

Section 6: Summary of Notable Outbreaks and Case Investigations, 2008

Listed alphabetically by disease

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*, 64D-3. Selected outbreaks or case investigations of public health interest that occurred in 2008 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, 2008).

Additional disease summaries and information describing epidemiologic events in Florida can be found in *Epi Update*. *Epi Update*, an online publication of the Bureau of Epidemiology, Florida Department of Health, can be accessed through the following site:

http://www.doh.state.fl.us/disease_ctrl/epi/Epi_Updates/index.html

Food and waterborne disease outbreaks in Florida are summarized in annual reports produced by the Bureau of Environmental Public Health Medicine accessible via the following site:

<http://www.doh.state.fl.us/environment/community/foodsurveillance/annualreports.htm>

Annual food and waterborne reports include overall statewide data as well as summaries of selected outbreaks. In addition, a bibliography of journal and *EpiUpdate* articles on food and waterborne disease can be found at the following site: <http://www.doh.state.fl.us/environment/medicine/foodsurveillance/annualreports.htm>

Amoebic Encephalitis

Amoebic Encephalitis, Sarasota County, June 2008

On June 24th, the Sarasota County Health Department (SCHD) received a report from a local hospital of a 79-year-old man who was diagnosed with amoebic encephalitis by a pathologist that had examined a brain biopsy of a mass in his right frontal lobe. The pathologist described the brain biopsy as “Edematous brain with necrosis and acute and chronic inflammation with organisms suspicious for amoebic encephalitis.” A second opinion from a Johns Hopkins University pathologist concurred with the diagnosis. The patient had onset of severe lethargy and overall weakness approximately June 12th and he could not move without assistance. On June 14th, the man’s wife noticed increased confusion and had him transported by Emergency Medical Services to a local emergency department (ED). The man was alert in the ED, but somewhat confused, had a temperature of 103.5° F, and a stage two decubitus ulcer at the base of his sacrum. A CT scan showed a mass in the frontal lobe. The patient’s pre-existing conditions included diabetes, autoimmune hepatitis for which the patient was on long term prednisone therapy, a history of skin cancer, and a bone marrow transplant four years ago. He underwent a craniotomy on June 18th to biopsy the brain mass. The patient was comatose post-procedure and expired when he was removed from life support on June 24th. A sample of the brain biopsy was forwarded to the Centers for Disease Control and Prevention, Division of Parasitic Diseases for further identification and confirmation. The specimen tested was positive for *Acanthamoeba* species via indirect immunofluorescence.

The man’s wife reported no exposure to natural fresh water sources or pools in more than two years. The patient did have limited exposure to a temporary indoor pool used for church services within the

one to two weeks prior to onset. Sarasota County Environmental Health evaluated the pool for basic sanitation and recommended routine chlorination. The man's wife reports no recent travel, no gardening or exposure to soil, no history of recurrent skin lesions, and no other recent infections (other than the sacral ulcer).

Botulism

Infant Botulism Diagnosed in California, Duval County, August 2008

On August 8, 2008, the Duval County Health Department's (DCHD) Epidemiology Program was notified by Bureau of Epidemiology staff that a six-week-old infant, a Duval County resident, was diagnosed with botulism in California. The infant, then four weeks old, became ill on a flight to California. The infant slept soundly through first part of flight but on the second part of the flight was noted to suck poorly, drool excessively, and to have a weak cry. An hour before the end of the flight, the infant became limp. After reaching the airport, the infant was driven by parents to a community hospital emergency department where the infant's condition deteriorated to full respiratory arrest. The infant was intubated and transferred to a larger hospital. California's Infant Botulism Treatment and Prevention Program consulted with physicians and anti-toxin (BabyBIG) was given July 28th. A stool specimen was collected and was positive for Botulinum Toxin A. Investigation revealed that the infant had experienced constipation a week prior to the flight, was breast-fed entirely except on two occasions, and was never given honey. The family lives in an area of Duval County where new homes are currently being constructed. The infant was transferred to a hospital in Orlando on September 23rd and remained on a ventilator. She was later discharged home from the hospital. Last update revealed that the infant still had a tracheostomy and a gastrostomy button, but was eating some solid foods and breastfeeding. The infant is able to stand with assistance of parents but has not crawled and has one eye that slightly wanders.

Brucellosis

Hunter-Acquired *Brucella suis* Infection, Lake County, Florida and Pennsylvania, July 2008

On July 24, 2009, the Lake County Health Department (CHD) was advised of a confirmed brucellosis patient (Patient A) in Pennsylvania that had a brother (Patient B) in Lake County, Florida who may have been ill and had the same exposures.

The epidemiologic investigation revealed that Patient A had hunted feral swine with Patient B in December 2007 in Sumter County, FL. Both Patient A and Patient B participated in field dressing and butchering three hogs. The spouses and the children of Patient B assisted in carrying meat and cleaning up. No personal protective equipment was worn during the field dressing and butchering. Soap and water were used to wash hands and instruments/equipment. No other risk factors for brucellosis were identified. Some of the pork was brought back to Pennsylvania, stored in a freezer, and consumed by Patient A's family members over a seven month period, however adequate cooking was reported. Meat was prepared mainly by the wife of Patient A. In July 2008, Patient A presented with morning fevers (100°-102° F), myalgia, chills, shortness of breath, and night sweats. A 30 pound weight loss over a one month period was also noted. Three specimens were collected for testing and sent to the Centers for Disease Control and Prevention (CDC). *Brucella suis* was cultured from a blood sample collected from Patient A; two isolates were also recovered from frozen sausage and tenderloin of the wild hog. Genotyping of the three *B. suis* cultures performed by CDC indicated strong genetic correlation between all three isolates.

When contacted by Lake CHD, Patient B reported having similar signs and symptoms for two months starting in April, 2008 which he attributed to a scorpion bite. No medical attention was sought at that

time. Other than feral swine hunting, no other brucellosis risk factors were identified for Patient B. Patient B reported that all meat from the *Brucella* positive pig was either smoked, roasted, or barbecued prior to consumption and all of the meat was consumed at a family cookout except for the meat taken by Patient A back to Pennsylvania.

A serum sample from Patient B was collected by Lake CHD in September 2008 and tested at the CDC for anti-*Brucella* antibodies, using the *Brucella* microagglutination test, with a resulting IgG of 640, meeting the brucellosis probable case classification. Treatment was recommended as relapses and chronic illness are often associated with untreated *Brucella* infections; Patient B's current status is unknown as he was lost to follow up. Serology was not performed on the families of Patient A or B due to the lack of signs or symptoms.

Case of *Brucella melitensis*, Palm Beach County, November 2008

In November of 2008, Palm Beach County Health Department (PBCHD) was notified by Focus Diagnostics in California that a patient's culture was presumptive positive for *Brucella* and that the sample was being forwarded to the state reference laboratory in California for confirmatory testing and speciation. In late October, the patient had been admitted to a Palm Beach County hospital with the chief complaint of abdominal pain and an admitting diagnosis of cholecystitis. An infectious disease consult was requested on November 5th because the patient was septic with gram-positive coccobacilli; blood samples were submitted for culture. The patient improved with supportive care and antibiotic treatment and was discharged on November 10th. The patient was released from the hospital before the PCR and culture results were available. The primary physician and the patient were unaware of the positive test results and were informed of the results on November 19th by PBCHD when the presumptive positive PCR results were received. The infectious disease doctor initiated treatment for the patient the day he was notified of the results on November 24th. Final laboratory results received from the state laboratory in California on November 25th were positive for *Brucella melitensis* by PCR.

A review of the patient's medical history revealed that the patient had reported knee and waist pain since late January 2008 and stopped working as a result. In early February 2008, he started having intermittent night sweats/chills. The patient was seen by several doctors following symptom onset but brucellosis was not suspected. In May 2008, the patient was seen by an infectious disease doctor post-knee surgery because of a possible joint infection. The culture specimens taken at that time were negative for *Brucella*. A definitive exposure was never identified but is suspected to have been prior to the initial symptoms in January 2008. The only exposure of interest was consuming "leche fresca" while visiting Mexico, which could have been un-pasteurized, but this exposure occurred after the onset of symptoms.

Campylobacteriosis

Pet-Associated Campylobacteriosis, Hillsborough County, March 2008

The Hillsborough County Health Department (HCHD) investigated a case of campylobacteriosis in a seven-year-old girl in April of 2008. Symptoms began on March 31, 2008 and included bloody diarrhea, abdominal pain, cramps, vomiting and a fever. *Campylobacter* was cultured from the girl's stool specimen.

The girl's family had recently purchased a golden retriever puppy (2.5 days before the illness onset in the patient). This puppy was experiencing diarrhea immediately upon arrival in the new household. The dog was brought to a veterinarian and treated for an unspecified bacterial infection. The puppy was later found to have "round worms and spirochetes." The case investigation revealed that the girl had not eaten any undercooked meat and did not have any other obvious risk factors.

While not a spirochete, *Campylobacter* is a comma shaped bacteria and could be what was observed on the puppy's laboratory exam. Transmission of *Campylobacter* from pets to humans (through fecal-oral contact) is estimated to cause more than 200,000 cases of gastroenteritis per year (see reference below).

On Wednesday, April 30, 2008, Hillsborough County Animal Services and HCHD Environmental Health went to the house where the puppy was purchased and where dogs were being bred. Investigators found a ruptured septic tank and squalid conditions. The dogs had been living in a fly-infested backyard filled with human waste. The dogs were taken to animal services for bathing and treatment for fleas, *coccidian*, and worms. Fifteen dogs from this breeder had been recently sold, and Animal Services made telephone calls informing pet owners of the situation.

Additional resources

Stehr S. "The impact of zoonotic diseases transmitted by pets on human health and the economy", *Vet Clin North Am Small Anim Pract* 1987: Vol. 17, pp. 1-15.

Ciguatera

Two Ciguatera Outbreaks, Miami-Dade County, May 2008

In the month of May 2008, two outbreaks of ciguatera poisoning were investigated by the Miami-Dade County Health Department.

The first reported outbreak involved three persons, a 56-year-old woman, her brother, and father who ate a two-foot long grouper at home on May 12, 2008. The woman presented with diarrhea five hours after lunch as well as reversal of cold/hot sensations, joint and muscle pain, body aches, and itching. She was treated with mannitol, but felt strong pain in her arm and discontinued the medication. She continued to experience neurological symptoms. The father and brother ate less fish and presented with mild neurological symptoms and they both recovered. The brother received the grouper as a gift and did not know where it was caught. No leftover or frozen fish was kept, hence no sample could be sent for confirmation to the U.S. Food and Drug Administration (FDA) Gulf Coast Seafood Laboratory in Dauphin Island, AL.

The second outbreak involved a husband and wife who ate eel in a sushi roll at a restaurant in Palm Beach County on May 17, 2008 at 5:30 p.m. The wife had an onset the following day at 10 a.m. with gastrointestinal symptoms, abdominal pain, and diarrhea. A day later, neurological symptoms began including: strong reversal of cold/hot sensations; joint and muscle pain; body aches; itching; weakness in legs; rash; tingling; numbness; pin-prickling; and fatigue. She received mannitol and felt better, though neurological symptoms persisted. Her husband presented with mild neurological symptoms including joint and muscle pain and itching, but later recovered. This was the second time in their lifetime they both had ciguatera; the first event occurred in 1990. The wife contacted 10 of the 14 other diners from the group, but none complained of any similar symptoms.

Three Ciguatera Outbreaks Reported, Palm Beach County, June 2008

Three separate outbreaks of ciguatera poisoning were reported to the Palm Beach County Health Department (PBCHD) Epidemiology Program related to the ingestion of grouper during June 2008. The first report included two men fishing in the Bahamas who caught and ate an 8 lb. grouper on June 22, 2008. Their symptoms began six hours later and included: vomiting; diarrhea; tingling of the lips and tongue; and reversal of hot and cold sensations. Both were evaluated by private medical doctors.

The second outbreak was reported to PBCHD on June 30, 2008 by the Florida Poison Information

Network. A family of four purchased and consumed two grouper fillets from a local seafood store on June 26, 2008. Approximately four hours later, they started experiencing symptoms including: vomiting; diarrhea; tingling; reversal of hot and cold sensations; and some difficulty breathing. The family was evaluated at a local emergency department (ED) and offered mannitol therapy. The seafood store was visited by the PBCHD Environmental Health Program. The store had purchased one 20 lb. grouper from a local distributor.

The third outbreak involved a family of four who became ill after consuming black grouper purchased from a market on June 26, 2008. The persons consumed the grouper and developed symptoms 2.5 to 4.5 hours later including: abdominal pain; diarrhea; body aches; dizziness; joint and muscle pain; itching; breathing difficulties; tingling and numbness in lips, nose, and tongue; pains in teeth and gums; reversal of hot and cold sensations; vomiting; and weakness in legs. Patients visited a local ED and were diagnosed with ciguatera intoxication. Trace-back of the fish revealed that grouper had been purchased from the same distributor in Miami as the outbreak listed previously on June 21st and 24th. That fish was reportedly imported from the Bahamas. Black grouper was also purchased on June 24th from a distributor in Sunrise, FL. Grouper from the second and third outbreaks that occurred on June 26th were tested at the FDA Gulf Coast Seafood Laboratory and found to be positive for ciguatera with levels high enough to cause illness.

Outbreak of Ciguatera Associated with Consumption of Grouper, Nassau County, July 2008

On July 3, 2008 the Nassau County Health Department (NCHD) was notified of a physician-diagnosed ciguatera case in a tourist who had consumed grouper at a resort on Amelia Island. From July 3-11, 12 additional cases were reported in persons who consumed grouper at two resort restaurants, for a total of 13 cases. All persons consumed grouper from June 26-29 and developed gastrointestinal illness (GI) from June 27-30. Grouper was served in an 8 oz. entree portion in one restaurant and in a 4 oz. blackened grouper sandwich in the second restaurant. A dose-response relationship was found as cases that ate the 8 oz. portion were more likely to have experienced a longer duration and severity of symptoms. The trace-back investigation of the grouper consumed at both restaurant locations indicated that the fish were bought from the same distributor in Miami, FL as the two ciguatera outbreaks reported above from Palm Beach County. That fish was also reported to be of Bahamian origin. The Palm Beach cluster occurred when a family purchased and consumed grouper on June 26, 2008 from a local grocer and developed GI symptoms and temperature reversal.

Of interest, a breast milk toxin transfer may have occurred when the mother of 2.5-year-old child reported that her son exhibited symptoms of ciguatera intoxication after breast-feeding. The child developed a 72-hour fever and remarked that drinking a cold beverage "burned his mouth" (an indicator of temperature reversal). Immediately, the mother ceased breast-feeding and the child recovered within 24 hours.

Ciguatera Investigation, Pinellas County, September 2008

The Pinellas County Health Department and the Bureau of Environmental Public Health Medicine investigated a case of ciguatera that was reported by the Florida Poison Information center on September 8, 2008. The patient was a 56-year-old woman who had been visiting her daughter in St. Thomas, Virgin Islands at the end of August. On August 27, 2008, her party went on a fishing trip and caught a Blue-eyed Trevally, an amberjack species. The fish was prepared with lime juice and coconut milk and served as sashimi. Illness occurred within five hours, beginning with gastrointestinal symptoms followed by paresthesia, muscle pains, and hot and cold reversal symptoms for approximately a week. The patient was seen at a clinic in St. Thomas and treated for diarrhea and vomiting symptoms. According to the patient, the fish was recreationally caught in the waters north of St. Thomas which was reputed to be a lower risk area for ciguatoxin.

Cryptosporidiosis

***Cryptosporidium parvum* Outbreak Among a High School Swim Team, Sarasota County, August-September 2008**

On September 8, 2008, a single confirmed case of cryptosporidiosis in a swim team member/public pool employee was reported to the Sarasota County Health Department (SCHD). The case's disease onset was August 15th, with symptoms of bloody diarrhea, abdominal pain, cramps, chills, and nausea. The suspected exposures were the ongoing use of public pool A and swimming in Lake Mead, NV on August 8, 2008. The index case's symptoms resolved September 5th. During the symptomatic and infectious period, the case swam almost daily at public pool A with a high school swim team and periodically worked at the pool as a life guard.

Interviews of all team members, indicated 13 children reported symptoms of gastrointestinal (GI) illness since August 1st. Symptoms included diarrhea (100%), abdominal pain (69%), nausea (31%), and vomiting (31%). No fevers (>100.4 F) were measured. Average duration of symptoms was 10 days, a median of 8.5 days, with a range of 3-20 days. Six stool ova & parasite specimens were collected from cases, two of which tested positive for *Cryptosporidium parvum*.

Further case finding efforts at public pool A attempted to identify pool staff and members with GI illness. Signs were posted at the entrance to the building asking persons with symptoms of GI illness to report to the pool staff and call the SCHD. Pool staff were surveyed by pool management. No additional reports of illness were received from members or staff of public pool A. No symptomatic household contacts or other close contacts of cases were reported.

During this outbreak disease control measures included: the exclusion of ill team members from swimming for two weeks after resolution of symptoms; voluntary cancellation of meet participation and practices; the correction of environmental health violations and super-chlorination of the pool; and education regarding good hygiene practices.

Cyclosporiasis

***Cyclospora* Case Control Study Due to Increase in Reported Cases, May-June 2008**

In the summer of 2008, the Food and Waterborne Disease Program observed a moderate increase (two standard deviations of the expected number of cases) in cyclosporiasis cases. In response to this observed increase, the Food and Waterborne Disease Program initiated a case-control study to try to determine the source of the increase. A statewide total of 27 cyclosporiasis cases had symptom onset during May and June of 2008. Initial case investigations by the local county health departments noted cases were sporadic and there were no identified clusters or common food exposures. After excluding cases with history of out-of-state travel during the incubation period, 15 of the 27 cases were able to be interviewed for the case-control study. Twenty-six (26) controls matched by age group and county (approximately two controls per case) were also interviewed. Based on the epidemiological analysis, consuming avocados appeared significantly associated with disease (OR= 3.95, 95% CI: 1.005-15.577). However, only seven out of the 15 interviewed cases reported consuming avocados. Due to the small sample size, low statistical power, potential recall bias, and incomplete or missing data in some interviews, the results of the study were determined to be inconclusive. Without further intervention, case levels for cyclosporiasis eventually dissipated and returned to background levels throughout the state.

Eastern Equine Encephalitis

Eastern Equine Encephalitis in a Three-Month-Old, Leon County, August 2008

On August 20, 2008 a hospital infection control nurse called the Leon County Health Department (LCHD) to report a suspected case of bacterial meningitis in a three-month-old infant. The child presented to the emergency department on August 19th with a fever (as high as 105° F), lethargy, irritability, and tonic/clonic seizure activity over a period of 24-48 hours. The infant had been treated with Rocephin and Augmentin for a fever and suspected pneumonia one week prior to admission. The Augmentin was finished one day prior to admission. The medical history was otherwise unremarkable with a normal term delivery.

Cerebrospinal fluid (CSF) was abnormal and the gram stain was initially reported as positive for a “few gram positive coccobacilli in pairs, chains, clusters” but after review, the report was changed to “no organism seen.” The blood and CSF cultures were negative. The chest X-ray was clear. The child was admitted to the intensive care unit (ICU) for suspected bacterial meningitis and was treated with Rocephin, Vancomycin, steroids, and Dilantin.

The pediatric infectious disease physician suspected meningococcal meningitis. Sixteen contacts in the child’s household and the babysitter’s household were provided antibiotic prophylaxis by the LCHD and the sibling’s pediatrician on August 20th. On August 29th the Bureau of Laboratories-Jacksonville reported a positive serum IgM with an Eastern Equine Encephalitis virus titer of 1:40. No antibody was detected to the St. Louis Encephalitis virus.

The mother stated that the child had been exposed to mosquitoes in the two weeks prior to illness. The family lived near a swampy area and often left the front door open in the afternoon. The family would also sit outside in the early evening. The infant was protected from mosquitoes with a “Citronella brand coil bracelet/mosquito repellent” worn on the ankle.

The child required an extended stay in the ICU with ventilator support. It is unknown if there were any long term sequelae.

Ehrlichiosis/Anaplasmosis

Ehrlichiosis in Ocala National Forest, July 2008

On July 10, 2008, the Palm Beach County Health Department received an IgG IFA positive lab result for *Ehrlichia chaffeensis* (Human Monocytic Ehrlichiosis) through Merlin from an out-of-state hospital where a 70-year-old female patient had been treated. The patient was contacted on Friday, July 11th and she reported that she lives in Vermont part-time and was there when she decided to go to the hospital. Approximately one week prior to becoming ill, the patient and her husband went camping in the Ocala National Forest, in Ocala, Florida. She recalled lots of deer flies and after a day or so her hip area started to itch. A few days later she became ill with fever, chills, and fatigue. By the time she returned to Vermont, she was very disoriented and had to be taken to the hospital on June 14th. Upon examination, a tick was found still embedded in the patient’s hip. The tick was saved to be sent for testing/identification to a university in Vermont for which no results are available. The patient was treated with Doxycycline and was much improved.

Giardiasis

Gastrointestinal Illness Outbreak in Travelers Returning from Guatemala

The Nassau County Health Department's (NCHD) Epidemiology Program investigated a cluster of gastrointestinal illnesses (GI) in six U.S. missionaries who traveled to the Zacapa region of Guatemala from May 17-24, 2008. The volunteers stayed in a mission house in Guatemala, consumed multiple group meals, and participated in well construction projects in three rural villages near Zacapa. The group was exposed to untreated water sources. On May 23rd, four of the volunteers experienced GI symptoms and received medical care at a local hospital in Antigua, Guatemala. The remaining two volunteers became ill on May 24th and May 25th. One volunteer tested positive for *Giardia*.

NCHD communicated the investigation findings to the mission group coordinator to share with partners at the mission center in Guatemala. The team leader conducted surveillance for additional cases in Guatemala to determine if there was a continuous risk of exposure, as the mission center hosts new volunteers on a regular basis.

Hemolytic Uremic Syndrome (HUS)

HUS in a Child with Multiple Possible Exposures, Palm Beach County, October 2008

On October 23rd, the Palm Beach County Health Department was notified of a seven-year-old boy with symptoms of abdominal pain, bloody diarrhea, fatigue, and fever who was admitted to the hospital after eight to ten days of illness; illness onset was October 9th. During his illness, he had been seen by a pediatrician on at least one occasion and was also seen at another hospital prior to hospital admission. For various reasons, proper tests were not conducted or were conducted once the child was placed on antibiotics, so a positive culture for *Escherichia coli* and/or Shiga toxin was unattainable. However, the child was diagnosed as having hemolytic uremic syndrome (HUS) due to an elevated creatinine level and anemia. After his onset of symptoms, his six-year-old sister and 14-month-old brother had the same, yet milder symptoms with onsets of October 11th and 12th. The siblings were also admitted to the hospital and were not properly tested for *E. coli* and/or Shiga toxin. The siblings' test results for creatinine and anemia did not meet the criteria to diagnose HUS. All three children were exposed to a petting zoo (duck, rabbit, and goat) on September 27th; two weeks prior to the index child becoming ill. There was also a report of exposure to slightly undercooked burgers at home the night before the index child became ill. The incubation periods relative to each exposure seemed a little too long or too short to pinpoint either as the definitive exposure.

Healthcare-Associated Infections

Invasive Bacterial Infections at a Dialysis Clinic, Osceola County, July 2008

On Monday July 21, 2008, the Osceola County Epidemiologist was notified of three dialysis patients hospitalized over the previous weekend with suspected invasive bloodstream infections. Two of these patients received dialysis at the same clinic. Of these two patients, one was culture-positive for Methicillin-sensitive *Staphylococcus aureus* (MSSA) and the other for Methicillin-resistant *S. aureus* (MRSA). The third patient attended a different clinic, and all culture results were negative. That afternoon the Osceola County Health Department (OCHD) conducted an interview at the dialysis clinic shared by the two patients.

The clinic conducts hemodialysis on approximately 40-50 patients at day, and has a current hemodialysis patient census of 100. During the initial phone call, the clinic stated that they were unaware of any of their patients being hospitalized. The clinic also stated that there was a failure in their reverse osmosis

water treatment system on July 11, 2008. OCHD Environmental Health staff collected water samples from the clinic, which came back negative for coliforms. Based on information collected, the water treatment system failure was ruled out as a causal agent for these infections.

OCHD worked with the clinic and local area hospital to identify additional blood stream infection cases that had dialysis at the same clinic. Three additional cases were identified, making a total of five dialysis patients with bloodstream infections. The first case was admitted to the hospital on July 8, 2008 followed by two cases on July 20th, one case on July 26th and one case on August 1st. Cultures were positive for MSSA in two patients, MRSA in two patients and *Proteus mirabilis* in one patient. One of the patients died as a result of their bloodstream infection.

A site visit to the clinic was conducted by OCHD on August 6, 2008. During the visit, poor infection control practices were observed, which included improper glove usage and inadequate hand washing techniques. Based on these observations, OCHD contacted the Association for Health Care Administration (AHCA) to report the observance of poor infection control practices at this clinic. Following this complaint, AHCA conducted a site visit to the clinic but observed no infection control problems or violations.

Active surveillance was continued and no additional cases were identified. Findings from this investigation and site visit were communicated to the clinic, along with information on proper infection control practices, hand washing technique, and glove utilization.

Hepatitis A

Three Possible Hepatitis A Cases Associated with an Ill Food Worker, Lee County, February 2008

On February 8, 2008, the Erie County Department of Health reported to the New York State Department of Health a confirmed case of hepatitis A virus (HAV) infection in a produce-handler. The handler worked at a local grocery store in a suburb of Buffalo, NY. The produce-handler may have been contagious and shedding virus from January 7 through February 4, 2008. Some of the produce stocked by the handler may have remained on display through February 8th. Because the handler most likely did not wear gloves while handling produce, persons who ate uncooked fresh produce (raw fruits and vegetables) purchased loose or in a perforated container at the store from January 7th to February 8th may have been at risk for exposure to HAV. According to the grocery store chain, approximately 84,000 produce transactions were completed at the implicated location during that time period.

State and local health officials were notified of this situation through a posting to the Centers for Disease Control and Prevention's (CDC) information exchange called Epi-X. They were asked to identify cases of HAV infection potentially associated with this exposure and were asked to provide post-exposure prophylaxis (PEP) where indicated. The Lee County Health Department identified three individuals that met the criteria to receive hepatitis A PEP. All three were winter visitors to the state and had eaten fresh produce from the implicated store during the time period of interest.

Hepatitis A, Collier County, August 2008

In August 2008, the Collier County Health Department (CCHD) investigated an isolated cluster of eight cases of hepatitis A within one family residing in a migrant farm community. The family (two adults and six children) traveled to Mexico on July 1, 2008. Onset of vomiting and diarrhea was July 3, 2008 while all family members were still in Mexico. Symptoms resolved before they returned to Florida for all except the 10-year-old girl, who developed jaundice. She was evaluated by a physician in Mexico. Anti-protozoa and anti-amoebic medications were prescribed, but the child's symptoms did not improve. The family returned to Collier County on August 16th, and on August 29th the 10-year-old girl was hospitalized

related to vomiting and diarrhea for the past 1½ months, jaundice, weight loss, abdominal pain, and headache. The child's laboratory reports were positive for acute hepatitis A and the child's liver function tests were elevated.

A home visit was completed by CCHD, and proper household and personal hygiene were discussed. Serology was completed for all family members, and the results were positive for infections with the hepatitis A virus. The parents were not employed in sensitive positions that would require exclusion during or shortly after illness with hepatitis A, and five of the six children were able to attend the first day of the new school year. None of the family members had previously received the hepatitis A vaccine. Due to the incubation period for hepatitis A and the onset of symptoms two days after arrival in Mexico, the infection was most likely acquired in Florida. Prophylaxis was not provided to any contacts, and no other cases of hepatitis A have been noted in the community.

Klebsiella pneumoniae

Outbreak of Carbapenem-Resistant *Klebsiella pneumoniae* Infections in a Long-Term Acute Care Hospital, Broward County, March 2008

In March 2008, the Broward County Health Department was notified by a regional medical center about the death of a 59-year-old woman with multi-drug resistant *Klebsiella pneumoniae* isolated from the urine. This patient had been transferred from a long-term acute care hospital (LTACH) to the medical center one day prior to death, so it was hypothesized the infection was contracted at the LTACH. A review of all LTACH *K. pneumoniae* culture reports revealed over 20 reports from 13 patients over a four-month period with similar antibiogram results including resistance to carbapenem antibiotics. This class of antibiotic is usually the best for treating highly resistant strains of *K. pneumoniae*, hence the organism is referred to as carbapenem-resistant *Klebsiella pneumoniae* (CRKP).

Investigation included performing a case-control study to identify risks for CRKP acquisition. In addition, rectal swab specimens were obtained on all LTACH patients to identify any patients that were infected or colonized with CRKP but who had not previously been cultured (active surveillance). Case-patients were defined as those infected or colonized with CRKP diagnosed ≥ 72 hours after admission to the LTACH between January 15 and April 30, 2008. Control-patients were those that tested negative for CRKP. Isolates were tested with the Modified Hodge test to identify carbapenemase production and typed with pulsed-field gel electrophoresis (PFGE). Lastly, the investigation team assessed mortality within the LTACH cohort.

CRKP was isolated from 13 case-patients (eight infected; five colonized); active surveillance identified CRKP among six patients, all of whom were known case-patients. All isolates had indistinguishable PFGE patterns and all were carbapenemase-producers (Modified Hodge positive). Case-patients and control-patients were similar in age, sex, race, and Charlson co-morbidity score. Case-patients had longer lengths of stay (LOS) before first positive CRKP culture (versus control-patient LOS before negative screening culture) and had more implanted medical devices (ANOVA and Chi-Square, p -value <0.05). Case-patients were more likely to be exposed to the ICU and to have received penicillin or aminoglycoside antibiotics in the prior 30 days. Nine of 13 case-patients and two of 28 control-patients died (OR 29.3, 95% CI 3.6, 314.6). Deaths per 1,000 patient-days of observation were higher for CRKP patients (incidence density ratio: 4.9; 95% CI, 1.1–22.9).

The intervention consisted of enhanced contact precautions and cohorting of case-patients. After implementation, only one additional case was found with a matching PFGE pattern.

This is the first CRKP outbreak reported in a Florida LTACH and the first in which all in-patients were

screened. Surveillance cultures demonstrated no on-going transmission to other patients, which allowed the facility to focus control efforts on case-patients. High mortality and limited treatment options underscore the need for prevention efforts of healthcare-associated infections with this highly pathogenic *Klebsiella* strain.

Legionellosis

Legionellosis in Wedding Attendees, Orange and Pinellas counties, March 2008

On March 11, 2008, the Pinellas County Health Department (PCHD) Epidemiology Program was notified by a local hospital of a laboratory-confirmed case of Legionnaires' disease with onset on March 7th. On March 12th, an infection control practitioner at the same hospital reported an additional laboratory-confirmed case of Legionnaires' disease with onset of March 9th. Both people were Canadian residents who had recently attended a wedding in Orlando, Florida and stayed at Hotel A. Further investigation revealed confirmed Legionnaires' disease cases in another wedding guest from Canada and a United Kingdom resident who had both stayed at Hotel A during the same time period. A letter was distributed to all guests staying in the hotel between February 27th and March 15th, which helped identify one probable Legionnaires' disease case. Environmental, epidemiological, and laboratory investigations were undertaken in an attempt to determine the source of infection.

Epidemiologic data indicate that the source of the outbreak was the outdoor hot tub at Hotel A. The only common exposure among the five affected people was staying at this hotel between February 23rd and March 8th, 2008. No common exposures outside Hotel A were identified. There was a statistically significant association between spending time in the hotel's hot tub and acquiring Legionnaires' disease (odds ratio = 22.11, 95% confidence interval = 1.22-1569.46, p-value = 0.0162). Environmental inspection observations at the hotel support the biological plausibility of a causal association of the hot tub with illness. The chlorine levels observed in the hot tub at the time of inspection were not sufficient for disinfection, which could allow *Legionella* bacteria to thrive in the warm water. The existing design of the filters and water flow of the hot tub created a condition where a large volume of water was passing through an insufficiently sized filter. The hot tub therapeutic jets produce aerosolized water droplets, less than 5 µm, which can be inhaled. Environmental sampling did not yield any positive laboratory results, though this could be due to laboratory or sampling error. Negative results could also mean that the organism was not present in detectable quantities for the testing methods used, or the organism was not present at time of sampling. This outbreak highlights the risk for transmission of *Legionella* bacteria from an inadequately maintained hot tub. It is critical that all pools, hot tubs, spas, and whirlpools be properly maintained on a regular basis in a prescribed manner to prevent transmission of disease.

For more information about this investigation please visit

Eisenstein L, Bodager D, "Outbreak of Legionellosis Associated with Exposure to a Hotel Outdoor Hot Tub, Orange County, Florida, March 2008", *Florida Journal of Environmental Health*, Fall, 2008, Issue 200, p.14-19.

Legionellosis Cluster Associated with Fitness Club, Orange County, June-September 2008

On September 30, 2008, the Orange County Health Department (OCHD) Epidemiology Program was notified by a local hospital of a laboratory-confirmed case of Legionnaires' disease with illness onset of September 25th. The initial interview of the 33-year-old woman disclosed that during her incubation period she lived in several rooms at a local hotel that she described as humid, moldy, and containing wet carpet. The patient denied hot tub or pool use during the two weeks prior to illness onset. On October 7th, the OCHD Epidemiology Program was notified of another laboratory confirmed case of Legionnaires' disease with illness onset of September 29th. The 70-year-old woman reported frequenting

a local health fitness club (Fitness Club A) during the exposure period with no other reported relevant exposures. Exposures at Fitness Club A included a hot tub and showers. The initial environmental inspection at Fitness Club A on October 14th revealed several issues with their pool and hot tub cleaning and maintenance including that the required maintenance logs were not consistently being used. One filter instead of the required two was being used on the hot tub at the time of this inspection. The OCHD Swimming Pool Inspector closed both the pool and hot tub based on these findings per standard Department of Health protocols.

On October 22nd, the OCHD Epidemiology Program learned that the initially reported 33-year-old woman had also visited the same fitness club during the two weeks prior to her illness onset. Her exposures included both the hot tub and shower facilities. As a result of this new information, indicating a potential cluster of two or more similar illnesses linked to a common source, the OCHD Epidemiology Program initiated an investigation. Based on the environmental assessment and epidemiological data, environmental samples were collected from the hot tub and women's showers at Fitness Club A on October 23rd. Samples included both swabs and water from the hot tub and swabs from the interior of the shower heads in the women's showers. Only the women's showers were sampled because all cases occurred in women at the facility. All environmental samples obtained from Fitness Club A collected on October 23rd were culture negative for *Legionella pneumophila*. It should be noted that the chlorine reading of the samples upon arrival at the laboratory on October 29th was between 0.2-0.3 ppm which could indicate some remaining bactericidal activity during sample transport.

One additional case was linked to Fitness Club A through active surveillance and through re-interviewing willing and accessible legionellosis cases reported January 1st to November 1st in Orange County. All three of the confirmed cases had underlying health conditions, making them more susceptible to Legionnaires' disease. The only common exposure among the three cases was visiting this facility during the 14 days prior to their reported illness onset. Exposure occurred between June 11 and September 26, 2008 and included both the hot tub and the women's showers. No common community exposures outside Fitness Club A were identified among the patients.

Environmental inspection observations at the fitness club hot tub indicated conditions that could possibly support biofilm production and the harboring of *Legionella* bacteria. Maintenance logs indicated chlorine levels below 2 ppm intermittently (five days) during September 2008. The October 14th inspection also showed inadequate disinfection and pH levels. There was no record of routine scrubbing or supershocking of the hot tub. The improper use of the required two filters for the hot tub created a condition where a large volume of water was passing through an insufficiently sized filter. The temperature of the hot water heater supplying water to the showerheads was not available. This information, along with the epidemiologic information gained from interviews with the confirmed cases, implicates Fitness Club A as the source for each case's infection. The negative laboratory results on the environmental specimens could have been due to many factors including: laboratory error; sampling error; organism not present in detectable quantities for methods used; or the organism not present at time of sampling.

***Legionella* Positive Environmental Samples from a Hot Tub at a Local Resort Hotel, Orange County, December 2008**

The Florida Department of Health was notified on December 4, 2008 by the Centers for Disease Control and Prevention (CDC) of a confirmed case of Legionnaires' disease in a 60-year-old man who was a resident of England. Initial information provided by the CDC indicated that the patient's onset date was November 23, 2008 and he stayed at Hotel A in Orlando, Florida from October 20th through November 13th. Hotel A's hot tub was epidemiologically implicated as a source for five cases of Legionnaires' disease in March of 2008 (see previous summary). All available case information was forward to the Orange County Health Department (OCHD) on December 4th for surveillance and investigation.

Environmental samples were collected by OCHD at Hotel A, including samples from the hot tub implicated in the previous outbreak. Laboratory tests on the samples collected from the hot tub were positive for *Legionella pneumophila* serogroup 1. The finding of *Legionella pneumophila* serogroup 1 in a hot tub indicates chronically low disinfection levels and insufficient maintenance practices to ensure prevention of the spread of communicable diseases. The previous documented history of sanitation deficiencies and a previous outbreak of five cases of Legionnaires' disease linked to exposure to the hot tub at Hotel A indicates a continual pattern of improper maintenance and adherence to appropriate sanitation procedures. The OCHD closed the hot tub at Hotel A on December 5, 2008. It will remain closed until specified revisions are made to the hot tub that will ensure proper operation and sanitation, and therefore reduce the risk of the public acquiring a communicable disease.

Additional resources:

Eisenstein L, Bodager D, "Outbreak of Legionellosis Associated with Exposure to a Hotel Outdoor Hot Tub, Orange County, Florida, March 2008", *Florida Journal of Environmental Health*, Fall, 2008, Issue 200, p.14-19.

Listeriosis

Listeriosis Case with Fetal Demise, Volusia County, May 2008

In May 2008, the Volusia County Health Department investigated two laboratory confirmed cases of listeriosis. The index case was a 37-year-old woman, who was 27 weeks pregnant when a decrease in fetal movement and severe fetal tachycardia necessitated a C-section. The infant was delivered and expired within a week after birth. Cultures taken of maternal uterine tissue and the infant's blood were positive for *Listeria monocytogenes*. These laboratory results were confirmed by the Bureau of Laboratories-Jacksonville.

The patient was interviewed and a four week food history and social history was acquired. There was no history of travel or animal contact, except for two healthy household dogs. The woman did report eating out frequently, three to four times a week during the time period surveyed. Various restaurants and take out foods were consumed by the woman, including cold cuts eaten frequently in salads and sandwiches. A definitive food source was not identified.

Additional resources

http://www.cdc.gov/nczved/dfbmd/disease_listing/listeriosis_gi.html

http://www.fsis.usda.gov/Fact_Sheets/Listeria_monocytogenes/index.asp

Listeria monocytogenes in an Infant, Palm Beach County, October 2008

On October 27, 2008, Palm Beach County Health Department's Epidemiology and Disease Control Program was notified by a local hospital's infection control department of a positive blood culture for *Listeria monocytogenes* in a three-day-old infant. This baby was born three weeks early as a twin via a C-section. Because the babies were born early, as protocol, a "blood screen" was conducted. Both the mother and the other twin cultured negative for *Listeria*. Upon further investigation, it was found that on October 3rd the mother developed a stuffy nose and cold-like symptoms. On October 8th, she developed a low grade fever at which time her doctor put her on a Z-pak (azithromycin). The mother stated that her fever never really went away until after she delivered. The baby was born with poor tone, poor respiratory effort, and was intubated. The baby had a scattered exanthema on her torso and extremities, and was placed on ampicillin, gentamicin, and acyclovir. Upon interview with the mother, it was found that during the month prior to onset she consumed one Italian deli sandwich from an establishment, some boiled shrimp from another establishment, and a lot of fresh salads and raw vegetables throughout the pregnancy. During the month prior to onset, the mother did not consume any hotdogs, soft cheeses, unpasteurized products, or refrigerated smoked seafood. On October 31st, the Florida Department

of Agriculture tested 13 samples from the Italian deli/market where six of the family members ate approximately one month earlier. All samples tested negative for *Listeria*. No definitive source for the infection was identified. The infant recovered from the illness.

Measles

Confirmed Case of Measles in a Traveler, Sarasota County, December 2008

On December 15th, a probable case of measles was reported to the Sarasota County Health Department (SCHD). The case, a 14-year-old traveler from England, had onset of headache and mild cough on December 13th immediately before beginning a family trip to Florida. The family arrived in Tampa on December 13th and flight information was forwarded to the Bureau of Immunization to notify the Centers for Disease Control and Prevention. On December 14th, a fever of approximately 102° F was measured and a rash appeared on the child's chest and legs. The father immediately suspected measles, as he was aware of an ongoing outbreak at the child's boarding school in England. The child was taken to a walk-in clinic that same day, where the father informed the clinic of his suspicion of measles. The child was isolated in the car until the exam and wore a mask when taken through the clinic. The doctor did not order any diagnostic tests and diagnosed the child with acute bronchitis/pharyngitis. The child was prescribed a Z-pack (azithromycin) and pain medication. After consulting the physician at the child's school in England, the father called the SCHD immunization clinic to inquire about obtaining the MMR vaccination for the family. This call triggered the epidemiologic investigation, as SCHD was not informed by the clinic physician of the family's suspicion of measles.

On December 15th, the rash was covering most of the child's body and was characteristic of measles based on pictures examined by SCHD nurses. As of December 15th, symptoms included dry heavy cough, fever, generalized aches/pains, sore eyes, and generalized rash. All three household contacts had incomplete vaccination history with no history of disease. The father (no history of vaccine/disease) was administered immunoglobulin (IG) on December 15th, and the mother and sibling (history of a single vaccination) were administered IG on the 16th, because additional IG had to be ordered. Measles vaccination will be sought by the group in five months.

Blood and urine specimens obtained from the case were tested for measles and rubella IgG/IgM. Results were positive for measles IgM. The activities of the case were limited to the airport, hotel, and doctor's office. The doctor at the walk-in clinic received MMR vaccination on the 17th due to unknown immunity.

On December 18th and 19th a measles advisory was sent to local emergency departments, walk-in clinics, pediatricians, and primary care physicians to notify them of the case and the possibility of secondary cases presenting from December 20th to January 4th. No secondary cases were detected.

Meningococcal Disease

Fatal Meningococcal Disease Case, Sarasota County, March 2008

On Saturday, March 29th, the Sarasota County Health Department (SCHD) received a report of a confirmed case of meningococcal meningitis in a 68-year-old woman. She presented to the emergency department (ED) on Thursday, March 27th, with a chief complaint of confusion and weakness. The physicians noted a rapidly progressing illness with fever, multiple petechiae, a purpuric rash on face/legs/chest/arms, hemoptysis, and disseminated intravascular coagulopathy. The patient required intubation in the ED. The gram stain was initially reported as gram positive cocci, but was corrected to gram negative diplococci after admission. Cerebrospinal fluid (CSF) and blood cultures were positive for *Neisseria meningitidis* on March 29th. This initiated a report from the hospital laboratory to the Bureau of

Epidemiology on-call epidemiologist, who notified SCHD via the 24/7 contact line.

The case's infectious disease physician was contacted and she agreed to prophylax the case's husband and notify him of the diagnosis. The husband was also contacted by SCHD to determine the case's other close contacts. Three close family contacts that visited the prior week, and were now home in Indiana, were contacted and agreed to seek prophylaxis from their family physician. No other at-risk contacts were identified by SCHD. The hospital ED provided prophylaxis to eight contacts (five ED staff, three paramedics/firefighters) that they considered to be at risk. The woman died on March 30th.

Meningococcal Disease in a Daycare Center, Miami-Dade County, May 2008

On May 17, 2008, the Miami-Dade County Health Department (MDCHD) after-hours nurse on-call received a report of a laboratory result positive for meningococcal meningitis (*Neisseria meningitidis*). The patient was a two-year-old boy seen in the emergency department (ED) on May 12th for abdominal pain and discharged home. On May 15th, the child had the following symptoms: cough, fever, rash, lethargy, nausea, and vomiting. On that date, the child was taken once again to the ED by his parents and preliminary tests (CSF cultures) were done and the child was admitted. On May 16th, the hospital laboratory reported gram positive cocci from the CSF and the child was transferred to the pediatric intensive care unit. On May 17th, the preliminary result was re-evaluated by another laboratory team and found to be gram negative diplococci. On May 20th, the Bureau of Laboratories identified and confirmed the CSF isolates as *Neisseria meningitidis*, Group B. Household contacts, including well siblings, were prophylaxed and other close contacts were identified. The child's mother reported being pregnant and in good condition. She was referred to her obstetrician where she received prophylaxis. A parent letter was provided to the daycare on May 19th.

On May 20th, an Epidemiology and Pharmacy team from the MDCHD went to the child's daycare to educate and distribute prophylaxis to the close contacts. A total of 40 close contacts from the daycare center received prophylaxis (Rifampin). There was no travel history and no known ill close contacts reported. The child was admitted at the hospital for one week and was subsequently discharged home on May 27th.

Probable Meningococcal Meningitis in an Airline Passenger, Palm Beach County, May 2008

On May 21, 2008, the Palm Beach County Health Department (PBCHD) was notified by the infection control practitioner (ICP) at a local hospital of a case of suspected bacterial meningitis. The patient was a 41-year-old woman, with a history of headache, backache, and fever for three days. She traveled by air from London to West Palm Beach with a transfer in Philadelphia the day prior to hospital admission.

Initial laboratory results showed cerebral spinal fluid (CSF) that was cloudy, with elevated protein, white blood cells, and decreased glucose. No organisms were seen on the gram stain and culture results were still pending. According to the ICP the patient had received Rocephin 1 gram IV about two hours prior to the lumbar puncture. The attending physician felt the case fit the profile of bacterial meningitis and started treatment prior to obtaining the specimen for culture and gram stain. PBCHD notified the regional epidemiologist and the Centers for Disease Control and Prevention Miami Quarantine Station. The case was discussed with the Miami Quarantine Station staff and a decision was made to wait for results of the CSF culture before making a decision to prophylax any of the other passengers on her flight.

Culture results on May 22nd showed no growth after 24 hours. It was thought that the Rocephin given before the CSF collection could provide a false negative result. After further discussion with the Miami Quarantine Station, the patient was contacted for specific information regarding her seat location on the flight from London to Philadelphia, which was an 8.5 hour flight. The second portion of the flight was from Philadelphia to West Palm Beach did not meet the threshold of a flight lasting over eight hours and so was not likely to put passengers at risk for contracting disease. The initial report from the airline showed no one was assigned to the seat next to her on the London to Philadelphia leg of her flight. However, when interviewed, she identified that she had changed seats at the beginning of the flight and sat next

to another couple for the entire flight. The Miami Quarantine Station decided to recommend prophylaxis for the couple sitting next to her and worked with the airline, the Philadelphia Quarantine Station, and the local health department to contact them. PBCHD recommended prophylaxis to the patient's household and family contacts here and in London.

Mycobacterium abscessus

***Mycobacterium abscessus* Infections Associated with Epidural Injection at a Pain Clinic, Lee County, February 2008**

In February 2008, the Lee County Health Department (LCHD) was notified by a concerned infectious disease physician about a possible cluster of *Mycobacterium abscessus* infections associated with epidural injections administered by a local pain center. The LCHD and Bureau of Epidemiology investigation that followed identified a total of five laboratory confirmed cases and two probable cases of *M. abscessus* infection that had received epidural injections at a single pain clinic. A review of records identified two consecutive days in December 2007 when the five culture-confirmed patients were given epidural injections. The five patients developed infections at the site of the injection 20 to 81 days post injection. Molecular laboratory analysis by the Bureau of Laboratories-Jacksonville and the Centers for Disease Control and Prevention (CDC) confirmed the strains were identical by pulse-field gel electrophoresis (PFGE). In order to exclude contaminated drugs at the manufacturer level, the United States Food and Drug Administration (FDA), the CDC, and a pharmaceutical company were contacted to determine if there were similar outbreaks reported in other parts of the United States; none were reported. A review of injection practices revealed that the clinic was using vials of medications that did not contain preservatives and that they were using single use vials on multiple patients. While it is unknown how the *M. abscessus* was introduced into the clinic practice, breaks in standard infection control appear to have contributed to the transmission of the infection to multiple patients.

Norovirus

Norovirus Outbreak Associated with a Swim Team, Broward County, April 2008

In April 2008, the Broward Regional Environmental Epidemiologist received a report regarding a possible foodborne disease outbreak among members of swim team from Michigan who were in Florida for a competition. A retrospective cohort study was performed by the Broward Regional Environmental Epidemiologist and the Broward County Health Department Epidemiology Team. Fifteen of the 27 swim team members met the case definition for the outbreak and all 27 members were interviewed. Clinical samples were received from one of the ill swim team members as well as an ill food-worker at the hotel restaurant and were submitted for analysis to the Bureau of Laboratories. The Bureau of Laboratories-Tampa detected Norovirus G2 in both samples. Gene-sequencing was performed on both samples to determine the virus strain. Results from these sequencing studies demonstrated that the food-worker and the swim team member had the same virus strain.

Multiple statistically significant food and water items were found in the epidemiological analysis; however the food/water source of the outbreak could not be determined. It was noted in the environmental investigation that the conditions in the restaurant that catered the swim team's meals were favorable for a food-worker to contaminate a ready-to-eat food item or beverage (such as water) with Norovirus via bare hand contact. The only common source that the swim team and the food-worker had in common was the hotel restaurant; but it is uncertain if this food-worker was the source of the illnesses since the date of onset for this employee did not occur prior to that of the swim team members. No additional reports of illness were received from other guests staying at the hotel.

Norovirus Illness in Individuals Attending a School Field Trip to Washington, D.C., Duval County, October 2008

The Florida Department of Health was notified on October 30, 2008 of a middle school group from Duval County that became ill during their annual Washington, D.C. field trip. The group (36 children and four adult chaperones) arrived in the Maryland/D.C. area on October 26th. The index patient became ill with nausea and vomiting on October 29th. Subsequently, a total of 25 ill children and three adults were evaluated in the emergency department of Children's Hospital in D.C. The District of Columbia Epidemiology Program was notified and a team was deployed to the hospital to interview the group. Initial symptomology suggested a viral etiology; however, the District of Columbia Epidemiology Program was unable to obtain stool or vomitus specimens for identification of the pathogen.

The school group returned via bus to Jacksonville on the afternoon of October 31st, where it was met by Duval County Health Department (DCHD) Epidemiology staff and a regional epidemiologist. Information regarding viral gastroenteritis and stool specimen collection kits were distributed to parents. In addition, several questions were answered regarding illness, possibility of transmission, as well as personal and environmental hygiene concerns.

Seven sets of stools specimens (five students and two chaperones) were subsequently collected by DCHD Epidemiology staff for analysis by the Florida Department of Health, Bureau of Laboratories-Jacksonville. All seven specimens were reported as positive for Norovirus G1. The school engaged in enhanced environmental cleaning, and symptomatic students were excluded accordingly. No secondary illnesses were reported.

Since there was still some question regarding the etiology of this outbreak and the Maryland Department of Health and Mental Hygiene and D.C. epidemiologic investigation yielded no probable foodborne or environmental sources, the specimens were forwarded to CDC's National Calicivirus Laboratory along with recently collected specimens from other local community outbreaks. All specimens were confirmed as Norovirus G1.4. Considering that the Norovirus strain from the school trip matched recent local Duval County clusters, the possibility exists that this outbreak had a local etiology.

Norovirus Outbreaks at Healthcare Facilities, Sarasota County, October-November 2008

Beginning in October, the Sarasota County Health Department (SCHD) saw an increase in Norovirus activity in several healthcare facilities. A local hospital detected an increase in Norovirus illness among employees beginning October 6th through November 18th. A total of 44 employees reported symptoms of gastrointestinal illness. In addition, from October 5th through November 18th, there were 18 nosocomial cases, and five suspected cases in visitors. Fifteen stool specimens from patients were sent to the Bureau of Laboratories-Tampa and were positive for Norovirus G2. Control measures included: exclusion of symptomatic employees for 48 hours after symptom resolution; the use of 1:10 bleach solution for cleaning of high touch/contaminated surfaces and during terminal cleaning of all patient rooms; contact isolation for all suspected patient cases including using masks when around symptomatic persons or cleaning; and placing notices at hospital entrances.

On November 12th, a Sarasota County nursing home reported 15 cases of gastrointestinal (GI) illness with an onset of November 11th. The investigation revealed no ill kitchen staff, and an investigation of the kitchen found the kitchen was satisfactory. Through November 24th there were 68 resident cases, resulting in a 69% attack rate among the 98 residents. There was one resident death associated with this GI outbreak. Additionally, there were 38 staff cases, for an attack rate of 28% among the 135 staff. The pathogen was confirmed to be Norovirus G2 by the Bureau of Laboratories-Tampa. Control measure included: use of 1:20-1:50 bleach cleaning of high touch/contaminated surfaces; exclusion of ill staff for 48 hours after resolution of symptoms; cancellation of activities, visitation, and admissions; emphasis on soap and water hand hygiene; and use of contact precautions with masks when necessary. It was discovered that on November 3rd a case-patient was transferred to this nursing home from the hospital

described above for rehabilitation. The facility resumed allowing visitors and admissions on November 26th, with notices posted about the increase in GI illness and the need to maintain good hand hygiene.

Norovirus Outbreaks in Four Long-Term Care Facilities, Charlotte County, December 2008

On December 5, 2008, the Charlotte County Health Department (CCHD) was notified by infection control staff at a local hospital about a cluster of gastrointestinal (GI) illnesses. Six residents from a long-term care facility (LTCF) were seen in the emergency department with symptoms of nausea, vomiting, and diarrhea. Subsequently, three similar outbreaks at LTCF's were reported over the next two weeks. CCHD Epidemiology and Environmental Health staff conducted joint investigations at all four facilities. Infection control measures were implemented immediately and active surveillance was initiated. In total, 135 cases of GI illness were associated with these outbreaks. Onset of illness ranged from November 29–December 17. Stool specimens collected from three facilities tested positive for Norovirus G2. The fourth facility was unable to collect specimens for testing, but symptomology was consistent with Norovirus.

No epidemiological link was identified between the four facilities. Data collected from the investigation indicate person-to-person transmission rather than a common source of infection. Given the hardy nature of this virus and its high infectivity, the organism was easily spread throughout these facilities. The source of introduction of virus into these facilities remains unknown.

Pertussis

Pertussis in an Unvaccinated Cohort, Clay County, October 2008

In October 2008, the Clay County Health Department (CCHD) investigated pertussis cases in an unvaccinated family cohort. The family members included five children and two adults (parents). The mother called the health department to report the children had been seen by their family pediatrician with four out of five children being symptomatic. Symptoms included: persistent cough (4); paroxysmal cough (4); whoop (2); posttussive vomiting (3); stridor (2); and facial flushing (4). All five children were tested by PCR for presence of *Bordetella pertussis*, three tests were positive, one negative, and one indeterminate. The investigation revealed the children were home schooled and not vaccinated. Investigation also revealed a total of eight close contacts. Three of these contacts were family, the parents and an asymptomatic sibling. The other five contacts were neighborhood children who played with the cohort. The benefits of vaccinations and possible side effects were discussed with mother in great detail but she refused vaccinations for her children. The CCHD took this opportunity to send out a press release regarding pertussis and CDC recommendations for Tdap immunizations. The CCHD and local hospital also took this opportunity to offer Tdap vaccines to employees. Currently, the local hospital has implemented a mandatory Tdap immunization policy for its employees.

For more information about this investigation please visit

Scoggins, K., "Pertussis in an Unvaccinated Cohort in Clay County," *Epi Update*, 2008; December, http://www.doh.state.fl.us/Disease_ctrl/epi/Epi_Updates/2008/December2008EpiUpdate.pdf

Rabies

Rabid Horse, Glades County, January 2008

In January 2008, the Glades County Health Department (CHD) received a report of a horse that had become ill, aggressive, showed signs of paralysis, and died within 24 hours of exhibiting symptoms. A local veterinarian recognized this as possible rabies and referred the family to the Highlands CHD. Due to the coordinated efforts of the Highlands CHD, the Glades CHD, and under the guidance of the Florida

Bureau of Environmental Public Health Medicine, exposed contacts (including the owner who had been attacked and bitten by the horse) were promptly identified and rabies post-exposure prophylaxis (PEP) was initiated the same day.

The Florida Bureau of Laboratories (BOL) was consulted regarding the harvesting and transporting of the brain. Because no standard established protocols or resources were available to address decapitation or brain harvesting of a large animal, a local animal sanctuary was elicited to provide this service, assisted by the local animal control office. Glades CHD transported the specimen directly to the Bureau of Laboratories location in West Palm Beach who reported a positive Fluorescent Rabies Antibody test the next day.

Simultaneously, the Florida Department of Agriculture and Consumer Services was notified and an onsite inspection was conducted in conjunction with the Glades CHD Environmental Health office. None of the farm animals had been vaccinated against rabies. One other horse had been bitten by the rabid horse, but had been euthanized and buried under the direction of the local veterinarian. No other animals on the farm had been exposed.

The owner ultimately admitted ownership of a pet raccoon that he also had previously euthanized. All of the farm animals were vaccinated for rabies after this event. All six exposed human contacts completed the rabies PEP series. In August 2008, the BOL reported the Monoclonal test results as Raccoon A strain.

Rabid Raccoon, Clay County, June 2008

The Clay County Health Department (CCHD) received a positive rabies animal laboratory result on a raccoon via Merlin on June 19, 2008. Investigation revealed the baby raccoon was found in a neighboring county and brought into Clay County by that individual. The person who found and transported the raccoon operates a wolf sanctuary and could not keep the animal. The raccoon was given to a local individual who already had a pet raccoon and claimed to have a license for raccoon rehabilitation. Further investigation revealed that the individual did not possess a license. The baby raccoon became ill approximately three days after being found and was taken to a local veterinarian. The veterinarian immunized the raccoon against rabies and distemper. The raccoon was then sent home. Later in the evening, the raccoon started to have convulsions. It was taken to the local emergency veterinarian who immediately euthanized it. Arrangements were made to have the animal tested for rabies at the Bureau of Laboratories-Jacksonville; results were positive for rabies.

The exposures to this raccoon included kissing the raccoon, allowing the raccoon to bite and "gnaw" hands and forearms, and sleeping with the raccoon. The animal control personnel questioned the owners regarding the adult raccoon the individual also had as a pet. This adult raccoon was kept in a cage in the garage. The adult raccoon did not have contact with the baby raccoon. The Florida Fish and Wildlife Conservation Commission as well as Florida Department of Health public health veterinarians were notified about the presence of the adult raccoon. After consultation, it was determined that no further follow-up was needed for the adult raccoon. A total of eight people received rabies post-exposure prophylaxis. CCHD worked closely with the Naval Hospital in Jacksonville to get five of the exposed contacts the necessary rabies prophylaxis. One of the contacts had gone to New York. Prophylaxis for this contact was started in a New York emergency department and the local health department in New York was also notified. Post exposure prophylaxis was continued in Clay County upon the contact's return.

Partners included Clay County Animal Control, County Manager's office, the local hospitals, including the U.S. Naval Hospital Jacksonville, St. Johns County Health Department, the Florida Department of Health Division of Environmental Health, Florida Fish and Wildlife Conservation Commission and the local media.

For more information about this investigation please visit

Wolfe, C., "Rabid Raccoon in Clay County". *Epi Update*, 2008;July, http://www.doh.state.fl.us/disease_ctrl/epi/Epi_updates/2008/July2008EpiUpdate.pdf

Rabies Exposure Due to Contact with a Cat, Alachua County, July 2008

On July 24, 2008 the Alachua County Epidemiology office was notified by the county Environmental Health office of a positive rabies laboratory result on a cat. The investigation was started immediately. The owner of the cat lived in Gilchrist County and the cat was seen at an animal hospital in Alachua County. The owner of the cat was interviewed and indicated that the cat was a stray that came to their yard approximately a year ago and they started feeding it. The cat eventually became their pet. The cat was never vaccinated against rabies.

On July 15, 2008, the cat was seen at a local animal hospital for symptoms of a urinary tract infection. It was treated with antibiotics and was sent home. On July 18, 2008, the cat was seen again for a re-check visit at the same animal hospital. The condition of the cat was worsening. The cat was not eating nor drinking and still had urinary incontinence. According to the veterinarian, the cat was panting and showing intermittent aggressive behavior. Pain medication was prescribed and the cat was sent home. The cat died that same evening. Animal Services picked up the cat and on July 22nd Alachua County Environmental Health sent the specimen to the Bureau of Laboratories-Jacksonville for rabies testing and received the positive report on July 23rd.

There were 15 people exposed to the cat and they all received rabies post-exposure prophylaxis (PEP). The owner, the spouse, and mother-in-law lived in Gilchrist County and the Gilchrist County Health Department (CHD) coordinated their PEP. Twelve employees of the animal hospital received PEP as well. Eleven employees went to Alachua CHD and one employee went to Orange CHD.

PEP was not recommended for the Animal Services staff because the employee handled the cat with proper personal protective equipment (triple gloves, gown, mask, and goggles).

Rabies in a Kitten, Palm Beach County, July 2008

On Monday, July 28th, the Palm Beach County Health Department (PBCHD) received a laboratory report from the Bureau of Laboratories indicating a positive result of rabies on an eight-week-old kitten that died on July 26, 2008. Upon further investigation it was found that the stray kitten was rescued in early July. The kitten was nursed back to some degree of health at a private home for about two weeks before veterinary care was sought as it was not improving. The kitten was kept at this veterinary office for about one week during which time it scratched and/or bit 15 staff members. On July 26th, the kitten expired and was sent to the Bureau of Laboratories for rabies testing. Once the animal was found to be positive, PBCHD contacted all exposed individuals to coordinate post-exposure prophylaxis immediately. Some individuals were exposed as early as July 19th and one individual from the veterinary clinic was bitten on the face on July 20th. The exposed staff members were veterinary technicians and three receptionists and had not received rabies pre-exposure prophylaxis. The veterinarians were the only staff members that had received prior pre-exposure prophylaxis. More stray cats from the area where the kitten was found were trapped and tested by Animal Care and Control to assess if any other animals in the community were positive for rabies. All exposed individuals continued to receive treatment throughout the month.

Rabid Raccoon, Central Florida, August 2008

On August 22, 2008, the Orange County Health Department was notified by the Brevard County Emergency Operations Center in the aftermath of Hurricane Fay of a raccoon that tested positive for rabies at the Bureau of Laboratories-Tampa. The raccoon was submitted for testing by a veterinarian located in Orange County who delivered the specimen to the Animal Diagnostic Laboratory in Kissimmee. The "hairless" raccoon had been transported from a Seminole County dumpster to a wildlife rehabilitation facility in Orange County by the Fish and Wildlife Commission where it gave birth to two babies. The

raccoon broke through quarantine quarters and was attacked by other raccoons in the facility while in captivity. It was taken to a veterinarian after exhibiting symptoms of illness. The babies and all other raccoons in the facility were destroyed by animal services.

A total of 14 people received rabies post-exposure treatment due to their exposure to the rabid raccoon and/or its babies. Three people receiving treatment were from the veterinary clinic and used no personal protective equipment when handling the raccoon and its babies. Exposures included saliva contact to open wounds or cuts through examination of the oral cavity. Eleven people from the wildlife rehabilitation facility receiving treatment reported no use of personal protective equipment when handling the raccoon or its babies. Exposures included bites, scratches, and contact with saliva through open cuts. One of the wildlife rehabilitation workers took the baby raccoons home to feed and care for them, resulting in the exposure of a child.

Improved communications between Environmental Health and Animal Services and a revised policy is planned. This incident reinforces the importance of interagency collaboration and clear communications in achieving public health objectives. Another important observation is the impact that a natural disaster may have on usual public health practices.

Rash Illness, Un-Confirmed Etiologic Agent

Rash Investigation, Collier County, January 2008

In January 2008, the Collier County Health Department (CCHD) was notified by a medical provider of a pruritic rash illness among employees at a local pet store. The rash was located on the trunk, arms, and neck of symptomatic persons, and one employee also had rash on his legs. Skin scrapings and punch biopsies were negative for mites and scabies and serum cholinesterase results were within normal limits. Employees were diagnosed with irregular dermatitis and symptomatic persons were treated with steroid medication.

The CCHD Epidemiology program conducted interviews with symptomatic and asymptomatic employees, and an onsite inspection of the facility was also conducted. None of the employees that worked in the veterinary clinic or the grooming area were symptomatic. This area is physically separated from the retail area of the store where the symptomatic employees worked. The results of a private air quality inspection completed on February 7th indicated that mold (*Stachybotrys*) was found on the floor of one room, in air samples from the same room, and on the air conditioning plenums. Samples of new food products, live plants, and animal products used in the store (litter, bedding, food) were tested by a consulting parasitologist. The samples tested negative for mites and other organisms. The animals in the store were examined by a veterinarian and none showed signs of illness.

On February 20th, CCHD Epidemiology staff, a Department of Health Environmental Health Specialist, and private consultants conducted a joint inspection of the facility. Findings revealed several areas for improvement. Recommendations were made to dispose of all dog food infested with mites, sanitize and thoroughly clean the air conditioning system, including the air handler, and perform deep cleaning of the entire facility. The recommended cleaning was done, and employees' symptoms resolved. To date no etiologic agent for the rashes had been identified.

Salmonellosis

Salmonellosis in Children Associated with Pet Reptiles, Palm Beach County, September 2008

The Palm Beach County Health Department had three reported cases of salmonellosis in children related to exposure to reptiles in the home during the month of September. The first case was in a 16-month-old child. Her onset of illness was September 15th when she developed a fever of 105°F. *Salmonella* was cultured from a urine specimen. The family had a pet turtle in the home at the time of the child's illness, but removed it after being counseled by their physician.

The second case was in a five-year-old child. He developed abdominal pain and diarrhea on September 25th. He was seen that day by his physician and a stool specimen was obtained. The stool specimen was cultured and was positive for *Salmonella* serogroup B. This family also had a pet turtle at the time of the child's illness but removed it after being counseled by the family physician.

The third case was in an 11-week-old infant. He had developed diarrhea and a fever on September 26th. He was admitted to a hospital where *Salmonella* was identified from a blood culture. He was treated with several antibiotics. At the time of his illness the family had an iguana in the house as a pet. The iguana was removed after discussion with hospital staff.

None of these children attended daycare or had exposure to any individuals with known gastrointestinal illness. The families denied eating in any restaurants during the incubation periods, or exposure to raw or undercooked food or poultry.

Additional resources

King D, Stanley G, "Salmonella and Reptiles", *One Health Newsletter*, 2009, Winter. Available online at: http://www.doh.state.fl.us/Environment/medicine/One_Health/OHNLwinter09.pdf

Selenium Poisoning

Investigation of Excess Selenium in a Nutritional Supplement

On Friday, March 21, 2008, the Florida Department of Health (FDOH) Food and Waterborne Disease Program was contacted by the Florida Poison Information Center (FPIC). The FPIC had been notified by the United States Food and Drug Administration (FDA) that the Washington County Health Department had received a report from a local health care provider that several people had become ill after consuming a nutritional supplement called Total Body Formula. Symptoms included unusual hair loss, discoloration of finger nails, muscle cramps, and blisters on the tongue and lips. An investigation of the complaint was launched on Monday, March 24, 2008 by the Northwest Florida Regional Environmental Epidemiologist and a Council of State and Territorial Epidemiologists Fellow assigned to FDOH.

Florida had a total of 64 reported confirmed or probable cases of selenosis in 12 counties attributed to the consumption of the tainted nutritional supplement. Over 90% of the cases lived in Washington County or in counties adjacent to Washington County. Ill people who were distant from Washington County were primarily internet or mail order purchasers. The age of the cases ranged from 2 to 93 years of age and 69% were female. Symptoms reported were joint pain (85%), unusual hair loss (70%), diarrhea (70%), nausea (61%), fatigue (59%), discolored nails (56%), headache (42%), tingling in arms or legs (39%), vomiting (25%), and fever (17%). Private laboratory results, as well as FDA laboratory results, confirmed that excessive amounts of selenium had been introduced into the products consumed by the individuals experiencing symptoms of selenium poisoning (selenosis). There was a national recall of the implicated product and the manufacturing company no longer maintained a website. There were legal issues surrounding the product and company which were ongoing as of the end of 2008.

Staphylococcus aureus

***Staphylococcus aureus* Outbreak in a Pain Management Facility, Leon County, March 2008**

On March 24, 2008, the Bureau of Epidemiology was contacted by a physician in Leon County, Florida regarding an observed increase in invasive staphylococcal infections, including bacteremia and epidural abscesses, in individuals recently treated at the physician's free-standing pain management clinic. At the time of report, eight individuals were hospitalized for related illnesses, and the report was referred to the Leon County Health Department (LCHD). On the afternoon of March 24th, LCHD performed a site visit and walk-through at the clinic. Thirty-three environmental specimens were collected at that time including opened vials of injectable medications that were currently in use. Interviews with staff were also conducted and it was determined that the clinic had not seen patients since March 20th, and that the physician had voluntarily closed the clinic to procedures after identifying the increase in illnesses.

All patients receiving injection procedures during March 2008 were interviewed by LCHD staff. Ninety-seven people had injection procedures in the month of March, and twenty-four of those people were identified as cases. The cases either had parameningeal syndrome, epidural abscess, or septicemia. Sixteen patient specimens were available and were forwarded to the Bureau of Laboratories-Jacksonville. All patient specimens were positive for *Staphylococcus aureus* and were indistinguishable by pulse-field gel electrophoresis. Of the 33 environmental specimens that were tested, two were positive for bacterial contamination. One open vial of Omnipaque was contaminated with *S. aureus*, but this was not the same strain that was isolated from the patients. The other open vial of Omnipaque grew another bacterium, which was not *S. aureus*. Upon identification of bacterial growth in open vials of Omnipaque, two unopened vials from the same lot were sent to the Centers for Disease Control and Prevention in Atlanta, Georgia, for sterility testing. Sterility testing was completed on April 24, 2008, and the unopened vials of medication were not found to have any bacterial contamination. There were eight nasal cultures obtained from clinic employees. Two of the eight were positive for two different strains of *S. aureus*. Neither of these strains matched the strains isolated from the patients or the *S. aureus*-positive bottle of Omnipaque.

All of the ill individuals were treated in only one of the two procedure rooms, but all of the medications and equipment had been removed from the rooms prior to the LCHD site visit on March 24th. The initial walk-through of the clinic and subsequent interviews with current and former employees revealed several breaches in infection control practices. Among these were: the failure to use masks during medication set-up or pain management procedures, inconsistent usage of gloves when handling open bottles of injectable medications, and the use of single dose vials with no preservative as multidose vials over multiple days without refrigeration. In addition, combining opened vials of the same type of medication together was reported.

This outbreak illustrates the need for continued vigilance in outpatient procedure infection control. Also illustrated is the need for tighter regulatory requirements on physician-licensed outpatient procedure clinics.

Methicillin-Resistant *Staphylococcus aureus* Death, Osceola County, October 2008

The Osceola County Department's (OCHD) Epidemiology Program received a call on September 29th, 2008 from a school nurse regarding the possible death of an 18-year-old student football player over the weekend due to bacterial meningitis. OCHD was able to verify that the individual was evaluated by the emergency department (ED) on the evening of September 26th for lower back spasms. At the ED, the patient was treated with prescription pain medicines (Toradol and Norflex) and sent home. The patient had a rigorous practice and a game earlier in the week, consequently, the ED presumed that the pain was due to a football-associated injury. Within hours following the ED visit, the patient developed a rash and was given Benadryl at home by his mother.

On September 27th at 4:00 a.m., the patient returned to the ED with a diffuse rash and complaining of shortness of breath. The initial impression by the ED was that the patient was having an adverse reaction to the prescription pain medicines. Upon examination, the patient had a fever of 102°F and was malaised. Additional Benadryl was administered. While the rash improved, the patient's status did not. Blood and sputum samples were collected. Due to shortness of breath, a chest tube was inserted. The blood and sputum samples came back positive for methicillin-resistant *Staphylococcus aureus* (MRSA), and the patient was treated with Gentamicin and Zyvox. The patient's condition continued to deteriorate. On the evening of September 28th, the patient expired due to septic shock.

On October 9th, a second student at the same high school had a wound that cultured positive for MRSA. Several more students from the high school were either seen at, or admitted to, local hospitals with a diagnosis that included MRSA exposures.

A site visit was conducted at the school by OCHD on October 1, 2008. During the site visit, the school informed OCHD that no other students were reported to have had skin infections. A MRSA fact sheet was drafted by OCHD and was distributed to all students at the high school on September 30th. A letter was also sent out on October 10th, informing the families of the second MRSA case at the school.

In addition to the letters, the school decided to host three question and answer sessions at the school in which the OCHD Medical Director, Environmental Health Director, Epidemiologist, and the school's sports physician were available to answer questions from concerned parents.

In order to avoid the potential transmission of MRSA in schools, the OCHD recommended that the school clean all shared sports and weight room equipment after each individual's use. The locker rooms should be cleaned daily, using the appropriate cleaner according to the manufacturer's instructions. Coaches were also recommended to check for skin infections on all contact and non-contact sports players before, during, and after practices and games in order to avoid potential MRSA transmission during sporting events. OCHD has also recommended that any student participating in contact sports, who has a wound or skin abrasion, should not participate until given clearance by a physician. The school has expanded their cleaning procedures to include all shared sports equipment.

Additional resources

The Centers for Disease Control and Preventions/National MRSA Education Initiative. (2008, September 11). *MRSA*. Retrieved October 8th, 2008, from <http://www.cdc.gov/mrsa/>.

A Community-Associated *Staphylococcus aureus* Death, Hillsborough County, October 2008

On October 1, 2008, the Hillsborough County Medical Examiner's office reported the death of a man in his late twenties from methicillin-sensitive *Staphylococcus aureus*. Pulse-field gel electrophoresis (PFGE) analysis determined that three isolates from different body tissues of the case (brain and both lungs) all had the same DNA fingerprint. The strain was similar but not identical to the USA 300 strain, a strain that has been implicated in previous community-associated MRSA deaths. The deceased had a history of drug use which included the use of intravenous needles. It was unknown as to whether the deceased had any hospital or healthcare exposures within the year before his death. This case was classified as a community-associated *Staphylococcus aureus* death.

Note: Deaths due to community-associated *Staphylococcus aureus* were made reportable in November 2008.

Typhoid Fever

Typhoid Fever in South Florida, Fall 2008

On September 3, 2008, the Palm Beach County Health Department Epidemiology Program reported that they were investigating two cases of typhoid fever, which the Bureau of Laboratories confirmed as cases of *Salmonella enterica* serovar Typhi (serovar Typhi) with indistinguishable patterns on pulse-field gel electrophoresis (PFGE). The infected persons were adolescents who were part of a 50-person church group that traveled to Haiti from June 15th to July 5th, 2008. The group traveled to the Port-au-Prince area, but also traveled outside of the city as well. No specific exposures were identified.

Subsequently, a review of in-depth surveillance data during the weekly Bureau of Epidemiology (BOE) surveillance meeting on October 1, 2008 revealed an unusually high number of typhoid fever cases (N = 5) for the preceding 12 weeks. This included the two cases detailed above, as well as a sporadic imported case in an 18-year-old woman from Palm Beach County who had traveled to Haiti with an onset of September 12, 2008; a sporadic imported case in a 10-year-old boy from Miami-Dade County who traveled to Bangladesh with an onset of symptoms on July 30, 2008; and a sporadic imported case in a 12-year-old boy from Clay County who had recently traveled to the Bahamas and Haiti with an onset of symptoms around August 5, 2008. Both were confirmed by the Bureau of Laboratories-Jacksonville as serovar Typhi. To further examine any possible relationships between the cases, a request was made to the Bureau of Laboratories-Jacksonville for the PFGE profiles of the serovar Typhi cases. Of the 12 cases of serovar Typhi reported as of October 2008, two clusters of identical PFGE patterns were noted. The first cluster of two cases in January 2008 was previously noted by epidemiologists at the BOE and likely represents exposure through travel to endemic regions of Pakistan and Bangladesh. The second cluster of three cases in August 2008 included the two adolescents from Palm Beach County with travel to Haiti that were known to be linked, as well as a 22-month-old girl from Broward County who was originally determined to be a sporadic case from the United States. Further follow-up investigation with the girl's family revealed she had traveled to Haiti May 3-18, 2008 before becoming ill on June 10, 2008. One month after the initial cluster with travel to Haiti was identified, a fourth serovar Typhi case also was linked by PFGE pattern. A 12-year-old boy from Palm Beach County was sent to live with relatives in Haiti from February 2008 through September 25, 2008. After returning to live with his family in Palm Beach, he presented to a local hospital on October 9, 2008 with fever, vomiting, diarrhea, and abdominal pain. He was admitted and treated for typhoid fever over the next two weeks. Subsequent PFGE typing at the Bureau of Laboratories-Jacksonville on October 31, 2008 revealed an identical pattern to the three cases found in August. Further investigation revealed the boy resided in the St. Marc's area while in Haiti, consistent with the likely exposures of the other individuals who had the same PFGE pattern.

For more information about this investigation please visit

King, D., et al. "A Tale of Typhoid in South Florida," *Epi Update*, 2008; November, http://www.doh.state.fl.us/disease_ctrl/epi/Epi_Updates/2008/November2008EpiUpdate.pdf

Unexplained Illnesses

Illness of Unknown Etiology Among Airline Passengers, Broward County, March 2008

In March 2008, the Broward County Health Department was notified about a plane diversion to the Hollywood/Fort Lauderdale International Airport due to a toxin-like illness reported by several passengers. Upon landing in Broward County, they were transported to a local hospital emergency department in Hollywood, FL. The eight passengers taken to the hospital were part of a larger group of 11 (nine family members, two friends) traveling back home to Alberta, Canada from the Dominican Republic. One of the group members reported developing symptoms (emotional lability, confusion, disorientation, dilated pupils, muscle twitching, sweating, dizziness, lightheadedness, dry mouth, and shortness of breath) prior

to leaving the Dominican Republic resort while the rest of the cases did not begin experiencing symptoms until they were on the plane flying home. Symptoms reported were of varying degrees of severity with the initial cases reporting the most intense symptoms and longer durations. All symptomatic people were seated closely together on the plane, either next to each other or within one row. The only common exposure reported was skin contact with a symptomatic person while consoling them.

Clinical samples were obtained and tested at the hospital for five of the cases of which three were positive for *Cannabis*. These people reported smoking marijuana regularly; however, they reported smoking marijuana only one time while in the Dominican Republic. They denied taking any other illicit substances while on the trip. These were also the first three to report symptoms and were sitting next to each other on the plane. Additional toxicological tests were completed by the Broward Medical Examiners Office including a comprehensive drug panel, GHB, ketamine, methamphetamine analogues, and serum cholinesterase. Results for these additional tests were negative. The source of the illnesses was unable to be determined. It was hypothesized that some of group members may have been exposed to or taken an illicit/toxic substance. However, the other group members with less intense symptoms were possibly sympathetic or psychogenic in nature.

Varicella

Varicella Cluster at a Local University, Miami-Dade County, October 2008

On September 29, 2008, Miami-Dade County Health Department, Office of Epidemiology and Disease Control (OEDC) was notified by the Bureau of Epidemiology of a physician who wanted to know if a student with varicella could eat in the dining hall and go to class. The physician mentioned an additional student with varicella but did not mention any linkage among the two cases. The physician was not aware this was a reportable disease. OEDC recommended isolation of the student until all lesions were crusted.

On October 1st, OEDC received a report from the University Student Health Center of three additional cases of varicella. Initial interviews indicated all five were linked to the biology department. A recommendation letter was faxed to the University Health Center indicating the need for students/staff to receive the second dose of the vaccine and isolate all cases. On October 6th, OEDC investigators visited the biology department and toured through the students' desks and laboratory. Cases 1 (onset 7/18/08), 2 (onset 7/25/08), 3 (onset 9/4/08), and 4 (9/27/08) had close contact with each other. Case 5 (onset 9/27/08) was a music major undergraduate student who was taking biology class and laboratory, as well as four classes in the music department. No direct linkage was established to the other four cases. Only one of the five cases had documentation of the varicella vaccine.

Varicella information and notification of the cluster was posted on the Student Health Center website with links to the CDC; information flyers were placed under student doors where the undergraduate resided; a physician spoke at a biology lecture informing the students of prevention and control measures; and information was published in the school newspaper.

Vibrio Infections

An Imported Case of *Vibrio alginolyticus*, Hillsborough County, August 2008

In late August of 2008, The Hillsborough County Health Department investigated and reported a case of *Vibrio alginolyticus* in a 10-year-old girl. This positive laboratory test was an aerobic bacterial culture from a wound on the back of the girl's thigh. While on vacation during July 2008, the girl suffered a minor injury while swimming/tubing in the Adriatic Sea near the Island of Pag (Croatia). She was treated with

antibiotics for this infection. She experienced no sequelae.

Vibrio alginolyticus is a gram negative marine bacterium that causes wound and ear infections. In immunocompromised individuals and severe burn victims, bacteremia can result.

***Vibrio vulnificus* Death, Marion County, September 2008**

In September 2008, the Marion County Health Department investigated a *Vibrio vulnificus* death in a 55-year-old white man. The patient consumed raw oysters on September 21 or 22, 2008 at a raw oyster bar in Birmingham, Alabama and had symptom onset September 22nd. On September 23rd, the patient was admitted to the hospital and later expired on September 24th. A serum sample that was collected on September 23rd was culture positive for *Vibrio vulnificus* as was a wound culture. Oyster tags collected by the Alabama Department of Public Health indicated that the raw oysters were purchased from a seafood harvester in Apalachicola, FL. There were no other reported illnesses associated with those oyster beds at that time.

West Nile Virus

Two Cases of West Nile Neuroinvasive Disease, Escambia County, August-September 2008

In mid-August of 2008, the Epidemiology Program of the Escambia County Health Department was notified of an elderly man who was hospitalized with a probable case of West Nile virus (WNV) infection. Serum samples were sent to the Bureau of Laboratories-Tampa. A week later the case was confirmed as acute WNV neuroinvasive disease. Investigation revealed that the man had no travel history and had not used repellants while sitting outside at his work. He had a celiac condition which resulted in anemia and had previously had a triple bypass. His hospital course was complicated requiring two units of plasma and a PEG tube for feeding. His neurological condition was so severe that he developed respiratory problems and could not sit or stand on his own. He was transferred to an acute long-term care facility after several weeks in the hospital.

Mosquito Control was notified immediately upon receiving the probable diagnosis and sprayed the man's home zip code area and his work site. Schools and childcare centers were notified and an advisory was issued via the media.

A day after receiving the first case, the Epidemiology Department was notified of a second probable case of WNV. Serum samples were sent to the Bureau of Laboratories-Tampa. This person was a middle aged man with an immune-compromising condition who lived in the same zip code as the first man's work site. He had not traveled nor had he used mosquito repellant on a regular basis while sitting outside each evening. He had more mild symptoms than the first man, and was able to be discharged home that same week. His laboratory results were confirmatory for acute WNV neuroinvasive disease.

Mosquito Control was notified and modified the second spraying site to include the area around the second case's residence. Mosquito Control reported all sentinel chickens were free from mosquito-borne virus disease and there was not any disease present in the mosquito pooling efforts at that time. Adulticide fogging for mosquitoes was initiated after notification of the first case and was continued in compliance with usual and customary state regulations. Mosquito Control also set some additional gravid traps in targeted habitats. A second advisory was issued to schools and childcare centers in the area and a county-wide alert was issued by radio, TV, and newspaper.

No additional cases were detected in Escambia County. The communication, cooperation, and quick response from partner agencies all contributed to putting effective control and prevention measures in place.