Epi Update

A publication of the Florida Department of Health, Bureau of Epidemiology

June 25, 2007

In This Issue

- Brucellosis: Association with Hunting Feral Hogs in Southwest Florida
- Wedding Reception Associated Norovirus Foodborne Outbreak Investigation – Pasco County, March 25, 2007
- Norovirus Outbreak at a Homeless Shelter
- Florida's Newest Survey: A Follow-Up Survey of Current Smokers
- Anti-HCV Positive Results in Infants Born to Hepatitis C Positive Women
- HBsAg Screening of Pregnant Women
- Just Published
- Upcoming Events
- Mosquito-borne Disease Summary
- Weekly Disease Table
- This Month in EpiCom

Editor's Note: *I'd like to introduce the new Editor of Epi Update – Jamie Fairclough, MPH, LPN. Jamie's first day as communications coordinator with the Bureau of Epidemiology was June 15, 2007. Please submit articles and information to Jamie for inclusion in Epi Update by July 15, 2007, for publication on July 25, 2007. I encourage you to submit reports of your work so others in the state can learn from your activities and about the great work we do in Florida. The new Epi Update submission guidelines will be available at the end of June 2007.*

Debora Campbell, MS, CHES
Training & Communications Administrator

Brucellosis: Association with Hunting Feral Hogs in Southwest Florida

Terri Harder, BSN, RN; Nicole Basta, MPhil Epi

Background

On April 5, 2007, the Collier County Health Department received a call from the Bureau of Epidemiology Jacksonville Lab concerning a blood culture that was presumptive positive for Brucellosis. The sample was drawn on 3/25/07 from a 26-year-old male resident of the county. At the time, there was no information available about the patient's symptoms, exposure history, or why the test had been ordered. Collier CHD Epidemiology staff initiated an investigation, contacting both the ordering physician and the patient.

Case Investigation

Medical records obtained indicated that the patient began experiencing pain in the right testicle on 3/21/07 and was evaluated by a primary care physician on 3/22/07. The assessment indicated a right inguinal strain, and medication was prescribed for pain.

Over the next few days the patient's pain increased, and on March 25 he presented to the emergency department complaining of right testicular pain and fever. Evaluation was suggestive of epididymitis, and ceftriaxone and doxycycline were administered. The client was discharged to home with prescriptions for ciprofloxacin and doxycycline, and instructed to follow-up with a urologist in 3 days.

Blood cultures drawn during the emergency room visit showed no growth after 2 days. The patient was evaluated by a urologist on 3/28/07. A scrotal ultrasound performed at that time was consistent with orchitis of the right testicle. He was admitted to the hospital and started on Cipro and doxycycline. On 3/29/07, the blood culture results reflected gram variable rods. The patient was discharged home on 3/30/07 with prescriptions for the same antibiotics, and was instructed to follow-up with the urologist the following week. On 4/1/07, the blood culture was forwarded to a reference lab for further testing.

On 4/6/07, the Collier CHD notified the urologist that the client's blood culture result was presumptive positive for Brucellosis. The physician immediately contacted the client who was in northern Florida for the holiday weekend. The case was scheduled to see the urologist and an infectious disease specialist the following Monday.

The Collier CHD Epi Nurse completed the initial interview with the case on 4/6/07. Onset of symptoms was 3/21/07. Symptoms included fever, chills, sweating, and right testicular pain. The case had not traveled outside of the US, and reported no consumption of unpasteurized milk or cheese. He traveled to northern Florida to visit family every 2 months. Of note was a trip to Oklahoma on 3/9/07 for 6 days, where the case prepared a frozen deer to be cooked. He and his friends ate the cooked deer meat.

During the interview, the patient reported that he and a friend hunted wild hogs every weekend in a rural area of Collier County. Using dogs to catch the pigs, the case and his friend then tied up the pigs and castrated them. The case stated that he got open wounds on his hands and arms every time he hunted because he usually caught the pigs in the palmettos. He also did not use personal protective equipment while hunting. The use of personal protection while hunting was encouraged due to the risk involved. Prior to onset of symptoms, he went hunting on 3/17/07. The last time he consumed feral pig was 1/1/07, where it was grilled and served at a party. The case also reported that he had one pig penned up which he uses to train his dogs. He is planning to eventually eat the pig.

Due to the nature of the hunting exposure, there was concern about the possible exposure of the case's hunting partner. Though the case reported that none of his friends were ill, the Collier CHD contacted the client's hunting partner on 4/12/07 and provided education about the signs and symptoms of Brucellosis. The use of protective clothing and gloves while hunting was again encouraged to reduce the risk of transmission of brucellosis and other zoonotic diseases. Finally, the possibility of sexual transmission of Brucellosis, although rare, was discussed with the client.

The final lab report dated 4/12/07 confirmed the result as *Brucella suis biovar 1.* The highest prevalence of *Brucella suis biovar 1* occurs in feral pigs and the infection is rarely seen in other animals.[4]

Follow-up with the client on 4/13/07 indicated that the infectious disease specialist had ordered doxycycline and rifampin for 6 weeks.

Discussion

Brucellosis is a zoonotic disease commonly found in livestock and wild animals, including cattle, sheep, goats, and pigs. It is caused by infection with *Brucella* bacteria including *B. abortus*, *B. ovis*, *B. canis*, *B. suis*, and *B. melitenis*.[1]

Brucellosis transmission to humans can occur through consumption of unpasteurized milk products from infected cows, sheep, goats, or camels, or through wound exposure to contaminated animal tissue, blood, and other secretions, or, less commonly, through inhalation.[1,2] Abattoir employees, hunters, animal handlers, veterinarians, and lab employees are at greatest risk of infection.

The incubation period for Brucellosis ranges from 5-60 days or longer. Less than 8 weeks from illness onset, symptoms of the acute form include fever, weakness, sweating, weight loss, and body aches; however, these symptoms can vary. In the undulant form less than 1 year from onset, symptoms can include undulant fevers, arthritis, and epididymo-orchitis in males. Left untreated, chronic symptoms can include chronic fatigue syndrome, depression, and arthritis. Person-to-person transmission is very rare, but sexual transmission has been reported, as has mother-to-child transmission through breast milk.[1] Transmission can also occur through blood or tissue transplantation.

Brucellosis is classified as a class B bioterrorism agent. Infections are seen worldwide, but the highest risk areas include South and Central America, the Caribbean, Asia, Eastern Europe, Africa, the Mediterranean, and the Middle East.[1] In the United States, approximately 100 cases of Brucellosis are reported annually.[3] California, Florida, Texas, and Virginia have reported the greatest number of cases in recent years.

Brucellosis in Florida

Between January 1, 2003 and April 20, 2007, a total of 28 confirmed or probable cases of Brucellosis were reported in Florida through the Merlin Electronic reporting system. In 2003, a total of 10 cases were reported, followed by 8 cases in

2004, 3 cases in 2005, 5 cases in 2006, and 2 cases to date in 2007 (Figure 1). During this time period, the greatest number of cases were reported from Miami-Dade County (6), Collier County (4), and Polk County (4) (Table 1).

Of these 28 cases, 21(75%) were male, 7(25%) were female; 19(68%) were white, 1(3.5%) was black, 1(3.5%) was another race, and 7(25%) were of unknown race; 25(89%) were confirmed, 3(11%) were probable; 20(71%) were acquired in Florida, 4(14%) were acquired outside the US, 2(7%) were acquired in the US, but outside Florida, and in 2(7%) cases the location was unknown.

Conclusion

Florida has the largest feral hog population in the US, after Texas. It is estimated that 45 different parasitic and infectious diseases are present in the feral hog population. Eight of these are known to infect humans.[5] Brucellosis, though relatively rare in Florida, is of concern due to the large hunting community within the state. Currently, there is no human vaccine for Brucellosis, though a vaccine designed for livestock has been developed. The best ways to prevent infection are to practice good hygiene, use personal protective equipment when handling animals susceptible to the disease, and avoid consuming unpasteurized milk and cheese products.

References

1. CDC. Division of Bacterial and Mycotic Diseases Brucellosis Technical and General Information. http://www.cdc.gov/ncidod/dbmd/diseaseinfo/brucellosis_g.htm; Accessed 4/5/07.
2. Heymann, DL, ed. Control of Communicable Diseases. 18th Edition. Washington, DC: American Public Health Association, 2004, pp.75-77.
3. American Academy of Pediatrics. Red Book 2003 Report of the Committee on Infectious Disease, 26th Edition, 2003, pp.222-224.
4. Merck Veterinary Manual, http://www.merckvetmanual.com/mvm/index.jsp; Accessed 4/18/07.
5. Belden, RC, in Feral Swine: A Compendium for Resource Managers. Feral Swine Symposium, 1993. Published online: http://texnat.tamu.edu/symposia/feral/feral-14.htm

Terri Harder is Nursing Program Specialist with the Collier County Health Department Epidemiology Program. Nicole Basta is the Florida Epidemic Intelligence Service Fellow assigned to Collier and Hendry County Health Departments.

Wedding Reception Associated Norovirus Foodborne Outbreak Investigation – Pasco County, March 25, 2007

Michael Wydotis, BS; Mike Friedman, MPH

Introduction and Background

On March 28, 2007, the Pasco County Health Department was contacted by several persons who had attended a wedding on March 25, 2007 and had become ill with gastrointestinal symptoms. Early information received indicated that approximately 30 of the 93 persons had become ill after attending the wedding reception that was held at an outdoor facility in East Pasco County. The majority of the food items served had been provided by a caterer located in Hillsborough County. Symptoms reported included vomiting, diarrhea, abdominal pains, nausea, and chills with onset of symptoms ranging from 1 to 2 days. A listing of attendees was obtained along with a menu of food served at the wedding reception. The buffet-style reception's menu included various hot and cold appetizers, bratwurst with cabbage, shredded chicken on pita bread, chicken pot pies, pasta salad, house salad, macaroni and cheese, and various desserts and beverages. In addition to this wedding reception, three other wedding related events were held during the same weekend.

Methodology

A joint environmental field investigation was held on March 30, 2007 by the Bureau of Community Environmental Health and the Department of Business and Professional Regulation (DBPR) at the identified caterer's location in Plant City. It was identified that the caterer was not licensed by DBPR and that the current facility did not meet code standards. In addition, some of the food items that were served at the wedding reception on March 25, 2007 had been prepared at a local church in the Plant City area that was also not licensed. A detailed hazard analysis of the preparation and serving procedures was done on the identified food items served. The wedding reception was the only event that this catering company had provided the previous weekend. There were no food items leftover for possible laboratory testing at the catering facility.

Patient medical and food history information was collected from identified attendees from the wedding reception catered on March 25, 2007. Stool specimen testing was requested from symptomatic attendees contacted. A case definition was determined to be anyone who had attended the wedding reception and had become ill with diarrhea and/or vomiting with another gastrointestinal symptom.

Results

A total of 26 (28%) of 93 persons who attended the wedding reception on March 25, 2007 became ill following the suspected meal. Eighteen (69%) of the ill attendees did not attend any of the other wedding related events. In addition, two secondary cases were identified among attendee family members. The mean onset of the symptoms was 36.4 hours with a range of 19 – 61 hours. Predominant symptomatology reported included diarrhea (92%), nausea (73%), vomiting (62%), loss of appetite (62%) and abdominal pains (58%) (see Table 1).

Table 1 - Frequency of Symptoms
Catered Wedding Reception on March 25, 2007, Pasco County

Symptoms	Frequency	Percent
Diarrhea	24	92
Nausea	19	73
Vomiting	16	62
Loss of appetite	16	62
Abdominal pains	15	58
Fatigue	12	42
Headache	10	39
Fever	9	35
Body aches	5	19

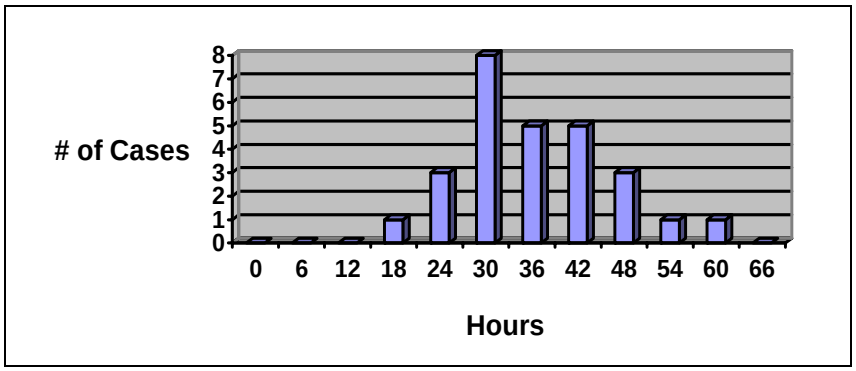
N=26

Table 2 - Food Specific Attack Rates
Catered Wedding Reception on March 25, 2007, Pasco County

	Number Of Persons Who Ate Specified Food				Number Of Persons Who Did Not Eat Specified Food			
Food Items Served	Ill	Not Ill	Total	Percent Ill	Ill	Not Ill	Total	Percent Ill
Shredded Chicken	15	5	20	75.0	11	13	26	42.3
Bagels	6	7	13	46.1	20	11	31	64.5
Pigs in Blanket	15	7	23	65.2	11	11	22	50.0
Smoked Salmon	13	7	20	65.0	13	11	24	54.2
Chicken Pot Pies	10	3	13	76.9	16	15	31	51.6
Macaroni and Cheese	9	7	16	56.3	17	11	28	60.7
Pasta Salad	15	4	19	78.9	11	14	25	44.0
Field Greens Salad	20	12	32	62.5	6	6	12	50.0
Wedding Cake	13	13	26	50.0	11	6	17	72.2
Strawberries	15	12	27	55.6	16	7	23	64.7
Ice	20	11	31	64.5	6	7	13	46.2

The reported duration of illness averaged 43.1 hours with a range of 7 - 72 hours. Two of the identified cases sought physician care. Chart 1 shows the onset of illness in hours following exposure at the implicated meal.

Chart 1 – Onset of Illness (Hours),
Catered Wedding Reception on March 25, 2007, Pasco County



The highest specific attack rates for the food items served at the wedding reception were for shredded chicken, chicken pot pies, pasta salad and ice. Bivariate statistical analysis of this data implicated one of the food items served. The pasta salad had an odds ratio of 4.6 with a 95% confidence interval of (1.2136 – 20.2559) and a p-value of 0.0209. The pasta salad had been purchased by the caterer from a local grocery store. This food item was then transferred to serving bowls by the catering staff and delivered to the event along with the other foods. None of the food items that were not provided by the caterer were determined to be statistically significant.

The environmental field visit to the caterer's commissary identified that the facility was inadequate for commercial food preparation and that the preparation staff did not have current food safety certifications. There was no hand-washing sink in the facility. The sanitary condition of the unlicensed church kitchen is not known. It was determined that one or more of the catering staff may have been experiencing gastrointestinal symptoms before or during the event. This information was obtained from several of the attendees and also mentioned by the catering staff interviewed. Several of the wedding reception attendees mentioned that the buffet items were sitting out in the open sun during the event with limited hot and cold food protection at the East Pasco outdoor facility.

None of the stool sample collection containers that were distributed to five of the wedding reception symptomatic attendees were returned.

Analysis and Conclusion

This outbreak of gastroenteritis was determined to be associated with consuming food at a wedding reception in Pasco County on March 25, 2007. Eighteen of the ill attendees had not attended any of the other wedding related events. The reported onset times of the ill persons were chronologically clustered indicating a common source exposure. Norovirus is the suspected foodborne pathogen associated with this outbreak based on the onset of symptoms, duration of symptoms, specific symptoms reported and common food implicated from the case-control study. The pasta salad that had been served at the event was the only implicated food vehicle.

Because three other food items were determined to have fairly high food-specific attacks rates, it is hypothesized that cross-contamination may have occurred during the preparation or serving of the buffet meal. Attendees that consumed the pasta salad were 4.6 times more likely to have become ill than those who did not consume this food item. There was no pasta salad left over from the reception for possible laboratory analysis. The overall attack rate among interviewed attendees was 28 percent. Some potential causative factors identified from the interviews of the wedding reception attendees included buffet food items that were in the hot sun during the entire event, and only a minimal amount of hot and cold food protection was utilized. The ice scoop was reported to have fallen numerous times into the ice bin, thus allowing for direct hand contact with the ice. The field investigation indicated that the caterer, catering commissary, and local church kitchen were not approved for food preparation for public consumption by the Department of Business and Professional Regulation. In addition, the catering management and staff did not have the required food service training. An interview with the management and feedback from some of the attendees showed that some of the catering staff may have had gastrointestinal symptoms before or during the event.

According to the Centers for Disease Control and Prevention (CDC) Norovirus Technical Fact Sheet, most foodborne outbreaks of norovirus illness are likely to arise through direct contamination of food by a food handler immediately before its consumption. Outbreaks have frequently been associated with consumption of cold foods, including various salads, sandwiches, and bakery products. Liquid items (e.g. salad dressing or cake icing) that allow viruses to mix evenly are often implicated as a cause of outbreaks. Food can also be contaminated at its source, and oysters from contaminated

waters have been associated with widespread outbreaks of gastroenteritis. Other foods, including raspberries and salads, have been contaminated before widespread distribution and subsequently caused extensive outbreaks.

CDC estimates that 23 million cases of acute gastroenteritis are due to norovirus infection, and it is now thought that at least 50% of all foodborne outbreaks of gastroenteritis can be attributed to noroviruses. Among the 232 outbreaks of norovirus illness reported to CDC from July 1997 to June 2000, 57% were foodborne, 16% were due to person-to-person spread, and 3% were waterborne; in 23% of outbreaks, the cause of transmission was not determined. In this study, common settings for outbreaks include restaurants and catered meals (36%), nursing homes (23%), schools (13%), and vacation settings or cruise ships (10%).

Attachment -1
Pasta Salad 2x2 Table

ILL?			
Pasta Salad	**Yes**	**No**	**TOTAL**
Yes Row % Col %	15 78.9 57.7	4 21.1 22.2	19 100.0 43.2
No Row % Col %	11 44.0 42.3	14 56.0 77.8	25 100.0 56.8
TOTAL Row % Col %	26 59.1 100.0	18 40.9 100.0	44 100.0 100.0

Single Table Analysis

	Point	95% Confidence Interval	
	Estimate	Lower	Upper
PARAMETERS: Odds-based			
Odds Ratio (cross product)	4.7727	1.2292	18.5308 (T)
Odds Ratio (MLE)	4.5974	1.2136	20.2559 (M)
		1.0560	24.6884 (F)
PARAMETERS: Risk-based			
Risk Ratio (RR)	1.7943	1.0888	2.9567 (T)
Risk Difference (RD%)	34.9474	8.2139	61.6808 (T)
(T=Taylor series; C=Cornfield; M=Mid-P; F=Fisher Exact)			
STATISTICAL TESTS	Chi-square	1-tailed p	2-tailed p
Chi square - uncorrected	5.4542		0.0195227213
Chi square - Mantel-Haenszel	5.3302		0.0209598791
Chi square - corrected (Yates)	4.1043		0.0427756294
Mid-p exact		0.0118269897	
Fisher exact		0.0202176489	

Michael Wydotis is an epidemiologist at the Pasco County Health Department. He can be reached at 727-861-5226. Mike Friedman is a regional environmental epidemiologist in the Food and Waterborne Disease Program for the Bureau of Community Environmental Health. His assigned area is West Central Florida and he can be reached at 727.816.1240.

Norovirus Outbreak at a Homeless Shelter

Kimberly Fraser, MPH

BACKGROUND:

On January 17, 2007 a homeless shelter's pediatric nurse called the Hillsborough County Health Department (HCHD) with a concern over the large number of people ill at the facility. The initial phone call revealed that 20 out of 25 people, who ate food the evening of January 11, 2007 and the morning of January 12, 2007, became ill with symptoms of fever, diarrhea and vomiting. Illness onset was estimated to be between 4 and 18 hours after food ingestion. One resident was seen at a hospital emergency department on January 11, 2007 and discharged with a diagnosis of an undetermined foodborne illness. HCHD Environmental Health was contacted to assist the Epidemiology Program in this suspected foodborne outbreak investigation.

Predominantly a family shelter, the facility, at the time of the outbreak, housed 36 families (approximately122 individuals total) and 11 single residents. The facility has a resident pediatric clinic, in addition to an onsite daycare (26 resident attendees) and a public school (19 resident attendees). Children from the surrounding community attend the daycare and the school as well. There is an onsite cafeteria at the facility that prepares and serves three meals a day to residents and staff. Daycare children receive prepackaged snacks; and all bottles, cups, and silverware used by the residents, the daycare or the school are sent to the cafeteria for cleaning. Each family has it own apartment within the facility, which includes a personal bathroom. Residents are responsible for the cleaning of their apartments and bathrooms. In addition some residents are assigned cleaning tasks in the offices and kitchen areas as part of the facility's rehabilitation program. The facility also offers free food and clothing handouts to the community. A total of 50 to 70 families utilize this service a day.

METHODS:

Case Definition

For the purpose of this investigation, cases were defined as any resident, person utilizing services, or person working at the facility, who became ill between January 10, 2007 and January 19, 2007, with clinical symptoms of vomiting or diarrhea.

Data Collection

The HCHD Epidemiology staff arranged a site visit at the facility to gather information about this cluster of illness and to recommend disease control measures. The facility was advised that in the course of the investigation any information they could provide pertaining to the following items would be helpful: menus, samples of food served in the past 72 hours, daycare snacks, onset and duration of illness, symptoms, and names of ill residents and staff.. At this request, the facility informed us that given the size and diversity of their services, records on onset, symptoms, and duration were not available. Any information pertaining to resident illness was communicated in passing between the residents and the Director of Activities.

Site Visit

On January 18, 2007 HCHD Environmental Health and Epidemiology staff conducted a joint site visit of the facility. During the investigation Environmental Health oversaw the inspections of the kitchen and surrounding areas. Epidemiology met with the administration staff concerning the facility layout, activities, residents and services. Menus, floor plans of the facility, illness reports and attendance sheets where given to Epidemiology to review. In conjunction with the site visit, cafeteria and general staff members were informally interviewed.

Disease Control

Prevention and control recommendations were presented to the facility following the site visit. HCHD initial recommendations included increasing the frequency of facility cleaning with a 10% bleach solution, excluding all ill staff and residents from work, stressing frequent hand washing, and making hand sanitizer available where access to sinks was limited (e.g. in the playground and courtyard areas).

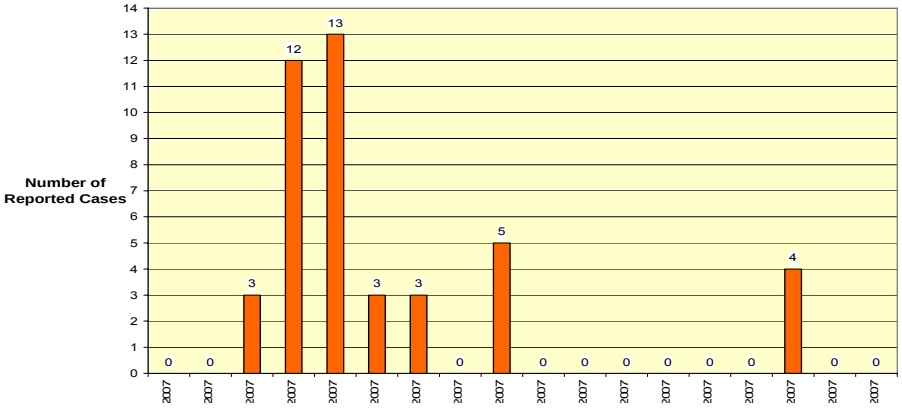
FINDINGS:

Cases and Frequencies

Based on information received from the facility, 43 residents out of 122 (35%) and 4 staff out of 26 (15%) met the case definition. The youngest case was 4 months old and 15 cases were under 5 years old. Of the residents who were ill, 58% (25/43) were children and 33% (14/43) were adults. Age was unknown for the remaining 9% of the cases. Interviews conducted with general and cafeteria staff concluded that no cafeteria staff were found to be ill and only 1-2 other staff members and/or volunteers had been ill. Inspection of the kitchen, daycare and school were conducted. No evidence of a foodborne or point source outbreak was detected.

Figure 1 displays an epi-curve for the outbreak, representing the number of residents reported ill and their onset dates. Despite the initial report of a foodborne illness, the epidemiologic evidence indicates that this virus was likely spread from person to person. Consultation with HCHD Environmental Health staff following the site visit concluded that given the varying onset dates, it was unlikely that a foodborne outbreak had occurred. In addition ill residents were housed throughout the facility, suggesting no evidence of a clustering of cases.

Figure 1: Number of Reported Norovirus Resident Cases by Onset Date at a Homeless Shelter (n=43)



Specimen Sampling and Identification

On January 17, 2007 nine stool samples were submitted to the Florida Department of Health, Bureau of Laboratories - Tampa Branch to be screened for enteric pathogens, ova and parasites, and norovirus. On January 19, 2007 three stool samples tested positive for norovirus type G2. The facility was notified of the results on January 22, 2007, and on January 23, 2007 the facility reported 4 new suspected cases, for a total of 47 cases.

Communication and Efforts to Prevent Future Transmission

Following the confirmation for norovirus, additional prevention and control recommendations were discussed. The facility was notified that norovirus is usually transmitted through the fecal-oral route, that hand sanitizer is only somewhat effective in killing norovirus, and that the most effective prevention and control strategy for this illness is proper hand washing and environmental cleaning.[1, 3] As a result of the initial recommendations given on January 18, 2007, the facility has continued to clean all surfaces with a 10% bleach solution and bleach wipes. Epidemiology also recommended a series of hand-washing in-services be coordinated by the Health Department to educate the shelter's transient population. As a result an in-service was coordinated with the facility's school nurse on January 26, 2007 to educate all school and daycare children and staff on proper hand-washing technique. On January 30, 2007 the Health Department conducted an in-service for all shelter administrative and counseling staff; on February 5, 2007 an in-service was held for all residents; and an in-service was held for all kitchen staff on February 7, 2007. Sporadic suspect cases continued through the end of February 2007, but no new cases have been seen at the facility since March 1, 2007.

CONCLUSIONS:

As a common causal agent for illness in facilities, norovirus is often initially mistaken as a foodborne or point source outbreak. During the course of this investigation, it became apparent from the data collected and the epi-curve that this was not a point source outbreak.

Norovirus is typically spread through the fecal-oral route, although the scientific literature documents that the virus can also be spread via aerosolized vomit.[2, 3] Contact with contaminated objects (fomite transmission), such as doorknobs, water faucets, serving utensils, and phones, has been implicated as another method by which this virus can be spread.[3] Duration of norovirus is typically 1-3 days, however this outbreak lasted approximately 7 days.[2] Possible explanations for the longer duration could be attributed to a more virulent strain of this virus or the presence of other disease causing organisms at this facility.

Since the HCHD's initial investigation, the facility has instituted several procedural changes. The majority of these changes involved frequent cleaning of surfaces with a bleach solution. Hand sanitizers have also been placed throughout the facility, especially around the cafeteria and entrance and exit doors to minimize the transmission of disease causing microorganisms. Guidelines outlining proper hand-washing procedures have been created for all shelter residents and staff. These guidelines provide recommendations as to when and where hand washing is necessary (e.g. before and after eating and using the restroom). The facility has also considered developing a resident job booklet and checklist for each of the shelter's departments to ensure duties completed by residents are consistent and thorough.

This outbreak illustrates how important it is for staff and residents to train and practice proper hand-washing techniques in order to prevent and control disease. Another lesson from this investigation is the importance of record keeping and timely reporting of illness. The inability of the facility to provide a line list or adequate medical records for all infected individuals made this a challenging investigation

REFERENCES:

1. Kampf, G., Grotheer, D., and Steinmann, J. Efficacy of three ethanol-based hand rubs against feline calicivirus, a surrogate virus for norovirus. Journal of Hospital Infection. 2005; 60(2):144-149
2. Marks PJ, et al. Evidence of airborne transmission of Norwalk-like virus (NLF) in a hotel restaurant. Epidemiol. Infect. 2000; 124:481-87
3. "Norwalk-like viruses:" Public Health Consequences and Outbreak Management. MMWR 2001; 50(RR-9):1–17.

Kimberly Fraser is a Florida Epidemic Intelligence Service Fellow. She works at the Hillsborough County Health Department Epidemiology Program and can be reached at 813-307-8015.

Florida's Newest Survey: A Follow-Up Survey of Current Smokers

Melissa R. Murray, MS

The Bureau of Epidemiology has partnered with the University of Miami and DOH's Office of Tobacco Prevention and Control to implement a new survey that collects information on smoking-related attitudes, behaviors, and cessation information from current smokers. The survey was developed as a callback survey of Behavioral Risk Factor Surveillance System (BRFSS) survey respondents who are current smokers and who agree to be re-contacted for a follow-up survey. The information from this call-back survey will be used to develop and improve services to help people quit smoking.

The BRFSS is an anonymous population-based telephone surveillance system designed to collect data on health conditions, behaviors, and emerging health issues. First, households are randomly selected to participate, and then one adult (age 18 and older) is randomly selected from each household to complete the survey.

Respondents will be re-contacted within two weeks of completing the initial BRFSS survey to complete the tobacco survey. The target sample size for the survey, which is based on the estimated number of current smokers from the 2007 BRFSS survey, is 5,000 completed interviews.

For additional information on the University of Miami's Team Science project, visit their website at: http://tobaccoinfo.med.miami.edu/tsprojects.html

More information about the Florida BRFSS, including survey instruments, reports, and data requests forms, is available on the Bureau of Epidemiology's website at: www.doh.state.fl.us/disease_ctrl/epi/brfss. For more information on BRFSS protocols, methodology, or to access state and national data, please visit the CDC's BRFSS website at: www.cdc.gov/brfss.

Melissa Murray is the Florida BRFSS coordinator in the Chronic Disease Epidemiology, Surveillance and Evaluation section. She can be reached at the Bureau of Epidemiology in Tallahassee at 850.245.4444, Ext. 2445.

Anti-HCV positive results in Infants Born to Hepatitis C Positive Women

Purpose:

A. To provide guidance to County Health Departments on the interpretation of positive anti-HCV results on infants born to hepatitis C positive women.
B. To provide guidance to County Health Departments on reporting procedures.

Scope:

A. All positive anti-HCV results in infants under the age of 18 months.

Background:

A. Maternal antibodies may be present in infants for up to 18 months
B. Approximately, 4 out of every 100 infants born to HCV infected women become infected.
C. Positive anti-HCV results in infant <18 months is a not a true indicator of hepatitis C infection in an infant.

Policy:

A. County Health Departments should refer to the CDC guidelines for when to test and how to interpret test results on infants born to HCV Positive Women (See FAQ sheet and link below).
B. County Health Departments should not report positive anti-HCV results as "Suspect Cases" on any child before 18 months of age "in the Merlin Disease Registry."

Reference:

A. CDC. Recommendations for Prevention and Control of Hepatitis C Virus (HCV) Infection and HCV-Related Chronic Disease. MMWR 1998; 47(No. RR-19):1-39.
B. CDC. Sexually Transmitted Diseases Treatment Guidelines, 2006. MMWR 2006; 55(No. RR-11):1-101.
C. Dienstag JL: Sexual and perinatal transmission of hepatitis C. Hepatology 26:66S-70S, 1997
D. CDC. Guidelines for Laboratory Testing and Result Reporting of Antibody to Hepatitis C Virus. MMWR 2003; 52 (No. RR-03):1-16.
E. American Academy of Pediatrics. *Red Book 2003: Report of the Committee on Infectious Diseases.* 26th ed. Elk Grove Village, IL: American Academy of Pediatrics; 2003.
F. CDC. Frequently Asked Questions About Hepatitis C. Available at: http://www.cdc.gov/ncidod/diseases/hepatitis/c/faq.htm#1a
G. Florida Department of Health Bureau of Epidemiology Surveillance Case Definitions for Select Reportable Diseases in Florida, 2003.
H. CDC. Nationally Notifiable Infectious Diseases. Hepatitis C Virus Infection, Past or Present 2005 Case Definition. Available at : http://www.cdc.gov/epo/dphsi/casedef/hepatitisccurrent.htm

Definitions:

A. Hepatitis C Chronic (CDC 2005 Case Surveillance Definition)
   1. Clinical Case Definition: A Person with chronic hepatitis C may have no evidence of liver disease or may have a spectrum of disease ranging from chronic hepatitis to cirrhosis or liver cancer. Persons with chronic infection may be asymptomatic
   2. Laboratory criteria for diagnosis: Anti-HCV positive (repeat reactive) by EIA, verified by an additional more specific assay (e.g. RIBA for anti-HCV or nucleic acid testing for HCV RNA),
      - ➲ ***OR*** HCV RIBA positive,
        - ➲ ***OR*** Nucleic acid test for HCV RNA positive,
          - ➲ ***OR*** Report of HCV genotype
            - ➲ ***OR*** anti-HCV screening-test-positive with a signal to cut-off ratio predictive of a true positive as determined for the particular assay (e.g., ≥3.8 for the enzyme immunoassays) as determined and posted by CDC.
   3. Case classification:

      Confirmed: a case that is laboratory confirmed in child over the age of 18 months*.

      *If diagnosis is desired prior to 18 months of age, testing for HCV RNA could be performed at or after an infant's first well-child visit at age 1-2 months. HCV RNA testing should then be repeated at a subsequent visit independent of the initial HCV RNA test result.

      Probable: a case that is anti-HCV positive (repeat reactive) by EIA and has alanine aminotranferase (ALT or SGPT) values above the upper limit of normal, but the anti-HCV EIA result has not been verified by any additional more specific assay, or the signal to cutoff ratio is unknown.

      **Children should not be tested for anti-HCV before 18 months of age as anti-HCV from the mother might last until this age.

      Suspect: A case that is anti-HCV positive, but absent of other diagnostic criteria, in those older than 18 months of age**

      **Children should not be tested for anti-HCV before 18 months of age as anti-HCV from the mother might last until this age.

Procedures:

A. Reporting:
   1. Do Not Report anti-HCV positive results as "Suspect" cases in infants less than 18 months of age, since anti-HCV from the mother may be present in an infant up to 18 months of age.
   2. All cases that meet the case surveillance definition for chronic hepatitis C should be reported in Merlin.
B. Case Management:
   1. All reported cases of chronic hepatitis C will be investigated and managed according to the local County Health Department's policies and procedures.

Frequently Asked Questions About Hepatitis C From CDC
Available at http://www.cdc.gov/ncidod/diseases/hepatitis/c/faq.htm#1a

Should pregnant women be routinely tested for anti-HCV? No. Pregnant women have no greater risk of being infected with HCV then non-pregnant women. If pregnant women have risk factors for hepatitis C, they should be tested for anti-HCV.

What is the risk that HCV infected women will spread HCV to their newborn infants?
About 4 out of every 100 infants born to HCV infected women become infected. This occurs at the time of birth, and there is no treatment that can prevent this from happening. Most infants infected with HCV at the time of birth have no symptoms and do well during childhood. More studies are needed to find out if these children will have problems from the infection as they grow older.

Is there a greater risk of perinatal HCV transmission if the mother is coinfected with HIV?
Yes, if the mother is coinfected with HIV, the rate of perinatal transmission can be as high as 19%.

Should a woman with hepatitis C be advised against breast-feeding?
No. There is no evidence that breast-feeding spreads HCV. HCV-positive mothers should consider abstaining from breast-feeding if their nipples are cracked or bleeding.

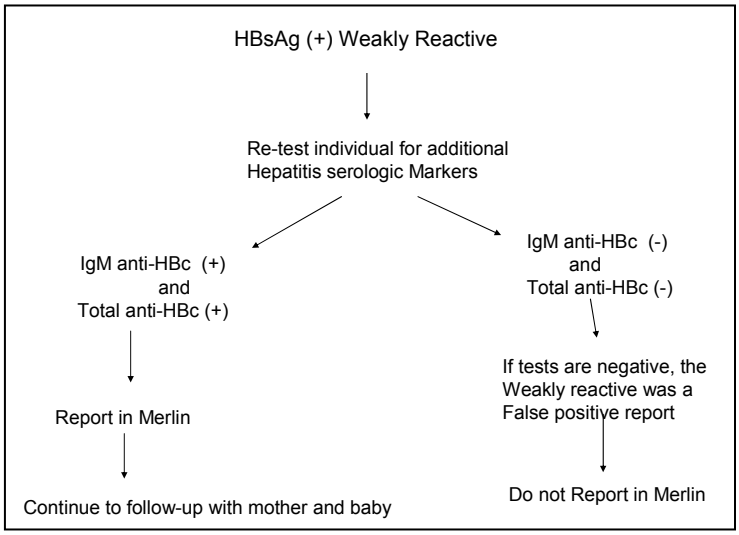
When should babies born to mothers with hepatitis C be tested to see if they were infected at birth?
Children should not be tested for anti-HCV before 18 months of age as anti-HCV from the mother might last until this age. If diagnosis is desired prior to 18 months of age, testing for HCV RNA could be performed at or after an infant's first well-child visit at age 1-2 months. HCV RNA testing should then be repeated at a subsequent visit independent of the initial HCV RNA test result.

HBsAg Screening of Pregnant Women

The Bureau of Epidemiology, Bureau of Immunization, Bureau of Laboratories, and Division of Viral Hepatitis have received many inquires from County Health Departments (CHDs) about *weakly reactive* hepatitis B surface antigen (HBsAg) laboratory test among pregnant women. Private laboratories report tests which may include such information as *weakly reactive* positive. This presents some challenges for public health surveillance and case management. This document seeks to provide guidance for CHDs on the management of *weakly positive* HBsAg tests.

If a CHD should receive a laboratory report which indicates HBsAg weakly reactive positive in any individual, especially pregnant women, additional testing is suggested.

It is recommended that providers request a new hepatitis panel, which specifically tests for hepatitis B serologic markers of infection, including IgM anti-HBc and Total anti-HBc. The flowchart may be followed to determine whether additional follow-up is needed.



- An IgM anti-HBc (-) indicates no acute infection. A Total anti-HBc (-) indicates that an individual was never infected with hepatitis B.
- An IgM anti-HBc (+) indicates acute infection and a positive Total anti-HBc (+) indicates that an individual has been infected with hepatitis B.
- If an individual is HBsAb (+) and Total anti-HBc (-), indicates that a patient is immune due to vaccination.
- If an individual is HBsAb (+) and Total anti-HBc (+), indicates that a patient is immune due to resolved infection.

Just Published

Journal of Environmental Health, Volume 69, No. 10 June 2007
Food Workers' Perspectives on Handwashing Behaviors and Barriers in the Restaurant Environment
Aimee S. Pragle, M.S.; Anna K. Harding, Ph.D., R.S.; James C. Mack, M.P.A., R.E.H.S.

Florida Environmental Health Association Annual Education Meeting and Trade Show: Call for Poster Abstracts

Greg Kearney, MPH, DrPH, RS

The Florida Environmental Health Association is actively seeking posters for its 59th Annual Education Meeting and Trade Show in Orlando, Florida, scheduled for August 7-10, 2007.

Poster presentations give conference attendees a unique opportunity to share research and results with colleagues and friends. Suggestions for posters may include, but are not limited to the following topic areas: drinking water, OSTDS, epidemiology, food safety, radiation, bio-terrorism and preparedness. Examples may include; results of a food or waterborne illness outbreak investigation, environmental sampling results surrounding a hazardous waste site, implementation and results of a new, or innovative program (i.e., well permitting), or results from a community health block survey.

There will be three (3) awards given for best posters. Posters will be reviewed for relevance to environmental public health research or environmental public health practice, as well as for content and organizational diversity representation.

Requirements:
The poster board must be 3 feet tall by 4 feet wide. Electricity and/or internet connections will not be provided. Persons displaying posters must at least be registered the day of poster display. Persons presenting are encouraged to supply their own easels or table top display boards.

Applicants will be notified of the acceptance of their poster after their registration for the conference is confirmed. **A limit of 25 posters will be chosen for display** unless it is determined that more tables and room space are available. Poster submissions forms can be found on-line at http://www.feha.org and must be submitted by **July 15, 2007** via email or regular mail to the following:

Greg Kearney, MPH, DrPH, RS (FEHA Academic Committee, Chair)
Florida Dept. of Health, Division of Environmental Health
4052 Bald Cypress Way, Bin A08
Tallahassee, FL 32399
greg_kearney@doh.state.fl.us

Upcoming Events

The Florida Public Health Association (FPHA) Annual Education Conference is scheduled for July 31 – August 3, 2007, at the Tampa Grand Hyatt in Tampa, Florida. This year's theme is **Under the Big Top: Florida Public Health - The Greatest Show on Earth.** The registration fee for this conference for FPHA members is $150 (before July 1, 2007). To register for the conference, or for more information, visit http://www.fpha.org/index.html or contact FPHA via e-mail at floridapha@bellsouth.net.

The Florida Department of Health, Division of Environmental Health is holding the **2007 Florida Zoonosis Summit** on July 24-25, 2007, in Celebration, Florida at the Radisson Resort – Orlando.

The purpose of the 2007 Zoonosis Summit is to facilitate information exchange among the network of professionals involved in responding to zoonotic disease outbreaks, and prevention and/or reduction of outbreak-related financial losses. The theme of the 2007 Florida Zoonosis Summit is the

connection between wildlife, domestic animal and human health. This summit will bring together a wide variety of stakeholders, thus providing a comprehensive perspective of the problems we face.

For additional information about the Summit, including registration, please visit http://fzds.orlandomeetinginfo.com/.

The Office of Public Health Research Announces the Florida Center for Universal Research to Eradicate Disease (FL CURED) 2007 SUMMIT August 6-8, 2007 at the Gaylord Palms Resort in Kissimmee has a special room rate for participants: $144 S/D. Call 407.586.2000 and reserve your room under FL CURED Annual Summit. Registration for this event is $295 and will increase to $375 after July 5, 2007.

For details and registration information, please visit **www.FLCURED.org** or call Judy Taylor-Fisher, marketing and public events manager, at the Office of Public Health Research in Tallahassee at 850.245.4444, ext. 3581.

Mosquito-borne Disease Summary June 17-23, 2007

Rebecca Shultz, M.P.H., Caroline Collins, Danielle Stanek, D.V.M, Carina Blackmore, D.V.M, Ph.D.

During the period June 17-23, 2007, the following arboviral activity (St. Louis encephalitis virus [SLEV], Eastern equine encephalitis virus [EEEV], Highlands J virus [HJV], West Nile virus [WNV], California encephalitis group viruses [CEV]) was recorded in Florida:

EEEV activity: One EEE-confirmed positive horse was reported for Washington County. Three seroconversions to EEEV were reported in sentinel chickens from Hillsborough and Walton (South) counties. Six live birds captured from Okaloosa, Santa Rosa and Walton (North) counties tested positive for antibodies to EEEV.

WNV/SLEV activity: Two live birds captured from Santa Rosa County tested reactive to indeterminate flavivirus (could be WNV or SLEV). One of those also tested positive for EEEV.

HJV activity: Two seroconversions to HJV were reported in sentinel chickens from St. Johns and Walton (South) counties.

Dead Bird Reports:
The Fish and Wildlife Conservation Commission (FWC) collects reports of dead birds, which can be an indication of arbovirus circulation in an area. Between June 17-22, over 80 reports representing well over 600 dead birds were received from 16 counties. The vast majority of these birds were identified as shorebirds from the coasts of Brevard, Indian River, St. Lucie and Martin counties. Six birds were identified as crows and 2 were identified as jays. Testing is pending on a sampling of shorebirds, but preliminary reports suggest many of the birds died from starvation, not from avian influenza or arboviral infection. Please note that FWC collects reports of birds that have died from a variety of causes, not only arboviruses. Dead birds should be reported to www.myfwc.com/bird/.

Year-to-Date Summary:
Since January 1st, 13 counties have reported EEEV activity, 4 have reported WNV activity, 4 have reported HJV activity, 1 has reported SLEV activity and 1 has reported CEV activity. No locally-acquired human cases of arboviral infection have been reported this year.

See the web page for more information: http://www.doh.state.fl.us/environment/community/arboviral/index.html . The Disease Outbreak Information Hotline offers recorded updates on medical alert status and surveillance at 888.880.5782.

Rebecca Shultz is the arbovirus program coordinator at the Division of Environmental Health in Tallahassee. She can be reached at 850.245.4444, ext. 2437.

Weekly Disease Table

D'Juan Harris, MSP

Go to **http://www.doh.state.fl.us/disease_ctrl/epi/Disease_Table/2007_Weeks/dt_index.htm** to review the most recent disease figures provided by the Florida Department of Health, Bureau of Epidemiology.

D'Juan Harris is the systems project analyst in the Surveillance Systems Section of the Bureau of Epidemiology. He can be reached at 850.245.4444, ext. 2435.

This Month on EpiCom

by Christie Luce

The Bureau of Epidemiology encourages *Epi Update* readers to not only register on the EpiCom system at **https://www.epicomfl.net**, but to sign up for features such as automatic notification of certain events at **EpiCom_Administrator@doh.state.fl.us** and contribute appropriate public health observations related to any suspicious or unusual occurrences or circumstances. EpiCom is the primary method of communication between the Bureau of Epidemiology and other state medical agencies during emergency situations.

- GI-illness outbreak associated with food festival in Nassau County
- Suspect Botulism in an Infant—Orange County
- Gastrointestinal illness in Broward County Teenagers Returning from Mexico
- Norovirus outbreak in a correctional facility
- Miami-Dade County is Investigating a Suspected Foodborne Outbreak in Construction Workers
- Hillsborough CHD Investigates 3 Cases of Lab-confirmed Salmonellosis

Christie Luce is administrator of the Surveillance Systems Section in the Bureau of Epidemiology. She can be reached at 850.245.4444, ext. 2450.

Epi Update *is the peer-reviewed journal of the Florida Department of Health, Bureau of Epidemiology, and is published monthly on the Internet. Current and past issues of Epi Update are available at http://www.doh.state.fl.us/disease_ctrl/epi/Epi_Updates/index.html. The Current issue of Epi Update is available at http://www.doh.state.fl.us/disease_ctrl/epi/Epi_Updates/2007/April2007EpiUpdate.pdf. It is published at the end of each month.*

To receive an email reminder, simply send an email request to HSD_EpiUpdate@doh.state.fl.us. To submit an article or to obtain information about Epi Update, contact Jamie Fairclough, Communications Coordinator, at 850.245.4444, ext.3425, or Jamie_Fairclough@doh.state.fl.us.

Copyright© 2007 State of Florida

The Bureau of Epidemiology is a part of the Division of Disease Control
Tallahassee, Florida