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In This Issue

- Florida Youth Tobacco Survey – 2009 Update
- *E. Coli* 0157:H7 Outbreak in a Correctional Institution, May 2009, Lafayette County
- Breast Cancer in Florida, 2006
- Bat Exposure in Africa: International Rabies Assessment
- Florida Influenza Surveillance Report
- Florida Year-to-Date Mosquito-Borne Disease Summary
- Recently Published
- Upcoming Events
- Reportable Diseases in Florida: September 2009
- This Month on EpiCom

Florida Youth Tobacco Survey – 2009 Update

Jamie Weitz, M.S.

The Bureau of Epidemiology is proud to announce the release of the 2009 Florida Youth Tobacco Survey (FYTS) data. The FYTS is a statewide, school-based, anonymous survey that has been conducted annually since 1998. The FYTS collects information about the prevalence of tobacco use, attitudes, and related behaviors among middle and high school students throughout Florida and tracks those behaviors over time.

In March and April of 2009, 6,364 middle school students and 5,673 high school students in 179 public schools throughout the state completed the FYTS. The survey data show that from 1998 to 2009:

- The prevalence of students who are committed never smokers (defined as students who have never tried a cigarette, and say that they will not smoke in the future or if a friend offers them a cigarette) has increased by 77% among middle school students and by 112% among high school students (Figure 1).
- The prevalence of lifetime cigarette smokers (defined as students who have ever smoked one or two puffs) has decreased by 58% among middle school students and by 42% among high school students.
- The prevalence of current cigarette smokers (defined as students who smoked a cigarette one or more times during the past 30 days) has decreased by 71% among middle school students and by 48% among high school students (Figure 2).

Protecting students from secondhand smoke (SHS) exposure, however, has not made as much progress when compared to preventing and reducing tobacco use. From 1998 to 2009, the prevalence of SHS exposure has decreased among middle students by 21% and by 22% among high school students. Approximately half of middle and high school students (49% and 57%, respectively) reported that they had been exposed to SHS in a room or car during the seven days prior to the survey.

Additional reports from the Florida Youth Tobacco Survey (FYTS) are available online at <http://www.FloridaChronicDisease.org/FYTS/Intro.htm>.

Figure 1. Committed Never Smokers

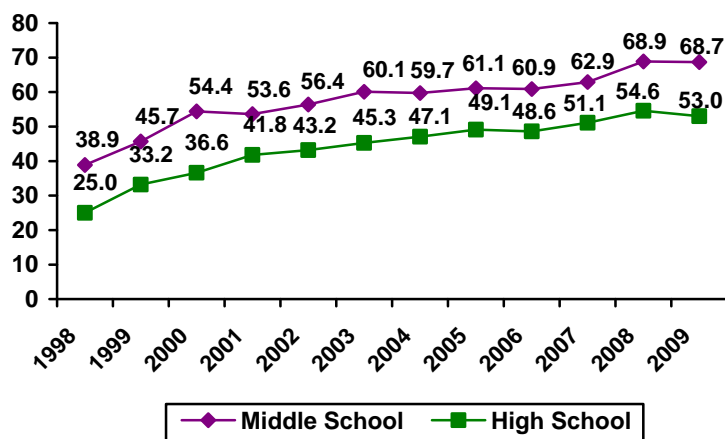
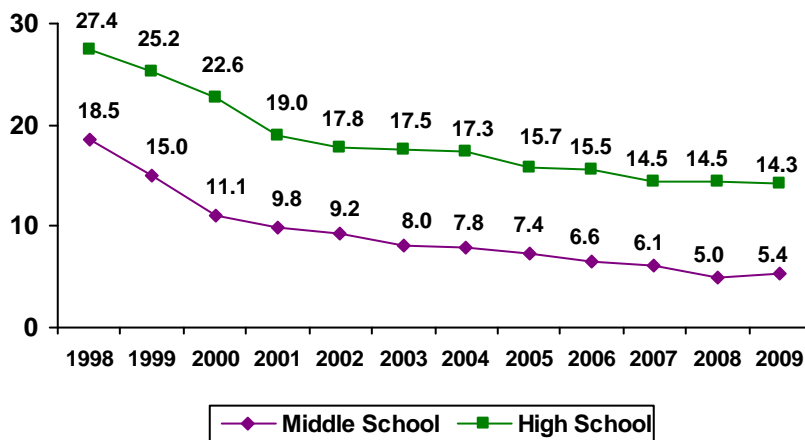


Figure 2. Current Cigarette Smoking



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E. Coli O157:H7 Outbreak in a Correctional Institution, May 2009, Lafayette County

Michelle George, B.A. and Becky Lazensky, M.P.H.

Background

Escherichia coli (*E. coli*) is a bacterium that is commonly found in the intestines of animals and humans.¹ However, there are strains, such as *E. coli* O157:H7, that cause severe foodborne disease.² The *E. coli* O157:H7 strain produces potent toxins known as Shiga-like toxins causing the symptoms of the foodborne disease.² The Centers for Disease Control and Prevention (CDC) report that *E. coli* O157:H7 and other Shiga-toxin producing *E. coli* (STEC) cause an estimated 73,000 illnesses in the United States annually.³ Symptoms of *E. coli* O157:H7 range from mild abdominal cramps and diarrhea that may progress to severe bloody diarrhea that can severely damage the lining of the intestines.¹ Fever and vomiting may also occur. The incubation period of the *E. coli* O157:H7 infection ranges from two to ten days with a median of three to four days.⁴ Most patients recover within 10 days; however, 8% (particularly young children and the elderly) progress to cases of a life-threatening disease known as hemolytic uremic syndrome (HUS).¹ HUS is characterized by acute renal failure, hemolytic anemia, and thrombocytopenia that occur after an acute gastro-intestinal (GI) illness that is diarrheal.²

According to a CDC report conducted on 183 outbreaks from 1982 to 2002, 52% to 61% of outbreaks resulted in exposure to the bacterium through the transmission of food (includes both *E. coli* O157:H7 and STEC outbreaks).³ However, there are other routes of transmission. Fecal contamination of water and foods, as well as cross-contamination during food preparation (with food products, contaminated surfaces, and kitchen utensils) also lead to exposure to the bacterium.² Waterborne transmission has been reported, both from contaminated drinking and recreational water resulting in 9% of outbreaks. Person-to-person contact is an important mode of transmission through the oral-fecal route, resulting in 14% of outbreaks.³ Twenty-one percent of outbreaks are reported as unknown transmission.³ An asymptomatic carrier state has been reported for *E. coli* O157:H7, where individuals show no clinical signs of disease yet are capable of infecting others.⁴ The duration of shedding the bacterium is about one week or less in adults, but can be longer in children.² The infectious dose is small.

On May 26, 2009, the Department of Corrections (DOC) reported a cluster of GI illness in a correctional institution in Mayo, Florida. An epidemiological and environmental investigation was initiated by the Lafayette County Health Department (LCHD), the Regional Environmental Epidemiologist, and the DOC. Initially, 41 cases were reported in the inmate population; zero cases were reported among staff members at the facility. Cases resided in multiple dormitories. Reported symptoms included: severe bloody diarrhea, fever, nausea, and abdominal cramps.

Investigation Summary

The case definition included inmates with symptoms of diarrheal illness (≥ 3 loose stools in a 24-hour period), abdominal cramps, and/or fever from May 15 to May 30. Cases were classified into four categories: confirmed, probable, suspect, and secondary. Confirmed cases were defined as people with *E. coli* O157:H7 isolated from a stool culture and diarrheal illness from May 15 to May 30. Probable cases were defined as having diarrheal illness with bloody or non-bloody stools, abdominal cramps, or fever from May 15 to May 30. Secondary cases were defined as having diarrheal illness with blood or non-bloody stools, abdominal cramps, or fever from May 26 to May 30. Suspect cases were defined as having illness without diarrhea from May 15 to May 30.

Table 1. Case Classifications (n=42)

Classification	Definition	Number (Percentage)
Confirmed	<i>E. coli</i> O157:H7 isolated from stool culture	N=2 (4.8%)
Probable	Diarrheal illness with bloody stool, abdominal cramps, or fever and negative lab results or no lab testing conducted occurring between May 15 and May 30.	N=16 (38%)
	Diarrheal illness with non-bloody stool, abdominal cramps, or fever and negative lab results or no lab testing conducted occurring between May 15 and May 30.	N=12 (28.6%)
Secondary	Diarrheal illness with blood or non-bloody stool, abdominal cramps, or fever during the time period of May 26 to May 30.	N=4 (9.5%)
Suspect	Compatible illness without diarrhea and negative lab results or no lab testing conducted.	N=8 (19%)

A case-control study was designed to compare exposure histories in cases and controls. Cases were defined as all people who met the definition for either a confirmed, probable, suspect, or secondary case. Controls were randomly selected by nursing staff at the correctional institution; all had similar dormitory and meal exposures as the cases from May 17 to May 22. Interviews were conducted by the investigation team with 64 inmates (42 cases and 22 controls) using a standardized questionnaire. Two control interviews were excluded from the analysis due to missing or inconsistent information, leaving 20 controls for analysis. Of the 42 case interviews completed, only 18 inmates met the case definition for the outbreak and were included in the analysis. In outbreaks that occur in correctional institutions, it is common that an overestimation of cases may occur if inmates report illness, but were not actually ill with GI symptoms. Food menus were used to develop an epidemiological questionnaire, which collected the food history of the meals served six days (May 17 – May 22) prior to the peak of onset of symptoms on May 23. An analysis was conducted on the data collected from the interviews using Epi Info v3.5.1 statistical software.

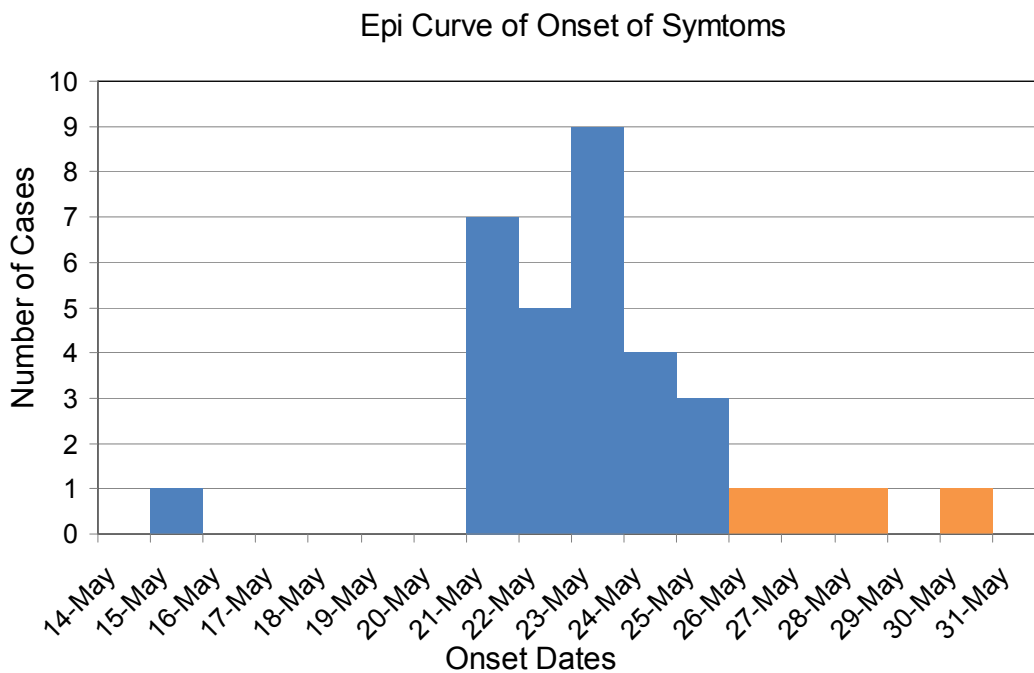
The LCHD environmental and epidemiology staff along with the Regional Environmental Epidemiologist conducted an on-site environmental assessment at the facility to determine if there were any violations that would directly affect food safety. Stool samples from inmates who reported diarrheal illness were collected from 11 cases and shipped to the Bureau of Laboratories in Jacksonville for enteric, O&P, and viral testing.

Results

Forty-two inmates were reported ill from May 15 to May 30 in a population of 1323 male inmates in the facility. Two of the 11 stool samples were positive for *E. coli* O157:H7. Of the two laboratory confirmed cases, neither was employed in food service at the correctional institution. However, numerous other ill inmates were employed in food service. Asymptomatic persons may have also transmitted the bacteria while working in food service.

Forty-two (42) inmates were interviewed. In total, 18 confirmed and probable primary cases met the case definition and were compared to 20 controls. The following symptoms were reported: diarrhea (100%); abdominal cramps (100%); bloody stool (72%); and fever (56%). No cases of hemolytic uremic syndrome were reported. The median incubation period was six days (range = 4-8 days). All cases and controls were male. The age of cases ranged from 20 to 52 years of age (median = 31). The age of secondary cases ranged from 34 to 59 years of age (median = 42). The age of controls ranged from 18 to 56 years of age (median = 40). Twenty-five percent of secondary cases reported occupying a dormitory with another inmate who had diarrhea within seven days before or after the inmate's illness began. The epi-curve that follows suggests a point-source outbreak with the peak onset of symptoms occurring on May 23. An initial onset on May 15 was reported from the index case, who was not a food service employee.

Graph 1. Epidemiological Curve of Onset of Symptoms (n=29)*



*Three primary and four secondary cases (orange) were included to illustrate the actual distribution of onset dates over a wider range of time. Of the 30 primary cases (see Table 1), one had an unknown onset date and was not included in the epi-curve.

The data analysis indicated a single dinner that occurred on May 17 as highly associated with GI illness. The odds ratio for the meal was 12 (confidence interval: 2.15, 67.06) with a significant p-value of 0.004. The food menu on May 17 listed turkey ham, macaroni and cheese, carrots, coleslaw, corn bread, margarine, navy beans, and cake. Further analysis indicated three implicated food items from the dinner meal on May 17 as being highly associated with GI illness: turkey ham, macaroni and cheese, and cake (see Table 2). Due to multiple elevated odds ratios, a single food item was not identified as causing the outbreak.

Table 2. Odds Ratios by Food Item for May 17 Dinner

May 17 (dinner) OR=12 (2.15, 67.06), P-value=0.0043			
Food Item	Odds Ratio	Confidence Interval	P-value
turkey ham	3.90	1.00, 15.27	0.0939
macaroni & cheese	4.28	1.04, 17.66	0.0814
carrots	3.20	0.76, 13.46	0.2042
coleslaw	1.14	0.24, 5.44	0.9999
cornbread	3.18	0.82, 12.34	0.1703
margarine	2.32	0.63, 8.58	0.3446
cake	6.11	1.34, 27.96	0.0326
breakfast beverage	0.71	0.10, 4.81	0.9999
navy beans	0.38	0.063, 2.2	0.4988

During the six days prior to the peak in illness, turkey ham was served for dinner on May 17 and for breakfast on May 19. The food item had elevated odds ratio for both meals on the separate dates it was served. The turkey ham was a frozen, pre-sliced product. Preparation of the turkey ham involved steaming the meat which required minimal hand contact during the preparation process. The macaroni and cheese consisted of pre-packaged noodles, powdered cheese, and milk. Preparation of this food item also involved minimal hand contact with the food item during the preparation process. The noodles were first boiled and then the pre-packaged powdered cheese and milk were added. The cake was baked and icing was applied in the facility kitchen. The onsite environmental assessment conducted at the correctional institution found no violations that directly suggested a risk for the microbial contamination with *E. coli* O157:H7. However, minor violations, such as fly control issues, a need for an ice storage sleeve for the ice machine, and damp food trays, were observed. A review of the food menus was conducted to determine whether or not beef items or fresh produce were served at the facility. From May 17 to May 22, beef items were served for seven separate meals: breakfast on May 21; lunch on May 17 and May 18; and dinner on May 19, May 21, and May 22. Fresh produce items were not routinely served at the facility.

Discussion

Three cafeteria-style meals (breakfast, lunch, and dinner) were served at the correctional institution daily. Results indicated a single dinner on May 17 was highly associated with GI illness. Due to the high volume of meals and common food exposures for both cases and controls, a single implicated food item could not be identified. Elevated odds ratios were shown for multiple food items (turkey ham, macaroni and cheese, and cake), making it difficult to associate a single food item to the illnesses. Surveillance of food recalls did not find any recalls associated with the products (turkey ham and macaroni and cheese). The product specific information was reported to the Department of Agriculture and Consumer Services (DOACS) in case additional illnesses were reported from the same turkey ham and macaroni and cheese. While the cake did have an elevated odds ratio, the product was prepared and baked at the facility, which would not require product reporting to DOACS.

According to interviews with food service management and a review of the menu records, the majority of foods served did not require direct hand contact during the preparation process. Foods were steam-heated and utensils were used to handle items. The cake was the food item that required the most hand contact during preparation. Following the interviews with food service management, it was not clear which inmate baked the cake and applied the icing. Of the primary cases, not all persons consumed cake, turkey ham, or macaroni and cheese.

A potential explanation for the overall low percentage of cases from the estimated 1148 dinners served on May 17 may be that a single batch of the implicated food item(s) was contaminated, not the entire product. Because the inmates ate dinner at the same time, it was not determined if there was a clustering of ill persons around a common batch of food. Food was not self-service; inmates went through a cafeteria line and were served trays of food and drink items. There was no information collected regarding the order that the inmates went through the cafeteria line. Because each inmate was given identical trays of food, they had approximately the same amount of food. Therefore, the questionnaire did not collect information about the quantities of foods consumed by each inmate, which would be needed to measure dose response. Food theft is common practice in the correctional institution, but since many of the cases consumed the implicated dinner, food smuggling was not thought to be the cause of the outbreak. Often inmates smuggle large quantities of food, especially sandwiches and sugar, outside the food storage warehouse into their dormitories. While working in the kitchen, inmates are supervised and food sampling during shifts would be a less likely mode of food contamination. Management was asked if any of the statistically-associated foods may have been smuggled out of the kitchen and given to other inmates. Although management could not be certain, they had not noticed any of the stock missing for any of the foods with elevated odds ratios.

This outbreak was similar to a 2002 outbreak of *E. coli* O157:H7 investigated by the Texas Department of Health.⁵ In this outbreak, 45 cases in a correctional institution were reported (10 with stool confirmation) and both foodborne and person-to-person transmission were thought to be responsible. Two asymptomatic food service employees tested positive for *E. coli* O157:H7. Neither had jobs that may have required hand contact with ready-to-eat food items, but both assisted in food service and prepared food trays.

In the Lafayette County correctional institution outbreak, food service employees may have assisted in distributing food and filling trays, but because food service management did not keep records of inmate job functions, this is unknown. In this setting, job functions may be flexible, with variations in job responsibilities, making it very difficult to track employee job duties. In addition, the potential for transmission by asymptomatic food service employees is a plausible explanation for transmission.

Conclusion

The outbreak was most likely spread through a common food item or items, based on the statistical association of illness with a dinner served on May 17. Secondary person-to-person transmission was not ruled out, as multiple secondary cases were reported. Based on a review of inmates who were employees in the food service facility, the inmate who had an early onset of illness on May 15 (index case) was not a food service employee, therefore, it is unclear how *E. coli* O157:H7 was introduced into the facility. Due to the high number of inmates who work in food service and the poor record keeping of employee-specific job functions, it was difficult to determine which employee or food safety behavior may have contributed to the outbreak. One potential cause of the outbreak may have been an ill food service worker who contaminated multiple food items.

The dormitory style quarters of the correctional institution allowed multiple inmates to share common facilities. Multiple inmates share common bathroom facilities, which may further spread infections throughout the facility. Due to the close living quarters, person-to-person and secondary transmission was a concern. Secondary transmission was not associated with a single bathroom or dormitory. Infection control measures instituted at the correctional institution helped prevent new cases, as the number of new illness onsets were reduced once preventive measures were instituted. The infection control and nursing staff implemented enteric precautions that included enhanced hygiene, thorough disinfection, cohorting ill and non-ill, isolating ill inmates, keeping ill inmates from working in food service, and discouraging the transfer of inmates and visitors in and out of the facility.

Preventive measures to protect people from an *E. coli* O157:H7 infection are similar to those recommended for other foodborne diseases and include washing hands thoroughly after using the bathroom or changing diapers, before preparing or eating food, and after contact with animals or their environments (at farms, petting zoos, fairs, even your own backyard). It is recommended that people cook their meats thoroughly. Ground beef and meat that has been needle-tenderized should be cooked to a temperature of at least 160°F/70°C. People should avoid consuming raw milk, unpasteurized dairy products, and unpasteurized juices (like fresh apple cider). The public should refrain from swallowing water when swimming or playing in lakes, ponds, streams, and swimming pools. In addition, reducing cross-contamination during food preparation by thoroughly washing hands, counters, cutting boards, and utensils after they touch raw meat is shown to reduce the number of foodborne diseases.² The food service manager at the correctional institution was advised to monitor illness among food service staff, discourage persons who were currently or recently symptomatic with diarrheal illness from working, and encourage and implement better hygienic and sanitary practices in the workplace.

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Breast Cancer in Florida, 2006

Aruna Surendera Babu, M.P.H.

The Florida Department of Health (FDOH) recognizes October as National Breast Cancer Awareness Month (NBCAM). NBCAM is an annual international health campaign organized by major breast cancer charities every October to increase awareness of the disease and to raise funds for research into its cause, prevention, and cure. The campaign offers information and support to those affected by breast cancer. It also provides a platform for breast cancer charities to raise awareness of their work and of the disease, and is also a prime opportunity to remind women to be aware of changes in their breasts for earlier detection.

Female breast cancer forms in tissues of the breast; usually the ducts (tubes that carry milk to the nipple) and lobules (glands that make milk). Risk factors that are associated with female breast cancer include:

- older age,
- personal and family history of the disease,
- not having children, or having the first child later in life,
- starting the first menstrual period at an early age,
- beginning menopause at a late age,
- having a genetic condition (certain mutations in BRCA1 or BRCA2 genes),
- having been treated with radiation therapy to the breast or chest,
- being overweight,
- long term use of hormone replacement therapy,
- alcohol use,
- using oral contraceptives, and
- being physically inactive.

For this article, data on female breast cancer incidence and diagnosis stage are from the Florida Cancer Data System (FCDS), and mortality data are from FDOH, Office of Vital Statistics. Florida data on cancer screening are from the Behavioral Risk Factor Surveillance System (BRFSS) survey. The Florida data are compared with that from the Surveillance, Epidemiology, and End Results (SEER) Program of the National Cancer Institute (NCI). The U.S. mortality data reported by SEER are provided by the National Center for Health Statistics (NCHS).

In Florida in 2006, the breast cancer incidence rate was 108.7 per 100,000 females and the mortality rate was 20.7 per 100,000 females. Both incidence and mortality rates were higher among females 65 years of age and older. The incidence rate was higher among whites, while the mortality rate was higher among blacks in Florida. Although the 2006 incidence rate (108.7 per 100,000) was 5% higher than the 1981 rate (103.5 per 100,000), the 2006 rate was 15% lower than the 2000 rate (127.9 per 100,000). The 2006 mortality rate (20.7 per 100,000) was 29% lower than the rate in 1981 (29.2 per 100,000). Florida incidence rates were significantly lower than SEER

rates overall and in both race groups. Florida mortality rates were significantly lower than U.S. rates overall and among whites.

Of all female breast cancer cases in Florida, 61.5% were diagnosed at an early stage in 2006. The percentage of cases diagnosed at an advanced stage was higher among blacks (44.3%) than whites (31.8%). The percentage of cancer cases diagnosed at an early stage was higher in 2006 (61.5%), compared to the percentage in 1981 (42.7%).

The U.S. Preventive Services Task Force (USPSTF) recommends screening mammography, with or without clinical breast examination (CBE), every one to two years for women aged 40 and older. In Florida in 2006, 78% of females aged 40 and older had a mammogram and 77% had a clinical breast exam in the past two years. Racial differences observed in both breast cancer screening tests were not significant. The prevalence of both a mammogram and a clinical breast exam was lower among females with less than a high school education and females without health insurance, compared to their counterparts.

A comprehensive fact sheet with detailed data table on breast cancer in Florida is available at FDOH, Bureau of Epidemiology's website at:

http://www.doh.state.fl.us/disease_ctrl/epi/cancer/Breast_06.pdf.

For additional information, please contact FDOH, Bureau of Epidemiology at 850.245.4401 or visit our website at <http://www.floridachronicdisease.org/>.

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Bat Exposure in Africa: International Rabies Assessment

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On Monday, August 10, 2009, the Lake County Health Department (CHD) Epidemiology Department received a phone call from a local physician requesting continuation of care for rabies post-exposure prophylaxis (PEP) for nine patients. These individuals were part of a medical missionary group of 18 people who were exposed to a bat in their sleeping quarters in Burkina Faso, West Africa. The exposure took place August 3, when one of the missionaries woke to find a bat flying in the small room where all group members were sleeping. One person was believed to have been scratched on the arm by the bat; the others did not report any known bites or scratches. No one in the group had received rabies pre-exposure vaccination prior to travel. Members of the group were from six states: Florida (9), California (4), Indiana (2), Virginia (1), Kentucky (1), and Michigan (1). The person who was scratched traveled to the capital city, Ouagadougou, where wound cleaning and rabies PEP with human rabies immunoglobulin (HRIG) and Verorab rabies vaccine (intra-muscular) was initiated on August 3. Day 0 rabies vaccine was administered to the remaining 17 missionaries on August 7.

The group was instructed to follow up with their respective health departments or physicians and complete rabies PEP following their return home. As a courtesy, Lake CHD collected patient contact information for group members located outside Florida, and forwarded this information through the state public health veterinarian's (SPHV) office to appropriate SPHVs (none were

aware of the cases). The SPHV office staff also consulted with the Centers for Disease Control and Prevention (CDC) Special Pathogens Branch regarding risk for Ebola and Marburg virus and were advised to monitor the patients for fever for 21 days as a precaution, since Ebola virus was present in countries nearby. Lake CHD periodically monitored patient status via phone calls and during patients' rabies PEP appointments. Patients were also advised of the possibility that rabies PEP may not be protective against all rabies-like viruses present in that region of Africa (see #1 below). Patients were told to notify their healthcare provider and Lake CHD if signs of sustained fever or other potential symptoms of rabies develop, with illness most likely to develop within three months of exposure. One patient questioned whether proper cold chain integrity had been maintained for HRIG and vaccine provided in Burkina Faso; as a result, rabies titers were recommended, particularly for a patient who had purchased all four doses of vaccine in Burkina Faso. Lake CHD coordinated sample collection and submission; all patients' rabies neutralizing antibody titration (RFFIT) titers following four doses of rabies vaccine were 1:1100 or higher (>1:5 is considered adequate).

This complicated case brought up a number of points to consider when assessing and managing potential rabies exposures that occur in other countries:

1) **Rabies risk considerations based on geography and animal species**

Rabies is endemic in Florida with raccoons and bats acting as virus reservoirs. While rabies virus is not considered endemic to geographic regions such as Australia, the United Kingdom, and most northwestern European nations, other rabies-like viruses in the lyssavirus family may be present (Table 1). These viruses are associated with fatal infections in people and/or animals, and cause a clinical disease similar to rabies virus. Thus far, these viruses have been identified in Europe, Africa, Asia, and Australia. Rabies PEP can prevent illness from some but not all of these viruses. Symptomatic treatment of clinical illness is currently the only therapeutic option for the remaining rabies-like viruses. Testing capabilities are limited in many developing countries and CDC suspects additional rabies-like viruses will be found. Viruses isolated in Africa and Asia this past year are expected to be confirmed as previously unidentified rabies-like viruses. Because bats appear to be the primary reservoir for most of these viruses, CDC recommendations are to handle all bat bites and scratches as potential rabies exposures whether or not rabies has previously been identified in that country.

2) **Rabies PEP product availability, type, dosing schedule, and storage**

Rabies product availability can vary tremendously in other countries, particularly in developing nations. In some cases, human rabies immunoglobulin may not be available or older types of vaccines that are less effective and more likely to cause adverse reactions may be all that can be procured. Extended travel may be required to obtain prophylaxis, and other countries may not have well-established cold chain requirements or capabilities, increasing the likelihood that the product could be compromised during transport or storage. These are all reasons to consider rabies pre-vaccination prior to travel to remote rabies endemic regions of the world. (Post-exposure prophylaxis would still be needed but some partial protection might occur; pre-vaccination would also reduce the number of booster vaccinations required, eliminate the need for HRIG, and may also preserve limited, valuable resources for residents.) To optimize limited resources, rabies PEP dosing regimes may vary even if products are the same or similar to what is available in the U.S. (i.e., administered intra-dermal vs. intra-muscular on different days), and rabies titers may be needed to ensure the patient has developed an adequate antibody response when changing treatment regimes. Rabies titers should be performed using the RFFIT test available at either Kansas State Rabies Lab or Atlanta Health Associates.

See page 6-5 in the *Rabies Prevention and Control in Florida, 2009* for the shipping address and phone number at <http://www.doh.state.fl.us/Environment/medicine/rabies/Documents/RabiesGuide2009.pdf>.

3) Other disease concerns

Infectious disease prevalence as well as primary animal reservoirs can vary between geographical regions. For example, foxes in Florida are much more likely to have rabies compared to foxes in most European countries. West Nile virus, eastern equine encephalitis virus, or rabies should be suspected in a neurologic horse in Florida, while the horse owner in Australia should be aware of Hendra virus. Bats, in particular, have been associated with significant emerging diseases, such as Severe Acute Respiratory Syndrome (SARS), Nipah, Hendra, Marburg, and Ebola viruses.

Please keep these points in mind when investigating cases involving potential rabies exposures in other countries. Current information pertaining to diseases transmitted from animals to people (zoonoses) in the U.S. or other countries can be obtained from the Bureau of Environmental Public Health Medicine at 850-245-4299.

The efficient and professional coordination of services from the Lake CHD Immunization, Clinical, Fiscal, and Epidemiology Departments was essential to servicing these clients.

Table 1

Lyssavirus type		Known hosts		Rabies PEP efficacy
Name	Genotype	Reservoirs	Victims	
Rabies	1	carnivores, American bats	humans, other mammals	satisfactory
Australian Bat	7	Australian bats	humans	satisfactory
European bat-2	6	European bats	humans	reduced
Irkut bat	unclassified	Asian bats	ferrets	reduced
Aravan bat	unclassified	Asian bats	hamsters	reduced
Khujand bat	unclassified	Asian bats	ferrets	reduced
European bat-1	5	European bats	humans, cats, stone martens, sheep	poor
Duvenhage	4	African bats	humans	poor
Mokola	2	African shrews and insectivorous rodents	humans, dogs, cats	none
Lagos bat	3	African bats	dogs, cats, mongooses	none
West Caucasian bat	unclassified	Eastern European bats	hamsters	none

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Rabies Prevention and Control in Florida, 2009:

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<http://www.eurosurveillance.org/ViewArticle.aspx?ArticleId=2213>

Bat rabies and other lyssavirus infections, Circular 1329. 2009. USGS National Wildlife Health Center: <http://www.nwhc.usgs.gov/publications/other/batrabies.jsp>

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Florida Influenza Surveillance Report

Kateesha McConnell, M.P.H.

Fall is typically when respiratory viruses that circulate in the community increase. However, this season is unique due to the 2009 Influenza A H1N1 virus outbreak. There is already an increase in influenza activity similar to or greater than what would be expected during the traditional winter peak of activity.

The Florida Department of Health (FDOH) monitors influenza activity through multiple surveillance systems. A report is produced weekly to assist FDOH monitor the current influenza and novel H1N1 influenza activity. Data summarized in this report includes multiple sources:

1. Emergency department syndromic surveillance as monitored through the Electronic Surveillance System for the Early Notification of Community-Based Epidemics (ESSENCE);
2. Laboratory data from the Bureau of Laboratories;
3. County influenza activity levels as reported by county health department epidemiologists;
4. The Florida Pneumonia and Influenza Mortality Surveillance System (FPIMSS);
5. Florida Outpatient Influenza-Like Illness Surveillance Network (ILINet) providers;
6. Novel H1N1 influenza notifiable disease data for special surveillance populations (deaths, hospitalized pregnant women, and those with life threatening illness) and pediatric influenza-associated mortality as reported in the Merlin system for notifiable disease surveillance; and
7. Outbreaks or clusters of influenza-like illness (ILI) as reported through EpiCom.

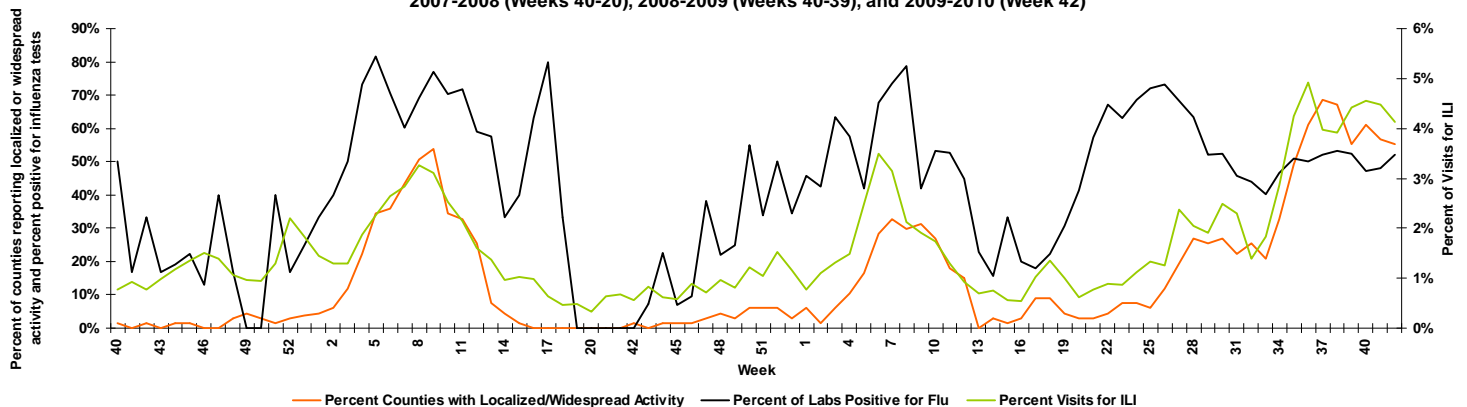
The criteria for influenza-like illness differ somewhat across the data systems. During weeks 40-42 (10/4/09-10/24/09), overall ILI activity in ESSENCE remained at a steady heightened pattern, with no sharp increases over the past few weeks. As of 9:00 a.m. October 27, 140 specimens with a lab event date* during week 42 were tested by the Bureau of Laboratories (BOL). Of those, 73 (52%) were positive for influenza. Of the 73 positive for influenza, 73 (100%) were novel H1N1 influenza (Figure 19-21). Since week 39, two specimens tested by BOL have tested positive for influenza B; one of the specimens had a lab event date* from week 39 and the other from week

40. Influenza B, unlike influenza A, does not cause epidemics. All of the viruses detected during week 42 were novel H1N1 influenza viruses. Virtually all infections due to the new virus are caused by strains that are sensitive to Tamiflu and Relenza. A total of 340 specimens with a lab event date* of week 41 have now been tested by BOL with 163 (50%) positive for influenza (Figure 19-21). Laboratory information is preliminary and will change as additional results are received. Totals from previous weeks will be adjusted to reflect correct specimen numbers.

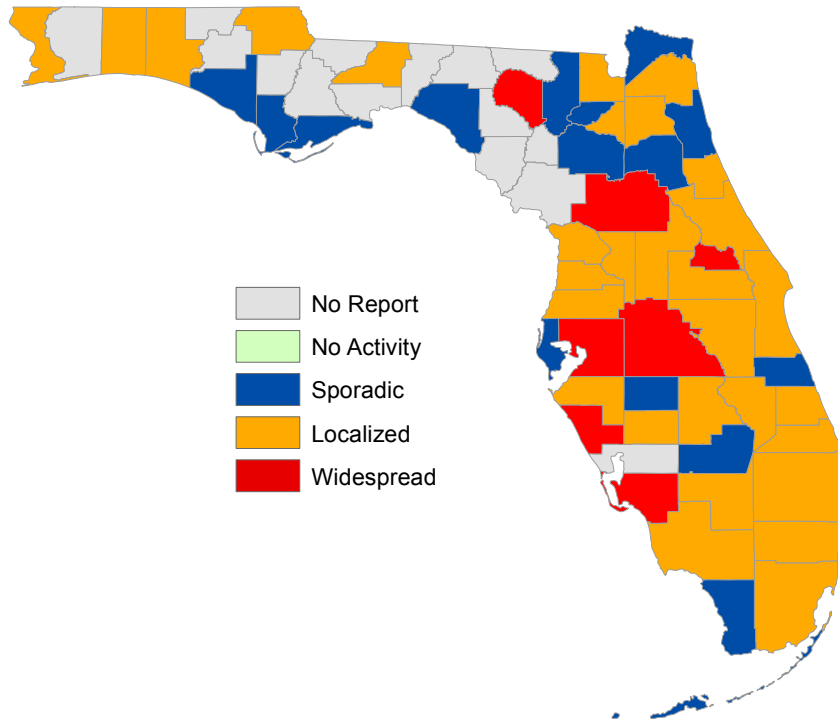
Each week an activity code for the state as a whole is reported to the Centers for Disease Control and Prevention (CDC). There are five possible categories: No Activity, Sporadic, Local, Regional, or Widespread. For week 42, Florida meets the CDC widespread activity definition: outbreaks of influenza or increases in ILI cases in more than half the regions of the state with recent laboratory evidence of influenza in those regions. The CDC report can be viewed at <http://www.cdc.gov/flu/weekly/usmap.htm>.

The following graph shows the progression of the 2007-2008, 2008-2009, and the new 2009-2010 season. Florida influenza seasons are monitored by three of the seven surveillance systems: ILINet, Bureau of Laboratories viral surveillance, and county activity levels.

FIGURE 1: Percent Visits for ILI to ILINet Sites, Percent of Counties with Localized or Widespread Activity, and Percent of Labs Tested by Florida Bureau of Laboratories Positive for Influenza 2007-2008 (Weeks 40-20), 2008-2009 (Weeks 40-39), and 2009-2010 (Week 42)



MAP 3: Weekly County Influenza Activity for Week 42 (Ending October 28, 2009) as Reported by 8:06 a.m. October 28, 2009



For the most up-to-date information regarding influenza surveillance and the progress of influenza season and 2009 H1N1 pandemic 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.

All counties and sentinel providers are encouraged to be active in each component of influenza surveillance during the 2009-2010 season. Not only will your participation improve statewide surveillance but it will also aid in monitoring the impact of H1N1 and seasonal influenza within your own communities. We look forward to this upcoming year and want to thank everyone in advance for making this a productive surveillance season!

* Earliest of the following dates associated with the lab: date collected, date received by the laboratory, date reported, or date inserted.

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Florida Year-to-Date Mosquito-Borne Disease Summary Through October 12, 2009

Elizabeth Radke, M.P.H., Kristina Weis, Ph.D., Danielle Stanek, D.V.M., Carina Blackmore, D.V.M., Ph.D.



During the period from January 1 through October 12, 2009, the following arboviral activity was recorded in Florida:

Eastern equine encephalitis virus (EEEV) Activity

Positive samples were obtained from 69 equines, 1 captive bird, 168 sentinel chickens, and 91 live wild birds, and 3 mosquito pools in 32 counties.

West Nile virus (WNV), St. Louis encephalitis virus (SLEV) Activity

Two confirmed human cases of WNV were reported. One infection was locally-acquired in a Miami-Dade resident; the other in a Clay County resident was acquired out of state. Positive samples from 3 equines and 42 sentinel chickens were received from 16 counties. Samples from two live wild birds from two counties tested positive for antibodies to a flavivirus, either WNV or SLEV.

Highlands J virus (HJV) Activity

Positive samples were obtained from 97 sentinel chickens in 10 counties.

California encephalitis group viruses (CEV) Activity

None

In addition, the following imported mosquito-borne disease was reported:

Dengue Virus (DENV)

Three confirmed human cases of dengue fever were reported in Key West; two infections in Florida residents.

Twenty imported cases were reported from eight counties: Alachua, Brevard (3), Broward (4), Dade (3), Hillsborough, Lee, Orange (5), and Sarasota (2). Places of origin included Puerto Rico (3), Dominican Republic (3), Panama (2), Bolivia (2), India (2), Haiti, (2) Brazil, Honduras, Suriname, the Philippines, Guatemala, and Columbia.

Malaria

Seventy-eight imported cases were reported from seventeen counties: Alachua (2), Broward (21), Clay, Dade (16), Duval (5), Escambia, Hillsborough (2), Lee, Leon (2), Marion, Orange (7), Palm Beach (8), Pasco (2), Pinellas (2), Polk (3), St. Lucie, and Seminole (3). Places of origin included Haiti (36), Nigeria (9), Ghana (6), India (4), Malawi (3), Sierra Leone (2), South Africa, Honduras, Mexico (2), Colombia, Guinea, Pakistan, Kenya, Congo, Dominican Republic (2), Thailand, Togo, Zambia, Sudan/Uganda, South Africa, and West Africa; one was unknown. One case acquired malaria in Florida via blood transfusion. Seventy-seven percent of cases (61/79) were diagnosed with *Plasmodium falciparum*; 14% (11/79) were *Plasmodium vivax*, and seven were not determined.

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, 318 reports representing a total of 797 dead birds (65 crows, 40 jays, 51 raptors, 641 others) were received from 53 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/medicine/arboviral/index.html>.

Elizabeth Radke is the Arthropod-borne Disease Surveillance Coordinator with the Bureau of Environmental Public Health Medicine. Ms. Radke can be contacted at 850.245.4444, ext 2437 or by email at Elizabeth.Radke@doh.state.fl.us. Dr. Kristina Weis is the CDC/CSTE Applied Epidemiology Fellow with the Bureau of Environmental Public Health Medicine. Dr. Weis can be contacted at 850.245.4444, ext 2016 or by email at Kristina.Weis@doh.state.fl.us. Dr. Danielle Stanek is a medical epidemiologist with the Bureau of Environmental Public Health Medicine. Dr. Stanek can be contacted at 850.245.4117 or by email at Danielle.Stanek@doh.state.fl.us. Dr. Carina Blackmore is the State Public Health Veterinarian and the Chief of the Bureau of Environmental Public Health Medicine. Dr. Blackmore can be contacted at 850.245.4732 or by email at Carina.Blackmore@doh.state.fl.us. The Bureau of Environmental Public Health Medicine is part of the Division of Environmental Health, Florida Department of Health.

Recently Published

Yang R, Cheung MC, Hurley J, Byrne MM, Huang Y, Zimmers TA, Koniaris LG. A comprehensive evaluation of inflammatory breast cancer. *Breast Ca Res & Treat*. 2009 Oct;117(3):631-41. Epub 2009 Jan 24.

Upcoming Events

Bureau of Epidemiology Monthly Grand Rounds

Date: Last Tuesday of each month

Time: 10 a.m.-11 a.m., E.T.

Location: Building 2585, Room 310A

Dial-In Number: 877.646.8762 (password: Grand Rounds)

November 24: "Birth Spacing Between First and Second Births and Risk of Low Birth Weight, Preterm Birth and Infant Death" presented by Daniel R. Thompson, 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, September 1-30, 2009

Disease Category	Month				Cumulative (YTD)	
	2009	2008	Mean [†]	Median [‡]	2009	2008
A. Vaccine Preventable Diseases						
Diphtheria	0	0	0	0	0	0
Measles	0	0	0.4	2	5	0
Mumps	3	3	1.6	2	16	20
Pertussis	67	46	27	26	440	219
Poliomyelitis	0	0	0	0	0	0
Rubella	0	1	0.4	1	0	3
Smallpox	0	0	0	0	0	0
Tetanus	0	0	0	0	0	1
Varicella	51	90	34	85	970	1,272
B. CNS Diseases & Bacteremias						
Creutzfeldt-Jakob Disease	0	7	1.6	4	11	18
<i>H. Influenzae</i> (invasive)	14	13	9	2	186	107
in those ≤5	2	1	2.6	3	23	50
Listeriosis	6	3	4.4	3	17	29
Meningitis (bacterial, cryptococcal, mycotic)	20	21	13.6	13	160	147
Meningococcal Disease	3	7	7.6	8	46	48
<i>Staphylococcus aureus</i> (VISA, VRSA)	1	1	0.2	1	6	1
Streptococcal Disease, Group A, Invasive	19	14	16.4	14	229	203
<i>Streptococcus pneumoniae</i> (invasive disease)						
Drug resistant	35	35	36.6	38	577	545
Drug susceptible	31	28	31.6	30	533	498
C. Enteric Infections						
Campylobacteriosis	105	106	77.4	79	857	824
Cholera						
Cryptosporidiosis	105	124	100	124	344	389
Cyclospora	4	1	1	1	35	54
<i>Escherichia coli</i> , Shiga-toxin producing (STEC)**	18	10	2	3.5	125	18
Giardiasis	172	145	122.6	114	1,433	918
Hemolytic Uremic Syndrome	1	0	0	0	3	1
Salmonellosis	950	637	601.4	569	4,325	3,623
Shigellosis	56	39	95.4	111	352	646
Typhoid Fever	4	1	2.2	2	17	13
D. Viral Hepatitis						
Hepatitis A	23	15	30.8	24	162	126
Hepatitis B, Acute	24	34	33	34	236	258
Hepatitis C, Acute	9	6	3.2	3.5	54	41
Hepatitis +HBsAg in pregnant women	62	41	41.6	41	444	461
Hepatitis D, E, G	0	0	0	0	3	1

* Confirmed and probable cases based on date of report as reported in Merlin
Incidence data for 2009 is provisional, data for 2008 was finalized on April 1, 2009

† 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 calculate mean and median

Table 1. (cont.) Provisional Cases* of Selected Notifiable Diseases, Florida, September 1-30, 2009

Disease Category	Month				Cumulative (YTD)	
	2009	2008	Mean [†]	Median [¶]	2009	2008
F. Vector Borne, Zoonoses						
Dengue	3	2	1.6	2	21	25
Eastern Equine Encephalitis ^{††}	0	1	0.2	1	0	1
Ehrlichiosis/Anaplasmosis	2	1	1.2	1	11	9
Leptospirosis	0	0	0.2	1	0	0
Lyme Disease	29	19	9	8	86	66
Malaria	9	8	6.2	6	76	42
Plague	0	0	0	0	0	0
Psittacosis	0	1	0.4	1	0	2
Q Fever (acute and chronic)	0	0	0	0	1	0
Rabies, Animal	18	12	13.6	13	138	101
Rabies (possible exposure)	159	161	113.8	109	1,346	1,188
Rocky Mountain Spotted Fever	1	2	1.6	1.5	6	12
St. Louis Encephalitis ^{††}	0	0	0	0	0	0
Toxoplasmosis	0	2	0.4	2	3	8
Trichinellosis	0	0	0	0	0	1
Tularemia	0	0	0	0	1	0
Typhus Fever (epidemic and endemic)	0	0	0.2	1	1	0
Venezuelan Equine Encephalitis ^{††}	0	0	0	0	0	0
West Nile Virus ^{††}	0	2	4.2	7	0	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	0.2	1	1	1
Brucellosis	0	5	1.6	2	6	7
Glanders	0	0	0	0	0	0
Hansen's Disease (Leprosy)	0	2	1	2	3	7
Hantavirus Infection	0	0	0	0	0	0
Legionella	30	17	16.2	17	135	110
Melioidosis	0	0	0	0	0	0
Vibriosis	17	12	11.4	12	72	73

* Confirmed and probable cases based on date of report as reported in Merlin

Incidence data for 2009 is provisional, data for 2008 was finalized on April 1, 2009

† 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 calculate mean and median

Note: The 2009 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 to register on the EpiCom system by emailing the Florida Department of Health Emergency Notification System Helpdesk at FDENS-help@doh.state.fl.us. 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. The following are titles from select recent postings:

- Influenza-like illness outbreak at a skilled nursing facility, Sarasota County
- Influenza-like illness clusters in schools, Escambia County
- Typhoid fever, Manatee County
- Influenza-like illness clusters reported, Sept. 8-11, Palm Beach County
- Influenza-like illness cluster reported among special needs group in a school, Martin County
- Mumps in a university student, Alachua County
- Rabies alert, Walton County
- Influenza-like illness clusters reported, Sept. 8-11, Osceola County
- Influenza-like illness outbreaks in two schools, Okaloosa County
- Rabies alert, Orange County
- 22nd Influenza A H1N1 death, Miami-Dade County
- Update on Florida-acquired dengue, Monroe County
- *Cryptosporidium* cluster investigation, September 17 Update, Orange County
- Gastro-intestinal illness outbreak at an assisted living facility, Broward County
- Influenza-like illness in schools and child care centers, Sept 14-18, Escambia County
- Investigation of probable primary amoebic meningoencephalitis (PAM) case, September 20 update, Orange County
- Influenza A H1N1 at a local homeless shelter, Duval County
- Influenza-like illness outbreaks in schools, Pinellas County
- Influenza-like illness outbreak at a public elementary school, Miami-Dade County
- Influenza-like illness outbreak at a public senior high school, Miami-Dade County
- Suspected influenza-like illness outbreak at an elementary school, Lake County
- Influenza-like illness in schools, weekly summary, Palm Beach County
- Influenza-like illness outbreak at a correctional facility, Hamilton County
- Rabid cat, Duval County
- Influenza-like illness cluster at a special needs school, Lake County
- Public school-associated influenza-like illness cases, Orange County
- Influenza-like illness outbreak in an elementary school, Nassau County
- Young man with Lemierre's Syndrome, Orange County
- Influenza A H1N1 outbreak in a private school, Hernando County
- Influenza-like illness outbreak at a local correctional facility, Columbia County
- Typhoid fever, Alachua County
- Three influenza-like illness outbreaks in schools (over 100), Palm Beach County
- Influenza-like illness outbreak with very high absenteeism in a school classroom, Volusia County

- Three unrelated Influenza A H1N1 deaths, Duval County
- *MMWR* article on bacterial co-infection with Influenza A H1N1
- Hepatitis A in a student, Martin County
- Seven influenza-like illness outbreaks in schools, Lake County
- Public school-associated influenza-like illness cases, Orange County
- Cluster of influenza-like illness in an elementary school, Clay County
- School influenza-like illness cases and outbreaks, Osceola County
- Influenza-like illness outbreak at a private school, Miami-Dade County
- Influenza outbreak in a special needs class at a public school, Miami-Dade County
- Rabies alert, Escambia County
- Private school closes briefly because of influenza-like illness absenteeism, Pasco County
- Influenza-like illness clusters in school settings, Escambia County
- Influenza A H1N1 outbreak in a school, Volusia County
- West Nile Virus case, Clay County
- Influenza A H1N1 in pregnant healthcare worker, Volusia County
- Public school-associated influenza-like illness cases, Collier County
- Influenza-like illness reporting in public schools, St. Johns County
- Influenza-like illness outbreak with brief school closure, Indian Reservation, Hardee County
- Influenza-like illness activity in schools, Nassau County
- Influenza A H1N1 outbreak at a public elementary school, Miami-Dade County
- Influenza-like illness in preschool and school settings, Palm Beach County
- Influenza-like illness outbreak involving a home visiting service, Okaloosa County
- West Nile Virus case, Miami-Dade County
- Influenza-like illness cluster at a local military facility, Clay County
- School-associated influenza-like illness cases, Orange County
- Influenza-related deaths, Pinellas County
- Influenza A H1N1-related death, Duval County
- Influenza-like illness activity for week 09/27/09-10/03/09, Alachua County
- Influenza-like illness outbreak at a public elementary school, October 8, Miami-Dade County
- Influenza-like illness outbreak at a day care center, October 9, Miami-Dade County
- Influenza-like illness surveillance summary, Hillsborough County
- Respiratory virus surveillance, 09/05/09-10/02/09, Duval County

Christie Luce is the Surveillance Systems Administrator for the Bureau of Epidemiology. Ms. Luce can be contacted at 850.245.4418 or by email at Christie.Luce@doh.state.fl.us.

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 at: http://www.doh.state.fl.us/disease_ctrl/epi/Epi_Updates/2009/October2009EpiUpdate.pdf.

For submission guidelines or questions regarding Epi Update, please contact Leesa Gibson at 850.245.4409 or by email at Leesa_Gibson@doh.state.fl.us .