



Epi Update



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Re-examining Diabetes-Related Deaths in Florida, 2000-2007

Aruna Surendera Babu, M.P.H.



Introduction

Diabetes mellitus is a group of diseases characterized by high levels of blood glucose resulting from defects in insulin production, insulin action, or both. Diabetes is associated with serious complications and premature death, but people with diabetes can take steps to control the disease and lower the risk of complications. In Florida, 3% of all reported deaths in 2007 were due to diabetes.

Death certificates are generally used to rank the leading causes of death, estimate cause-specific and all-cause mortality, and describe trends in mortality. Diabetes is recorded on death certificates as the underlying cause or as a contributing cause of death. National estimates on diabetes are based mainly on underlying cause of death. Diabetes as a contributing cause of death is often ignored and results in underestimation of deaths related to diabetes.

Objectives:

The objectives for this study are to:

- Examine deaths related to diabetes
 - as any cause
 - as the underlying cause
 - as a contributing cause
- Examine underlying causes of death among those who had diabetes listed as a contributing cause

- Calculate the odds ratio of cardiovascular disease and respiratory disease being reported as the underlying causes of death among deceased who had diabetes listed as a contributing cause of death.

Methods

Florida mortality data for the years 2000 to 2007 provided by Florida Department of Health, Office of Vital Statistics were analyzed to enumerate deaths related to diabetes. ICD-10 codes E10-E14 were used to identify diabetes as the cause of death. Age-adjusted mortality rates of diabetes as the underlying cause, as a contributing cause, and as any cause of death were calculated. Age-adjusted rates were calculated for sex and race groups. Leading underlying causes of death were examined among those who had diabetes as the contributing cause of death. Odds ratio (OR) of leading underlying causes of death by diabetes were calculated. OR is the ratio of the odds of having cardiovascular disease (or respiratory disease) listed as underlying cause of death among deceased who had diabetes as contributing cause of death to those who did not have diabetes as contributing cause of death. The table below illustrates the OR calculation.

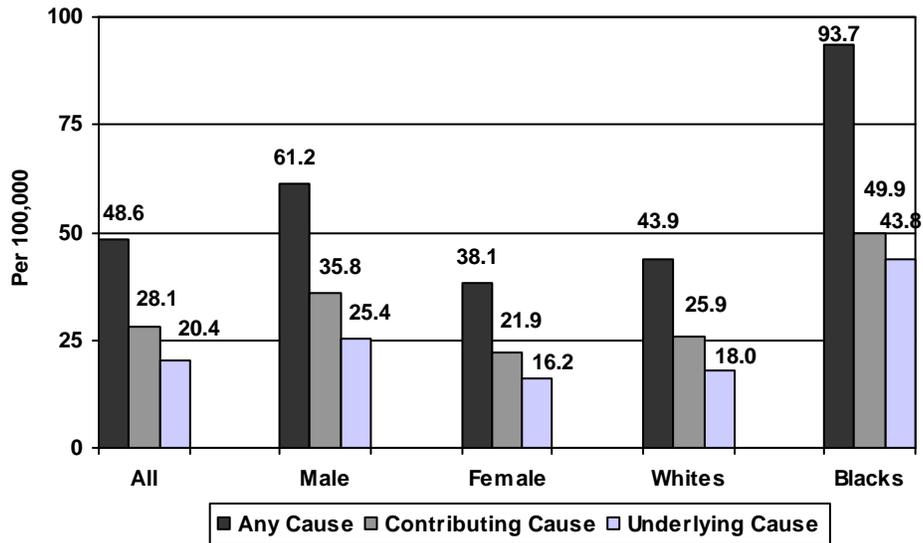
		CVD listed as the underlying cause of death	
		Yes	No
Diabetes listed as a contributing cause of death	Yes	Yes (a)	No (b)
	No	Yes (c)	No (d)

$$OR = \frac{(a/b)}{(c/d)} = \frac{ad}{bc}$$

Results

In 2007, diabetes was listed as the underlying cause of death for 5,094 Florida, with an age-adjusted rate of 20.4 (C.I. 20.2-20.6) per 100,000 population (Figure 1). The age-adjusted mortality rate for diabetes as any cause (48.6, 48.2-48.9 per 100,000) was more than twice the rate of diabetes as the underlying cause. The mortality rate for diabetes as a contributing cause was 28.1 (C.I. 27.9-28.4) per 100,000 population. Mortality rates were significantly higher among males and blacks compared to females and whites.

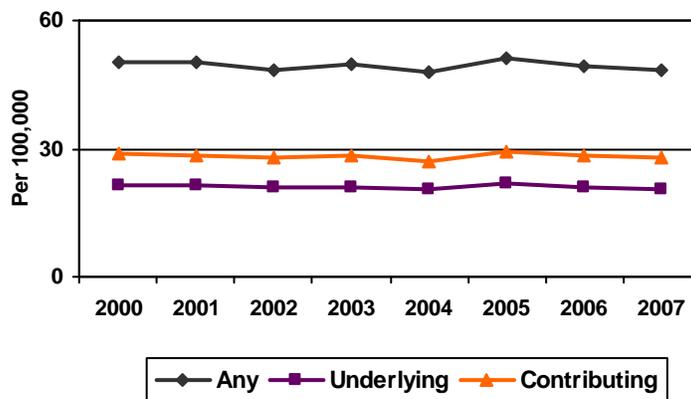
Figure 1. Age-adjusted Mortality Rate of Diabetes as Cause of Death, Florida, 2007



Trends in age-adjusted mortality rate of diabetes

The trends for age-adjusted rate of diabetes as any, underlying, and contributing cause did not show any statistically significant variation between 2000 and 2007 (Figure 2). Although the trends for any, underlying, and contributing causes of death related to diabetes did not vary significantly between 2000 and 2007, the age-adjusted rates were significantly lower in 2007 compared to 2000.

Figure 2. Age-adjusted Mortality Rate of Diabetes, Florida, 2000-2007



Odds ratio of having cardiovascular disease and respiratory disease being reported as the underlying causes of death among those who died with diabetes

Among those who had diabetes as contributing cause of death, the leading underlying causes were cardiovascular disease (CVD) and respiratory disease. CVD includes chronic ischemic

heart disease, acute myocardial infarction, and stroke, while respiratory disease includes chronic obstructive pulmonary disease.

The odds ratios of cardiovascular disease and respiratory disease being reported as the underlying causes of death among deceased who had diabetes listed as a contributing cause of death, Florida, 2000-2007								
Year	CVD (I00-I99)				Respiratory disease (J00-J99)			
	OR	LCL	UCL		OR	LCL	UCL	
2000	2.40	2.28	2.53	*	1.01	0.93	1.11	
2001	2.30	2.18	2.42	*	1.02	0.93	1.11	
2002	2.43	2.31	2.56	*	1.06	0.97	1.15	
2003	2.30	2.18	2.41	*	0.95	0.87	1.04	
2004	2.34	2.22	2.46	*	1.11	1.02	1.21	*
2005	2.23	2.13	2.34	*	1.11	1.02	1.21	*
2006	2.20	2.10	2.31	*	1.13	1.04	1.23	*
2007	2.17	2.07	2.28	*	1.24	1.14	1.34	*

*Statistically significant $\alpha=0.05$, C.I. does not include 1

Among those with diabetes as a contributing cause of death, the odds of dying from CVD (ICD-10 codes I00-I99) as underlying cause was significantly higher compared to those who did not have diabetes listed as a contributing cause of death in all the years examined. From 2004 to 2007, the odds of dying from respiratory disease (ICD-10 code J00-J99) as the underlying cause was significantly higher among those with diabetes as a contributing cause compared to those who do not have diabetes.

Conclusion

The data demonstrate that deaths related to diabetes are under-estimated if only the underlying cause is examined. The number of deaths related to diabetes as any cause is more than twice the deaths primarily due to diabetes. Mortality rates were significantly higher among males and blacks. The data show more deaths were from CVD or respiratory disease as underlying cause among people with diabetes listed as a contributing cause than people without diabetes.

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Case Analysis of Legionellosis, Seminole County, July 2009

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Introduction

Twelve cases of legionellosis were reported in Seminole County residents in 2009. The resulting rate of almost 3 per 100,000 population per year was the highest within the previous 10 years (Figure 1). Two of the cases were linked to a common site and residence in the same city, while the remaining cases were broadly dispersed throughout the county and had no common exposures identified. While the presence of 2009 H1N1 influenza may have accounted for heightened concern and testing for acute respiratory illnesses during this period, the case rate was still considerably higher in Seminole County (2.76/100,000) than the remainder of the state during the same period (1.03/100,000), including adjacent or nearby counties (1.64/100,000 for Brevard, Lake, Orange, Osceola, and Volusia). Seminole was second only to Nassau County (2.80/100,000) for the highest rate in the state.

Five of the cases had an onset date in July 2009, including the two linked cases (Figure 2). This represents the greatest number of reported cases within any four-week period during the previous 10 years. One case was especially noteworthy, as it occurred in a 14-year-old adolescent boy, which is an age group not normally considered at risk for the disease. This report includes a brief description of the five July onset cases, followed by a summary of risk factors and demographics for all 2009 cases (Tables 1-2).

Case Reports

Case 1 - A 41-year-old white man with a past medical history (PMH) of kidney stones, sinusitis, and psoriatic arthritis was being treated with Methotrexate, resulting in weakened immunity. He developed malaise and myalgia on July 1, 2009 and presented to the emergency department (ED) at Hospital A on July 6, 2009 with nausea, vomiting, and diarrhea, fever, and a headache. He was diagnosed with viral meningitis and admitted for further work-up. During his admission, he developed shortness of breath on July 6, 2009 and was transferred to the Progressive Care Unit for treatment of hypoxemia. A chest x-ray (CXR) on July 7, 2009 demonstrated dense consolidation in the right upper lobe with air bronchogram, consolidation in both lower lobes and patchy infiltrates in the right lower lobe and left infrahilar region, consistent with multifocal pneumonia. Adenopathy was present in the hilum and mediastinum and based on these findings, the patient was suspected to have pneumonitis or an underlying tumor. A urine antigen specimen for *Legionella* was reported positive on July 7, 2009. During his hospitalization, the patient was treated with intravenous antibiotics (Zithromax, Avelox, and Rocephin). This treatment course was in line with recommendations for treating cases of community-acquired pneumonia. He subsequently improved and was discharged on July 10, 2009.

Case 2 - A 70-year-old white man had a PMH of 100-pack-per-year smoking, chronic obstructive pulmonary disease (COPD), and obesity. He was admitted to Hospital B for pneumonia on July 18, 2009 following a progressively worsening seven-day history of fever, cough, myalgia and non-specific abdominal pain for which he had previously seen his primary care provider. A rapid influenza test upon admission was negative for both influenza A and B. A CXR showed extensive left lung pneumonia and some volume loss on the left side and on physical exam, he had decreased breath sounds and wheezing. The patient subsequently developed respiratory failure

secondary to pneumonia and COPD, and was placed on oxygen, but did not require mechanical ventilation or intubation. He was treated with Zosyn, vancomycin, azithromycin, and Zithromax. He subsequently recovered and was discharged on July 25, 2009. On July 28, 2009, a positive urine antigen for *Legionella* was reported.

The patient was readmitted August 17, 2009, as he was not responding to antibiotic therapy and had left upper lobe pneumonia. A urine antigen test performed August 18, 2009 was again positive for *Legionella pneumophila* Group 1. A bronchoscopy demonstrated extrinsic compression in left upper lobe. The patient was started on intravenous antibiotics including Maxipime and Zithromax. Following treatment, he improved considerably and was discharged on August 22, 2009.

Risk factors for *Legionella* included daily use of the swimming pool and shower facilities at a local fitness facility for several days prior to becoming ill. He denied exposure to any other water-related activities, including use of the sauna or spa.

Case 3 - A 75-year-old white man with multiple underlying medical conditions including hypertension, diabetes, prostate disease and Alzheimer's dementia was admitted to the intensive care unit (ICU) at Hospital A July 15, 2009 with a 24-hour history of fever and a recent syncopal episode. A specimen collected on the same day for urine antigen testing was positive for *Legionella*. Serogroup information was not available for this patient. A nasopharyngeal specimen collected on July 16, 2009 was sent to the Florida Department of Health Bureau of Laboratories (FDOH BOL) in Jacksonville and was negative for seasonal and novel H1N1 influenza A. He was treated with vancomycin, Rocephin, and doripenem. He recovered and was subsequently discharged on July 26, 2009.

A proxy interview conducted with his daughter with whom he lived revealed he was a member of the same local fitness facility as case 2 where he had used the pool and shower prior to becoming ill. The patient also had a dental cleaning procedure two weeks prior to illness. This case patient was epidemiologically linked to case patient two and met the criteria for *Legionella* testing.

Case 4 - A 66-year-old white Hispanic man had a history of hypertension and chronic lymphocytic Leukemia (CLL). In April 2009, he underwent a bone marrow transplant at a cancer center in another state and stayed in a hotel in that state while receiving chemotherapy. On July 12, 2009, he developed symptoms of cough, fever, chills, malaise, and shortness of breath. He returned home to Florida on July 16, 2009 and was admitted in the ICU at Hospital C with pneumonia and was seen by an infectious disease doctor on July 17, 2009 for a bronchoscopy. While hospitalized he was treated with vancomycin, tobramycin, azithromycin, and cefepime. He subsequently expired on July 18, 2009. Infection with *Legionella* was subsequently confirmed on July 22, 2009 by urine antigen testing. His was the only fatal case in Seminole County in 2009.

Case 5 - A morbidly obese 14-year-old white adolescent boy with pre-hypertension and pre-diabetes developed fever, cough and chest pain starting on July 18, 2009. He was initially taken to nearby Hospital D on 07/20/09 and one day later was transferred to Hospital E. A CXR taken upon admission to Hospital E demonstrated right lower lobe pneumonia, and a nasal wash was positive for Influenza A. Subsequent testing at the FDOH BOL in Jacksonville was negative for seasonal flu and novel H1N1. Due to his worsening respiratory status, he was transferred to the pediatric intensive care unit on July 24, 2009 and intubated. *Legionella* was confirmed on July 23, 2009 by urine antigen testing. A tracheal aspirate culture was performed on July 24, 2009 and was positive for *Legionella pneumophila* Group 1 on the same day. A follow-up CXR on July 27, 2009 showed progressive pneumonia involving the right middle and lower lobes and most of the

left lung. During his hospitalization, he was treated with Tamiflu, Rocephin, oseltamivir, and rimantadine. He subsequently recovered and was discharged on August 14, 2009.

While he had no traditional risk factors for *Legionella*, the patient reported swimming in the pool at home. The patient also has a detachable shower head at home which he used to take his showers prior to infection.

Discussion

Legionellosis is caused by the bacterium *Legionella pneumophila* and other *Legionella* species (1). *Legionella* can be found in natural, freshwater environments, but are present in insufficient numbers to cause disease. Drinking water systems, whirlpool spas, and cooling towers provide the three conditions needed for *Legionella* transmission: heat, stasis, and aerosolization. Hence, exposure to water from these sources is the most common origin of outbreaks. Although most cases are sporadic, travel-associated outbreaks, outbreaks in community settings, and nosocomial and occupational outbreaks are common (1).

People with *Legionella* pneumonia frequently require hospitalization. According to the Centers for Disease Control and Prevention (1), there are between 8,000 and 18,000 hospitalizations due to legionellosis in the U.S. each year. While it may be successfully treated, between 5% and 30% of the cases are fatal. These figures do not represent a true estimation of the disease burden due to low use of diagnostic testing and underreporting (2). Low use may be a result of adherence to the recommendations from the American Thoracic Society (ATS) to limit *Legionella* laboratory testing to certain groups such as high-risk patients admitted to the ICU (3).

Legionellosis is associated with two clinically and epidemiologically distinct illnesses; Legionnaire disease, which is characterized by fever, myalgia, cough, with pneumonia, and Pontiac fever, a milder illness without pneumonia. A confirmed case of legionellosis must meet one or more of the laboratory criteria which includes isolation of any *Legionella* organism from respiratory secretions, lung tissue, pleural fluid, or other normally sterile site, or detection of *Legionella pneumophila* serogroup 1 antigen in urine using validated reagents, or fourfold or greater rise in specific serum antibody titer to *Legionella pneumophila* using validated reagents (4).

Risk factors for *Legionella* exposure include use of whirlpool spas, recent travel and overnight stay outside of the home, and recent repairs or maintenance on domestic plumbing (4). Those who are at higher risk of getting the disease are people over age 65, smokers, and those who have co-morbidities, such as COPD, diabetes, cancer, kidney disease, or are immuno-suppressed.

The mode of transmission for legionellosis mainly includes airborne transmission (5). However, other modes are possible including aspiration of water. The incubation period for legionellosis ranges between two and ten days, most often five to ten days. The incubation period for Pontiac fever, which is a milder form of the disease, ranges between 5 and 72 hours, most often 24 to 48 hours. Person-to-person transmission of the disease has not been documented (6).

The importance of recognizing legionellosis early is that it is best treated with antibiotics not usually administered for common types of pneumonia. Outbreaks or increases in the number of cases legionellosis present a public health challenge since rapid, sensitive, and specific diagnostic tests are not widely used (6). The American Thoracic Society (ATS) guidelines on community acquired pneumonia (CAP) do not favor routine laboratory testing for *Legionella* of all patients with CAP; empiric therapy is recommended instead. The guidelines on CAP do not

recommend laboratory testing for legionellosis unless the patient is admitted to the ICU, is not responding to β -lactam treatment, has had recent travel within the past two weeks, is actively abusing alcohol, has pleural effusion, or is part of an epidemic. Thus, *Legionella* testing is often confined to patients with severe pneumonia and less likely to be ordered for patients who are not severely ill (7).

Empiric therapy for persons hospitalized with CAP should also include coverage for legionellosis. Pontiac fever is self-limited and does not require antimicrobial therapy. Specific therapy effective against *Legionella* infection includes an antibiotic capable of achieving high intracellular concentrations, such as levofloxacin, or a newer macrolide (azithromycin). Observational studies suggest that levofloxacin may be more effective than macrolides, especially in severe cases. azithromycin and levofloxacin are also licensed by the Food and Drug Administration (FDA) for the treatment of Legionnaire disease and are considered preferable to erythromycin, which was historically the drug of choice. Rifampicin has been used as an adjunct in patients failing standard therapy, but data to support this approach are lacking. Penicillin, the cephalosporins, and aminoglycosides are ineffective.

The legionellosis rate in Seminole County during 2009 was 2.76/100,000, which was the highest reported rate within the last ten years. Among the 12 cases in 2009, a large proportion (5/12, 42%) had an onset date in July. The majority of the cases occurred among males (7/12, 58%), and non-Hispanic whites (7/12, 58%).

All patients (12/12, 100%) had ≥ 2 of the clinical features for legionellosis, including cough, chest pain, fever/chills, malaise, loss of appetite, and/or shortness of breath and all required hospitalization. All patients had radiographic evidence of pneumonia and a positive urine antigen test. Two of the twelve cases (17%) were linked to a local fitness facility, although a specific exposure is unknown as environmental samples tested were negative for *Legionella*. The majority of cases (10/12, 83%) did not report travel history outside of Florida or outside the U.S. in the two weeks prior to illness onset, and were considered to be cases acquired in Florida. The one patient who died was receiving cancer chemotherapy as recently as two days prior to illness onset. The other 11 patients (92%) recovered from the infection.

With the exception of the teenage boy, most cases had recognized underlying risk factors. These include being 65 years of age or older (58%), chronic heart disease (50%), COPD (42%), immuno-suppressive conditions (42%), immuno-suppressive therapy, malignancies, and smoking (33%). While high blood pressure and obesity are not traditional risk factors for contracting *Legionella*, each was reported among 50% and 33% of case patients, respectively.

Most of the cases appeared to have been community acquired; however, potential exposure risk factors were also reported. Two patients (17%) swam in a pool outside of their residence during their incubation period, while two (17%) reported either dental work or travel. One patient (8%) also reported drinking from a public water fountain. One (8%) case patient reported being employed as a landscaper.

In retrospect, based on recommendations from the ATS, six (6/12, 50%) of the case patients met one or more of the criteria for *Legionella* testing. Of those, four (67%) of the case patients required admission to the ICU, two (33%) were outbreak related and one (17%) was not responding to empiric therapy. All twelve (100%) case patients received at least one or more antibiotics that are recommended for treating CAP during the initial and final treatment regimen.

Environmental inspections are not recommended for sporadic cases; however, two of the case patients were linked to a point source thus warranting an environmental investigation which was conducted at the fitness club on August 10, 2009. Following consultation with the FDOH BOL, Jacksonville branch, swabs and/or water samples were collected from the showers, water heater, shower head, and the water from the equipment room and sent to the laboratory. The samples were tested on August 11, 2009. All environmental samples collected from the facility were negative for *Legionella pneumophila*. There were no noted violations observed during the inspection. The lack of positive laboratory results for *Legionella* from the environmental samples could be due to laboratory error, sampling error, organism not being present in detectable quantities for methods used, organism not being present at time of sampling, or this facility not being the source of infection.

Conclusion

The risk factors for *Legionella* infection and severe outcomes may be different. However, they tend to be the same if only severe cases are detected. The number of legionellosis cases in Seminole County during 2009 represents a significant increase in incidence when compared to previous years. All twelve patients had clinical features and radiographic evidence of legionellosis. Notably, the youngest patient (14 years of age) did not have any of the traditional risk factors for contracting legionellosis. Understanding the natural history and risk factors associated with *Legionella* infections in children to improve diagnostic testing in this group may be beneficial. Epidemiologic investigations have not identified a point source or clustering in a certain neighborhood other than the two cases that were linked to the local fitness center.

An explanation for the increase in Seminole County may be increased vigilance in identifying high risk patients for diagnostic testing as well as provider awareness (7). Fifty-eight percent (7/12) of the case patients were hospitalized within the same hospital system, which may be more likely to utilize diagnostic testing (8). It is unknown if increased legionellosis incidence rate in Seminole County represents a true increase in disease activity, detection, reporting, or some combination.

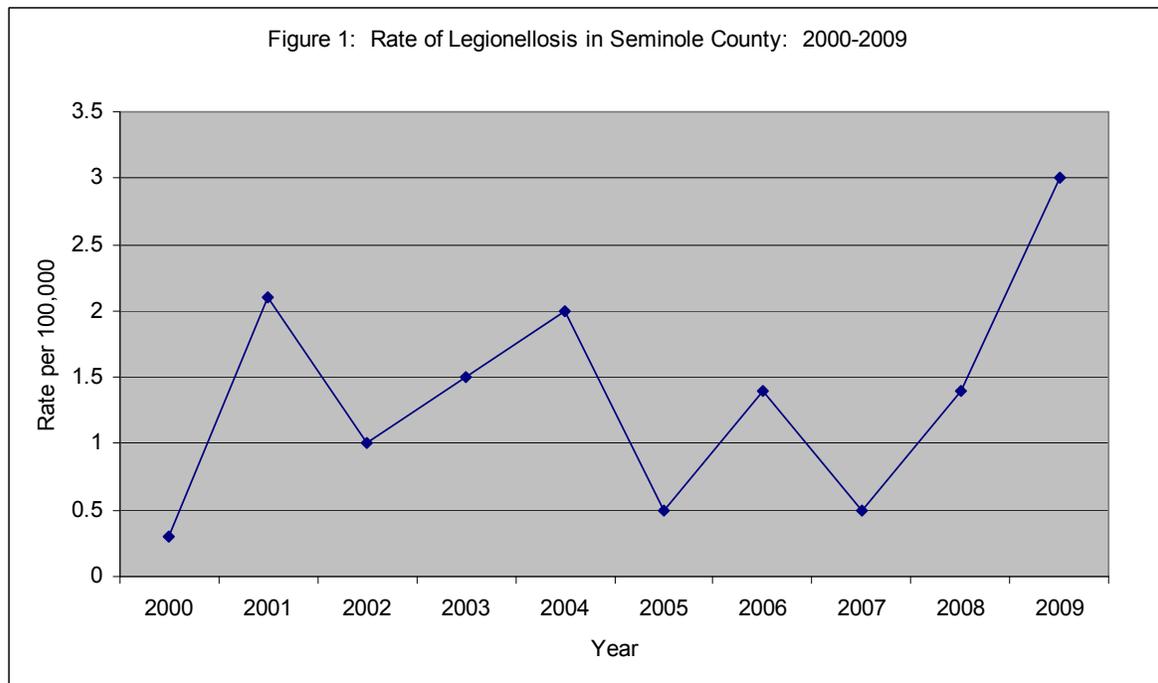
Recommendations

The ATS guidelines on community-acquired pneumonia do not support routine laboratory testing for legionellosis unless the patient is admitted to the ICU, for patients who do not respond to β -lactam treatment, or part of an epidemic. Due to these stringent guidelines, clinicians may be more reluctant to perform testing for legionellosis in patients with CAP in an effort to adhere to the recommendations. This is a problem for patients who would benefit from targeted therapy to reduce the risk of morbidity and mortality. As early detection contributes to better treatment outcomes, it is important that health care providers continue to test and report highly suspected cases of legionellosis. It is also important to test environmental samples for *Legionella* to identify potential sources of exposure when the cases are epidemiologically linked to a point source. Continued surveillance will also be important in evaluating if the trend of increasing cases is ongoing.

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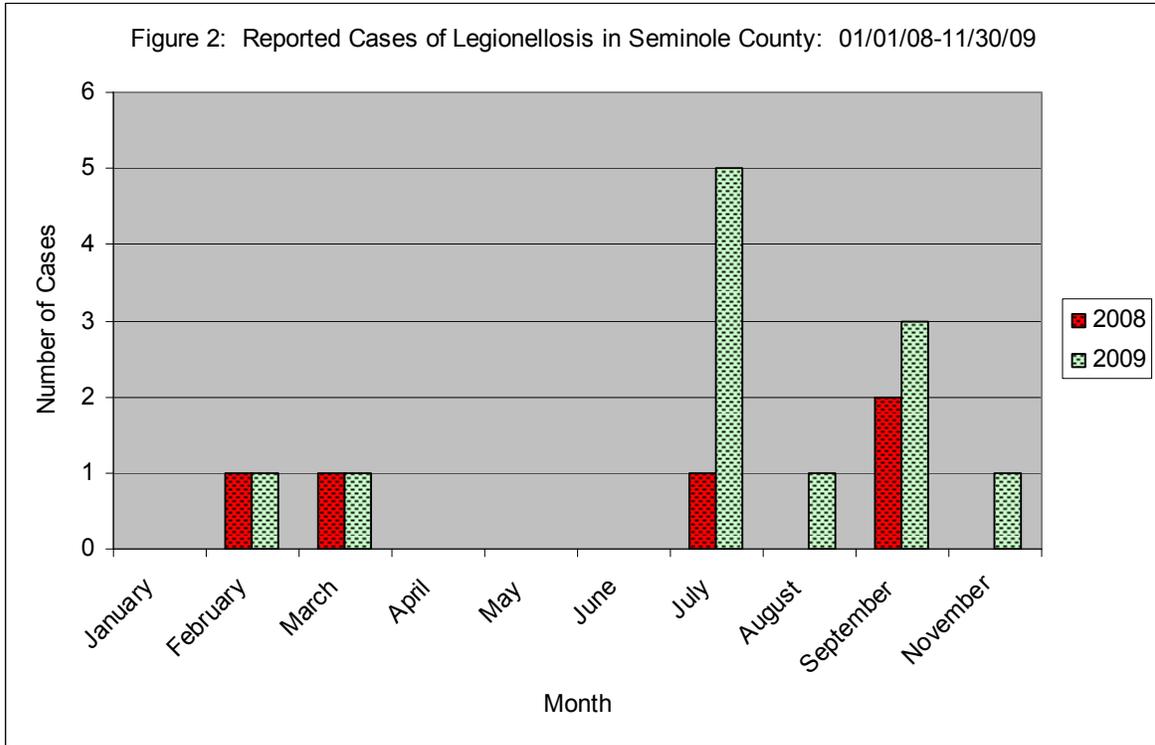


Table 1: Demographic Characteristics of Case Patients

Demographics	Number	Percentage*
Gender		
Male	7	58
Female	5	42
Total	12	100
Age		
15-19	1	8
40-49	1	8
50-59	3	25
≥60	7	58
Total	12	99
Race/Ethnicity		
White, Non-Hispanic	7	58
Black, Non-Hispanic	1	8
Hispanic	4	33
Total	12	99

*May not equal 100% due to rounding

Table 2: Clinical and Epidemiologic Risk Factors		
Underlying Medical Conditions	Number*	Percentage (%)
Chronic obstructive pulmonary disease	5	42
Chronic heart disease	6	50
Malignancies	4	33
Diabetes	2	17
End-stage renal disease	1	8
Kidney disease	1	8
Immuno-suppressive conditions	5	42
Immuno-suppressive therapy	4	33
High blood pressure	6	50
Obesity	4	33
Signs/Symptoms		
Cough	8	67
Fever/chills	12	100
Shortness of breath	10	83
Malaise	11	92
Anorexia/loss of appetite	8	67
Headache	3	25
Diarrhea	2	17
Myalgia/muscle pain	6	50
Risk Factors		
Smoker	4	33
Travel	2	17
Dental work	2	17
Water exposure	3	25
Sensitive occupation	1	8
ATS Guidelines for <i>Legionella</i> Testing		
Outbreak-related	2	17
Admission to ICU	4	33
β-lactum Therapy Failure	1	8
*Number of case patients of a total (12) patients		

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Florida Influenza Surveillance Report

Colin Malone, M.P.H.

Influenza activity in Florida remains low, but some surveillance systems show that activity has increased slightly in recent weeks. The FDOH maintains a variety of these surveillance systems to monitor influenza activity. The Bureau of Epidemiology summarizes the data from these systems in a weekly report to help FDOH track influenza activity (http://www.doh.state.fl.us/disease_ctrl/epi/htopics/flu/reports.htm).

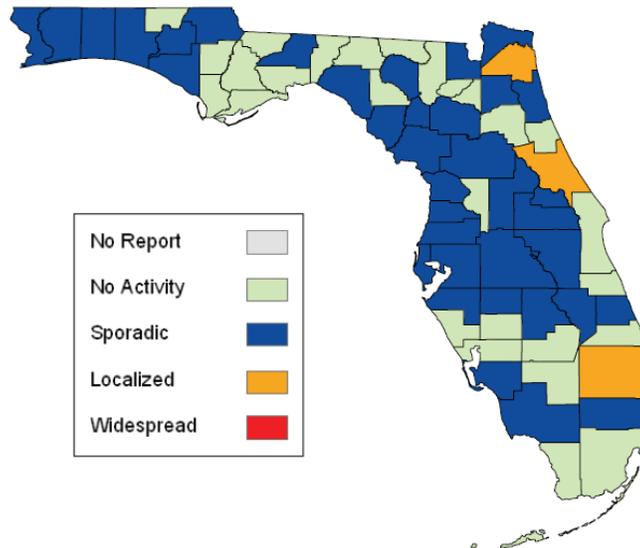
The surveillance sources summarized in these reports include:

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 (BOL);
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.

In Week 10 (March 7-March 13, 2010), Florida reported Sporadic influenza activity statewide to the CDC. There are five possible categories: no activity, sporadic, local, regional, or widespread. Statewide influenza activity levels remain low across the United States, but the southern states that make up Florida's national surveillance region, Region 4, have elevated influenza activity compared to the rest of the country. The CDC's weekly report can be viewed at <http://www.cdc.gov/flu/weekly/usmap.htm>.

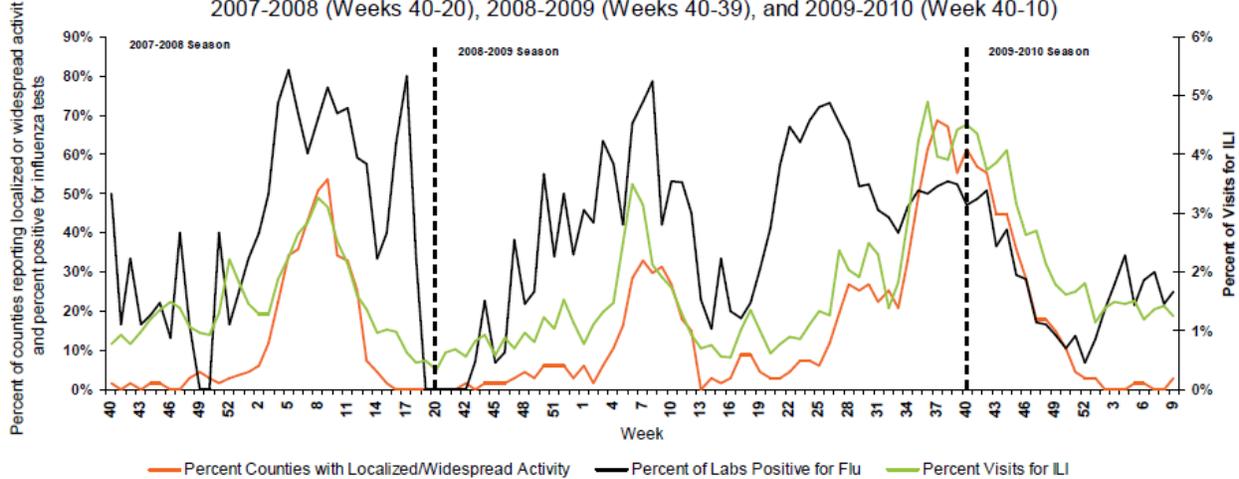
In Week 10, no Florida counties reported widespread activity, and three counties reported localized activity, the highest number since week 51, 2009. A large majority of counties are still reporting sporadic or no influenza activity.

Weekly County Influenza Activity for Week 10
as Reported by 10:00 a.m. March 17, 2010



There have been four ILI outbreaks reported into EpiCom over the past three reporting weeks. Two of these outbreaks were reported during Week Eight, which necessitated an increase in the statewide influenza activity coded to local activity. Florida has since returned to sporadic activity after having only one outbreak reported in each subsequent week. These are low numbers of outbreaks compared to the fall 2009 H1N1 season, but it is an increase after having no ILI outbreaks for eight consecutive weeks. The percentage of visits for ILI reported by ILINet sentinel providers for Week 10 is 1.3%, lower than previous years at this time and below the threshold for moderate activity. ILINet activity has been at a plateau for the past weeks, but ESSENCE data show a slight but steady increase in ILI activity over the same time period. Currently, the percentage of emergency department visits due to ILI (from ESSENCE) is 2.5%; still well within expected values for this time of year. There were five hospitalizations and no deaths from H1N1 in Week 10. BOL viral surveillance continues to show that the overwhelming majority of influenza circulating in Florida is 2009 H1N1 influenza A. No other influenza virus or virus that causes ILI is currently responsible for significant ILI in Florida. RSV, a virus that primarily affects infants and toddlers, is currently active throughout the state, as is normal at this time of year. The graph below shows the progression of the 2007-2008, 2008-2009, and 2009-2010 influenza seasons in three of the seven surveillance systems: ILINet, county influenza activity reporting, and BOL viral surveillance.

FIGURE 1: Percent Visits for ILI to ILINet Sites, Percent of Counties with Localized or Widespread Activity, and Percent of Specimens Tested by Florida Bureau of Laboratories Positive for Influenza, 2007-2008 (Weeks 40-20), 2008-2009 (Weeks 40-39), and 2009-2010 (Week 40-10)



Many FDOH surveillance systems show influenza activity at or below previous years at this time, but recent increases are a reminder that influenza is still causing illness in Florida, and will likely continue to do so for some time. FDOH will continue to closely monitor Florida’s influenza activity over the coming months.

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Florida Year-to-Date Mosquito-Borne Disease Summary Through March 15, 2010

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 March 15, 2010, the following arboviral activity was recorded in Florida:

Eastern Equine Encephalitis Virus (EEEV) Activity

Positive samples were obtained from four sentinel chickens and three live wild birds in five counties.

West Nile Virus (WNV) Activity

Positive samples were obtained from ten sentinel chickens in four counties.

St. Louis Encephalitis Virus (SLEV) Activity

No activity reported in 2010.

Highlands J Virus (HJV) Activity

No activity reported in 2010.

California Encephalitis Group Viruses (CEV) Activity

No activity reported in 2010.

Dengue Virus (DENV)

Nine imported cases with onset in 2010 in Florida residents were reported from the following counties: Broward, Hillsborough (2), Orange, Osceola, Pasco, Pinellas, and Seminole. Places of origin include Columbia (2), Haiti (4), Jamaica, the Philippines, and Venezuela.

Malaria

Twenty-four imported cases of malaria with onset in 2010 were reported in Florida residents from the following counties: Broward (5), Citrus, Hillsborough (2), Miami-Dade (5), Orange (3), Osceola, Palm Beach (3), Polk, Seminole, Volusia, and Wakulla. Places of origin included Angola, Ghana, Guyana, Haiti (16), Nigeria (2), and West Africa. Twenty-one (88%) were diagnosed with *Plasmodium falciparum* and three (12%) with *Plasmodium vivax*.

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, 2010, 59 reports representing a total of 1236 dead birds (1 crow, 1 jay, 10 raptors, 224 others) have been received from 29 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>.

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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)

April 27, 2010: "H1N1 – An Epidemiological Retrospective" presented by Janet Hamilton, M.P.H, Kate Goodin, M.P.H, and Colin Malone, 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, February 1-28, 2010

Disease Category	Month				Cumulative (YTD)	
	2010	2009	Mean [†]	Median [‡]	2010	2009
A. Vaccine Preventable Diseases						
Diphtheria	0	0	0	0	0	0
Measles	0	0	0	0	0	1
Mumps	0	3	2.60	3	1	3
Pertussis	14	18	19.40	18	32	53
Poliomyelitis	0	0	0	0	0	0
Rubella	0	0	0	0	0	0
Smallpox	0	0	0	0	0	0
Tetanus	1	0	0.40	1	1	0
Varicella	83	148	N/A	N/A	145	249
B. CNS Diseases & Bacteremias						
Creutzfeldt-Jakob Disease	1	1	0.60	2	2	4
<i>H. Influenzae</i> (invasive)	14	23	13.60	4	26	42
in those ≤5	2	2	4.80	4	2	4
Listeriosis	5	0	1.80	4	9	1
Meningitis (bacterial, cryptococcal, mycotic)	20	15	0.40	9	32	27
Meningococcal Disease	7	5	6.00	6	15	11
<i>Staphylococcus aureus</i> (VISA, VRSA)	0	0	0	0	0	0
Streptococcal Disease, Group A, Invasive	21	31	27.40	27	38	53
<i>Streptococcus pneumoniae</i> (invasive disease)						
Drug resistant	85	120	81.20	74	175	204
Drug susceptible	75	91	75.80	73	138	174
C. Enteric Infections						
Campylobacteriosis	84	79	78.00	79	134	154
Cholera	0	0	0	0	0	0
Cryptosporidiosis	34	22	21.20	22	54	48
Cyclospora	3	4	3.00	2	4	9
<i>Escherichia coli</i> , Shiga-toxin producing (STEC)**	7	14	2.80	3	15	24
Giardiasis	130	145	95.20	85	252	317
Hemolytic Uremic Syndrome	1	0	0.20	1	1	0
Salmonellosis	267	224	237.20	235	581	518
Shigellosis	44	27	79.60	83	81	83
Typhoid Fever	3	2	1.20	2	4	2
D. Viral Hepatitis						
Hepatitis A	19	18	16.40	16	26	37
Hepatitis B, Acute	23	32	36.40	33	49	55
Hepatitis C, Acute	11	1	4.20	5	14	2
Hepatitis +HBsAg in pregnant women	42	51	44.60	51	75	102
Hepatitis D, E, G	0	2	0.60	2	1	2

* Confirmed and probable cases based on date of report as reported in Merlin
Incidence data for 2010 is provisional, data for 2009 will be finalized on April 1, 2010

† 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, February 1-28, 2010

Disease Category	Month				Cumulative (YTD)	
	2010	2009	Mean [†]	Median [¶]	2010	2009
F. Vector Borne, Zoonoses						
Dengue	5	6	3.0	4	9	9
Eastern Equine Encephalitis ^{††}	0	0	0	0	0	0
Ehrlichiosis/Anaplasmosis	0	0	0.4	1	1	1
Leptospirosis	0	0	0	0	0	0
Lyme Disease	7	6	3.0	4	12	11
Malaria	10	10	4.8	3	23	15
Plague	0	0	0	0	0	0
Psittacosis	0	0	0	0	0	0
Q Fever (acute and chronic)	0	0	0	0	0	0
Rabies, Animal	12	20	14.8	14	21	36
Rabies (possible exposure)	188	115	99.0	106	307	228
Rocky Mountain Spotted Fever	0	1	0.6	1	0	1
St. Louis Encephalitis ^{††}	0	0	0	0	0	0
Toxoplasmosis	1	0	0.6	2	2	1
Trichinellosis	0	0	0	0	0	0
Tularemia	0	0	0	0	0	0
Typhus Fever (epidemic and endemic)	0	0	0	0	0	0
Venezuelan Equine Encephalitis ^{††}	0	0	0	0	0	0
West Nile Virus ^{††}	0	0	0	0	0	0
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	1	0.2	1	0	1
Botulism-Infant	0	1	0.2	1	0	1
Brucellosis	2	0	0	0	4	1
Glanders	0	0	0	0	0	0
Hansen's Disease (Leprosy)	0	1	0.4	1	0	1
Hantavirus Infection	0	0	0	0	0	0
Legionella	11	8	10.4	11	25	22
Melioidosis	0	0	0	0	0	0
Vibriosis	3	2	2.4	2	4	7

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

Incidence data for 2010 is provisional, data for 2009 will be finalized on April 1, 2010

† 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 2010 and 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 and public health agencies during emergency situations. The following are titles from selected recent postings:

- Suspected Norovirus outbreak, Flagler County
- Suspected Norovirus outbreak in an Adult Living Facility (ALF), Columbia County
- Two cases of Meningococcal disease, Miami-Dade County
- Gastrointestinal (GI) outbreak in a drug and mental health treatment facility, Volusia County
- Influenza A H1N1 hospitalization, Escambia County
- GI outbreak in a local nursing home, Miami-Dade County
- Two suspected Norovirus outbreaks in long term care facilities, Sarasota County
- GI outbreak in an Independent Living Facility (ILF)/Assisted Living Facility (ALF), Broward County
- GI illness at an ALF, Hillsborough County
- Meningococcal disease, Lake County
- Suspected Norovirus outbreak, Flagler County
- Investigation of a GI outbreak, Flagler County
- GI outbreak investigations, Lake County
- GI-related illness in Florida, ESSENCE Data 11/21/09 - 02/13/10
- Suspected Norovirus outbreak in February, Hillsborough County
- Imported Chikungunya case, Miami-Dade County
- GI illness in a retirement community, Alachua County
- Suspected GI outbreak in an ALF, Sarasota County
- GI illness in an long-term care facility/skilled nursing, Osceola County
- Norovirus outbreak in a local nursing home and adjacent ALF, Highlands County
- Varicella in school, Santa Rosa County
- Varicella in University students, Miami-Dade County
- Influenza-like Illness (ILI) in a skilled nursing facility, Hillsborough County
- ILI outbreak in an ALF, Pasco County
- Suspected Norovirus outbreak in a skilled nursing facility in Lecanto, Citrus County
- Two suspected Norovirus outbreaks at two long-term care facilities, Polk County
- Malaria in a child recently arrived from Haiti
- GI outbreak in day care facility, Lake County
- Two suspected Norovirus outbreaks in two nursing homes, Miami-Dade County
- Imported Malaria, Hillsborough County
- GI illness in nursing home, Escambia County
- GI illness in a nursing home, Pasco County

- GI illness outbreak at a local nursing home, Highlands County
- GI outbreak investigation in a ALF, Hillsborough County
- *Haemophilus influenzae* Meningitis and Bacteremia, Duval County
- Three GI outbreaks in health care facilities (2 confirmed Norovirus), Palm Beach County
- Several GI outbreaks in ALFs and nursing homes (1 confirmed Norovirus), Sarasota County
- *Rickettsia parkeri*, Lee County
- Norovirus G2 in a skilled nursing and ALF, Hillsborough County
- Varicella cases in two schools, Lee County
- GI illness in elementary school (possible Norovirus), Clay County
- ILI clusters in local county jail, Alachua County
- GI illness in a nursing and rehabilitation facility, Broward County
- GI illness in an ALF (no confirmation of pathogen), Pasco County
- GI illness in a rehab facility, Hernando County
- GI outbreak in another ALF/ILF, Broward County
- Three suspected Norovirus outbreaks being investigated, Manatee County
- Meningococcal disease in an older woman, Miami-Dade county
- GI outbreak in a facility with both LTC/ILF for seniors, Broward County
- GI outbreaks at three healthcare facilities and one child care facility (3 confirmed Norovirus), Alachua County
- Varicella, Broward County
- Tetanus in a resident, Palm Beach County
- Two rabid otters, Sarasota County
- GI outbreak in an ILF/ALF, Broward County
- GI investigations at two ALFs 3/5/10, Miami-Dade County
- Hansen disease, Monroe County
- GI outbreak at a local childcare facility 3/10/10, Miami-Dade County
- Two long term care facility Norovirus outbreaks, Hillsborough County
- Investigation of a GI outbreak in a local nursing home, Hendry County
- GI outbreak at an ALF, Pasco County
- Multiple GI infections in a nursing/rehab facility, Volusia County
- GI illness in a nursing home, Leon County
- Confirmed foodborne Norovirus outbreak at a country club luncheon, Pinellas County
- GI illness in an ALF, Pasco County
- Two ALF suspected Norovirus outbreaks, Polk County
- Update for providers: March 2010 travel notice during multi-state mumps outbreak
- GI outbreak reported in a shelter, Broward County
- GI outbreak reported in another shelter, Broward County
- GI outbreak in a school, Hillsborough County
- GI illness in ALF, Pasco County
- ILI in a correctional facility, Okaloosa 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

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http://www.doh.state.fl.us/disease_ctrl/epi/Epi_Updates/2010/March2010EpiUpdate.pdf.

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