

## **Section 6**

### **Summary of Notable Outbreaks & Case Investigations**



### 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*, Rule 64D-3. Selected outbreaks or case investigations of public health interest that occurred in 2009 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, 2009).

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 at [http://www.doh.state.fl.us/disease\\_ctrl/epi/Epi\\_Updates/index.html](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 <http://www.myfloridaeh.com/medicine/foodsurveillance/BibliographyPage.html>.

## Amoebic Encephalitis

### Primary Amoebic Meningoencephalitis Investigation, Nassau County, July 2009

The Nassau County Health Department was notified on July 9, 2009 by a school health nurse that a student was receiving treatment for meningoencephalitis at a Duval County hospital. The patient, a 13-year-old boy, was a resident of Nassau County who had exposure to a freshwater lake in Madison County one week prior to his onset of symptoms on July 2. His family vacationed at the park's campground from June 27 to July 5. He swam in the park's lake regularly until July 2 when he ceased swimming due to an ear ache. Following nine days of illness, he was pronounced brain dead on July 10, 2009 and was withdrawn from artificial life support. The cerebrospinal fluid sample tested at the Centers for Disease Control and Prevention's (CDC) Division of Parasitic Diseases confirmed the diagnosis of primary amoebic meningoencephalitis (PAM) on July 17 using polymerase chain reaction (PCR) testing methods.

An investigation was conducted by the CDC and the Florida Department of Health to gather more information from family members who had the same exposure to *Naegleria fowleri*, but who did not get PAM. The purpose of the investigation was to determine whether subclinical infections with the amoeba also occurred in conjunction with the confirmed case. Of the patient's 18 family members surveyed, 17 had exposure to the freshwater lake at the park. Family members over the age of 12 were asked to provide a blood sample to be tested for anti-*Naegleria* antibody titers. IFA tests were conducted to determine total immunoglobulins (IgA, IgM, IgG). Ten samples were collected and sent to the CDC for serological testing.

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Each sample had low levels of antibody, as expected for an organism that is common in the environment, and none of the samples tested had antibodies higher than is expected in the general population.

### **Primary Amoebic Meningoencephalitis Case Investigation, Hillsborough County, August 2009**

The Hillsborough County Health Department (CHD) received a report from a local hospital that a 10-year-old boy died after being diagnosed with meningococcal disease in early August. The patient received medical treatment in hospitals in both Polk and Hillsborough counties. On October 19, 2009, the Polk CHD received a call from the Polk County Medical Examiner's Office reporting that the child's diagnosis was changed to primary amoebic meningoencephalitis, based on the observation of amoeba in brain tissue during the autopsy. It was determined that the child had recreational water exposure while swimming and inner-tubing in a lake in Polk County on August 9, 2009. On October 29, 2009, the Centers for Disease Control and Prevention (CDC) confirmed the presence of *Naegleria fowleri* from cerebrospinal fluid submitted for testing. Based on this information, press releases were issued by CHDs in the area and prevention information was provided to the residents and guests living around and near the identified lake in Polk County. Because the patient was an organ donor, the CDC followed up and determined that the patient's kidneys had been harvested for transplant and notified the physicians whose patients had received the donated organs. No transmission of *Naegleria fowleri* to the organ recipients has been reported to date.

### **Primary Amoebic Meningoencephalitis Case, Orange County, September 2009**

On September 19, at approximately 8:30 a.m., the Orange County Health Department (CHD) was notified by a local hospital of a 22-year-old man diagnosed with amoebic meningoencephalitis. The patient attended a local college and had a history of wakeboarding at a local man-made lake that is used for water sports events and training.

Medical records showed that the symptom onset date was September 17, 2009. Symptoms included decreased appetite, nausea, vomiting, headache, neck pain, and fever. He was admitted to the hospital the following day. On September 19, his symptoms progressed to confusion with more clear signs of encephalitis, abnormal eye movements, and diminished level of consciousness. His treatment included antibiotic and steroid therapy. He died on September 21, 2009. Amoebas were seen on a slide of cerebrospinal fluid (CSF) collected and analyzed on September 18. On September 30, the Centers for Disease Control and Prevention (CDC) confirmed all CSF samples submitted were positive for *Naegleria fowleri* by polymerase chain reaction (PCR) and one of the CSF samples was positive by cell culture.

Reported dates of exposure to a local water sports facility were September 9, 11, and 16. The patient described a hard fall during one of his visits. No other known freshwater exposures were reported. Orange CHD visited the water sports facility on September 19 and distributed information brochures on *Naegleria fowleri* to facility management. The facility offers nose plugs free of charge to customers as well as provides information on the various hazards of exposure to fresh water including microbial risks. This facility was also an identified exposure site for a primary amoebic meningoencephalitis case in 2007. Orange CHD prepared a press release regarding precautions for the public while participating in freshwater activities. Orange CHD also issues a press release each spring advising the public of the hazards of exposure to freshwater venues including the increased occurrence of *Naegleria fowleri* in freshwater during the summer months.

### Botulism

#### **Infant Botulism in a Three-Week-Old, Hillsborough County, January 2009**

In January 2009, the Hillsborough County Health Department investigated a case of infant botulism in a three-week-old infant. The baby was born at a healthy weight and was “moving around vigorously” until January 18, 2009 when symptoms first developed. The symptoms included congestion, constipation, decreased oral intake, extreme lethargy, and weakness. The baby was taken to the emergency department where he became limp and apneic. Other symptoms included loss of gag reflex, loss of tendon reflex, a weak cry, and floppy baby syndrome. The baby was not put on a ventilator.

The attending physician and the pediatric infectious disease doctor consulted with the Infant Botulism Prevention and Treatment Program in California. BIGIV (Botulism Immune Globulin Intravenous (Human)) was sent overnight to the hospital from this program for administration to the baby on January 27, 2009. A stool specimen was sent to the Centers for Disease Control and Prevention (CDC) for testing. The stool (enema wash) specimen tested positive for botulinum toxin type A. The baby was moved out of the pediatric intensive care unit, made slow, steady progress, and eventually recovered completely.

The baby was primarily breastfed but also consumed formula (powder plus bottled water). At the request of the attending physician, the CDC agreed to test the dry and ready-made formula that was consumed by the infant. No botulinum spores were found in either product. The baby consumed no honey. The causal exposures are not normally identified for infant botulism cases. However, the baby did have exposure to a farm, which makes it more likely he could have been infected from botulism spores that had been aerosolized from the soil.

### Brucellosis

#### ***Brucella* Exposure in Hospital Laboratory, Hillsborough County, October 2009**

On October 27, 2009, the Hillsborough County Health Department was notified by a local hospital laboratory of a death of a patient with a preliminary *Brucella melitensis* result. An investigation in conjunction with the hospital infection preventionist (IP), the hospital laboratory, the hospital employee health nurse and the Bureau of Laboratories (BOL) in Jacksonville was immediately initiated. On November 5, subsequent testing at the BOL in Jacksonville indicated that the organism was actually *Brucella suis*.

The hospital laboratory did not use appropriate precautions when handling and conducting the blood culture, as the doctor did not initially suspect *Brucella*. Once *Brucella* was identified, the laboratorians worked with the culture in a biosafety cabinet, but the microbiology laboratory workers had been exposed to the culture prior to the identification. Hospital employee health staff evaluated all who were exposed and identified nine laboratory workers who met the definition of high risk and 21 who met the definition of low risk. All nine high-risk people were prophylaxed; seven received the standard combination of doxycycline and rifampin for 21 days, and two received an alternate course of prophylaxis with trimethoprim-sulfamethoxazole and rifampin for 21 days. In addition, review of the patient's second hospital admission records indicated that laboratory workers were exposed to a previous culture from the patient that again, had not been identified or handled as suspect *Brucella*. Testing was also recommended for these workers. All exposed laboratory workers were asked to submit serum shortly after

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the exposure had been identified, and then at the recommended intervals (two, four, six, and twenty-four weeks) to screen for potential unidentified infection. The serum was sent to the Centers for Disease Control and Prevention (CDC) for agglutination testing. Members of the employee health group went to the microbiology laboratory to collect screening specimens from staff twice a day at shift change for several days at each of the specified intervals. Laboratory staff were also given the option to be tested by making an appointment with the employee health program. All 32 of the workers who were considered low- and high-risk exposures submitted initial samples for testing, and 28 submitted samples for the week 24 final tests. The results of the final Week 24 agglutination tests indicated that no laboratory workers acquired brucellosis from either exposure.

Since this investigation, information has been sent to local doctors regarding the importance of screening patients for brucellosis risk factors. In addition, the investigation and laboratory recommendations were presented to a group of sentinel laboratorians. This investigation underscores the need for good laboratory training as brucellosis is the most common bacterial laboratory-acquired infection and *Brucella suis* is endemic in Florida wild pigs.

### **Case of Brucellosis with Laboratory Exposures, Orange and Seminole Counties, December 2009**

Seminole County Health Department (CHD) investigated a single case of brucellosis in a 27-year-old white female after receiving telephone notification from the Bureau of Epidemiology on December 12, 2009. The patient reported an acute and intermittent onset of fever of unknown origin, myalgia, malaise, and lack of appetite beginning on October 25, 2009. She had an outpatient visit with her primary care provider on October 30 and was treated with Tamiflu for presumptive influenza, even though the rapid test performed by the primary care physician was negative for influenza viruses. The patient was admitted to a local hospital on November 30, 2009 due to worsening symptoms. Blood cultures were performed on specimens collected on November 20, November 23, December 1, December 5, and December 7. Diphtheroids were identified in the first four cultures, while possible *Brucella* sp. was reported for the December 7 culture. An isolate from the specimen collected on December 7 was sent to the Bureau of Laboratories (BOL) in Jacksonville on December 14.

A telephone interview with the patient on December 15 revealed that prior to becoming ill, she traveled to Mexico (Cancun and Cozumel) and Belize from August 30, 2009 to September 6, 2009. She also traveled to the Bahamas from October 16 to October 19. While in these countries, there were no high-risk exposures such as raw milk or cheese consumption, animal contact, or other agricultural exposures. When the patient was re-interviewed on December 17, she mentioned that her husband occasionally hunted deer and that she was exposed to deer blood while handling the meat in early October. Her husband was also interviewed on December 17 and admitted hunting hogs and deer the previous year. He did not store any of the pork at home and carcasses are normally taken to a “processor” in a neighboring county. He is a member of a local hunting club and refused to provide information on the group or their most recent activity. He denied recent or previous illness or wounds as well as declined a request to provide serum samples for testing. The Lake CHD epidemiology program was contacted to see if they could find out additional information about the “processor”. As a result of this collaborative effort, it was learned that the facility was listed as a taxidermist. The regional environmental epidemiologist was informed about the facility and notified the Florida Department of Agriculture and Consumer Affairs.

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*Brucella suis* was confirmed on December 26; however, the exact source of exposure was not able to be confirmed. The patient and her spouse were given educational information about illness prevention that included recommendations to avoid consuming unpasteurized milk or cheese and wearing rubber gloves when handling viscera of animals.

Multiple laboratorian exposures to *Brucella* were associated with this case. A total of 32 exposed hospital laboratory workers were identified from two hospital campuses; one in Seminole County and the other in Orange County. Fourteen of the workers were considered to be high-risk exposures, 17 low-risk, and one no-risk. The hospital infection preventionist and occupational health staff were provided guidance on prophylaxis and testing of exposed staff. No evidence of *Brucella* infection was reported. Staff specimens were submitted to the Centers for Disease Control and Prevention (CDC) through the Bureau of Laboratories in Jacksonville for *Brucella* agglutination testing according to the recommended schedule of zero, two, four, and six weeks. Recommended testing at 24 weeks is pending at the time of this report. The laboratory has implemented corrective actions to prevent future exposures of this kind.

This investigation highlights the importance of collaborating with other local CHDs and state and regional personnel to jointly follow up on cases that may inadvertently “spill” outside of a county’s jurisdiction. This event also raised awareness for hospital personnel of the current CDC protocols for handling *Brucella* and other suspected bioterrorism agents.

### Carbon Monoxide

#### Carbon Monoxide Poisoning Cluster, Duval County, December 2009

The Duval County Health Department (CHD) Epidemiology Program utilizes the Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE) to monitor emergency department (ED) chief complaint data from eight county hospitals. In December 2009, daily review of the ESSENCE syndromic surveillance system identified a cluster of 11 carbon monoxide (CO) poisoning exposures. Individual case reports were obtained through the Florida Poison Information Center Network. The reports provided information about exposure, laboratory results, and the environmental monitoring efforts at that time. Although the outbreak exposed additional people, only four patients met the case definition of CO poisoning and were reported as cases.

In the early morning of December 7, 2009, a 13-year-old boy awoke with symptoms of nausea and dizziness and attempted to wake his mother. When she had difficulty responding, he dialed 911. Responders from the Jacksonville Fire Rescue Department (JFRD) determined that the family of five had been exposed to CO due to the improper use of a gas stove to heat the home. The five family members, as well as six additional exposed people in an adjacent apartment, were transported to two local hospitals for medical evaluation and treatment. Four family members of the primary apartment exposure had critically high COHb levels with fractional percentages of 10.6%, 15.0%, 29.3%, and 37.7%. These patients were admitted and treated in hyperbaric oxygen chambers for less than 72 hours, then discharged. The family members of the secondary apartment exposure were examined and discharged without treatment. A total of 11 individuals were known to be exposed in this outbreak.

The JFRD emergency responders and HAZMAT team spoke to residents of the apartment complex regarding the dangers of CO poisoning. Local news sources reported on the story

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and provided education on safe ways to heat a home during the winter, as well as signs and symptoms of CO poisoning. Citizens were reminded to install a CO detector in their homes and to replace the batteries regularly. On December 22, 2009, the FDOH Office of Communications issued a press release on the hazards of CO poisoning.

For more information about this investigation, see

Fung J, Barnes A, Harper T, Azarian T, "Carbon Monoxide Poisoning Case Investigations in Duval and Orange Counties" Florida Department of Health, Bureau of Epidemiology *Epi Update*, February 2010, pg 13-15. [http://doh.state.fl.us/disease\\_ctrl/epi/Epi\\_Updates/2010/February2010EpiUpdate.pdf](http://doh.state.fl.us/disease_ctrl/epi/Epi_Updates/2010/February2010EpiUpdate.pdf)

### Chemical Exposures

#### **Elevated Chlorine Level Exposure at a Zoo Splash Fountain, Hillsborough County, June 2009**

The Hillsborough County Health Department was informed that approximately 25 children who were playing in a splash fountain at a local zoo in Tampa on June 11, 2009 experienced skin and eye irritation. Prior to the incident, the splash fountain had been closed for routine maintenance and had just been reopened when the incident occurred. The bathers had been exposed to super chlorinated water for two to three minutes before the fountain was shut down by park staff. The predominant symptoms reported were irritations of the skin and eyes, which occurred almost immediately after exposure.

During the environmental field assessment it was determined that during cleaning and refilling of the splash fountain's collector tank, 40 gallons of 10% chlorine solution had been accidentally back-siphoned into the holding tank. It is estimated that the children were briefly exposed to chlorine levels as high as 2000 ppm. The Florida Public Swimming Pool Code 64-E9 requires that public bathing areas have chlorine levels of greater than 1 ppm and less than 10 ppm. Eight of the symptomatic children were sent to a local hospital. Seven were immediately released and one of the exposed children had some temporary scarring of the cornea. All of the symptomatic people have since recovered.

### Ciguatera

#### **Six Ciguatera Cases After Consuming Amberjack in the Bahamas, Alachua County, June 2009**

On June 15, 2009, the Aquatic Toxins Program received a report of six ciguatera cases from a physician who traveled with his family to the Bahamas and caught and consumed an amberjack. All cases were Alachua County residents from the same extended family. Of the nine persons who consumed the amberjack, six developed symptoms of ciguatera intoxication, two were boating in the Bahamas and were unable to be reached, and one did not develop symptoms.

The amberjack was consumed on multiple occasions over a four-day period, making it difficult to determine the incubation period for illnesses. The group consumed the fish from June 9 to June 12; five of the six persons developed illness on June 10 and one person developed illness on June 11. The following symptoms were reported by 83% (n=6): a feeling of tingling; burning,



or shock when touching cold items; itching; fatigue; and headaches. Muscle weakness was reported by 67%; 50% reported abdominal pain, joint or muscle pain, body aches, numbness or tingling of the hands or feet, and numbness of the mouth. In addition, 33% reported diarrhea, dizziness or vertigo, irritability, skin eruption or rash, insomnia, and temperature reversal. The following symptoms were reported by 17%: numbness or tingling of the teeth or gums; memory problems; attention or concentration problems; problems multi-tasking; slowed thinking; depression; dry mouth; slowed heart beat; feeling lightheaded; pain or difficulty urinating; difficulty breathing; and the sensation of their teeth falling out. In total, 83% of cases reported having some delayed symptoms that started after their initial onset date. None of the cases received medical treatment for ciguatera. No fish was available for testing at the FDA Gulfcoast Seafood Laboratory.

### Cryptosporidiosis

#### **Outbreak of Cryptosporidiosis Associated with Exposure at an Apartment Pool Complex, Orange County, August 2009**

In September 2009, the Brevard County Health Department (CHD) led an investigation of a cluster of eight cases of cryptosporidiosis in two families reported to the Brevard CHD. Onsets of disease occurred August 26 (1) and August 28 (7). Two cases were initially reported as antigen-confirmed by a local hospital laboratory. A reference laboratory confirmed one of the two samples provided by the hospital laboratory as positive for *Cryptosporidium*. Symptoms were reported to be diarrhea (8), nausea (5), abdominal pain (1), and vomiting (1). The ages ranged from 3 to 33 years with a median of 11 years. Five (62.5%) of the cases were female. Three cases were treated at an emergency room.

The two families reported exposures on August 22 at swimming pools located at an apartment complex in east Orlando. The complex has two pools. The investigation identified chlorine and pH levels outside of the recommended levels for swimming pools. Required levels are 1.0 ppm to 10.0 ppm chlorine and pH levels of 7.2 to 7.8 for swimming pools. Chlorine residuals were 1.0 ppm in Pool A on September 10 and 0.0 ppm on September 11. Pool B had visible mustard algae observed on September 10 and 3.0 ppm of chlorine on September 11. The pH level of pool A was 8.2 on September 10 and 7.4 on September 11. The pH of Pool B was 7.4 on September 11. Each swimming pool structure has separate circulation, disinfection, and filtration systems. The filtration system for both pools used diatomaceous earth. Automatic chlorine feeders provided disinfection. Maintenance and fecal accident records for the month August were not available. It was learned during the inspection that dogs frequently swim in both pools. Both swimming pools were closed by the Orange CHD until all discrepancies were corrected.

#### **Outbreak of Cryptosporidiosis Associated with Exposure at a Hotel Pool Complex, Orange County, August 2009**

Orange County experienced an increase in reported cryptosporidiosis cases during July and August 2009. Three cases were reported for July 2009, compared to none in July 2008. Ten cases were reported for August 2009, compared to three in August 2008. These increases prompted heightened surveillance activities by the Orange County Health Department (CHD) and the Florida Department of Health (FDOH). Because of this increased surveillance, Orange CHD and FDOH detected and conducted an investigation of a small cluster of cryptosporidiosis in August 2009 with exposure to a local water themed resort hotel.

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Five cases of cryptosporidiosis associated with four families were reported. The index case, a 13-year-old boy from Orange County, had onset of illness on August 9, 2009. Symptoms reported included abdominal cramping, low-grade fever, loss of appetite, and diarrhea. He was a local resident who stayed at a local water themed resort from August 4 to August 6.

A seven-year-old boy from Hillsborough County with cryptosporidiosis and the same date of disease onset was reported to the Orange CHD on September 24, 2009. The family of four stayed at the implicated resort from August 7 to August 9. Symptoms included watery diarrhea, abdominal pain, cramps, and weight loss. The three other family members were asymptomatic. The mother of the case reported anecdotally that there were fecal accidents at the hotel on August 8; one in the morning and two in the afternoon. Fecal log books from the resort documented one fecal accident on August 8 at 8:15 a.m.; however, it is not noted in which pool the accident occurred.

A six-year-old girl from St. Johns County had onset of illness on August 17, 2009. Symptoms included abdominal cramps, watery diarrhea, nausea, and vomiting. The case had exposure to pools at the water themed resort hotel from August 15 to August 16.

One confirmed case and one probable case of cryptosporidiosis in a family of four from Lee County were reported with an onset date of illness of August 18, 2009. The confirmed case was a one-year-old girl and the probable case was her two-year-old brother. The family stayed at the hotel from August 14 to August 16. The mother reported that the pool was closed temporarily due to a fecal accident on one or more of those days.

Chlorination in recreational pools will not immediately destroy *Cryptosporidium* oocysts in the pool. A level of 10 ppm will inactivate *Cryptosporidium* in 25.5 hours, 20 ppm will inactivate *Cryptosporidium* in 12.75 hours, and 40 ppm will inactivate *Cryptosporidium* in 6.4 hours. It is important for the pool operator to know that for these inactivation levels to be effective, the pH needs to be 7.5 or less with a temperature of 77°F (25°C) or higher. A 1 µm or less filter is required to remove *Cryptosporidium* from water. Most pool filters used in public recreational facilities range from 4 µm to 25 µm particle removal size. The resort performs disinfection procedures after each fecal and vomit episode and voluntarily hyperchlorinates the pool overnight every week. However, documentation for hyperchlorination times and amounts was lacking. If correctly performed, hyperchlorination should prevent larger outbreaks. It is unlikely that weekly hyperchlorination will prevent all illnesses, especially with a large volume of patrons and high number of fecal accidents.

### ***Cryptosporidium* Outbreak at a Swimming Pool, Santa Rosa County, September 2009**

On September 3, 2009, the Santa Rosa County Health Department received a report of a positive case of cryptosporidiosis in a local child. An investigation revealed that there were four more confirmed cryptosporidiosis cases that had a common exposure at a public pool in neighboring Escambia County. Interviews with the parents of the ill children did not find any other common exposures. There were also six probable secondary cases among family members of the ill children. During an environmental assessment of the pool and interview with the pool operator by an Escambia County environmental health specialist, it was learned there was a fecal accident in the pool during swimming lessons. It was suspected that this was the most likely cause of the illnesses. The management at the facility, following the Centers for Disease Control and Prevention guidelines, had cleaned the pool, and no subsequent cases were reported.

## Dengue

### Outbreak of Dengue Fever in Key West, Monroe County, July-October 2009

On September 1, 2009, the Monroe County Health Department (CHD) was notified of a likely case of dengue fever in a New York resident with travel to Key West from August 2, 2009 to August 9, 2009 and symptom onset on August 10, 2009. No recent travel to a dengue-endemic area was reported. Infection with dengue virus serotype 1 was subsequently confirmed by the Centers for Disease Control and Prevention (CDC). Florida Keys Mosquito Control District (FKMCD) was notified prior to confirmation and implemented enhanced vector control measures. A public press release was issued and local physicians were notified of the possibility of locally-acquired dengue and asked to consult with Monroe CHD on suspected cases. Following public notification, a Key West resident reported prior dengue-like illness with onset on August 25, 2009 and indicated that his wife became ill with similar symptoms two weeks later; both tested positive for dengue. This indicated on-going local transmission and prompted active surveillance to determine the extent of the outbreak.

In addition to passive surveillance, a medical record review and seroprevalence survey were completed in Key West. In total, 27 likely cases of locally-acquired dengue with onset dates ranging from July to October 2009 were identified; 22 met the case definition. Based on specimens collected by the Florida Department of Health, the seroprevalence in the Old Town study area was estimated to be 4.9% (confidence interval=1.8-7.9). Risk factors associated with recent infection included using air conditioning less than 50% of the time, having windows open more than 50% of the time, having vegetation cover more than 50% of the yard, not using repellent with DEET, not emptying water from containers in the yard at least once per week, and having a bird bath. Monroe CHD implemented an educational campaign to encourage mosquito bite prevention and emptying water containers around the home. FKMCD performed household sweeps to eliminate mosquito breeding sites and maintained increased spraying in the area through 2010.

For more information about this investigation please see the following publication. Locally Acquired Dengue – Key West, Florida, 2009-2010. *Morbidity and Mortality Weekly Report*. May 21, 2010. Vol. 59 (19): 577-612.

## ESSENCE

The Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE) is Florida's syndromic surveillance system. Daily emergency department (ED) visits from enrolled hospitals (143 facilities) are available through this system and can be visualized with statistical algorithms that identify increases in certain illness categories. These illness categories are based on the chief complaint field (also known as the reason for visit) which is most often a free-text field within that patient's electronic medical encounter record. It is also possible to query chief complaints using selected key words. Many county health departments (CHD) monitor ESSENCE on a regular basis for indications of potential outbreaks or unusual disease patterns. With the use of the key word search, it is possible to identify potential cases of reportable diseases that might not have otherwise been reported to the local CHD. Additionally, looking at chief complaint data by the time of day the person was seen can potentially identify clusters of disease that would normally have been masked by the

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overall aggregation of these data into generic symptom categories. Included below are several summaries of uses for ESSENCE at the CHD level.

Investigation summaries for the outbreaks listed below, identified using ESSENCE, can be found in this section under the disease name or type of illness cluster.

- Gastrointestinal Illness Cluster Identified Through ESSENCE, Duval County, March 2009
- Reportable Diseases, *Streptococcus pneumoniae*, Detected in ESSENCE, Pinellas County, March 2009
- Carbon Monoxide Poisoning Cluster, Duval County, December 2009

### ***Escherichia coli***

#### ***E. coli* O157:H7 Investigation in a Correctional Facility, Lafayette County, May 2009**

On May 26, 2009, the Department of Corrections reported a cluster of gastrointestinal (GI) illness in the Lafayette Correctional Institution in Mayo, Florida. Forty-two of the 1,323 male inmates in the facility inmates were reported ill from May 15 to May 30. No cases were initially reported among staff members at the facility. Cases were not confined to a single dormitory. An analysis of interview data from 18 cases and 18 controls was conducted. The following symptoms were reported: diarrhea (100%); abdominal cramps (100%); bloody stool (72%); and fever (56%). Onset dates ranged from May 18 to May 28. No cases of hemolytic-uremic syndrome (HUS) were reported. On May 29, two of the nine stool specimens collected tested positive for *E. coli* O157:H7. One of the two confirmed samples was collected from a food service employee who worked in the correctional facility's cafeteria. Several other ill inmates were employed in the cafeteria.

The epidemiological curve indicated a point-source outbreak with the peak onset of symptoms occurring on May 23. The index case, who worked as a food service employee in the cafeteria, reported a May 15 onset date. Following the index case, secondary case onset dates were May 21 and later.

The data analysis indicated a single dinner meal that occurred on May 17 was highly associated with gastrointestinal (GI) illness. The odds ratio was 12.6 (confidence interval: 2.19, 72.26; p-value=0.002). Further analysis indicated three implicated food items from the dinner meal on May 17 as highly associated with GI illness: turkey-ham, macaroni and cheese, and cake. The odds ratio for the turkey-ham was 4.94 (confidence interval: 1.21, 22.64; p-value=0.013). The odds ratio for the macaroni and cheese was 5.22 (confidence interval: 1.24, 25.44; p-value=0.012). The odds ratio for the cake was 7.36 (confidence interval: 1.61, 42.26, p-value=0.004). Poor record keeping and incomplete recall meant that a link between the ill food worker and the implicated food products could not be established.

## Gastrointestinal Illness, Unknown Etiology

### Gastrointestinal Illness Cluster Identified Through ESSENCE, Duval County, March 2009

The Duval County Health Department (CHD) Epidemiology Program uses the Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE) to monitor emergency department (ED) chief complaint data from eight county hospitals. On March 31, 2009, daily review of the ESSENCE syndromic surveillance system identified a cluster of ED visits for gastrointestinal (GI) illness. This cluster consisted of two adults and two children from similar zip codes who reported to the ED within a 20-minute time period on the evening of March 30. The four chief complaints included nausea, vomiting, and diarrhea, with one stating “food poisoning”. Per the Duval CHD ESSENCE response protocol, the hospital infection preventionist was contacted and information regarding the visits was obtained.

Contact information was collected and an interview was conducted with one of the individuals. The group included two sisters and their daughters, aged nine and three, who ate at the deli of a local supermarket. The meal included teriyaki chicken wings, potato wedges, and macaroni and cheese, which they all shared. Onset of symptoms ranged from 30 minutes in the children to one hour in the adults after consuming the meal. Symptoms included vomiting, nausea, severe abdominal cramps, and dizziness. Stool and vomitus specimens were not collected at the hospital. A food complaint was completed by Duval CHD and submitted to the Department of Agriculture and Consumer Services (DACS).

On April 6, 2009, DACS conducted an inspection of the local supermarket deli where the implicated food items were purchased. During the inspection, it was discovered that one of the food-warmer heating bulbs was not functioning. As a result, the chicken teriyaki and potato wedges were found to be below safe holding temperatures. A stop-sale was issued on these food items.

No other illnesses were reported associated with this location and an etiologic agent was not identified. However, this event demonstrated the utility of syndromic surveillance systems to identify relatively small clusters of illnesses of public health importance. The detection of this cluster and subsequent rapid public health response potentially prevented additional cases.

### Detention Facility Gastrointestinal Outbreak, Glades County, November 2009

On November 11, 2009, the Glades County Health Department (CHD) was notified of a possible foodborne illness outbreak among inmates of the Glades County Detention Facility, a county correctional facility not under the jurisdiction of the Florida Department of Corrections. The initial call reported 153 of 438 inmates were ill with abdominal cramps and diarrhea within six to eight hours after eating dinner on Tuesday, November 10. Based on the symptoms reported and the short incubation times, *Clostridium perfringens* or *Bacillus cereus* toxins were the suspected agents. Four stool samples were collected and sent to a private laboratory for analysis of enterics and Norovirus, and all were negative. Additional tests requested for *Clostridium perfringens* and *Bacillus cereus* were not performed. The frozen dinner from the implicated meal was sent to the Bureau of Laboratories in Tampa, for analysis of the lima beans for *Clostridium perfringens* and *Bacillus cereus*. The laboratory results were negative for both agents.

Sixty-two questionnaires were completed, and 13 (21%) cases were identified. The incubation period ranged from 5.5 hours to 12 hours, with a median of 9 hours. The duration of symptoms

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ranged from 11 hours to 52 hours, with a median of 33.5 hours. In this cross-sectional study, the epidemiological data and environmental investigation suggest that the lima beans served at the dinner on November 10 were the likely food item that caused this outbreak (OR=undefined, 95 % CI = undefined, p-value=0.003). The reported onset dates and times of illnesses are clustered indicating a point-source exposure. The symptoms, duration, and incubation are consistent with either *Clostridium perfringens* or *Bacillus cereus* intoxication. Since laboratory results were negative, the etiology is unknown.

### **Thanksgiving Dinner Foodborne Outbreak, Marion and Sumter Counties, November 2009**

The Marion and Sumter County Health Departments (CHD) and the Department of Agriculture and Consumer Services investigated a cluster of gastrointestinal (GI) illness in a family who purchased and consumed a take-out Thanksgiving dinner from a Marion County grocery store. The ill people resided in Sumter County. The Thanksgiving meal was purchased from the grocery store deli on November 25, 2009 and included cornbread stuffing, gravy, mashed potatoes, and cranberry-orange relish. Foods were refrigerated and reheated on November 26 prior to serving. No leftover food items were available for testing. Two home-made food items were served with the meal, broccoli casserole, and chocolate cake, although not all ill family members consumed these items. The family ate the Thanksgiving meal around lunch time and had leftover turkey sandwiches later for dinner. Food items were refrigerated immediately between lunch and dinner and stored properly. The common food items among the ill family members were turkey, gravy, and mashed potatoes.

Of the seven family members who attended the meal, six developed illness, with a mean incubation of 34 hours. One family member, a three-year-old child, did not develop illness and also did not eat any of the Thanksgiving meal food items. None of the family members reported any illness prior to consuming the meal. Among the ill family members interviewed the following symptoms were reported: vomiting (100%); diarrhea (100%); chills (100%); fatigue (75%); nausea (75%); fever (50%); abdominal cramps (50%); sweating (25%); and dizziness (25%). Illness onset dates and times ranged from 9:00 p.m. on November 27 to 12:00 a.m. on November 28. One person went to the emergency room; however, stool samples were not collected. A joint environmental assessment of the grocery store deli was conducted with the Sumter CHD and the Department of Agriculture and Consumer Services.

## Hepatitis C

### **Hepatitis C Cases Associated with an Outpatient Clinic, Hillsborough County, July 2009**

In July 2009, the Hillsborough County Health Department (CHD) investigated a cluster of hepatitis C cases linked to an outpatient medical office that provides intravenous procedures including chelation therapy. Nine newly diagnosed hepatitis C infections may be linked to this medical clinic. Five of the nine infected individuals had discrete onset of symptoms with onset dates ranging from May 15, 2009 to July 2, 2009.

The Bureau of Epidemiology regional epidemiologist and Hillsborough CHD epidemiology staff conducted the initial facility site visit on July 17, 2009. Breaches in infection control were observed and many centered around one particular nurse. Recommendations to the facility included replacing multi-dose medication vials with single dose vials, never reusing syringes or needles, mixing all intravenous solutions in the dedicated pharmacy room, providing better availability of hand hygiene products, cleaning counters in the pharmacy with an EPA-approved disinfectant, and adding sharps boxes to the pharmacy and treatment room.

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At the time of the outbreak, this clinic had approximately 160 patients receiving intravenous therapy. The BOE regional epidemiologist requested that the facility notify all patients that were treated by the nurse whose infection control breeches were identified and may have put the patients at risk for bloodborne pathogens. In addition, patients were tested for bloodborne pathogens. Sera from the nine hepatitis C-positive patients were sent to the Centers for Disease Control and Prevention (CDC) for genotyping. CDC laboratory testing definitively linked the hepatitis viral genotypes of three of the nine patients. Sufficient virus for testing was not available for four of the patients. Genetic analysis from the two remaining patients resulted in strains that did not match the other three.

Transmission likely occurred in mid-April 2009, as all nine patients received intravenous therapy during an eight-day period around that time, and five of the nine received treatment on a single day. Many of the infected individuals had no other risk factors apart from the intravenous procedures performed at this clinic. The cases are residents of Hillsborough, Manatee, Polk, and Pasco counties. This outbreak was likely caused by systematic procedural failures at the medical facility that caused the contamination of single-use medication vials that were used multiple times. Patients from the facility reported that a staff member inappropriately reused syringes, which may have led to medication vials being contaminated with hepatitis C.

### Influenza

Prior to the emergence of 2009 influenza A H1N1, the 2008-2009 flu season in Florida was characterized as mostly an influenza B season with some circulating influenza A H3 toward the end of the season. This seasonal outbreak was of average severity.

The 2009 influenza pandemic affected all counties and cities within the state. The typical influenza season is from late fall through early spring with a peak in activity around the middle of February. This pandemic began in late April and had unprecedented impact over the summer months and into the fall of 2009. Throughout the pandemic, counties remained vigilant in identifying clusters of influenza-like illness (ILI) and influenza outbreaks. County epidemiology staff were also essential in identifying emerging trends in influenza epidemiology such as special populations affected, unique risk-factor identification, and unusual outcomes of infection. It would not be possible to recount all 436 outbreaks that were reported to the Bureau of Epidemiology (BOE) during the pandemic. However, the selected outbreaks included below are meant to reflect several key points that were learned over the course of the pandemic. Additional influenza and ILI outbreak reports can be viewed by public health partners in EpiCom, the state's health alert network. Additional information on the 2009 influenza pandemic can be found in Section 5 of this report. BOE also publishes a weekly influenza report accessible through the BOE website: [http://www.doh.state.fl.us/disease\\_ctrl/epi/htopics/flu/2010/index.html](http://www.doh.state.fl.us/disease_ctrl/epi/htopics/flu/2010/index.html).

#### **School Outbreak of 2009 Influenza A H1N1, Seminole County, May 2009**

On May 20, 2009, the Seminole County Health Department (CHD) began an investigation of a possible cluster of 2009 influenza A H1N1 among students attending a local high school. Nasopharyngeal specimens subsequently collected from two students and a teacher tested positive for the virus by the Bureau of Laboratories in Jacksonville.

The first positive case was in a 15-year-old boy with onset on May 18 of cough, sore throat, weakness, and a fever of 103.5°F. The patient was seen by his pediatrician on May 20 who

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conducted a rapid flu test that was positive for influenza A; the pediatrician notified the Seminole CHD and arranged for H1N1-specific testing. The patient stated he knew of at least two other friends who attend the same school and were also ill with similar signs and symptoms; a 15-year-old boy with an onset date of May 16 and a 15-year-old girl with an onset date of May 18. The patient stated he had been working closely with another 15-year-old female friend (not the individual noted above) on May 18, the last day he attended school, who subsequently became symptomatic on May 21, the last day she attended school. Specimens were collected from all three individuals on May 22 and the sample from the case with a May 21 onset date tested positive for 2009 influenza A H1N1. None of the patients or their parents were aware of any other friends or family members with similar signs and symptoms. The school board nurse was contacted and stated that there had not been any recent increase either in the numbers of students sent home through the school's clinic or in excused absences due to illness. A letter was distributed on May 26 to students, staff, and teachers alerting them to the positive 2009 H1N1 case and providing them with prevention information recommended by the Centers for Disease Control for school settings.

A 47-year-old female teacher became symptomatic on May 25, and her last day of work was May 26. On May 27, she sought treatment at a walk-in clinic, which was also a sentinel provider site in the state's influenza-like illness surveillance network (ILINet), and where a specimen was collected. The teacher stated that a 48-year-old male household contact became symptomatic on May 27 and he was seen later that day at the same clinic. A nasopharyngeal specimen was collected and tested positive for 2009 influenza A H1N1.

The school board nurse determined that three of the four students were enrolled in the symptomatic teacher's class, including the student with an onset date of May 21. The school clinic staff monitored absenteeism reports and observed students presenting to the clinic for possible signs and symptoms of influenza, but no additional cases were identified through the last day of school, June 5, 2009.

### **Cluster of 2009 Influenza A H1N1 at a Correctional Facility, Orange County, June 2009**

On June 23, 2009, the Orange County Health Department (CHD) received notification from a local correctional facility nurse of 10 cases of influenza-like illness (ILI) among its male inmates. Onset dates ranged from June 20 to June 23. Symptoms included fever, runny nose, cough, body aches, nausea, and vomiting. No staff members were reported as being ill. Nine of the ten ill inmates were housed in the juvenile section of the facility, which is kept separate from the adult population. The ill juveniles were isolated within the same quad of the dormitory. The entire juvenile section of approximately 400 inmates was placed on lock-down and prohibited from access to communal areas for seven days. Corrections officials were provided with influenza guidelines and were educated on influenza outbreak prevention and control.

Orange CHD provided specimen collection kits and samples were submitted to the Bureau of Laboratories in Tampa for four of the ill juveniles and the adult patient. On July 1, Orange CHD received notification that three of the five inmates tested positive for 2009 influenza A H1N1. A juvenile inmate and the adult inmate tested negative for influenza A and B. One additional ill juvenile was later identified with an onset date of June 29. The patient was isolated in the infirmary along with his cellmate, as advised, for seven days or until 24 hours after symptoms resolved, whichever was longer. The patient's illness resolved and he was released from isolation. No further cases were identified.



### **2009 Influenza A H1N1 Influenza Outbreak at a Federal Detention Center, Miami-Dade County, June 2009**

On Tuesday, June 9, 2009, the Miami-Dade County Health Department (CHD), Epidemiology, Disease Control, and Immunization Services (EDC-IS) was notified by the clinical director of a Miami Federal Detention Center that 13 detainees presented with influenza-like illness (ILI) symptoms (fever, cough, sore throat, headache, and body aches). The Detention Center is an all-male facility with approximately 571 detainees and 150 clinical and supportive staff. The Center had three separate housing units comprised of nine open-space dorms (pods), with approximately 60 to 70 bunk beds per dorm.

On Wednesday, June 10, 2009, a joint inspection was performed by representatives from EDC-IS and the Office of Environmental Health. The assessment included interviews with the Clinical and Assistant Director, review of case notes of ill detainees, and a tour of the facility. No patient interviews were conducted. Nasopharyngeal swab samples from five detainees were sent to the Bureau of Laboratories in Miami for testing.

Three of the five samples tested positive for 2009 influenza A H1N1. One of the detainees with a confirmed case was admitted to a hospital. All detainees with ILI symptoms were isolated in rooms in the Center's health clinic and treated with Relenza. Ill detainees resided in five of the nine dorms. Specifically, most ill detainees resided in Pods 1, 2, 3, and 5 of one building. The age range of the ill detainees was between 22 to 45 years old. Their facility length of stay ranged between two and six weeks. The onset of symptoms was June 8 to June 10, 2009. The Center continued to monitor high-risk detainees, such as individuals with chronic disease, HIV, and/or people 65 years of age and older. Seven staff were identified with ILI symptoms.

The Center provided 571 detainees with Tamiflu as prophylaxis. Community activities among detainees were ceased and the Center closed for visitors and new entries. All staff were informed to take droplet precautions (i.e., use of masks, hand washing) when in close contact with detainees. Ill staff were advised to stay home until symptoms subside. EDC-IS provided center-specific recommendations for prevention of further spread and maintained frequent communication with the Clinical Director.

### **2009 Influenza A H1N1 Outbreak at a North Carolina Boy Scout Camp, Palm Beach County, June 2009**

On June 11, 2009, the Palm Beach County Health Department (CHD) Epidemiology Program was notified of a cluster of influenza-like illness (ILI) in a scout troop. A group of 33 boy scouts and eight adults had traveled to a camp in North Carolina on June 6. On June 9, a cluster of 10 scouts and one adult were identified with illness with onsets of June 8 and June 9. Symptoms were fever over 101°F, headache, cough, sore throat, and body aches. This initial cluster returned to Florida, two by plane and the remainder in a van with two other adults, arriving on June 10. Two of the children who returned were seen by their primary care physicians and tested positive for influenza A on a rapid test. Three nasopharyngeal swabs were collected and sent to the Bureau of Laboratories in Tampa for PCR testing. On interviewing the parents and children, one child was found who felt feverish and had a sore throat prior to leaving on the trip.

Among the children and adults who stayed at the camp, an additional six children and one adult were found to have ILI symptoms. Three other children only had fever. Two swabs had been collected from this group and sent to the North Carolina State Laboratory for testing. Of the original 41 individuals who went to North Carolina to camp, there were five confirmed cases

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and 19 suspected cases of H1N1 influenza. Two additional suspect cases were identified in the group that remained at the camp until June 13. Influenza A H1N1 was detected in all but one of the five swabs sent for testing. Family members were contacted before the remaining children returned from camp and informed regarding preventive measures and use of antiviral prophylaxis for at-risk family members.

Additional information about this outbreak can be found in the following publication. Doyle, TJ and RS Hopkins. Low secondary transmission of 2009 pandemic influenza A (H1N1) in households following an outbreak at a summer camp: relationship to timing of exposure. *Epidemiology and Infection*; 2010 Jun 21:1-7.

### **Five Influenza Outbreaks in Camps during One Week, Palm Beach County, June 2009**

During the week of June 22, 2009, the Palm Beach County Health Department (CHD) investigated several outbreaks of influenza in local camps. Of five outbreaks investigated, three were confirmed as 2009 influenza A H1N1, one was confirmed as seasonal influenza A H3, and one was confirmed as both 2009 influenza A H1N1 and seasonal influenza A H3.

2009 Influenza A H1N1 – Two of the three confirmed 2009 influenza A H1N1 outbreaks were in overnight camps. The first outbreak was in a local group of 49 people on an overnight trip to Georgia. From this group, nine total people (children and staff) were identified with influenza-like illness (ILI). Five of the nine individuals were tested and confirmed positive for 2009 influenza A H1N1. The second confirmed 2009 influenza A H1N1 outbreak was in an overnight camp located in Palm Beach County. Of the 125 campers housed that week, 10 of 11 children in one unit were identified with ILI. Three swabs were obtained and all were positive for 2009 influenza A H1N1. The third confirmed 2009 influenza A H1N1 outbreak was in a day camp at a local elementary school. Forty-nine out of 130 in attendance were reported with ILI. The outbreak was confirmed as 2009 influenza A H1N1 with three positive swabs.

Influenza A H3 – Fifteen children were identified with ILI out of 90 at a day camp located in Palm Beach County. All three swabs obtained were confirmed as seasonal H3.

2009 Influenza A H1N1 and H3 – A third local day camp reported an outbreak of ILI during the same week. Out of 320 enrollees, 51 cases of ILI were identified. Influenza A H1N1 was found in four specimens and seasonal H3 was found in two specimens obtained from this group.

In all instances, camps were provided with and advised to follow the guidelines issued by the CDC, *Guidelines for Day and Residential Camps in Response to Human Infections with the Novel Influenza A (H1N1) Virus*. Individuals were advised to be excluded from group settings for seven days after onset of ILI symptoms. At-risk contacts were referred to their physicians or the Palm Beach CHD for prophylaxis. Families were instructed regarding prevention measures to use in home settings. Surveillance was instituted until levels of illness returned to what was considered normal compared with previous years.

### **Bank Closure Due to ILI Outbreak, Nassau County, July 2009**

On July 14, 2009, the Nassau County Health Department (CHD) received a request from an employee at a local bank to test her child for the “swine flu.” The parent reported the child had fever, cough, diarrhea, and lethargy with an onset of July 13. The employee mentioned the bank was closed that day and that other co-workers had similar influenza-like illnesses (ILI) symptoms. The employee also reported that she had previous similar ILI symptoms of fever,

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congestion, diarrhea, anorexia, and cough on July 9. The employee's child was referred for testing to her primary care physician and tested positive on July 21 for 2009 influenza A H1N1.

On the same day, the local sheriff's department also called Nassau CHD. The sheriff's office reported they were being "inundated" with calls from the public due to the unexpected bank closure and had received rumors that the bank closure was due to "swine flu" in employees. Since the bank was closed, it was difficult for Nassau CHD to obtain information from local bank managers regarding the status of the closure or employee illnesses. Another bank office location was contacted for further information and a regional safety manager for the closed branch contacted Nassau CHD. After local bank managers were interviewed by the Nassau CHD, it was determined that the first employee became ill on July 8 and subsequently eight out of ten employees had ILI symptoms.

Since 80% of the employees were ill, the bank had to recruit employees from other area branches to staff the bank. On the evening of July 13, the bank contracted a cleaning crew to clean and sanitize all surfaces inside the building. The bank was closed for one day, July 14, and reopened on July 15. Nassau CHD advised management to request that ill employees stay home until they recovered, and recommended that ill employees self isolate for seven days, or 24 hours after cessation of symptoms, whichever was longer. The bank representative identified and contacted the ill employees and requested that they contact the Nassau CHD epidemiology program for interviews. One employee who contacted Nassau CHD reported a positive rapid flu test from his primary care physician. This was confirmed by Nassau CHD as positive for influenza A. The patient was prescribed Tamiflu by his physician.

Media coverage included three news stories regarding the bank closure. This resulted in calls from area residents and a cleaning crew member concerned about their exposure to the bank. On 07/15/2009, the Nassau CHD issued a general awareness press release about influenza in the county and how to prevent it. No additional related ILI illnesses were known to have occurred after the bank reopened.

### **Death from Severe 2009 Influenza A H1N1 Illness in a Previously Healthy Individual, Walton County, July 2009**

On July 30, 2009, the Walton County Health Department (CHD) was notified by a local hospital of a suspected case of H1N1 in a 21-year-old man who was hospitalized and on a ventilator. The patient's illness onset was July 21, after returning from a vacation in the Orlando area. He presented to the emergency room of a small local hospital on the July 26 complaining of aches, cough, and newly developing shortness of breath. He was admitted to the hospital that same day. He developed progressive hypoxia and was transferred on July 28 to a larger hospital and admitted to the intensive care unit for mechanical ventilation. He was polymerase chain reaction (PCR)-positive for non-specific influenza A on July 30 at the hospital laboratory. He tested positive for 2009 influenza A H1N1 at the Bureau of Laboratories on July 31, 2009. Frequent contact was kept between the CHD and infection control staff at the hospital for updates on the patient's status.

On August 6, 2009, Walton CHD was notified by infection control staff at the hospital that the patient had died. His final diagnoses included 2009 influenza A H1N1, post-viral bacterial pneumonia, pneumonia with septic shock, severe acute respiratory distress syndrome, hypoxia, and bilateral pneumothoraces. The patient had no history of underlying illness. He was an apparently healthy, non-smoking young man.

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Firemen involved in transport of the patient from Hospital A to Hospital B received prophylaxis. Family members of the patient were referred by hospital staff to their primary physicians for prophylaxis. No H1N1-positive contacts were reported related to this case.

### **Influenza-Like Illness Cluster at a Local Military Facility, Clay County, October 2009**

The Clay County Health Department (CHD) was notified on October 1, 2009 of a cluster of influenza-like illness (ILI) in a military unit at a local military installation. A visit was made to the facility on October 2 to speak with the officers in charge, review the infection control procedures, interview soldiers, collect specimens, answer any questions, and assist in establishing active surveillance of ILI activity in the units assigned to the installation. Six soldiers in one unit were identified with ILI. They were monitored and treated as ordered by the physician on staff. Onset of symptoms was on October 2 and the soldiers all rode the same buses to the installation from many areas around Florida. Of the six soldiers interviewed, five had temperatures above 101°F. Other symptoms included chills, fatigue, cough, and headache. Two of the soldiers stated they had a family member or friend who had influenza-like symptoms. One soldier stated a close friend had been diagnosed with H1N1 about a week before the soldier had to report for duty. Five nasopharyngeal specimens were collected and sent to the Bureau of Laboratories. The regional epidemiologist was notified and consulted. Infection control procedures were reviewed and precautions were in place using isolation, triage, good personal hygiene, and posting of hand-washing signs. Hand gel was provided to all soldiers. Ill soldiers were immediately isolated until asymptomatic and able to return to duty. All five specimens collected were positive for the 2009 influenza A H1N1 virus. Surveillance follow-up noted six more cases of ILI in soldiers. Nasopharyngeal specimens were not collected on these soldiers. All soldiers recovered without any adverse events.

## **Legionellosis**

### **Legionnaires' Outbreak Associated with a Local Fitness Center, Seminole County, July 2009**

On July 20, 2009, the Seminole County Health Department (CHD) Epidemiology Program was notified by a local hospital of a urine antigen positive laboratory result for *Legionella* in a 75-year-old man with illness onset on July 14, 2009. On July 28, the Seminole CHD received a report of another laboratory-confirmed case of legionellosis in a 70-year-old man with illness onset on July 15. Both people were hospitalized because of their illness. The investigation revealed that they were members of the same local fitness club, and both visited prior to illness onset. The two confirmed cases had chronic lung disease; one had diabetes and one was a current smoker. An environmental investigation conducted at the fitness club on August 10 noted no relevant sanitation deficiencies. Swabs and water samples were collected from the showers and showerheads, water heater, and the equipment room water. All samples were negative for *Legionella pneumophila*.

The source of these two epidemiologically-linked legionellosis cases was likely the shower heads. Recent studies have concluded that cases of Legionnaires' disease have been attributed to exposure to contaminated residential water distribution systems. Another study also found that shower heads may present a significant potential exposure to aerosolized microbes, including documented opportunistic pathogens. To become infected with *Legionella*, a susceptible individual must inhale or aspirate aerosols (generally about 5 µm in size) containing sufficient numbers of virulent *Legionella* cells.

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For further information, please see the following publication.

Tara Richardson, M.P.H., Peggy Booth, R.N., B.S.N., Helen Morin, R.N., B.A., Gregory Danyluk, Ph.D, M.P.H., M.S. "Case Analysis of Legionellosis, Seminole County, July 2009", *Epi Update*, Florida Department of Health, Bureau of Epidemiology, March 2010.

### **Legionellosis Case Investigation, Alachua County, November 2009**

The Alachua County Health Department investigated a case of legionellosis in a patient at a local hospital. The case was in a 56-year-old man who was admitted to the hospital's cancer ward on November 20, 2009. The patient later developed a pneumonia-like illness with a high fever on November 30 and later died on December 5. Legionellosis was diagnosed on December 2, 2009 based on a positive urine antigen test. Water samples were collected from three locations in the patient's room: the bathroom sink, the healthcare provider sink, and the bathroom showerhead. The two samples collected from the sinks tested positive for *Legionella* sp. The hospital forwarded three samples to the Bureau of Laboratories in Jacksonville for confirmation. Two of the three samples submitted were patient specimens; the other was from the patient's sink. Both patient samples were positive for *Legionella* serogroup 1. The sink sample tested positive for *Legionella*, but the testing methodology used did not distinguish between non-serogroup 1 and groups 2 to 6.

The hospital's infection control department conducted a review of patient charts as part of an active case finding initiative. A retrospective review of patient charts from July to December 8, 2009, found 126 patients who were routinely tested for *Legionella* during their hospital stay. Staff also tested an additional 70 patients who were hospitalized during the same time the case was hospitalized and who may have been exposed to *Legionella*. Each patient had received either a urine antigen or respiratory culture test. No additional cases were identified through these case-finding efforts.

The hospital's water system received super-chlorination and heat treatments. Following treatment, water testing was performed by an independent water testing group. None of the samples were positive following treatment. The hospital concluded that the patient most likely acquired the legionellosis prior to admission. As the patient's immune suppression therapy progressed (the patient was receiving chemotherapy for a bone marrow transplant), he became symptomatic. Additionally, the hospital determined that the patient had received extensive dental work prior to admission into their facility, which is a risk factor for developing legionellosis.

### **Legionellosis Cases Associated with a Hotel, Miami-Dade County, November 2009**

On November 2, 2009, the Miami-Dade County Health Department (CHD) Office of Epidemiology, Disease Control, and Immunization Services (EDC-IS) received a report from the Miami-Dade County Medical Examiner's Office that a visitor to the state had died from Legionnaire disease (LD). The tourist, a 57-year-old man living in England, had a history of travel on a cruise ship embarking from the port of Miami and a stay at a local hotel (Hotel X) in Miami, Florida. On board the ship, LD serogroup 1 was confirmed by urine antigen testing and the patient died at a Miami hospital several days later. Two weeks later, EDC-IS received an email from the friend of an ill German resident who also stayed at Hotel X, and upon further investigation, the health department in Germany confirmed LD by urine antigen test. Within the same week, the Centers for Disease Control and Prevention (CDC) reported another laboratory-confirmed case of LD in a resident of Spain who also stayed at Hotel X. These findings prompted both an environmental and epidemiological investigation into the water system and illnesses due to water exposure at Hotel X.

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An environmental survey of the water system included measurement of chlorine levels, total coliform counts, and sampling for cultures to confirm the presence of *Legionella pneumophila*. Cultures were taken by an independent contractor on December 13 to attempt to grow *L. pneumophila* from the water supply. Based on the initial findings of inadequate chlorine residual in the water at Hotel X, the Department of Business and Professional Regulation placed the hotel on a “bottled water use only” restriction; subsequently, the Miami-Dade CHD issued a Health Advisory recommending all residents, guests, and employees of Hotel X cease water usage beginning December 11, 2009. The hotel voluntarily closed and guests/residents were advised to temporarily relocate until further notice.

In June 2009, Hotel X management had installed a special activated charcoal-based water filtration system. Testing of water both downstream and upstream from the filters confirmed that the activated charcoal filters that were located between the incoming city water supply and the distribution of water throughout the hotel and residences was removing all or most of the chlorine residual that would be available to disinfect the water in the building.

As of March 11, 2010, 109 interviews, out of 1,700 residents and guests, were completed. To date, there are seven confirmed cases and three probable cases of LD. Initial cultures taken by an independent contractor prior to any remediation efforts done by the hotel showed 23 out of 25 cultures positive for *L. pneumophila* serogroup 1 in samples taken randomly throughout both the hotel and residences. Unfortunately, no cultures were available from any of the cases to match with the cultures from the hotel water samples. The only tests available on cases were urine antigen and serology tests.

## Malaria

### Transfusion-Associated Malaria, Manatee County, August 2009

On July 7, 2009, the Manatee County Health Department (CHD) was contacted by the Hillsborough CHD to report a Manatee County resident in a Tampa hospital with an admitting diagnosis of malaria or babesiosis. The patient, a 41-year-old man, was diagnosed with leukemia on approximately May 15, 2009. He was hospitalized at that time, underwent chemotherapy, and received several blood transfusions from multiple donors. The patient was discharged in mid-June, and then readmitted a week later after experiencing severe fatigue and incontinence. A blood smear tested positive for either malaria or *Babesia*. A specimen was sent to the Bureau of Laboratories (BOL) in Jacksonville for further testing and confirmation. The BOL in Jacksonville reported the specimen as likely malaria (*Plasmodium falciparum*), which was then confirmed by the Centers for Disease Control and Prevention (CDC). The patient was treated with Malarone.

The patient reported no travel history outside of Florida. He resided on a boat but reported no mosquito bites prior to hospitalization. As a precaution, Manatee County Mosquito Control was notified of the general location of the boat.

The blood bank conducted an investigation and was able to contact 16 of the 23 donors. They conducted in-depth interviews and obtained additional blood samples. One of the donors was a 27-year-old man who had immigrated from Nigeria five years ago and had malaria at the age of 12. He was successfully treated at that time and had since remained asymptomatic. A sample was sent to the USF College of Public Health malaria research laboratory for thick smear and

hemoculture, of which both results were negative. A blood sample forwarded to the CDC for polymerase chain reaction (PCR) testing was also negative. However, the CDC did report a positive serologic test and stated that it is normal in these situations for donors to be smear-negative and immune fluorescent assay (IFA)-positive, as they are usually maintaining very low parasitemia, which is below the limit of detection on the PCR test. All of the other donors who submitted samples also had negative smears, and reported histories with no other risk factors.

### Measles

#### Imported Measles Cluster, Orange County, May 2009

On May 9, 2009, a local hospital infectious disease physician notified the Orange County Health Department (CHD) of a suspected measles case, imported from England. The case was a nine-year-old male heart-transplant patient visiting the central Florida area with his parents and three siblings. The family arrived on May 1 and reported visiting various locations in Orange and Seminole counties including theme parks, two resorts, a grocery store, a restaurant, a children's store, and a baby store. The patient had cough onset on May 5, rash onset on May 7, fever of 102°F, conjunctivitis, and coryza with questionable Koplik spots. He was seen at a walk-in clinic on May 8 and hospitalized until the evening of May 9. Laboratory results were reported as measles IgG-negative and IgM-positive on May 13. The patient and siblings had no reported history of measles vaccine or natural disease. The parents reported history of disease. Serum samples collected from the parents showed immunity to measles. Urine samples were collected from the patient by the parents on May 10 and May 11 and sent to the Centers for Disease Control and Prevention (CDC) for viral culture and further analysis through the Bureau of Laboratories in Jacksonville. The parents reported that six children from the patient's grade had been diagnosed with measles prior to their trip. MMR vaccine was offered to the siblings, but the parents declined.

The CDC Quarantine Station was notified of the case and flight history. The family's scheduled return to England on May 15 was postponed. The parents were advised that susceptible family members would be released to return to England on May 25 or 21 days after the last exposure to a confirmed case in the household, whichever was later, on advice of the CDC Quarantine Station. Immune family members were given the option to return as scheduled. The susceptible household contacts were placed on voluntary quarantine and were cooperative throughout the travel restrictions. The investigating nurse contacted the family daily for updates on the health status of the case-patient and siblings. The 3½-year-old twin siblings developed symptoms of fever on May 12 and May 14 and the 14-year-old sibling reported illness on May 15. The family departed for England on May 29, 2009.

The infection control staff at the hospital and walk-in clinic were notified of the measles case, but no susceptible contacts were identified and the clinic and hospital reported that appropriate isolation and infection control procedures were followed. Both resorts were contacted and advised to report any susceptible employees to the CHD. The theme parks were notified of visit dates and advised to contact the CHD with reports of suspected cases. No additional cases were reported in the central Florida area as a result of this cluster.

A summary of the case investigation was posted on Epi Com through the Florida Department of Health (FDOH) and on the CDC Epi-X forum. The FDOH received notification from the CDC of a likely spread case in an unimmunized 10-year-old female visitor from Canada diagnosed with measles who visited the same resort where the index patient and family stayed and attended

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two parks on the same days. The virus strains in the two confirmed cases were considered nearly identical. This investigation demonstrates the importance of vaccines in preventing infections in residents and visitors in a community.

### Melioidosis

#### **Melioidosis in a Puerto Rican Resident, Hillsborough County, November 2009**

The Hillsborough County Health Department investigated a probable case of melioidosis in an 88-year-old man who was a resident of Puerto Rico. The patient presented to the hospital on November 4, 2009 with a patchy, peripheral-based, multilobar pneumonia. He reported a history of fever, cough, and anorexia for one week. He also reported anterior chest, mid-back and left arm pain. The patient reported falling in the shower in Puerto Rico on October 28, 2009 and had visible signs of bruising on his head. He was evaluated at a hospital in Puerto Rico for this fall. The patient has a medical history of peripheral vascular disease and coronary artery disease but no history of diabetes, which is a risk factor for melioidosis.

Blood cultures tested positive for *Burkholderia* species at the hospital laboratory. The Bureau of Laboratories in Jacksonville reported a preliminary positive test for *Burkholderia pseudomallei* (the causative organism for melioidosis) by RT-PCR. Subsequently, the Centers for Disease Control and Prevention (CDC) confirmed this result. The patient responded well to a combination of antibiotics and he continued on a course of doxycycline and septrin for 20 weeks. He was released from the hospital on November 17, 2009. He continued to be monitored by an infectious disease specialist.

The patient is a veteran who served in WWII, Korea, and Panama. His recent pre-illness travel history was limited to travel between Puerto Rico and Tampa. He was living in a rural area in Puerto Rico. The patient had spent time digging a ditch in his yard in the month prior to his illness. Transmission was initially thought to have most likely occurred from contact with contaminated soil or surface water. While melioidosis is not widely reported in Puerto Rico, there are several published articles reporting sporadic cases acquired in Puerto Rico. However, based on culture multi-locus sequence typing (MLST) performed at CDC, infection most likely occurred while the patient was stationed in Asia 50 to 60 years ago. *Burkholderia pseudomallei* infections may be associated with latency periods of many years. The illness is suspected to be linked with waning host immune function. The case was officially reported in Puerto Rico due to the case's residence status, although the individual was planning on staying in Tampa and living with relatives.

All laboratories that handled the specimen were informed of the positive blood culture for *B. pseudomallei* due to the potential of aerosolization of the bacteria when it is amplified in culture. Four laboratory personnel were determined to have had low-risk exposures to the culture. Proper steps were taken to determine staff exposures and provide prophylaxis and monitoring when necessary.



## Meningitis, Other

### **Death of a Young Child, Waterhouse-Friderichsen Syndrome Secondary to Meningitis, Polk County, January 2009**

On January 19, 2009, the Polk County Health Department (CHD) was notified by a local hospital of a death of a 19-month-old child. The child became ill with a fever of 101°F and a slightly runny nose on the evening of January 18 and was given ibuprofen. In the middle of the night, the mother found the child unresponsive and not breathing well and went to the local emergency department.

A CT scan of the child's head revealed acute sinusitis, and no other significant findings were noted. The overall impression of the physician was septic shock. The hospital emergency department collected blood cultures after the administration of antibiotics. An autopsy was performed on January 20 and blood, cerebrospinal fluid (CSF) and brain tissue were sent to an outside laboratory. On January 27, the outside laboratory reported that the CSF gram stain showed gram positive cocci in pairs and CSF culture had few gram negative rods. The brain biopsy results were positive for *Haemophilus parainfluenzae*. The post-mortem CSF isolate was also sent to the Bureau of Laboratories (BOL) for identification. On February 10, the BOL reported that the organism isolated from CSF was *Haemophilus influenzae* serotype A, Biotype II. This biotype is not vaccine-preventable, nor is it associated with person-to-person spread or outbreaks.

The cause of death listed on the death certificate by the medical examiner was Waterhouse-Friderichsen Syndrome (WFS) secondary to meningitis. WFS is a severe manifestation of bacterial sepsis, with severe damage to the adrenal glands, that is most commonly associated with *Neisseria meningitidis*, but can be associated with other bacterial pathogens.

The child attended a large, popular, local pre-school with last date of attendance on January 16. Information regarding the child's pre-school classmates was obtained from the school director. Two letters, sent a week apart, were provided to the concerned parents of the pre-school as updates became available. Contact was made with local pediatricians to request reporting of any suspect cases. No other cases were reported and no antibiotic prophylaxis was recommended.

### **Lemierre's Syndrome in a University Student, Orange County, September 2009**

On September 17, 2009, the Orange County Health Department received notification from a local university student health center of a suspect meningitis case in a student who was admitted to the hospital on September 16. The patient, who had a history of meningococcal vaccine, presented to the student health center on September 13 complaining of headache, fever, and pharyngitis. Rapid influenza test and rapid strep test were negative. Blood work was ordered to get a complete blood count but the patient declined. No antibiotics were prescribed. The patient was advised to take an over-the-counter fever reducer and return in 24 hours for a recheck but the patient did not return.

On September 15, the patient was taken by ambulance to the hospital after his roommates discovered him unresponsive in his room. He went into respiratory distress and was intubated. A lumbar puncture showed rare gram-positive rods, elevated white blood cells, elevated protein, and normal glucose levels. A CT scan showed evidence of a subdural hematoma. Diagnoses included altered mental status, severe sepsis, acute renal failure, multi-organ system

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failure, suspected subdural hematoma, and acute bacterial meningitis. Antibiotic treatment was initiated. Final cerebrospinal fluid culture results were reported as no growth after three days.

On September 19, blood culture results showed *Fusobacterium* species, an anaerobic gram-negative bacilli, which is known to cause a rare condition called Lemierre's syndrome. Lemierre's syndrome is characterized by preceding oropharyngeal infection, disseminated foci of infection or septic emboli, and bacteremia demonstrated by blood cultures positive for *Fusobacterium*. It typically affects young, healthy males. The patient recovered and was released to a rehabilitation facility on October 15.

### Mumps

#### Imported Mumps Case, Alachua County, September 2009

On September 9, 2009, the Alachua County Health Department Epidemiology Program received a positive mumps IgM report from a reference laboratory from a 22-year-old male university student. He was originally from India and arrived in the U.S. for the first time on August 11, 2009. Onset of symptoms was August 20; he complained of fever and swelling of the left salivary glands. He was seen in the university infirmary on August 21, was diagnosed with sialoadenitis, which is an infection of the salivary gland as opposed to parotitis, which is inflammation of a parotoid gland more common in mumps cases. He was treated with Keflex. On August 28, he returned to the infirmary because of left testicular pain and some abdominal pain. Testicular pain and swelling, referred to as orchitis, is common in mumps cases. He was referred to the local hospital for further evaluation. Serology on August 28 was positive for mumps IgM.

The patient's immunization records from India had two questionable mumps vaccine dates and his mumps titer done in India was low. A contact investigation was initiated. There were two roommates identified and both had two documented doses of mumps vaccine (MMR). The university infirmary nurse checked all MMR vaccination records of the 43 students seen during the two days prior to when the patient visited the clinic and all students had two documented MMRs. Titer was drawn on one of the clinic staff who did not have MMR records and the result was negative. MMR vaccine was given to the staff. At the completion of follow-up at the end of September, no new mumps cases were reported.

### Norovirus

#### Outbreak of Norovirus at a Sorority House, Alachua County, January 2009

The Alachua County Health Department (CHD) received a report of an outbreak of gastrointestinal illnesses at a sorority house on January 28, 2009. Thirty-one of the sorority house's 40 residents reported illness with onset dates of January 27 and 28.

A total of 24 cases and 24 controls were contacted. In addition, one secondary case was interviewed. Of the cases, 96% were female and 4% were male. Cases ranged in age from 18 to 56 years with a mean age of 21 years. Twenty-nine percent of cases resided in the main dormitory and the remaining students lived off campus or in another dormitory. All cases and controls consumed at least one group meal at the dormitory from January 24 to January 27,

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2009. Cases reported the following symptoms: fatigue (100%); vomiting (96%); nausea (96%); chills (92%); abdominal cramps (83%); sweating (83%); diarrhea (79%); muscle aches (75%); dizziness (63%); fever (50%); and numbness or tingling (8%). The mean incubation for illness was 35.5 hours (range: 14.5 to 56.5 hours). The illness duration ranged between 6 to 24 hours with a mean duration of 18-hours. Three stool specimens tested positive for Norovirus GII at the Bureau of Laboratories in Jacksonville.

An environmental assessment of the kitchen and dining facilities at the sorority house was conducted with the Alachua CHD and the regional environmental epidemiologist. The sorority house had a common kitchen, dining area, and refrigerator where residents could help themselves to leftover food items and use the ice machine 24 hours a day. The affected dining facility was open to all members of the 175-member sorority, although only 40 members reside in the affected house. Sorority members who lived outside the house were also reportedly ill. It was a common practice that any sorority member, regardless of residential status, dined in the sorority house's dining room. Students were observed handling ready-to-eat foods with their bare hands and using their personal cups in the ice machine during the site visit.

During the environmental assessment, an ill food service employee was identified who had worked in the kitchen on the same day that he later developed vomiting and diarrhea. The employee's job duties the day of his illness onset included preparing food items for the salad bar. Consuming salad bar foods and ice were the risk factors most associated with illness in the outbreak. Ice consumption was common for both those who were ill and those who were not ill, making it difficult to measure an odds ratio (OR) for their exposures. Consumption of salad bar items served with dinner and lunch on January 26 was highly associated with illness. Both odds ratios for the January 26 lunch and dinner salad bars were significant. The OR for the lunch salad bar was 5.75 (confidence interval: 1.67, 21.8; p-value: 0.0048) and the OR for the dinner salad bar was 6.70 (confidence interval: 1.648, 34.85; p-value: 0.0063).

### **Outbreak of Norovirus Gastroenteritis, Nassau County, January 2009**

On Friday, January 9, 2009, the Nassau County Health Department (CHD) received a complaint of gastrointestinal (GI) illnesses among patrons who ate lunch at a local Fernandina Beach restaurant on Monday, January 5, 2009. During the course of the investigation, Nassau CHD was notified of two other groups whose members all ate lunch at the restaurant on the same day and were also experiencing GI illnesses. Several food service employees of the implicated restaurant experienced gastroenteritis from January 2 to January 11, and were working at the restaurant during the course of their illness. Norovirus GII was identified as the causative agent for the outbreak.

Among the three different customer groups, which totaled thirteen people, eleven reported being ill with GI illness. Twenty food service workers were also identified as cases. The attack rate for the employees based on a line list of 54 employees was 37.0%. There were also several reports of secondary cases of gastroenteritis among family members of ill food service workers. The outbreak was a result of person-to-person transmission among the food workers and a subsequent point source exposure of the groups that had meals at the facility when food workers were preparing meals while symptomatic. The contaminated foods were not specifically identified but salad and ice were considered likely to have been contaminated due to ill workers and bare-handed contact with these items.

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### **Norovirus Person-to-Person Suspected Transmission Outbreak Associated with a Birthday Party, Broward County, February 2009**

On February 2, 2009, the Broward County Health Department Epidemiology Program received a report of a suspected outbreak associated with a birthday party held at a local park in Coconut Creek, FL. The initial report stated that at least nine of the approximately 40 attendees became ill with vomiting and/or diarrhea 10 hours to 30 hours following the party. Most of the food was catered by a local grocery store; however, attendees prepared some food items. A cross-sectional study was performed.

Twenty-three attendees could be interviewed and 10 reported being ill. Based on the epidemiological data collected, no common foods were determined to be statistically associated with illness. It was reported by several sources that the birthday child was not feeling well on the day of the party and had diarrhea two days prior to the party. Several people mentioned handling the child at the party, including group members who prepared and/or served food. It is suspected that the child is the index case for the outbreak resulting in the rest of the group becoming ill. Norovirus GII was found in three clinical specimens collected from people whose illness met the case definition. In addition, all of the people who met the case definition reported similar symptoms, incubation periods, and durations of illness consistent with a norovirus infection.

### **Norovirus Outbreak Investigation at a Country Club, Orange County, February 2009**

On February 18, 2009, the Orange County Health Department Epidemiology Program was notified of multiple cases of gastrointestinal disease following a banquet for an international theology school held at a local country club on February 13. The banquet dinner included 141 guests from across the country and a few international guests. Investigators were able to administer questionnaires to 39 of the guests who had available contact information. Twenty-one (53.8%) of the 39 guests interviewed were identified as having cases. One secondary case was also identified. Women represented 61.9% of the cases. Ages ranged from 30 to 88 years old with a median of 63 years. Onset dates ranged from February 13 to February 16. Duration of illness ranged from 12 to 144 hours with a median of 48 hours. Frequently reported symptoms include watery diarrhea, nausea, vomiting, and fatigue.

Attendees of a separate function at the country club on February 14 also reported similar illnesses. This cohort included 40 guests, 22 of whom completed a phone interview. Nine cases were identified. Ages ranged from 55 to 65 years old with a median of 58.5 years. Men represented 66.6% of the cases. Onset dates ranged from February 15 to February 17 and duration of illness ranged from 24 hours to 96 hours with a median of 24 hours. Frequently reported symptoms include watery diarrhea, nausea, and fatigue.

Five (29.4%) of the seventeen food workers interviewed reported experiencing gastrointestinal illness. Onset dates ranged from February 12 to February 15. Two of the ill food workers worked both the banquet service and the a la carte service, two for the a la carte service only, and one for the banquet service only. Symptoms reported by the ill food workers included: diarrhea (100%); vomiting (80%); nausea (80%); fatigue (80%); weakness (80%); and abdominal pain (20%). Illness durations reported by four food workers ranged from 24 hours to 32 hours with a median of 25 hours. Two of the food workers reported working while ill. Onset dates for these two food workers were February 12 and February 14. Their duties included preparation of food in all areas of the kitchen and preparation of pastry and baked goods. Both worked on February 13 and 14 for the banquet and a la carte services.

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Statistical analysis showed a significant association between illness and the citrus vinaigrette (RR= 2.55, p-value=0.022) served at the banquet dinner. Analysis of exposures for the club meeting on February 14 indicated no food items as statistically significant predictors of illness. Stool samples submitted by a food worker and an attendee of the banquet dinner tested positive for Norovirus GII and negative for other enteric diseases.

### **Foodborne Outbreak, Bay County, April 2009**

On April 27, 2009, a local company contacted the Bay County Health Department (CHD). The company had ordered take-out meals for a luncheon from Restaurant A on April 23 and multiple people became ill with gastrointestinal symptoms on April 24 and April 25. After preliminary employee interviews, it was determined that approximately 75% of employees who ate the take-out lunch developed illness. The regional environmental epidemiologist, the Department of Business and Professional Regulation, and the Bay CHD Environmental Health Department were contacted and a multi-agency investigation was conducted. On April 27, a second company reported similar symptoms in employees who had consumed a take-out lunch from the same restaurant during a similar time interval. Over the next few days, six additional clusters of illnesses were reported from patrons of Restaurant A. The people who were ill had consumed items purchased from Restaurant A over a three-day period including both take-out meals and items at the restaurant. Laboratory results confirming Norovirus GII were received on several patrons as well as an ill food worker.

This outbreak of Norovirus GII was most likely caused by the consumption of salad served by the restaurant in April 2009. The onsets of reported illnesses were chronologically clustered indicating a common point source. The data analysis implicated the salad that was served by the restaurant as the vehicle that was the most probable source of illness (OR 3.75; 95% CI 1.2-11.6, p=0.0231). Positive stool results in both the food handler and the ill patrons also support this conclusion.

### **Two Linked Gastrointestinal Outbreaks of Confirmed Norovirus Associated with a Church Supper, Lafayette County, April 2009**

On April 20, 2009, the Lafayette County Health Department (CHD) was contacted by an attendee of a church supper who reported that 23 attendees developed gastrointestinal (GI) illness following the supper. The event was held on April 19 and approximately 35 parishioners were in attendance. A buffet with hot dogs, nacho cheese, chips, brownies, and drinks was served. Of the approximately 35 individuals who attended the event, 20 were interviewed, 16 were ill, and four were not. Four of the 16 ill attendees were classified as having secondary illnesses. The following symptoms were reported (n=16) among the ill: nausea (94%); diarrhea (94%); abdominal cramps (75%); fatigue (69%); sweating (69%); vomiting (56%); chills (44%); fever (33%); headache (31%); muscle aches (25%); and dizziness (13%). A mean incubation period of 34 hours and a 27-hour mean duration of illness was reported. Two people were hospitalized. Two stool specimens were submitted to the Bureau of Laboratories in Jacksonville and both tested positive for Norovirus GII.

It is not clear whether this outbreak was foodborne, transmitted person to person, or both. One parent reported that her child had an episode of vomiting in the church parking lot on their way into the church. The mother changed her shirt, washed her child in the church bathroom, and then went through the buffet line at the church supper.

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A second GI outbreak was identified on April 29, 2009 linked to a nearby Suwannee County restaurant where an attendee of the Lafayette County church supper who subsequently became ill was employed as a food server. The server returned to work one day after experiencing GI illness. The illness cluster included six restaurant patrons from two separate households who developed GI illness after dining at the restaurant. The patrons dined on a day when the ill food server prepared food. Symptoms of all six patrons and the food server were consistent with norovirus. A joint inspection with the Suwannee CHD and the Department of Business and Professional Regulation was conducted. Seven of the restaurant's 10 employees were ill around the same time with similar GI illness. Educational information on the importance of staying home while ill was provided to the restaurant manager and staff.

### **Norovirus Outbreak during a Religious Tour Event, Orange County, April 2009**

On April 13, 2009, the Orange County Health Department (CHD) Epidemiology Program was notified by two separate guests at a local resort of a cluster of gastrointestinal (GI) illness with onset beginning on April 9. Both guests were part of a religion-based tour group that was staying at the hotel for the duration of their religious holiday from April 7 to April 17. A company that specializes in the distribution of specialized foods ran the tour group. The company made prior arrangements with the hotel to set up two mobile kitchens and two refrigerated trucks adjacent to the hotel food preparation and set-up areas within hotel ballrooms. All food items, except fresh produce, were shipped in by the company in refrigerated trucks. The hotel staff prepared all meals during the group's two-week stay under the supervision of company staff to ensure the items were prepared in accordance with their religious specifications. Tour group participants ate only the meals prepared through this process during their stay.

Fifty-three completed questionnaires were received from tour group participants; a response rate of approximately 21%. Seventeen cases of GI illness were identified. Three of the cases reported being seen at a local emergency room. None were hospitalized. Ages ranged from 3 to 79 years old with a median of 38 years. Women represented 58.8% of the group. Onset dates ranged from April 9 to April 12 and duration of illness ranged from 5 to 96 hours with a median of 36 hours. Frequently reported symptoms include watery diarrhea, nausea, vomiting, and fatigue.

Four food workers of 65 interviewed were identified as having a GI illness with onset on or after April 10. One food worker reported experiencing GI illness on March 27 and another reported GI illness in family members from March 26 through March 29. Stool samples were positive for Norovirus GII from two food workers and five event attendees.

Analysis of the group meals from April 7 to April 9 identified one meal, a children's buffet dinner on April 8 (RR=2.85, 95% CI 1.28-6.34), as significant. This meal was attended by 11 of the 17 cases. The incubation period for these 11 people ranged from 16 to 101 hours with a median of 35 hours. No other meals were statistically significantly associated with illness. Food-specific analysis for this meal did not yield any statistically significant food items.

### **Outbreak at a Local Country Club, Broward County, June 2009**

The Broward County Health Department (CHD) was notified on June 9, 2009 of a possible outbreak of gastrointestinal illness in four men from two separate groups who became ill approximately 36 hours following a lunch at a local country club on June 3, 2009. Symptoms included watery diarrhea, vomiting, abdominal cramps, fever (no temperatures taken), headache, chills, weakness, and fatigue. The initial report stated that one of the ill people

had passed away on June 8, 2009 and the hospital had detected gram-negative bacteria in the blood. The Broward CHD Epidemiology Team performed an investigation. Twenty-one people from 12 separate groups were reported to have been ill after consuming food from the country club with onset dates ranging from June 2 to June 12. Eighteen people were interviewed and reported ill. Ten employees from the country club were also reported to have been ill (two kitchen staff, two wait staff, two banquet staff, two sales staff, one bar staff, and one management staff) from May 27 to June 7.

Based on the environmental and epidemiological data collected, the specific vehicle of transmission was not identified. The reported illnesses were spread out over a 10-day period indicating a propagated outbreak such as from person-to-person transmission, fomite transmission, and/or an ill food worker(s) contaminating multiple food items. All people who reported being ill had consumed food from the country club within the 48 hours prior to illness, but no common food item(s) were reported. Norovirus GI was detected in three clinical samples collected from cases from three separate groups. Norovirus GII was detected in a food service employee.

### **Pertussis**

#### **Pertussis Outbreak in a Private Elementary School, Sarasota County, December 2008 to March 2009**

On February 13, 2009, a clinical case of pertussis in an unvaccinated 10-year-old was reported to the Sarasota County Health Department (CHD) by a local pediatrician. The child attended a private school and the school's nurse reported several students and staff with a cough illness. The school nurse provided a line listing of students and teachers with symptoms of cough illness. A standardized questionnaire was developed to determine if ill people met the case definition for pertussis. For the purposes of this investigation, the case definitions were as follows:

- **Confirmed:** A case that is culture-positive and in which an acute cough illness of any duration is present; or a case that meets the clinical case definition and is confirmed by positive PCR; or a case that meets the clinical case definition and is epi-linked directly to a case confirmed by either culture or PCR in a student, teacher, or parent/sibling of a student that attends school A.
- **Probable:** A case that meets the clinical case definition but is not laboratory confirmed, and not epi-linked to a laboratory-confirmed case in a student, teacher, or parent/sibling of a student that attends school A.
- **Suspected:** A student of the affected school with cough illness of any duration along with one of the following; post-tussive vomiting, fits of coughing, or inspiratory whoop.

During the investigation, nasopharyngeal swabs were obtained from four ill people classified as suspected cases, and sent to the Bureau of Laboratory for *B. pertussis* PCR and culture. In addition, a small number of people underwent testing at private labs

In total, there were 21 cases identified (15 confirmed and six probable). Cases ranged in age from eight months to 49 years. Mean and median age of the cases was 15 and 10 years, respectively. There were 16 children less than 11 years old and five adults. Three of the adults are teachers (Pre-K, K, and fourth grade). PCR confirmation was received for four cases, two of

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which were also culture-confirmed. All but one child had received age-appropriate vaccinations. None of the adult cases had received the recommended adult Tdap booster.

During the investigation process numerous close contacts were identified who were candidates for prophylaxis. Most were able to go to their private physicians to receive prophylaxis. Some received prescriptions for prophylaxis from Sarasota CHD. Additionally, several potentially infectious cases were identified during the investigation. These cases were excluded from the school setting and asked to self isolate until receiving five days of effective treatment.

A provider notification was sent to hospitals, walk-in clinics, primary care doctors, and pediatricians with details of the outbreak along with proper testing and treatment advice. Additionally, a press release was distributed to media partners. Sarasota CHD staff had numerous meetings with the school's board of directors and parent groups to build partnerships and answer questions about pertussis.

### **Pertussis Outbreak, Sarasota County, July 2009 to September 2009**

On August 10, 2009, Sarasota County Health Department (CHD) received a report of a clinical case of pertussis in a 12-year-old, with a history of one dose of DTaP. Initial contact with the parents of the case revealed a large extended family with 39 members in four households, most with no or partial pertussis vaccinations, and numerous members exhibiting symptoms. Close contacts were referred to their primary care physician to be evaluated for treatment or prophylaxis. Initial interviews revealed limited close contact with other individuals. The family reported attending church regularly.

Over the next few weeks, family friends began contacting the Sarasota CHD to inquire about symptoms of pertussis. It was then evident that many social and church events had been omitted from the initial interview. The investigation eventually revealed an outbreak of pertussis among several families with social contact based on attending the same church. The pastor of the church was contacted to discuss pertussis prevention. The church had approximately 110 attendees. The pastor was asked to discuss pertussis with church attendees and refer symptomatic attendees to the Sarasota CHD. The church declined an offer from the Sarasota CHD to visit the church and discuss pertussis.

In summary, there were 25 confirmed pertussis cases from nine families reported during the outbreak. Two cases were PCR confirmed, one of which was also culture confirmed. The age of the cases ranged from 2 to 54 years old. The mean and median ages were 10.5 years and 13 years, respectively. Three cases occurred among adults. The majority of the symptomatic individuals had no or partial vaccination.

In this outbreak, the resistance of the individual families and church to providing accurate contact information delayed timely intervention. Interventions included isolation of infectious individuals through five days of effective treatment, prophylaxis of household/high-risk contacts, and continued education.

### **Summary of the Santa Rosa Pertussis Outbreak 2009**

Santa Rosa County has been experiencing a community-based outbreak of pertussis since the spring of 2009. In total, 80 cases of pertussis, 64 confirmed and 16 probable, were reported to the Santa Rosa County Health Department (CHD) during 2009 compared to only five cases for 2008. Although no definitive source for the community-wide increase in pertussis cases has



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been identified, outbreaks and clusters of disease have been recognized in daycares, assisted living facilities, elementary schools, and high schools. In addition, cases have been reported in fully vaccinated school aged children. Of the 80 cases, 19 were PCR positive and five were culture confirmed. The secondary attack rate among close contacts and household contacts was high. Education on mode of transmission, letters to primary care providers and school administrators, post exposure chemoprophylaxis and vaccination campaigns were used to manage the response. Included below are reports on three of the clusters of disease identified during 2009.

In February 2009, a local pediatrician reported a case of pertussis to Santa Rosa CHD in a 16-year-old with a positive PCR result and clinical symptoms consistent with the disease. The case presented with cough, apnea, and post-tussive vomiting that had worsened over the previous two weeks. The onset of the catarrhal stage was February 5, 2009 and cough on February 10. A swab was taken on February 10 and sent to a private lab for PCR testing. When the positive PCR result was received on February 23, the patient was started on Zithromax. Investigation of this case revealed that the case's father was also ill with an onset date of February 16, 2009. The father was tested on February 23, 2009 at the Santa Rosa CHD, a 12-year-old sibling and mother were both asymptomatic. All household members were started on Zithromax on February 23. Other close contacts were identified and started on prophylaxis. During the time period from the onset of the catarrhal stage and the initiation of treatment, the case had attended a local high school (last day of attendance was February 19), attended a local science fair, high school dance, had a birthday party where several individuals stayed the night, and several church functions.

On May 21, 2009 four separate clusters of pertussis, were reported to the SRCHD. These clusters consisted of 11 confirmed cases of which three were lab confirmed and eight were epidemiologically linked. The earliest onset date of the cases was April 3, 2009 and the latest was May 2, 2009. The age range of cases was 1½ to 19 years of age. Cases attended two different high schools and two different elementary schools in the community. All of the cases had been appropriately immunized for their age. Two of the clusters have epidemiologic links to cases in Escambia County. All 11 cases and close contacts (n=28) were started on appropriate antimicrobial therapy. To help elicit additional case finding, letters were sent home to those students that were in the same classroom with confirmed cases, a blast fax regarding the increase in the number of confirmed cases was sent to local providers and asked for their assistance in identifying other potential cases, and a press release regarding the outbreak was issued.

On May 29, 2009, a local infection control practitioner reported to Santa Rosa CHD a possible case of *Bordetella pertussis* in an employee of an assisted living facility (ALF). The report indicated that a 38-year-old female presented to an emergency room with a persistent cough of over three weeks with associated paroxysms. The patient had been taking amoxicillin for a week prior to the notification of the CHD, as a result of a previous diagnosis of bronchitis. The hospital lab confirmed *B. pertussis* by PCR, and both the Escambia Health Department and Santa Rosa Health Department were notified. The case had reportedly worked at two different ALFs that were owned by the same group while symptomatic. One was in Escambia County and one in Santa Rosa County. A total of six employees, three residents, and three secondary household contacts presented with cough illnesses in the Santa Rosa ALF, and six employees and one secondary household contact at the Escambia ALF.

### Rabies

#### **Rabid Baby Raccoon, Clay County, August 2009**

On Wednesday August 5, 2009, the Clay County Health Department (CHD) received notification of a raccoon bite. Believing an unknown animal may have bitten their five-month-old raccoon, the owner took the animal to the local veterinarian's office where the owner worked as a veterinary technician. The owner of the raccoon was not a licensed animal rehabilitator and, therefore, was not allowed to possess the animal as a pet. The raccoon bit another veterinary technician while it was being handled at the office. Animal control was notified and the animal's brain was sent for testing at the Bureau of Laboratories in Jacksonville. The raccoon tested negative for rabies. Clay CHD consulted with Bureau of Environmental Public Health Medicine, and the regional Captive Wildlife Investigator with the Florida Fish and Wildlife Conservation Commission (FWC). The veterinary office was contacted and Clay CHD and Clay County Animal Control took the opportunity to educate staff regarding wildlife rehabilitation and pre-exposure prophylaxis for high-risk animal workers such as veterinary staff. Clay CHD also educated the raccoon owner and was able to prevent unnecessary rabies post-exposure prophylaxis administration in this case. Education provided to the veterinary practice also included accurate information regarding appropriate management of abandoned or injured wildlife.

#### **Bat Exposure in Africa: International Rabies Assessment, Lake County, August 2009**

On Monday, August 10, 2009, the Lake County Health Department (CHD) Epidemiology Department received a phone call from a local physician requesting continuation of care for rabies post-exposure prophylaxis (PEP) for nine patients. These individuals were part of a medical missionary group of 18 people who were exposed to a bat in their sleeping quarters in Burkina Faso, West Africa. The exposure took place August 3, when one of the missionaries woke to find a bat flying in the small room where all group members were sleeping. One person was believed to have been scratched on the arm by the bat; the others did not report any known bites or scratches. No one in the group had received rabies pre-exposure vaccination prior to travel. Members of the group were from six states: Florida (9), California (4), Indiana (2), Virginia (1), Kentucky (1), and Michigan (1). The person who was scratched traveled to the capital city, Ouagadougou, where wound cleaning and rabies PEP with human rabies immunoglobulin (HRIG) and Verorab rabies vaccine (intra-muscular) was initiated on August 3. The first dose of rabies vaccine was administered to the remaining 17 missionaries on August 7.

The group was instructed to follow up with their respective health departments or physicians and complete rabies PEP following their return home. As a courtesy, Lake CHD collected patient contact information for group members located outside Florida, and forwarded this information through the state public health veterinarian's (SPHV) office to appropriate SPHVs (none were previously aware of the cases). The SPHV office staff also consulted with the Centers for Disease Control and Prevention (CDC) Special Pathogens Branch regarding risk for Ebola and Marburg virus and were advised to monitor the patients for fever for 21 days as a precaution, since Ebola virus was present in countries nearby. Lake CHD periodically monitored patient status via phone calls and during patients' rabies PEP appointments. Patients were also advised of the possibility that rabies PEP may not be protective against all rabies-like viruses present in that region of Africa. Patients were told to notify their healthcare provider and Lake CHD if signs of sustained fever or other potential symptoms of rabies develop, with illness most likely to develop within three months of exposure. One patient questioned whether proper cold chain integrity had been maintained for HRIG and vaccine provided in Burkina Faso; as a result,

rabies titers were recommended, particularly for a patient who had purchased all four doses of vaccine in Burkina Faso. Lake CHD coordinated sample collection and submission; all patients' rabies neutralizing antibody titration (RFFIT) titers following four doses of rabies vaccine were 1:1100 or higher (greater than 1:5 is considered adequate).

For more information about this investigation, please see Matthews, S., L. Siegenthaler, D. Stanek, "Bat Exposure in Africa: International Rabies Assessment" Epi Update, 2009; October, [http://www.doh.state.fl.us/disease\\_ctrl/epi/October2009EpiUpdate.pdf](http://www.doh.state.fl.us/disease_ctrl/epi/October2009EpiUpdate.pdf)

### Rocky Mountain Spotted Fever

#### Locally-Acquired Rocky Mountain Spotted Fever Case, Sarasota County, September 2009

On September 24, 2009, a local hospital reported to the Sarasota County Health Department (CHD) an individual who presented to the emergency department complaining of fever, chills, uncontrollable tremors, and a red rash. The individual's disease onset was September 19, with symptoms of a sudden fever, chills, and uncontrollable tremors. The individual's illness progressed over the next two days to include a red, macular rash covering the arms, legs, and abdomen. Initial laboratory results detected IgG antibodies to *R. rickettsii*.

The Bureau of Laboratories (BOL) performed confirmatory laboratory testing via immunofluorescence assay (IFA) and identified IgG antibody titer (1:256) reactive with *R. rickettsii* antigen in the acute serum. The Sarasota CHD collected a convalescent sample on October 14 and sent it to the BOL. The convalescent sample was tested via IFA and yielded an IgG antibody titer (1:512) reactive with *R. rickettsii*.

The clinical and laboratory evidence met the case definition for a probable Rocky Mountain spotted fever (RMSF) case. The case was interviewed and denied travel outside of the county in the 30 days before symptoms occurred or recent tick bites. In the two weeks prior to illness onset, the patient spent time trimming trees and working in tall grass around his house, which is most likely his source of exposure to an infected tick. During the interview the case was informed of potential exposures and educated on methods to reduce and prevent the likelihood of future tick exposures. The last Florida-acquired case of RMSF reported in Sarasota County in 2005.

### Salmonellosis

#### *Salmonella* E1 Muenster Cluster, Miami-Dade County, February 2009

On February 17, 2009, the Office of Epidemiology, Disease Control, and Immunization Services (EDC-IS) of the Miami-Dade County Health Department was notified by the Bureau of Epidemiology of a cluster of eight cases of *Salmonella* E1 confirmed through pulsed-field gel electrophoresis (PFGE). The cases ranged in age from 2 to 59 years. The main symptoms were fever/chills, diarrhea, and abdominal pain. Onsets of illness occurred between mid-December 2008 and late January 2009. Upon an epidemiological investigation, two separate possible outbreaks were identified for two of the confirmed cases. For the remaining six confirmed cases, no associations with other cases were found.

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One outbreak was at a Hialeah party where a family of three and a neighbor became ill and the other outbreak was a barbecue at which nine out of 12 attendees were ill. In the second suspected outbreak, a case was a food worker. In this outbreak, the nine who were ill, as well as the three who did not develop symptoms, reported consumption of meat and soft cheeses. Incubation for the ill was approximately one day. Cheese samples, collected at the facilities where they were bought, were negative for *Salmonella*. The epidemiological investigation revealed that all suspected cases exhibited symptoms consistent with *Salmonella* infection.

Outside of the two clusters, no epidemiological link was identified between all original eight cases of the *Salmonella* EI PFGE cluster. This may be due to the amount of time elapsed between the onset of illness and when the PFGE cluster was reported to the EDC-IS, so recall bias may have played a role.

### ***Salmonella* Outbreak Associated with a Restaurant, Broward County, June 2009**

On May 21, 2009, the Broward County Health Department (CHD) received a complaint regarding a group of seven diners, with three reporting becoming ill approximately 34 hours after eating at a local restaurant in Hollywood, FL. Over the next two weeks, five confirmed cases of *Salmonella* group D1 (non-typhoid) were reported to the Broward CHD, as well as an additional foodborne illness complaint. All reported consumption of food from the same restaurant during the same weekend in the initial complaint.

Investigation revealed that fourteen people from seven separate groups had become ill with gastrointestinal symptoms after eating at the implicated restaurant. Multiple food items were consumed by the 14 ill individuals during meals at the implicated restaurant on May 15 and May 16. No other common exposures, aside from the restaurant, were noted. Diners who were not ill could not be interviewed. Seven stool samples were collected. All tested positive for *Salmonella* serogroup D1. Four of the isolates were sent to the Bureau of Laboratories in Jacksonville and sub-typed as *Salmonella Berta*. Three isolates had indistinguishable PFGE patterns, which suggests that the outbreak originated from the same source and further supports the hypothesis that the restaurant was the source of this outbreak. Eight food workers reported similar illnesses with onsets ranging from May 1 to May 21; however, none tested positive for *Salmonella* (none of the employees were exhibiting symptoms at the time the samples were collected).

## **Scombroid**

### **Scombroid Poisoning, Hillsborough County, March 2009**

A physician with a local university notified the Hillsborough County Health Department on March 6, 2009 of three students who presented to the university health clinic with severe allergic symptoms, including flushing and tingling, within one hour of consuming sushi rolls. All three students were diagnosed with scombroid poisoning and responded well to antihistamine treatment. The tuna sushi rolls were consumed on campus at the student dining facility.

An environmental field visit was made to the university student dining facility and the frozen tuna sushi rolls were placed under a stop-sale order. The sushi preparation procedures were examined and all of the food temperatures, sanitation procedures, and employee hygiene practices were determined to be satisfactory. The frozen product was collected and shipped to the Florida Department of Agriculture and Consumer Services laboratory for analysis. High histamine levels ranging from 2058 ppm to 3507 ppm were identified.

Trace-back information identified that the same seafood distributor based in California had provided product to the university facility and to a food service outlet in Pinellas County also implicated in a second cluster of scombroid cases. The tuna product originated from Indonesia.

### Shigellosis

#### **Probable Foodborne Shigellosis Outbreak Associated with a Funeral Reception, Orange County, May 2009**

During the routine case investigation of a confirmed shigellosis case, the Orange County Health Department (CHD) learned that the case had recently held a funeral reception at her home and a number of attendees had also become ill. The funeral reception was held on May 12, 2009 in a private home with approximately 60 guests. Food items and beverages were provided in a self-serve, buffet style. Food platters were prepared by a local supermarket. Additionally, some homemade food items were brought by guests.

Thirteen of the 35 interviewed reported illness. Two of the thirteen people reporting illness were laboratory confirmed through stool cultures as *Shigella sonnei* (subgroup D). One of the confirmed cases was the initial case reported to the Orange CHD and the other was confirmed by the Delaware Department of Health. One secondary laboratory-confirmed case with an onset date of May 19, 2009 was also identified. The secondary case did not attend any funeral-related activities, but was a contact of ill attendees and reportedly ate food left over from the event at the reception location.

Women represented 69% of the cases. Cases ranged in age from 11 to 71 years of age with an average age of 46.8 years. The most frequently noted symptoms were nausea, diarrhea, abdominal pain and cramping, fever, and fatigue. The reported illness onset dates ranged from May 13 through May 15. The average incubation period was 50.5-hours with a range of 31.0- to 76.0 hours. Duration of illness was from 1 to 14 days with an average of 5.5 days.

This cluster of *Shigella* illness appears to be associated with the consumption of food at the funeral reception meal on May 12, 2009. However, the foods consumed had many different sources, including a supermarket and various individuals. It is possible that people attending the event contaminated many of the food items. Ten of the ill attendees consumed food from the assorted dessert tray. This food item may have been a possible source of illness for the majority of those who were ill, but the data do not demonstrate that this item is statistically significant. Some people, particularly three who reported that they did not consume food, may have acquired the disease via person-to-person contact with a symptomatic or non-symptomatic person.

### ***Streptococcus pneumoniae***

#### ***Streptococcus pneumoniae* Detected in ESSENCE, Pinellas County, March 2009**

The Pinellas County Health Department (CHD) uses the ESSENCE system to perform surveillance on emergency department (ED) visits occurring in the county. ESSENCE is reviewed daily, including weekends and holidays, to detect any situation in which public health action may be required. During the week of March 8, 2009, routine queries conducted in

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ESSENCE found events that had not been reported immediately to the Pinellas CHD. The ESSENCE queries used to detect these events were free-text queries that use the list of reportable diseases and conditions in Florida.

Information from various EDs indicated that a cluster of four patients visited on March 8 with chief complaints of either “unspecified exposure” or “exposure to bacterial meningitis”. Pinellas CHD followed up with the hospital and found that two of the exposed patients were paramedics and two were firefighters, all of whom reported exposure to bacterial meningitis. The paramedics were exposed while transporting a patient with suspected bacterial meningitis. This patient, a 20-year-old man, later died. The laboratory report for the deceased patient indicated that there was no growth for *Neisseria meningitidis*; however, the cultures (cerebrospinal fluid and blood) were positive for drug-resistant *Streptococcus pneumoniae*. A blood culture was sent to the Bureau of Laboratories and drug-resistant *Streptococcus pneumoniae* was isolated. Ciprofloxacin was provided to the paramedics as prophylaxis.

The firefighters were exposed to a different patient that was admitted to the hospital with suspected meningococcal meningitis. The medical record for the second patient, a 30-year-old-male, indicated urine and CSF cultures were done. Neither yielded bacterial growth. The final diagnosis was viral meningitis with headache. Before the diagnosis was confirmed, the firefighters were provided with Cipro as prophylaxis, which is not effective against viral pathogens.

**The second confirmed case of drug-resistant *Streptococcus pneumoniae*** was detected in a 32-year-old male who visited the ED on March 10 with chief complaints of pneumonia and meningitis. Based on information provided by the hospital, the patient reported left ear and sinus pain. He was treated and discharged but later returned to the ED with worsening ear pain. Upon further evaluation, the patient was admitted to the intensive care unit for monitoring. Blood and CSF cultures were positive for drug-resistant *Streptococcus pneumoniae*.

The ESSENCE system allowed the Pinellas CHD to learn of events within 24 hours of occurrence, before they were reported by the facility to the CHD. This illustrates one of the many benefits that ESSENCE provides as an early warning system, as it allowed the CHD to respond in a timelier manner than if they relied solely on the facility to report the cases to them.

### West Nile Virus

#### **West Nile Virus Case, Miami-Dade County, September 2009**

In September 2009, the Miami-Dade County Health Department (CHD) was notified of a case of West Nile virus (WNV), the first in four years. The patient was a 61-year-old man with a history of diabetes, hypertension, and borderline renal insufficiency who developed progressive weakness, fatigue, fever, and headache starting on August 28, 2009. The clinical picture worsened after three days with altered mental status, confusion, and misuse of correct words in sentences. His wife immediately brought him to an urgent care center close to their home and after evaluation by the center’s physician was immediately transferred to a local hospital. Upon arrival at the hospital, his temperature was 103.7° F and his condition had not improved. He was transferred to the intensive care unit and was given supportive care. He was given doses of vancomycin and ceftriaxone while awaiting results on a cerebrospinal fluid (CSF) specimen. A rapid test for both influenza A and B was negative, and additional swabs were sent for RT-

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PCR testing for 2009 influenza A H1N1. Results on the CSF specimen ruled out bacterial meningitis, and viral meningitis was considered with enterovirus or WNV as possible etiologies. A CSF specimen was tested for WNV IgM and for RNA for enterovirus.

A positive IgM for WNV was reported on September 10, 2009. After positive labs were obtained, the hospital reported the case to Miami-Dade CHD. Additional samples were sent to the Bureau of Laboratories (BOL) for confirmation. The local mosquito control office was notified of the patient's residential zip code, but the patient was unable to provide any additional details regarding areas of exposure due to his continued altered mental status. The patient gradually improved and was discharged on September 13 to a rehabilitation center. The patient was discharged to his home on September 30 with about a 30% residual muscle weakness for which he received home therapy over the next several weeks. His mental status returned to normal.

After recovery, the patient was interviewed about possible exposures. He worked as a security guard where he was exposed to mosquitoes on a night about four to five days prior to developing symptoms. He works at the same location consistently, guarding a parking lot at a medical clinic, and mentioned there is a large area of bushes at the rear of the lot. During his patrols, he recalled a large number of mosquitoes active in and around the bushes. He denied a travel history except for a three-day trip to Georgia in either March or April 2009, but did not recall any mosquito bites during that trip.

On October 5, 2009, the BOL in Tampa confirmed the positive IgM for WNV, and mosquito control was notified a second time of the location of his job as a potential location for intervention. At that time, Miami-Dade County issued a mosquito-borne illness advisory and did not remove it until December 2009.

### **First West Nile Virus Case, Clay County, October 2009**

On October 1, 2009, Clay County Health Department (CHD) was notified of a positive human case of West Nile Virus (WNV). Investigation began immediately. The patient, a 39-year-old white man, was admitted to a local hospital. He had a three to four day history of headaches, diffuse muscle pains, neck pain, fever, nausea, progressing weakness, and shortness of breath. His condition worsened with paralysis and he was placed in the intensive care unit (ICU). WNV IgM enzyme-linked immunosorbent assay was positive on cerebrospinal fluid on September 21 and blood serum on September 30. Tests were done at the Bureau of Laboratories.

The man had traveled outside of the state of Florida during the two weeks prior to onset of illness and recalled receiving numerous mosquito bites while traveling near Dallas. The area where he camped and hiked near Dallas had recently reported cases of WNV. The time frame for exposure and onset of symptoms suggest that exposure occurred in Texas. He also traveled to Oklahoma and Georgia. There had been 12 WNV cases reported in Dallas County, TX and two in Oklahoma County, OK in 2009 at the time of this investigation. The man was released to a rehabilitation center after a long stay in the ICU. Mosquito exposure prevention and WNV information was sent by the Clay CHD to family, local media, schools, businesses, and housing areas. Active surveillance did not identify any more confirmed or probable cases.

