Epi Monthly

Florida Department of Health in Miami-Dade County April 2019 Vol 20, Issue 4

This Month in Public Health

- April is National Distracted Driving Awareness Month. Distracted Driving Awareness Month is a united effort to recognize the dangers of and eliminate preventable deaths from distracted driving. Anything that takes an individual's attention away from driving can be a distraction, whether it's a visual, manual, or cognitive distraction. All can endanger the driver and others on and off the road. The Centers for Disease Control and Prevention estimate that at least nine Americans die and 100 are injured in distracted driving crashes every day. For information on current initiatives underway to prevent distracted driving, please visit: https://www.cdc.gov/motorvehiclesafety/distracted_driving/index.html.

- National Public Health Week was commemorated April 1 - 7, a time to recognize the contributions of public health and highlight issues that are important to improving our nation's health.

- World Immunization Week was celebrated April 22 - 28. Immunizations save millions of lives every year and are widely recognized as one of the world's most successful and cost-effective health interventions. Yet, according to the World Health Organization, there are still nearly 20 million unvaccinated and under-vaccinated children in the world today. The theme this year is *Protected Together: Vaccines Work!* and the campaign will celebrate *Vaccine Heroes* from around the world who help ensure we are all protected through vaccine-preventable diseases, such as measles. To schedule an appointment at one of three immunization clinics operated by DOH Miami-Dade, please call us at (786) 845-0550.

In this Issue

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In the News

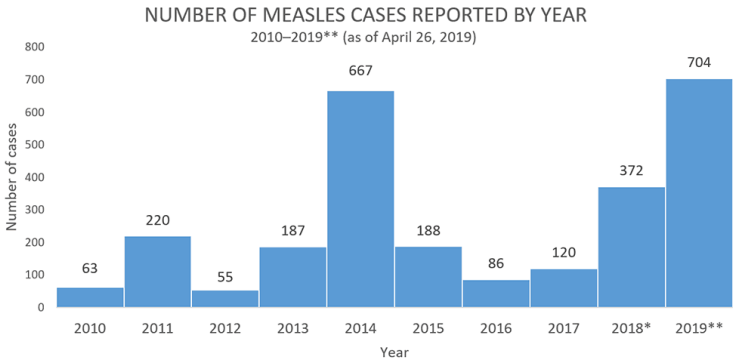
A Brief Update on the Current Measles Situation—as of April 26, 2019

Measles, while once considered eliminated from the United States, remains a global public health threat as it is commonly found in many parts of the world, including Europe, Asia, the Pacific, and Africa. Each year, an estimated 10 million people contract measles across the globe, about 110,000 of those resulting in fatal infection. The Centers for Disease Control and Prevention (CDC) maintains an updated measles page for public information dissemination and issuance of travel watches/alerts.

From January 1 to April 26, 2019, 704** individual cases of measles have been confirmed in 22 states. This is the greatest number of cases reported in the U.S. since 1994 and since measles was declared eliminated in 2000. Florida is among the states reporting cases to CDC.

In a given year, more measles cases can occur for any of the following reasons:

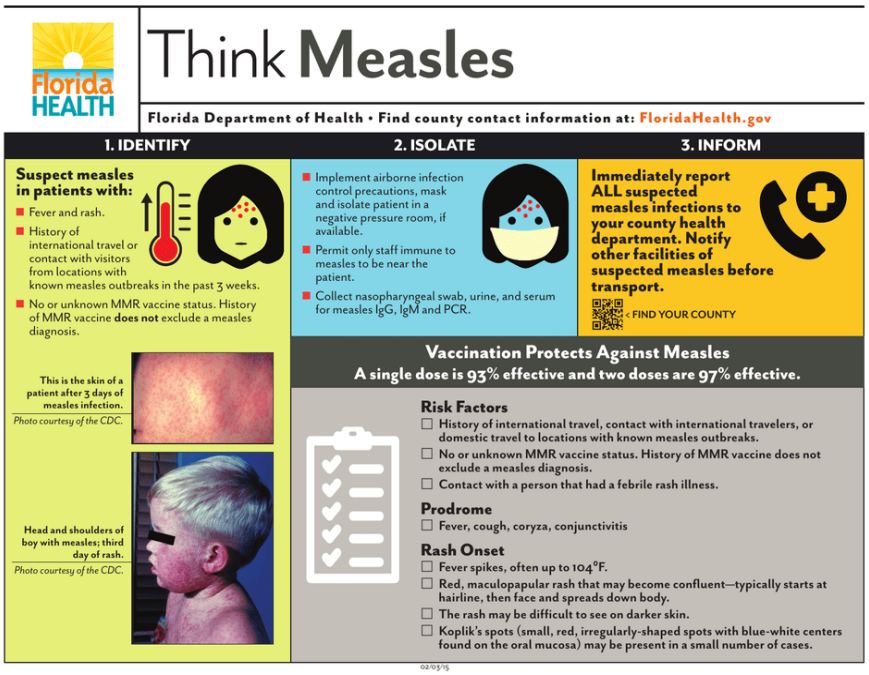
- an increase in the number of travelers who get measles abroad and bring it into the U.S., and/or
- further spread of measles in U.S. communities with pockets of unvaccinated people.



*Cases as of December 29, 2018. Case count is preliminary and subject to change.
Cases as of April 26, 2019. Case count is preliminary and subject to change. **Data are updated every Monday.

Currently, there are travel notices in effect for the countries of Israel, Ukraine, Japan, Brazil, and the Philippines. Additionally, the United States is currently experiencing outbreaks (defined as 3 or more cases) in the following jurisdictions: Rockland County, New York State; New York City; Michigan; New Jersey; Butte County, California; Los Angeles County, California; Sacramento County, California; Georgia; and Maryland. These outbreaks are linked to travelers who brought measles back from other countries such as Israel, Ukraine, and the Philippines, where large measles outbreaks are occurring.

With the increase in measles cases across the US, DOH is urging Floridians and visitors who have not been immunized to get vaccinated. In Florida, children should be immunized against measles with the combination measles, mumps and rubella vaccine (MMR) and should receive two doses, with the first at 12 to 15 months of age, the second at four to six years of age. Adults should be vaccinated with at least one dose of MMR vaccine, with a second dose recommended for those at higher risk such as international travelers and health care workers.



Additionally, DOH is encouraging healthcare providers to "Think Measles" when assessing patients with the characteristic symptom presentation and travel history, particularly in those who are unvaccinated or undervaccinated.

For the latest data on the current outbreaks, please visit the CDC Measles Cases and Outbreaks page at https://www.cdc.gov/measles/cases-outbreaks.html.

Tick Talk: The Need to Know About Lyme Disease

By: Amanda Green

Background

Lyme Disease is the most commonly reported vector-borne disease in the United States.[1,2,3] The Centers for Disease Control and Prevention (CDC) estimates that over 300,000 people are diagnosed with Lyme disease each year.[4] This estimate is 1.5 times higher than the number of women diagnosed with breast cancer each year in the US (approximately 200,000) and 6 times higher than the number diagnosed with HIV/AIDS each year in the US (50,000).[5] Lyme disease is caused by the bacterium *Borrelia burgdorferi* and is transmitted to humans through the bite of infected blacklegged ticks (or deer ticks).[6]

Figure 1. Comparison of cases of Lyme disease reported to CDC — 2001 and 2017.*

* Each dot represents one case of Lyme disease and is placed randomly in the patient's county of residence. The presence of a dot in a state does not necessarily mean that Lyme disease was acquired in that state. https://www.cdc.gov/lyme/stats/maps.html

Lyme disease is a clinical diagnosis dependent on history, and physical examination, and supported by appropriate laboratory testing.[1,7] The elements of diagnosis are placed in the context of the environmental exposures, risk factors, and consideration of other diagnoses that may explain or impact the patient's symptoms. Symptoms of Lyme include fever, headache, fatigue, chills, stiff neck, or muscle aches.[8] Between 60-80% of infected individuals will develop a red, "bull's eye" erythema migrans (EM) rash three to thirty days after being bitten by an infected tick. Later stage symptoms may not appear until months or years after the bite and, if left untreated, can lead to problems with the nervous system, heart, joints and muscles.[5,7,9] Patients treated with antibiotics soon after infection usually recover quickly and completely. Studies have estimated that as many as 36% of those diagnosed and treated early for Lyme disease remain ill after treatment.[5] These patients may benefit from a second course of antibiotic therapy. However, longer courses of antibiotic treatment have not been shown to be beneficial and have been linked to serious complications.[9,10] A few patients, especially those diagnosed in the later stages of disease, may have persistent or recurrent symptoms. Cases where symptoms persist for more than 6 months are known as "Post-treatment Lyme Disease Syndrome" (PTLDS) often referred to as "Chronic Lyme Disease."[11]

Testing Recommendations

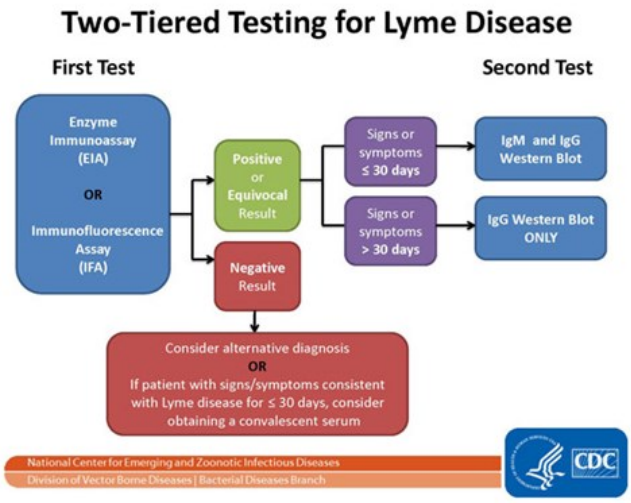
For confirmation of clinical diagnosis, CDC recommends a two-step process when testing blood for evidence of antibodies against the Lyme disease bacteria; ELISA and Western Blot. These elements must be considered in the context of the individual patient's full story and with consideration of other diagnoses that may explain or confound the patient's diagnosis. No single element of the diagnostic process outweighs the full and complete evaluation.[12,13] The strengths and limitations of laboratory testing must be understood by the clinician in order to use testing modalities effectively and avoid some of the pitfalls of diagnosis that can result from over-reliance on laboratory testing to rule in or rule out an illness.

The occurrence of false negatives and false positives greatly contributes to the controversy of over diagnosis of

Lyme disease.[12] Due to the nature of the test, there is the potential for misinterpretation of results, culminating in false negatives and false positives. When antibody testing is done too early or too late in infection, false negatives may result. It has been shown that after an antibody response develops, it can wane or persist regardless of disease status. Performance characteristics are not only affected by timing of testing but also by the particular disease manifestation being evaluated. Western blot testing, for example, has been found to perform very well in cases of arthritis (96% sensitivity) but less well in neurologic presentations (72% sensitivity). [12]

The ELISA quantitatively measures IgM, IgG or a combination of IgM and IgG antibodies in an automated format. ELISA sensitivities have been shown to vary by disease stage and manifestation in early Lyme, sensitivities of ~40% have been reported, rising to as high as 82% in disseminated or late/convalescent samples.[12] In a clinical setting consistent with Lyme disease, the likelihood that a positive ELISA is a true positive is high; however, in the same setting the likelihood that a negative ELISA is a true negative is less certain.

Figure 2. Two-tiered testing decision tree for Lyme disease, Centers for Disease Control and Prevention.



Western blots, either IgM or IgG, qualitatively measure antibody reactions across a range of more than 2 dozen B. burgdorferi antigens. [2,12] The determination of which antibody reactions to include in establishing criteria for a positive Western blot has been the subject of much controversy. Dressler et al. developed criteria based on the frequency with which particular antibodies appeared in clinically well-characterized patients. They then applied statistical parameters to determine which particular antigens to include and the minimum number of antibody responses needed to achieve a test specificity of 99%.[12] Of interest is the absence of 31 and 34 kDa proteins (ospA and ospB) which may occur infrequently but are significant for Bb, especially when occurring together.[1, 12] Other investigators have proposed different criteria for Western Blot interpretation. Prevention and treatment efforts to improve early and accurate diagnosis and decrease the spread of Lyme disease and are an increasing priority in the United States.[14]

Transmission

Most humans are infected with Lyme disease causing bacteria through the bites of immature ticks called nymphs.[1] Although dogs and cats can get Lyme disease, there is no evidence that they spread the disease directly to their owners. Additionally, there are no reports of Lyme disease transmission from breast milk and no supporting evidence of Lyme disease being transmitted person-to-person. Lyme disease acquired during pregnancy may lead to infection of the placenta and possible stillbirth; however, no negative effects on the fetus have been found when the mother receives appropriate antibiotic treatment.[6] Scientists have found that the Lyme disease bacteria can live in blood that is stored for donation; thus, individuals undergoing antibiotic treatment for Lyme disease should not donate blood. Once antibiotic treatment is completed, individuals may consider potential blood donation.[6] More than 90% of Lyme cases occur in the Northeast, Upper Midwest, and mid-Atlantic.[3,4] However, in recent years, black-legged ticks have doubled their established range resulting in a 45.7% increase in the number of US counties with recorded presence of black-legged ticks found within 48 of 50 states.[15]

Lyme Disease in Florida and Miami-Dade County

Lyme disease has been a reportable disease in Florida since 1991. Florida is considered a non-endemic state.[4] In the last 10 years, the number of reported cases of Lyme disease in Miami-Dade County has gradually increased from an average of 4.2 to 12.1 reported cases per year. As of December 2018, there were 11 reported cases in Miami-Dade County which accounted for 5.2% of Florida's 210 reported cases.[4]

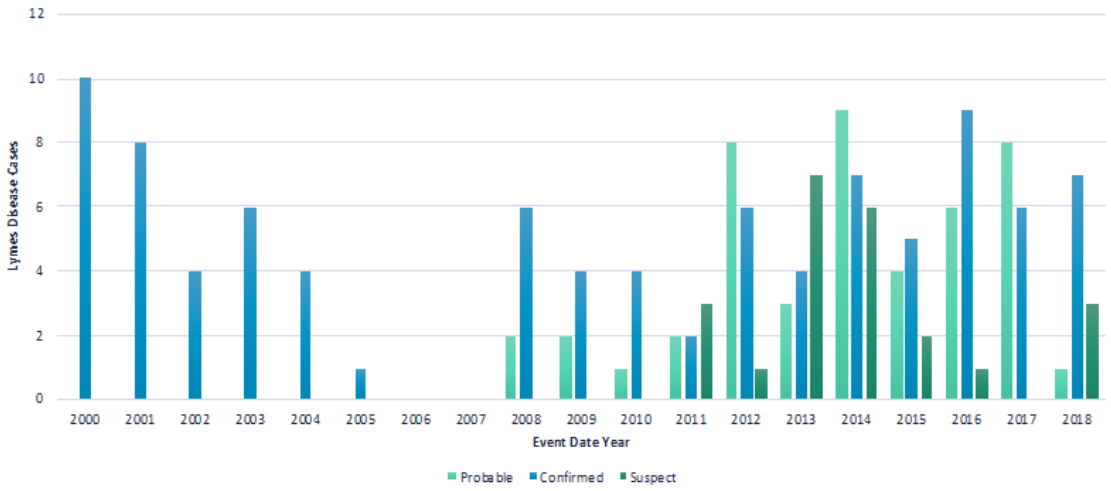
Methods

Data between 2000 and 2018 were obtained from Merlin, the Florida Department of Health Epidemiology Surveillance System, based on the onset date. Microsoft Excel was employed to perform data analysis and chart trends. A confirmed case was defined as a case of EM with laboratory evidence of infection and a known exposure in a low incidence state, or any case with at least one late manifestation that has laboratory evidence of infection.

Results

Between 2000 and 2018, there were 1,776 Lyme disease cases reported in Florida with incidence rate of 8.92 per 100,000. Of all Florida cases 163 were Miami-Dade County residents, contributing to a county incidence rate of 6.11 per 100,000. Distribution by year depicts the number of confirmed Lyme disease cases in Miami-Dade County relatively declining until reaching a noteworthy low of 0 cases in 2006 and 2007. In 2008, however, the number of reported Lyme disease cases peaked at 8, (*Figure 1*). Of the 163 reported cases between 2000-2018, 94 (57.7%) were confirmed cases. Among confirmed cases, 26 (27.6%) were characterized as chronic infections. Among all cases, 84 were male, 75 (46.0%) were non-Hispanic White, and age range was 2 –87 with a median age of 41 (*Table 1*).

Figure 3. Epidemiological curve of reported Lyme disease cases by onset date–Miami-Dade County, 2000-2018.



The distribution of reported cases by age range were fairly similar in both males and females. Overall, demographic characteristics presented by CDC national data described a slight predominance among males and a bimodal age distribution with peaks among young children and older adults. Among the subset of cases reported from states with low incidence (including Florida), infection occurred more commonly among females and older adults. This contradicts trends observed within cases reported in Miami-Dade County with a greater number of male cases, and majority of cases occurring in the young-mid adult age range 18-44 (n=32, 38.1%). The greatest number of reported cases by race and ethnicity was observed in non-Hispanic White (n=75, 46% of all reported cases) followed by Hispanic (n=42, 25.8%), and unknown (n=40, 24.5%). Roughly a quarter of all cases reported (45, 27.6%) were acquired in Florida, 2 (1.2%) of whom were acquired in Miami-Dade County. Majority of cases were acquired in US states other than FL (87, 53.4%), with 4 cases (2.5%) acquired outside the US, and 27 (16.6%) from unknown origin. Of the cases acquired outside of FL, the most frequent origins were from the northeastern states of New York (n=32, 19.6%), Pennsylvania (n=11, 6.8%), Massachusetts (n=9, 5.5%), and Maine (n=9, 5.5%).

Table 1. Summary of reported Lyme disease cases in Miami-Dade County—2000-2018.*

Summary			
Number of cases			163
Incidence rate (per 100,000)			6.11
Age (in years)	**Number**	**Percent**	**Rate**
0-4	1	0.61%	0.64
5-17	23	14.11%	5.79
18-44	65	39.88%	6.49
45-64	47	28.83%	6.64
65+	27	16.56%	6.63
Gender			
Female	79	48.47%	5.75
Male	84	51.53%	6.49
Race/Ethnicity			
Non-Hispanic White	75	46.01%	19.19
Non-Hispanic Black	5	3.07%	1.13
Hispanic	42	25.77%	2.37
Other	1	0.61%	
Unknown	40	24.54%	
Travel status			
Acquired in Florida	45	27.61%	1.69
Miami-Dade County	2	1.23%	0.07
Acquired in U.S., not Florida	87	53.37%	3.26
Acquired outside of the U.S.	4	2.45%	0.15
Unknown	27	16.56%	1.01

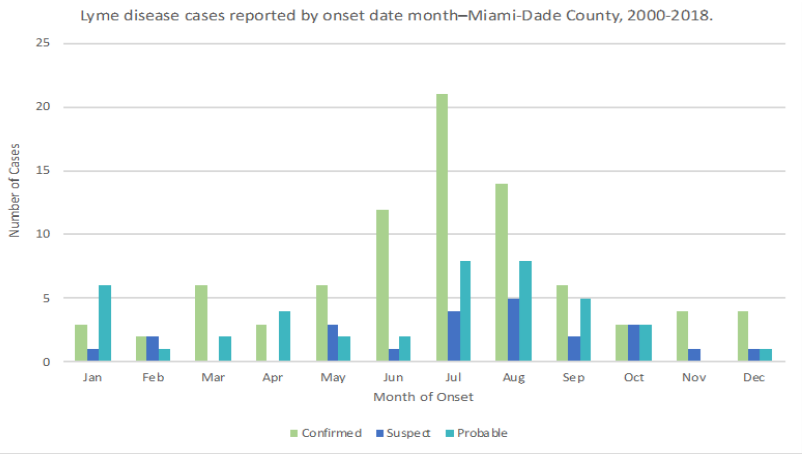
*Population data retrieved from U.S Census Bureau public records and FLHealthCharts Community Health Assessment Resource Tool Set.

Risk Factors

Where you live, and vacation can greatly affect your chances of acquiring Lyme disease.

Additionally, incidence of Lyme disease is more common in the summer months due to increased feeding and activity of nymphs. CDC reports that the most common month of infection is July, which is consistent with the 33 cases reported in Miami-Dade County in July over the study period (*Figure 2*).[4]

Figure 2. Lyme disease cases reported by onset date month–Miami-Dade County, 2000-2018.



As summer quickly approaches, it is important to be aware of common risk factors for Lyme disease, and to protect yourself accordingly:

- Spending time in wooded or grassy areas, particularly in the Northeast or Midwest regions of the US.
- Children who spend a lot of time outdoors and adults with outdoor occupations also are at increased risk.[8]
- Having exposed skin. Ticks attach easily to bare flesh. If you're in an area where ticks are common, protect yourself and your children by wearing lighter-colored long sleeves and long pants and make sure to check your pets and clothing before coming indoors.[16]
- Not removing ticks promptly or properly. Bacteria from a tick bite can enter your bloodstream if the tick stays attached to your skin for at least 36 to 48 hours.2,6 If you remove a tick within two days, your risk of acquiring Lyme disease is low.
- Climate change and increasingly warmer and longer summers are also a risk factor for increased incidence of Lyme disease and spread of infected ticks.[1]

Prevention

Other steps to prevent Lyme disease include using insect repellent and reducing tick habitats. The *Ixodes Scapularis* (blacklegged ticks) are particularly small (less than 2 mm or about the size of a poppy seed) and can go unnoticed; thus, practicing regular tick checks as well as showering after outdoor activity are recommended.[15] Contact your doctor if you've been bitten by a tick and are experiencing symptoms as Lyme disease is just one of serval tickborne diseases. For clinicians in non-endemic states, such as Florida, it is important to keep in mind the signs and symptoms of Lyme when making diagnosis. For more information and learning tools for healthcare providers please visit: https://www.cdc.gov/lyme/healthcare/index.

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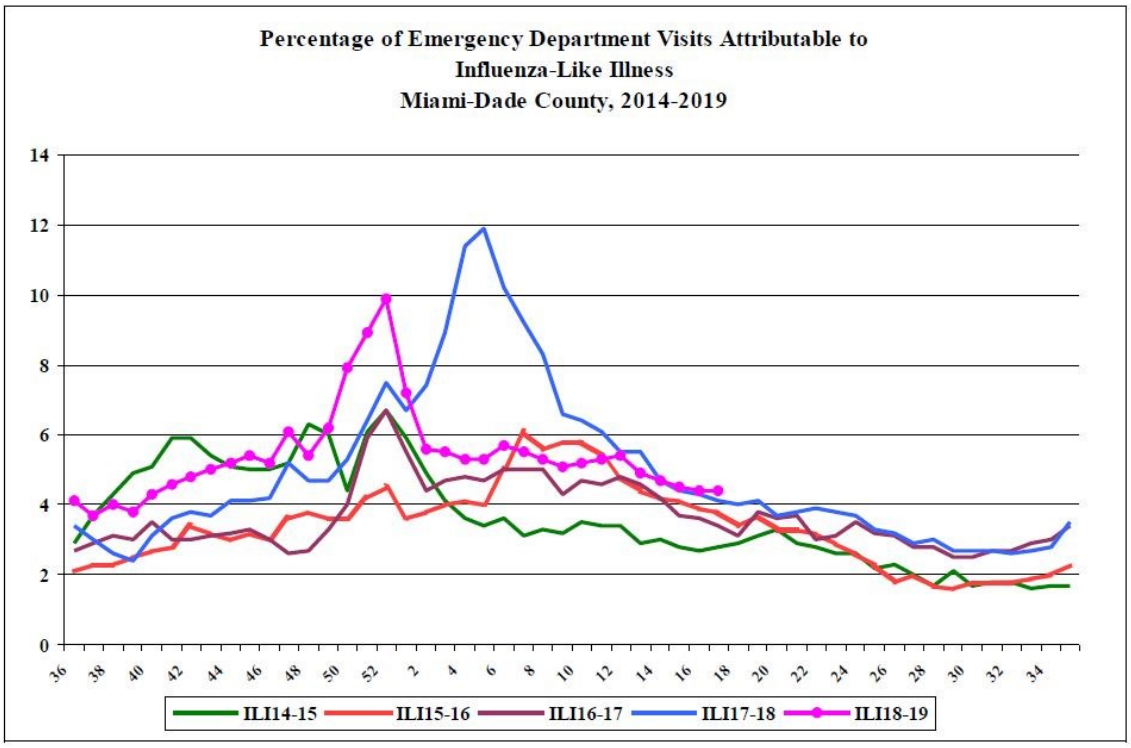
Florida Department of Health in Miami-Dade County
Epidemiology, Disease Control and Immunization Services

Influenza Like Illness Surveillance Report

On a daily basis, all of Miami-Dade County's emergency department (ED) hospitals electronically transmit ED data to the Florida Department of Health. This data is then categorized into 11 distinct syndromes. The influenza-like illness (ILI) syndrome consists of fever with either cough or sore throat. It can also include a chief complaint of “flu” or "ILI". This season's 2017-2018 data is compared to the previous 4 influenza seasons (2013-2014, 2014-2015, 2015-2016, 2016-2017).

Influenza-Like-Illness, All Age



Across all ages, there were 35,523 ED visits; among them 1,563 (4.4%) were ILI. At the same week of last year, 4.1% of ED visits were ILI.

PARTICIPATE IN INFLUENZA SENTINEL PROVIDER SURVEILLANCE

Florida Department of Health in Miami-Dade County NEEDS Influenza Sentinel Providers!

Sentinel providers are key to the success of the Florida Department of Health’s Influenza Surveillance System. Data reported by sentinel providers gives a picture of the influenza virus and ILI activity in the U.S. and Florida which can be used to guide prevention and control activities, vaccine strain selection, and patient care.

- Providers of any specialty, in any type of practice, are eligible to be sentinel providers.
- Most providers report that it takes **less than 30 minutes a week** to compile and report data on the total number of patients seen and the number of patients seen with influenza-like illness.
- Sentinel providers can submit specimens from a subset of patients to the state laboratory for virus isolation **free of charge**.

For more information, please contact
Lakisha Thomas at 305-470-5660.

Miami-Dade County Monthly Report
Select Reportable Disease/Conditions
March 2019

Diseases/Conditions	2019 Current Month	2019 Year to Date	2018 Year to Date	2017 Year to Date
HIV/AIDS				
AIDS*	32	166	117	116
HIV	134	539	375	348
STD				
Infectious Syphilis*	31	111	99	90
Chlamydia*	1197	3521	3199	2994
Gonorrhea*	363	1090	1001	691
TB				
Tuberculosis**	13	27	26	15
Epidemiology, Disease Control & Immunization Services				
Epidemiology				
Campylobacteriosis	65	188	176	141
Chikungunya Fever	0	0	0	0
Ciguatera Poisoning	3	11	8	2
Cryptosporidiosis	4	10	7	1
Cyclosporiasis	0	0	0	0
Dengue Fever	0	14	1	1
Escherichia coli, Shiga Toxin-Producing	3	21	30	14
Encephalitis, West Nile Virus	0	0	0	0
Giardiasis, Acute	12	0	0	0
Influenza Novel Strain	0	0	0	0
Influenza, Pediatric Death	0	0	1	0
Legionellosis	5	12	9	9
Leptospirosis	0	0	0	0
Listeriosis	0	0	1	3
Lyme disease	0	1	0	1
Malaria	2	2	4	2
Meningitis (except aseptic)	1	2	4	1
Meningococcal Disease	1	1	0	3
Salmonella serotype Typhy (Typhoid Fever)	0	1	1	0
Salmonellosis	35	119	98	104
Shigellosis	20	70	69	19
Streptococcus pneumoniae, Drug Resistant	2	4	9	4
Vibriosis	0	3	0	2
West Nile Fever	0	0	0	0
Immunization Preventable Diseases				
Measles	0	0	0	0
Mumps	1	4	4	0
Pertussis	2	7	5	9
Rubella	0	0	0	0
Tetanus	0	0	0	0
Varicella	8	34	10	14
Hepatitis				
Hepatitis A	3	9	4	21
Hepatitis B (Acute)	3	8	6	8
Healthy Homes				
Lead Poisoning	12	42	45	20

*Data is provisional at the county level and is subject to edit checks by state and federal agencies.

** Data on tuberculosis are provisional at the county level.

Data on EDC-IS includes Confirmed and Probable cases.

What's New at DOH Miami-Dade

- Earlier this month, DOH Miami-Dade and partners celebrated National Public Health Week. Local staff partnered with the FIU Robert Stempel College of Public Health for a week-long series of workshops on topics relevant to the NPHW themes of healthy communities, violence prevention, rural health, technology and public health, and climate change. In addition to attending workshops and supporting the work of our local academic partner, DOH Miami-Dade staff used this opportunity to provide information on the services provided by the health department. The events made for a great way to connect public health practitioners, academia, and local healthcare providers.
- The Florida Department of Health in Miami-Dade County will be closed Monday, May 27 in observance of Memorial Day.

Thank you for celebrating National Public Health Week 2019 with us!

To report diseases and for information, call EDC-IS at:

Childhood Lead Poisoning Prevention Program	305-470-6877
Epidemiology and Disease Surveillance	305-470-5660
Hepatitis Program	305-470-5536
HIV/AIDS Program	305-470-6999
Immunization Services	305-470-5660
STD Program	305-575-5430
Tuberculosis Program	305-575-5415
Appointment Line	786-845-0550

About the Epi Monthly Report

The Epi Monthly Report is a publication of the Florida Department of Health in Miami-Dade County: Epidemiology, Disease Control & Immunization Services. The publication serves a primary audience of physicians, nurses, and public health professionals. Articles published in the Epi Monthly Report may focus on quantitative research and analysis, program updates, field investigations, or provider education. For more information or to submit an article, please contact Danielle Fernandez at 305-470-6980 or danielle.fernandez@flhealth.gov.

Florida HEALTH Miami-Dade County