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In This Issue

Public Health Preparedness Assessment of Polk County Veterinarians: A Pilot Study

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Background

Although newly emerging diseases are twice as likely to be zoonotic than non-zoonotic,[1] local interactions with veterinarians indicate that not all have a clear understanding of the veterinarian's role in reducing the impact of zoonotic diseases on public health, the role of the county health department (CHD) in infectious disease surveillance, or the necessity of developing collaborative emergency preparedness plans to respond to zoonotic disease events. Previous studies have shown that few veterinarians feel confident in diagnosing and treating animal cases resulting from bioterrorism events, and even fewer veterinarians are confident they would recognize human cases.[2,3] Because illnesses in animals may be the first signs of increased risk for humans,[4] good communication is needed between veterinary practitioners and public health representatives to protect the health of both humans and their pets.

Purpose

1. To identify those factors facilitating or hindering the development of partnerships between veterinary practices and public health agencies.
2. To identify strategies for implementing preparedness training with veterinary practitioners.
3. To develop best practices for establishing communication networks between CHDs and private veterinary practices.

Methods

A standardized, 20-question survey was developed in collaboration with representatives from the Florida Department of Health (DOH) and the Florida Department of Agriculture and Consumer Services (DACS). Survey distribution, along with an explanatory cover letter signed by representatives from DOH and the Polk CHD, occurred by facsimile to veterinary practitioners in Polk County, Florida, as identified through online directories and cross-referenced utilizing a local telephone book. Non-responders were contacted by telephone and the survey was distributed a second time by facsimile. For veterinary practices without a facsimile machine, the survey was distributed by mail with self-addressed, stamped envelopes included for response. Survey responses were compiled and analyzed utilizing Epi Info 3.4.3.

Results

- A 45% response rate was obtained (17 out of the 38 veterinary practices capable of responding).
- Sixty-five percent of respondents were male.
- The range of years of veterinary practice for respondents was 11 to 40, with a mean of 26.5 years.
- All respondents selected English as their primary spoken language; only one respondent selected a secondary spoken language (Spanish).
- Thirty-eight percent of respondents stated that the Internet is the primary source used for zoonotic disease information.
- Forty-four percent of respondents indicated that they would prefer trainings to be provided with the use of online modules.
- Forty-four percent of respondents expressed interest in trainings delivered via sessions at professional conferences.

Table 1. Planning and Preparedness

Planning and Preparedness	YES	NO	NO RESPONSE
Do you have any specific zoonotic disease control plans in place at your clinic?	**47.1%**	**52.9%**	
Do you have a preparedness plan for responding to natural disasters such as hurricanes?	**58.8%**	**41.2%**	
Do you have a plan for responding to a bioterrorism event?	**5.9%**	**88.2%**	**5.9%**
Are vaccinations and rabies titers up to date for all staff who handle animals?	**11.8%**	**88.2%**	
Are you familiar with the Incident Command System (ICS)?	**17.6%**	**76.5%**	**5.9%**
Are you willing to provide assistance to a pet-friendly shelter following a disaster?	**58.8%**	**29.4%**	**11.8%**
Do you know where to find a current list of reportable diseases for DACS/United States Department of Agriculture (USDA)?	**64.7%**	**35.3%**	
Do you know where to find a current list of reportable diseases for the health department?	**47.1%**	**52.9%**	
Have you ever been contacted by your county health department regarding disease control or epidemiological issues?	**17.6%**	**70.6%**	**11.8%**

Figure 1. Scenario Regarding Human Case of Zoonotic Disease

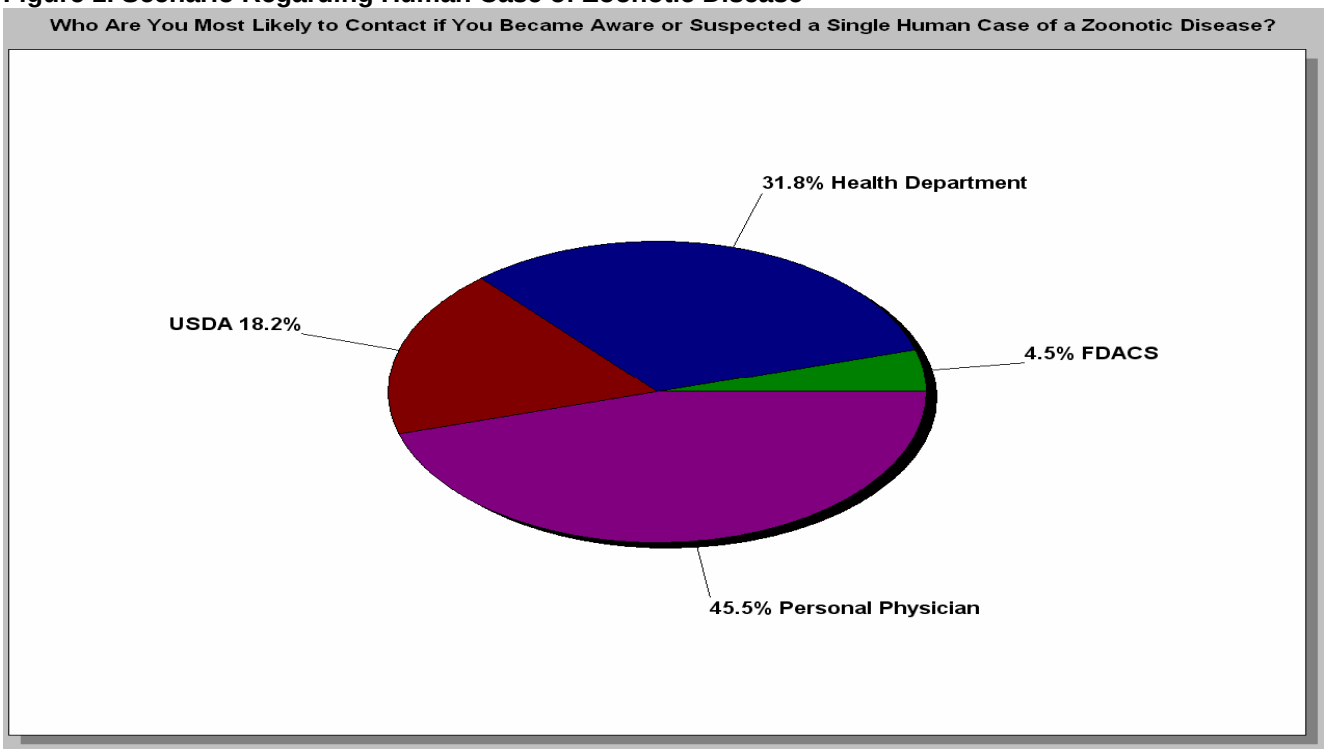

Table 2. Resources and Training

Resources and Training	YES	NO	NO RESPONSE
Have you ever contacted DACS?	**17.6%**	**70.6%**	**11.8%**
Have you ever contacted the health department?	**47.1%**	**41.2%**	**11.8%**
Have you received specialized training in public health (M.P.H., Ph.D., A.C.V.P.M. Boards)?	**5.9%**	**88.2%**	**5.9%**
Would you be interested in zoonotic disease training and the associated impacts on human health?	**82.4%**	**11.8%**	**5.9%**

Discussion

Although the sample size of this pilot study was small and results should be interpreted with that consideration, these limited data suggest that a larger survey distribution is warranted. Consistent with previous findings in public health literature, improved methodologies are needed for partnering with clinicians of all specialties,[5] including veterinarians. It would be beneficial for veterinarians to have an established relationship with public health representatives to increase communication, the reporting of zoonotic diseases, and information sharing. Simply due to proximity, this may be most readily accomplished at the level of the CHD, but these actions should also extend to the state level. Because 53% of respondents do not know where to locate a current list of reportable diseases for DOH, as well as 35% for DACS/USDA, it is unlikely that zoonotic diseases are being reported at the necessary level for early detection of an outbreak or bioterrorism event. Also of note is the large percentage of veterinary personnel who are not current with rabies vaccinations or titers. This suggests that more resources are needed in this area, and presents an opportunity for outreach from DOH. Both DOH and DACS should be proactive in developing lines of communication with veterinary practitioners. Less than 20% of respondents had been previously contacted by DOH. Although DACS/USDA share a system for rapid distribution of information in emergencies, DACS lacks funds and a mechanism to quickly distribute more routine information to practitioners statewide. An organized, two-way exchange of information is the most

effective way to achieve the desired level of preparedness. It is encouraging that 83% of respondents indicated interest in zoonotic disease training provided by DOH/DACS. Broader survey distribution is planned, possibly through Florida Veterinary Medicine Association (FVMA) contacts, to gain additional insight into existing partnerships with veterinary practitioners.

Recommendations

- Additional methods should be explored for disseminating disease reporting requirements as well as public health instructional materials to veterinarians. Although electronic access to these materials is already available, periodic contact, perhaps by email, facsimile, or another type of alerting system, may be required to ensure that veterinary practitioners remain informed.
- Promotional clinics should be organized for veterinary personnel to obtain rabies pre-exposure vaccine, when again available for this purpose, and/or have titers drawn.
- Preparedness trainings/exercises should be arranged with the utilization of online modules to assist veterinary practitioners in developing the necessary plans for disaster response.
- Training opportunities should be provided at professional conferences and events that attract veterinary practitioners, utilizing these as an outlet for distributing information and promoting collaboration. These efforts are sometimes limited at the regional and county levels due to funding and staffing constraints.

References

1. Taylor, LH, Latham, SM, and Woolhouse, ME. Risk Factors for Human Disease Emergence. Philosophical Transactions of the Royal Society of London. 2001. 356: 983-989.
2. Hsu, CE and Soto Mas, FG. Assessing Bioterrorism Preparedness and Response of Rural Veterinarians: Experiences and Training Needs. Under Review- Journal of Veterinary Medical Education.
3. Katz, AR, Nekorchuk, , Holck, PS, et al. Hawaii Veterinarians' Bioterrorism Preparedness Needs Assessment Survey. Journal of Veterinary Medical Education. 2006. 33 (4) 612-617.
4. Rabinowitz, PM, Gordon, Z, and Odofin, L. Pet-Related Infections. American Academy of Family Physicians. 2007. 76: 1314-1322.
5. Gerberding, JL, Hughes, JM, and Koplan, JP. Bioterrorism Preparedness and Response: Clinicians and Public Health Agencies as Essential Partners. Journal of the American Medical Association. 2002. 287 (7) 898-900.

Acknowledgements

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A Tale of Typhoid in South Florida

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

The first case identified was a 14-year-old girl who presented to a Palm Beach hospital emergency department (ED) on July 15, 2008 with symptoms of abdominal pain and diarrhea for the past six days and was subsequently identified having a positive blood culture for serovar Typhi. She was hospitalized for four days and treated with trimethoprim-sulfamethoxazole. A follow-up stool culture on August 8 was positive, but a stool culture on September 9 was negative. Another stool culture was submitted and the results are pending.

On August 7, a 13-year-old girl who also traveled with the group presented to another Palm Beach hospital ED with fever and chills, abdominal pain, vomiting, and back and leg aches since July 9. She was discharged from the ED pending the results of her blood culture, which came back positive for serovar Typhi. Due to an error in her contact information, the Palm Beach CHD was unable to notify her about the positive laboratory result, but they located her through her primary care physician. She was subsequently treated with amoxicillin by her physician and repeat stool specimens were negative for serovar Typhi. PFGE typing of the isolates was completed at the BOL-Jacksonville on August 12 and 26, respectively, and were noted to be identical. Follow-up investigation of other group members and family members of the two girls revealed no additional cases.

On August 15, the Clay CHD received a laboratory report from the Broward CHD regarding a 12-year-old boy, who presented to a Broward county hospital ED with the complaints of fever, headache, low back pain, and tenderness in the flank. The patient's onset of symptoms was between one to five days prior to the ED visit on August 5. The child previously resided in Clay County with his father, but since May he had been visiting his mother in the Bahamas and they had also vacationed in Haiti sometime during the summer. He became symptomatic before his return to Florida on August 5 and was with his aunt in Fort Lauderdale for less than 24 hours before going to the ED. The patient was transferred to another Broward county hospital and admitted on August 6 with presumptive serovar Typhi bacteremia. The specimen was sent to the BOL-Miami for confirmatory testing. He improved following treatment with intravenous ampicillin and was discharged ten days after the treatment began on August 20. The BOL-Jacksonville confirmed serovar Typhi on August 27. The PFGE of this isolate did not match those of the Palm Beach cases.

A review of in-depth surveillance data during the weekly Bureau of Epidemiology (BOE) surveillance meeting on October 1 revealed an unusually high number of typhoid fever cases (N = 5) for the preceding 12 weeks. This included the three cases detailed above, as well as the sporadic imported case in an 18-year-old woman from Palm Beach who traveled to Haiti with an onset of September 12; and a sporadic imported case in a 10-year-old boy from Miami Dade who traveled to Bangladesh with an onset of symptoms on July 30. Both were confirmed by the BOL-Jacksonville as serovar Typhi.

To further examine any possible relationships between the cases, a request was made to the BOL-Jacksonville for the PFGE profiles of the serovar Typhi cases. Of the 12 cases of serovar Typhi reported to date in 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 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 before becoming ill on June 10. Reportedly, the family was near the Port-au-Prince area, but stayed in a smaller rural area one and a half hours away. While there was no known exposure and other family members did not become sick, the family reports that there was "fever in the village" (St. Marc). The child was not part of the Palm Beach church group; however her exposures may be consistent with potential exposures for the Palm Beach adolescents who also visited the same general area of Haiti. All other serovar Typhi cases reported through September 2008 had unique PFGE patterns.

One month after the initial cluster with travel to Haiti was identified, a fourth serovar Typhi case was linked by PFGE pattern. A 12-year-old boy from Palm Beach who was not doing well in school was sent to live with relatives in Haiti from February through September 25, 2008. After returning to live with his family in Palm Beach, he presented to a local hospital on October 9 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 BOL-Jacksonville on October 31 revealed an identical pattern to the three cases found in August. Further investigation revealed the boy resided in the St. Marc area while in Haiti, consistent with likely exposure with the other individuals who had the same PFGE pattern.

Commentary

Typhoid fever is a systemic bacterial disease caused by infection with *Salmonella enterica* serovar typhi. It is characterized by an insidious onset of sustained fever, headache, malaise, anorexia, nonproductive cough early in the illness, and gastrointestinal disturbance, which is characterized by constipation more often than diarrhea in adults. The illness can range from mild to severe, and be characterized by multiple complications. Severity is influenced by strain virulence, quantity of inoculum, age of patient, and duration of illness prior to treatment. A carrier state can follow acute illness. The disease occurs worldwide, with the majority of cases in resource-limited countries including India, Bangladesh, Pakistan, Mexico, Haiti, and the Philippines. It is contracted by ingestion of food and water contaminated by feces or urine of infected people or carriers. The incubation period ranges from three to 60 days with an average of eight to 14 days.

In the United States, about 400 cases of typhoid fever occur each year, and 75% of these are acquired while traveling internationally. Since 1994, there has been a trend toward a modest decrease in cases, likely related to vaccine administration in international travelers.[1] The risk is very low in the United States except for those who spend time in endemic areas overseas. However, typhoid fever is still common in the developing world, especially for those living in poverty, where it affects about 21.5 million people each year. Without antibiotic treatment, the disease may persist for three to four weeks, with death rates ranging between 12% and 30%.

In Florida, the overall number of confirmed cases annually for the period 1997 to 2007 has ranged from ten to 24, and in 2007 there were 15 cases, representing a population incidence rate of 0.08 per 100,000 people.[2] From January through September 2008, there were 12 cases in Florida. Over the past five years, and consistent with national data, the majority of the cases (66%-90%) were acquired outside the United States. Cases tend to be isolated, rather than clustered, and typically occur more frequently in the summer months. Prior to this, only a single outbreak of typhoid fever (N=18, 1997) has been noted in Florida during the past ten years.[3] This outbreak was traced to frozen shakes made with imported frozen mamey fruit. PFGE is an important tool for identifying case clusters and outbreaks, especially when looking across jurisdictional boundaries.

Prevention is provided through proper sanitation, safe food handling practices, and appropriate case management. These include proper handwashing, appropriate disposal of human waste products, access to safe water supplies, control of insects, appropriate refrigeration, and cleanliness in preparation of food products in both home and commercial settings.[4] In endemic areas, this includes drinking bottled or carbonated water, cooking foods thoroughly, peeling raw fruits and vegetables, and in general, avoiding unsafe food or drink from street vendors. Antibiotic prophylaxis will not prevent typhoid fever. Immunization, either parenteral or oral, is recommended only for those United States residents with occupational exposure to enteric infections or for those traveling or living in high risk endemic areas. Vaccination needs to be completed at least one week prior to travel to have time to take effect. Since vaccines are not completely effective, taking care to follow safe food and drink recommendations ("Boil it, cook it, peel it, or forget it") is still important. Boosters are needed every two (parenteral vaccine) to five (oral vaccine) years.

The most commonly prescribed antibiotics to treat typhoid fever include ampicillin, trimethoprim-sulfamethoxazole, and ciprofloxacin. Fluoroquinolones are the drug of choice in adults, but due to increasing resistance, therapy should be guided by antimicrobial susceptibility testing. A full course of antibiotic therapy is important to prevent a carrier state or recurrent disease. Enteric isolation procedures should be followed for those in the acute stages. Household contacts should also be evaluated for infection. People who work in the food industry, provide care to small children or the elderly, or are daycare attendees will need to have negative cultures in no less than three consecutive specimens taken at least 24 hours apart and not earlier than one month after the onset of illness, provided they have been off antibiotic therapy for a period of one week.[5] Increasing resistance to antimicrobial agents, including fluoroquinolones, may present a future challenge.

References

1. Centers for Disease Control and Prevention. Available at: http://www.cdc.gov/ncidod/dbmd/diseaseinfo/typhoidfever_g.htm (Accessed on 10/7/08).
2. Florida Morbidity Statistics Report, 2007. (2008) Florida Department of Health, Bureau of Epidemiology.
3. Katz, D, Cruz, M, Trepka, MJ, Suarez, J, Fiorella, P, Hammond R. An Outbreak of Typhoid Fever in Florida Associated with an Imported Frozen Fruit. *The Journal of Infectious Disease,* 2002;286:pp.234-239.
4. David L. Heymann (ed.), Control of Communicable Diseases Manual, 18th ed., American Public Health Association Press, Washington, District of Columbia, 2004.
5. Florida Department of Health Bureau of Epidemiology Guidelines for Control of Outbreaks of Enteric Disease in Child Care Settings," Available at: www.doh.state.fl.us/disease%5Fctrl/epi/surv/enteric.pdf. (Accessed on 10/7/08).

Note

For any questions about this summary, please contact Patti Ragan, who previously served as the Bureau of Epidemiology case reviewer for typhoid fever, at (850) 245-4406.
Leah Eisenstein, M.P.H. is the new Bureau of Epidemiology case reviewer for typhoid fever.

Rabies PEP: Understanding the Challenges Counties Face

Catherine Kroll, M.P.H. and Carina Blackmore, D.V.M.

The limited supplies of vaccine for rabies post exposure prophylaxis (PEP) necessitate continued education and understanding of vaccine usage. To understand the epidemiology of possible exposures, it is important to understand animal bite reporting to counties, rabies exposure treatment recommendations, and reporting procedures in Merlin at a county health department (CHD) level in Florida. A better understanding of the county procedures will help the state health office to better support the CHDs.

To gather information regarding these practices, a telephone survey was designed and administered to the CHD personnel responsible for making rabies PEP recommendations. The survey contained questions regarding the office/CHD employee responsible for making and reporting PEP recommendations, how recommendations are reported, and barriers to making proper rabies PEP recommendations. An

announcement regarding the survey was made on the state bi-weekly epidemiology call, followed by an informational E-mail from the State Public Health Veterinarian asking counties to contact the surveyor. If the initial email was unsuccessful at establishing contact then a phone call to the primary epidemiology contact was made. If there was no response to the initial call, then one additional call was made. If there was still no response to the phone calls, then the county was considered lost to follow-up.

The survey was conducted from December 2007 to February 2008. There were 55 respondents, who represented 59 of 67 (88%) counties in Florida. These 59 counties were responsible for 94% of rabies PEP recommendations made in 2007. All counties responding stated that they did offer consultation for rabies PEP. Several of the lower population CHDs did not have an exposure reported to them in 2007. All but one CHD offered the vaccine through the health department. Miami-Dade County did not offer the vaccination but would consult if the emergency department or private provider contacted them. All geographic areas of Florida were represented by the responding CHDs. The CHDs were stratified based on county population size and defined as "small" (<50,000), "medium" (50,000-350,000), and "large" (>350,000). There was a high response rate from CHDs of each size; 85% (23/27) small, 88% (22/25) medium, and 93% (14/15) large responded. The non-responding CHDs had no identifiable significant geographic or population size difference from the responding counties.

In large and medium CHDs, a member of the epidemiology program had primary responsibility for making the PEP recommendation. In smaller CHDs, the primary staff responsible for making the recommendation varied between epidemiology, environmental health, or the consulting physician/medical director. In all CHDs, the program responsible for making the recommendation was also responsible for reporting in Merlin. All of the participating CHDs stated that they report recommended rabies PEP in Merlin or by fax to the Bureau of Epidemiology. Unanimously, CHDs reported few or no barriers to entering the required data into Merlin. Of those reporting barriers, entry time was most often cited.

When asked about barriers to making proper recommendations, approximately 60% of medium and large, and 26% of small CHDs surveyed said that in the last year they felt pressured to give vaccines in situations when it was not warranted due to client demands. Legal repercussions also seem to be a concern for many of those responsible for PEP recommendation. Examples of legal repercussions included a client suing them personally or the CHD, and revocation of nursing licenses. Forty-one percent of medium CHDs reported that this was a concern, as well as 35% of large CHDs and 17% of small CHDs. When respondents were asked if they were aware of a situation in the last year in their CHD in which they felt that unwarranted rabies PEP was given, the percentage of large and medium CHDs responding "yes" was over 40%, while 9% of small CHDs responded "yes."

Table 1. Percentage of responding counties reporting barriers to making proper PEP recommendations and unwarranted PEP in previous year by county size

County Size	Client Demands	Legal Repercussions	Unwarranted Use in Past Year
Small (<50,000 people) N=23	26% (6)	17% (4)	9% (2)
Medium (50,000 - 350,000 people) N=22	63% (14)	41% (9)	41% (9)
Large (>350,000 people) N=14	60% (9)	35%(5)	42% (6)

When CHDs were asked to share successful strategies for rabies exposure investigation, the overwhelming response was partnering with local animal control staff. These valuable partnerships can extend beyond the traditional model of locating animals. In St. Johns CHD for example, a Paws and Claws Animal Rabies Vaccine Clinic was held twice in the last year. The clinic was held at the local health department with CHD staff setting up, supplying administrative staff, and handling cashier responsibilities. Animal Control staff supplied the vaccine and contracted with the veterinarians to administer them. This is an excellent model of partnership with animal control.

The final open-ended question in the survey asked how the state environmental health office could support counties in their efforts to appropriately administer rabies PEP. The most common answer was by providing financial resources. The second most common answer was by providing educational materials for both clients and health department staff. Notably, many counties mentioned that it is necessary to have continued availability of Drs. Blackmore and Stanek to consult on individual exposures.

An interesting finding of this survey is the lower percentage of smaller CHDs reporting barriers to making proper recommendations. Approximately 60% of the medium and large CHDs reported pressure to give vaccine due to client demands. This is twice the percentage of small CHDs reporting that pressure (26%). CHDs tried to overcome this barrier through client education. When this was unsuccessful, they referred clients to their private providers. Smaller CHDs may have felt less pressure because a physician is frequently involved in the primary decision-making and delivery of that decision to the client. It may be that clients are less likely to pressure a doctor than a nurse. Additionally, a higher percentage of large and medium population CHDs felt pressured to give rabies PEP due to concerns of legal repercussions. Despite the laws protecting DOH employees, respondents were concerned about the possibility of a client with a low exposure risk who was not given rabies PEP developing human rabies. Given that a higher percentage of large and medium CHDs reported client demands and legal pressure, it is logical that higher percentages of these counties report situations where unwarranted rabies PEP was given. However, there is potential bias in this question as there may be a difference in recall by medium and large CHDs compared to small CHDs.

The results of this survey suggest that there is a potential for reducing unwarranted rabies PEP by reducing both the pressures of client demands and the concern for legal retribution. A higher percentage of medium and large counties reported these pressures, which may be due to the much higher volume of PEP given by these counties than their smaller counterparts. Because the primary duty of recommending and reporting in Merlin falls to the epidemiology division, they are a target group for education outreach. However, the role of environmental health and nursing cannot be discounted, particularly in smaller counties. One possible way stated to overcome the pressure was providing the client with educational materials. Another tactic is consulting with the state health office during the recommendation process. It is unlikely that the current limitations to the rabies vaccine supply will continue indefinitely, but appropriate targeted usage will help reduce the risk of future supply concerns and cost to the counties and state.

Acknowledgements
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Catherine Kroll is the Epidemic Intelligence Service Fellow assigned to Leon County and Dr. Blackmore is the Bureau Chief in the Bureau of Environmental Public Health Medicine.

Unexplained Death in a 22-month-old, Miami-Dade County

Vincent Conte, M.D., Álvaro Mejía-Echeverry, R.N., M.P.H. and Tim Doyle, M.P.H.

On August 3, 2008, the Miami-Dade County Health Department (MDCHD) was notified by a local hospital regarding the sudden death of a 22-month-old female, with possible meningococcal disease. The child first became ill on July 20. She developed cold-like symptoms with a cough, runny nose, and fever. The highest temperature recorded by the mother was 101° F. The symptoms persisted for several days, so the mother decided to treat her with over-the-counter Robitussin and Tylenol Cough and Cold, both in pediatric formulations. The symptoms seemed to improve over the next several days, but did not resolve completely. On or about August 1, the mother noticed areas of reddish discoloration and little red dots on her daughter's lower extremities. The discoloration and spots persisted, and on August 3 the child started to spontaneously bleed from her gums. The mother took the child by public transportation to the nearest hospital, but, enroute the child became unresponsive and stopped breathing. At that point, 911 was called and fire rescue arrived and began cardiopulmonary resuscitation (CPR) on the child. Fire rescue personnel were unable to start an intravenous (IV) line or insert an endotracheal (ET) tube, but they continued CPR with an oral airway in place.

On arrival at the emergency department (ED), the child had no vital signs. Her electrocardiogram (EKG) was flat line (asystole) and she had no blood pressure or pulse. Several attempts to start an IV proved unsuccessful but an ET tube was successfully inserted. CPR was continued for approximately 25 minutes without success, and the child was pronounced dead. No blood samples were obtained at the hospital for labs or cultures. However, ED staff did notice the discoloration and red spots on her lower extremities. Based on the history and physical exam, the patient was given a presumptive diagnosis of meningococcal disease and the health department was immediately informed. The body was sent to the Medical Examiner’s (ME) office for an autopsy.

Upon report of a possible N. *meningitidis* case, MDCHD staff promptly began an investigation and within several hours had compiled a list of close contacts. Close contacts from the hospital and fire rescue were given antibiotic prophylaxis from their own infection control staff. Other close contacts were given the choice of either Ciprofloxacin or Rifampin. Approximately ten prescriptions were either written or called-in for both adult and pediatric contacts.

On August 4, an autopsy was performed and the initial gross pathology findings were negative for meningitis, but diffuse hemorrhage was noticed in the heart, liver, kidneys, pericardial fluid, cerebrospinal fluid (CSF), and brain. The presumptive diagnosis given by the ME was a viral infection with hemorrhagic features. The ME was able to obtain 10 cc's of bloody CSF and approximately 2 cc's of whole blood. These specimens were sent to the state lab in Tampa where the specimens were separated for testing for viral and bacterial agents at the Tampa and Jacksonville laboratories.

Based on the ME's initial findings, the samples were initially tested for arboviruses, hantavirus, and enteroviruses; all of these tests came back negative. Further consultation with the ME suggested a possible early AIDS picture, so HIV testing was done, which was also negative. Bacterial cultures were positive for Group B Streptococcus in the CSF and Klebsiella *pneumoniae* in the blood. However, the ME cautioned that postmortem bacterial cultures can be more susceptible to contaminants and may not indicate infection at the time of death.

As of the week of August 18, the ME was still unsure of the cause of death, so he brought the case up for review at grand rounds. A prominent pediatric histopathologist examined the bone marrow slides and came up with a probable diagnosis of Acute Lymphoblastic Leukemia with complicating sepsis. The cause of death was determined to be overwhelming sepsis as a result of the Acute Lymphoblastic Leukemia. Any or all of the bacteria that were cultured could have been the cause of death.

Commentary
This case highlights the importance of CHDs working closely with the local ME's office in the investigation of unexplained deaths. While the ME has the duty and responsibility to ascertain the manner and cause of death, CHDs and the state health department can assist in this process, particularly with laboratory diagnostic support for infectious agents. This tragic circumstance initially came to the attention of the CHD when reported as a suspect case of meningococcal disease. While unexplained deaths, per se, are not a notifiable condition in Florida, CHDs are strongly encouraged to work with their local ME to facilitate information sharing in instances of unexplained deaths or unusual circumstances that may have public health consequences for disease control. CHDs are urged to promptly notify their regional epidemiologist or the Bureau of Epidemiology staff, who can assist with coordinating additional testing through the Center for Disease Control and Prevention's (CDC) diagnostic pathology service, should it be needed. In general, MEs should be encouraged at the time of autopsy to gather fresh frozen tissues from various sites, which will greatly assist if CDC diagnostic services are later needed.

Dr. Vincent Conte is the director in the Office of Epidemiology and Disease Control and Álvaro Mejía-Echeverry is the Bio-Terrorism Unit Coordinator in the Office of Epidemiology and Disease Control, Miami-Dade County Health Department. Tim Doyle is a regional epidemiologist for the Florida Department of Health, Bureau of Epidemiology.

Stool Kit Pilot Project

Roberta M. Hammond, Ph.D., R.S.; Robin Terzagian; Kathleen Van Zile, R.S., M.S.E.H.; Tracy Wade, M.S.; Ryan Lowe, M.P.H.; and Sandy Lyda

About 50% of food and waterborne disease outbreaks in Florida are not laboratory confirmed because stool samples are not collected. The Food and Waterborne Disease Program received $30,000 from the Centers for Disease Control and Prevention (CDC) Public Health Preparedness Cooperative Agreement 2007-2008 specifically to enhance confirmation of food and waterborne disease outbreaks through better stool collection. Our goal is to have CHDs and regional environmental epidemiologists collect stool samples for all outbreaks. We also want stool samples collected from food workers in outbreaks where appropriate. Not all foodborne outbreaks are caused by food worker error, as we know from recent experiences with widely distributed foods like spinach and lettuce. We hope to achieve these goals by making stool collection easier.

With the help of the Stool Kit Workgroup, we have developed a kit that keeps most of the collection materials in one place.

Stool Kit Bag and Collection "Hat"

Kit Contents
A silver resealable plastic bag with the Department of Health (DOH) logo and "Clinical Samples, Keep Refrigerated" message on the outside that includes:

1. A pair of gloves
2. A small scoop
3. Revised and reformatted stool collection instructions in English and Spanish
4. Due to expiration issues with media used in clinical samples, CHDs will put in a set of three collection cans: two with media for standard enterics and ova and parasite (O & P), as well as an empty sterile container for samples to be tested for viruses.

Stool Kit Contents: Instructions, Gloves, Scoop and Hat


Stool Collection Cans Put Into the Bag by CHDs: Standard Enterics, O & P, Viral

In addition to the above, based on input from over 20 CHDs, we have purchased a large number of stool collection hats, extra gloves, and scoops that will also be distributed. Stool collection kits will be distributed starting in mid to late November by the regional environmental epidemiologists to their CHD food and waterborne disease contacts. While their primary use is intended for food and waterborne disease outbreaks, these kits can be used for other types of outbreak investigations.

The Basics of Good Stool Sampling
Stool sampling is necessary to accomplish one of the first steps of a food and waterborne disease outbreak investigation: confirm the diagnosis through laboratory identification. It is best to collect split samples for standard enterics, O & P, and viruses in order to rule out certain causative agents. You do not want to have to go back and ask someone for more. In smaller outbreaks, obtain specimens from as many of the ill as you can, and for large outbreaks you only need ten to 12 stool samples to characterize an outbreak. Remember to contact your regional environmental epidemiologists for assistance if you need it.

While it is not uncommon to hear from an investigator that everyone felt better and no stools were collected, it is possible for a person to shed pathogens even after the symptoms abate. For instance, shedding of *Cryptosporidium spp.* can be passed in your stool for several weeks after your symptoms have ended.[1]

Another example of shedding after symptoms abate is *Salmonella*. Most persons infected with *Salmonella* develop diarrhea, fever, and abdominal cramps 12 to 72 hours after infection. The illness usually lasts four to seven days, and most persons recover without treatment.[2] The risk of transmission exists throughout the course of infection and is extremely variable, usually several days to weeks. A temporary carrier state occasionally continues for months, especially in infants. Depending on the serotypes, approximately 1% of infected adults and 5% of children under five may excrete the organism for more than one year.[3]

With norovirus, identification of the virus can be best made from stool specimens taken within 48 to 72 hours after onset of symptoms, although good results can be obtained by using real time-polymerase chain reaction (RT-PCR) on samples taken as long as five days after symptom onset. The virus can sometimes be found in stool samples taken as late as two weeks after recovery. Although presymptomatic viral shedding may occur, shedding usually begins with the onset of symptoms and may continue for two weeks after recovery. It is unclear to what extent viral shedding over 72 hours after recovery signifies continued infectivity.[3]

For *E. coli O157:H7*, the duration of excretion of the pathogen is typically one week or less in adults, but three weeks in 1/3 of children. Prolonged carriage is uncommon. The infectious dose is very low.[5] The steps for better stool collection success are as follows:

1. DECIDE ***which containers you need***

2. PREPARE ***packages of containers***

3. TAKE time ***to explain why you are sampling***

4. FACILITATE ***distribution of samples***

5. ALERT ***the laboratory***

6. CALL BACK ***with results***

7. BE PREPARED ***for disappointment***

1. **DECIDE** which containers you need (it is recommended that you get specimens for all three).
    - Specimen containers with liquid “Enteric Transport Media” are used for BACTERIAL pathogens.
    - Specimen containers with liquid 5% Buffered Formalin are used for PARASITES.
    - Specimen containers that contain no media and are sterile must be used for VIRUSES.
2. **PREPARE** packages of containers (these are the stool kits we are going to distribute).
    - Use large bags (”whirl pak” bags work well) to hold the cans.
    - Include ALL the types of cans possibly needed.
    - Include sample collection instructions.
    - Include business cards or phone numbers of staff who will collect the samples.
3. Take **TIME** to explain why you are sampling.
    - For ill people: explain the need to find the pathogen for their benefit and information, and for any necessary medical care tell them to consult their personal physician.
    - For food workers: explain the benefit to their health as well as the need to ensure the health of their customers.
    - For management: explain their responsibility to ensure that food workers are not potential carriers.
4. **FACILITATE** distribution and collection of sampling materials.
    - Make sampling EASY for them, even if it is HARD for you. People asked to pick up, collect, and deliver their own samples, especially food workers, are less likely to comply.
    - Utilize management for collection of samples from food workers. Employee lists, time cards, and paychecks can be effectively used to promote sampling compliance.
    - Interested family members can be asked to serve as central sites to pick up multiple samples from an outbreak group.

5. **ALERT** the laboratory.
    - Let the lab know about the outbreak and if you are planning to sample. Media has to be prepared for analysis. A lab that is ready can provide you faster results.
    - Fill out the lab forms completely and double check the slips individuals fill out for completeness, ESPECIALLY names or identifiers. Label samples FOODBORNE OUTBREAK-RELATED.
    - Let the lab know how many samples you are expecting to deliver. Make sure you give the lab the ADDRESS where you want the results sent.
6. **CALL** them back.
    - Call the people who provided samples with the results, positive or negative.
    - Call food service management with the results as well.
    - Call the appropriate regulatory agencies of results, without using identifiers.
7. Be **PREPARED** for disappointment.
    - You will rarely achieve 100% compliance. As time passes and people become well, interest in providing samples diminishes.
    - Some people simply "won't do that, ewww."

Following these steps and using the enhanced stool kits will help improve the laboratory confirmation of food and waterborne diseases. We plan to evaluate the effect of this project on confirmation of pathogens as well as a process evaluation. If CHDs have any questions regarding stool collection during food or waterborne outbreaks, please contact your Regional Environmental Epidemiologist for assistance.

We would like to acknowledge the following volunteers who helped put the stool kits together: Priscilla Cope and Heather Hicks (staff assistants), Rick Hutchinson (Regional Environmental Epidemiologist) and FAMU students and Environmental Health Aides, Gabrielle Johnson and Jonathan Arias.

Sources

1. CDC. Cryptosporidiosis. April 16, 2008. Available at: http://www.cdc.gov/crypto/factsheets/infect.html (Accessed October 21, 2008).
2. CDC. Salmonellosis. May 21, 2008. Available at: http://www.cdc.gov/nczved/dfbmd/disease_listing/salmonellosis_gi.html (Accessed October 21, 2008).
3. Heymann, David, ed. Salmonellosis, Control of Communicable Diseases Manual, 18th Edition, 2004, pp. 469-473.
4. CDC. Norovirus. August 3, 2006. Available at http://www.cdc.gov/ncidod/dvrd/revb/gastro/norovirus-factsheet.htm (Accessed October 21, 2008).
5. Heymann, David, ed. Diarrhea Caused By Enterohemorrhagic Strains, Control of Communicable Diseases Manual, 18th Edition, 2004, pp. 160-164.

Authors

The Food and Waterborne Disease Program with the Florida Department of Health, Bureau of Environmental Public Health Medicine is responsible for surveillance and investigation of food and waterborne disease outbreaks, gives technical assistance to CHDs, and develops and provides training to CHDs and other interested groups. There are nine regional environmental epidemiologists, a food and waterborne preparedness coordinator, a staff assistant, and a statewide coordinator.
Please see these links for a map of coverage areas at:
http://www.doh.state.fl.us/Environment/community/foodsurveillance/contact_docs/Epidemiologist_regions.pdf
and a list of contact information at:
http://www.doh.state.fl.us/Environment/community/foodsurveillance/contact_docs/FW_Contacts.pdf .

Dr. Roberta Hammond is the Food and Waterborne Disease Coordinator; Tracy Wade is the Food and Waterborne Disease Preparedness Coordinator; Sandy Lyda is a staff assistant; Kathleen Van Zile is a Regional Environmental Epidemiologist; Ryan Lowe is a Regional Environmental Epidemiologist; and Robin Terzagian is the Regional Environmental Epidemiologist for the Food and Waterborne Disease Program, Bureau of Environmental Public Health Medicine.

Florida Year-to-Date Mosquito-Borne Disease Summary Through November 15, 2008

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

During the period from January 1 through November 15, 2008, the following arboviral activity was recorded in Florida: Eastern equine encephalitis virus (EEEV), West Nile virus (WNV), St. Louis encephalitis virus (SLEV), Highlands J virus (HJV), and California encephalitis group viruses (CEV).

EEEV Activity

A locally-acquired EEE case was confirmed in a Leon County resident in August. Positive samples from 115 sentinel chickens, 86 equines, two other mammals, three dead birds, and 92 live wild birds were received from 38 counties. EEEV was cultured from a pool of 50 *Culex salinarius* and a pool of 50 *Cx. nigripalpus*, both collected on February 13 in Volusia County, and one pool of 50 *Culiseta melanura* collected on March 19 in Flagler County.

WNV/SLEV Activity

Two locally-acquired WNV neuroinvasive disease cases were confirmed in Escambia County residents in September. A Wakulla County resident was also found to have WNV disease, though it is likely that the infection was acquired out-of-state. Positive samples of WNV antibody from 16 sentinel chickens and one horse were received from 13 counties. Flavivirus-reactive samples from three live wild birds were received from Hillsborough, Okaloosa, and Santa Rosa counties. It was not determined whether the wild bird samples were reactive specifically to SLEV or WNV.

HJV activity

Positive samples from 55 sentinel chickens were received from 15 counties. HJV was isolated from three pools of 50 *Culex nigripalpus* collected on February 22, February 26, and March 28 in Volusia County and two pools of *Cs. melanura* collected on March 19 and May 7 in Flagler County.

CEV activity

LaCrosse encephalitis was confirmed in a Hillsborough County resident with travel history to North Carolina. This case was reported as a Florida case acquired out-of-state. La Crosse virus is in the California Encephalitis group of viruses. California serogroup virus was isolated from a pool of *An. crucians* collected on July 16 in Santa Rosa County.

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. Since January 1, 463 reports representing a total of 1,100 dead birds (37 crows, 57 jays, 55 raptors, and 951 others) were received from 57 of Florida's 67 counties. 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/.

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

Rebecca G. Shultz is the Arthropod-borne Disease Surveillance Coordinator with the Bureau of Environmental Public Health Medicine. Dr. Stanek is a medical epidemiologist with the Bureau of Environmental Public Health Medicine. Dr. Blackmore is the State Public Health Veterinarian and the Bureau Chief with the Bureau of Environmental Public Health Medicine. The Bureau of Environmental Public Health Medicine is part of the Division of Environmental Health, DOH.

Florida Influenza Surveillance Report

Kateesha McConnell, M.P.H.

Influenza surveillance in Florida consists of seven surveillance components: 1) Florida Sentinel Provider Influenza Surveillance Network (FSPISN); 2) Florida Pneumonia and Influenza Mortality Surveillance System; 3) State laboratory viral surveillance; 4) County influenza activity levels; 5) Notifiable Disease Reports; 6) Influenza or influenza-like illness (ILI) outbreaks; and 7) Syndromic Surveillance.

Syndromic surveillance ILI data, as monitored through the Electronic Surveillance System for the Early Notification of Community-based Epidemics (ESSENCE), is a newly added component of the overall state influenza surveillance program. Each week, a graph of the percentage of ILI visits to participating emergency departments will be available in the weekly influenza surveillance report. This added information will provide an additional source of data to monitor ILI activity in the state.

For the most up to date information regarding influenza surveillance and the progress of influenza season in Florida please visit the Bureau of Epidemiology influenza surveillance reports website at: http://www.doh.state.fl.us/disease_ctrl/epi/htopics/flu/reports.htm.

During the first five reporting weeks of the 2008-2009 influenza season, statewide influenza activity was sporadic for weeks 40-43 and no activity was noted for week 44 according to the Centers for Disease Control's (CDC) influenza activity criteria. The proportion of patient visits for ILI as reported by the FSPISN averaged 1.2% for these five weeks, which is below the state threshold for moderate activity of 2.98%. There have been no isolated ILI outbreaks noted in Florida so far this season. Influenza activity across the nation has also been low during this same time period. Since September 28, 2008, the Bureau of Laboratories have tested a total of 42 specimens for influenza viruses. None of the specimens have tested positive for influenza. During week 44, no counties reported widespread activity and one county reported localized activity. Thirteen counties reported sporadic activity and 40 counties reported no activity. Thirteen counties did not report.

Overall, the flu season in Florida is progressing normally. Thank you to all of our surveillance partners for their continuous surveillance efforts around the state which will enable us to accurately monitor influenza activity in the state. Remember, now is an excellent time to protect yourself and your family from the flu. Get your flu shot today!

Kateesha A. McConnell is the respiratory disease surveillance epidemiologist in the Bureau of Epidemiology.

Recently Published

"Outbreak of Giardiasis and Cryptosporidiosis Associated with a Neighborhood Interactive Water Fountain—Florida, 2006,: by Leah Eisenstein, M.P.H.; Dean Bodager, M.P.A., R.S., D.A.A.S.; and Dawn Ginzl, M.P.H.

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Upcoming Events

Bureau of Epidemiology Monthly Grand Rounds
Date: Last Tuesday of each month (NOTE: December Grand Rounds is scheduled for December 16)
Time: 10 a.m.-11 a.m.
Location: Building 2585, Room 310A
Dial-In Number: 877.646.8762 (password: Grand Rounds)
Upcoming Topics:
December: "MRSA: Old Bug, New Challenge," presented by Roger Sanderson, B.S.N., M.P.H.
January: "Epidemiology and Environmental Health Strike Team Exercise Overview," presented by Lauren Ball, D.O., M.P.H.

Reportable Diseases in Florida

Up-to-date information about the occurrence of reportable diseases in Florida, based on the Merlin surveillance information system, is available at the following site: http://www.floridacharts.com/merlin/freqrpt.asp. Counts can be displayed by disease, diagnosis status, county, age group, gender, or time period.

Monthly Notifiable Disease Data

Table 1. Provisional Cases* of Selected Notifiable Diseases, Florida, October 1-31, 2008

	Month				Cumulative (YTD)	
Disease Category	**2008**	**2007**	**Mean†**	**Median¶**	**2008**	**2007**
A. Vaccine Preventable Diseases						
Diphtheria	0	0	0	0	0	0
Measles	0	0	0	0	0	5
Mumps	4	5	1	1	24	17
Pertussis	25	10	14	18	244	192
Poliomyelitis	0	0	0	0	0	0
Rubella	0	0	0	0	3	0
Smallpox	0	0	0	0	0	0
Tetanus	0	1	1	1	1	4
Varicella	122	96	19	96	1,395	1,039
B. CNS Diseases & Bacteremias						
Creutzfeldt-Jakob Disease	6	0	0	2	26	11
H. Influenzae (invasive)	9	11	7	4	116	97
in those ≤5	1	6	4	4	51	58
Listeriosis	9	3	3	3	38	22
Meningitis (bacterial, cryptococcal, mycotic)	1	0	0	0	0	0
Meningococcal Disease	2	4	5	4	50	57
Staphylococcus aureus (VISA, VRSA)	0	0	0	0	1	0
Streptococcal Disease, Group A, Invasive	22	23	20	19	226	263
Streptococcus pneumoniae (invasive disease)						
Drug resistant	50	36	36	36	592	591
Drug susceptible	42	38	30	28	543	496
C. Enteric Infections						
Campylobacteriosis	125	79	79	79	949	874
Cholera	0	0	0	0	1	0
Cryptosporidiosis	67	131	74	41	456	633
Cyclospora	0	1	1	1	55	32
Escherichia coli, Shiga-toxin producing (STEC)**	16	3	4	4	35	30
Giardiasis	158	131	115	107	1,077	1,081
Hemolytic Uremic Syndrome	2	0	0	1	3	6
Salmonellosis	680	748	670	648	4,306	3,955
Shigellosis	55	171	175	178	701	1,976
Typhoid Fever	2	4	1	2	13	12
D. Viral Hepatitis						
Hepatitis A	21	15	26	25	151	145
Hepatitis B, Acute	41	35	45	40	305	320
Hepatitis C, Acute	5	5	4	5	51	43
Hepatitis +HBsAg in pregnant women	42	58	43	41	510	512
Hepatitis D, E, G	0	0	0	0	1	2

* Confirmed and probable cases based on date of report as reported in Merlin
Incidence data for 2008 is provisional, data for 2007 are finalized

† Mean of the same month in the previous five years

¶ Median for the same month in the previous five years

** Includes *E. coli* O157:H7; shiga-toxin positive, serogroup non-O157; and shiga-toxin positive, not serogrouped

†† Includes neuroinvasive and non-neuroinvasive

N/A indicates that no historical data is available to caculate mean and median

Table 1. (cont.) Provisional Cases* of Selected Notifiable Diseases, Florida, October 1-31, 2008

	Month				Cumulative (YTD)	
Disease Category	**2008**	**2007**	**Mean†**	**Median¶**	**2008**	**2007**
F. Vector Borne, Zoonoses						
Dengue	2	10	4	2	28	34
Eastern Equine Encephalitits††	0	0	0	0	1	0
Ehrlichiosis/Anaplasmosis	1	4	1	4	11	17
Leptospirosis	0	0	0	0	0	0
Lyme Disease	26	3	3	3	116	24
Malaria	7	3	7	5	49	49
Plague	0	0	0	0	0	0
Psittacosis	0	0	0	0	4	0
Q Fever (acute and chronic)	0	0	0	1	0	2
Rabies, Animal	18	10	14	14	127	115
Rabies (possible exposure)	148	124	97	87	1,339	1,159
Rocky Mountain Spotted Fever	3	2	1	2	17	14
St. Louis Encephalitis††	0	0	0	0	0	0
Toxoplasmosis	4	1	1	1	15	4
Trichinellosis	0	0	0	0	1	0
Tularemia	0	0	0	0	0	0
Typhus Fever (epidemic and endemic)	0	0	0	0	0	1
Venezuelan Equine Enchephalitis††	0	0	0	0	0	0
West Nile Virus††	1	0	7	8	5	3
Western Equine Encephalitis††	0	0	0	0	0	0
Yellow Fever	0	0	0	0	0	0
G. Others						
Anthrax	0	0	0	0	0	0
Botulism-Foodborne	0	0	0	0	0	0
Botulism-Infant	0	0	0	0	1	0
Brucellosis	3	1	1	1	10	7
Glanders	0	0	0	0	0	0
Hansen's Disease (Leprosy)	2	0	1	2	9	6
Hantavirus Infection	0	0	0	0	0	0
Legionella	11	11	12	12	126	123
Melioidosis	0	0	0	1	0	0
Vibriosis	7	13	11	10	85	84

* Confirmed and probable cases based on date of report as reported in Merlin
Incidence data for 2008 is provisional, data for 2007 are finalized

† Mean of the same month in the previous five years

¶ Median for the same month in the previous five years

†† Includes neuroinvasive and non-neuroinvasive

N/A indicates that no historical data is available to caculate mean and median

Note: The 2008 case counts are provisional and are subject to change until the database closes. Cases may be deleted, added, or have their case classification changed based on new information and therefore the monthly tables should not be added to obtain a year to date number.

Please refer any questions regarding the data presented in these tables to Kate Goodin at Kate_Goodin@doh.state.fl.us or 850.245.4444 Ext. 2440.

This Month on EpiCom

Christie Luce

EpiCom is located within the Florida Department of Health's Emergency Notification System (FDENS). The Bureau of Epidemiology encourages *Epi Update* readers not only to register on the EpiCom system by emailing the Florida Department of Health Emergency Notification System Helpdesk at FDENS-help@doh.state.fl.us, but to sign up for features such as automatic notification of certain events. Users are invited to contribute appropriate public health observations related to any suspicious or unusual occurrences or circumstances through the system. EpiCom is the primary method of communication between the Bureau of Epidemiology and other state medical agencies during emergency situations.

Christie Luce is the Surveillance Systems Administrator for Bureau of Epidemiology.

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 online: http://www.doh.state.fl.us/disease_ctrl/epi/Epi_Updates/index.html. The current issue of Epi Update is available online: http://www.doh.state.fl.us/disease_ctrl/epi/Epi_Updates/2008/November2008EpiUpdate.pdf. For submission guidelines or questions regarding Epi Update, please contact Gail Morales at Gail_Morales@doh.state.fl.us.*