylaxis to 18 staff members.

The blood culture collected at the local hospital was positive for *Neisseria meningitidis*, and forwarded samples to the Bureau of Laboratories - Jacksonville. On December 7, BOL confirmed the isolate was *N. meningitidis* Group B. The meningococcal vaccine in use in the United States does not protect against Group B infection. This is the first confirmed case of *N. meningitidis* infection in Collier County since 2005.

Mercury Poisoning

Mercury Exposure in a Neighborhood, Broward County, August 2010

On August 30, 2010 the Broward County Health Department (BCHD) Epidemiology Program followed up on a news media story from August 29 involving people exposed to mercury at a residence in Broward County. The exposure had reportedly taken place on August 28 when a neighbor found bottles of mercury in the garage of a house he had recently purchased. Children had been seen playing with the mercury in a neighborhood driveway. Eleven people were identified as being directly exposed to the mercury through inhalation and/or skin contact. BCHD was able to contact ten of these. None were symptomatic.

Of the ten people interviewed seven had laboratory testing performed (one urinalysis and six blood mercury levels). Mercury was not detected in urinalysis. The blood mercury levels on all six individuals were reported as elevated over the expected value which is <8.0 mcg/L (range 14 mcg/L to 25 mcg/L).

Abatement efforts were initiated August 31, 2010 when Florida Department of Environmental Protection (FLDEP) began the initial assessment of affected areas, including private homes and the driveway where exposure to the mercury had occurred. Five schools, the public library, 10 public vehicles, five school buses, and one additional driveway were assessed as potentially impacted areas.

According to the EPA Pollution/Situation Report dated September 3, 2010 contractors hired by the EPA applied a solution called Hg Cs-102, allowed it to dry, and then used mercury vacuums to remove mercury beads from two driveways in the neighborhood. One driveway was removed as mercury presence was too extensive for abatement. Affected residences had ventilation fans brought in to aid in air exchange. One residence was found to have mercury in the shower, sink drains, and the washing machine. Hg Cs-102 was poured in the drains and washing machine to alleviate mercury vapor being released. Another residence had to remove furniture and other small items that had been contaminated, as well as the carpet and a tiled area. Following the carpet removal, the floors were thoroughly rinsed and the property was ventilated. The items collected from the households were inventoried and taken off-site to reduce the ambient mercury vapor readings. In places where mercury was found during rescreening, properties were mopped with Hg Cs-102 or had an EPA approved mercury scrubber installed, which processes ambient air and removes mercury gas.

Mercury Poisoning in a Four-Year-Old, Hillsborough County, November 2010

On November 18, 2010 the Hillsborough County Health Department (HCHD) Epidemiology Program received a report from a hospital regarding a boy aged four years. The patient presented to the hospital on November 15 with a four day history of productive cough, difficulty in breathing, and sore throat. The patient received a preliminary diagnosis of bronchitis.

An X-ray and computed tomography (CT) scan showed that the child had metallic densities in the lungs. The doctors speculated that the foreign bodies in the chest had been aspirated. There were similar findings in the liver and colon. A colonoscopy revealed liquid, elemental mercury balls in the patient's large intestine, appendix, and stool. Mercury levels obtained from a blood sample were 34 ng/mL. The child tested negative for other heavy metals such as arsenic and lead.

On November 19, the HCHD spoke to the Medical Director of the Florida Poison Information Center (FPIC) and the infection control practitioner at the hospital to review the plan for the patient. At this time, the child was asymptomatic and was discharged from the hospital. Discharge instructions stated that the child was not to return to his home until an environmental assessment of the home had been performed. On November 22, the HCHD interviewed the mother of the boy. The boy and his family were staying in a hotel at that time. The mother denied all mercury exposures, including liquid thermometers, older toys and mercury batteries. The child attended a local daycare, which was initially a concern for potential mercury exposure. Additionally, the patient's father works as a janitor at a local hospital, which brought up concerns regarding occupational exposures.

There were eight residents of the patient's home. Two of the eight residents were small children, aged one and four years. Both of these children were asymptomatic, and unrelated to the patient. They were separated physically from the patient and his family through a partition in the home. The mother of these two children stated they had never been inside the boy's bedroom.

On November 23, representatives from the HCHD and the Department of Environmental Protection (DEP) met at the boy's home to test for residential mercury levels. For residential properties, a mercury vapor reading of over 1000 ng/m³ necessitates a cleanup and removal by the Environmental Protection Agency (EPA). Readings of the boy's bedroom on November 23 were 15,000 ng/m³. One dresser drawer in the boy's bedroom read 50,000 ng/m³. The HCHD contacted the Regional Emergency Response Advisor, the DEP

Emergency Response, and then the National Response Center. The family was subsequently relocated to another hotel at EPA's expense until cleanup and potential remediation were performed.

The other portions of the home had mercury vapor readings within normal limits. The abnormally high mercury vapor readings were confined to the boy's bedroom and adjacent areas. Still, the HCHD recommended evaluation and testing for the children who were household contacts. Both children were evaluated, but only one received testing for mercury. The results were negative.

From November 24 to December 1, an EPA response team was deployed to the patient's home in Tampa for cleanup. The EPA found a few mercury beads underneath the dresser in the child's bedroom, and a substantial number of beads inside the dresser drawer. The EPA removed the dresser from the patient's home and allowed the home to ventilate for approximately one week. On December 1, a subsequent mercury vapor reading was performed and results inside the patient's bedroom were approximately 600 ng/m³, which is below the level requiring urgent action. When the windows of the home were opened, the level dropped to 100-200 ng/m³.

On December 2, the family was contacted regarding these results and allowed to move back into the home. On December 3, the patient was seen for a clinical visit by the Medical Director of the FPIC. Because x-rays continued to show mercury in the lungs and appendix of the child, oral chelation therapy was recommended and completed.

Despite repeated attempts to establish the source of the mercury beads inside and underneath the child's dresser, the source was never determined.

Norovirus

Norovirus Outbreaks in Long-Term Care Facilities, Collier County, Florida, January – April 2010

From January through April 2010 the Collier County Health Department (CCHD) experienced a tremendous surge in the number of reported norovirus outbreaks and related cases resulting in the highest incidence of the virus recorded locally in public health records.

Beginning in early 2010, the CCHD began to receive reports of gastrointestinal outbreaks from multiple long-term care facilities. During the four month interval from January through April 2010, 16 outbreaks were reported from 12 different long-term health care facilities. Analysis of aggregate data from the 12 institutions indicate that the overall attack rate in all outbreaks combined for residents of these sensitive facilities was 31.6% (380 ill out of a total of 1,201 persons at risk). The combined attack rate for staff was 8.1% (119 ill out of a total of 1,462 employees at all affected facilities). The range of attack rates for residents varied widely by facility, from 12.3% to 75.5%, while staff attack rates were lower, 0% to 30.8%. Testing by the Bureau of Laboratories revealed that all sampled specimens were positive for norovirus G2 virus.

The average of the median duration of illness (from onset date to cessation of symptoms) from all facilities combined was 50.6 hours for residents and 39.75 hours for staff. This falls within the 24 - 72 hour expected classical clinical symptomatic range for duration of norovirus. During this four month outbreak, there were eight deaths in the effected facilities. The reported case fatality proportion for these aggregated outbreaks during this four month period was 2.1%. This case fatality proportion is near the expected value when compared with recent studies of mortality in elderly patients following norovirus infections where 30-day case fatality proportions ranged from 1.6% for those patients aged 60-69 years to 14.2% for patients aged 90 years and older.

These multiple coincident Norovirus outbreaks prompted the Epidemiology and Health Assessment Program of the CCHD to implement an aggressive targeted health education initiative for nursing, as well as other staff of long-term care facilities in the county, on the prevention, control, and reporting of norovirus and other enteric diseases. This project, which began in 2010, will continue on an annual basis through at least 2015.

Pertussis

Pertussis in a Boy with Travel to a Boy Scout Camp in North Carolina, Sarasota County, July 2010

On July 26, a PCR confirmed case (Case 1) of pertussis in a boy aged 11 years was reported to the Sarasota County Health Department (SCHD). His symptoms began on June 19 after he returned from a Boy Scout camp in North Carolina. Symptoms initially consisted of a sore throat. The boy was taken to the doctor on June 24 and was prescribed amoxicillin. Symptoms progressed to include fits of coughing and the boy was taken to the doctor again on June 29. During this visit he was given cough syrup. The boy traveled by plane to Chicago with his father sometime between June 29 and July 11, the mother was unable to recall the dates of the flights. After returning, the boy was still experiencing fits of coughing and went to the doctor on July 11. During this visit, a chest x-ray was done and the doctor diagnosed pneumonia and referred the boy to a pulmonologist. On July 21 the pulmonologist reviewed the x-ray and determined that it was not pneumonia, and taking into account the symptoms, diagnosed pertussis and ordered laboratory testing. According to the mother no other family members experienced any symptoms. The mother, father, and sister all received prophylaxis. The boy had previously received all five recommended doses of pertussis-containing vaccine.

Suspected exposure occurred at Boy Scout Camp A in North Carolina between June 12 and 19. During this trip the scouts slept in two-man tents and were with scouts from other regions of the country. During the investigation Bureau of Immunizations contacted the North Carolina Department of Health to notify them of the potential exposure at Camp A.

In discussing this with the Scoutmaster for this troop, a second case was identified. Case 2 was in an unvaccinated boy aged 11 years who traveled with the first boy to and from Boy Scout Camp A in the same vehicle. These two boys also shared the same two-man tent while at the camp. The second boy's symptoms began on June 15 as a sore throat and general malaise. His cough began on June 23 and progressed to fits of coughing and post-cough vomiting.

The second boy was initially treated with homeopathic medications and was taken to the doctor on July 1 after his cough became worse. The doctor did not perform any laboratory testing. He prescribed cephalexin for 14 days, which was completed.

During the interview (July 30) the mother of the second child indicated she also was experiencing symptoms. Her symptoms began on July 12 with a sore throat and malaise. Her cough began on July 19, which progressed to fits of coughing and an episode of post-cough vomiting. She was advised to seek medical care. The mother was subsequently lost to follow-up and was not reported as a case. The grandmother of the second boy also experienced cold-like symptoms that began on July 20 and some intermittent coughing that began shortly thereafter. She was advised to seek medical care. The grandmother did not meet case definition and was not counted as a case. No additional ill contacts or family members were reported.

During this outbreak control measures included: isolation of cases, initiation of proper antibiotic treatment, targeted antibiotic prophylaxis, and education on vaccine importance.

Pertussis Outbreak Associated with a Residence Shelter, Duval County, August 2010

On August 17, 2010 Duval County Health Department (DCHD) Epidemiology Program was notified of two

PCR-confirmed pertussis cases in siblings aged eight and nine years who resided with their family in a shelter. Onset of symptoms began on August 2 and 14, respectively. Each child had received the age-appropriate five doses of DTaP vaccine. Both children used nebulizers for periodic mild asthma symptoms. The father also developed symptoms, with an onset of July 19. The family had lived at the shelter for approximately one month.

The investigation included follow-up at two shelters, three child care facilities, a summer camp (associated with a shelter), the father's supervisor at work, the secondary cases, and other close personal contacts. Eight confirmed cases were identified in the outbreak, four were PCR-positive, and four were confirmed by epidemiologic link. A PCR-positive child aged six years, who was a contact of the siblings, also had a history of five DTaP vaccinations.

Control measures used for the outbreak were: notification by phone about the illness, education and preventive efforts by phone, fax, fliers and mail, and follow-up surveillance for ill persons. The Florida Bureau of Immunization provided Tdap vaccinations for further outbreak control at the shelters. No further cases associated with this outbreak were identified.

Pertussis Outbreak Associated with a Local K-7 School, Sarasota County, December 2010

On December 10, 2010 the Bureau of Epidemiology reported two PCR-confirmed cases of pertussis to the Sarasota County Health Department (SCHD) on-call epidemiologist. Case A was in a boy aged 11 years and Case B was in his brother aged four years, neither of whom was vaccinated. Case A attends a K-7 school in Sarasota. The school has a population of 411 students of whom 6.1% (n=25) have a religious exemption and have partial or incomplete pertussis vaccination.

Case A developed a cough on November 29 and experienced fits of coughing and post-tussive vomiting. He was taken to the doctor on December 7 and diagnosed with pertussis, and was prescribed zithromax. Case B was diagnosed with pertussis and prescribed zithromax at the same visit. During the visit, specimens were taken for laboratory testing. Prophylaxis was recommended for family members. No other contacts were identified during the interview and the parents isolated the brothers while they were sick.

The school nurse at the K-7 school where case A was enrolled was notified of the case due to concerns associated with the high rate of no or incomplete vaccination among the student population. Active surveillance was initiated. A letter was drafted by SCHD and sent home with students on December 14 to notify parents of their child's potential exposure to pertussis. Cases C, D and E were identified via active surveillance. Cases C and D met the probable case definition, with cough greater than two weeks and post-tussive vomiting. Case E was identified as meeting the suspect case definition with a cough lasting less than 14 days. This last child was up-to-date on vaccinations and was lost to follow up. There was no known contact between Cases A and B, and any of the other cases. Additionally, there is no known contact between cases C, D, and E. Case C and D were seen by their provider and neither was tested for pertussis. Winter break began on December the 20 and ended December 31. No cases were identified after the break.

During this outbreak disease control measures included, exclusion of cases from school, parental education, targeted post exposure prophylaxis and immunization, and active surveillance.

Salmonellosis

Salmonella Anatum Associated with a Wedding Reception, Sumter County, April 2010

On April 19, 2010 the Sumter County Health Department and the Regional Environmental Epidemiologist for North Central Florida were notified of a cluster of Gastrointestinal (GI) illnesses following a

wedding reception in Sumter County. The reception was hosted at a community center in Lake Panasoffkee on April 17 at 5:00 pm. Approximately 68 guests attended the dinner.

A list of names and telephone numbers of reception attendees was obtained. The outbreak case definition included attendees who developed either diarrhea or vomiting within 72 hours of attending the reception. Both ill and non-ill persons were interviewed using the standardized food and waterborne outbreak questionnaire to assess food and other exposure histories. A food-specific section of the questionnaire was designed based on the menu of items served at the event. Symptoms reported by the 37 ill attendees included: diarrhea (100%), abdominal cramps (97%), fatigue (89%), fever (81%), headache (76%), nausea (76%), chills (65%), vomiting (62%), sweating (58%), muscle aches (56%), dizziness (38%), and numbness or tingling sensation (8%). A mean incubation period of 21 hours (median=18.5 hours, range=9.5-67 hours) was reported. The mean duration of illness was 57 hours (median=57.5, range=9-120 hours). In total, 15 (41% of the total) attendees received medical treatment for their symptoms.

Six specimens were collected from ill persons and shipped to the Bureau of Laboratories - Jacksonville (BOL) for both enteric and viral testing. An additional seventh sample was tested by a private laboratory after an attendee was hospitalized. Food samples of left-over meats (pork and chicken) were shipped in sterile plastic bags to BOL and tested for *Staphylococcus aureus*, *Clostridium perfringens*, *Salmonella species*, and *Bacillus cereus*.

All six human stool samples submitted to the BOL tested positive for *Salmonella* Anatum. The two food samples submitted (chicken and pork) also tested positive for *Salmonella* Anatum. These isolates had a pulsed field gel electrophoresis (PFGE) pattern identical to that observed in the six human samples. One additional stool sample tested positive for *Salmonella* at a private laboratory, but was not tested at BOL.

Due to the receipt of a positive laboratory result in both the chicken and pork and the potential for cross contamination to occur during preparation, it was unknown which meat was the primary source of the *Salmonella* Anatum. Statistical analysis gathered through epidemiologic interviews indicated that the pork and baked beans were statistically associated with illness. The environmental assessment and interview with the chef who prepared the chicken and pork identified several practices and procedures that may have compromised food safety such as cross-contamination of the chicken and pork and time-temperature abuse.

Shigellosis

***Shigella sonnei* Outbreak at a Mexican Restaurant, Alachua County, August 2010**

In August 2010, the Alachua County Health Department (ACHD), Regional Environmental Epidemiologist (REE), and Department of Business and Professional Regulation (DBPR) received multiple illness complaints from several unrelated parties who dined at the same Mexican restaurant in Alachua County. A total of 36 restaurant patrons were identified from four separate parties who dined at the restaurant on either August 9 or 10. A total of 18 were reported ill, of whom 15 were interviewed. Fourteen ill patrons dined at the restaurant during the same two-hour period on August 9 and the other four dined on August 10.

An outbreak case definition was developed, which included patrons who dined at the restaurant from August 7-10, 2010 and developed illness with diarrhea and/or vomiting within 72 hours. All 15 patrons interviewed met the case definition for the outbreak. Symptoms reported included: diarrhea 100% (15), fever 100% (15), cramps 87% (13), fatigue 87% (13), weakness 80% (12), chills 80% (12), nausea 73% (11), sweating 73% (11), headache 67% (10), bloody diarrhea 67% (10), vomiting 40% (6), and dizziness 40% (6). Five persons received medical treatment. The mean duration of illness was 174 hours or seven days (range=120-240). A

mean incubation period of 46 hours was reported (range= 25-67). Five patrons tested positive for *Shigella sonnei*, two patrons had their specimens tested at the Bureau of Laboratories - Jacksonville, and three by a private laboratory.

The ACHD, DBPR, and REE conducted a joint environmental assessment at the restaurant. Several food safety violations were identified and reported to management, such as temperature abuse in a freezer, cross-contamination of raw and ready-to-eat chicken, and poor employee hand-washing practices. Employees reported that the freezer was defrosting throughout the day and a subsequent repair of a crack in the condenser was completed. The unit was not permitted to be used until it was fully repaired. In addition, one wait-staff employee, who also works at a day-care center, reported having recent GI symptoms but denied preparing food or working during the dates when the cases visited the restaurant.

The restaurant's manager was required to enforce the restaurant's sick leave policy and restrict employees from working while ill and 72 hours after their symptoms resolved. The manager was instructed to reduce the risk of cross-contamination by enforcing that grill cooks use separate utensils for cooking raw and ready-to-eat foods. Management was asked to observe staff hand-washing practices, enforce effective hand hygiene, and required to repair the freezer unit. A second joint environmental assessment was conducted to ensure that all requests were completed.

Shigellosis Outbreak Associated with a Daycare Facility, Hendry County, August 2010

On August 3, 2010 the Hendry County Health Department (HCHD) received an electronic laboratory report positive for *Shigella sonnei* in a child aged five years. The HCHD epidemiology program launched an investigation that revealed the patient attended a local daycare center during the week prior to illness and had been sent home on July 24 with diarrhea and abdominal pain. This information prompted a visit to the daycare facility to make an assessment, educate, and implement appropriate control measures.

The facility's investigation led to the identification of five (16%) students and one (17%) staff member in two separate classrooms who were symptomatic between July 23 and August 3. The director of the facility had sent a letter to parents on July 26 informing them of a circulating diarrheal illness and advised them to "keep children home if they exhibit stomach flu-like illness." The health department had not been notified prior to the letter being sent.

On August 3, 2010 HCHD recommended implementation of Phase 1 interventions from the *Guidelines for Control of Outbreaks of Enteric Disease in Childcare Settings*, including exclusion and readmission criteria, personal and environmental control measures, and issued a letter notifying parents of *Shigella* at the day care center. The HCHD blast-faxed an advisory to community health care providers and partners. The Early Learning Coalition of Southwest Florida and the Bureau of Epidemiology were notified of the outbreak.

On August 4, 2010 the Hendry County Environmental and Epidemiology programs conducted a joint inspection of the facility. Overall, the facility was clean and the administration was cooperative.

Daily surveillance was conducted until the outbreak was contained and Phase 1 interventions were lifted on August 18. Ultimately, there were seven cases among students and staff at the facility and five cases among contacts. One person was hospitalized for severe illness and recovered.

Shigella sonnei Outbreak Investigation at a Local Daycare Center, Osceola County, July-August 2010

On Monday August 16, 2010 the Osceola County Health Department (OCHD) was notified of two confirmed *Shigella sonnei* cases in children. The first confirmed case was in a boy aged six years who had onset of symptoms on August 11 and experienced abdominal pain, diarrhea, and vomiting. A local urgent care facility

diagnosed otitis media. However, as symptoms persisted the child was taken to the emergency room and admitted for appendicitis. Later, stool culture confirmed *Shigella sonnei*. Interviewing the parent revealed the child attended daycare and two other household members were also symptomatic. One of the symptomatic contacts was a boy aged three years who attends the same daycare. His symptom onset was August 8.

The second confirmed case was in a boy aged one year who had onset of symptoms on August 7 and experienced low grade fever, diarrhea, and vomiting. The child also attends the same daycare center. One of this boy's siblings, a boy aged six years, was also symptomatic starting on August 16. The mother was interviewed and confirmed onset dates, and the last day of attendance at the daycare center was August 16. She also reported her neighbor's daughter who also attends the same daycare center had been symptomatic. Upon interviewing the neighbor, it was found that three children in that home (aged two, three, and four years) had been symptomatic, and all three attend the same daycare center. Their symptom onsets were from July 29 through August 1. Reported symptoms of gastrointestinal illness included diarrhea (100%), abdominal pain (43%), vomiting (71%), and fever (57%).

An environmental investigation was performed on August 18. The daycare center's kitchen, restrooms, sinks, and all classrooms were inspected. Recommendations were offered, including implementation of Phase 1 interventions from *Guidelines for Control of Outbreaks of Enteric Disease in Childcare Settings*; issuing a letter notifying parents of *Shigella* at the daycare center, ongoing investigation, and contact tracing.

Staphylococcus aureus

Three *Staphylococcus aureus* Deaths, Palm Beach County, September-October 2010

The Palm Beach County Health Department (PBCHD) Division of Epidemiology and Disease Control investigated three unrelated cases of community-associated *Staphylococcus aureus* mortality that occurred within a two-month period from September to October, 2010. Only one of the three was a methicillin-resistant (MRSA) infection.

The first case was reported to PBCHD on September 1, from a hospital in the central part of the county. The case was a woman aged 55 years who became ill on August 19. She was seen at a local emergency department for back pain, diagnosed with sciatic nerve pain, and discharged with pain medication. She was admitted to a different hospital on August 29 in respiratory failure and septic shock. A chest x-ray revealed bilateral infiltrates. Blood and urine cultures were positive for *Staphylococcus aureus*. Resistance testing demonstrated resistance to oxacillin and penicillin confirming this was a MRSA infection. Specimens sent to the Bureau of Laboratories confirmed the hospital laboratory results. No viral tests were conducted and the patient died August 30.

The second case reported was in a woman aged 82 years. This case was reported by a hospital in the southern part of the county on October 29. The patient became ill on August 15 and was treated for a urinary tract infection. She was admitted to the hospital on August 29, after being found unresponsive that morning. Blood specimens obtained that same day were positive for *Staphylococcus aureus* which was resistant to penicillin and sensitive to oxacillin. A urine culture was positive for *Klebsiella pneumoniae*. No viral testing was conducted. The patient was admitted to a hospice unit on September 2, and died on September 5. No specimens were available for confirmatory testing at the Bureau of Laboratories.

The third case was in a girl aged 15 years living in the northern part of the county. This case was reported to PBCHD on November 2. She had onset of fever, vomiting, headaches, and upper respiratory infection symptoms on October 19. She was found the morning of the 22 with seizures and admitted to a local hospital. A respiratory specimen collected October 23 from her endotracheal tube was positive for Beta-hemolytic

Streptococcus group F and *Staphylococcus aureus*. The *Staphylococcus aureus* isolate was sensitive to all antibiotics tested. She died October 30. Testing did confirm the presence of *Staphylococcus aureus* in the respiratory specimen.

Family interviews revealed that none of these patients had a history of known *Staphylococcus* colonization or skin infection in the past. None of the cases had a history of activities with a high risk of impairment of skin integrity.

Streptococcal Disease

Strep Throat and Scarlet Fever in a Child Care Facility, Hillsborough County, May 2010

On May 25, 2010 the Hillsborough County Health Department (HCHD) was notified of an outbreak of streptococcal throat infections (“strep throat”) in a childcare facility. Four children, aged three to five years, were reported by the facility to have strep throat. One child was diagnosed by a physician with a positive rapid strep test. Another child had a diagnosis of strep throat and “scarlatina” (scarlet fever).

Initially, information on strep throat, scarlet fever, and basic sanitation recommendations for childcare were provided to the facility. In addition, a letter was sent to the parents and a door sign was posted at the center. The childcare facility was advised to discontinue family style dining for the duration of the outbreak. As of June 6, no new cases had been reported and the investigation was considered complete.

On June 24th, one month after the initial report, HCHD was notified of new cases of strep throat at the same facility. One child was diagnosed with strep throat and had a rash. Two other children had sore throats. Because of the new cases, HCHD sent epidemiologists to conduct a site visit on June 29, 2010.

Observations from this visit noted that door signs and parent letters were visible. The center was using bleach to clean. Water tables and sand tables were available and in use. Play dough was in use. Children’s toothbrushes were kept by the hand washing sink. HCHD recommended frequent hand washing. HCHD also recommended surveillance for new cases of strep throat and the prompt removal of ill children. Children who had strep throat would only be readmitted after 24 hours of antibiotic therapy. Family-style dining was suspended until two incubation periods (eight days) after the last case of strep throat. Toys and high touch items were cleaned with a bleach solution and the use of water tables, sand tables, and toys that could not be sanitized were discontinued. In addition, careful consideration was given to the use of toothbrushes at the facility. Given the high number of cases and the long duration of the outbreak, it was recommended to throw away all toothbrushes in the affected classrooms, disinfect the toothbrush holder, and reissue new toothbrushes to all children. HCHD recommended toothbrushes belonging to children with sore throats be thrown away immediately and a new one issued when the child returns.

There were nine cases with a diagnosis of strep throat and five cases with sore throat or rash, which were considered suspect cases. The first onset date was May 23, 2010 and the last case’s onset date was July 7, 2010. The attack rate was 20% (14 of 70) in the children and 0% (0 of 10) in the staff. Prior to this investigation, HCHD was not aware of the use of toothbrushes in childcare facilities or the need to address this practice. After the enhanced recommendations were provided, only one additional case of sore throat was reported.

Tuberculosis

Tuberculosis Cluster at a Homeless Shelter and Day Center, Duval County, 2010-2011

The Duval County Health Department (DCHD) Tuberculosis (TB) program is currently managing a cluster of

several individuals with ties to a local homeless shelter who were confirmed with *Mycobacterium tuberculosis* disease. In a retrospective review, the initial person in the cluster was a man aged 54 years diagnosed on August 28, 2010. On September 10, 2010, a man aged 51 years had a positive culture for *M. tuberculosis*. A third individual was a man aged 50 years (later determined to be from the same shelter) who was hospitalized and had a positive culture on October 28, 2010 for *M. tuberculosis*.

As of February 11, 2011 there were nine confirmed cases with a genotyping and/or epidemiological connection to the shelter. Because of the evidence of possible on-going transmission, an active case-finding event was held on February 22-23. The main objectives of the case-finding event were to detect active cases of TB and identify individuals with latent TB infection (LTBI). During the event, the Bureau of Tuberculosis and Refugee Health first used the GeneXpert machine, which is a fully contained nucleic acid detection system. A portable x-ray machine was also available onsite to optimize use of the TB teleradiology system, as well as latent TB infection testing by Interferon Gamma Release Assay (IGRA).

There were a total of 212 individuals screened for TB at the shelter during the active event. One active case of TB was detected. The evaluation of the additional TB suspects and individuals with LTBI is currently on-going. The Bureau of Tuberculosis and Refugee Health is working with DCHD to implement a long-range action plan to address this issue in the community.

Tuberculosis in an Elephant, Seminole County, August 2010

On August 26, 2010 the Seminole County Health Department (SCHD) was notified of a positive *Mycobacterium tuberculosis* culture obtained from lung tissue as part of a necropsy conducted on an elephant that died on July 29, 2010. The report originated from the local U.S. Department of Agriculture Animal and Plant Health Inspection Service representative, who contacted the Bureau of Environmental Public Health Medicine, and was ultimately received at SCHD by both the Tuberculosis and Refugee Health Program and the Epidemiology Program. Although the animal died while in a zoo in Massachusetts, it was also exhibited at a flea market in Seminole County from November 17, 2009 to March 31, 2010, as well as during previous winters for the past several years.

The elephant's three local handlers had been tested annually for tuberculosis by the SCHD TB program since 2003, and the results were consistently negative, including the last test performed on February 23, 2010. The animal's Florida veterinarian was tested on September 8 and that result was also negative. State health departments in Massachusetts and Maryland followed up with the elephant's handlers who had moved to those states in the interim. Because the highest risk group, the handlers and veterinarian, was negative for TB, the risk for others was deemed minimal and no additional contact tracing was required.

Typhoid Fever

Typhoid Fever Imported from Haiti in a Food Handler, Miami-Dade County, April 2010

The Miami-Dade County Health Department (MDCHD), Epidemiology, Disease Control and Immunization Services (EDC-IS) investigated a typhoid fever case in a man aged 35 years. The man was seen at a local hospital emergency department on April 27, 2010 with fever and headache, which began on April 22. He was discharged on April 28, and instructed to follow-up at a local medical center within 7-10 days.

Initially, the patient could not be contacted. According to the hospital emergency department notes, the patient is a possible food handler with recent travel to Haiti. Additional resources were used to gather patient demographics and place of employment. Those searches indicated the man was a kitchen supervisor at a local restaurant. Staff at the restaurant reported the man did work there but his last day of work, as well as his future date of return was not known at that time.

The infection was acquired in Haiti. Great efforts were required to locate the man to assure he completed the antibiotic treatment. In total, 69 employees of the restaurant were tested with three stool cultures each. An additional four household contacts were also tested. All results were negative for *Salmonella Typhi*.

Typhoid Fever in a Return Traveler from India, Hillsborough County, June 2010

On June 6, 2010 the Hillsborough County Health Department (HCHD) was notified of a possible typhoid fever case in a man aged 31 years. HCHD interviewed the hospitalized patient on June 7, 2010.

The patient traveled to India on May 14 and stayed with family until returning home on May 31. On June 3, he developed fever, chills, watery diarrhea, and body pain. Later that day he visited an urgent care clinic where he was diagnosed with a sinus infection, prescribed Ciprofloxacin, and sent home. When symptoms continued the next day, he went to the emergency department, where blood and stool samples were collected. He was sent home. On June 5 symptoms worsened; he returned to the emergency department and was admitted. Previously collected blood cultures were positive for Gram negative rods identified as *Salmonella Typhi*. These samples were forwarded to the Bureau of Laboratories - Jacksonville where *S. Typhi* Group D1 was confirmed. The stool samples were negative. He remained hospitalized from June 5-11 with ongoing high fever and diarrhea. On June 25, the man tested negative for *S. Typhi* in blood and stool cultures. The patient recovered fully.

The patient had not been vaccinated for typhoid fever prior to travel. While in India, he reported eating local foods and drinking untreated water. He did not recall any contact with sick people. The patient did not attend work or have any contact with anyone in sensitive situations. He did not go outside the home while ill for any purpose other than to seek medical attention. The patient's wife and child aged two years did not travel to India and were not in sensitive situations. The wife was six months pregnant at the time of interview and was advised to follow up with her physician. No family member or contacts became ill. The family was provided information and educated on prevention and transmission.

West Nile Virus

West Nile Virus in an Asymptomatic Blood Donor, Osceola County, July 2010

On July 29, 2010 the Osceola County Health Department (OCHD) Epidemiology Program received a positive laboratory result for West Nile Virus (WNV) from Florida's Blood Bank Center for a man aged 46 years. The sample was collected on July 15 from a bloodmobile at a resort in Osceola County. When the donor was interviewed, it was found he works cleaning the pool at a local hotel. During his work, he is exposed to mosquitoes. He does not use chemical repellants or other protection from mosquitoes. He recalled a large number of mosquitoes being active in and around the pool area. The patient reported no travel history during the past two months. The man was asymptomatic so the case does not meet case criteria to be reported in Merlin.

Osceola County had a positive WNV result in a horse the previous week and Orange County had several sentinel chicken flocks that tested positive for WNV. A Health Advisory was issued to remind the public that mosquito activity is ongoing.

Neuroinvasive West Nile Cases, Orange County, August 2010

On August 5, 2010 Orange County Health Department (OCHD) received a positive West Nile Virus (WNV) IgM laboratory result from a local hospital on a male Orange County resident aged 40 years. Orange County Mosquito Control was contacted on August 6 for mosquito management. The man had no significant medical history and was a smoker and recreational drug user. According to the man's wife, he did not travel out of Florida during the incubation period of 2 to 14 days. The man did have some outdoor exposure in Orlando and St. Cloud.

Osceola County Health Department was notified of the St. Cloud address on August 13. The man's wife stated he did not recall any mosquito bites.

The man had developed non-specific symptoms on July 22 including malaise, wheezing, and congestion. On July 23, the man complained of body and muscle aches. The following day he developed a high fever (103°F) with rigors, stiff neck, and severe headache. He also became disoriented, lethargic, and had severe weakness. On July 25, the man's mental status altered and he became aphasic, or unable to speak. His fever reached 105°F. He developed some facial droop, and bladder/bowel incontinence with lower extremity paralysis. The patient was admitted to the local hospital intensive care unit (ICU) on July 26 and was initially diagnosed with meningitis. Later, he was diagnosed with sepsis. Encephalitis and stroke were ruled out. After the positive WNV IgM result, the man was diagnosed with WNV encephalitis. On August 20, WNV was confirmed by a positive IgM in cerebrospinal fluid (CSF) by the Bureau of Laboratories - Tampa. On August 23 OCHD issued a Mosquito-borne Illness Advisory to the public. The patient spent several months recovering at a rehabilitation facility. He had significant speech and vision deficits. He also suffered from lower extremity nerve damage causing difficulties with mobility.

On September 1, 2010 OCHD received a second positive West Nile Virus (WNV) IgM laboratory result from a local hospital, on a male resident of Orange County aged 80 years. Orange County Mosquito Control was contacted on September 1 for mosquito management. The patient had an extensive medical history including coronary artery disease with coronary artery bypass graft, cancer, diabetes, hypertension, and chronic obstructive pulmonary disease (COPD). In spite of the medical history, the man seemed to be in good health prior to this illness. According to the man's wife, he did not travel out of Orange County during the incubation period. The man spent time outdoors daily, and the wife could not recall him having any mosquito bites.

The man developed symptoms around the second week of August (illness onset approximated as August 8). He had high fever, chills, body aches, sweats, headache, and malaise. The man's symptoms worsened prior to hospital admission with progressive weakness, lethargy, difficulty walking, nausea, and anorexia. He was admitted to the ICU at a local hospital on August 22. On August 23, the man's mental status became altered and he was unable to speak or move. The man was initially diagnosed with possible pneumonia due to a cough, but the chest x-ray did not support this diagnosis. Additionally, this symptom may have been a normal finding due to the patient's history of COPD. After the positive WNV IgM was received, the man was diagnosed with WNV encephalitis. The patient died on September 4 at the local hospital. On September 7, WNV was confirmed by a positive IgM in CSF by the BOL - Tampa. On September 7, OCHD issued a Mosquito-borne Illness alert to the public.

