Florida Morbidity Statistics Report

2017

2017 Florida Morbidity Statistics Report

Florida Department of Health
Division of Disease Control and Health Protection
Bureau of Epidemiology
4052 Bald Cypress Way, Bin #A-12
Tallahassee, Florida 32399-1720

Florida HEALTH

Report cover, title page, and section page credits

Flaticon icons:
Carbon monoxide icon made by Freepik
Syringe icon made by Freepik

Noun Project icons:
Sneezing icon by Luis Prado
Hurricane icon by icon 54
Mosquito icon by Antistatique
Aids icon by Atif Arshad

Icons8.com icons:
Drop of blood icon by Icon8

Cover design:
Leah Eisenstein, MPH and Nancy Dittmar

Table of Contents

Table of Contents (Continued)

Table of Contents (Continued)

Table of Contents (Continued)

Overview of 2017

Overview of 2017

Report Background and Purpose

The *Florida Morbidity Statistics Report* is the official record of the occurrence of reportable diseases in Florida and this edition marks the 61st publication since 1945. Numerous reports describing disease burden are produced throughout the year while investigations are ongoing. This report is noteworthy as the data contained here are final, with a few exceptions. Most notably, deduplication of HIV and AIDS cases continues after the publication of this report so numbers in future reports may change. The mission of the Florida Department of Health is to protect, promote, and improve the health of all people in Florida through integrated state, county, and community efforts. Per section 381.0031, Florida Statutes, "The Department shall conduct a communicable disease prevention and control program as part of fulfilling its public health mission." This report directly supports the Florida Health mission by identifying patterns and trends in the incidence of disease that are used as the scientific basis for development of disease control and prevention strategies and policies.

The Bureau of Epidemiology thanks all program areas within Florida Health that contributed to this report, including the sections of HIV/AIDS, Immunization, Sexually Transmitted Diseases (STDs) and Viral Hepatitis, and Tuberculosis Control. Finally, many thanks are extended to the county health department staff and other public health professionals who are involved in reportable disease surveillance, either through disease control activities, case investigations, data collection, laboratory testing, or other essential functions.

Disease control and prevention are core functions of any public health agency. Protection of the public's health from existing, emerging, and re-emerging diseases requires diligence in all aspects of public health. The public health partners identifying and characterizing emerging trends in disease are the physicians, nurses, laboratorians, hospital infection preventionists, and other health care professionals who participate in reportable disease surveillance. Without their participation, the ability to recognize and intervene in emerging public health issues would be much more limited.

The *Florida Morbidity Statistics Report* is compiled in a single reference document to:

- Summarize annual morbidity from reportable communicable diseases and diseases of environmental origin in Florida.
- Describe patterns of disease that can be assessed over time, compared with trends from other states, and act as an aid in directing future disease prevention and control efforts.
- Provide a resource to medical and public health authorities at county, state, and national levels.
- Serve as the final data record, describing cases and morbidity once investigations are closed and data reconciliation with the Centers for Disease Control and Prevention (CDC) is complete.

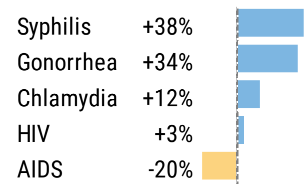
Overview of 2017

Summary of Key Disease Trends in 2017

Sexually transmitted diseases (STDs) and HIV

STDs and HIV are among the most common reportable diseases in Florida, particularly among 20- to 54-year-olds. Generally, the incidence of chlamydia, gonorrhea, and syphilis have increased over the past 10 years, while incidence of HIV and AIDS have decreased. HIV incidence has been increasing slightly each year since 2013, but still remains well below the incidence from 10 years ago. AIDS continued to decline in 2017; linkage to care plays a key role in preventing AIDS in people infected with HIV. In 2017, there were 116,944 people living with HIV in Florida, of whom 68% were retained in care and 62% had suppressed viral loads. In contrast, STDs, particularly gonorrhea and syphilis, continued to increase in 2017. The rate of gonorrhea was 34% higher than the previous five-year average and the rate of syphilis was 38% higher. Chlamydia remained the highest-volume reportable disease in Florida, with over 100,000 cases reported in 2017.

Change in rate (per 100,000 population) in 2017 compared to previous 5-year average



100,057

chlamydia cases reported in 2017. Chlamydia is the most common reportable disease in Florida.

Tuberculosis (TB)

In the mid-1980s, tuberculosis re-emerged as a public health threat in the U.S. **Since 1994, the number of cases of TB in Florida has decreased.** Following small increases in 2015 and 2016, incidence decreased again in 2017. Over the past 20 years, the number of TB cases counted in foreign-born people has remained relatively constant while decreasing dramatically in U.S.-born people. The proportion of all TB cases in people born in a foreign country grew to 59.7% in Florida in 2016.

TB in 2017

61% of cases in foreign-borne population

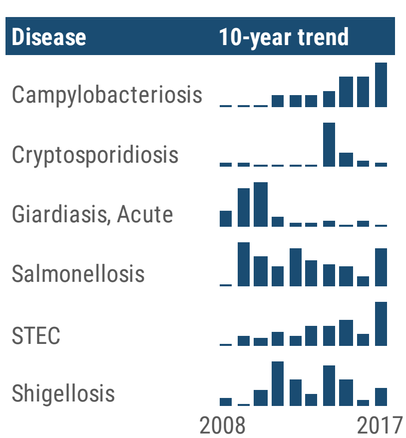
11% of cases co-infected with HIV

6% of cases in homeless population

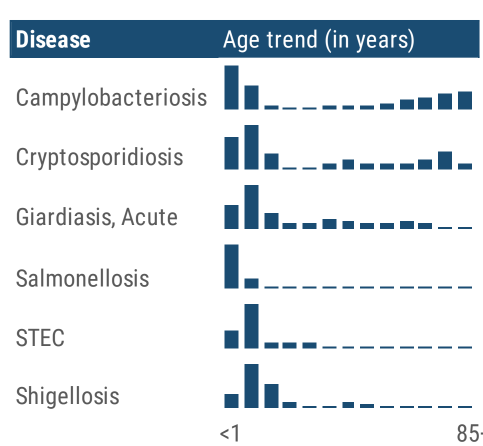
Enteric diseases

Florida consistently has one of the highest rates of enteric diseases in the nation, with 11,000 to 14,000 cases reported annually. Culture-independent diagnostic testing (CIDT) for enteric diseases has been widely implemented over the past few years, improving case detection. In 2017, campylobacteriosis, salmonellosis, and shigellosis case definitions all expanded to include positive CIDT results, regardless of symptoms, as probable cases. Campylobacteriosis cases increased by over 1,000 in 2017 compared to 2016, at least partly due to the change in case definition. Salmonellosis and shigellosis were not as impacted by changes in the case definitions.

Enteric diseases have very different 10-year incidence trends. Campylobacteriosis and Shiga toxin-producing *Escherichia coli* (STEC) infections have increased dramatically over the past 10 years. Giardiasis has been relatively constant since 2011 (the last case definition change). Cryptosporidiosis incidence in 2015 was very high, and has decreased each year since. Historically, shigellosis has a cyclic temporal pattern with large, community-wide outbreaks, frequently involving daycare centers, every 3–5 years. Incidence peaked in 2007, 2011, and 2014 and started increasing again in 2017.



Enteric diseases are disproportionately reported in children less than 5 years old, though the distribution of cases within that age range varies by disease. Salmonellosis is the most common enteric disease with more than 6,500 cases reported in 2017. The rate of salmonellosis in infants less than 1 year old was more than 4 times as high as in 1- to 4-year-olds, the next highest incidence group, and more than 15 times as high as in any other age group. Campylobacteriosis incidence rates also peak in less than 1-year-olds, but the disease is relatively more common among other age groups. Other enteric diseases, including cryptosporidiosis, giardiasis, shigellosis, and STEC infections, peak in the 1- to 4-year-old age group.

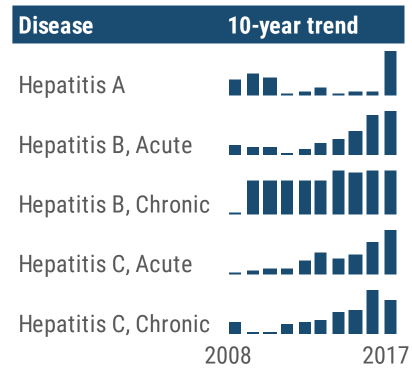


Overview of 2017

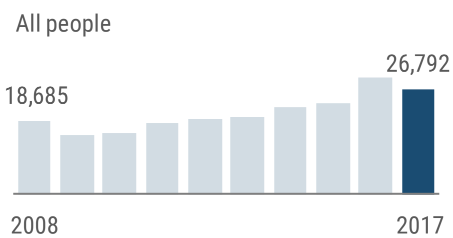
Hepatitis

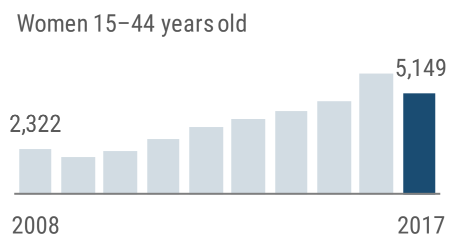
Viral hepatitis continues to account for a large bulk of infectious disease burden in Florida with 4,000 to 5,000 chronic hepatitis B cases and 19,000 to 30,000 chronic hepatitis C cases reported each year. Over the past few years, improvements in electronic laboratory reporting (ELR) and increased focus on surveillance are believed to have improved case ascertainment of chronic hepatitis. In 2014, reporting requirements were updated to include mandatory reporting of all positive and negative hepatitis results, as well as all liver function tests, to support the identification of acute hepatitis cases. In 2017, 15% of acute hepatitis B cases and 59% of acute hepatitis were determined to be acute based on negative results preceding positive results. These cases would otherwise have been misclassified as chronic. An enhanced surveillance project focusing on hepatitis in young adults was funded and implemented in 2012 in Florida, which has also likely contributed to the increases in acute hepatitis cases. Acute hepatitis B and C virus (HCB and HCV) infections are frequently associated with drug use and sharing of injection equipment.

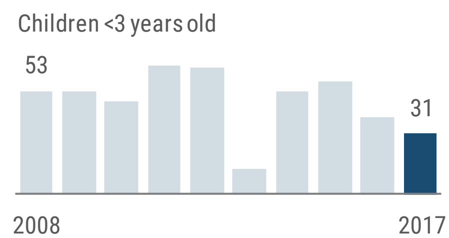
Hepatitis A incidence increased dramatically in 2017. The incidence of acute hepatitis B and C and chronic hepatitis C have increased steadily over the past 10 years. Chronic hepatitis B has remained relatively stable since 2009.



About 6% of HCV-infected mothers transmit the infection to their infants, and that risk doubles if a women is co-infected with HIV or has high levels of HCV. **The number of people with acute or chronic hepatitis increased by 43% from 2008 to 2017. The number of women of childbearing age with acute or chronic hepatitis increased 122% in that same period.** Despite this increase among women, the number of children less than 3 years old identified with acute, chronic, or perinatal hepatitis has not increased over the past 10 years. For more information about perinatal hepatitis C, see Section 8: Congenital and Perinatal Conditions.





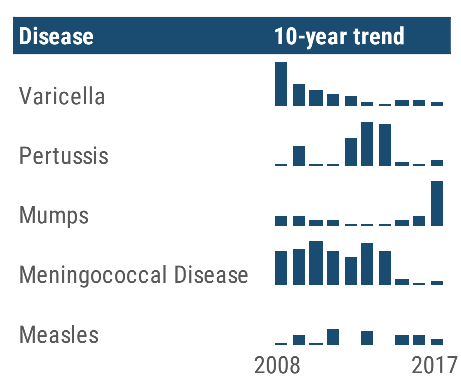


Hepatitis A incidence increased dramatically in 2017, with more than twice as many cases reported in a single year since 2010. Cases acquired in Florida increased substantially compared to previous years. Most the cases occurred in south Florida and almost half were reported in Miami-Dade County. Most cases were in adults (median of 38 years old), males, whites, and non-Hispanics. The most commonly reported risk factor was men who have sex with men in 21% of cases. Other person-to-person risk factors included non-injection drug use in 9% of cases and injection drug use in 5% of cases.

Vaccine-preventable diseases (VPDs)

Despite high vaccine coverage in Florida, vaccine-preventable diseases (VPDs) continue to occur. Vaccination coverage in Florida and nationally for 2016 was published by the CDC in 2017 (www.cdc.gov/mmwr/volumes/66/wr/mm6643a3.htm). Varicella incidence has been steadily declining since 2008 due to effective vaccination programs. Pertussis is cyclical in nature with peaks in disease every three to five years. In Florida, pertussis cases last peaked in 2013. Pertussis incidence in 2017 remained consistent with those seen during non-peak years. The number of reported meningococcal disease cases reached a historic low in 2016 and remained low in 2017 in Florida, similar to U.S. trends. Vaccines for preventing the five common serogroups of *Neisseria meningitidis* that cause meningococcal disease are recommended for targeted populations. The explanation for the decrease in cases in Florida and the U.S. is unknown, but it is likely partially attributable to vaccination rates among some subgroups. Most years a few measles cases are reported. Three cases were reported in 2017, all of whom were exposed outside Florida (two in California, one during airline travel).

Varicella and meningococcal disease have decreased over the past 10 years. In 2017, three measles cases were reported, pertussis remained stable, and mumps increased dramatically.



Overview of 2017

Influenza and influenza-like illness

Nationally, the 2017–18 influenza season was classified as having a high severity overall as well as having high severity in all age groups (children, adolescents, adults, and older adults). This is the first time a season was classified as high severity in all age groups. Increased spread of influenza was observed from mid-November to late April during Florida's 2017–2018 season. Although influenza activity in Florida often differs from national influenza trends, the 2017–18 Florida season mirrored the national season with peak activity observed during week 5 (starting January 28, 2018). In the 2017-18 season, 506 outbreaks were reported, which was more outbreaks were reported during the 2017–18 season than any previous season on record, including the 2009 pandemic, underscoring the season's severity. Almost five times the average number of outbreaks were reported during the 2017–18 season.

The predominant strain was influenza A (H3).

Increased influenza spread occurred from mid-November to late April; activity peaked in late January.

Influenza activity was unprecedented in Florida and nationally.

The season was classified as having high severity overall and in all age groups nationally.

Respiratory Syncytial Virus (RSV)

Respiratory syncytial virus (RSV) is a common respiratory virus that primarily infects young children. Children less than 5 years old and older adults are at increased risk of hospitalization for complications due to RSV infection. In the U.S., RSV activity is most common during the fall, winter, and spring months, though activity varies in timing and duration regionally. RSV activity in Florida typically peaks between November and January, with an overall decrease in activity during the summer months. Although summer months typically have less RSV activity overall, RSV season in southeast Florida is considered year-round based on laboratory data. During the 2017–18 RSV season in Florida, the percent of children less than 5 years old diagnosed with RSV at emergency departments and urgent care centers in Florida's syndromic surveillance system increased from October to January and peaked in mid-November. The percent for the 2017–18 season was greater than the average of the previous three seasons.

Overall RSV activity in Florida typically peaks between November and January.

RSV activity varies by region; southeast Florida has a year-round season.

RSV in children <5 years old was higher in 2017–18 season than previous three seasons.

RSV surveillance data indicated peak activity in mid-November for 2017–18 season.

Cancer

During 2015, physicians diagnosed 112,503 primary cancers (i.e., the site or organ where the cancer starts) among Floridians, an average of 308 new cases per day. The overall rate of occurrence for all cancers combined in the state has increased from 407.8 new cases per 100,000 in 1981 to 419.0 new cases per 100,000 in 2015. However, this has not been a steady increase, as cancer patterns vary year to year. Cancer occurs predominantly among older people as age is the top risk factor. Almost 60% of the newly diagnosed cancers in 2015 occurred in people 65 years and older; this age group accounted for 18% of Florida's 2015 population.

112,503

Primary cancers diagnosed in Florida in 2015.

Cancer rate per 100,000 population increased from 408 to 419 from 1981 to 2015.

59% of newly diagnosed cancers in 2015 in Florida were in adults ≥65 years old.

4 most common cancers in 2015 in Florida:

- Lung and bronchus (14%)
- Female breast (14%)
- Prostate (10%)
- Colorectal (9%)

Overview of 2017

Focus in 2017: Hurricane Irma

In 2017, Hurricane Irma caused widespread devastation and was recorded as one of the costliest hurricanes in the Atlantic basin. On September 10, Hurricane Irma's eye wall struck the Florida Keys (Cudjoe Key) as a Category 4 hurricane and subsequently tracked up the west side of the state. Due to its size and northward path along the west side of the state, 59 of Florida's 67 counties were affected. An estimated **6.7 million** customers were without power on September 11, 2017. Almost **7 million** Florida residents evacuated to shelters, other counties, or other states to flee Irma.

Post-hurricane surveillance

Prior to Hurricane Irma's landfall, response efforts were initiated to ensure the health needs of Floridians were being met. Daily surveillance reports were produced from September 10–22, 2017. Multiple surveillance strategies were used to track Hurricane Irma-related morbidity and mortality and are described here.

Reportable diseases: Health care providers and laboratories are required to notify Florida Health of cases of reportable diseases. These data were monitored for any unexpected increases, particularly for enteric diseases, vaccine-preventable diseases, and carbon monoxide poisonings. For the list of diseases that were reportable in Florida, see Appendix V: List of Reportable Diseases/Conditions in Florida, 2017.

ED and UCC visits: ESSENCE-FL, Florida's syndromic surveillance system, captures 99% of emergency department (ED) visits and 7% of urgent care center (UCC) visits statewide and serves a vital function in providing near-real-time ED data. Data captured include chief complaints, triage notes, and discharge diagnoses. Data are categorized into syndromes and subsyndromes, which are used to monitor the number of people presenting to EDs and UCCs for respiratory and gastrointestinal illnesses, animal bites, injuries, seizures, dialysis, medication refill needs, and carbon monoxide exposures. During hurricanes, missing or late data and storm-related ED and UCC closures can be a challenge.

DMAT visits: When activated, ESSENCE-FL receives data from federal disaster medical assistance teams (DMATs). These are groups of medical professionals and para-professionals who are deployed to aid in treating and triaging illness and injury.

ED and DMAT highlights

- ED visits lower day before and day of impact, followed by greatly elevated visits September 12–14
- Increases in ED visits observed for:
    - ◊ Injuries
    - ◊ Carbon monoxide exposures
    - ◊ Animal bites
    - ◊ Dialysis
    - ◊ Medication refills
    - ◊ Seizures
- 1,666 DMAT visits from 16 DMAT locations captured from September 9–26
    - ◊ Feral cat bite requiring rabies post-exposure prophylaxis identified

Poison control center calls: ESSENCE-FL also receives data on calls received by Florida's three poison control centers every 10 minutes. These data are useful for identifying carbon monoxide exposures, as well as other hurricane-related incidents such as poisonous snake bites or exposures to hydrocarbons, batteries, and cleaning agents used for toxic mold.

Shelters: Hundreds of shelters opened across the state for evacuees. While the risk of infectious disease outbreaks immediately following a disaster is low, long-term sheltering increases the risk for disease transmission. Florida Health recommended implementing shelter surveillance in shelters that were open longer than one week to identify any communicable diseases, or lack thereof, and any health needs requiring timely intervention or referrals.

Deaths: Hurricane-related deaths were identified through review of death registration data collected from vital statistics and ESSENCE-FL, reports from the Florida Medical Examiners Commission, and media reports. Text-parsing algorithms were used to query "How Injury Occurred" and "Literal Cause of Death" fields on the death certificates and stories reported through the media.

Overview of 2017

Carbon monoxide poisonings

When power outages occur during natural disasters, the use of alternative sources of fuel or electricity for heating, cooling, or cooking may occur. These alternative sources (e.g., generators, stoves, lanterns, gas ranges) can cause carbon monoxide to build up in a home, garage, or camper and can poison the people and animals inside. With 59 of the 67 Florida counties reporting power outages on September 11 due to Hurricane Irma, the use of generators around the state was widespread.

Surveillance

ED and poison control center call data in ESSENCE-FL were used to help identify carbon monoxide exposures that may have resulted in illness.

Hurricane Irma-related carbon monoxide poisonings accounted for 64% of all confirmed, probable, and suspect carbon monoxide poisoning cases reported in 2017.

CO

529 hurricane-related carbon monoxide poisoning cases

15 carbon monoxide-related deaths

97.5% of cases associated with generator use

207 case clusters (512 cases) of generator-associated carbon monoxide poisoning:

75% placed generators inside or too close to home

84% reported not owning a CO detector

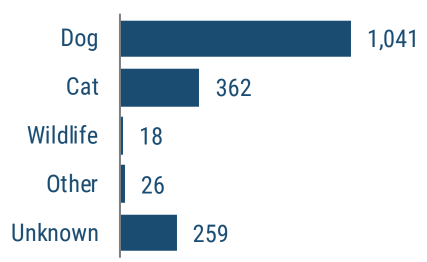
Post-hurricane response efforts regarding CO poisoning have centered around improved statewide messaging about safe generator practice with neighborhood contextual information considered. The messaging has been distributed via social media, a YouTube™ video, and Florida Health press releases.

Animal-related injuries

Domestic and wild animals are often displaced during natural disasters; they are removed from normal habitats and can be left with little access to food, water, or supervision for extended periods of time. The resultant fear and stress in the animals can manifest as aggressive behavior. For this reason, and because of increased instances of individuals initiating contact with unknown animals, these natural disasters are related to a higher risk of injuries due to bites and scratches and potential rabies exposure.

The rate of bite or scratch injuries reported by EDs increased for all age groups and in all counties impacted by the hurricane. Excess morbidity related to animal bites and scratches was quantified using ED chief complaint and discharge diagnosis data captured in ESSENCE-FL. A three-fold increase in injuries to the hands and head was also noted.

Animal bite/scratch injuries September 8–16



3,920 ED visits for animal-related injuries in September 2017

44% visits were September 8–16

85% higher than normal during this time

Shelter surveillance

In response to Hurricane Irma, hundreds of shelters opened across the state for evacuees. Florida Health recommended implementing shelter surveillance in shelters that were open longer than one week to identify any communicable diseases, or lack thereof, and any health needs requiring timely intervention or referrals. Florida Health developed two surveys, a cot-to-cot survey and a clinic survey, to monitor the constantly changing shelter populations. Both surveys were designed for use on mobile phones using SurveyMonkey,™ which allowed for real-time analysis of results and production of daily summary reports.

Overview of 2017

Between both surveys, Florida Health gathered **508** total responses. Shelter surveillance was successful at identifying unmet health maintenance needs such as needing a prescription refill, a blood pressure check, or medication. In addition, real-time analysis of responses detected an increase in respiratory illness, later confirmed as an influenza A outbreak, and allowed for prompt implementation of infection control measures, including providing chemoprophylaxis and administering seasonal influenza vaccines to the shelter population.

Rapid data collection and analysis of results were key to timely public health action and prioritization of resources. Now that survey tools have been developed and tested, Florida Health is prepared to implement shelter surveillance more quickly and more broadly in the event of future shelter openings.

Cot-to-cot survey

- Each person in the shelter interviewed daily
- Administered in Monroe, Osceola, and St. Lucie county shelters
- Administered 33 times in 7 shelters in 2-week period

Clinic survey

- Each person who visited the shelter's medical clinic interviewed
- Administered in Monroe County shelters
- Administered 4 times in 2 shelters in 3-day period

Zika response for hurricane evacuees

In 2016, the Centers for Disease Control and Prevention (CDC) created a U.S. Zika Pregnancy and Infant Registry to monitor the effect of Zika virus infection during pregnancy on fetal and infant outcomes. This registry includes information from all U.S. states and territories that reported pregnant women with laboratory evidence of Zika virus. Follow-up on these cases to track pregnancy outcomes and developmental milestones continues until infants are 24 months of age. As part of the registry, any pregnant women or infants who move from one U.S. state or territory to another prior to follow-up completion are transferred to their new jurisdiction.

In addition to Florida, Hurricane Irma impacted 10 countries and territories in 2017, including Puerto Rico. Subsequent to Hurricane Irma, Hurricane Maria made landfall in Dominica on September 19 as a Category 5 storm and made landfall the following day in Puerto Rico as a strong Category 4 storm. Other Caribbean Islands, including the U.S. Virgin Islands, were affected by Hurricane Maria.

After the 2017 hurricane season, many families living in U.S. territories previously impacted by Zika evacuated to Florida, resulting in Zika cases in women and infants being transferred to Florida for completion of follow-up.

Vital Statistics and Florida SHOTS, Florida's voluntary immunization registry, were used to identify counties of residence for cases that were transferred from these territories. These tools helped obtain information on 10 pregnancies that resulted in a live birth in Florida.

109 Zika cases in pregnant women and infants were transferred to Florida

103 cases transferred from Puerto Rico

6 cases transferred from U.S. Virgin Islands

Pregnant women and their infants were eligible for free Zika virus testing. They were also referred to Healthy Start, a no-cost program available to all pregnant women and children up to the age of 3 years. Infants were Referred to Early Steps, an early intervention program, if they presented with congenital Zika-related symptoms or developmental delays. As infant follow-ups continue, infants are referred to additional services if any delayed symptoms are identified.

Vital Statistics

- Database consisting of official birth, death, and fetal death records
- Used to identify pregnancies with outcomes occurring in Florida
- Retrieved date of outcome, facility where it occurred, name of infant
- Identified **10** pregnancies resulting in live births in Florida

Florida SHOTS

- Centralized online immunization registry
- Identified infants transferred post-birth
- Retrieved infant's provider, date of last visit, recent address, contact information
- Located **56** infants who were transferred to Florida

Overview of 2017

Hurricane-related deaths

Most of the 123 deaths related to Hurricane Irma were indirectly related to the storm. Exacerbation of existing medical conditions was the most common cause of death. An additional three deaths were possibly related to the storm (not shown below).

Directly related causes of death	**9**
Drownings due to flooding	7
Tree-related injuries	2
Indirectly related causes of death	**111**
Exacerbation of existing medical conditions	45
Carbon monoxide poisonings	15
Preparation or repair-related injuries	15
Motor vehicle crashes	12
Falls from standing height in elderly persons	12
Other indirect causes	12

Of the 123 hurricane-related deaths, 72% were male and the median age of the decedents was 63 years.

Of the 45 exacerbation deaths, 17 were heat-related (attributed to lack of air conditioning); 14 deaths occurred among geriatric patients with existing chronic disease residing at a south Florida assisted-living facility that was without power for several days. Fourteen of the 15 carbon monoxide poisoning deaths were attributed to generator use.

Locations with vulnerable populations, including the elderly and people prone to heat-related illness, should be prioritized when restoring power during outages. Public health messages emphasizing generator safety and widespread use of carbon monoxide detectors could help reduce generator-related carbon monoxide poisoning.

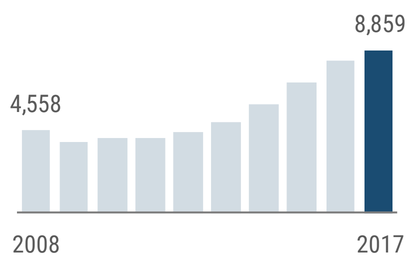
For additional information about hurricane-related deaths, see the full article at www.cdc.gov/mmwr/volumes/67/wr/mm6730a5.htm.

Focus in 2017: Syphilis

Why do we care about syphilis?

Syphilis, a genital ulcerative disease caused by *Treponema pallidum* bacteria, is associated with significant complications if left untreated and can facilitate the transmission and acquisition of HIV infection. Once on the verge of elimination, syphilis is increasing dramatically both nationally and in Florida.

The number of all syphilis cases reported in Florida increased from 4,558 in 2008 to 8,859 in 2017.



National and state trend

From 2013 to 2017, the rate per 100,000 population of primary and secondary syphilis increased:

51% in Florida

73% in the U.S.

In 2017, the rate per 100,000 population of primary and secondary syphilis was:

11.6 in Florida

9.5 in the U.S.

Congenital syphilis

National historical data show that pregnant women with untreated syphilis acquired during the four years before delivery may lead to an infection of the fetus in up to 80% of cases. Additionally, this may result in stillbirth or death in the infant in up to 40% of cases.

Infants born with congenital syphilis can develop symptoms, including:

- Failure to thrive
- Skeletal deformities
- Facial deformities
- Watery fluid from the nose
- Rash
- Blindness
- Joint swelling
- Death

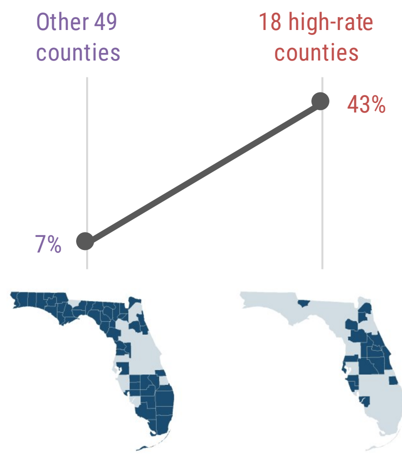
Overview of 2017

Reported syphilis cases in females have increased in Florida by **67%** since 2012. The statewide increase is focused in 18 counties, primarily in central Florida.

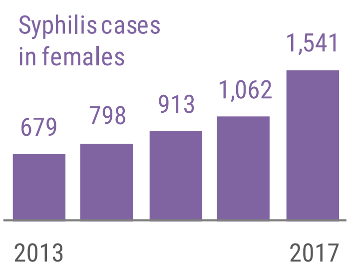
The 18 counties with large increases include Alachua, Brevard, Clay, Duval, Gadsden, Lake, Lee, Manatee, Marion, Orange, Osceola, Pasco, Pinellas, Polk, Saint Lucie, Sarasota, Seminole, and Volusia.

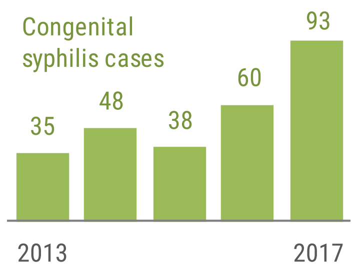
Within Florida, a link between the increase in incidence and the high-risk behaviors of infected people, such as drug use or prostitution, has not been established using self-reported risk data from the mothers.

Compared to the previous 5-year average, the number of syphilis cases in females has increased by 43% in 18 counties and only 7% in the other 49 counties.



The increase **in females with syphilis** has led to a **166% increase in congenital syphilis cases** in Florida from 2013 to 2017.





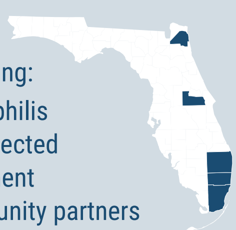
What counts as congenital syphilis?
An infant can be reported as a congenital syphilis case based on either:

- An infected mother not adequately treated >30 days prior to delivery or
- An infant with signs or symptoms or a positive culture result.

What is Florida doing to control congenital syphilis?

In 2017, Florida was awarded a congenital syphilis-specific supplemental grant to help combat the increase in congenital syphilis cases the state is experiencing. These funds were allocated to five high-burden counties to pilot a variety of tools that could help decrease the number of congenital syphilis cases before implementing these techniques statewide. Counties included Duval, Orange, Palm Beach, Broward, and Miami-Dade.

Pilot county efforts



Counties that received funding:

- Formed congenital syphilis review boards with selected county health department employees and community partners
- Reviewed cases within their counties
- Identified potential missed opportunities or gaps in services that may have contributed to congenital cases

Statewide efforts

- Reviewed data quality on maternal and congenital cases
- Improved trainings and oversight
- Implemented automated reminders
- Performed quarterly searches of vital statistics data to identify females listed as not pregnant or unknown pregnancy status to ensure no potentially exposed infants were overlooked

The new and enhanced county and statewide efforts resulted in positive statewide improvements for females infected with syphilis who know their pregnancy status. The percentage of females infected with syphilis who listed unknown as a pregnancy status was reduced from 22% in 2016 to 5% in 2017.

For more information about congenital syphilis, see Section 8: Congenital and Perinatal Conditions.

Overview of 2017

Men who have sex with men (MSM) community

Florida's MSM community has long been disproportionately impacted by syphilis.
The most common high-risk behaviors reported by MSM with syphilis in 2017 were:

- Sex with anonymous partners
- Meeting partners through the internet or mobile dating apps
- A history of STDs

Syphilis infections create opportunity for coinfection. Primary lesions during the infectious period can work as a conduit for HIV transmission and put either the person displaying the lesion or their sexual partners at risk of HIV infection if either partner is living with HIV. An individual coinfected with syphilis and HIV is considered a high priority for timely treatment, and if a newly diagnosed HIV case, linkage to care.

Fast data

60% of syphilis cases in 2017 self-reported as MSM

61% of MSM diagnosed with syphilis in 2017 were also living with HIV

What causes syphilis and what are the symptoms?

Syphilis is caused by spirochete bacteria *T. pallidum*. The infection is generally transmitted sexually; however, any contact with an open syphilitic lesion can cause transmission. The spirochete burrows into the skin of any individual it encounters and causes an open painless sore at the initial point of entry, called a primary lesion. An individual presenting with one of these lesions is in the primary stage of syphilis. After the lesion disappears, an individual is generally asymptomatic for a brief time, a period called latency. Following this, the infected individual may develop a rash and, at this point, is in the secondary stage. An individual infected within the past year, with or without symptoms, is said to have early syphilis. Any individual who was infected more than one year ago has late stage syphilis. If left untreated, syphilis is associated with severe complications and may facilitate the transmission of HIV.

References

Centers for Disease Control and Prevention. Sexually Transmitted Disease Surveillance 2017. www.cdc.gov/std/stats17/default.htm. Accessed November 25, 2018.

Focus in 2017: HIV/AIDS

Why do we care about HIV?

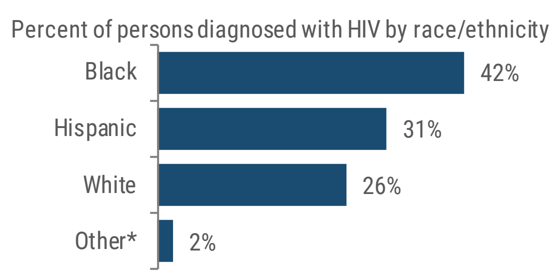
Human immunodeficiency virus (HIV) is a life-threatening infection that attacks the body's immune system and leaves a person vulnerable to opportunistic infections. HIV can be transmitted through condomless anal or vaginal sex, sharing injection drug needles, or from mother to child during pregnancy, delivery, or breastfeeding. Untreated, HIV can continue to weaken the immune system and develop into Acquired Immunodeficiency Syndrome (AIDS). The Centers for Disease Control and Prevention (CDC) estimates that 1.2 million people are living with HIV in the U.S., nearly half of whom live in the southern U.S. Florida is a large state in the south with a diverse population, substantial HIV morbidity, and unique challenges with respect to HIV/AIDS surveillance, prevention, and patient care.

Florida 2017

4,949 people received an HIV diagnosis

2,044 people received an AIDS diagnosis

Blacks represented the highest proportion of persons who diagnosed with HIV in 2017, followed by Hispanics then whites.



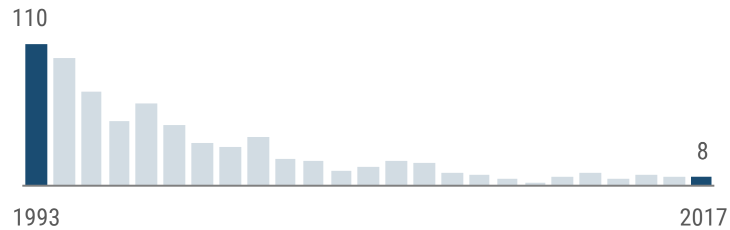
Overview of 2017

Perinatal HIV

Perinatal HIV transmission, also known as vertical HIV transmission, has decreased substantially in Florida over the past few decades. The initiation of antiretroviral therapy (ART) between 1992 and 1994 played a significant role in the annual drop of infants born with perinatally acquired HIV. When pregnant mothers living with HIV are treated with ART, they achieve a suppressed viral load (less than 200 copies/mL), which greatly reduces HIV transmission to the infant.

Despite these successes, prevention of vertical transmission continues to pose a challenge in Florida. Florida's strategic goal aims to reduce the annual number of infants born in Florida with perinatally acquired HIV to less than five.

There was a 93% decrease in perinatally acquired HIV diagnoses from 1993 to 2017. In 2017, eight infants were born in Florida with perinatally acquired HIV (same as in 2016).

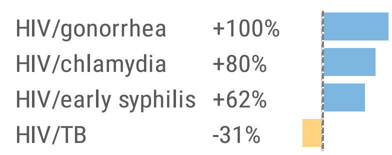


For more information about perinatally acquired HIV, see Section 8: Congenital and Perinatal Conditions.

Co-infection risk

Persons living with HIV are at increased risk of acquiring additional infections, also known as co-infections. HIV and early syphilis co-infection diagnoses have been steadily increasing from 2013 to 2017. These diagnoses disproportionately affected men who have sex with men, who accounted for 95% of the HIV/early syphilis co-infections in 2017. HIV/chlamydia and HIV/gonorrhea co-infections also increased from 2013 to 2017. However, Florida has seen a decrease in HIV and tuberculosis (TB) co-infections from 2013 to 2017, following decreases in TB in Florida during the same time period.

HIV co-infections increased for early syphilis, chlamydia, and gonorrhea, but decreased for TB from 2013 to 2017.



Florida's progress

Over the past decade, Florida has had success in reducing the morbidity and mortality of HIV. The number of HIV diagnoses **decreased 18%** from 2008 to 2017, despite small increases in the overall number of diagnoses from 2015 to 2016 and from 2016 to 2017. In the last year, the number of HIV diagnoses has decreased in some of Florida's highest morbidity counties. At the end of 2017, there were 116,944 persons living with an HIV diagnosis in Florida, in addition to an estimated 18,300 (13.5%) persons unaware of their HIV status.

Florida has seen encouraging trends since 2008 that highlight the progress being made in the state.

24.1

HIV rate per 100,000 population **decreased from 32.5 to 24.1** from 2008 to 2017

51%

AIDS diagnoses **decreased 51%** from 2008 to 2017

47%

Resident HIV deaths **decreased by 47%** from 2008 to 2017

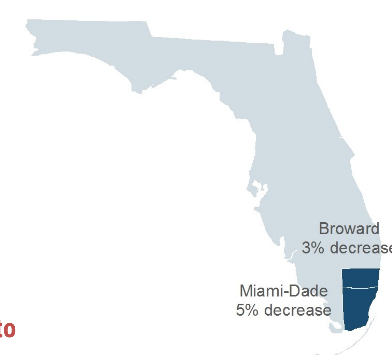
13.3%

Resident HIV deaths **decreased by 13.3%** in the last year alone

13.5

Resident HIV death rates per 100,000 population **among blacks decreased from 30.1 to 13.5** from 2008 to 2017.

HIV diagnoses decreased from 2016 to 2017 in two high morbidity counties.

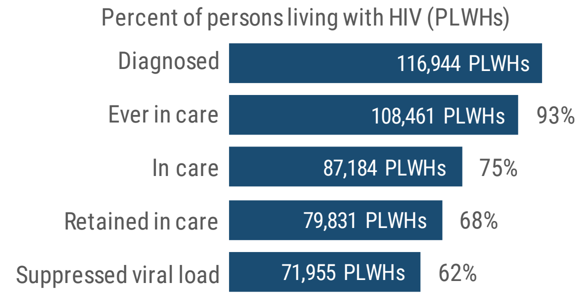


Overview of 2017

The HIV care continuum reflects the series of steps a person living with an HIV diagnosis (PLWH) takes from initial diagnosis to being retained in care and achieving a very low level of HIV in the body (viral suppression). A PLWH with a suppressed viral load is highly unlikely to transmit the virus. Ensuring that persons living with HIV are retained in care and have a suppressed viral load is paramount to the reduction of HIV transmission, AIDS diagnoses, and HIV-related deaths.

In 2017, 68% of persons living with an HIV diagnosis in Florida were retained in care (documented HIV-related care at least two times at least three months apart in 2017), and 62% were virally suppressed. At the end of 2017, 25% of persons living with an HIV diagnosis in Florida were not in HIV-related care. Among persons who received an HIV diagnosis in Florida in 2017, 88% had documented HIV-related care within three months of diagnosis and 75% received care within 30 days of diagnosis.

There were 116,944 PLWHs in Florida in 2017, 68% of whom were retained in care and 62% of whom had a suppressed viral load.



HIV care continuum definitions

Ever in care: documented HIV-related care at least once from HIV diagnosis

In care: documented HIV-related care at least once in 2017

Retained in care: documented HIV-related care at least two times, at least three months apart in 2017

Suppressed viral load: less than 200 copies/mL

To learn more about HIV resources in Florida, visit the following websites:
www.floridaaids.org
www.knowyourhivstatus.com
www.preplocator.org

Section 1:

Data Summaries for Common Reportable Diseases/Conditions

Campylobacteriosis

Key Points

The use of culture-independent diagnostic testing for *Campylobacter* has increased dramatically in recent years. Florida changed the campylobacteriosis surveillance case definition in January and July 2011, January 2015, and January 2017, increasing the number of reported cases in each of those years.

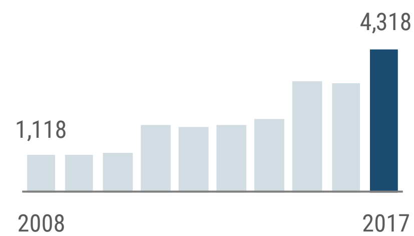
The percentage of cases hospitalized each year rose from 23% in 2013 and 2014, to 34% in 2015 and 2016, and to 39% in 2017. Hospitalization rates are highest in children <1 year old and adults ≥80 years old.

Disease Facts

- **Caused** by *Campylobacter* bacteria
- **Illness** is gastroenteritis (diarrhea, vomiting)
- **Transmitted** via fecal-oral route, including person-to-person, animal-to-person, foodborne, and waterborne
- **Under surveillance** to identify and control outbreaks, identify and mitigate common sources (e.g., contaminated food product, ill food handler), monitor incidence over time, estimate burden of illness

Most outbreak-associated cases were reflective of household clusters. In 2017, Florida had 17 cases associated with a multistate outbreak of multidrug-resistant campylobacteriosis infections linked to contact with pet store puppies. Three additional 2018 cases were associated with this outbreak, one of which was determined to be a case after the close of the 2017 database and was therefore infected in 2017 but not reported until 2018. For more information, see Section 3: Notable Outbreaks and Case Investigations.

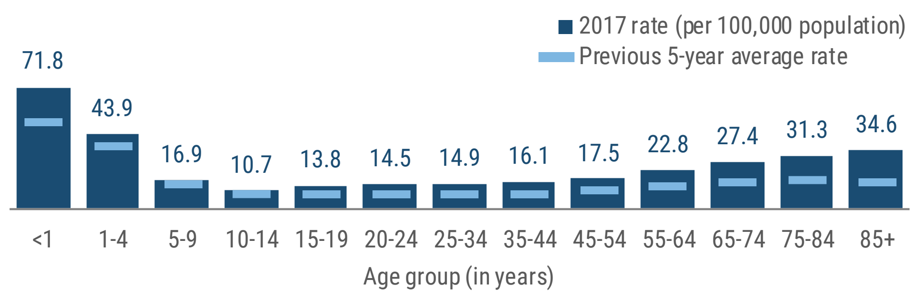
Campylobacteriosis incidence has increased over the past 10 years. The increase in 2017 was primarily due to a case definition change.



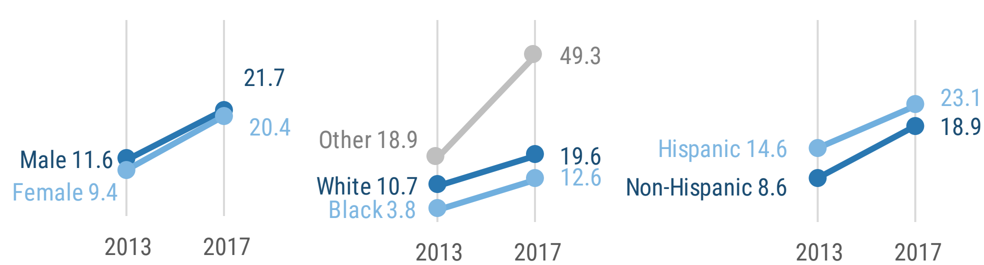
Disease Trends

Summary		
Number of cases		4,318
Rate (per 100,000 population)		21.0
Change from 5-year average rate		+61.7%
Age (in Years)		
Mean		44
Median		48
Min-max		0 - 102
Gender	**Number (Percent)**	**Rate**
Female	2,141 (49.6)	20.4
Male	2,177 (50.4)	21.7
Unknown gender	0	
Race	**Number (Percent)**	**Rate**
White	3,123 (75.8)	19.6
Black	436 (10.6)	12.6
Other	563 (13.7)	49.3
Unknown race	196	
Ethnicity	**Number (Percent)**	**Rate**
Non-Hispanic	2,916 (71.1)	18.9
Hispanic	1,184 (28.9)	23.1
Unknown ethnicity	218	

The campylobacteriosis rate (per 100,000 population) is highest in infants <1year old and children 1 to 4 years old, followed by adults 75 years and older.



The campylobacteriosis rate (per 100,000 population) increased in all demographics over the past five years, particularly other races. The rates were slightly higher in whites and Hispanics compared to blacks and non-Hispanics in 2017.

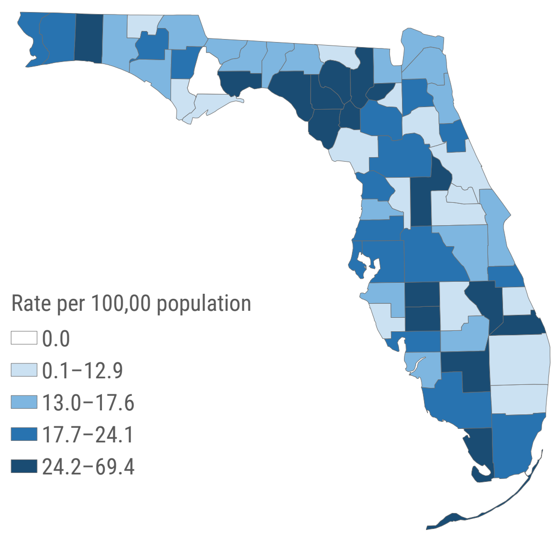


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Campylobacteriosis cases were missing 5.0% of ethnicity data in 2017.

Campylobacteriosis

Summary	Number
Number of cases	4,318
Case Classification	**Number (Percent)**
Confirmed	1,594 (36.9)
Probable	2,724 (63.1)
Outcome	**Number (Percent)**
Hospitalized	1,667 (38.6)
Died	30 (0.7)
Sensitive Situation	**Number (Percent)**
Daycare	120 (2.8)
Health care	83 (1.9)
Food handler	59 (1.4)
Imported Status	**Number (Percent)**
Acquired in Florida	3,453 (88.5)
Acquired in the U.S., not Florida	117 (3.0)
Acquired outside the U.S.	333 (8.5)
Acquired location unknown	415
Outbreak Status	**Number**
Sporadic	3,963 (94.6)
Outbreak-associated	227 (5.4)
Outbreak status unknown	128

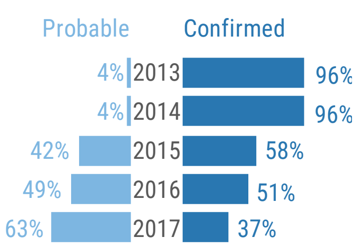
Campylobacteriosis occurs throughout the state. Rates (per 100,000 population) were highest in 2017 in small counties, particularly in the north central part of the state.



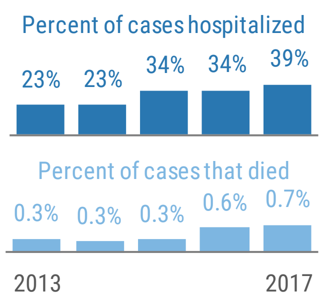
Rates are by county of residence for infections acquired in Florida (3,453 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

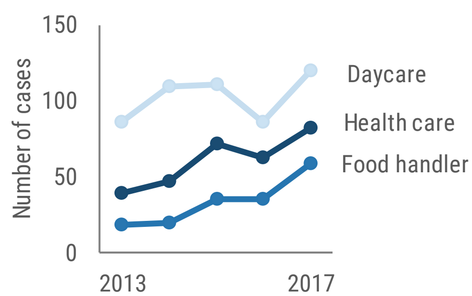
The percent of cases that are probable increased starting in 2015 due to case definition changes.



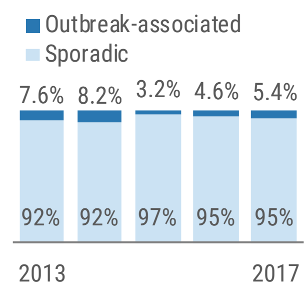
The percent of cases hospitalized has increased. Very few cases die.



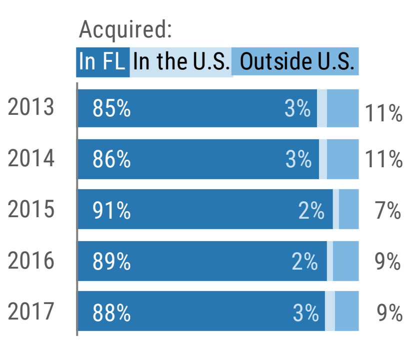
Cases in sensitive situations are monitored. No outbreaks in these situations have been identified in the past five years.



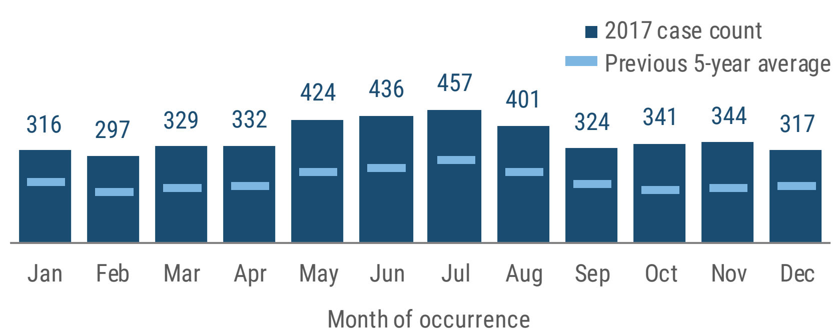
Most cases are sporadic; less than 10% are outbreak-associated.



Between 85–91% of cases are acquired in Florida.



Campylobacteriosis occurred throughout 2017, though was slightly higher in spring and summer, which is consistent with past years.



See Appendix III: Report Terminology for explanations of case classification (confirmed, probable), outcome (hospitalized, died), sensitive situation (daycare, health care, food handler), imported status (acquired in Florida, acquired in the U.S., acquired outside the U.S.), outbreak status (sporadic, outbreak-associated), and month of occurrence.

Carbon Monoxide Poisoning

Key Points

CO poisoning became a reportable condition in Florida in late 2008, therefore only cases from 2009 to 2017 are presented in this report.

In 2017, a large increase in CO poisoning cases occurred after Hurricane Irma, a category 4 storm, made landfall in Florida on September 10, causing extensive power outages and generator use throughout the state.

A total of 359 confirmed and probable hurricane-related CO poisoning cases were identified. An additional 168 suspect cases reported in 2017 and 2 confirmed cases reported in 2018 were related to the hurricane but are not included in this summary. Most exposures were in the residential settings without a CO detector where generators were used inside the home or used outside but not at a safe distance from the home.

Most CO exposures affected more than one person; 320 hurricane-related cases (95%) were exposed at the same time as at least one other case. An additional 108 outbreak-associated cases were identified as part of 33 other clusters in 2017 (not related to Hurricane Irma).

The most commonly identified exposures for 2017 cases were generators (63%), automobiles and RVs (8%), smoking (6%), and fires (5%).

Disease Facts

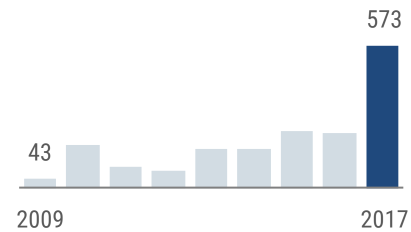
Caused by Carbon monoxide (CO) gas

Illness includes headache, dizziness, weakness, nausea, vomiting, chest pain, and confusion; high levels of CO inhalation can cause loss of consciousness and death

Exposure to CO gas is from combustion fumes (produced by cars and trucks, generators, stoves, lanterns, burning charcoal and wood, and gas ranges and heating systems)

Under surveillance to identify and mitigate persistent sources of exposure, identify populations at risk, evaluate trends in environmental conditions, measure impact of public health interventions

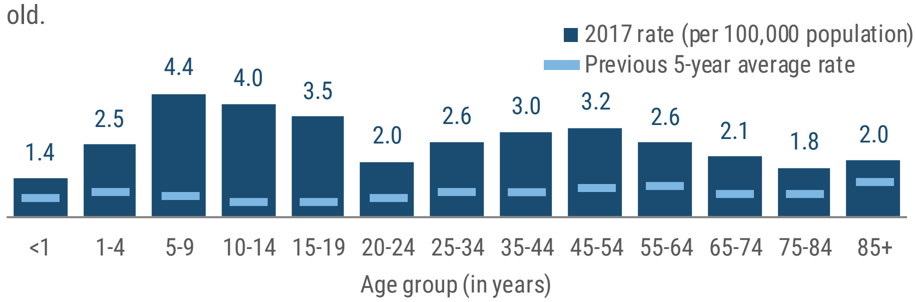
A large number of CO poisoning cases were identified following Hurricane Irma in 2017.



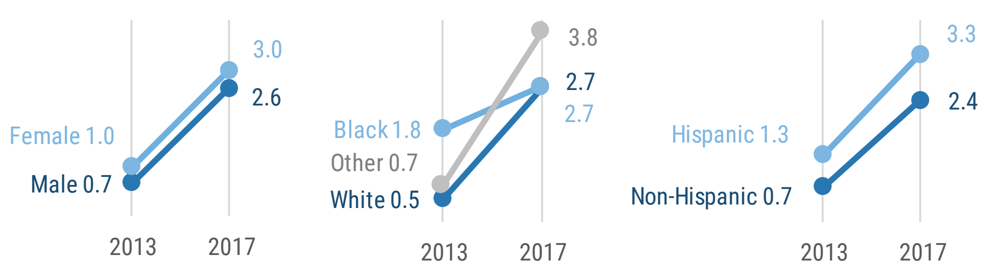
Disease Trends

Summary			
Number of cases			573
Rate (per 100,000 population)			2.8
Change from 5-year average rate			+228.4%
Age (in Years)			
Mean			38
Median			38
Min-max			0 - 95
Gender	**Number**	**(Percent)**	**Rate**
Female	312	(54.5)	3.0
Male	261	(45.5)	2.6
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	426	(75.8)	2.7
Black	93	(16.5)	2.7
Other	43	(7.7)	3.8
Unknown race	11		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	370	(68.4)	2.4
Hispanic	171	(31.6)	3.3
Unknown ethnicity	32		

The CO poisoning rate (per 100,000 population) in past years was highest in adults 25 to 45 years old. In 2017, it was highest in children and adolescents 5 to 19 years old.



In 2017, CO poisoning rates (per 100,000 population) were slightly higher in females and Hispanics and notably higher in other races. While the rate was higher in blacks than in whites in 2013, the rate was the same in 2017.

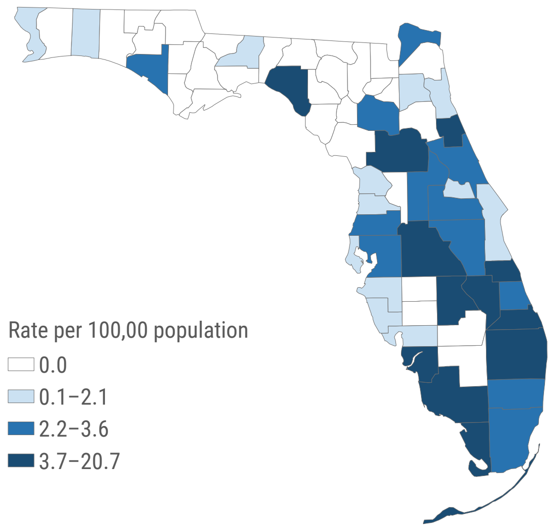


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Carbon monoxide poisoning cases were missing 16.8% of race data in 2013 and 5.6% of ethnicity data in 2017.

Carbon Monoxide Poisoning

Summary	Number
Number of cases	573
Case Classification	**Number (Percent)**
Confirmed	474 (82.7)
Probable	99 (17.3)
Outcome	**Number (Percent)**
Hospitalized	161 (28.1)
Died	20 (3.5)
Imported Status	**Number (Percent)**
Exposed in Florida	561 (100.0)
Exposed in the U.S., not Florida	0 (0.0)
Exposed outside the U.S.	0 (0.0)
Exposed location unknown	12
Outbreak Status	**Number (Percent)**
Sporadic	143 (25.0)
Outbreak-associated	428 (75.0)
Outbreak status unknown	2
Top 5 Exposure Types	**Number (Percent)**
Generator	361 (63.0)
Automobile/RV	48 (8.4)
Smoking	33 (5.8)
Fire	29 (5.1)
Other	21 (3.7)

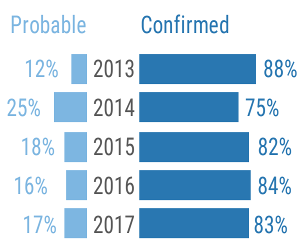
Carbon monoxide poisonings in 2017 were concentrated in areas heavily impacted by Hurricane Irma. Rates (per 100,000) were highest in central Florida.



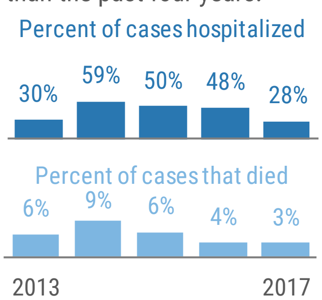
Rates are by county of residence for cases exposed in Florida (561 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

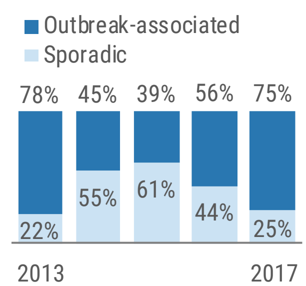
Most CO poisoning cases are confirmed. Despite the large number of cases in 2017, the same proportion were confirmed.



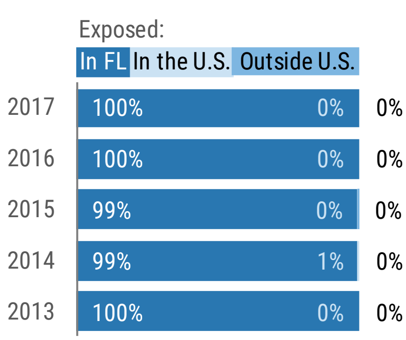
Despite the large number of CO poisoning cases in 2017, the hospitalization rate was lower than the past four years.



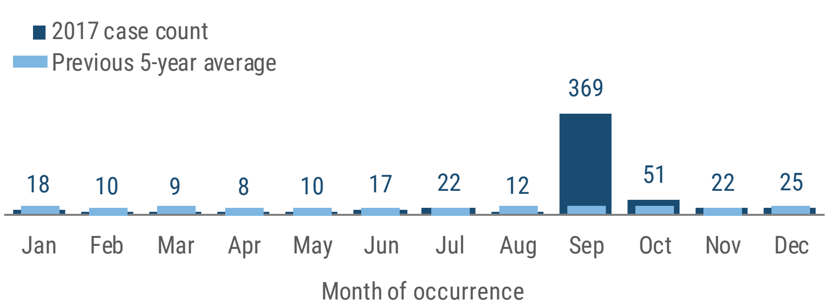
Most (75%) CO poisoning cases were linked to at least one other case in 2017.



Almost all CO poisoning cases are exposed in Florida.



CO poisoning cases peaked in September 2017 after Hurricane Irma due to widespread power outages and improper generator use. Historically, CO poisonings tend to increase during cold winter months and during large power outages.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status, and month of occurrence.

Chlamydia (Excluding Neonatal Conjunctivitis)

Key Points

Chlamydia is the most commonly reported STD in Florida and the U.S.; incidence rates have been slowly increasing in the past decade. Incidence is highest among 15- to 24-year-old women and non-Hispanic blacks. If untreated, chlamydia can lead to serious reproductive complications and can make it difficult for women to conceive. Because it is frequently asymptomatic, screening is necessary to identify most infections; early detection and treatment can prevent sequelae.

The rate of chlamydia in races other than white and black has increased over the past 10 years, and particularly in the past three years. The rate has decreased in blacks, primarily driven by a decrease in infections in young black females.

Disease Facts

Caused by *Chlamydia trachomatis* bacteria

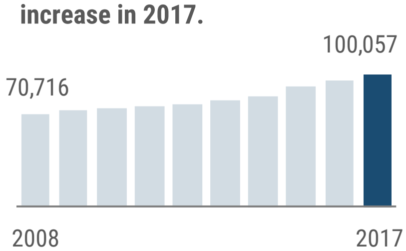
Illness is frequently asymptomatic; abnormal discharge from vagina or penis, burning sensation when urinating; severe complications can include pelvic inflammatory disease, infertility, and ectopic pregnancies

Transmitted sexually via vaginal, anal, or oral sex and sometimes from mother to child during pregnancy or delivery

Under surveillance to implement interventions immediately for every case, monitor incidence over time, estimate burden of illness, target prevention education programs, evaluate treatment and prevention programs

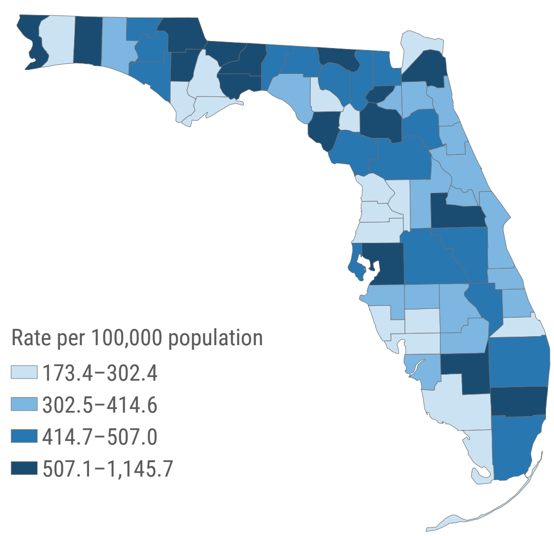
Disease Trends

Chlamydia incidence continued to increase in 2017.



	Number	(Percent)	Rate
Summary			
Number of cases			100,057
Rate (per 100,000 population)			486.8
Change from 5-year average rate			+12.0%
Age (in Years)			
Mean			25
Median			22
Min-max			3 - 95
Gender	**Number**	**(Percent)**	**Rate**
Female	66,205	(66.2)	629.8
Male	33,821	(33.8)	336.8
Unknown gender	31		
Race	**Number**	**(Percent)**	**Rate**
White	34,524	(42.0)	216.5
Black	35,127	(42.7)	1012.3
Other	12,575	(15.3)	1102.2
Unknown race	17,831		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	61,624	(80.2)	399.6
Hispanic	15,180	(19.8)	295.6
Unknown ethnicity	23,253		

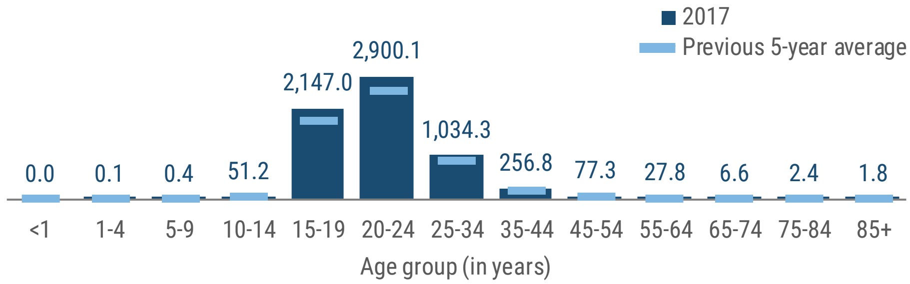
Chlamydia occurs throughout the state. The highest rates (per 100,000 population) in 2017 were in Leon (1,145.7), Alachua (845.2), Gadsden (794.8), Duval (734.8), and Orange (723.0) counties. These counties accounted for 22% of the state's cases, but only 14% of the state's population. The largest number of cases were reported in Miami-Dade (12,271 cases) and Broward (11,289 cases). These counties accounted for 24% of the state's cases and 23% of the state's population.



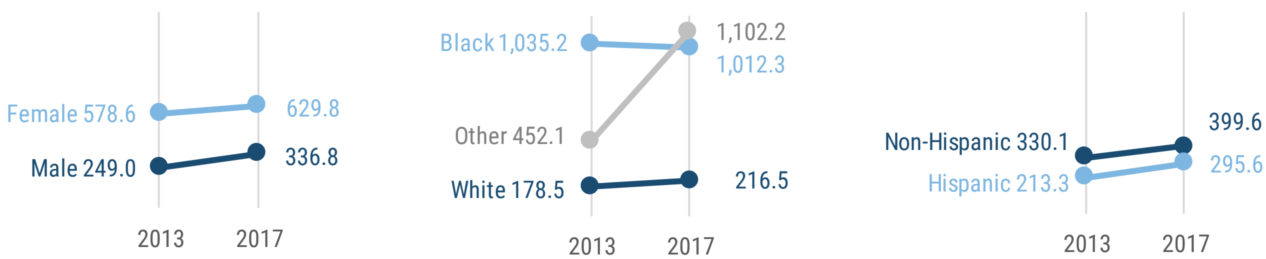
Rates are by county of residence, regardless of where infection was acquired (100,057 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

Chlamydia (Excluding Neonatal Conjunctivitis)

Chlamydia rates (per 100,000 population) are highest in adults 20 to 24 years old, followed by teens 15 to 19 years old. Rates in adults rapidly decrease with age. The rate in adults 20 to 24 years old is more than 10 times the rate in adults 35 to 44 years old and more than 35 times the rate in adults 45 to 54 years old.



Chlamydia rates (per 100,000 population) have increased in all gender, race, and ethnic groups from 2013 to 2017 except blacks. The rate in other races more than doubled in that time, and now that group has the highest rate, followed by blacks.



Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Chlamydia cases (excluding neonatal conjunctivitis) were missing 27.6% of ethnicity data in 2013, 19.8% of race data in 2013, 23.2% of ethnicity data in 2017, and 17.8% of race data in 2017.

Chlamydia rates (per 100,000 population) are highest in adults 20 to 24 years old, followed by teens 15 to 19 years old. Overall, rates have increased in males in both age groups, and females aged 20 to 24 years. The rate in both age groups in black females has decreased over the past 10 years. The rates in other races in both age groups and both genders have increased steadily, as have rates in Hispanic males in both age groups.

Females 15–19 years old

	2013 rate	10-year trend	2017 rate
Total	**3,006.8**		**3,024.5**
White	747.6		789.4
Black	1,534.2		1,000.4
Hispanic	350.2		577.3
Other	56.3		241.4

Males 15–19 years old

	2013 rate	10-year trend	2017 rate
Total	**635.2**		**918.6**
White	100.7		151.0
Black	400.2		403.9
Hispanic	131.7		360.9
Other	10.7		69.4

Females 20–24 years old

	2013 rate	10-year trend	2017 rate
Total	**3,047.2**		**3,781.8**
White	760.8		1,012.7
Black	1,425.9		1,228.8
Hispanic	404.0		730.1
Other	67.3		306.3

Males 20–24 years old

	2013 rate	10-year trend	2017 rate
Total	**1,115.3**		**1,670.7**
White	239.4		362.7
Black	607.5		596.7
Hispanic	261.4		706.1
Other	27.5		141.3

Ciguatera Fish Poisoning

Key Points

Marine dinoflagellates are typically found in tropical and subtropical waters and are eaten by herbivorous fish that are in turn eaten by larger carnivorous fish, causing the toxins to bioaccumulate in larger fish such as barracuda or grouper. Ciguatoxin is produced by dinoflagellates in the genus *Gambierdiscus*. While case finding in Florida is thought to be more complete than in other states, under-reporting is still likely due to lack of recognition and reporting by medical practitioners.

Single cases of ciguatera fish poisoning warrant a full investigation and are generally characterized as outbreaks for public health purposes. Prior to 2015, all cases were classified as outbreak-associated for this report. Starting in 2015, cases were only classified as outbreak-associated for this report when at least two or more people had a common exposure.

Sixteen investigations occurred in 2017 involving 28 cases (27 Florida residents and one non-Florida resident). Investigations involved an average of 1.75 cases with a range of one to four cases. The most common fish was barracuda. Cases were most commonly associated with recreationally harvested fish. Only one investigation occurred in August which is not consistent with previous years. In 2017, most cases occurred from January to May and October to December.

Disease Facts

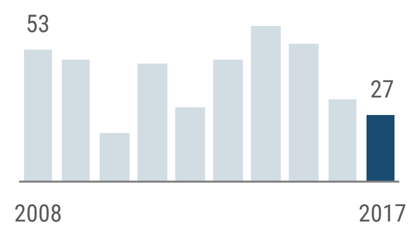
Caused by ciguatoxins produced by marine dinoflagellates (associated with tropical fish)

Illness includes nausea, vomiting, and neurologic symptoms (e.g., tingling fingers or toes, temperature reversal); anecdotal evidence of long-term periodic recurring symptoms

Exposed through consuming fish containing ciguatoxins

Under surveillance to identify and control outbreaks, identify high-risk products (e.g., barracuda, grouper)

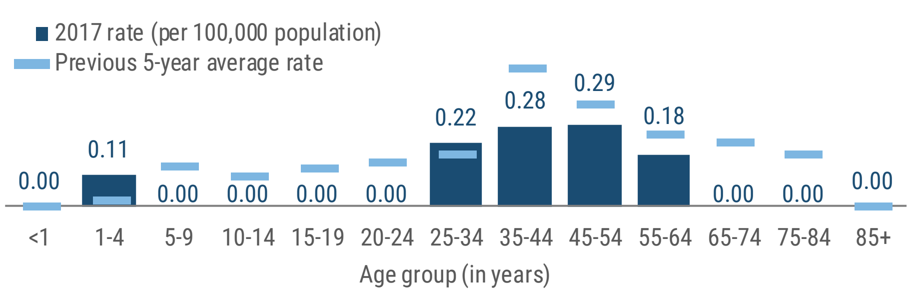
Fewer ciguatera fish poisoning cases were reported in 2017 than any year since 2010.



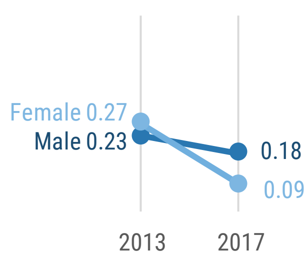
Disease Trends

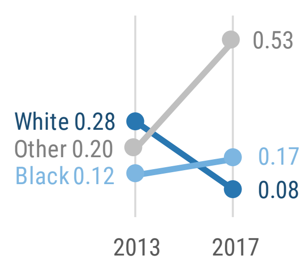
Summary			
Number of cases			27
Rate (per 100,000 population)			0.1
Change from 5-year average rate			-44.2%
Age (in Years)			
Mean			42
Median			43
Min-max			4 - 63
Gender	**Number**	**(Percent)**	**Rate**
Female	9	(33.3)	NA
Male	18	(66.7)	NA
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	13	(52.0)	NA
Black	6	(24.0)	NA
Other	6	(24.0)	NA
Unknown race	2		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	6	(22.2)	NA
Hispanic	21	(77.8)	0.4
Unknown ethnicity	0		

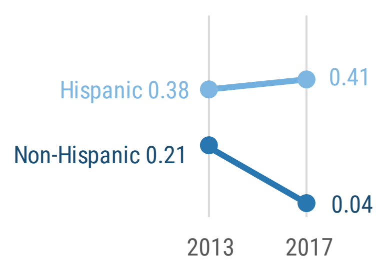
The ciguatera fish poisoning rate (per 100,000 population) is generally highest in adults aged 25 to 74 years. In 2017, 26 cases were reported in adults, and one case was reported in a 4 year old.



The ciguatera fish poisoning rate (per 100,000 population) is generally similar in males in females, though was a little higher in men in 2017. The rate was highest in other races and Hispanics in 2017.





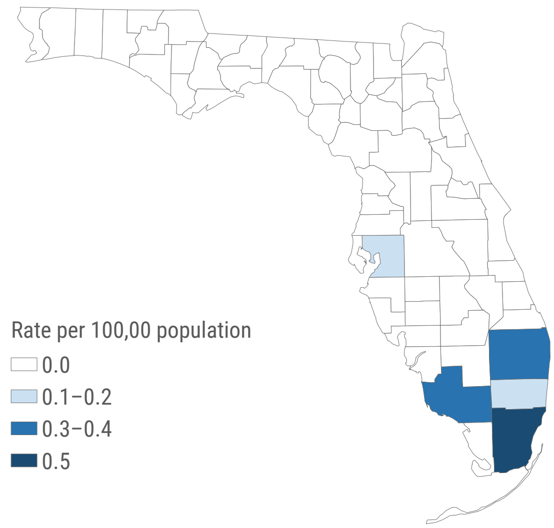


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Ciguatera fish poisoning cases were missing 7.4% of race data in 2017.

Ciguatera Fish Poisoning

Summary	Number
Number of cases	27
Outcome	**Number (Percent)**
Hospitalized	4 (14.8)
Died	0 (0.0)
Imported Status	**Number (Percent)**
Exposed in Florida	25 (92.6)
Exposed in the U.S., not Florida	0 (0.0)
Exposed outside the U.S.	2 (7.4)
Exposed location unknown	0
Outbreak Status	**Number (Percent)**
Sporadic	8 (29.6)
Outbreak-associated	19 (70.4)
Outbreak status unknown	0

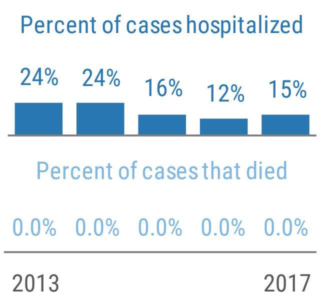
Ciguatera fish poisoning cases tend to occur in coastal counties, particularly in south Florida. In 2017, the rate per 100,000 population was highest in Miami-Dade County where 13 cases were reported.



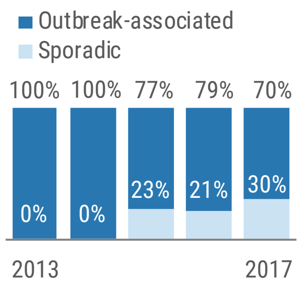
Rates are by county of residence for cases exposed in Florida (25 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

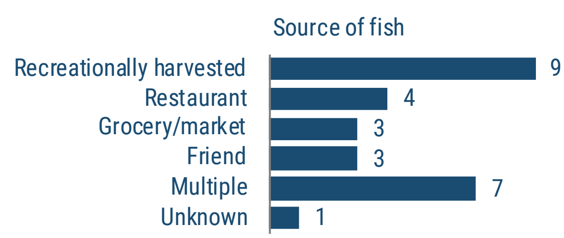
Less than 25% of cases are hospitalized. No deaths have been identified in recent years.



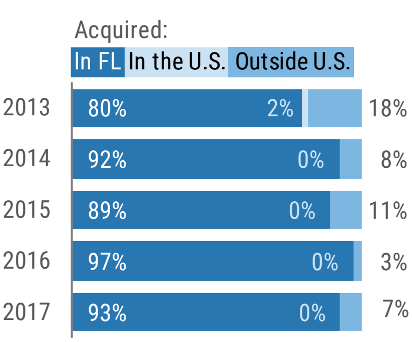
Most cases are outbreak-associated. Implicated fish are commonly shared by multiple people.



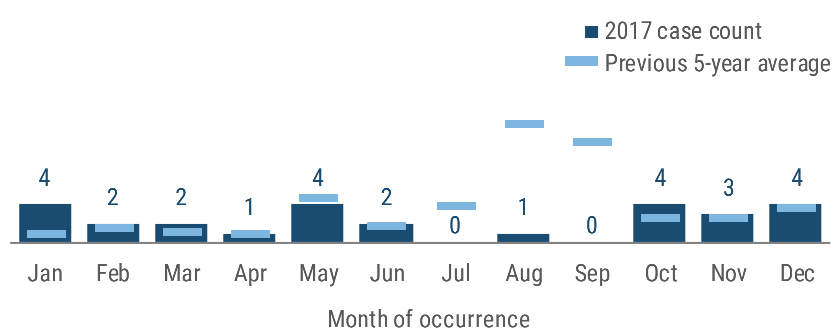
Most fish causing ciguatera fish poisoning was recreationally harvested. Frequently, multiple sources of fish are identified, and occasionally, no source can be identified.



More than 80% of cases are exposed in Florida each year.



Ciguatera fish poisoning generally peaks in August and September. However, more cases were identified in January, May, October and December in 2017.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status, and month of occurrence.

Cryptosporidiosis

Key Points

Diagnostic capabilities have improved over the years, making it easier to identify illnesses caused by this parasite. Cryptosporidiosis in Florida and the U.S. has a seasonal and cyclical trend. Following a sharp increase in cases in 2014 in all genders, races, and ethnicities, cases decreased in 2015, 2016, and 2017. Similar to giardiasis, another parasitic intestinal infection, incidence is highest in 1- to 4-year-olds, followed by infants <1-year-old, then children 5 to 9 years old.

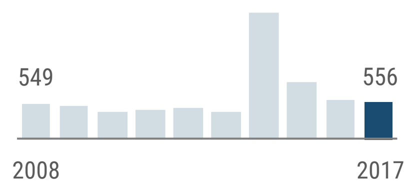
During the past two decades, *Cryptosporidium* has become recognized as one of the most common causes of waterborne disease (recreational water and drinking water) in humans in the U.S. Cryptosporidiosis incidence peaked in 2014 when there were six waterborne outbreaks investigated, including 134 cases associated with swimming pools, a recreational water park, and kiddie pools. Additional community-wide outbreaks in 2014 were associated with person-to-person transmission and daycares.

There were no food or waterborne disease outbreaks due to *Cryptosporidium* in 2017. Clusters of illness were reported and associated with person-to-person transmission, travel, and daycares.

Disease Facts

- **Caused** by *Cryptosporidium* parasites
- **Illness** is gastroenteritis (diarrhea, vomiting)
- **Transmitted** via fecal-oral route, including person-to-person, animal-to-person, waterborne, and foodborne
- **Under surveillance** to identify and control outbreaks, identify and mitigate common sources (e.g., contaminated food/water source, ill food handler), monitor incidence over time, estimate burden of illness

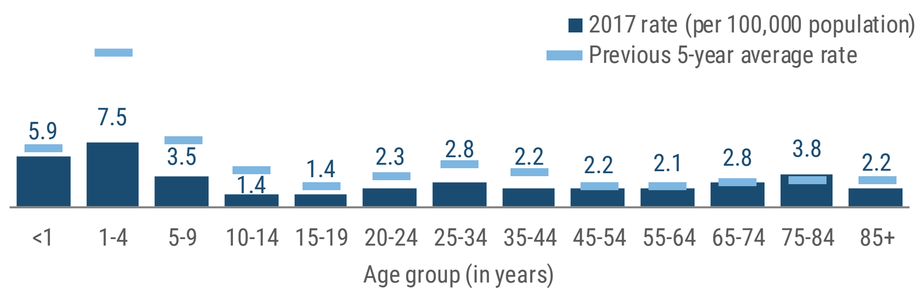
Cryptosporidiosis incidence increased sharply in 2014 and has declined each year since.



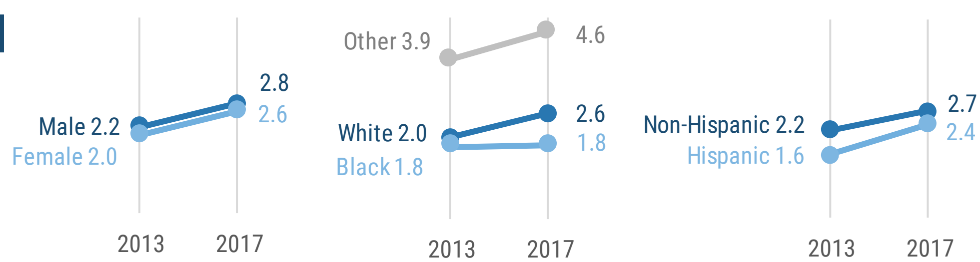
Disease Trends

Summary			
Number of cases			556
Rate (per 100,000 population)			2.7
Change from 5-year average rate			-37.0%
Age (in Years)			
Mean			39
Median			38
Min-max			0 - 93
Gender	**Number**	**(Percent)**	**Rate**
Female	275	(49.5)	2.6
Male	281	(50.5)	2.8
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	418	(78.1)	2.6
Black	64	(12.0)	1.8
Other	53	(9.9)	4.6
Unknown race	21		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	412	(77.3)	2.7
Hispanic	121	(22.7)	2.4
Unknown ethnicity	23		

The cryptosporidiosis rate (per 100,000 population) is consistently highest in children 1 to 4 years old, followed by <1-year-old infants, which remained true in 2017.



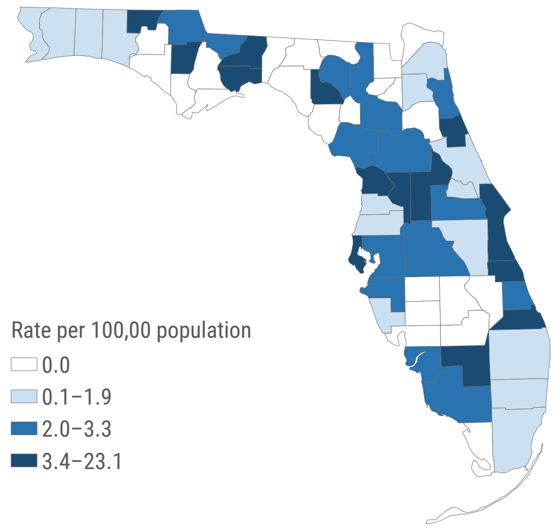
The cryptosporidiosis rate (per 100,000 population) is similar by gender, race, and ethnicity, with the exception of other races, which is higher. The rate among blacks did not increase from 2013 to 2017, while all other groups increased slightly.



Cryptosporidiosis

Summary	Number
Number of cases	556
Case Classification	**Number (Percent)**
Confirmed	296 (53.2)
Probable	260 (46.8)
Outcome	**Number (Percent)**
Hospitalized	192 (34.5)
Died	7 (1.3)
Sensitive Situation	**Number (Percent)**
Daycare	36 (6.5)
Health care	8 (1.4)
Food handler	8 (1.4)
Imported Status	**Number (Percent)**
Acquired in Florida	454 (88.3)
Acquired in the U.S., not Florida	20 (3.9)
Acquired outside the U.S.	40 (7.8)
Acquired location unknown	42
Outbreak Status	**Number**
Sporadic	486 (87.9)
Outbreak-associated	67 (12.1)
Outbreak status unknown	3

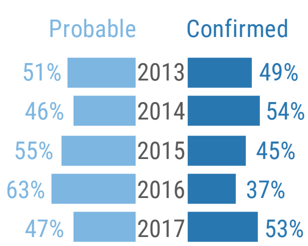
Cryptosporidiosis occurs throughout the state. The highest rates (per 100,000) in 2017 generally occurred in the smaller rural counties with lower rates in many of the large, metropolitan areas of the state.



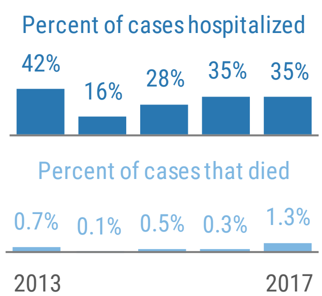
Rates are by county of residence for infections acquired in Florida (454 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

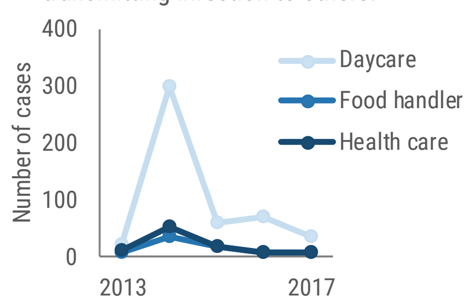
Unlike many other reportable diseases, only about half of cryptosporidiosis cases are confirmed.



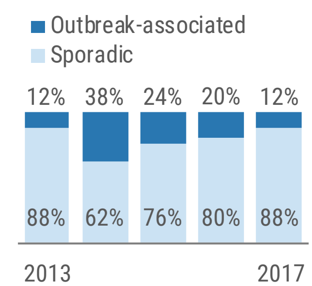
Hospitalizations and deaths are typically related to underlying conditions and comorbidities.



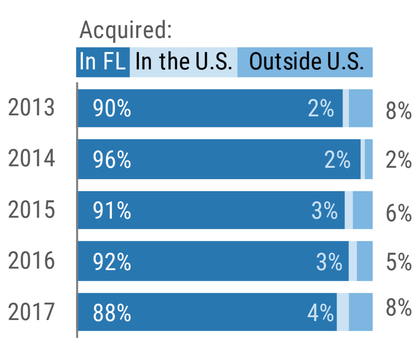
Many of the 2014 cases occurred in daycare settings. People in sensitive situations may pose a risk for transmitting infection to others.



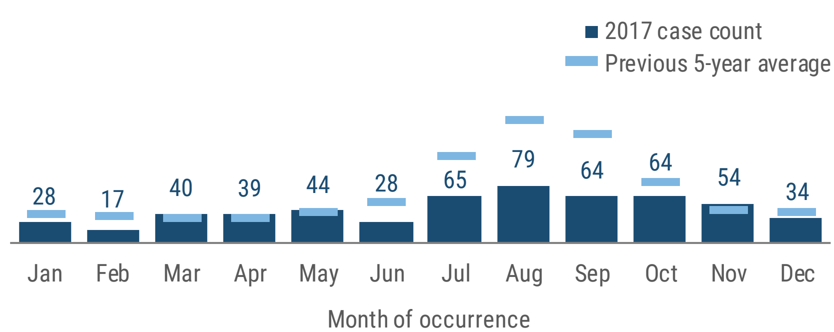
Most cryptosporidiosis case are sporadic. Only 12% were outbreak-associated in 2017.



Most cryptosporidiosis infections are acquired within Florida.



Cryptosporidiosis cases peak in the summer and early fall months, similar to other enteric diseases.



See Appendix III: Report Terminology for explanations of case classification, outcome, sensitive situation, imported status, outbreak status, and month of occurrence.

Cyclosporiasis

Key Points

Incidence is strongly seasonal, peaking annually in June and July. Large multistate outbreaks of cyclosporiasis were identified in 2013, 2014, and 2015. In the U.S., foodborne cyclosporiasis outbreaks have been linked to various types of imported fresh produce, including raspberries, basil, cilantro, snow peas, and mesclun lettuce.

In 2017, 1,065 laboratory-confirmed cases of cyclosporiasis were reported nationally as of October 4, 2017 (the most recent date for which national data were available). Of the 1,065 cases, 597 cases from 36 different states had illness onset on or after May 1. Seventy-eight cases were reported for Florida during this time. The national increase in cases was not linked to a specific vehicle. In Florida, three separate cyclosporiasis outbreaks were investigated accounting for 20 cases. Ten of the cases were associated with travel to Honduras, six with fresh produce (likely blackberries on a fruit platter), and four cases were associated with a Mexican-style restaurant.

Disease Facts

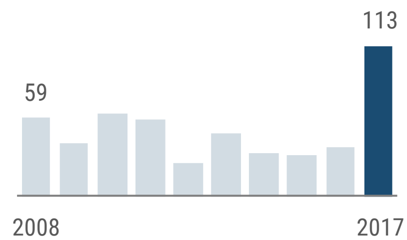
Caused by *Cyclospora* parasites

Illness is gastroenteritis (diarrhea, vomiting)

Transmitted via fecal-oral, including foodborne and less commonly waterborne

Under surveillance to identify and control outbreaks, identify and mitigate common sources (e.g., contaminated food product), monitor incidence over time, estimate burden of illness

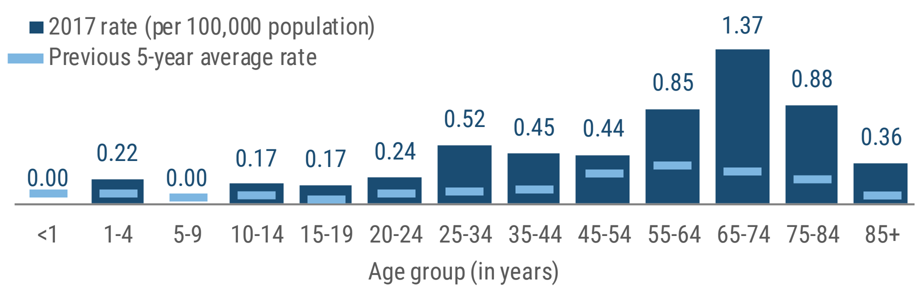
Cyclosporiasis incidence increased sharply in 2017.



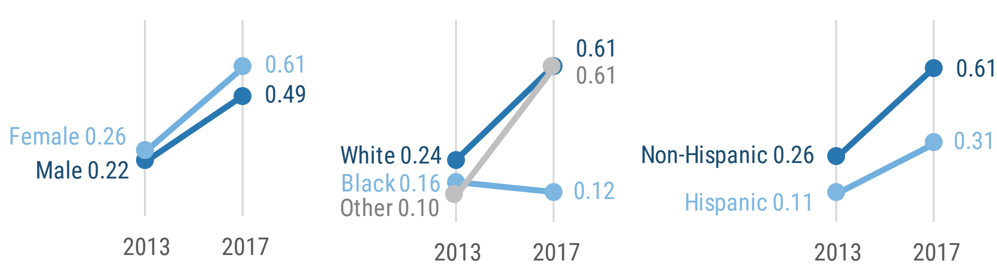
Disease Trends

Summary			
Number of cases			113
Rate (per 100,000 population)			0.5
Change from 5-year average rate			+210.1%
Age (in Years)			
Mean			54
Median			58
Min-max			2 - 91
Gender	**Number**	**(Percent)**	**Rate**
Female	64	(56.6)	0.6
Male	49	(43.4)	0.5
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	98	(89.9)	0.6
Black	4	(3.7)	NA
Other	7	(6.4)	NA
Unknown race	4		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	94	(85.5)	0.6
Hispanic	16	(14.5)	NA
Unknown ethnicity	3		

The cyclosporiasis rate (per 100,000 population) is consistently higher in adults ≥25 years old and was particularly high in adults 65 to 74 years old in 2017.



Consistent with the overall large increase in cyclosporiasis rate (per 100,000 population) in 2017, rates increased in all gender, race, and ethnicity groups, except blacks. The rate among blacks was lower in 2017 than it was in 2013.

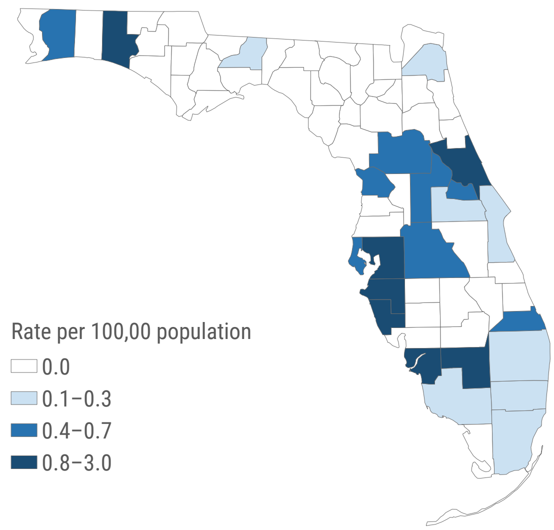


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Cyclosporiasis cases were missing 8.5% of ethnicity data in 2013 and 8.5% of race data in 2013.

Cyclosporiasis

Summary	Number
Number of cases	113
Case Classification	**Number (Percent)**
Confirmed	107 (94.7)
Probable	6 (5.3)
Outcome	**Number (Percent)**
Hospitalized	4 (3.5)
Died	0 (0.0)
Imported Status	**Number (Percent)**
Acquired in Florida	77 (72.6)
Acquired in the U.S., not Florida	7 (6.6)
Acquired outside the U.S.	22 (20.8)
Acquired location unknown	7
Outbreak Status	**Number (Percent)**
Sporadic	101 (90.2)
Outbreak-associated	11 (9.8)
Outbreak status unknown	1

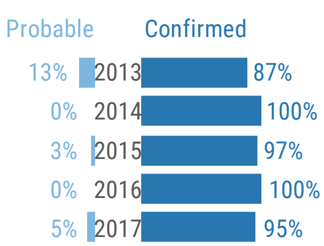
Cyclosporiasis cases occurred primarily in central and south Florida counties in 2017. The rate (per 100,000 population) was highest in Lee County (11 cases); Hillsborough County had the most reported cases (21).



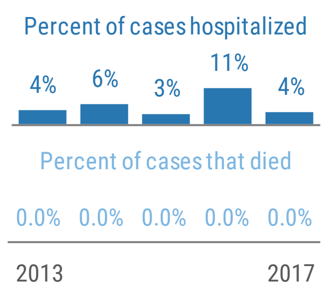
Rates are by county of residence for infections acquired in Florida (77 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

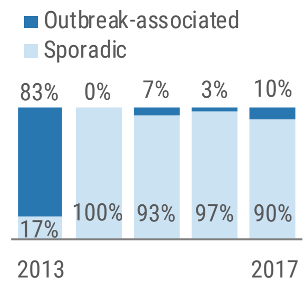
The majority of cyclosporiasis cases are confirmed. Probable cases are symptomatic people epidemiologically linked to confirmed cases.



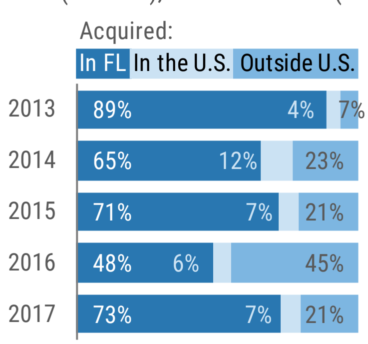
Few cyclosporiasis cases are hospitalized. No deaths have occurred in recent years.



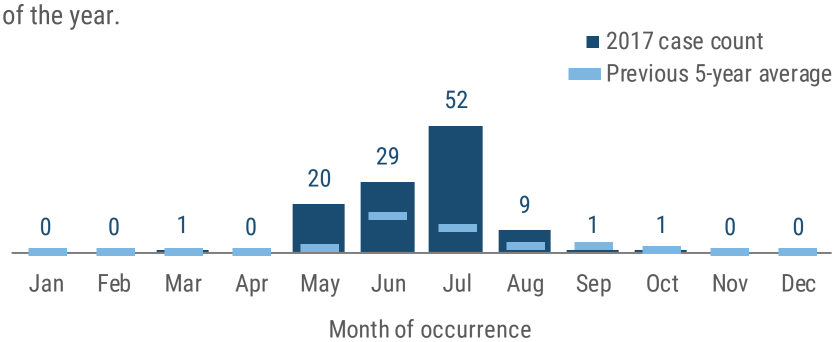
Most cyclosporiasis cases are sporadic. The percent of outbreak-associated cases increased to 10% in 2017.



Infections from outside the U.S. were most commonly from Mexico (9 cases), Cuba (5 cases), and Guatemala (4 cases).



Cyclosporiasis has a very strong seasonal pattern with cases primarily occurring May through August, peaking in June and July. Few cases occur during the rest of the year.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status, and month of occurrence.

Dengue Fever

Key Points

An outbreak of locally acquired dengue fever occurred in Monroe County in 2009 and 2010 and in Martin County in 2013. At least one locally acquired case has been identified each year since 2009, primarily in south Florida. No dengue introductions were identified in 2017. The single locally acquired case was initially identified in 2016, but was reported in 2017. Historically the Americas, and primarily the Caribbean, have served as primary sources of dengue virus exposures in Florida residents. A significant reduction in the number of dengue cases in the Americas was reported in 2017.

Infected residents and non-residents who are infectious and bitten by mosquitoes while in Florida could pose a potential risk for introduction of dengue fever; however, cases in non-Florida residents are not included in counts in this report. Two dengue fever cases were identified in non-Florida residents while traveling in Florida in 2017.

Ten of the 26 cases reported in 2017 were initially identified in 2016. One additional case was identified in 2017 but was not reported until 2018 and will therefore be included in the 2018 report. Case counts and rates from this report may differ from those found in other vector-borne disease reports as different criteria are used to assemble the data. Other reports may use illness onset date instead of report date or county of exposure instead of county of residence.

Disease Facts

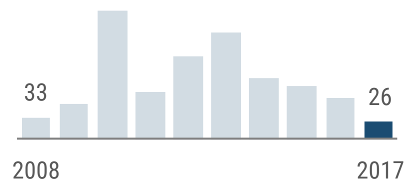
Caused by dengue viruses (DENV-1, DENV-2, DENV-3, DENV-4)

Illness is acute febrile with headache, joint and muscle pain, rash, and eye pain; dengue hemorrhagic fever or dengue shock syndrome symptoms include severe abdominal pain, vomiting, and mucosal bleeding

Transmitted via bite of infective mosquito, rarely by blood transfusion or organ transplant

Under surveillance to identify individual cases and implement control measures to prevent introduction and active transmission, monitor incidence over time, estimate burden of illness

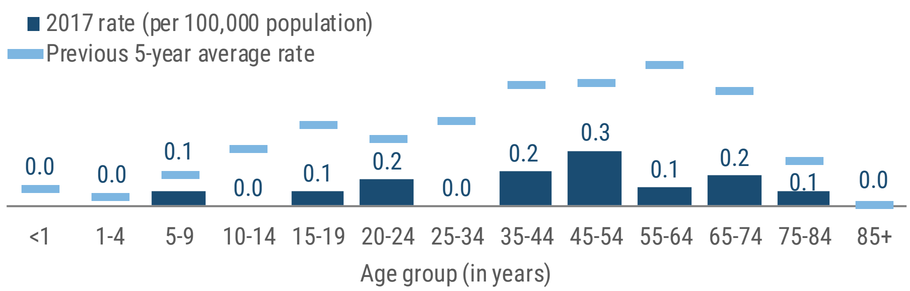
Dengue fever incidence was the lowest in the past 10 years.



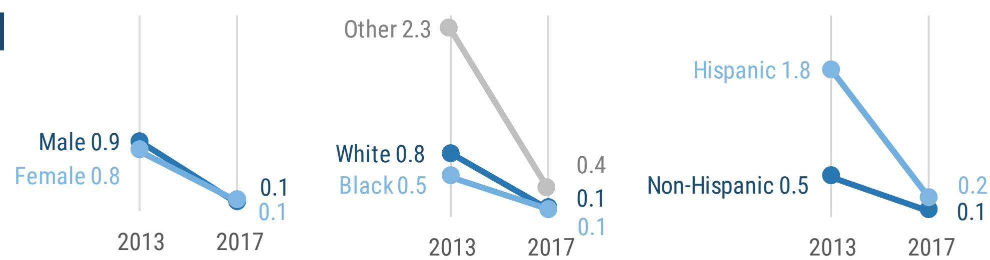
Disease Trends

Summary			
Number of cases			26
Rate (per 100,000 population)			0.1
Change from 5-year average rate			-76.1%
Age (in Years)			
Mean			47
Median			46
Min-max			7 - 75
Gender	**Number**	**(Percent)**	**Rate**
Female	15	(57.7)	NA
Male	11	(42.3)	NA
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	17	(70.8)	NA
Black	3	(12.5)	NA
Other	4	(16.7)	NA
Unknown race	2		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	11	(47.8)	NA
Hispanic	12	(52.2)	NA
Unknown ethnicity	3		

The dengue fever rate (per 100,000 population) has historically been highest in adults 25 to 74 years old. In 2017, the rate was highest in 45- to 54-year-olds.



The dengue fever rate (per 100,000 population) is similar in males, females, blacks, whites, and non-Hispanics. In 2013, rates were higher in Hispanics and other races, though there was less difference between race and ethnic groups in 2017.

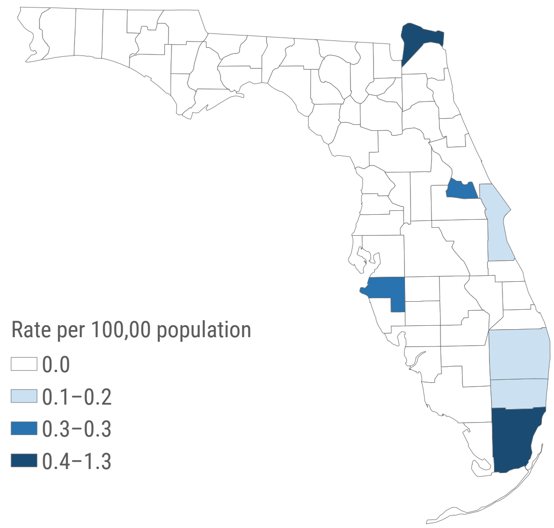


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Dengue fever cases were missing 11.5% of ethnicity data in 2017 and 7.7% of race data in 2017.

Dengue Fever

Summary	Number
Number of cases	26
Case Classification	**Number (Percent)**
Confirmed	20 (76.9)
Probable	6 (23.1)
Outcome	**Number (Percent)**
Hospitalized	17 (65.4)
Died	0 (0.0)
Imported Status	**Number (Percent)**
Acquired in Florida	1 (3.8)
Acquired in the U.S., not Florida	0 (0.0)
Acquired outside the U.S.	25 (96.2)
Acquired location unknown	0
Outbreak Status	**Number (Percent)**
Sporadic	25 (96.2)
Outbreak-associated	1 (3.8)
Outbreak status unknown	0

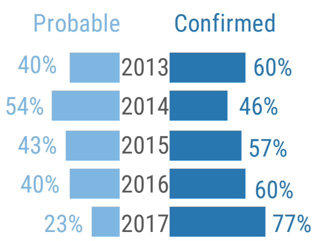
Dengue fever is most common in Miami-Dade residents with 17 cases reported in 2017. One infection was acquired in Miami-Dade County in 2016; all other people were infected in other countries.



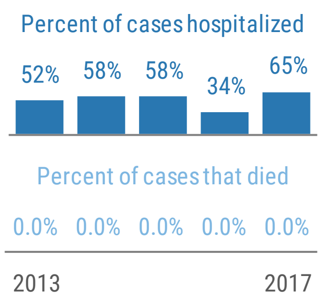
Rates are by county of residence, regardless of where infection was acquired (26 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

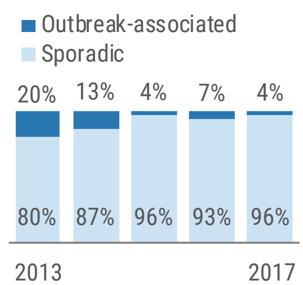
The percent of cases confirmed was higher in 2017 than in the past four years.



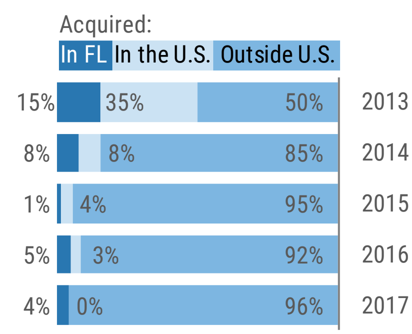
The rate of hospitalization is relatively high, but no deaths have occurred in recent years.



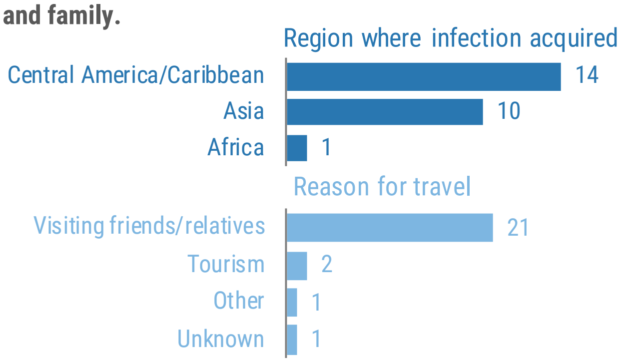
The one outbreak-associated case reported in 2017 was linked to a case in India.



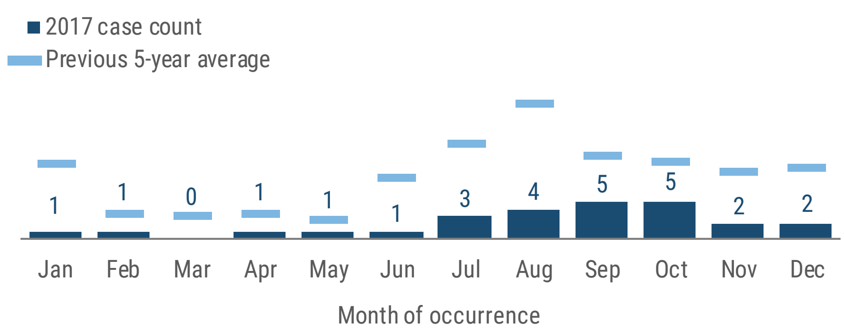
One case was acquired in Miami-Dade County in 2016; all others were imported from other countries or U.S. territories



Most dengue fever cases were acquired in Central America, the Caribbean, and Asia while visiting friends and family.



Dengue fever cases are most common in summer and fall, but can be imported any time of year. In 2017, 65% of cases occurred from July to October.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status, and month of occurrence.

Giardiasis, Acute

Key Points

Giardia intestinalis (also known as *G. lamblia* and *G. duodenalis*) is the most common intestinal parasite of humans identified in the U.S. and a common cause of outbreaks associated with untreated surface and groundwater. Annually, an estimated 1.2 million cases occur in the U.S., and hospitalizations resulting from giardiasis cost approximately $34 million. Case reports have associated giardiasis with the development of chronic enteric disorders, allergies, and reactive arthritis.

From August 2008 to January 2011, laboratory-confirmed cases no longer had to be symptomatic to meet the confirmed case definition, resulting in an increase in reported cases in 2009 and 2010.

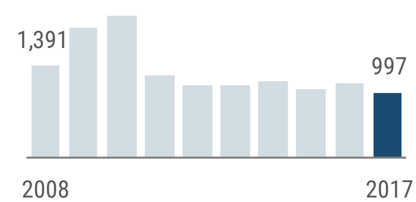
Giardiasis is a common parasitic disease parasitic infection reported in Florida. Similar to cryptosporidiosis, another parasitic intestinal infection, incidence is highest in 1 to 4 year olds, followed by infants <1 year old, then children 5 to 9 years old. It occurs throughout the state year-round, though the highest rates (per 100.000 population) are in small, rural counties.

Giardia lives in the intestines of an infected person or animal and is shed through the feces. Outside of the body, *Giardia* has the potential to survive from weeks to months.

Disease Facts

- **Caused** by *Giardia* parasites
- **Illness** is gastroenteritis (diarrhea, vomiting)
- **Transmitted** via fecal-oral route, including person-to-person, animal-to-person, waterborne, and foodborne
- **Under surveillance** to identify and control outbreaks, identify and mitigate common sources (e.g., contaminated food/water source, ill food handler), monitor incidence over time, estimate burden of illness

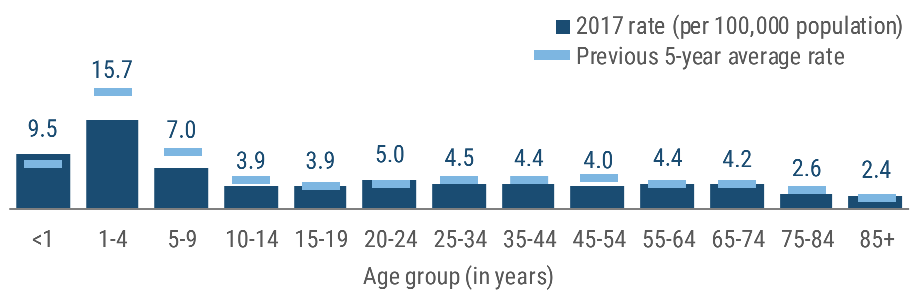
Giardiasis incidence has remained relatively consistent since the last case definition change in 2011.



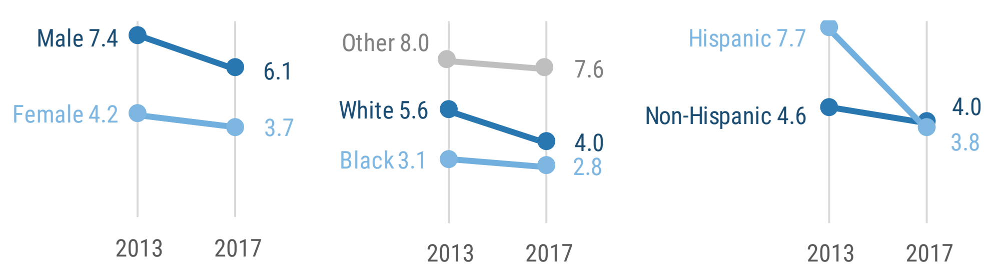
Disease Trends

Summary			
Number of cases			997
Rate (per 100,000 population)			4.9
Change from 5-year average rate			-14.1%
Age (in Years)			
Mean			34
Median			32
Min-max			0 - 93
Gender	**Number**	**(Percent)**	**Rate**
Female	385	(38.6)	3.7
Male	612	(61.4)	6.1
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	635	(77.5)	4.0
Black	97	(11.8)	2.8
Other	87	(10.6)	7.6
Unknown race	178		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	612	(76.0)	4.0
Hispanic	193	(24.0)	3.8
Unknown ethnicity	192		

The giardiasis rate (per 100,000 population) is consistently highest in children 1 to 4 years old, followed by <1 year old infants, which remained true in 2017.



In 2017, the giardiasis rate (per 100,000 population) was lower in in all gender, race, and ethnic groups compared to 2013. The decrease was most notable in Hispanics.

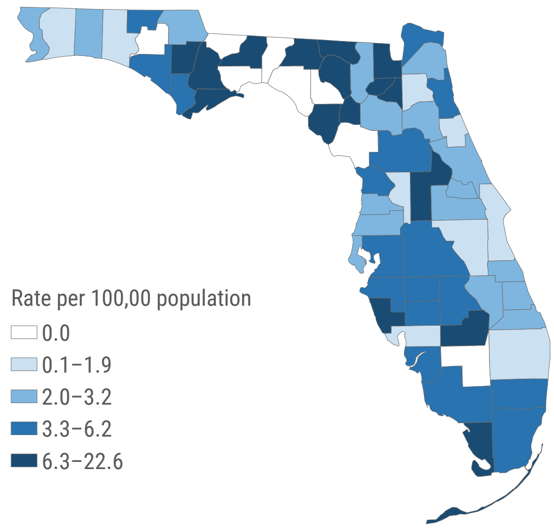


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Acute giardiasis cases were missing 7.9% of ethnicity data in 2013, 8.0% of race data in 2013, 19.3% of ethnicity data in 2017, and 17.9% of race data in 2017.

Giardiasis, Acute

Summary	Number
Number of cases	997
Case Classification	**Number (Percent)**
Confirmed	957 (96.0)
Probable	40 (4.0)
Outcome	**Number (Percent)**
Hospitalized	89 (8.9)
Died	0 (0.0)
Sensitive Situation	**Number (Percent)**
Daycare	54 (5.4)
Health care	21 (2.1)
Food handler	17 (1.7)
Imported Status	**Number (Percent)**
Acquired in Florida	709 (81.3)
Acquired in the U.S., not Florida	45 (5.2)
Acquired outside the U.S.	118 (13.5)
Acquired location unknown	125
Outbreak Status	**Number**
Sporadic	858 (89.4)
Outbreak-associated	102 (10.6)
Outbreak status unknown	37

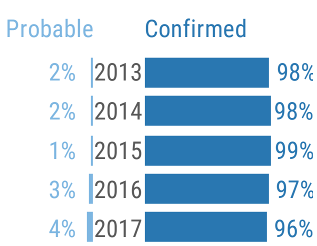
Giardiasis occurs throughout the state, and the rates (per 100,000 population) were consistently highest in small, rural counties in 2017.



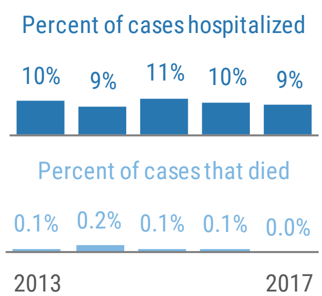
Rates are by county of residence for infections acquired in Florida (709 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

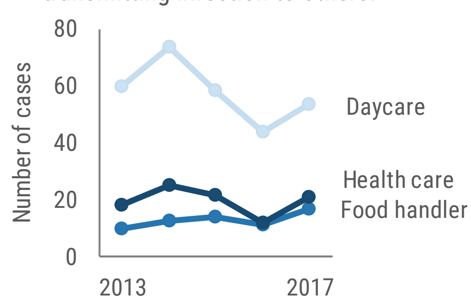
Most cases are laboratory-confirmed. Probable cases are epidemiologically linked to confirmed cases.



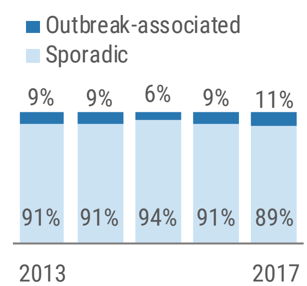
Between 9–11% of cases are hospitalized, deaths are very rare.



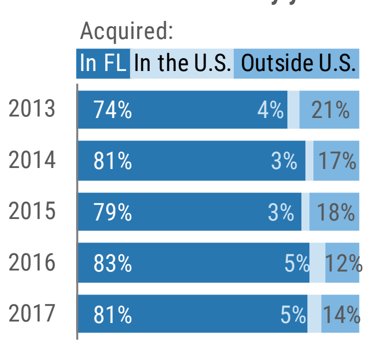
Cases in sensitive situations are monitored. People in sensitive situations may pose a risk for transmitting infection to others.



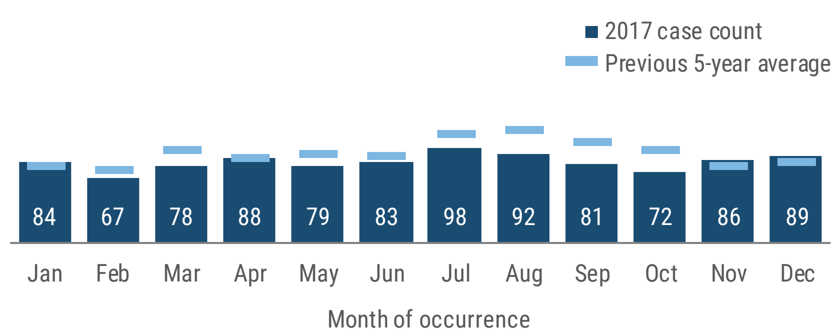
Outbreak-associated giardiasis cases typically reflect small household clusters.



Over 80% of infections are acquired in Florida but cases are imported from other states and countries every year.



Giardiasis occurs throughout the year with a small increase in the summer and fall months. In 2017, incidence was highest in July and August.



See Appendix III: Report Terminology for explanations of case classification, outcome, sensitive situation, imported status, outbreak status, and month of occurrence.

Gonorrhea (Excluding Neonatal Conjunctivitis)

Key Points

Over the past 10 years there has been a shift in the demographics of those less than 25 years old diagnosed with gonorrhea. Historically, the gonorrhea rate was higher in females than males for patients aged 15 to 24 years. During 2014, this shifted for patients ages 20-24; more male patients in that age group have been diagnosed. The rates in males have been increasing in most age groups since 2014.

The Florida Department of Health is 1 of 10 recipients of the Centers for Disease Control and Prevention's (CDC's) STD Surveillance Grant. This grant requires awardees to randomly sample 10% of the reported gonorrhea cases across the state and conduct in-depth interviews to gather more information about potential risk factors. This includes information about their sexual behaviors and preferences, as well as self-reported demographic information. Data from this grant help Florida Health identify at-risk subpopulations and better target prevention efforts for these groups.

Disease Facts

Caused by *Neisseria gonorrhoeae* bacteria

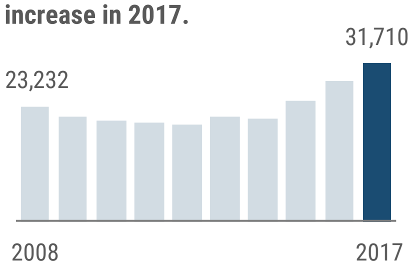
Illness is frequently asymptomatic; sometimes abnormal discharge from vagina or penis or burning sensation when urinating

Transmitted sexually via anal, vaginal, or oral sex and sometimes from mother to child during pregnancy or delivery

Under surveillance to implement effective interventions immediately for every case, monitor incidence over time, estimate burden of illness, evaluate treatment and prevention programs

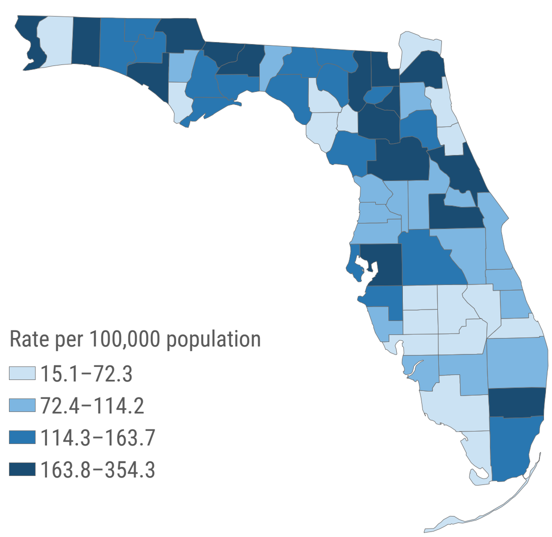
Disease Trends

Gonorrhea incidence continued to increase in 2017.



Summary			
Number of cases			31,710
Rate (per 100,000 population)			154.3
Change from 5-year average rate			+33.7%
Age (in Years)			
Mean			28
Median			25
Min-max			1 - 87
Gender	**Number**	**(Percent)**	**Rate**
Female	12,781	(40.3)	121.6
Male	18,921	(59.7)	188.4
Unknown gender	8		
Race	**Number**	**(Percent)**	**Rate**
White	10,063	(35.8)	63.1
Black	15,312	(54.5)	441.3
Other	2,702	(9.6)	236.8
Unknown race	3,633		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	22,923	(86.0)	148.7
Hispanic	3,731	(14.0)	72.6
Unknown ethnicity	5,056		

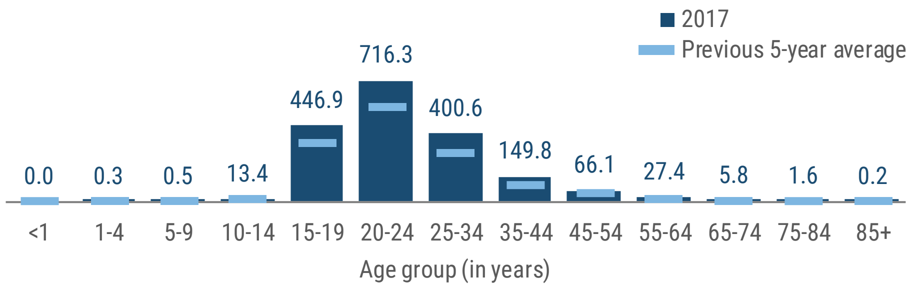
Gonorrhea occurs throughout the state. Higher rates (per 100,000 population) were clustered in the northern part of the state in 2017. The highest rates were in Leon (354.3), Duval (343.7), Gadsden (310.1), Escambia (264.4), and Alachua (238.3) counties. These counties accounted for 19% of the state's cases but only 9% of the state's population.



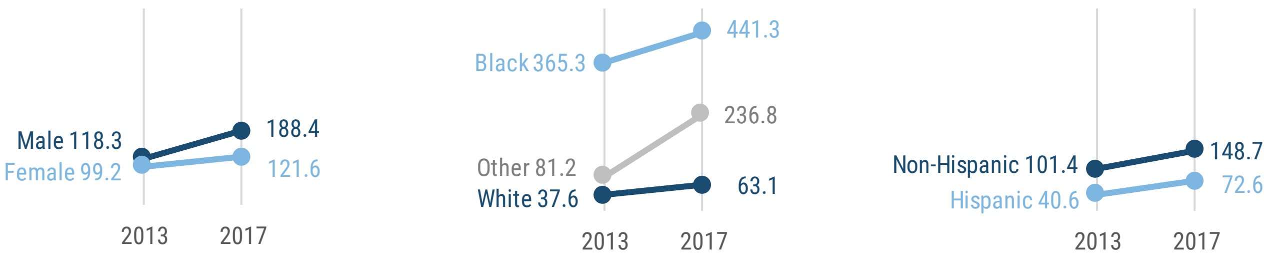
Rates are by county of residence, regardless of where infection was acquired (31,710 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

Gonorrhea (Excluding Neonatal Conjunctivitis)

Gonorrhea rates are highest in teenagers and young adults 15 to 34 years old, peaking in the 20- to 24-year-old age group.



Gonorrhea rates (per 100,000 population) have increased in all gender, race, and ethnicity groups from 2013 to 2017, but the most noticeable increase was in other races. The rates were almost seven times higher in blacks than whites in 2017. Rates are higher in males than females and higher in Hispanics than non-Hispanics.



Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Gonorrhea cases (excluding neonatal conjunctivitis) were missing 19.7% of ethnicity data in 2013, 13.2% of race data in 2013, 15.9% of ethnicity data in 2017, and 11.5% of race data in 2017.

The gonorrhea rate (per 100,000 population) in males has increased in all age groups primarily affected by gonorrhea over the past 10 years. However, the increase is most pronounced in adults 25 to 34 years old, particularly in the last four years. In females, the rate has decreased from 10 years ago in people 15 to 24 years old, but has increased in adults 25 to 34 years old.

Teenagers 15–19 years old

Gender	2013 rate	10-year trend	2017 rate
Male	324.2		331.7
Female	718.5		510.3

Young adults 20–24 years old

Gender	2013 rate	10-year trend	2017 rate
Male	516.0		688.4
Female	665.0		647.1

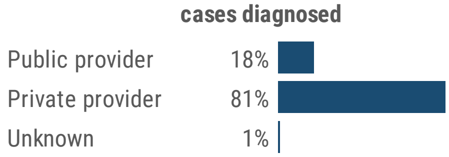
Adults 25–34 years old

Gender	2013 rate	10-year trend	2017 rate
Male	261.1		469.1
Female	215.9		278.2

With the looming threat of antibiotic-resistant *Neisseria gonorrhoeae*, it is important that patients diagnosed with gonorrhea are treated with CDC-recommended antibiotics. Currently, ceftriaxone paired with azithromycin is the recommended treatment. Ceftriaxone is the last available antibiotic to treat *N. gonorrhoeae*; the bacteria have not developed a resistance to ceftriaxone yet.

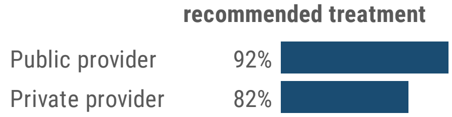
Over 80% of diagnosed gonorrhea cases in Florida are diagnosed at private providers' offices, while 18% are diagnosed in public providers' offices.

Percent of gonorrhea cases diagnosed



Public providers use CDC-recommended treatment more often than private providers. Common reasons for not receiving CDC-recommended treatment are drug allergies and medication cost.

Percent using CDC-recommended treatment



Haemophilus influenzae Invasive Disease in Children <5 Years Old

Key Points

There are six identifiable serotypes of *H. influenzae*, named a through f. Only *H. influenzae* serotype b (Hib) is vaccine-preventable. Meningitis and septicemia due to invasive Hib in children <5 years old have almost been eliminated since the introduction of effective Hib conjugate vaccines in the late 1980s. Two invasive Hib cases were reported in 2017, which were the first invasive Hib cases identified since 2014. *H. influenzae* invasive disease can sometimes result in serious complications and even death. There were seven deaths among cases in 2017, six with disease caused by a nontypeable strain and one by an unknown strain. Of the seven deaths, four (57%) had *H. influenzae*, meningitis, or bacteremia listed as a cause of death on the death certificate.

Disease Facts

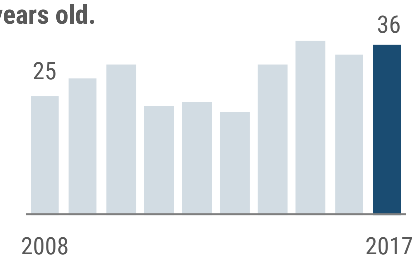
Caused by *Haemophilus influenzae* bacteria

Illness can present as pneumonia, bacteremia, septicemia, meningitis, epiglottitis, septic arthritis, cellulitis, or purulent pericarditis; less frequently endocarditis and osteomyelitis

Transmitted person-to-person by inhalation of infective respiratory tract droplets or direct contact with infective respiratory tract secretions

Under surveillance to identify and control outbreaks, monitor incidence over time, monitor effectiveness of immunization programs and vaccines

Between 20 and 40 invasive *H. influenzae* cases are reported each year in children <5 years old.

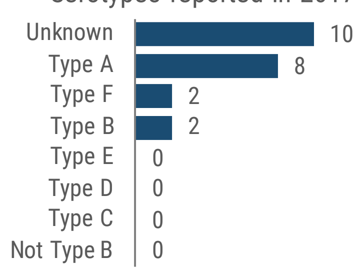


Disease Trends

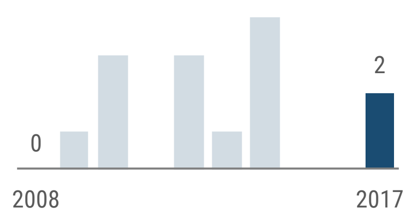
Summary			
Number of cases			36
Rate (per 100,000 population)			3.2
Change from 5-year average rate			+16.7%
Age (in Years)			
Mean			1
Median			1
Min-max			0 - 4
Gender	**Number**	**(Percent)**	**Rate**
Female	14	(38.9)	NA
Male	22	(61.1)	3.8
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	12	(34.3)	NA
Black	14	(40.0)	NA
Other	9	(25.7)	NA
Unknown race	1		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	25	(71.4)	3.2
Hispanic	10	(28.6)	NA
Unknown ethnicity	1		

No invasive Hib cases in children <5 years old were reported in 2015 or 2016, but two cases were identified in 2017. Many (39%) cases had nontypeable strains (39%), followed by serotype a (22%); samples from 10 cases (28%) were not available for serotype testing.

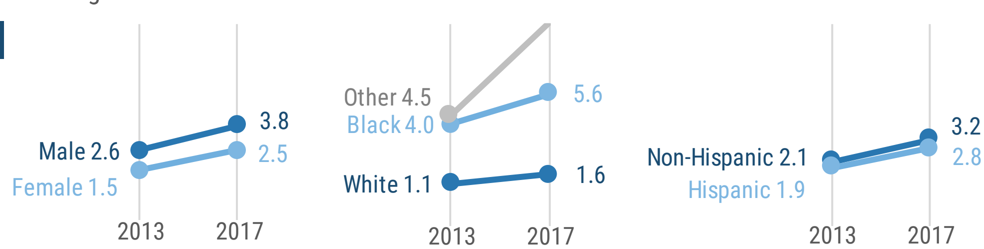
Serotypes reported in 2017



Number of Hib cases



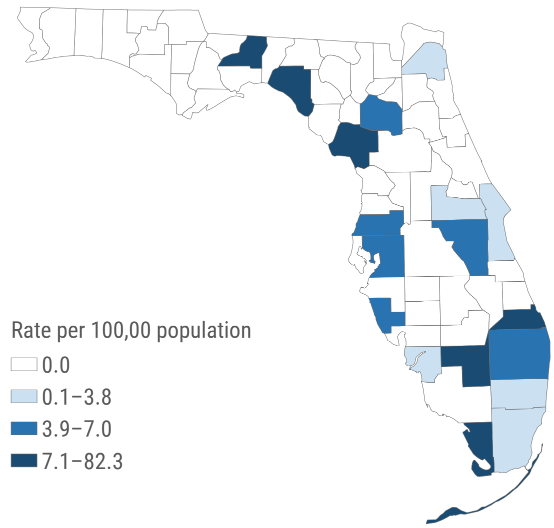
The rate (per 100,000 population) of invasive *H. influenzae* in children <5 years old is slightly higher in males than females and higher in blacks than whites. The rate is similar in Hispanics and non-Hispanics. The rates in blacks and other races had the largest increase from 2013 to 2017.



Haemophilus influenzae Invasive Disease in Children <5 Years Old

Summary	Number
Number of cases	36
Case Classification	**Number (Percent)**
Confirmed	36 (100.0)
Probable	0 (0.0)
Outcome	**Number (Percent)**
Hospitalized	32 (88.9)
Died	7 (19.4)
Imported Status	**Number (Percent)**
Acquired in Florida	33 (97.1)
Acquired in the U.S., not Florida	1 (2.9)
Acquired outside the U.S.	0 (0.0)
Acquired location unknown	2
Outbreak Status	**Number (Percent)**
Sporadic	36 (100.0)
Outbreak-associated	0 (0.0)
Outbreak status unknown	0

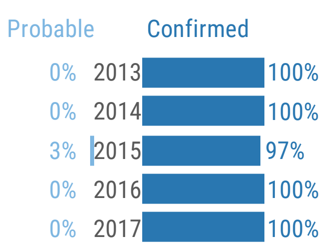
Invasive *H. influenzae* cases in children <5 years old were identified in most areas of the state in 2017, excluding the Panhandle. The highest rates (per 100,000 population) were in small, rural counties.



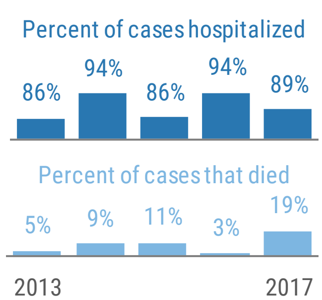
Rates are by county of residence for infections acquired in Florida (33 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

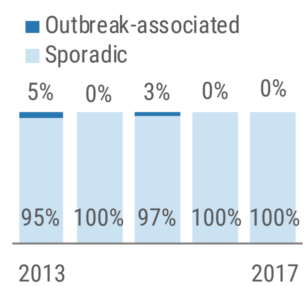
All cases were confirmed by culture or PCR in 2017, which is consistent with past years. Probable cases are based on Hib antigen detection in cerebrospinal fluid, which is rare.



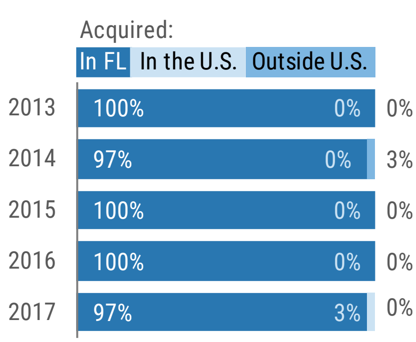
A large percent of invasive *H. influenzae* cases in children <5 years old are hospitalized. Seven children died in 2017.



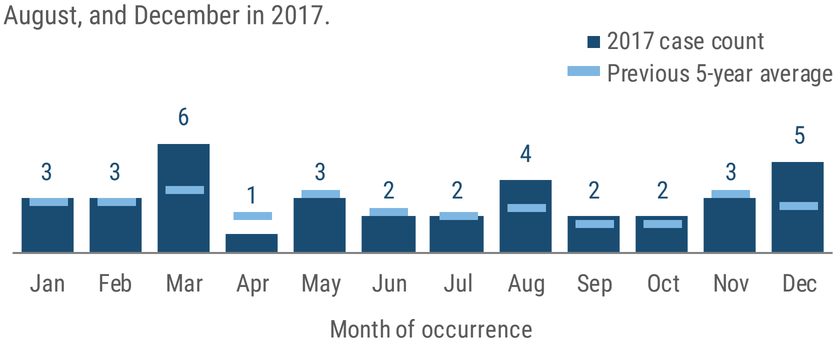
Almost all cases are sporadic. Outbreak-associated cases are usually vertical transmission from mother to infant.



Most infections are acquired in Florida. In 2017, one case was imported from Nevada.



There is not a distinct seasonality to invasive *H. influenzae* in children <5 years old. It occurs in low numbers year-round. More cases were reported in March, August, and December in 2017.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status, and month of occurrence.

Hepatitis A

Key Points

The best way to prevent hepatitis A infection is through vaccination. Vaccination is recommended for all children at age 1 year, travelers to countries where hepatitis A is common, families and caregivers of adoptees from countries where hepatitis A is common, men who have sex with men, persons who use recreational drugs (injection or non-injection), persons experiencing homelessness, persons with chronic liver disease or clotting-factor disorders, persons with direct contact with others who have hepatitis A, and anyone who wishes to obtain immunity.

Incidence increased dramatically in 2017, with more than twice as many cases reported in a single year since 2010.

Cases acquired in Florida increased substantially compared to previous years. Most the cases occurred in south Florida and almost half (132 cases) were reported in Miami-Dade County. Most cases were in adults (median of 38 years old), males, whites, and a non-Hispanics.

The most commonly reported risk factor was men who have sex with men in 21% of cases. Other person-to-person risk factors included non-injection drug use in 9% of cases and injection drug use in 5% of cases.

Disease Facts

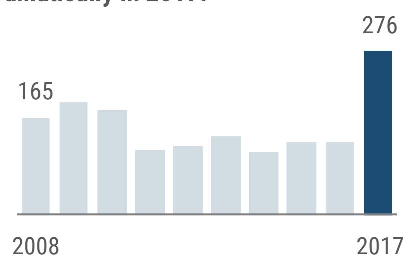
Caused by hepatitis A virus (HAV)

Illness includes inflammation of the liver, fever, malaise, loss of appetite, nausea, vomiting, abdominal discomfort, and jaundice (can be asymptomatic)

Transmitted via fecal-oral route, including person-to-person, foodborne, and waterborne

Under surveillance to identify and control outbreaks, identify and mitigate common sources (e.g., contaminated food product, ill food handler), monitor effectiveness of immunization programs

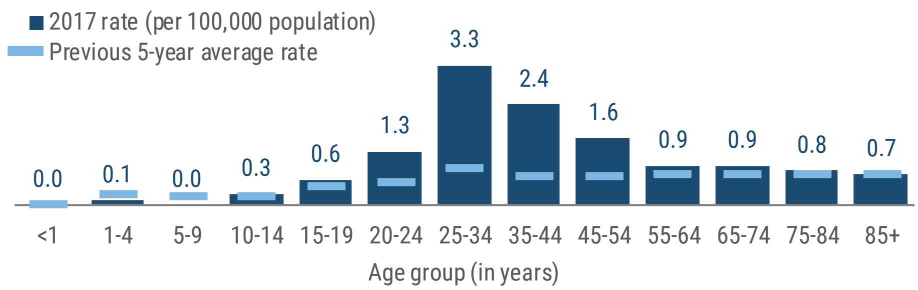
Hepatitis A incidence increased dramatically in 2017.



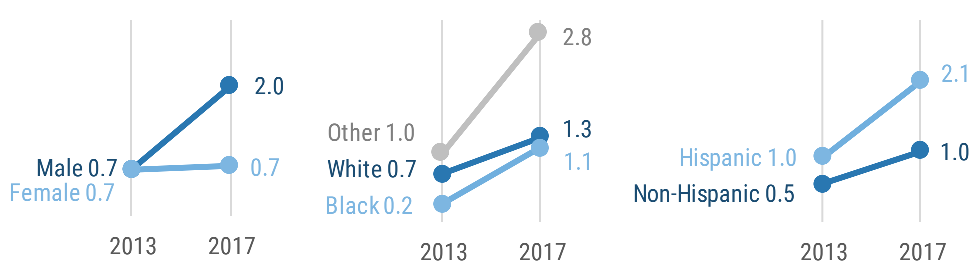
Disease Trends

Summary			
Number of cases			276
Rate (per 100,000 population)			1.3
Change from 5-year average rate			+118.8%
Age (in Years)			
Mean			42
Median			38
Min-max			3 - 97
Gender	**Number**	**(Percent)**	**Rate**
Female	78	(28.3)	0.7
Male	198	(71.7)	2.0
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	201	(74.2)	1.3
Black	38	(14.0)	1.1
Other	32	(11.8)	2.8
Unknown race	5		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	161	(60.1)	1.0
Hispanic	107	(39.9)	2.1
Unknown ethnicity	8		

The hepatitis A rate (per 100,000 population) is consistently highest in adults 25 to 34 years old. The increase in 2017 was most noticeable in this age group, but noticeable increases also occurred in the 20- to 24-year-olds and 35- to 54-year-olds.



The increased incidence in 2017 was evident in rates (per 100,000 population) for all race and ethnic groups and men. The rate did not increase in females in 2017 compared to 2013.

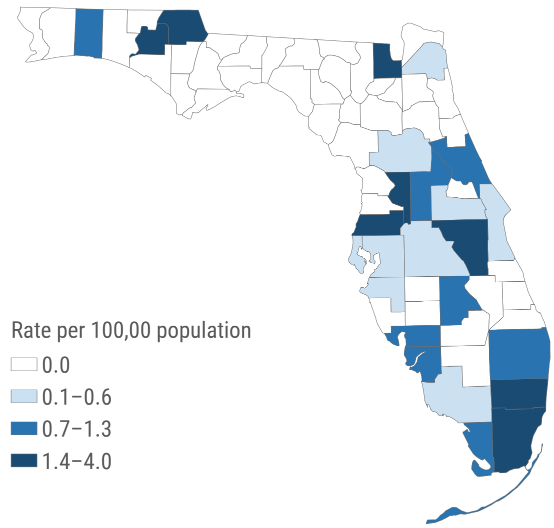


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Hepatitis A cases were missing 6.8% of ethnicity data in 2013 and 6.0% of race data in 2013.

Hepatitis A

Summary	Number
Number of cases	276
Case Classification	**Number (Percent)**
Confirmed	261 (94.6)
Probable	15 (5.4)
Outcome	**Number (Percent)**
Hospitalized	188 (68.1)
Died	0 (0.0)
Sensitive Situation	**Number (Percent)**
Daycare	2 (0.7)
Health care	5 (1.8)
Food handler	19 (6.9)
Imported Status	**Number (Percent)**
Acquired in Florida	172 (69.9)
Acquired in the U.S., not Florida	13 (5.3)
Acquired outside the U.S.	61 (24.8)
Acquired location unknown	30
Outbreak Status	**Number**
Sporadic	240 (89.2)
Outbreak-associated	29 (10.8)
Outbreak status unknown	7

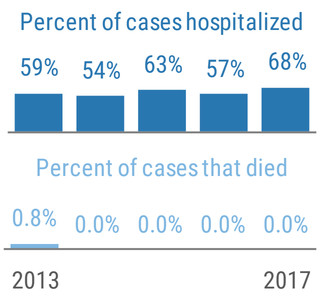
Hepatitis A cases occurred primarily in central and south Florida in 2017, though the rate (per 100,000 population) was high in some small, rural counties in north Florida.



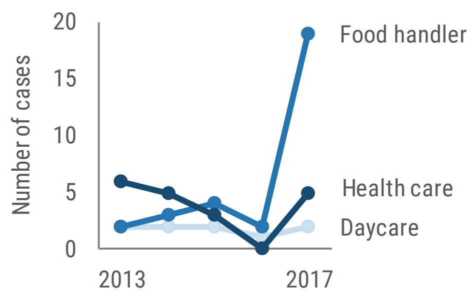
Rates are by county of residence for infections acquired in Florida (172 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

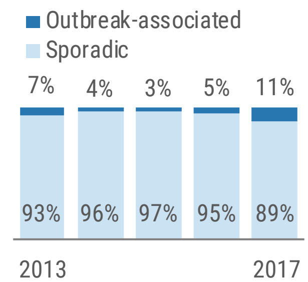
Each year, 50–70% of hepatitis A cases are hospitalized, though deaths are rare.



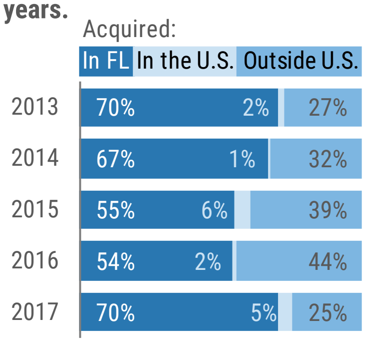
There was a disproportionate increase in food handlers in 2017. Food handlers risk transmitting infection to others if they work while infectious. No foodborne outbreaks of hepatitis A were identified in 2017.



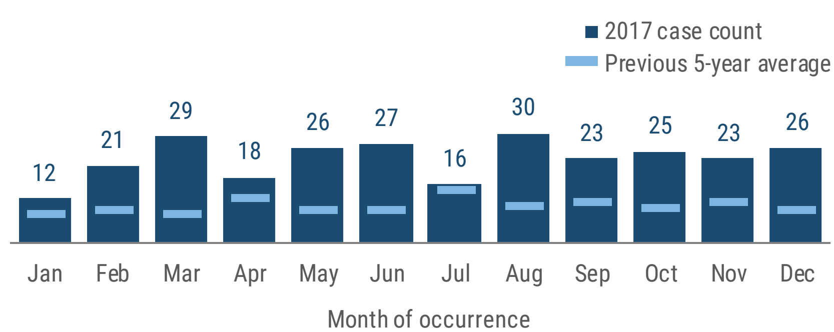
More outbreak-associated cases were identified in 2017 than previous years.



A larger proportion of infections were acquired in Florida compared to past years.



Hepatitis A cases occur throughout the year with little seasonality. The number of cases occurring each month ranged from 12 in January to 30 in August.



See Appendix III: Report Terminology for explanations of case classification, outcome, sensitive situation, imported status, outbreak status, and month of occurrence.

Hepatitis B, Acute

Key Points

Acute clinical symptoms or prior negative laboratory results are required to differentiate acute hepatitis B from chronic diagnoses, making surveillance challenging. Incidence has increased over the last decade despite increased vaccination. The identified increase is likely due to several factors, including an enhanced surveillance project focusing on hepatitis infections in young adults aged 18 to 25 years implemented from 2012 to 2016 and changes in risk behaviors among young adults. Updated laboratory reporting guidance from June 2014 requiring laboratories participating in electronic laboratory reporting to submit all negative hepatitis results in addition to positive results has also helped identify more acute cases. In 2017, 118 cases (15%) were classified as acute based on negative results preceding positive results. Routine vaccination against hepatitis B is recommended for all children at birth (since 1994), all unvaccinated children and adolescents less than 19 years old, adults at risk for hepatitis B, and adults 19 to 59 years old with diabetes.

Acute viral hepatitis B infections were frequently associated with drug use and sharing injection equipment.

Disease Facts

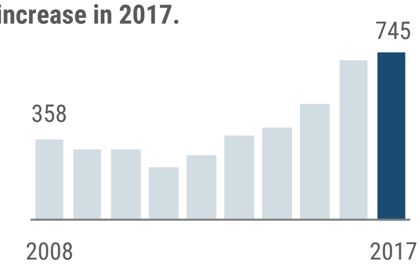
Caused by hepatitis B virus (HBV)

Illness includes inflammation of the liver, fever, malaise, loss of appetite, nausea, vomiting, abdominal discomfort, and jaundice (can be asymptomatic)

Transmitted via blood exposure, anal or vaginal sex, percutaneous exposure (e.g., tattooing, needle sticks), or from mother to child during pregnancy or delivery

Under surveillance to prevent HBV transmission, identify and prevent outbreaks, improve allocation of resources for treatment services, assist in evaluating the impact of public health interventions, monitor effectiveness of immunization programs

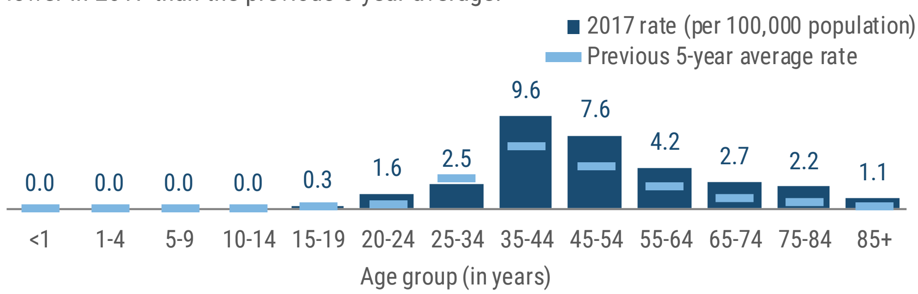
Acute hepatitis B incidence continued to increase in 2017.



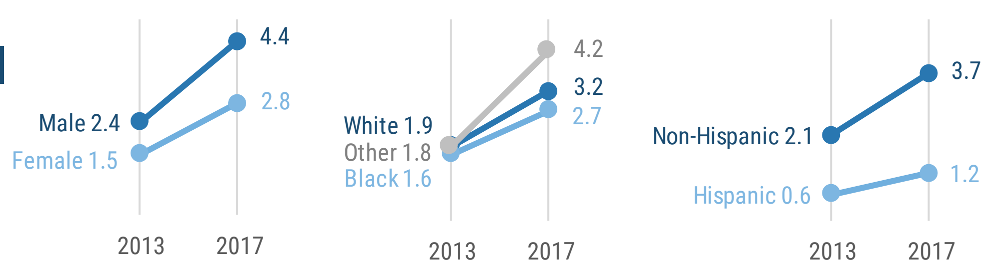
Disease Trends

Summary			
Number of cases			745
Rate (per 100,000 population)			3.6
Change from 5-year average rate			+55.3%
Age (in Years)			
Mean			48
Median			47
Min-max			16 - 96
Gender	**Number**	**(Percent)**	**Rate**
Female	299	(40.1)	2.8
Male	446	(59.9)	4.4
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	511	(78.1)	3.2
Black	95	(14.5)	2.7
Other	48	(7.3)	4.2
Unknown race	91		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	565	(90.4)	3.7
Hispanic	60	(9.6)	1.2
Unknown ethnicity	120		

The acute hepatitis B rate (per 100,000 population) is consistently highest in adults aged 35 to 44 years then decreases with age. The rate in 25- to 34-year-olds was lower in 2017 than the previous 5-year average.



The acute hepatitis B rate (per 100,000 population) is higher in males than females and higher in non-Hispanics than Hispanics. In 2017, rates were similar in blacks and whites but were higher in other races.



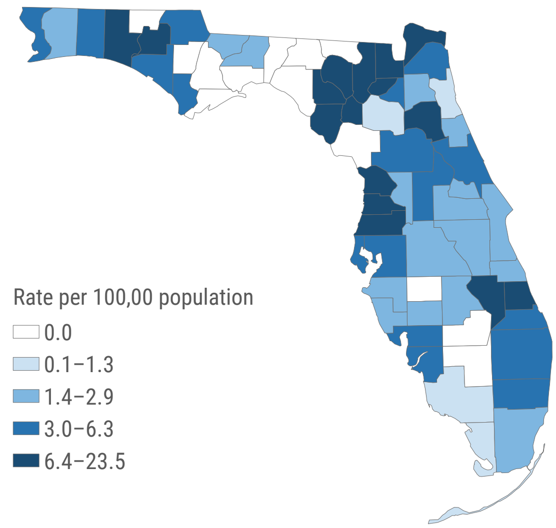
Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Acute hepatitis B cases were missing 9.1% of ethnicity data in 2013, 6.4% of race data in 2013, 16.1% of ethnicity data in 2017, and 12.2% of race data in 2017.

Hepatitis B, Acute

Summary	Number
Number of cases	745
Case Classification	**Number (Percent)**
Confirmed	588 (78.9)
Probable	157 (21.1)
Outcome	**Number (Percent)**
Hospitalized	428 (57.4)
Died	11 (1.5)
Imported Status	**Number (Percent)**
Acquired in Florida	538 (96.6)
Acquired in the U.S., not Florida	6 (1.1)
Acquired outside the U.S.	13 (2.3)
Acquired location unknown	188
Outbreak Status	**Number (Percent)**
Sporadic	611 (96.1)
Outbreak-associated	25 (3.9)
Outbreak status unknown	109

Twenty-five outbreak-associated cases were identified, including 16 separate epidemiologically linked groups of acute cases (seven cases were linked to chronic hepatitis B cases). Most epidemiological linkages were sexual contacts (76%); others were household contacts (12%) and personal contacts (12%).

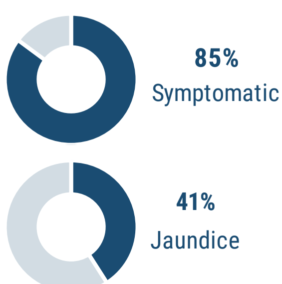
Acute hepatitis B cases occurred throughout the state in 2017. The rates (per 100,000 population) were highest in small rural counties, particularly in the northern part of the Florida peninsula.



Rates are by county of residence, regardless of where infection was acquired (745 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

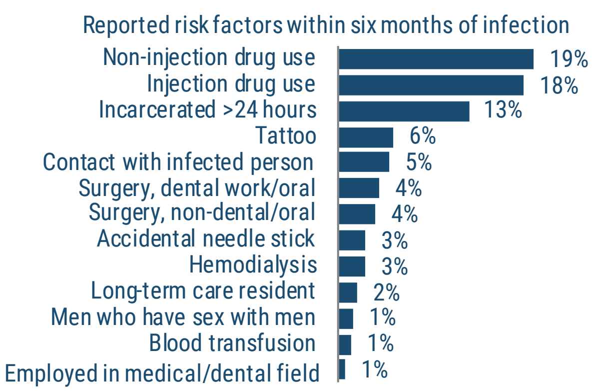
Most acute hepatitis B cases reported in 2017 were symptomatic, but fewer than half had jaundice.



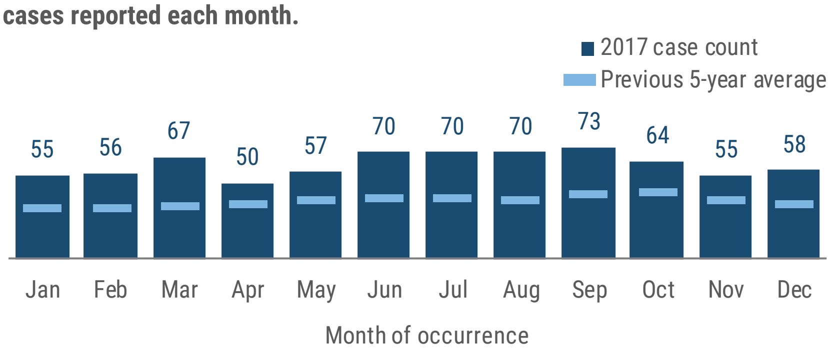
Most acute hepatitis B cases tested positive for hepatitis B surface antigen and IgM antibody to hepatitis B core antigen. The IgM antibody is an indicator of acute infection.

Test type	Percent of cases	Test interpretation
Hepatitis B surface antigen	88%	Acute or chronic HBV infection
Hepatitis B core antibdy, IgM	82%	Acute HBV infection
Hepatitis B DNA	38%	Amount of HBV in blood
Hepatitis B e antigen	23%	HBV is multiplying
Hepatitis B core antibody, total	23%	Acute or chronic HBV infection, no immunity developed
Hepatitis B e antibody	12%	HBV has stopped multiplying
Hepatitis B surface antibody	6%	Immunity to HBV

Similar to past years, the top three risk factors reported in 2017 by people with hepatitis B included non-injection drug use, injection drug use, and incarceration.



Acute hepatitis B cases occur throughout the year with between 50 and 75 cases reported each month.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status, and month of occurrence.

Hepatitis B, Chronic

Key Points

Given the large burden of chronic hepatitis and limited county resources, there have been concerns regarding data completeness and case ascertainment in the past. Earlier data are less reliable, particularly prior to 2009. Since 2009, improvements in electronic laboratory reporting (ELR) and increased focus on disease surveillance have improved case ascertainment. Automated case classification and reporting logic in the surveillance application have improved data quality. In 2014, reporting requirements were updated to include mandatory reporting of all positive and negative hepatitis results, as well as all liver function tests, to support the identification of acute hepatitis B cases. ELR has continued to expand. Acute clinical symptoms or prior negative laboratory results are required to differentiate acute hepatitis B from chronic. Cases that do not meet the clinical criteria for acute hepatitis B or do not have prior negative laboratory results to indicate acute infection are reported as chronic.

Given the large volume of laboratory results received electronically that are not investigated and for which no clinical information is available, it is likely that acute hepatitis B infections are misclassified as chronic.

Disease Facts

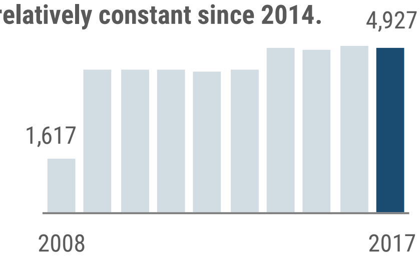
Caused by hepatitis B virus (HBV)

Illness can include chronic liver disease (e.g., cirrhosis and liver cancer), though it is often asymptomatic; two to six percent of acute infections in adults become chronic

Transmitted via blood exposure, anal or vaginal sex, percutaneous exposure (e.g., tattooing, needle sticks), or from mother to child during pregnancy or delivery

Under surveillance to prevent HBV transmission, identify acute infections and prevent outbreaks, assist in evaluating the impact of public health interventions, monitor effectiveness of immunization programs

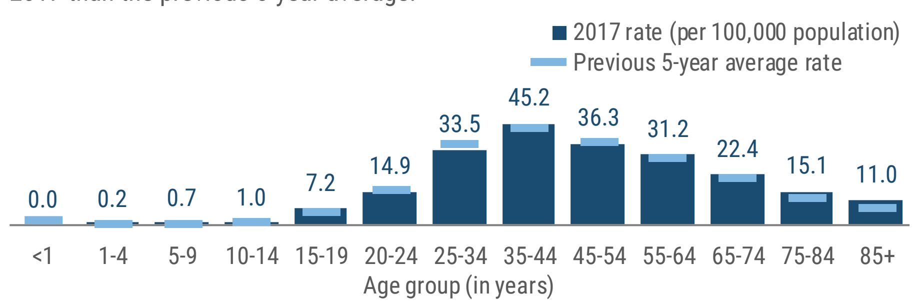
Chronic hepatitis B incidence has remained relatively constant since 2014.



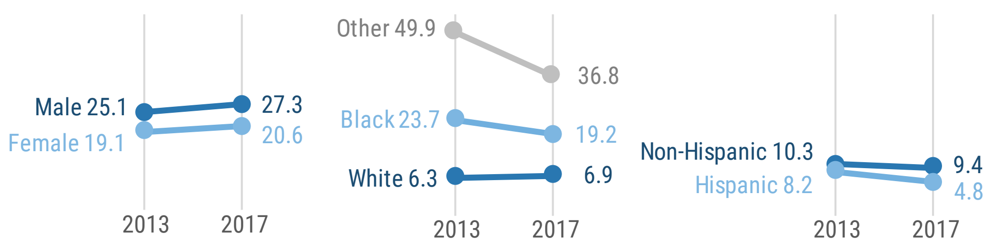
Disease Trends

Summary			
Number of cases			4,927
Rate (per 100,000 population)			24.0
Change from 5-year average rate			+1.6%
Age (in Years)			
Mean			47
Median			46
Min-max			3 - 95
Gender	**Number**	**(Percent)**	**Rate**
Female	2,168	(44.1)	20.6
Male	2,746	(55.9)	27.3
Unknown gender	13		
Race	**Number**	**(Percent)**	**Rate**
White	1,100	(50.3)	6.9
Black	667	(30.5)	19.2
Other	420	(19.2)	36.8
Unknown race	2,740		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	1,452	(85.6)	9.4
Hispanic	245	(14.4)	4.8
Unknown ethnicity	3,230		

Similar to acute hepatitis B, the rate (per 100,000 population) of chronic hepatitis B is highest in in adults 35 to 44 years old. The rate in 25- to 34-year-olds was lower in 2017 than the previous 5-year average.



The chronic hepatitis B rates (per 100,000 population) are similar by gender and ethnicity groups, though rates vary by race. Because few chronic cases are investigated, race and ethnicity data are missing for many cases.

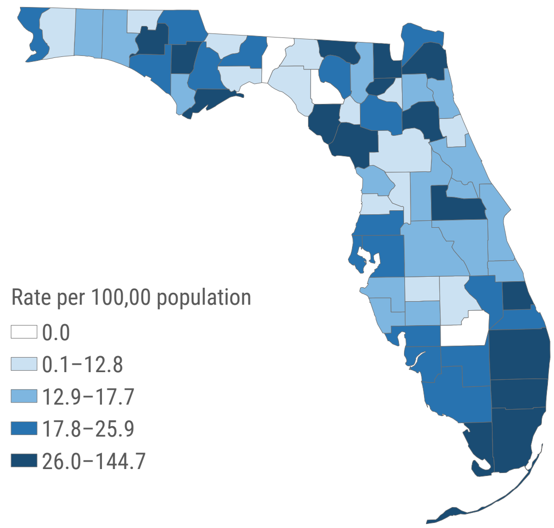


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Chronic hepatitis B cases were missing 55.6% of ethnicity data in 2013, 48.2% of race data in 2013, 65.6% of ethnicity data in 2017, and 55.6% of race data in 2017.

Hepatitis B, Chronic

Summary	Number
Number of cases	4,927
Case Classification	**Number (Percent)**
Confirmed	2,118 (43.0)
Probable	2,809 (57.0)
Outcome	**Number (Percent)**
Hospitalized	177 (3.6)
Died	14 (0.3)
Imported Status	**Number (Percent)**
Acquired in Florida	628 (93.2)
Acquired in the U.S., not Florida	8 (1.2)
Acquired outside the U.S.	38 (5.6)
Acquired location unknown	4,253
Outbreak Status	**Number (Percent)**
Sporadic	892 (99.3)
Outbreak-associated	6 (0.7)
Outbreak status unknown	4,029

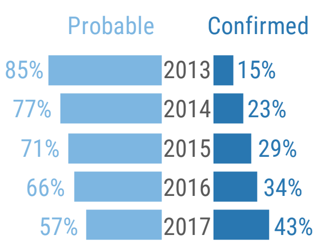
Chronic hepatitis B occurs throughout the state in 2017, with the highest rates (per 100,000 population) in small, rural counties across the state and in large counties in southeast Florida.



Rates are by county of residence, regardless of where infection was acquired (4,927 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

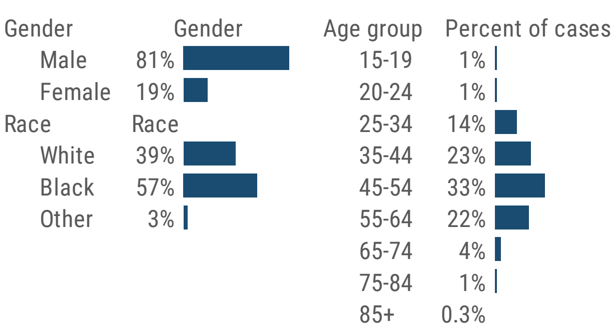
Less than half of chronic hepatitis B infections are confirmed. Very few cases are investigated.



Most chronic hepatitis B cases tested positive for hepatitis B surface antigen. A small number of cases had IgM antibody to hepatitis B core antigen, but did not meet the case definition for acute hepatitis B.

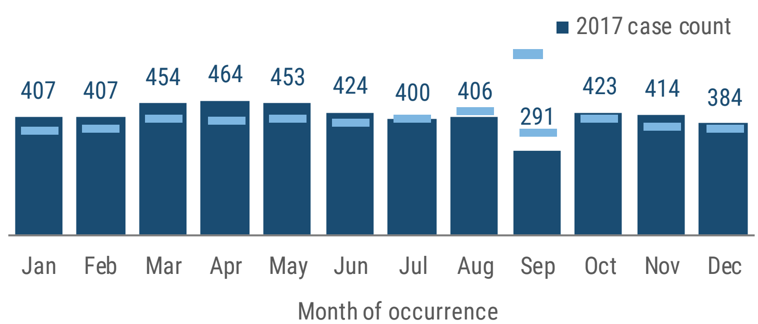
Test type	Percent of cases	Test interpretation
Hepatitis B surface antigen	89%	Acute or chronic HBV infection
Hepatitis B DNA	36%	Amount of HBV in blood
Hepatitis B core antibody, total	26%	Acute or chronic HBV infection, no immunity developed
Hepatitis B e antibody	16%	HBV has stopped multiplying
Hepatitis B e antigen	11%	HBV is multiplying
Hepatitis B core antibdy, IgM	4%	Acute HBV infection
Hepatitis B surface antibody	4%	Immunity to HBV

In 2017, 293 chronic hepatitis B cases (6%) were co-infected with HIV. The majority of people with co-infections were male, black, and 45 to 54 years old.



Order of infection can not be determined from these charts. Race and ethnicity data are from the enhanced HIV/AIDS Reporting System as demographic data were more complete for these cases. Race was missing for two people who were co-infected.

Chronic hepatitis B cases occur throughout the year with between 290–465 cases occurring each month.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status, and month of occurrence.

Hepatitis B, Pregnant Women

Key Points

Hepatitis B is a vaccine-preventable disease. Identification of HBV in pregnant women allows for appropriate treatment of their infants, significantly reducing the infants' risk of contracting HBV. Rates for HBV infections in pregnant women are per 100,000 women aged 15 to 44 years old.

The 2016 National Immunization Survey estimates that HBV vaccination coverage for a birth dose administered from birth through 3 days of age was 71.1% in the U.S. and 59.0% in Florida. Birthing hospitals have a standing order to administer the birth of the HBV vaccine; however, pediatricians sometimes choose to wait to give the first dose in their private offices. With lower-than-expected vaccination rates, Florida is currently working with the Florida Chapter of the American Academy of Pediatrics to provide education reminding health care providers that the recommendation is to provide the birth dose within 24 hours to help decrease HBV infections in newborns.

Incidence of hepatitis in pregnant women has generally decreased over the past 10 years, possibly due to increased vaccination of women of childbearing age or changes in case ascertainment and protocol. In the U.S., Asians have a high HBV carrier rate (7–16%) and account for most HBV diagnoses in the other race category.

Disease Facts

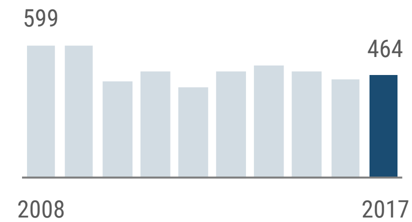
Caused by hepatitis B virus (HBV)

Illness is acute or chronic; infection is identified when a woman tests positive for HBV during pregnancy, regardless of symptoms; up to 90% of perinatal infections become chronic

Transmitted via blood exposure, anal or vaginal sex, percutaneous exposure (e.g., tattooing, needle sticks), or from mother to child during pregnancy or delivery

Under surveillance to identify individual cases and implement control measures to prevent HBV transmission from mother to baby; monitor and evaluate effectiveness of screening programs

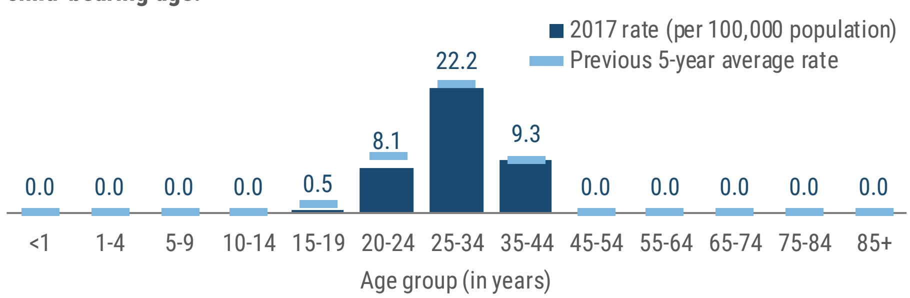
HBV infections in pregnant women have declined over the past 10 years, but have remained relatively consistent since 2010.



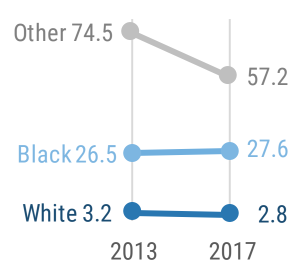
Disease Trends

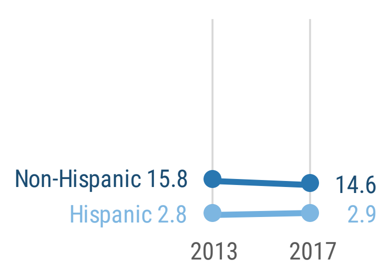
Summary			
Number of cases			464
Rate (per 100,000 population)			12.3
Change from 5-year average rate			-3.3%
Age (in Years)			
Mean			31
Median			31
Min-max			18 - 45
Gender	**Number**	**(Percent)**	**Rate**
Female	463	(99.8)	12.3
Male	1	(0.2)	NA
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	76	(17.4)	2.8
Black	216	(49.4)	27.6
Other	145	(33.2)	57.2
Unknown race	27		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	388	(92.4)	14.6
Hispanic	32	(7.6)	2.9
Unknown ethnicity	44		

The HBV infection rate (per 100,000 population) in pregnant women is highest in women 25 to 34 years old, with much lower rates in older and younger women of child-bearing age.



The HBV infection rate (per 100,000 population) in pregnant women is higher in non-Hispanics than Hispanics, and the rates in 2017 were similar to rates in 2013. The rate is highest in other races, though the rate did decrease dramatically from 2013 to 2017 in this group. The rate in blacks is higher than the rate in whites; 2017 rates for both groups remained similar to 2013 rates.



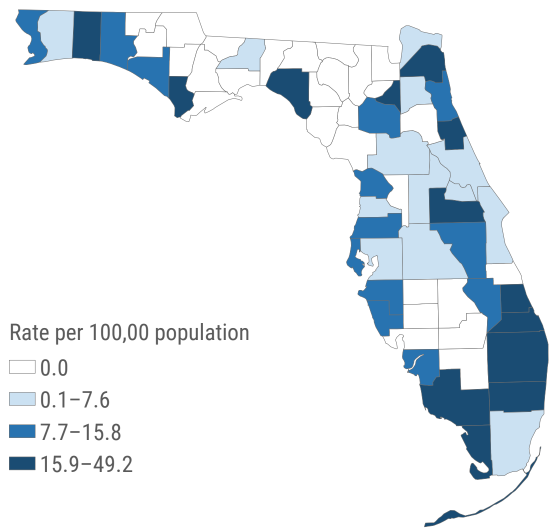


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Hepatitis B surface antigen cases in pregnant women were missing 8.1% of ethnicity data in 2013, 6.6% of race data in 2013, 9.5% of ethnicity data in 2017, and 5.8% of race data in 2017.

Hepatitis B, Pregnant Women

Summary	Number
Number of cases	464
Outcome	**Number (Percent)**
Hospitalized	57 (12.3)
Died	0 (0.0)
Imported Status	**Number (Percent)**
Acquired in Florida	196 (66.4)
Acquired in the U.S., not Florida	8 (2.7)
Acquired outside the U.S.	91 (30.8)
Acquired location unknown	169

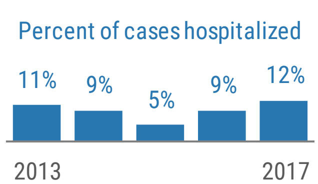
Similar to the distribution of chronic hepatitis B, the rate (per 100,000 population) of HBV infection in pregnant women is clustered in south Florida. Unlike chronic HBV infections, many counties in the Panhandle did not identify any HBV infections in pregnant women in 2017.

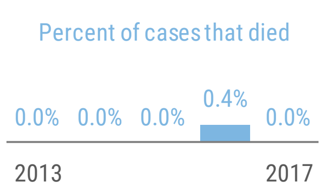


Rates are by county of residence, regardless of where infection was acquired (464 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

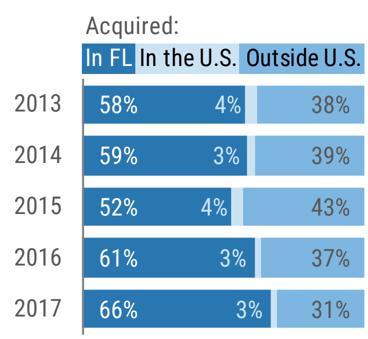
More Disease Trends

Typically around 10–12% of cases are hospitalized, and deaths are rare. Two cases died in 2016, but neither death was related to HBV infection. No deaths were identified in 2017.

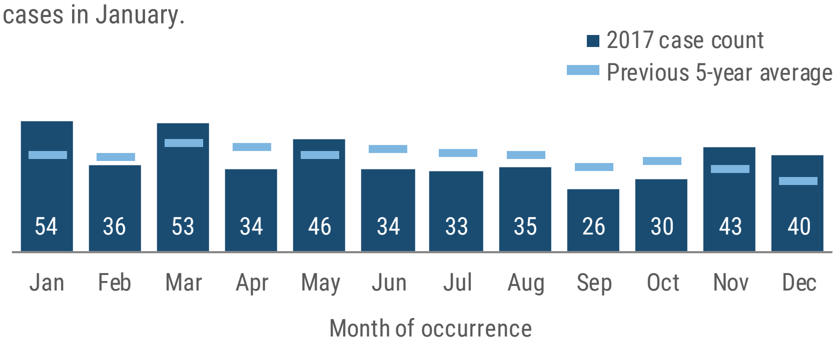




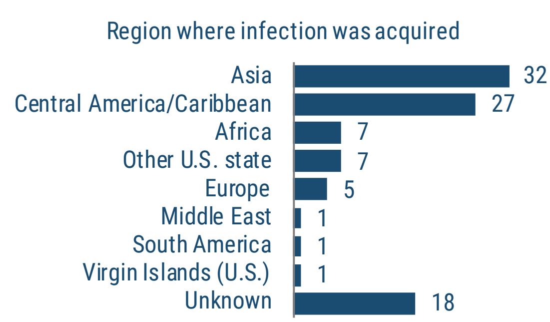
Generally, between 30–40% of infections are acquired outside Florida.



There is no seasonality to HBV infections in pregnant women. The number of cases that occurred in 2017 varied by month from 26 cases in September to 55 cases in January.



For infections known to be acquired outside Florida, Asia, Central America, and the Caribbean are most common.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, and month of occurrence.

Hepatitis C, Acute

Key Points

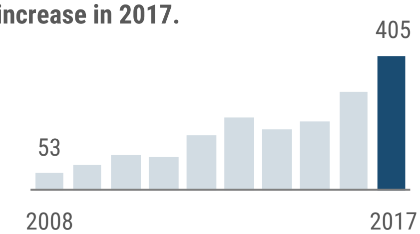
Acute clinical symptoms or prior negative laboratory results are required to differentiate acute hepatitis C from chronic diagnoses, making surveillance challenging. Incidence has increased since 2008, likely due to several factors, including a change in case definition in 2008, an enhanced surveillance project focusing on hepatitis infections in young adults initiated in 2012, and changes in risk behaviors in young adults. Additionally, updated laboratory reporting guidance in June 2014 required laboratories participating in electronic laboratory reporting to submit all negative hepatitis results in addition to all positive results. In 2017, 59% of cases were determined to be acute based on negative results preceding positive results.

Disease Facts

- **Caused** by hepatitis C virus (HCV)
- **Illness** includes inflammation of the liver, fever, malaise, loss of appetite, nausea, vomiting, abdominal discomfort, and jaundice (can be asymptomatic)
- **Transmitted** via blood exposure, percutaneous exposure (e.g., tattooing, needle sticks), from mother to child during pregnancy or delivery, or rarely through anal or vaginal sex.
- **Under surveillance** to prevent HCV transmission, identify and prevent outbreaks, assist in evaluating the impact of public health interventions and screening programs

New diagnoses of viral hepatitis are frequently associated with drug use and sharing of injection equipment. Most reported cases were sporadic. Nine outbreak-associated cases were identified, each of which was epidemiologically linked to a chronic hepatitis C case. Of the 9 outbreak-associated cases, 5 (56%) were linked to chronic hepatitis C cases through sexual contact, 2 (22%) through personal contact, 1 (11%) through injection drug use, and 1 (11%) had a family member with chronic hepatitis C.

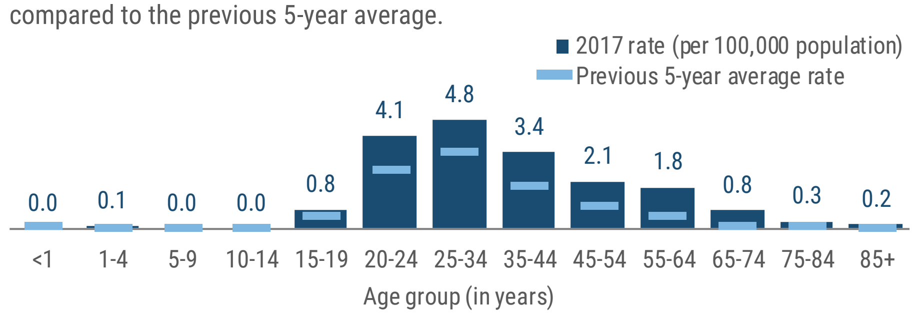
Acute hepatitis C incidence continued to increase in 2017.



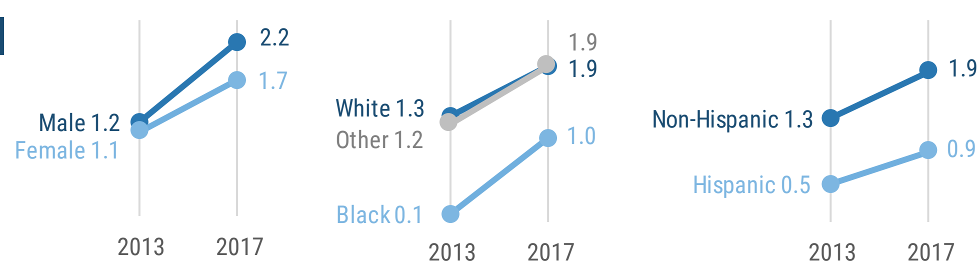
Disease Trends

Summary			
Number of cases			405
Rate (per 100,000 population)			2.0
Change from 5-year average rate			+79.3%
Age (in Years)			
Mean			39
Median			36
Min-max			2 - 85
Gender	**Number**	**(Percent)**	**Rate**
Female	182	(44.9)	1.7
Male	223	(55.1)	2.2
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	308	(84.2)	1.9
Black	36	(9.8)	1.0
Other	22	(6.0)	1.9
Unknown race	39		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	288	(86.5)	1.9
Hispanic	45	(13.5)	0.9
Unknown ethnicity	72		

The acute hepatitis C rate (per 100,000 population) is higher in younger adults, compared to acute hepatitis B. The highest rate is in adults aged 25 to 34 years old, followed by adults 20 to 24 years old. Rates increased in all adult age groups compared to the previous 5-year average.



The acute hepatitis C rates (per 100,000 population) increased across all age, race, and ethnic groups in 2017 compared to 2013. The rate was similar between males and females, but higher in non-Hispanics compared to Hispanics, and lower in blacks compared to whites and other races.

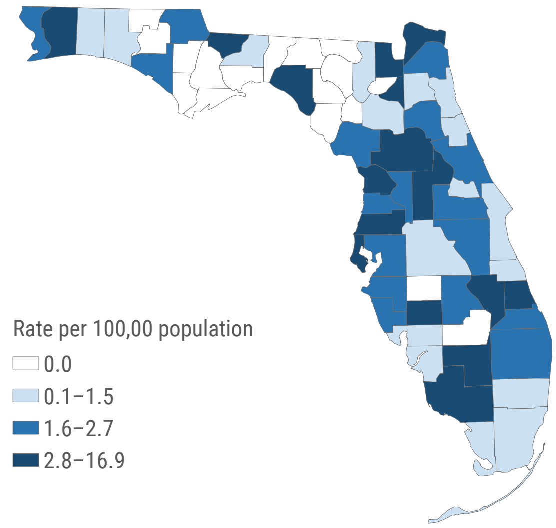


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Acute hepatitis C cases were missing 17.8% of ethnicity data in 2017 and 9.6% of race data in 2017.

Hepatitis C, Acute

Summary	Number
Number of cases	405
Case Classification	**Number (Percent)**
Confirmed	338 (83.5)
Probable	67 (16.5)
Outcome	**Number (Percent)**
Hospitalized	170 (42.0)
Died	7 (1.7)
Imported Status	**Number (Percent)**
Acquired in Florida	281 (98.9)
Acquired in the U.S., not Florida	1 (0.4)
Acquired outside the U.S.	2 (0.7)
Acquired location unknown	121
Outbreak Status	**Number (Percent)**
Sporadic	331 (97.4)
Outbreak-associated	9 (2.6)
Outbreak status unknown	65

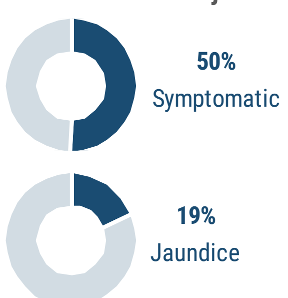
Acute hepatitis C cases were reported throughout the state in 2017, except for several counties in the central and eastern part of the north Florida panhandle. Higher rates (per 100,000 population) occurred in central Florida counties.



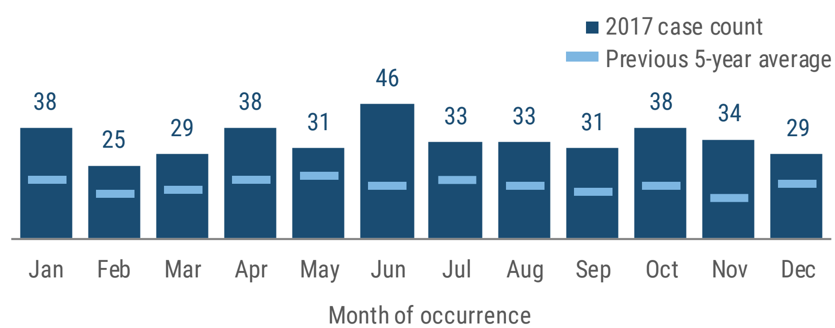
Rates are by county of residence, regardless of where infection was acquired (405 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

Half of acute hepatitis C cases reported in 2017 were symptomatic, but less than 20% had jaundice.



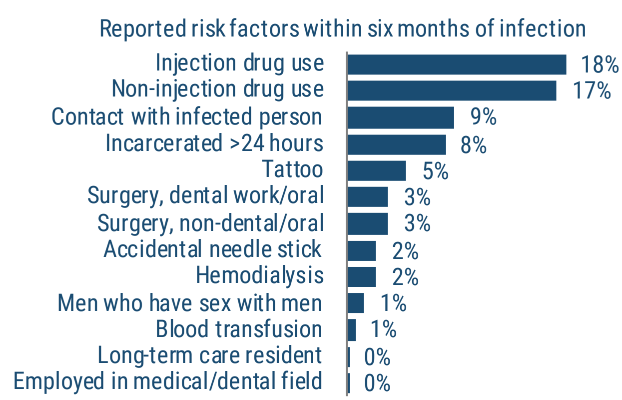
Acute hepatitis C occurs throughout the year with no particular seasonality.



Almost all confirmed cases of acute hepatitis C were positive for hepatitis C antibody and most were positive for hepatitis C RNA. Only a small portion of probable cases were positive for hepatitis C RNA.

	Percent of confirmed cases
Hepatitis C antibody	95%
Hepatitis C RNA	71%
	Percent of probable cases
Hepatitis C antibody	100%
Hepatitis C RNA	12%

Similar to past years, the top three risk factors reported in 2017 by people with acute hepatitis C included non-injection drug use, injection drug use, and incarceration.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status, and month of occurrence.

Hepatitis C, Chronic (Including Perinatal)

Key Points

Incidence of hepatitis C is highest among "baby boomers," adults born between 1946 and 1965 who would be 52 to 71 years old in 2017. Most baby boomers were likely infected in the 1960s, 70s, and 80s, when transmission of hepatitis C was highest. Changes in treatment options for HCV have led to an increased focus on identifying HCV infections. Given the large burden of chronic hepatitis and limited county resources, there have been concerns regarding data completeness and case ascertainment. Earlier data are less reliable. Over the past few years, improvements in electronic laboratory reporting (ELR), logic within the surveillance application, and expansion of reporting requirements are believed to have improved case ascertainment. Acute clinical symptoms or prior negative laboratory results are required to differentiate acute hepatitis C from chronic. Cases that do not meet the clinical criteria for acute hepatitis C or do not have prior negative laboratory results to indicate acute infection are reported as chronic. Given the volume of laboratory results received electronically for which no clinical information is available, it is likely that many acute HCV infections are misclassified as chronic. The high rate of chronic diagnoses in young adults (18 to 25 years old) for example supports the theory that acute infections are not initially identified. An enhanced surveillance project focusing on chronic infections in young adults was implemented from 2012 through 2016 to help identify risk factors and acute infections.

Disease Facts

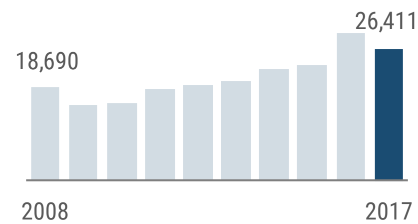
Caused by hepatitis C virus (HCV)

Illness can include chronic liver disease (e.g., cirrhosis and liver cancer), though it is often asymptomatic; 70-85% of acute infections in adults become chronic

Transmitted via blood exposure, percutaneous exposure (e.g., tattooing, needle sticks), from mother to child during pregnancy or delivery, or rarely through anal or vaginal sex

Under surveillance to prevent HCV transmission, identify acute infections and prevent outbreaks, assist in evaluating the impact of public health interventions and screening programs

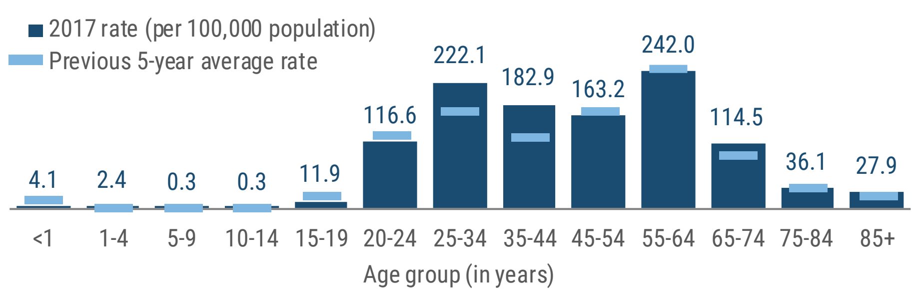
Chronic hepatitis C incidence increased in 2016 due to a case definition expansion. Incidence decreased in 2017.



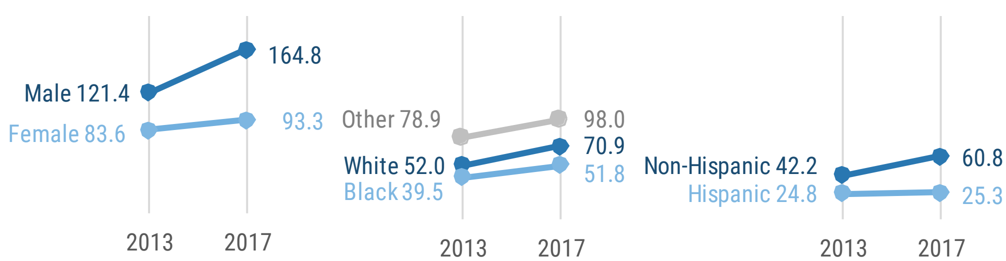
Disease Trends

Summary			
Number of cases			26,411
Rate (per 100,000 population)			128.5
Change from 5-year average rate			+11.3%
Age (in Years)			
Mean			47
Median			47
Min-max			0 - 101
Gender	**Number**	**(Percent)**	**Rate**
Female	9,809	(37.2)	93.3
Male	16,549	(62.8)	164.8
Unknown gender	53		
Race	**Number**	**(Percent)**	**Rate**
White	11,306	(79.5)	70.9
Black	1,796	(12.6)	51.8
Other	1,118	(7.9)	98.0
Unknown race	12,191		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	9,374	(87.8)	60.8
Hispanic	1,298	(12.2)	25.3
Unknown ethnicity	15,739		

The rate of chronic hepatitis C (per 100,000 population) is highest in adults 55 to 64 years old.



The chronic hepatitis C rate (per 100,000 population) is higher in males than females, and slightly higher in non-Hispanics than Hispanics. Rates are lower in blacks than in whites and other races. Because few chronic cases are investigated, race and ethnicity data are missing for many cases.

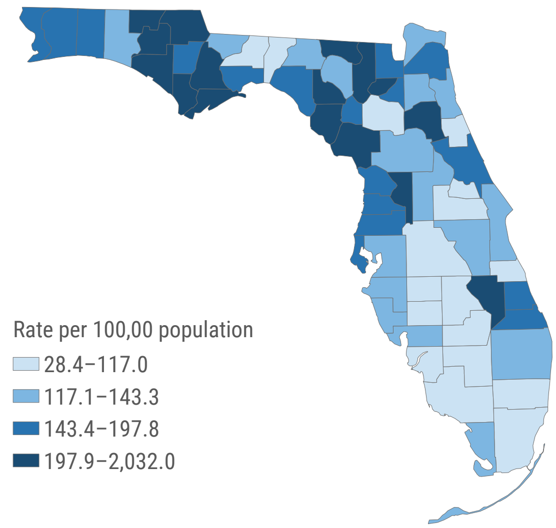


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Chronic hepatitis C cases (including perinatal) were missing 62.7% of ethnicity data in 2013, 49.8% of race data in 2013, 59.6% of ethnicity data in 2017, and 46.2% of race data in 2017.

Hepatitis C, Chronic (Including Perinatal)

Summary	Number
Number of cases	26,411
Case Classification	**Number (Percent)**
Confirmed	18,283 (69.2)
Probable	8,128 (30.8)
Outcome	**Number (Percent)**
Hospitalized	1,599 (6.1)
Died	34 (0.1)
Imported Status	**Number (Percent)**
Acquired in Florida	3,580 (98.4)
Acquired in the U.S., not Florida	31 (0.9)
Acquired outside the U.S.	29 (0.8)
Acquired location unknown	22,771
Outbreak Status	**Number (Percent)**
Sporadic	5,874 (98.7)
Outbreak-associated	80 (1.3)
Outbreak status unknown	20,457

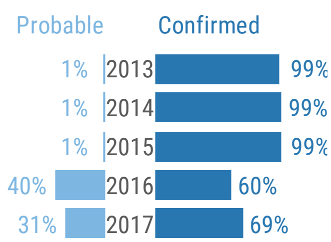
Chronic hepatitis C occurred throughout the state in 2017 with the highest rates in small counties in northern Florida, particularly in the Panhandle.



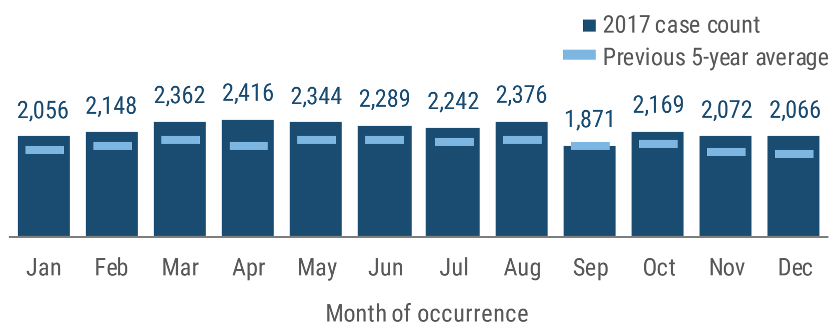
Rates are by county of residence, regardless of where infection was acquired (26,411 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

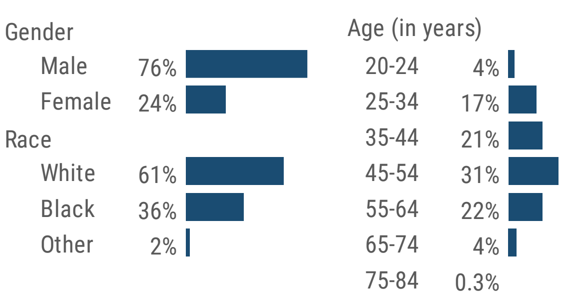
Almost 70% of chronic hepatitis C cases were confirmed in 2017. The probable case definition expanded in 2016, resulting in a large increase in probable cases.



Chronic hepatitis C cases occur throughout the year with between 1,800 and 2,500 cases occurring each month.

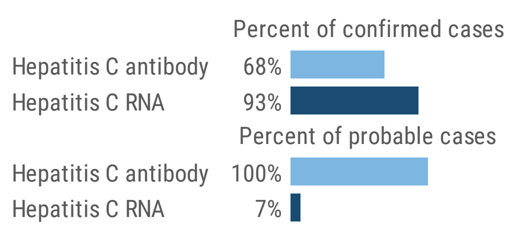


In 2017, 693 chronic hepatitis C cases (2.6%) were co-infected with HIV. The majority of people with co-infections were male, white, and 45 to 54 years old.



Order of infection can not be determined from these charts. Race and ethnicity data are from the enhanced HIV/AIDS Reporting System as demographic data were more complete for these cases. Race was missing for six people who were co-infected.

Almost all confirmed cases of chronic hepatitis C were for positive hepatitis C RNA and most were positive for hepatitis C antibody. Only a small portion of probable cases were positive for hepatitis C RNA.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status, and month of occurrence.

HIV/AIDS

Key Points

HIV is a life-threatening infection that attacks the body's immune system and leaves a person vulnerable to opportunistic infections. The Centers for Disease Control and Prevention estimates that 1.2 million people are living with HIV (prevalence) in the U.S., nearly half of whom live in the southern U.S. Florida is a large state in the south with a diverse population, substantial HIV morbidity, and unique challenges with respect to HIV/AIDS surveillance, prevention, and patient care.

HIV incidence (new diagnoses) has been gradually increasing since 2013. Rates are consistently highest in adults 20 to 34 years old. In 2017, male-to-male sexual contact continued to account for over 75% of new cases diagnosed in men.

Untreated, HIV can continue to weaken the immune system and develop into AIDS. Florida observed a 51% decrease in AIDS diagnoses from 2008 to 2017, indicating an increase in testing and diagnosis of individuals earlier in disease stage, along with linkage to care, retention in care, and maintaining a suppressed viral load.

Disease Facts

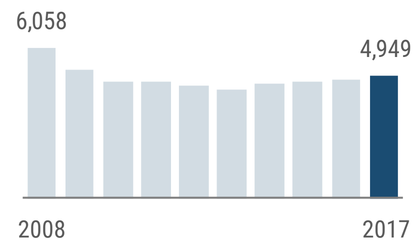
Caused by human immunodeficiency virus (HIV)

Illness is flu-like primary infection; AIDS is defined as HIV with CD4 count <200 cells/μL or occurrence of opportunistic infection

Transmitted via anal or vaginal sex, blood exposure (e.g., sharing injection drug needles, receiving infected blood transfusion [rare due to donor screening]), or vertically during pregnancy, delivery, or breastfeeding

Under surveillance to enhance efforts to prevent HIV transmission, improve allocation of resources for treatment services, assist in evaluating the impact of public health interventions

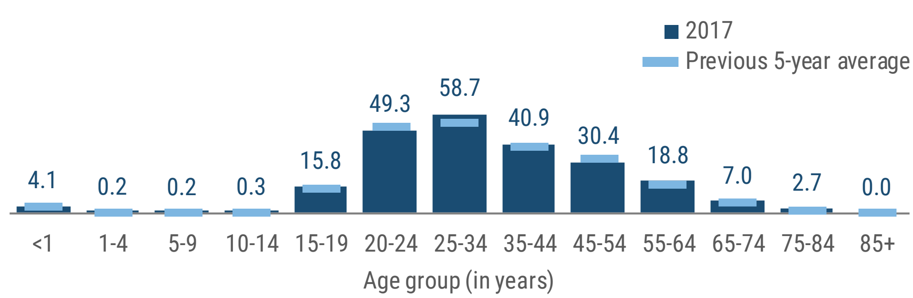
HIV incidence has been gradually increasing since 2013.



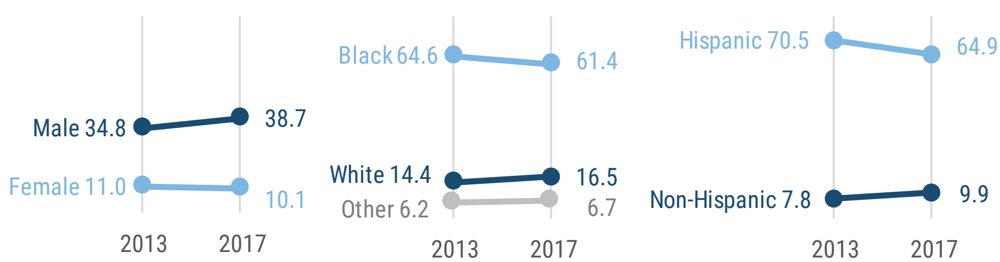
Disease Trends

Summary			
Number of cases			4,949
Rate (per 100,000 population)			24.1
Change from 5-year average rate			+3.0%
Age (in Years)			
Mean			38
Median			35
Min-max			0 - 84
Gender	**Number**	**(Percent)**	**Rate**
Female	1,064	(21.5)	10.1
Male	3,885	(78.5)	38.7
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	2,634	(54.4)	16.5
Black	2,130	(44.0)	61.4
Other	76	(1.6)	6.7
Unknown race	109		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	1,534	(31.5)	9.9
Hispanic	3,334	(68.5)	64.9
Unknown ethnicity	81		

HIV incidence rates (per 100,000 population) are consistently highest in adults 20 to 34 years old.



In 2017, HIV rates (per 100,000 population) were 3.8 times higher among males than females and 3.7 times higher among blacks than whites.



HIV/AIDS

Male-to-male sexual contact was the primary mode of exposure among men who received an HIV diagnosis in 2017 (78%) and heterosexual contact was the primary mode of exposure among women (90%) who received an HIV diagnosis in 2017.

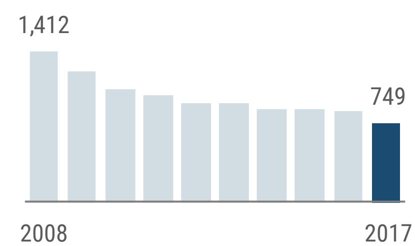
Mode of exposure	Female		Male	
Men who have sex with men (MSM)	NA	NA	3,038	78%
Heterosexual	960	90%	634	16%
Injection drug user (IDU)	90	8%	102	3%
MSM and IDU	NA	NA	103	3%
Other	14	1%	8	0%
Total	1,064		3,885	

In 2017, the HIV rate (per 100,000 population) among black females was 10.9 times higher than white females. The rate among black males was 4.8 times higher than white males, while the rate in Hispanic males was 2.8 times higher than white males.

Race/ethnicity	Female	Male
White	3.6	19.1
Black	39.2	91.1
Hispanic	7.2	53.2

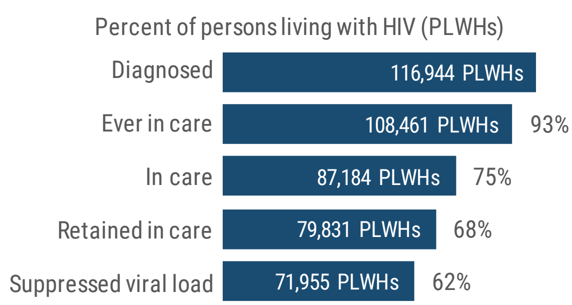
HIV was the eighth leading cause of death for people aged 24 to 44 years in Florida in 2017. Following the advent of antiretroviral therapy, there has been an 80% decline in Florida resident deaths due to HIV from 1995 (4,336 deaths) to 2017 (749 deaths).

Deaths due to HIV decreased by 47% from 2008 to 2017 and by 13% since 2016 alone.



The HIV care continuum reflects the series of steps a person living with an HIV diagnosis takes from initial diagnosis to being retained in care and achieving a very low level of HIV in the body (viral suppression). A person living with HIV (PLWH) with a suppressed viral load (less than 200 copies/mL) is highly unlikely to transmit the virus.

There were 116,944 PLWHs in Florida in 2017, 68% of whom were retained in care and 62% of whom had a suppressed viral load.



HIV care continuum definitions

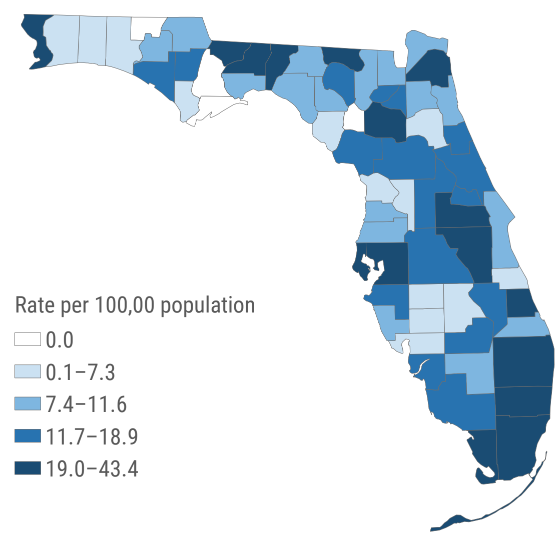
Ever in care: documented HIV-related care at least once from HIV diagnosis

In care: documented HIV-related care at least once in 2017

Retained in care: documented HIV-related care at least two times, at least three months apart in 2017

Suppressed viral load: less than 200 copies/mL

High HIV rates (per 100,000 population) occurred in the central and southeastern parts of the state in 2017. Almost 50% of cases were in three counties: Miami-Dade (1,195 cases), Broward (715 cases), and Orange (512 cases).



Rates are by county of residence, regardless of where infection was acquired and excluding Florida Department of Corrections cases (4,881 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

To access more information on HIV surveillance, visit FloridaHealth.gov/diseases-and-conditions/aids/surveillance/index.html.

To find a care provider or to learn more about the resources available to persons living with HIV, visit FloridaHealth.gov/diseases-and-conditions/aids/index.html.

Lead Poisoning in Children <6 Years Old

Key Points

Lead poisoning is most often identified in children as part of routine screening. Lead screening is required for children <6 years old who are Medicaid-enrolled or Medicaid-eligible, and recommended for children who are foreign-born or otherwise identified as high-risk. Children in this age group are more likely to put lead-contaminated hands, toys, or paint chips in their mouths, making them more vulnerable to lead poisoning than older children. The most common sources of lead exposure for children include paint dust, flakes, or chips in houses built prior to the elimination of lead in paints in 1978. Less common sources include glazed ceramic dishes, children's toys or jewelry, parental occupations or hobbies involving lead, and folk medicines or cosmetics from other countries.

In 2017, Florida lowered the blood lead level for lead poisoning from ≥10 to ≥5 µg/dL to align with current national guidelines based on the adverse health effects caused by blood lead levels <10 µg/dL in both children and adults.

The large increase in cases in 2017 was driven by cases with blood lead levels ≥5 and <10 µg/dL, which accounted for 77% of 2017 cases. Prior to 2010, lead poisoning case data were primarily stored outside the state's reportable disease surveillance system; therefore, only cases from 2010 to 2017 are presented here.

Disease Facts

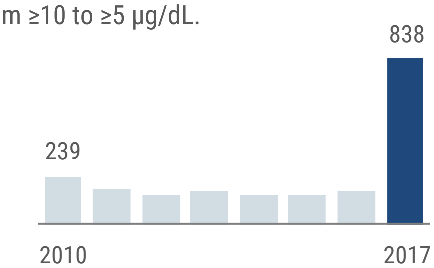
Caused by lead

Illness can be wide range of adverse health effects (e.g., difficulty learning, sluggishness, fatigue, seizures, coma, death)

Exposure is most commonly by ingestion of paint dust in houses built prior to elimination of lead in paints in 1978

Under surveillance to estimate burden among children, ensure follow-up care for identified cases, identify need for environmental remediation to prevent new cases and exacerbation of illness, help target public health interventions

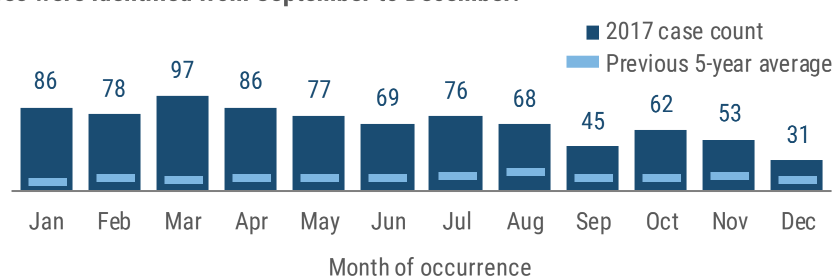
Lead poisoning incidence increased dramatically in 2017 due to a change in case definition that lowered the blood lead level in the case definition from ≥10 to ≥5 µg/dL.



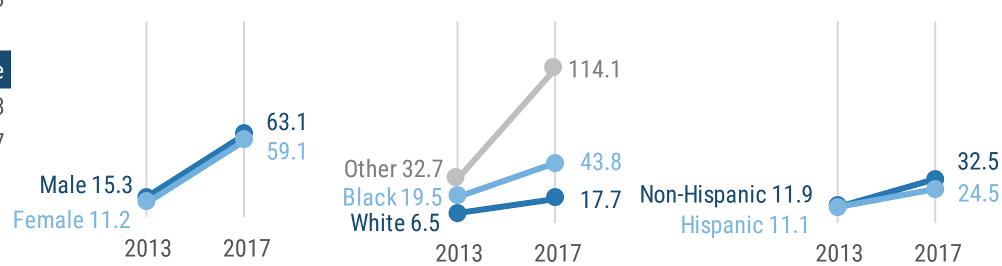
Disease Trends

Summary			
Number of cases			828
Rate (per 100,000 population)			61.2
Change from 5-year average rate			+407.5%
Age (in Years)			
Mean			2
Median			2
Min-max			0 - 5
Gender	**Number**	**(Percent)**	**Rate**
Female	392	(47.4)	59.3
Male	435	(52.6)	63.0
Unknown gender	1		
Race	**Number**	**(Percent)**	**Rate**
White	169	(38.7)	18.2
Black	134	(30.7)	44.1
Other	134	(30.7)	113.3
Unknown race	391		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	304	(74.3)	32.8
Hispanic	105	(25.7)	24.7
Unknown ethnicity	419		

Lead poisoning in children <6 years old occurs throughout the year, though fewer cases were identified from September to December.



Compared to lead poisoning in adults, where occupational exposure results in much higher incidence rates in men than women, rates (per 100,000 population) in children <6 years old are more similar in males and females. The rate is higher in blacks and other races than in whites, but similar by ethnicity. Because few cases with blood lead levels ≥5 and <10 µg/dL are investigated, race and ethnicity data are missing for many cases.

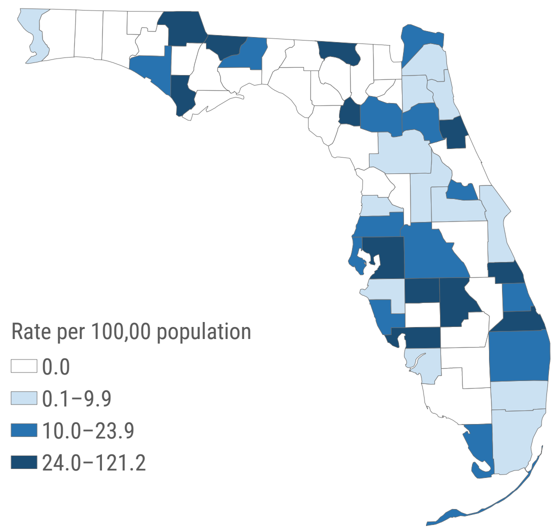


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Lead poisoning cases in children less than 6 years old were missing 11.6% of ethnicity data in 2013, 11.6% of race data in 2013, 50.6% of ethnicity data in 2017, and 47.2% of race data in 2017.

Lead Poisoning in Children <6 Years Old

Summary	Number
Number of cases	828
Outcome	**Number (Percent)**
Hospitalized	2 (0.2)
Died	0 (0.0)
Imported Status	**Number (Percent)**
Exposed in Florida	150 (86.2)
Exposed in the U.S., not Florida	1 (0.6)
Exposed outside the U.S.	23 (13.2)
Exposed location unknown	654
Outbreak Status	**Number (Percent)**
Sporadic	180 (87.8)
Outbreak-associated	25 (12.2)
Outbreak status unknown	623
Age group	**Number (Percent)**
Children (<6 years old)	828 (38.7)
Adult (>6 years old)	1,314 (61.3)

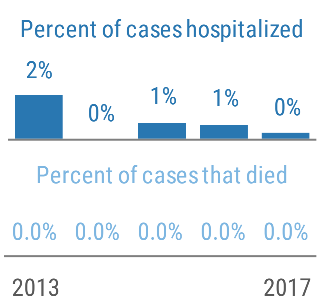
Lead poisoning in children <6 years old occurred in most parts of the state in 2017, though there are fewer counties with cases in the panhandle region. The lead poisoning rates (per 100,000 population) are higher in small, rural counties.



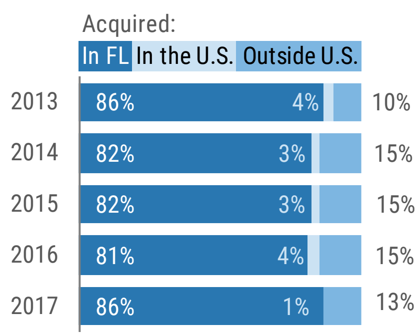
Rates are by county of residence for cases exposed in Florida (150 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

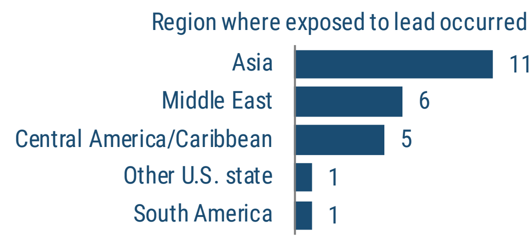
More Disease Trends

Hospitalizations and deaths in children <6 years old with lead poisoning are rare.

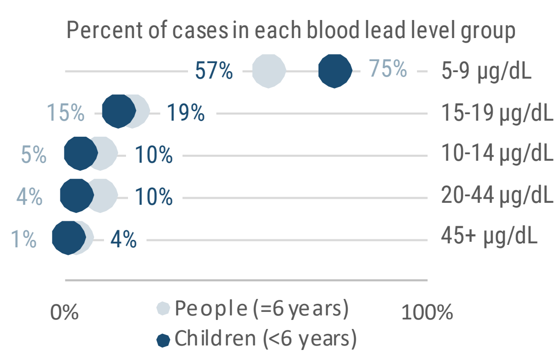


For cases known to be exposed outside Florida, Asia is the most common region where lead exposure occurred. Because 75% of cases have blood lead levels ≥5 and <10 µg/dL and are not investigated, the location of exposure is unknown for 79% of cases.

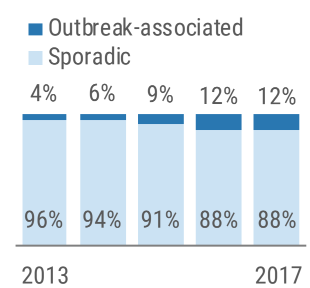




Children <6 years old have a larger proportion of cases that are ≥5 and <10 µg/dL compared to adults (75% versus 57%, respectively). Lead poisoning cases in adults are primarily identified through occupational testing, and they tend to have higher blood lead levels than children.



Most lead poisoning cases are sporadic. In 2017, there were 25 outbreak-associated cases associated with 17 different small household clusters, each ranging from two to four cases. Many of the clusters were caused by exposures in other countries (5 clusters) or parents who brought lead into the home from work or hobbies that involve lead exposure (5 clusters).



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status, and month of occurrence.

Lead Poisoning in People ≥6 Years Old

Key Points

Adult lead poisoning is primarily caused by exposure to lead in the workplace or during certain activities where lead is used. High-risk occupations include battery manufacturing, painting, nonferrous smelting, radiator repair, scrap metal recycling, work at firing ranges, and construction and renovation. High-risk activities include recreational target shooting, home remodeling, casting bullets and fishing weights, making stained glass, and consuming traditional remedies. Regular lead screening is required for employees in high-risk occupations, making occupational lead poisoning cases more easily identifiable. Adults with non-occupational exposures are unlikely to be tested, making identification difficult.

In 2017, Florida lowered the blood lead level for lead poisoning from ≥10 µg/dL to ≥5 µg/dL to align with current national guidelines based on the adverse health effects caused by blood lead levels <10 µg/dL in both children and adults.

The large increase in cases in 2017 was driven by cases with blood lead levels ≥5 and <10 µg/dL, which accounted for 57% of 2017 cases. Prior to 2010, lead poisoning case data were primarily stored outside Florida's reportable disease surveillance system; therefore only cases from 2010 to 2017 are presented here.

Disease Facts

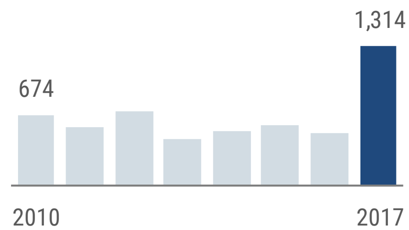
Caused by lead

Illness can be wide range of adverse health effects (e.g., arthralgia, headache, cognitive dysfunction, adverse reproductive outcomes, renal failure, hypertension, encephalopathy) but is often asymptomatic

Exposure is by inhalation or ingestion of lead, most often dust or fumes that occur when lead is melted

Under surveillance to identify cases among adults with high-risk occupations or hobbies, need for environmental remediation to prevent new cases and exacerbation of illness, prevent take-home lead exposures, help target public health interventions for high-risk populations

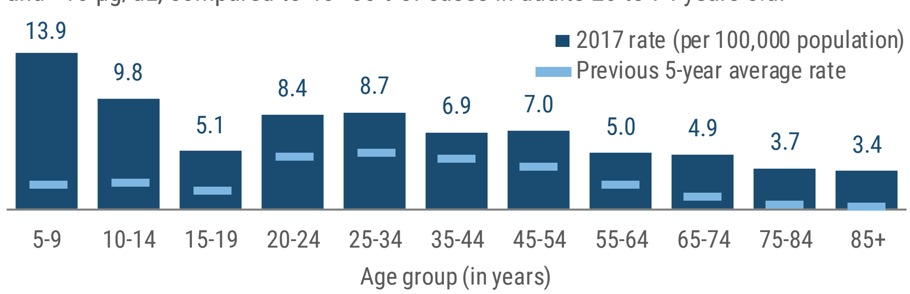
Lead poisoning incidence increased dramatically in 2017 due to a change in case definition that lowered the blood lead level in the case definition from ≥10 to ≥5 µg/dL.



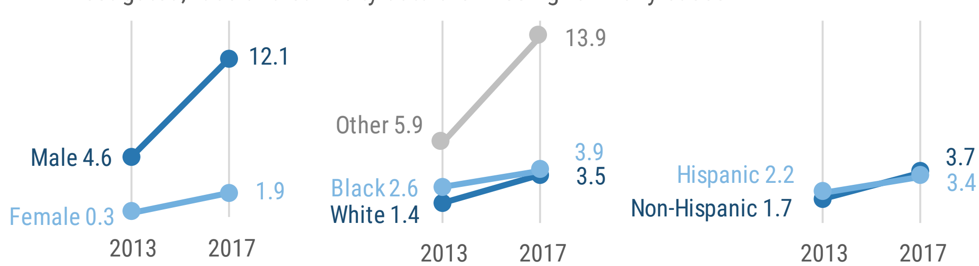
Disease Trends

Summary			
Number of cases			1,314
Rate (per 100,000 population)			6.8
Change from 5-year average rate			+129.8%
Age (in Years)			
Mean			38
Median			36
Min-max			6 - 99
Gender	**Number**	**(Percent)**	**Rate**
Female	183	(13.9)	1.9
Male	1,131	(86.1)	12.1
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	527	(66.4)	3.5
Black	123	(15.5)	3.9
Other	144	(18.1)	14.1
Unknown race	520		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	545	(77.0)	3.8
Hispanic	163	(23.0)	3.5
Unknown ethnicity	606		

Lowering the blood lead level for lead poisoning disproportionately affected children <15 years old. Between 80–85% of cases in that age range have blood lead levels ≥5 and <10 µg/dL, compared to 45–55% of cases in adults 20 to 74 years old.



The rate (per 100,000 population) of lead poisoning in people >6 years old is notably higher in males than females, likely due to the type of occupations and hobbies that result in lead exposure. The rate is similar by ethnicity and in blacks and whites, but is higher in other races. Because few cases with blood lead levels ≥5 and <10 µg/dL are investigated, race and ethnicity data are missing for many cases.

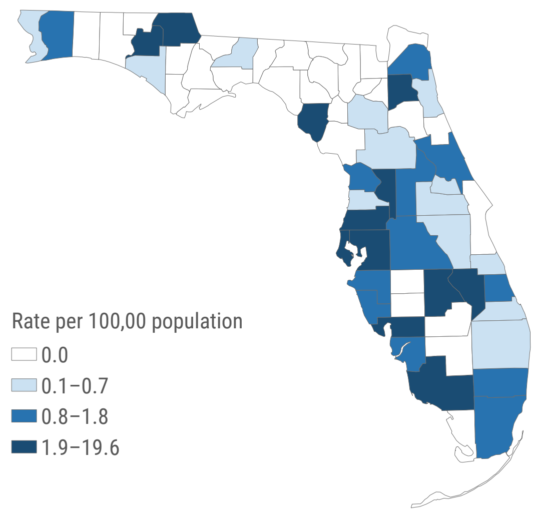


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Lead poisoning cases in people more than 6 years old were missing 23.4% of ethnicity data in 2013, 22.9% of race data in 2013, 46.1% of ethnicity data in 2017, and 39.6% of race data in 2017.

Lead Poisoning in People ≥6 Years Old

Summary	Number
Number of cases	1,314
Outcome	**Number (Percent)**
Hospitalized	5 (0.4)
Died	0 (0.0)
Imported Status	**Number (Percent)**
Exposed in Florida	335 (91.8)
Exposed in the U.S., not Florida	15 (4.1)
Exposed outside the U.S.	15 (4.1)
Exposed location unknown	949
Outbreak Status	**Number (Percent)**
Sporadic	389 (86.3)
Outbreak-associated	62 (13.7)
Outbreak status unknown	863
Age group	**Number (Percent)**
Children (<6 years old)	828 (38.7)
Adult (>6 years old)	1,314 (61.3)

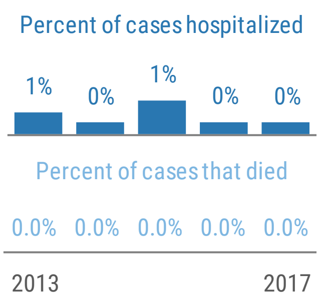
Lead poisoning in people ≥6 years old occurred in most parts of the state in 2017, though there are fewer counties with cases in the Panhandle region. Hillsborough County has the largest number of reported cases due to occupational screening at a large battery and a metal recycling plant located there.



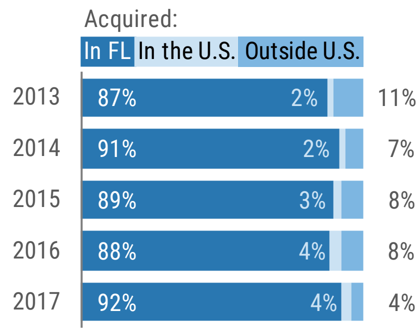
Rates are by county of residence for cases exposed in Florida (335 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

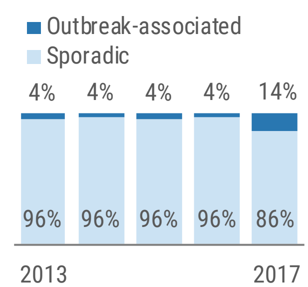
Hospitalizations and deaths in people ≥6 years old with lead poisoning are rare.



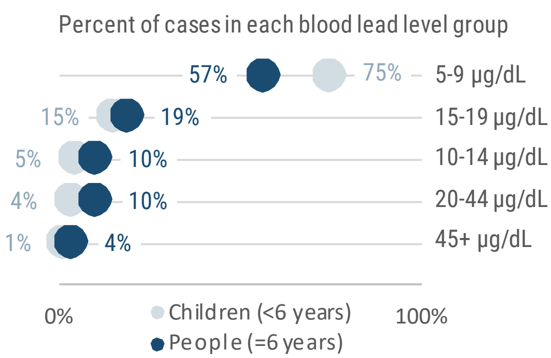
Of cases where the exposure location was known, most were exposed in Florida.



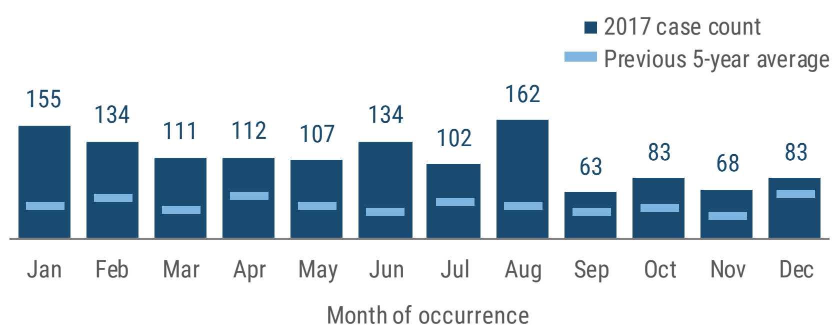
Most lead poising cases are sporadic. In 2017, 55 outbreak-associated cases due to lead exposure at three different gun ranges were identified.



Lead poisoning cases in adults are primarily identified through occupational testing, and they tend to have higher blood lead levels than children.



Lead poisoning cases in people ≥6 years old occur throughout the year, though fewer cases were identified from September to December.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status, and month of occurrence.

Legionellosis

Key Points

Recently identified sources of *Legionella* infection in Florida and the U.S. include decorative fountains, hot tubs, cooling towers (air conditioning units for large buildings), and potable water systems. Increasing incidence in Florida is consistent with the increase observed nationally over the past decade. This increase is likely due to a number of factors, including aging infrastructure and a greater percentage of the population aged ≥64 years. The elderly and those with weakened immune systems are at highest risk for developing disease.

In Florida, sporadic cases of both Legionnaires' disease and Pontiac fever (two distinct presentations of legionellosis) are monitored. Single cases of legionellosis that occur at a health care facility or other facility where a person spent their entire incubation period warrant a full investigation and are generally characterized as outbreaks for public health purposes. However, these cases are not consistently classified as outbreak-associated and therefore not all cases are reflected in the table on the following page.

Disease Facts

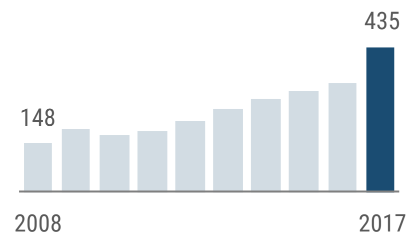
Caused by *Legionella* bacteria

Illness includes fever, muscle pain, cough, and shortness of breath; pneumonia can occur

Transmitted by inhaling aerosolized water containing the bacteria

Under surveillance to identify and control outbreaks, identify and mitigate common reservoirs, monitor incidence over time, estimate burden of illness

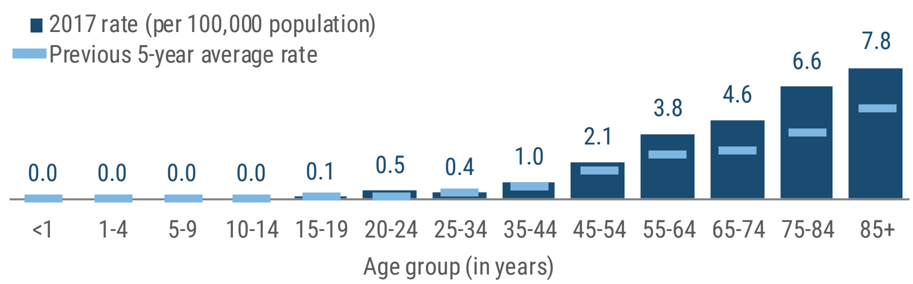
Legionellosis incidence continued to increase in 2017.



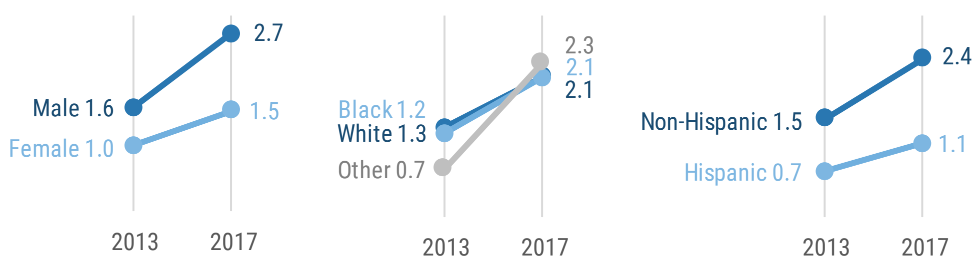
Disease Trends

Summary		
Number of cases		435
Rate (per 100,000 population)		2.1
Change from 5-year average rate		+51.2%
Age (in Years)		
Mean		65
Median		66
Min-max		19 - 98
Gender	**Number (Percent)**	**Rate**
Female	162 (37.2)	1.5
Male	273 (62.8)	2.7
Unknown gender	0	
Race	**Number (Percent)**	**Rate**
White	334 (77.3)	2.1
Black	72 (16.7)	2.1
Other	26 (6.0)	2.3
Unknown race	3	
Ethnicity	**Number (Percent)**	**Rate**
Non-Hispanic	363 (86.6)	2.4
Hispanic	56 (13.4)	1.1
Unknown ethnicity	16	

Legionellosis is most common in the elderly. The rate (per 100,000 population) starts increasing in middle aged adults and continues to increase with age.



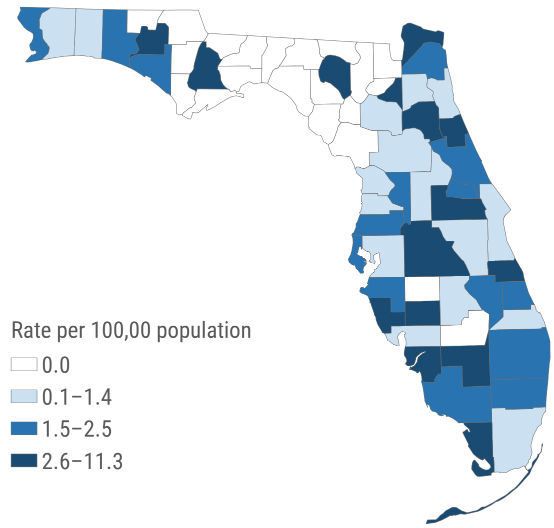
The legionellosis rate (per 100,000 population) is higher in males and non-Hispanics, but similar by race. The rate in all groups has increased from 2013 to 2017.



Legionellosis

Summary	Number
Number of cases	435
Outcome	**Number (Percent)**
Hospitalized	428 (98.4)
Died	49 (11.3)
Imported Status	**Number (Percent)**
Acquired in Florida	381 (93.8)
Acquired in the U.S., not Florida	22 (5.4)
Acquired outside the U.S.	3 (0.7)
Acquired location unknown	29
Outbreak Status	**Number (Percent)**
Sporadic	401 (93.7)
Outbreak-associated	27 (6.3)
Outbreak status unknown	7

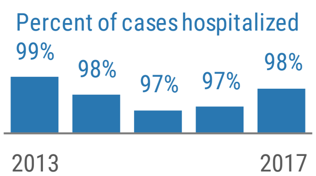
Legionellosis occurred in most parts of the state in 2017, but is notably absent from most counties in the eastern panhandle.

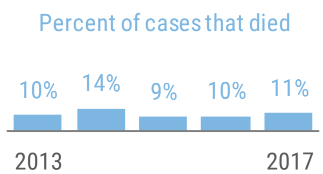


Rates are by county of residence for infections acquired in Florida (381 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

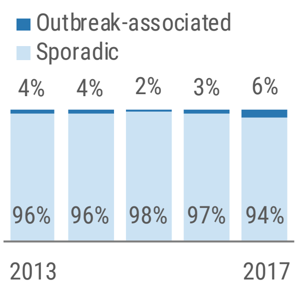
More Disease Trends

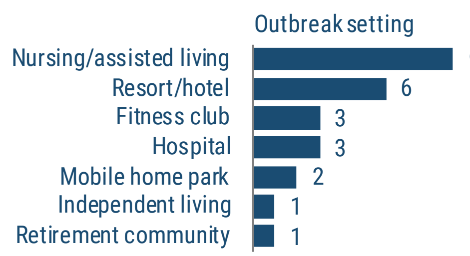
Most legionellosis cases are hospitalized, and deaths do occur. Those primarily affected are the elderly and people with underlying conditions. Pneumonia is commonly identified among cases.



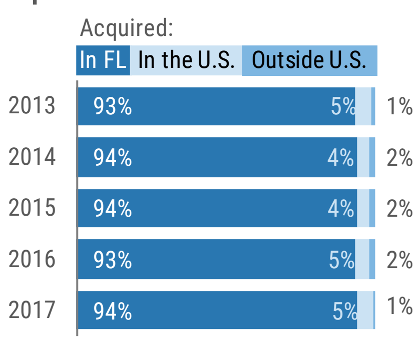


In 2017, 25 outbreaks were identified, some of which included non-Florida residents (who are not included in counts in this report). Nursing homes and assisted living facilities were the most commonly identified outbreak setting.

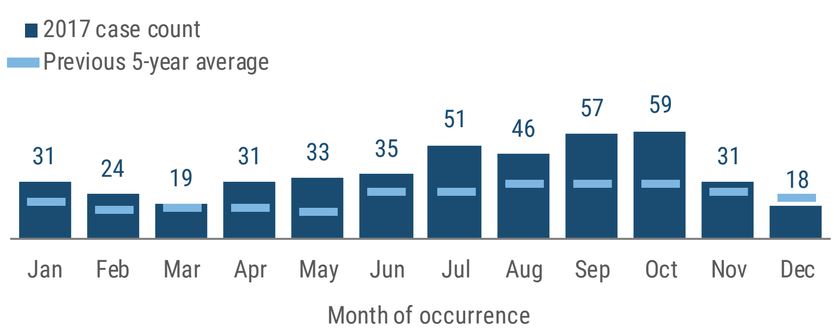




Between 93–94% of *Legionella* infections are acquired in Florida and between 4–5% are acquired in other states.



Legionellosis cases increase slightly in the summer and early fall months with 46 to 59 cases reported each month from July to October 2017.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status, and month of occurrence.

Listeriosis

Key Points

Listeriosis primarily affects older adults (≥75 years old), people with weakened immune systems, pregnant women, and infants born to infected mothers. Listeriosis is of particular concern for pregnant women because infection during pregnancy can cause fetal loss, preterm labor, stillbirths, and illness or death in newborn infants.

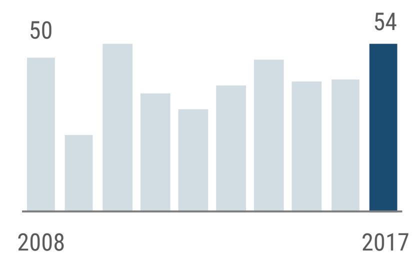
Historically, *Listeria* outbreaks have been linked to deli meats and hot dogs; however, new vehicles have been identified as sources of outbreaks including soft cheeses, frozen vegetables, sprouts, raw milk, melons, caramel apples, smoked seafood, and ice cream.

Whole genome sequencing (WGS) is now used to determine whether *Listeria* isolates are related, indicating the illnesses may have come from the same source. The Centers for Disease Control and Prevention (CDC) monitors WGS data from across the country to identify clusters of possibly related cases. Four Florida cases reported in 2017 matched multistate clusters. Additionally, two Florida cases reported in 2015 and one case reported in 2018 were linked to 2017 CDC multistate cluster investigations. No sources of infection were identified in the 2017 multistate clusters.

Disease Facts

- **Caused** by *Listeria monocytogenes* bacteria
- **Illness** is usually invasive when bacteria have spread beyond gastrointestinal tract; initial illness is often characterized by fever and diarrhea
- **Transmitted** is foodborne; can be transmitted to fetus during pregnancy
- **Under surveillance** to identify and control outbreaks, identify and mitigate common sources (e.g., contaminated food product), monitor incidence over time, estimate burden of illness, reduce stillbirths

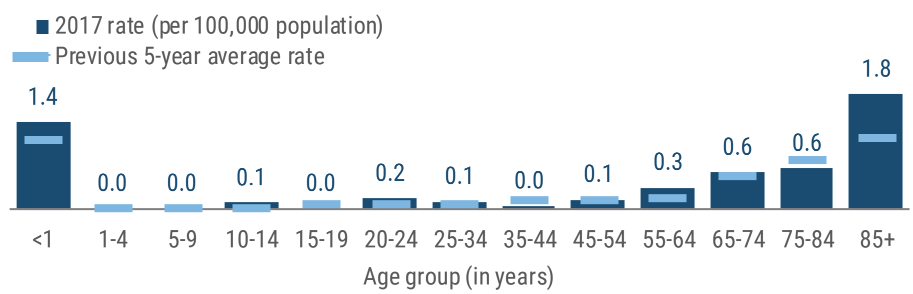
The number of listeriosis cases reported annually ranges from 25 to 54.



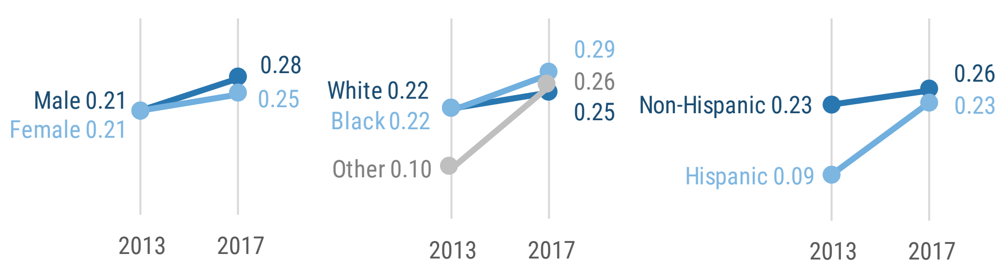
Disease Trends

Summary			
Number of cases			54
Rate (per 100,000 population)			0.3
Change from 5-year average rate			+24.1%
Age (in Years)			
Mean			62
Median			69
Min-max			0 - 95
Gender	**Number**	**(Percent)**	**Rate**
Female	26	(48.1)	0.2
Male	28	(51.9)	0.3
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	40	(75.5)	0.3
Black	10	(18.9)	NA
Other	3	(5.7)	NA
Unknown race	1		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	40	(76.9)	0.3
Hispanic	12	(23.1)	NA
Unknown ethnicity	2		

The listeriosis rate (per 100,000 population) is highest in infants (who can acquire infection from the mother during pregnancy) and elderly adults ≥85 years old.



In 2017, the listeriosis rate (per 100,000 population) was similar by gender, race, and ethnicity. In past years, the rate was lower in other races and Hispanics.

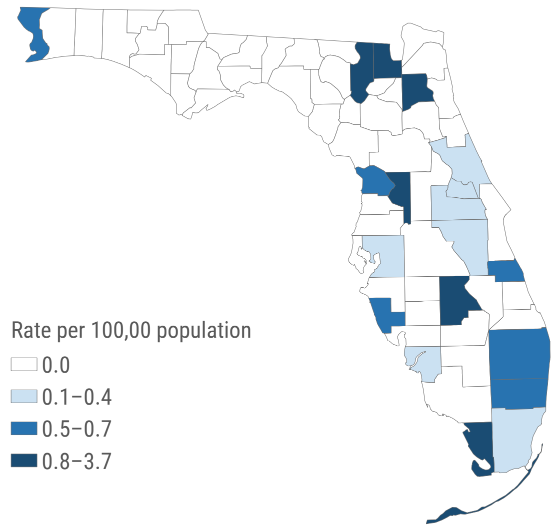


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Listeriosis cases were missing 7.3% of ethnicity data in 2013.

Listeriosis

Summary	Number
Number of cases	54
Outcome	**Number (Percent)**
Hospitalized	50 (92.6)
Died	7 (13.0)
Imported Status	**Number (Percent)**
Acquired in Florida	49 (96.1)
Acquired in the U.S., not Florida	2 (3.9)
Acquired outside the U.S.	0 (0.0)
Acquired location unknown	3
Outbreak Status	**Number (Percent)**
Sporadic	49 (92.5)
Outbreak-associated	4 (7.5)
Outbreak status unknown	1

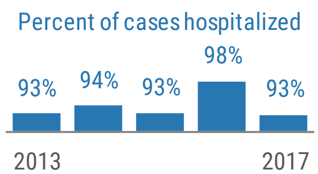
Listeriosis did not have a geographic pattern in 2017. Rates (per 100,000 population) were highest in small, rural counties in different parts of the state.

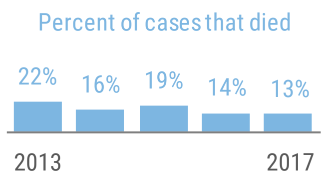


Rates are by county of residence for infections acquired in Florida (49 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

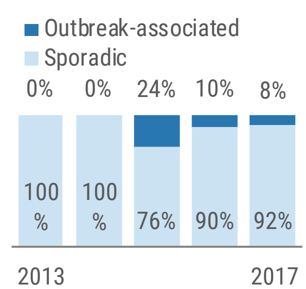
More Disease Trends

Most listeriosis cases are hospitalized, and deaths do occur. Those primarily affected are elderly and likely have underlying conditions. Peumonia is common among identified cases.

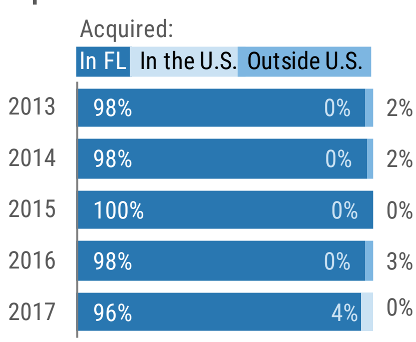




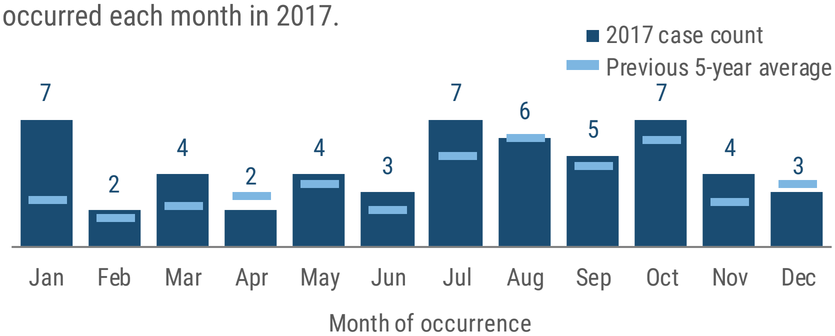
Each year, a few cases are linked to multistate clusters through whole genome sequencing; four cases reported in 2017 matched multistate clusters.



Most *Listeria* infections are acquired in Florida. Two infections were acquired in other states in 2017.



Listeriosis cases occur all year and do not exhibit a strong seasonality, and low numbers make it difficult to interpret trends. Between 2 and 7 cases occurred each month in 2017.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status, and month of occurrence.

Lyme Disease

Key Points

Lyme disease is the most common tick-borne disease in the U.S. The case definition changed in 2008; expanding the acceptable laboratory criteria contributed to an increase in cases starting in 2008.

In 2017, the incidence of Lyme disease decreased slightly from 2016 but remained above the 5-year average incidence. The increase in cases over the past decade may be due to increases in animal host and reservoir populations and the slowly expanding geographic range of the vector tick due to ecological factors.

There were 114 acute and 96 chronic cases reported in 2017. Seven acute cases with onsets in 2016 were reported in 2017. *B. burgdorferi* shares a tick vector with *Anaplasma phagocytophilum* and *Babesia microti* and coinfections can occur. In 2017, one Lyme disease case was co-infected with *B. microti*. One case acquired in the U.S. outside of Florida was a duplicate case from 2016. Case counts are based on the year reported, and thus may differ from other tick-borne disease reports.

Disease Facts

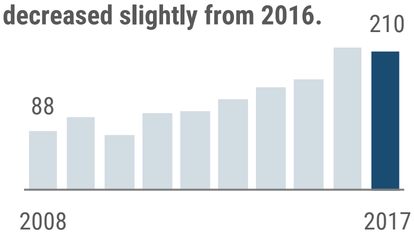
Caused by *Borrelia burgdorferi* bacteria

Illness can be acute or late manifestation; both can include fever, headache, fatigue, joint pain, muscle pain, bone pain, and erythema migrans (characteristic bull's-eye rash); late manifestation can also include Bell's palsy, severe joint pain with swelling, shooting pain, tingling in hands and feet, irregular heartbeat, dizziness, shortness of breath, and short-term memory loss

Transmitted via bite of infective *Ixodes scapularis* tick

Under surveillance to monitor incidence over time, estimate burden of illness and degree of endemicity, target areas of high incidence for prevention education

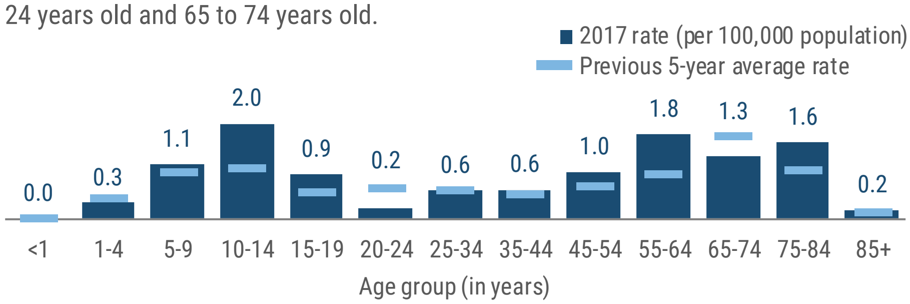
Lyme disease incidence in 2017 decreased slightly from 2016.



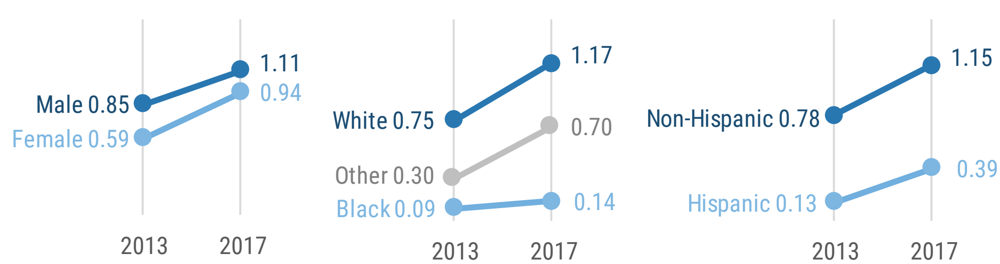
Disease Trends

Summary		
Number of cases		210
Rate (per 100,000 population)		1.0
Change from 5-year average rate		+26.9%
Age (in Years)		
Mean		46
Median		53
Min-max		2 - 86
Gender	**Number (Percent)**	**Rate**
Female	99 (47.1)	0.9
Male	111 (52.9)	1.1
Unknown gender	0	
Race	**Number (Percent)**	**Rate**
White	187 (93.5)	1.2
Black	5 (2.5)	NA
Other	8 (4.0)	NA
Unknown race	10	
Ethnicity	**Number (Percent)**	**Rate**
Non-Hispanic	178 (89.9)	1.2
Hispanic	20 (10.1)	0.4
Unknown ethnicity	12	

In 2017, the Lyme disease rate (per 100,000 population) was highest in adolescents 10 to 14 years old, followed by adults 55 to 64 years old and 75 to 85 years old. The rate in 2017 was notably lower than the previous 5-year average rate for adults 20 to 24 years old and 65 to 74 years old.



The Lyme disease rate (per 100,000 population) was slightly higher in males than females and notably higher in non-Hispanics than Hispanics. The rate was highest in whites, followed by other races and blacks. The rate increased from 2013 to 2017 in all groups except for blacks.

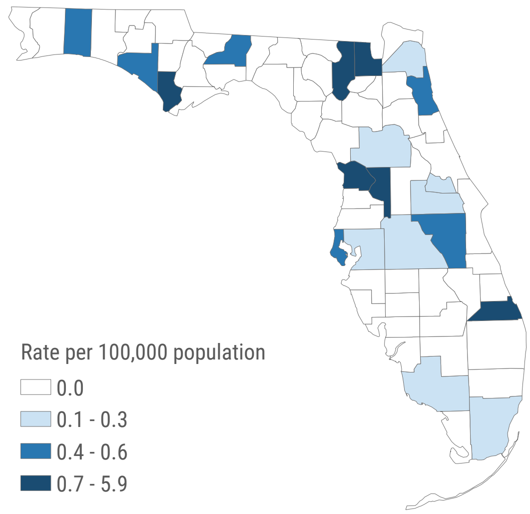


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Lyme disease cases were missing 11.6% of ethnicity data in 2013, 13.8% of race data in 2013, and 5.7% of ethnicity data in 2017.

Lyme Disease

Summary	Number
Number of cases	210
Case Classification	**Number (Percent)**
Confirmed	124 (59.0)
Probable	86 (41.0)
Outcome	**Number (Percent)**
Hospitalized	15 (7.1)
Died	0 (0.0)
Imported Status	**Number (Percent)**
Acquired in Florida	27 (14.8)
Acquired in the U.S., not Florida	150 (82.0)
Acquired outside the U.S.	6 (3.3)
Acquired location unknown	27
Outbreak Status	**Number (Percent)**
Sporadic	208 (99.0)
Outbreak-associated	2 (1.0)
Outbreak status unknown	0

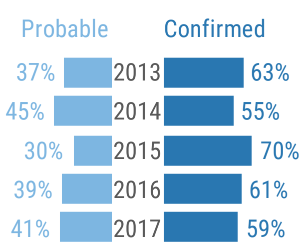
Lyme disease is primarily imported from other U.S. states where it is highly endemic; however, 27 infections were acquired in Florida in 2017. Four cases were reported in Pinellas County residents and three were reported in Orange County residents. The remaining counties only had one or two cases reported.



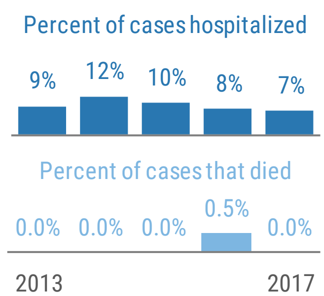
Rates are by county of residence for infections acquired in Florida (27 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

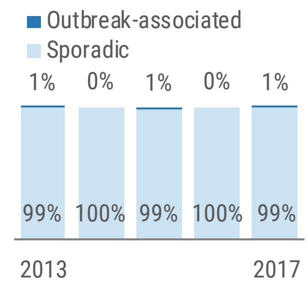
Between 55% and 70% of cases are confirmed annually; 59% of 2017 cases were confirmed.



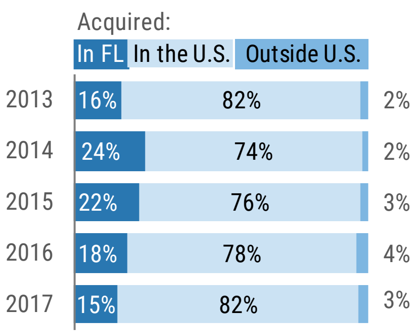
The hospitalization rate for people with Lyme disease is low and deaths are rare.



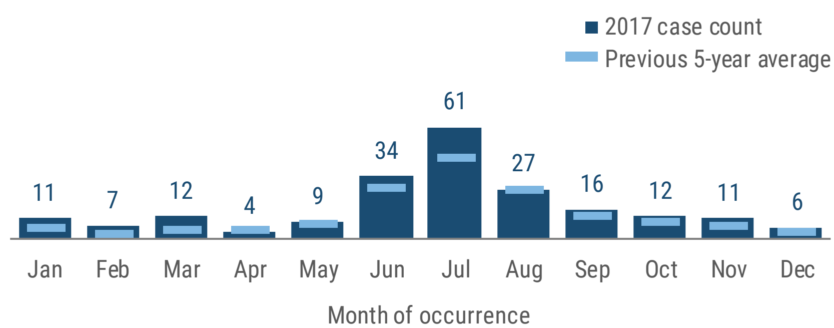
Almost all Lyme disease cases are sporadic and most are imported from other states.



Lyme disease is primarily imported from other U.S. states where it is highly endemic. Five cases in 2017 were imported from Europe.



Lyme disease cases are reported year-round, but there is a strong seasonal peak in the summer. In 2017, 58% of cases occurred from June to August.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status, and month of occurrence.

Malaria

Key Points

All infections were among people traveling to countries with endemic transmission (primarily visiting friends and family in African countries). Imported malaria cases peaked in 2010 after the January 2010 earthquake in Haiti resulted in an influx of Haitians in Florida. The number of cases imported from Central America and the Caribbean has increased in recent years, though more cases are still infected in Africa.

In 2017, there were two deaths associated with *P. falciparum* infection; both had traveled to Africa. One death was associated with renal failure, respiratory distress, and cerebral malaria. The second death was associated with renal failure, respiratory distress, and a high parasitemia level (>30%). One of the deaths was in an person visiting Africa on vacation and neither case took chemoprophylaxis to prevent malaria while traveling. One of the fatal cases declined recommended transfusion treatment due to religious beliefs.

It is important to note that infected residents and non-residents pose a potential malaria introduction risk since the malaria vector *Anopheles quadrimaculatus* is common in Florida. In 2017, 16 non-Florida residents were diagnosed with malaria while traveling in Florida (note that this report only includes Florida residents in case counts).

Disease Facts

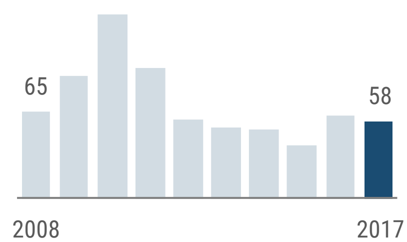
Caused by *Plasmodium vivax*, *P. falciparum*, *P. malariae*, *P. ovale* parasites

Illness can be uncomplicated or severe; common symptoms include high fever with chills, rigor, sweats, headache, nausea, and vomiting

Transmitted via bite of infective mosquito; rarely by blood transfusion or organ transplant

Under surveillance to identify individual cases and implement control measures to prevent introduction and active transmission, monitor incidence over time, estimate burden of illness

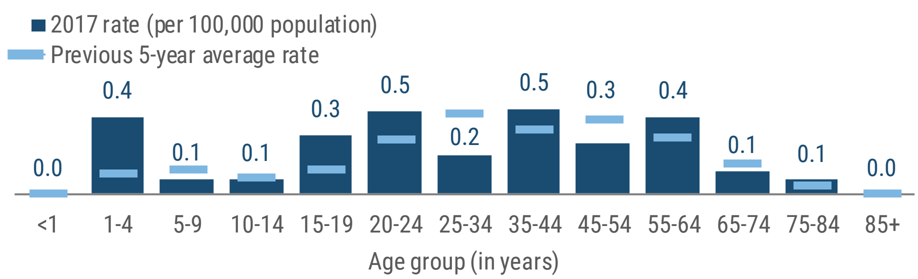
The number of reported malaria cases has remained relatively consistent since 2012.



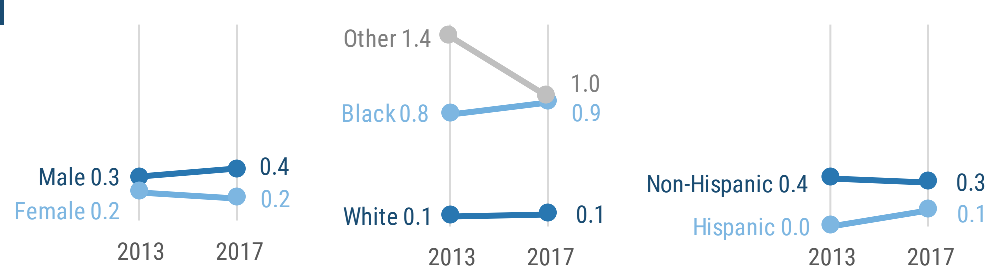
Disease Trends

Summary			
Number of cases			58
Rate (per 100,000 population)			0.3
Change from 5-year average rate			+3.6%
Age (in Years)			
Mean			39
Median			40
Min-max			1 - 76
Gender	**Number**	**(Percent)**	**Rate**
Female	18	(31.0)	NA
Male	40	(69.0)	0.4
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	15	(25.9)	NA
Black	32	(55.2)	0.9
Other	11	(19.0)	NA
Unknown race	0		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	51	(89.5)	0.3
Hispanic	6	(10.5)	NA
Unknown ethnicity	1		

The malaria rate (per 100,000 population) varies by age. Historically, rates are highest in adults 20 to 64 years old. In 2017, rates were highest in children 1 to 4 years old and adults 20 to 24 and 35 to 44 years old. Children less than 5 years old are one of the most vulnerable groups affected by malaria and are at higher risk for severe disease and death. Three of four cases in children less than 5 years old were refugees or immigrants coming from malaria-affected countries.



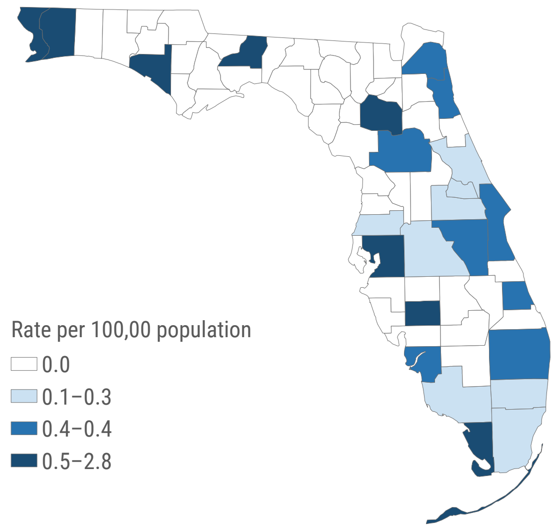
The malaria rate (per 100,000 population) was similar in males, females, Hispanics, and non-Hispanics in 2017. By race, the rate was low in whites and similar in blacks and other races in 2017.



Malaria

Summary	Number
Number of cases	58
Outcome	**Number (Percent)**
Hospitalized	49 (84.5)
Died	2 (3.4)
Imported Status	**Number (Percent)**
Acquired in Florida	0 (0.0)
Acquired in the U.S., not Florida	0 (0.0)
Acquired outside the U.S.	58 (100.0)
Acquired location unknown	0
Outbreak Status	**Number (Percent)**
Sporadic	53 (91.4)
Outbreak-associated	5 (8.6)
Outbreak status unknown	0

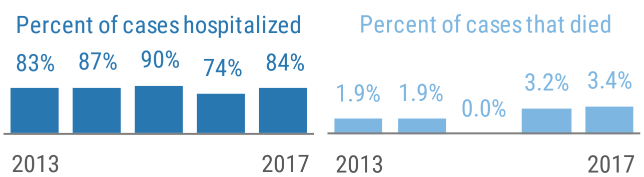
No malaria cases were acquired in Florida in 2017. Cases were identified in residents of 24 counties across Florida.



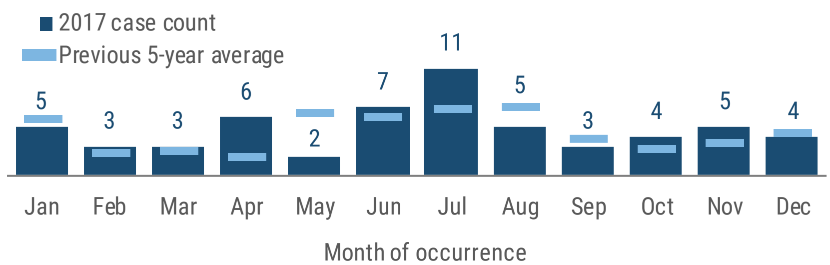
Rates are by county of residence, regardless of where infection was acquired (58 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

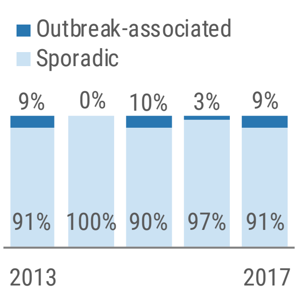
The majority of malaria cases are hospitalized and deaths do occur. Two people infected with *P. falciparum* died in 2017.



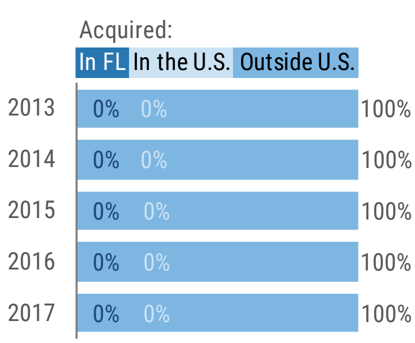
Malaria cases are imported into Florida year-round but peaked in June and July in 2017.

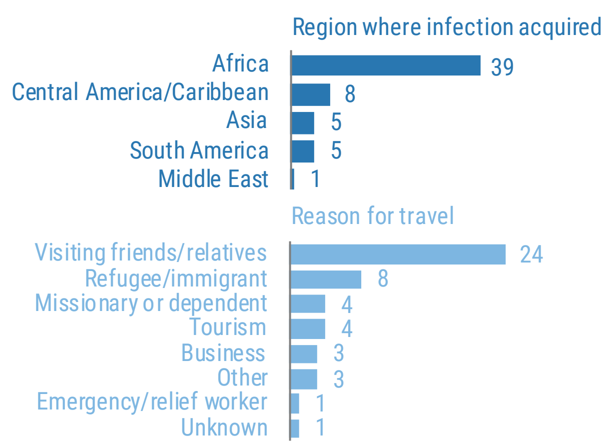


Two family clusters were identified in 2017 resulting in five outbreak-associated cases. One family visited Uganda and the other visited Nigeria.



All cases were acquired outside the U.S. Africa remained the most common region where people were infected. The most common reason for travel among people with malaria was visiting friends and relatives.





See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status, and month of occurrence.

Meningococcal Disease

Key Points

Five *Neisseria meningitidis* serogroups cause almost all invasive disease (A, B, C, Y, and W). Vaccines provide protection against serogroups A, B, C, Y, and W. In 2016, the incidence of meningococcal disease reached a historic low in Florida. The number of cases reported was slightly higher in 2017.

In 2017, serogroup C became the most frequently identified serogroup causing meningococcal disease in Florida, which differs significantly from national trends where serogroup B is the most frequently identified serogroup. From September 2016 to April 2017, an outbreak of five *N. meningitidis* serogroup C cases, with three co-infected with HIV, was reported among men who have sex with men in Miami-Dade County with no known close contact. All eight meningococcal disease cases reported in Miami-Dade County in 2017 were serogroup C.

Prior to 2017, serogroup W was the most frequently identified serogroup causing infection in Florida. Beginning in late 2008, a dominant clone of *N. meningitidis* serogroup W emerged in south Florida. This *N. meningitidis* clone has caused the majority of invasive meningococcal disease cases in south Florida over the past eight years and has also caused a multi-year increase in invasive meningococcal disease in the region, which has now diminished.

Disease Facts

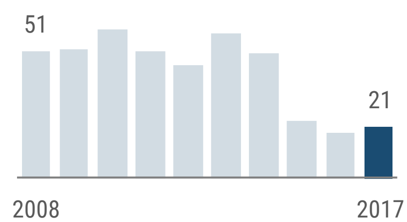
Caused by *Neisseria meningitidis* bacteria

Illness is most commonly neurological (meningitis) or bloodstream infections (septicemia)

Transmitted person-to-person by direct contact with respiratory droplets from nose or throat of colonized or infected person

Under surveillance to take immediate public health actions in response to every suspected meningococcal disease case to prevent secondary transmission, monitor effectiveness of immunization programs and vaccines

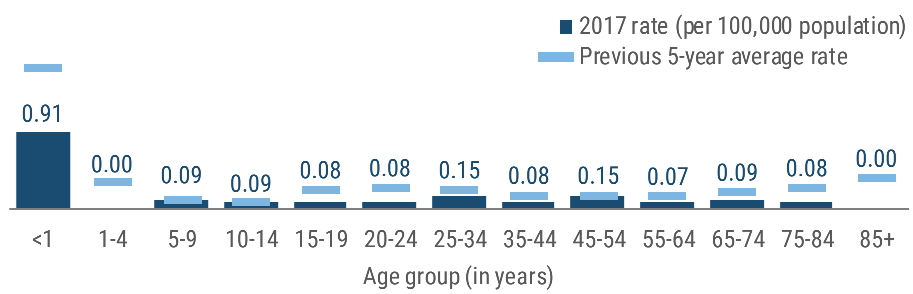
Meningococcal disease incidence remained low in 2017.



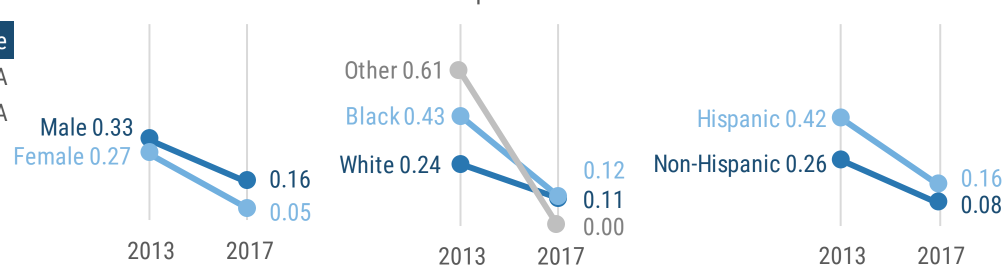
Disease Trends

Summary			
Number of cases			21
Rate (per 100,000 population)			0.1
Change from 5-year average rate			-48.7%
Age (in Years)			
Mean			37
Median			35
Min-max			0 - 82
Gender	**Number**	**(Percent)**	**Rate**
Female	5	(23.8)	NA
Male	16	(76.2)	NA
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	17	(81.0)	NA
Black	4	(19.0)	NA
Other	0	(0.0)	NA
Unknown race	0		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	13	(61.9)	NA
Hispanic	8	(38.1)	NA
Unknown ethnicity	0		

The meningococcal disease rate (per 100,000 population) is consistently highest among infants <1 year old.



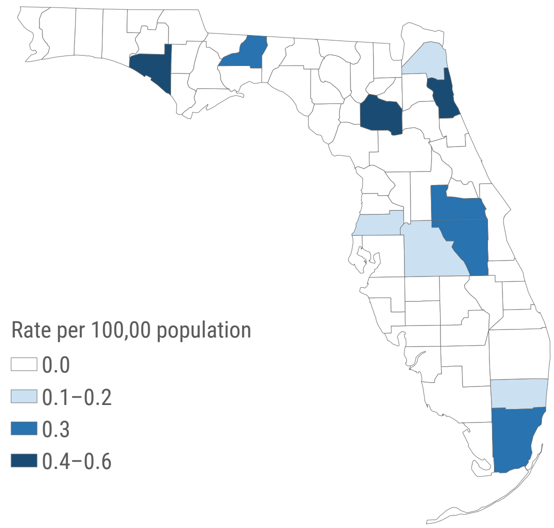
Meningococcal disease rates (per 100,000 population) have decreased in all gender, race, and ethnic groups from 2013 to 2017. In 2017, the rate was slightly higher in males than females and Hispanics than non-Hispanics. Note that small case numbers make rates unreliable and hard to interpret.



Meningococcal Disease

Summary	Number
Number of cases	21
Case Classification	**Number (Percent)**
Confirmed	21 (100.0)
Probable	0 (0.0)
Outcome	**Number (Percent)**
Hospitalized	21 (100.0)
Died	3 (14.3)
Imported Status	**Number (Percent)**
Acquired in Florida	19 (90.5)
Acquired in the U.S., not Florida	0 (0.0)
Acquired outside the U.S.	2 (9.5)
Acquired location unknown	0
Outbreak Status	**Number (Percent)**
Sporadic	15 (71.4)
Outbreak-associated	6 (28.6)
Outbreak status unknown	0

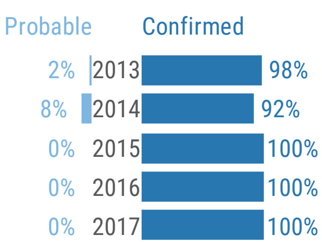
Meningococcal disease infections were acquired in Florida in residents of 11 counties in 2017. Though rates (per 100,000 population) were highest in low-population counties in north Florida, seven cases were in Miami-Dade residents and three cases were in Orange County residents. All other counties had only one case reported.



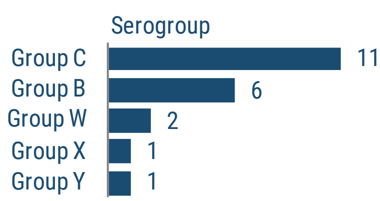
Rates are by county of residence for infections acquired in Florida (19 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

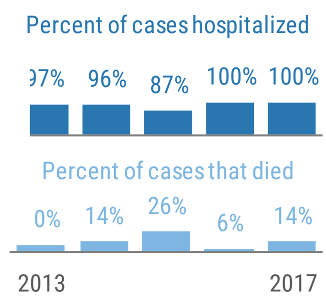
Almost all meningococcal disease cases are laboratory-confirmed.



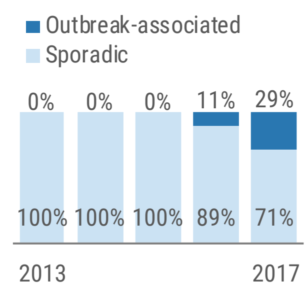
Serogroup W has been the most commonly identified serogroup in Florida for nine years. In 2017, serogroup C was most common.



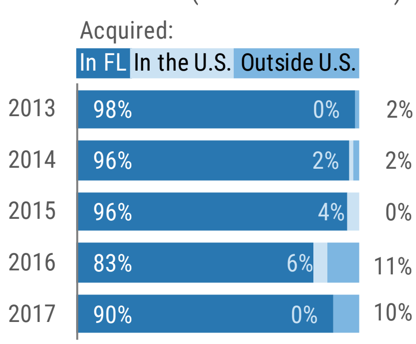
Meningococcal disease causes serious illness, and most cases require hospitalization.



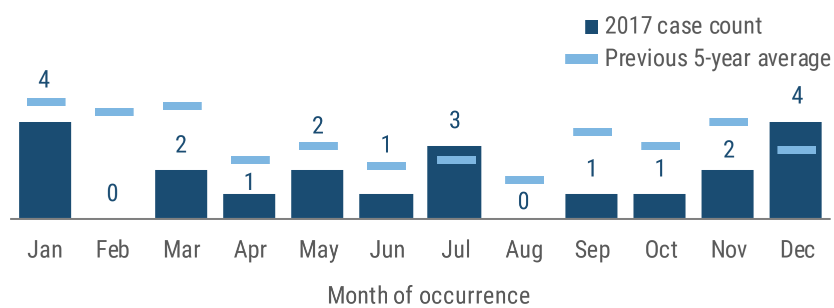
In 2017, two small outbreaks with six cases were identified in Miami-Dade County.



Most *N. meningitidis* infections are acquired in Florida. Two cases in 2017 were acquired in other countries (Cuba and Jamaica).



Nationally, meningococcal disease peaks in late winter and early spring. In Florida, small numbers make a trend hard to discern. Slightly more cases were reported in January and December in Florida in 2017.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status, and month of occurrence.

Mercury Poisoning

Key Points

In August 2008, the case definition was updated to require clinically compatible illness, leading to a decrease in cases in subsequent years. The number of cases increased dramatically in 2017 with more cases than any year since the 2008 case definition change. This increase is not well-understood.

Forms of mercury most likely encountered by the general public include elemental mercury vapor (found in some thermometers and dental amalgam), methylmercury (associated with fish consumption), ethylmercury (found in some medical preservatives), and inorganic mercury (mercuric salts). Eating fish is healthy and can reduce the risk of heart attack and stroke, but eating too much of certain fish can increase exposure to mercury.

Developing fetuses and young children are more sensitive to the effects of mercury, which can impact brain development. Women of childbearing age and young children should eat fish with low mercury levels. The Florida Department of Health guidelines for fish consumption are available at FloridaHealth.gov/FloridaFishAdvice.

Disease Facts

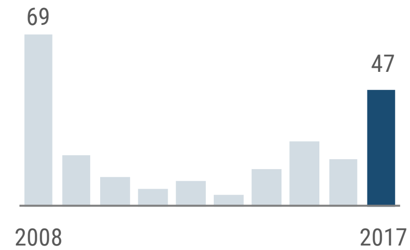
Caused by mercury (elemental or metallic mercury, organic mercury compounds, inorganic mercury compounds)

Illness includes impaired neurological development, impaired peripheral vision; disturbed sensations (e.g., "pins and needles feelings"), lack of coordinated movements, muscle weakness, or impaired speech, hearing, and walking

Exposure is though ingestion of mercury or inhalation of mercury vapors

Under surveillance to identify and mitigate persistent sources of exposure, prevent further or continued exposure through remediation or elimination of sources when possible, identify populations at risk

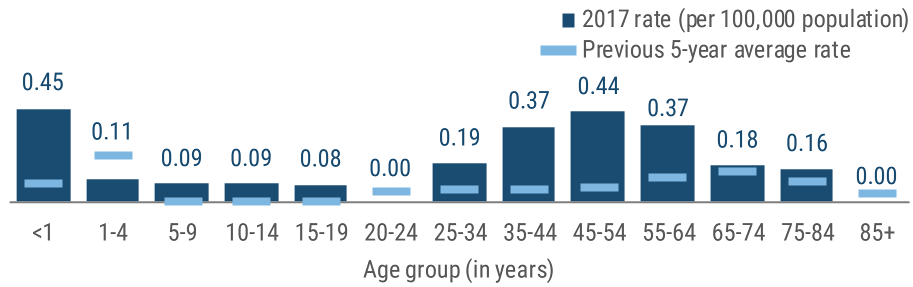
Mercury poisoning increased dramatically in 2017.



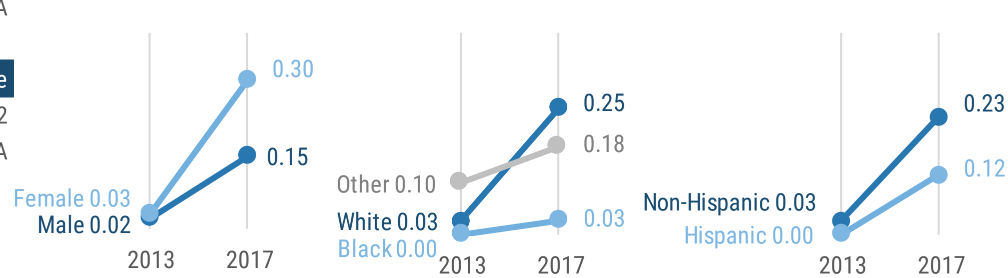
Disease Trends

Summary			
Number of cases			47
Rate (per 100,000 population)			0.2
Change from 5-year average rate			+201.3%
Age (in Years)			
Mean			47
Median			49
Min-max			0 - 81
Gender	**Number**	**(Percent)**	**Rate**
Female	32	(68.1)	0.3
Male	15	(31.9)	NA
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	40	(93.0)	0.3
Black	1	(2.3)	NA
Other	2	(4.7)	NA
Unknown race	4		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	36	(85.7)	0.2
Hispanic	6	(14.3)	NA
Unknown ethnicity	5		

The mercury poisoning rate (per 100,000 population) has historically been highest in children 1 to 4 years old and adults 45 to 75 years old. In 2017, rates were higher in younger age groups (infants <1 year old and adults 35 to 64 years old).



The mercury poisoning rate (per 100,000 population) increased in all gender, race, and ethnicity groups, though the increase was larger in females, whites, and non-Hispanics.

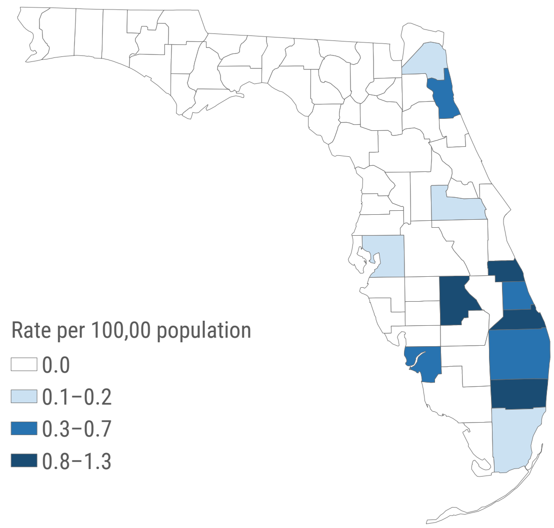


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Mercury poisoning cases were missing 20.0% of ethnicity data in 2013, 10.6% of ethnicity data in 2017, and 8.5% of race data in 2017.

Mercury Poisoning

Summary	Number
Number of cases	47
Case Classification	**Number (Percent)**
Confirmed	47 (100.0)
Probable	0 (0.0)
Outcome	**Number (Percent)**
Hospitalized	5 (10.6)
Died	0 (0.0)
Imported Status	**Number (Percent)**
Exposed in Florida	38 (90.5)
Exposed in the U.S., not Florida	2 (4.8)
Exposed outside the U.S.	2 (4.8)
Exposed location unknown	5
Outbreak Status	**Number (Percent)**
Sporadic	43 (93.5)
Outbreak-associated	3 (6.5)
Outbreak status unknown	1
Type of exposure	**Number (Percent)**
Fish consumption	43 (91.5)
Unknown	4 (8.5)

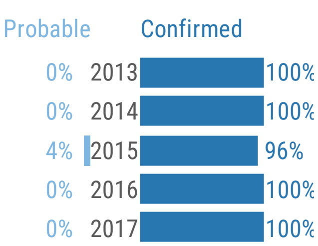
Mercury poisoning occurred primarily in southeast Florida in 2017. More than 40% of cases were reported in Broward (14 cases) and Palm Beach (8 cases) counties.



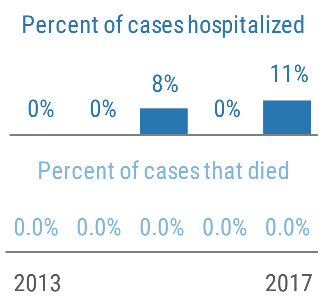
Rates are by county of residence for cases exposed in Florida (38 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

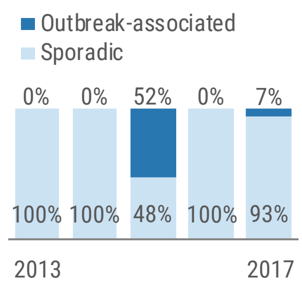
Almost all mercury poisoning cases are laboratory-confirmed.



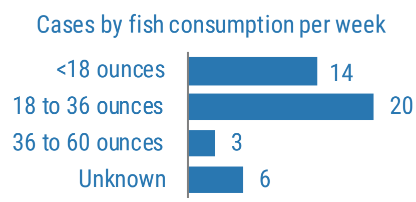
Five mercury poisoning cases were hospitalized in 2017; no deaths have been identified in recent years.



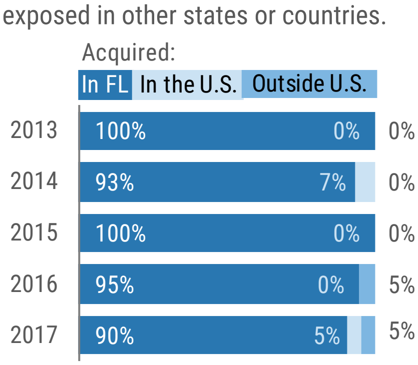
Three outbreak-associated cases in a single household cluster were identified in 2017.



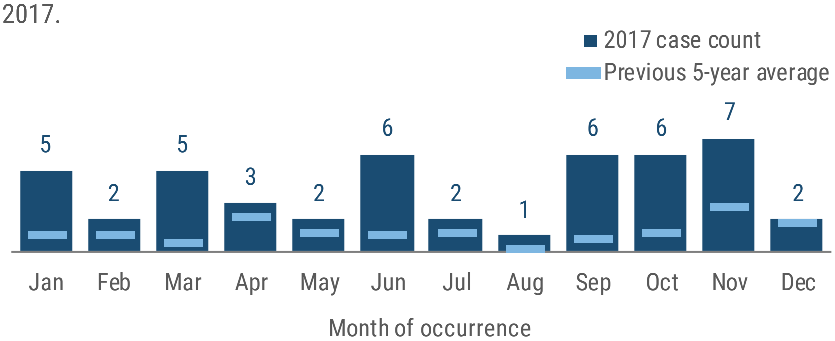
Mercury poisoning is mostly caused by fish consumption. The amount of fish consumed per week varies.



Most people with mercury poisoning are exposed in Florida. In 2017, 4 cases were exposed in other states or countries.



Mercury poisoning occurs throughout the year, with little obvious seasonality in Florida, though 40% of cases occurred in September, October, and November in 2017.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status, and month of occurrence.

Mumps

Key Points

Despite routine vaccination, mumps has been increasing in the U.S., mainly due to outbreaks in young adults in settings with close contact, like college campuses. Nationally, 150 mumps outbreaks with over 9,000 cases were identified from January 2016 to June 2017. Waning immunity is thought to play a role in these outbreaks.

Mumps incidence in Florida increased dramatically in 2017. The rise in cases is partly due to increased awareness in the medical community of testing and reporting guidance and increased efforts to obtain specimens for testing at the state public health laboratory for both sporadic and outbreak-associated cases.

Disease Facts

Caused by mumps virus

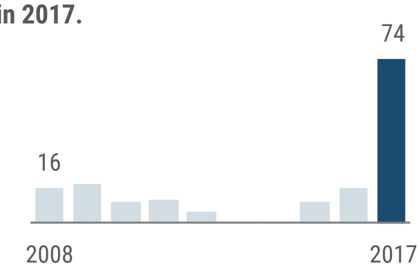
Illness includes fever, headache, muscle aches, tiredness and loss of appetite, followed by swelling of salivary glands

Transmitted person-to-person via droplets of saliva or mucus from the mouth, nose or throat of an infected person (usually when the person coughs, sneezes or talks)

Under surveillance to prevent further transmission through isolation and vaccination of contacts, identify and control outbreaks, monitor effectiveness of immunization programs and vaccines

The majority of cases reported in 2017 were outbreak-associated. Most notable was an outbreak in a Broward County middle school where 10 cases were identified, prompting the county to provide press releases, conduct outreach to the medical community, and coordinate a vaccine clinic offering a third dose of measles, mumps, and rubella (MMR) vaccine at the middle school. During this outbreak, the Centers for Disease Control and Prevention released updated recommendations advising a third dose of vaccine to be given during prolonged outbreaks in close contact settings, even in settings where coverage with two doses of MMR vaccine is high. This recommendation is based on evidence that two doses of MMR vaccine is not sufficient for preventing infection during an outbreak in such settings.

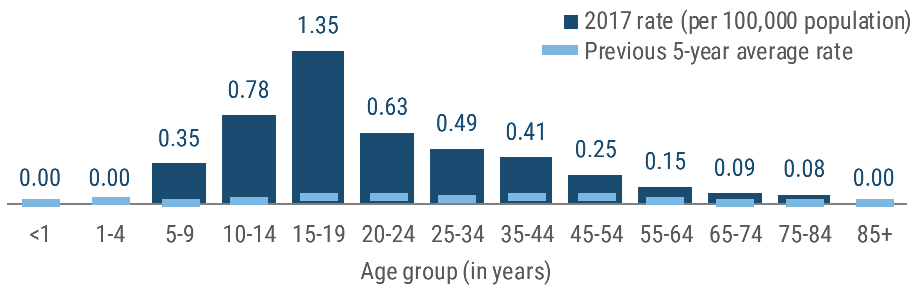
Mumps incidence increased dramatically in 2017.



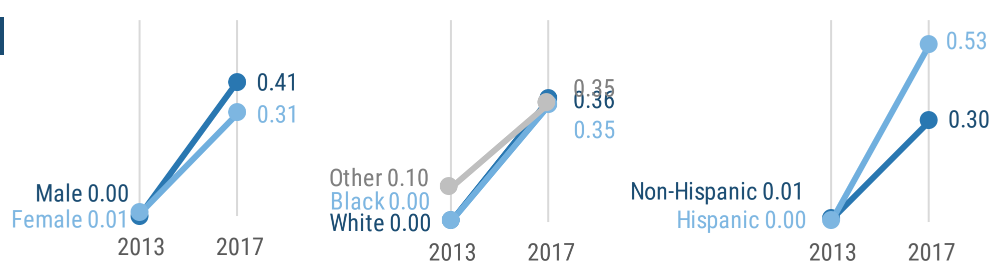
Disease Trends

Summary			
Number of cases			74
Rate (per 100,000 population)			0.4
Change from 5-year average rate			+985.8%
Age (in Years)			
Mean			30
Median			24
Min-max			6 - 83
Gender	**Number**	**(Percent)**	**Rate**
Female	33	(44.6)	0.3
Male	41	(55.4)	0.4
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	58	(78.4)	0.4
Black	12	(16.2)	NA
Other	4	(5.4)	NA
Unknown race	0		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	46	(63.0)	0.3
Hispanic	27	(37.0)	0.5
Unknown ethnicity	1		

The mumps rate (per 100,000 population) is highest in teenagers 15 to 19 years old and decreases with age. This may be due to waning immunity from vaccine, time spent in close contact settings (e.g., school campuses), and being an age group that is more likely to seek medical care for symptoms.



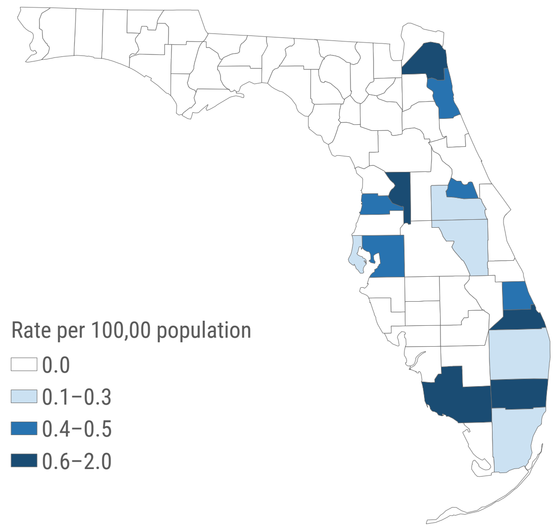
Mumps rates (per 100,000 population) have increased across all gender, race, and ethnicity groups from 2013 to 2017, though the increase was disproportionately larger among Hispanics.



Mumps

Summary	Number
Number of cases	74
Case Classification	**Number (Percent)**
Confirmed	24 (32.4)
Probable	50 (67.6)
Outcome	**Number (Percent)**
Hospitalized	13 (17.6)
Died	0 (0.0)
Imported Status	**Number (Percent)**
Acquired in Florida	56 (86.2)
Acquired in the U.S., not Florida	7 (10.8)
Acquired outside the U.S.	2 (3.1)
Acquired location unknown	9
Outbreak Status	**Number**
Sporadic	31 (41.9)
Outbreak-associated	43 (58.1)
Outbreak status unknown	0

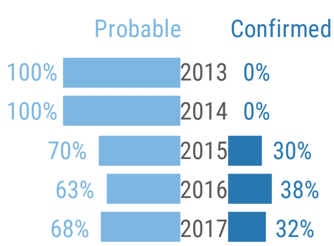
In 2017, most mumps cases were acquired in Florida. Cases occurred in residents of 15 counties, with the highest rates (per 100,000 population) being in Broward, Collier, Duval, Martin, and Sumter counties.



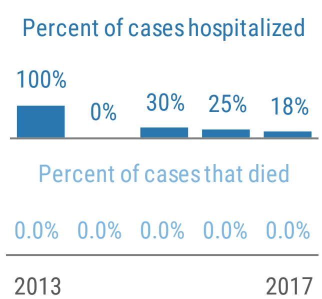
Rates are by county of residence for infections acquired in Florida (56 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

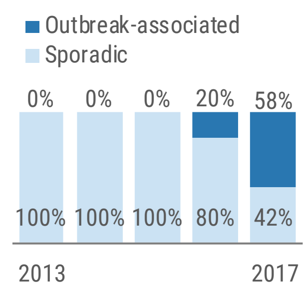
Generally between 30–40% of cases are confirmed each year (only one case was reported in 2013 and 2014).



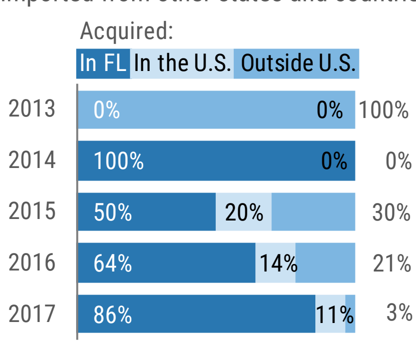
Some mumps cases are hospitalized, but no deaths have been identified in recent years.



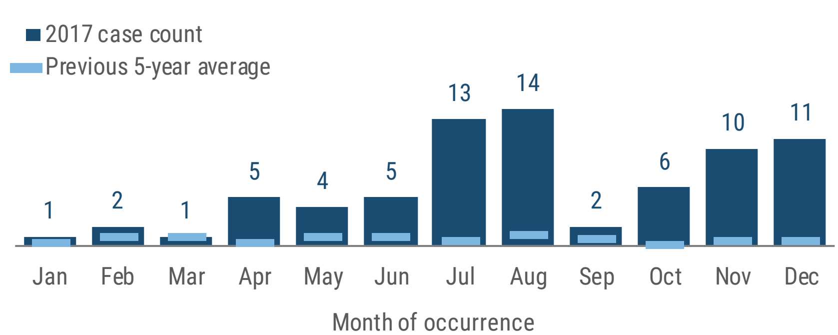
Most cases in 2017 were outbreak-associated. Outbreaks were largely limited to small household clusters.



Most mumps infections were acquired in Florida in 2017; nine infections were imported from other states and countries.



Mumps cases occurred throughout the year in Florida in 2017. More cases were reported in July, August, November, and December.



See Appendix III: Report Terminology for explanations of case classification, outcome, sensitive situation, imported status, outbreak status, and month of occurrence.

Pertussis

Key Points

Nationally, the number of pertussis cases reported increased starting in the 1980s, peaked in 2012, and has gradually decreased since. Pertussis is cyclical in nature with peaks in disease every three to five years. In Florida, pertussis cases last peaked in 2013. Pertussis incidence in 2017 remained consistent with those seen during non-peak years.

Older adults often have milder infections and serve as the reservoirs and sources of infection for infants and young children. Infants have the greatest burden of pertussis infections, both in number of cases and severity. Infants <2 months old are too young to be vaccinated, underscoring the importance of vaccinating pregnant women and family members of infants to protect infants from infection. All pregnant women should receive a dose of Tdap (tetanus, diphtheria, pertussis) vaccine during the third trimester of each pregnancy to help protect their babies. In addition, all children and adults who plan to have close contact with infants should receive a dose of Tdap if they have not previously received one.

There were five non-household outbreaks reported in 2017. All five occurred in school settings, with the largest involving 12 cases.

Disease Facts

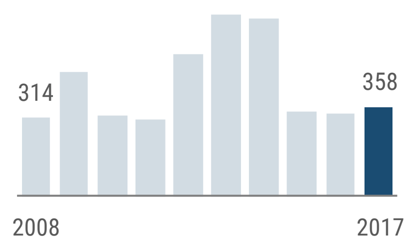
Caused by *Bordetella pertussis* bacteria

Illness includes runny nose, low-grade fever, mild cough, and apnea that progresses to paroxysmal cough or "whoop" with posttussive vomiting and exhaustion

Transmitted person-to-person via inhalation of infective, aerosolized respiratory tract droplets

Under surveillance to identify cases for treatment to prevent death, identify and prevent outbreaks, limit transmission in settings with infants or others who may transmit to infants, monitor effectiveness of immunization programs and vaccines

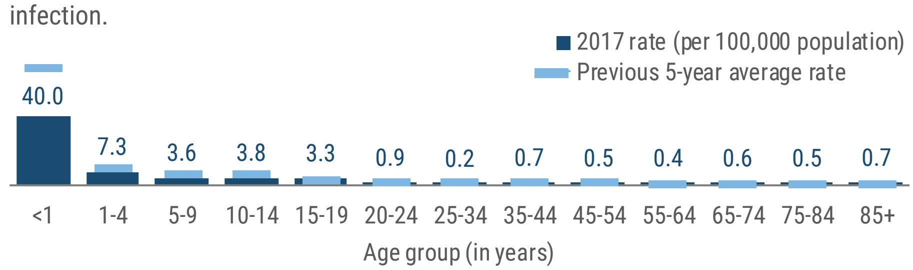
Pertussis incidence in 2017 was consistent with incidence in non-peak years.



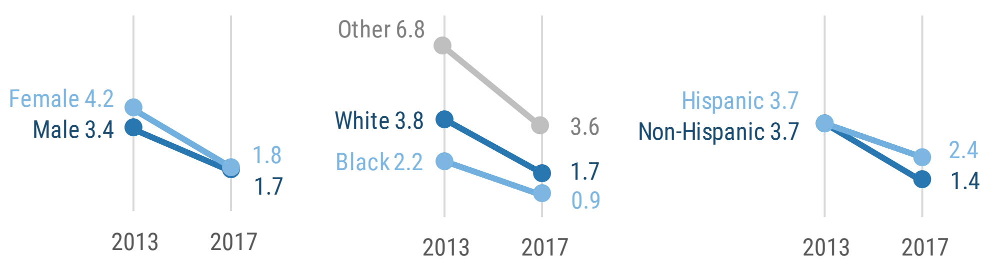
Disease Trends

Summary			
Number of cases			358
Rate (per 100,000 population)			1.7
Change from 5-year average rate			-37.0%
Age (in Years)			
Mean			16
Median			8
Min-max			0 - 99
Gender	**Number**	**(Percent)**	**Rate**
Female	189	(52.8)	1.8
Male	169	(47.2)	1.7
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	274	(79.0)	1.7
Black	32	(9.2)	0.9
Other	41	(11.8)	3.6
Unknown race	11		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	222	(64.5)	1.4
Hispanic	122	(35.5)	2.4
Unknown ethnicity	14		

The pertussis rate (per 100,000 population) is highest in infants <1 year old. Infants <2 months old are too young to be vaccinated, underscoring the importance of vaccinating pregnant women and family members of infants to protect infants from infection.



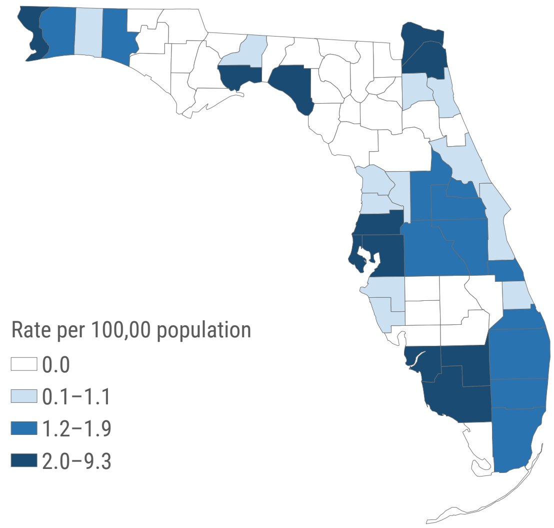
Pertussis rates (per 100,000 population) have decreased in all gender, race, and ethnicity groups since 2013. This is expected given the cyclical nature of pertussis, which last peaked in 2013.



Pertussis

Summary	Number
Number of cases	358
Case Classification	**Number (Percent)**
Confirmed	265 (74.0)
Probable	93 (26.0)
Outcome	**Number (Percent)**
Hospitalized	82 (22.9)
Died	0 (0.0)
Imported Status	**Number (Percent)**
Acquired in Florida	327 (94.0)
Acquired in the U.S., not Florida	18 (5.2)
Acquired outside the U.S.	3 (0.9)
Acquired location unknown	10
Outbreak Status	**Number**
Sporadic	230 (65.3)
Outbreak-associated	122 (34.7)
Outbreak status unknown	6

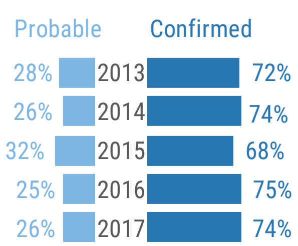
In 2017, pertussis cases primarily occurred in the more populated areas of the states in south and central Florida, as well as the western Panhandle, and the northeastern corner of the state. Several of the counties with the highest rates reported pertussis outbreaks.



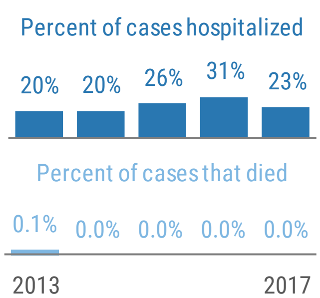
Rates are by county of residence for infections acquired in Florida (327 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

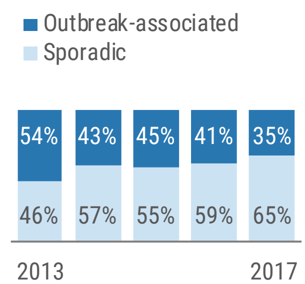
About 3/4 of pertussis cases are confirmed. Probable cases are clinically compatible but lack confirmatory testing.



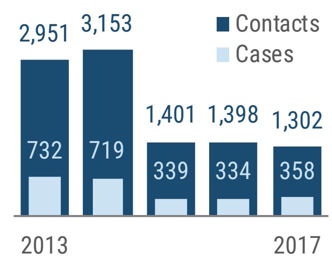
Between 20–30% of pertussis cases are hospitalized. Deaths from pertussis are rare.



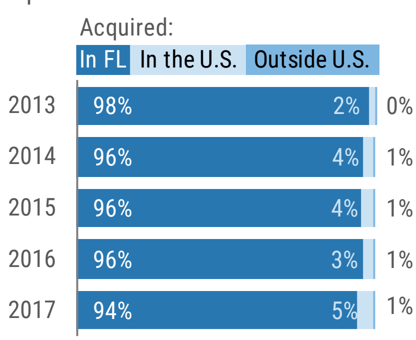
The percentage of cases that were outbreak associated decreased in 2017. Five outbreaks were identified.



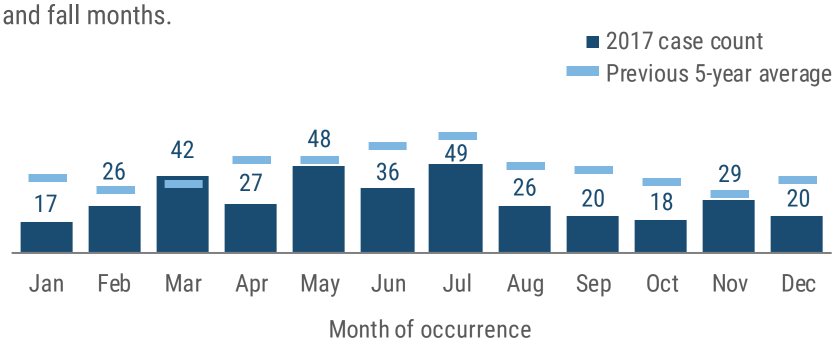
For each pertussis case, an average of 4 exposed contacts are recommended antibiotics to prevent illness.



Most pertussis cases are acquired in Florida; a small number of cases are imported from other states and countries.



Pertussis cases did not have a distinct seasonality in 2017. In general, pertussis does not have a seasonal pattern, although cases may increase in the summer and fall months.



See Appendix III: Report Terminology for explanations of case classification, outcome, sensitive situation, imported status, outbreak status, and month of occurrence.

Pesticide-Related Illness and Injury, Acute

Key Points

Pesticides are used in agricultural, residential, recreational, and other various settings throughout the state. Exposures resulting in illness or injury can occur from pesticide drift; consumption of contaminated food or water; or improper use, storage, or application of household pesticides such as insect repellents, foggers, rodent poisons, weed killers, and mosquito, flea, and tick control products.

Prior to January 2012, suspect sporadic cases (i.e., not part of a cluster) and suspect cases associated with non -occupational exposures (typically limited household exposures) met the surveillance case definition. The case definition was changed in January 2012 to exclude these cases, substantially decreasing the number of cases reported. The number of cases reported since 2012 has remained relatively stable with a slight decrease in 2016.

Most cases (70%) had a low severity of illness, 28% had moderate severity of illness, one case had severe illness, and no deaths were reported. Over half the 2017 cases were outbreak-associated (32 cases). Of these 75% were related to paladin odor in Hillsborough County. Paladin is a soil fumigant applied in August and September that has a sulfurous or garlic-like odor; dimethyl disulfide is the active ingredient.

Disease Facts

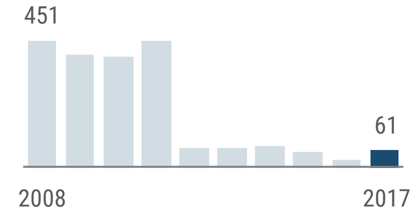
Caused by pesticides

Illness can be respiratory, gastrointestinal, neurological, dermal, etc., depending on the agent

Exposure depends on several factors (e.g., agent, application method, environmental conditions); dermal, inhalation, and ingestion are most common routes of exposure

Under surveillance to identify and mitigate persistent sources of exposure, identify populations at risk, evaluate trends in environmental conditions and occupational exposure, improve administration and proper use of pesticides to reduce exposure

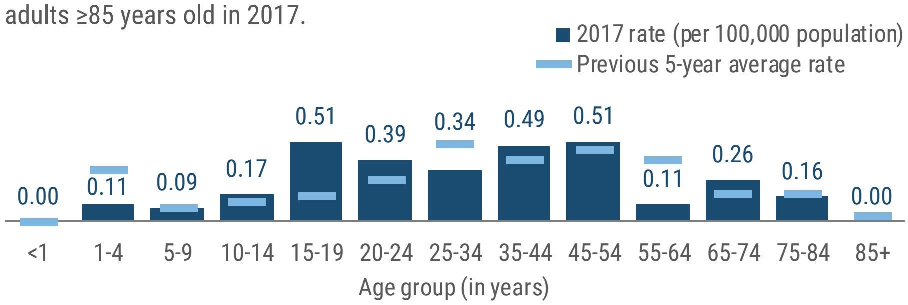
Pesticide-related case incidence has remained relatively stable since the 2012 case definition change.



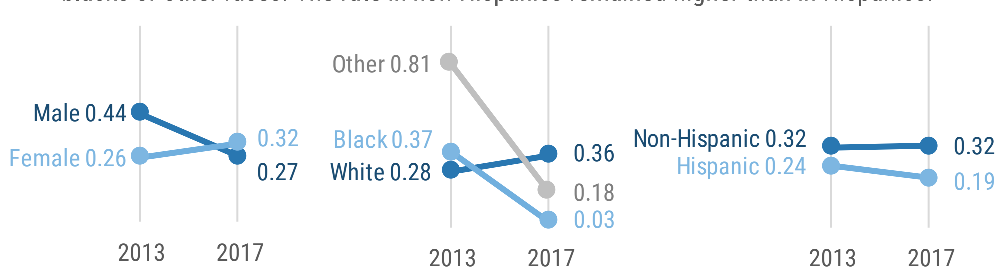
Disease Trends

Summary			
Number of cases			61
Rate (per 100,000 population)			0.3
Change from 5-year average rate			-4.0%
Age (in Years)			
Mean			40
Median			43
Min-max			3 - 83
Gender	**Number**	**(Percent)**	**Rate**
Female	34	(55.7)	0.3
Male	27	(44.3)	0.3
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	57	(95.0)	0.4
Black	1	(1.7)	NA
Other	2	(3.3)	NA
Unknown race	1		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	50	(83.3)	0.3
Hispanic	10	(16.7)	NA
Unknown ethnicity	1		

The rate (per 100,000 population) of acute pesticide-related illness and injury is highest in people 15 to 84 years old. No cases occurred in infants <1 year old or adults ≥85 years old in 2017.



Since 2013, rates (per 100,000 population) of acute pesticide-related illness and injury have increased in females and whites, and decreased in males, blacks, other races, and Hispanics. In 2017, rates were similar by gender, and higher in whites than blacks or other races. The rate in non-Hispanics remained higher than in Hispanics.

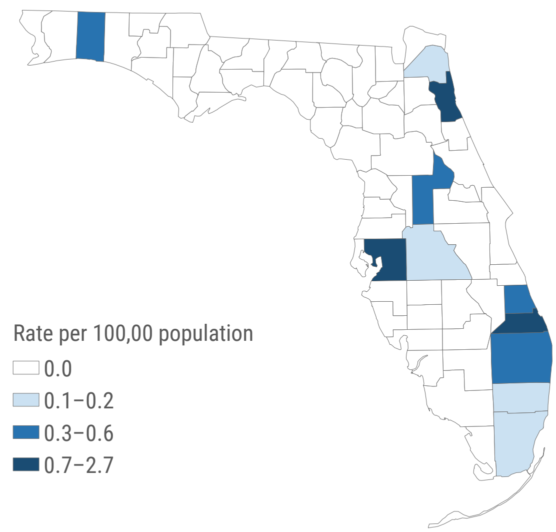


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Acute pesticide-related illness and injury cases were missing 13.2% of ethnicity data in 2013 and 8.8% of race data in 2013.

Pesticide-Related Illness and Injury, Acute

Summary	Number
Number of cases	61
Case Classification	**Number (Percent)**
Confirmed	6 (9.8)
Probable	14 (23.0)
Suspect	41 (67.2)
Outcome	**Number (Percent)**
Hospitalized	6 (9.8)
Died	0 (0.0)
Imported Status	**Number (Percent)**
Exposed in Florida	59 (100.0)
Exposed in the U.S., not Florida	0 (0.0)
Exposed outside the U.S.	0 (0.0)
Exposed location unknown	2
Outbreak Status	**Number (Percent)**
Sporadic	29 (47.5)
Outbreak-associated	32 (52.5)
Outbreak status unknown	0

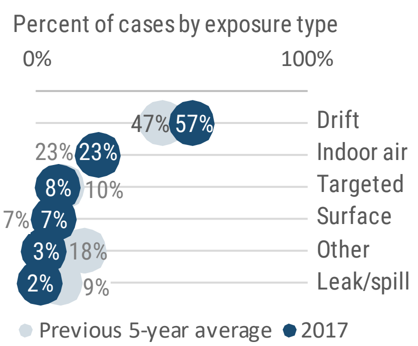
Acute pesticide-related illness and injuries were focused in Hillsborough County (61% of all cases) and several southeast Florida counties (28% of cases) in 2017. Most cases (76%) in Hillsborough County were related to paladin odor.



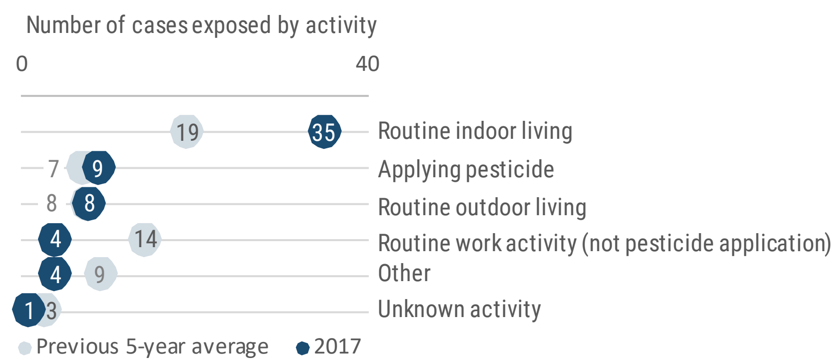
Rates are by county of residence, regardless of where exposure occurred (61 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

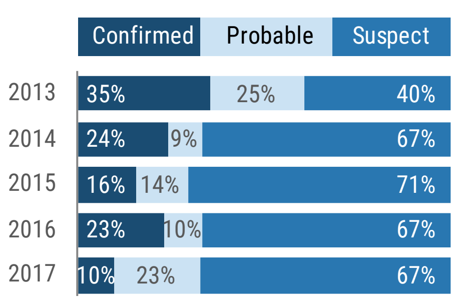
Drift was the most common exposure type and was above the previous 5-year average in 2017. Note: cases can report >1 exposure type.



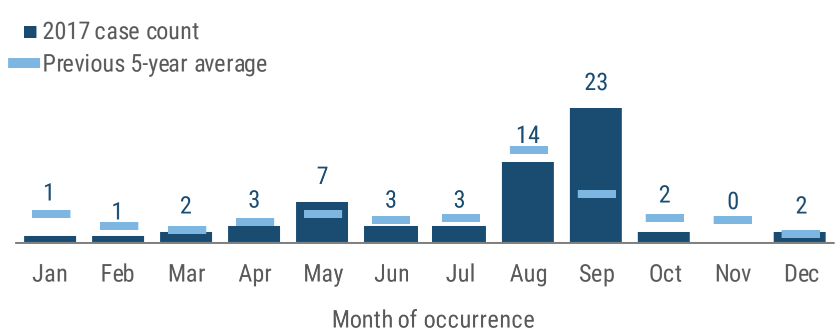
In 2017, 35 cases (57%) were exposed to pesticide while doing routine indoor activities, not related to pesticide application work. This was notably higher than the previous 5-year average.



Since 2014, between 67 and 71% of cases are suspect. Only 10% were confirmed in 2017.



Acute pesticide-related illness and injuries peak in late summer in August and September. Pesticide application also increases in the summer.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status, and month of occurrence.

Rabies, Animal and Possible Exposure

Key Points for Humans

The first case of human rabies acquired in Florida since 1948 was reported in 2017. Exposure was attributed to a bite from a rabid bat. See Section 3: Notable Outbreaks and Case Investigations for more information.

The animals most frequently diagnosed with rabies in Florida are raccoons, bats, unvaccinated cats, and foxes. Rabies is endemic in the raccoon and bat populations of Florida. Rabies frequently spreads from raccoons, and occasionally bats, to other animal species such as foxes and cats.

Incidence of human exposures to suspected rabid animals for which PEP is recommended has increased since case reporting was initiated, primarily due to PEP recommendations related to dog bites. Contributing factors may include more animal bites, lack of rabies PEP training, and fewer local resources to find and confine or test biting animals. Florida was impacted by Hurricane Irma in 2017; animal bites frequently increase after hurricanes and other disasters. Analysis of syndromic surveillance data identified a significant increase in animal bites in Florida immediately prior to and following Hurricane Irma. See Overview of 2017 section for more information.

Case counts in this report may differ from those found in other rabies reports as different criteria are used to assemble the data.

Disease Facts

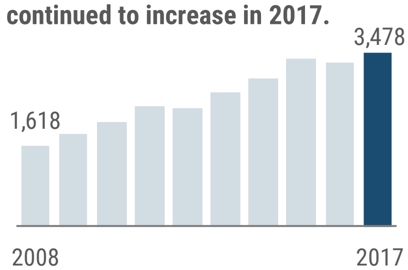
Caused by Rabies virus

Illness in humans includes fever, headache, insomnia, confusion, hallucinations, increase in saliva, difficulty swallowing, and fear of water; near 100% fatality rate, death usually occurs within days of symptom onset

Transmitted when infectious saliva or nervous tissue comes in contact with open wound or mucous membrane via bite

Under surveillance to identify and mitigate sources of exposure, evaluate adherence to guidance on rabies post-exposure prophylaxis (PEP)

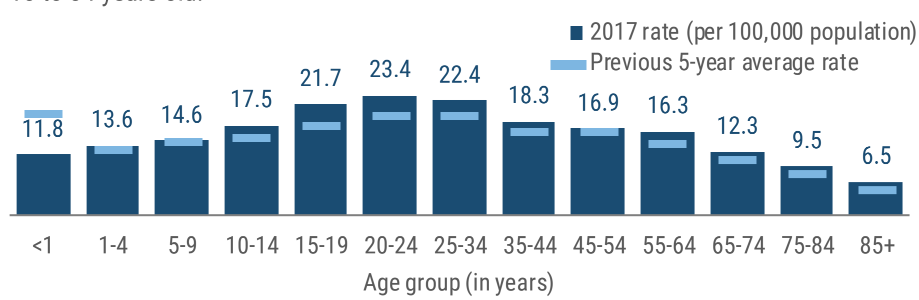
Possible human exposures to rabies continued to increase in 2017.



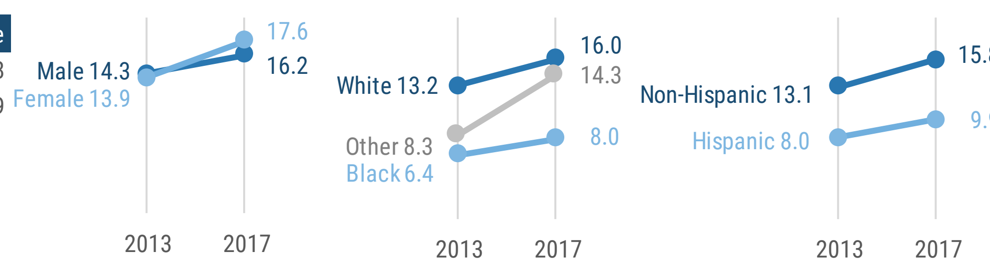
Human Trends

Summary			
Number of cases			3,478
Rate (per 100,000 population)			16.9
Change from 5-year average rate			+12.8%
Age (in Years)			
Mean			38
Median			36
Min-max			0 - 95
Gender	**Number**	**(Percent)**	**Rate**
Female	1,856	(53.4)	17.7
Male	1,622	(46.6)	16.2
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	2,545	(85.2)	16.0
Black	278	(9.3)	8.0
Other	163	(5.5)	14.3
Unknown race	492		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	2,438	(82.8)	15.8
Hispanic	507	(17.2)	9.9
Unknown ethnicity	533		

Human exposures to suspected rabid animals for which PEP is recommended occurs in all age groups, but the rate (per 100,000 population) tends to be highest in people 15 to 34 years old.



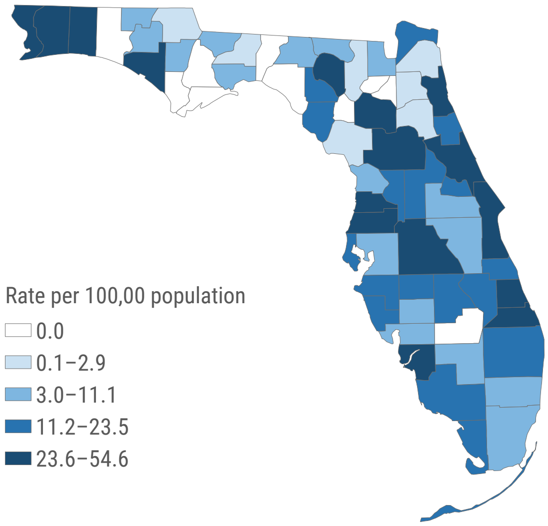
The rate (per 100,000 population) of human exposures to suspected rabid animals for which PEP is recommended is similar in males and females, but is higher in whites than blacks and higher in non-Hispanics than Hispanics. The rate increased in all gender, race, and ethnic groups from 2013 to 2017.



Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Possible human exposure to rabies cases were missing 15.1% of ethnicity data in 2013, 15.8% of race data in 2013, 15.3% of ethnicity data in 2017, and 14.1% of race data in 2017.

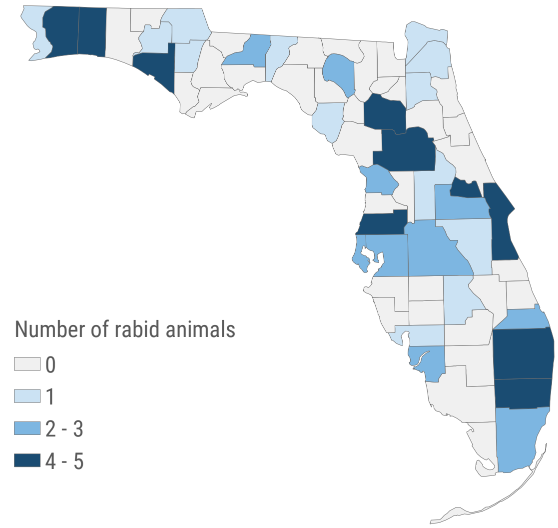
Rabies, Animal and Possible Exposure

Human exposures to suspected rabid animals for which PEP is recommended occur throughout the state. The rate (per 100,000 population) was high in both rural and urban counties in 2017.



Rates are by county of residence for cases exposed in Florida (3,239 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

Rabid animals were identified throughout the state in 2017.



Animal Trends

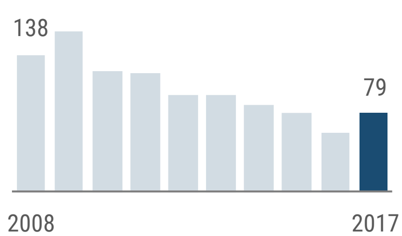
Key Points for Animals

Laboratory testing for animal rabies is only done when animals potentially expose (e.g., bite) humans or domestic animals; thus, these data do not necessarily correlate with the true prevalence of rabies by animal species in Florida. A total of 79 laboratory-confirmed rabid animals were reported in 2017.

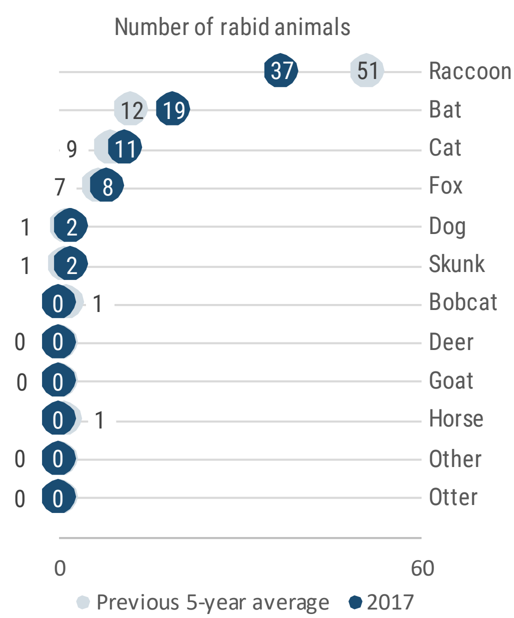
There is generally a much greater risk for rabies exposure to people when domestic animals are infected versus wildlife. Properly administered rabies vaccines are highly effective in protecting domestic animals like cats, dogs, and ferrets against rabies infection, and rabies vaccination is required by state law for these animals.

In 2017, part of a bat was found in a pre-packed salad. See Section 3: Notable Outbreaks and Case Investigations for more information on that investigation.

The number of rabid animals identified has generally decreased over the past decade, but may be on the rise. Rabies activity is frequently cyclical.



In 2017, raccoons remained the most commonly identified rabid animal, followed by bats, cats, and foxes.



Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis

Key Points

Spotted fever rickettsioses (SFRs) are a group of tick-borne diseases caused by closely related *Rickettsia* bacteria. The most serious and commonly reported spotted fever group rickettsiosis in the U.S. is Rocky Mountain spotted fever (RMSF) caused by *R. rickettsii*. Examples of other causes of SFR include *R. parkeri*, *R. africae*, and *R. conorii*. The principal tick vectors in Florida are the American dog tick (*Dermacentor variabilis*) and the Gulf Coast tick (*Amblyomma maculatum*).

Human antibodies to spotted fever rickettsial species such as *R. parkeri*, *R. amblyommii*, *R. africae*, and *R. conorii* cross-react with serologic tests for the RMSF organism *R. rickettsii*. Commercial antibody testing to differentiate other SFRs from RMSF is currently limited, though PCR testing of eschar swabs performed at reference laboratories can provide species. More than 90% of cases in 2017 were probable because eschar swabs or convalescent serology samples were either not available or not obtained. An eschar swab collected for a case exposed in Zimbabwe tested positive for *R. africae*.

Cases counted in this report are based on year reported, whereas other reports may use year of onset. One RMSF/SFR case reported in 2017 had an onset at the end of 2016.

Disease Facts

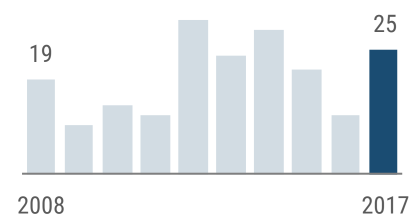
Caused by certain *Rickettsia* bacteria; most commonly *Rickettsia rickettsii*, *R. parkeri*, *R. africae*, *R. conorii*

Illness includes fever, headache, abdominal pain, vomiting, and muscle pain; rash develops in 80% of cases

Transmitted via bite of infective tick

Under surveillance to monitor incidence over time, estimate burden of illness, monitor geographical and temporal occurrence, target areas of high incidence for prevention education

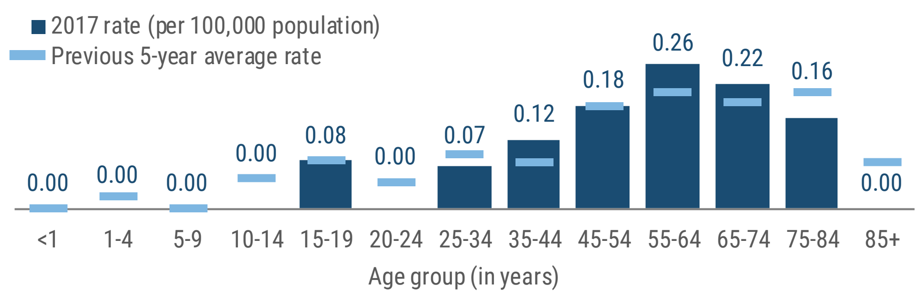
RMSF and SFR incidence varies by year.



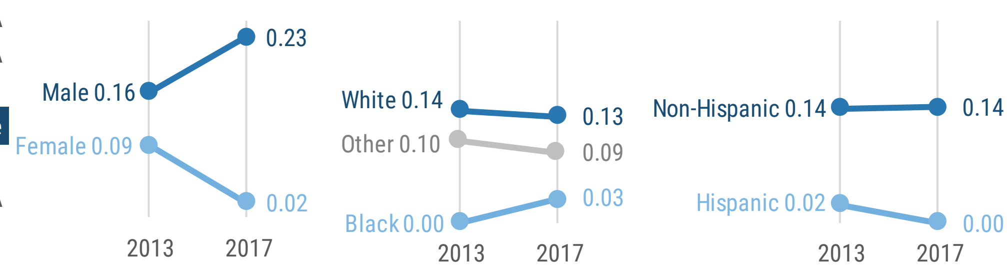
Disease Trends

Summary		
Number of cases		25
Rate (per 100,000 population)		0.1
Change from 5-year average rate		+1.5%
Age (in Years)		
Mean		55
Median		60
Min-max		19 - 79
Gender	**Number (Percent)**	**Rate**
Female	2 (8.0)	NA
Male	23 (92.0)	0.2
Unknown gender	0	
Race	**Number (Percent)**	**Rate**
White	21 (91.3)	0.1
Black	1 (4.3)	NA
Other	1 (4.3)	NA
Unknown race	2	
Ethnicity	**Number (Percent)**	**Rate**
Non-Hispanic	22 (100.0)	0.1
Hispanic	0 (0.0)	NA
Unknown ethnicity	3	

RMSF and SFR rates (per 100,000 population) are highest in adults, particularly between 45 and 84 years old.



RMSF and SFR rates (per 100,000 population) vary by gender, race, and ethnic groups. Rates are generally higher in males, whites, and non-Hispanics.

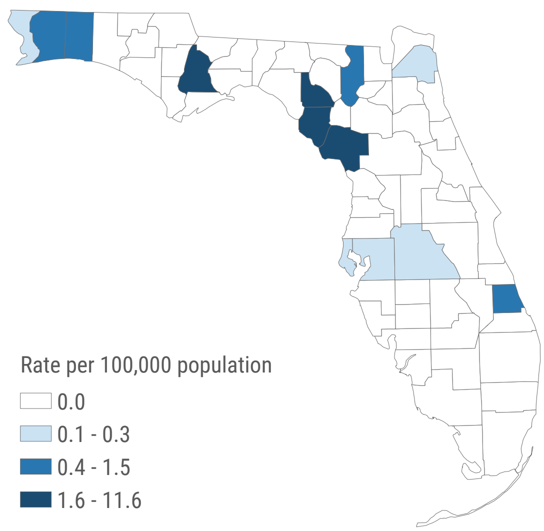


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Rocky Mountain spotted fever and spotted fever rickettsiosis cases were missing 8.3% of ethnicity data in 2013, 8.3% of race data in 2013, 12.0% of ethnicity data in 2017, and 8.0% of race data in 2017.

Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis

Summary	Number
Number of cases	25
Case Classification	**Number (Percent)**
Confirmed	2 (8.0)
Probable	23 (92.0)
Outcome	**Number (Percent)**
Hospitalized	9 (36.0)
Died	0 (0.0)
Imported Status	**Number (Percent)**
Acquired in Florida	15 (68.2)
Acquired in the U.S., not Florida	5 (22.7)
Acquired outside the U.S.	2 (9.1)
Acquired location unknown	3
Outbreak Status	**Number (Percent)**
Sporadic	25 (100.0)
Outbreak-associated	0 (0.0)
Outbreak status unknown	0

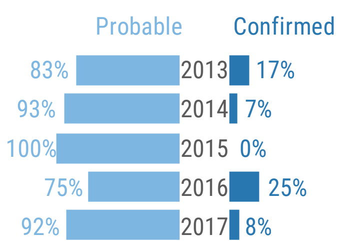
Most *Rickettsia* infections acquired within Florida are in residents of northern and central counties. Three cases were reported in Okaloosa County in 2017, and 12 other counties each had one case.



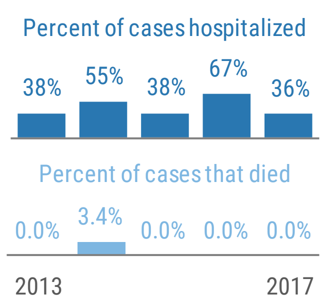
Rates are by county of residence for infections acquired in Florida (15 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

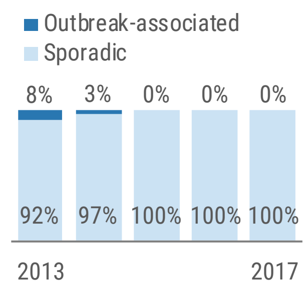
Most RMSF and SFR cases are not confirmed due to laboratory testing limitations; two cases were confirmed in 2017.



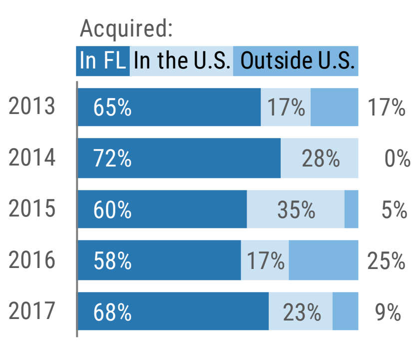
Typically more than 30% of cases are hospitalized, but deaths are rare.



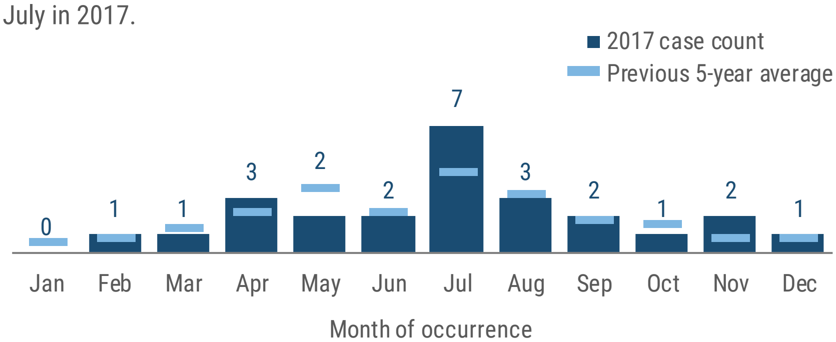
Most RMSF and SFR cases are sporadic. No outbreak-associated cases have been identified since 2014.



Most cases are acquired in Florida. In 2017, two cases were exposed in Mongolia and Zimbabwe.



RMSF and SFR cases are reported year-round without distinct seasonality, though peak transmission typically occurs during the summer months. Cases peaked in July in 2017.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status, and month of occurrence.

Salmonellosis

Key Points

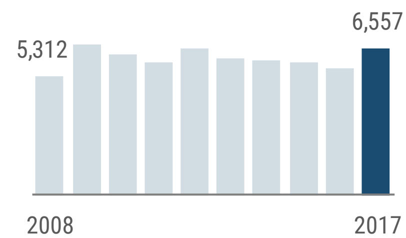
The use of culture-independent diagnostic testing (CIDT) for *Salmonella* has increased in recent years. The salmonellosis case definition expanded in January 2017 to include CIDT in the criteria for probable cases, resulting in an increase in cases reported in 2017. Florida frequently has the highest number and one of the highest incidence rates of salmonellosis cases in the U.S. Incidence is highest in infants <1 year old and decreases dramatically with age. The rate in other races increased from 2013 to 2017 while the rate in whites and blacks decreased. The seasonal pattern is very strong, with cases peaking in late summer.

Most outbreak-associated cases were reflective of household clusters; however, some cases were part of larger clusters or multistate outbreaks. In 2017, Florida identified 165 cases associated with 25 different multistate outbreaks. A variety of vehicles were identified for multistate outbreaks, including live poultry, leafy greens, and papayas. In 2017, Florida identified 28 cases associated with three different in-state clusters. No common vehicles were identified for any in-state cluster.

Disease Facts

- **Caused** by *Salmonella* bacteria (excluding *Salmonella* serotype Typhi)
- **Illness** is gastroenteritis (diarrhea, vomiting)
- **Transmitted** via fecal-oral route, including person-to-person, animal-to-person, foodborne, and waterborne
- **Under surveillance** to identify and control outbreaks, identify and mitigate common sources (e.g., contaminated food product, ill food handler), monitor incidence over time, estimate burden of illness

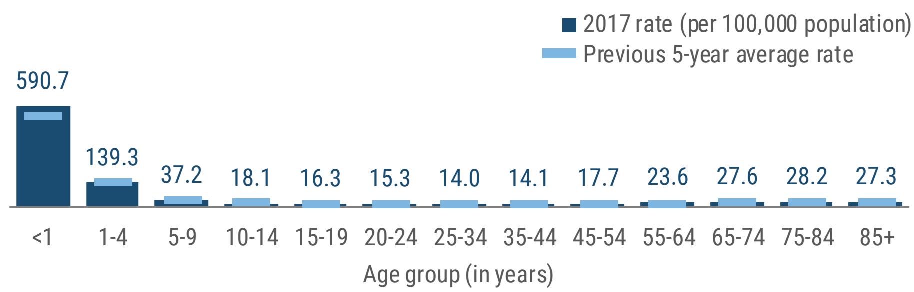
Salmonellosis incidence increased slightly in 2017 compared to the previous four years.



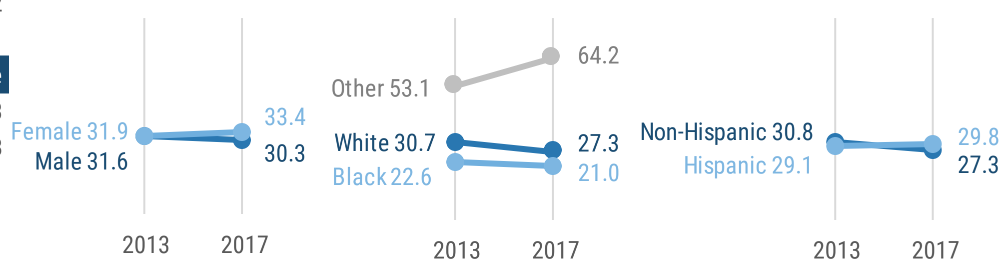
Disease Trends

Summary			
Number of cases			6,557
Rate (per 100,000 population)			31.9
Change from 5-year average rate			+3.5%
Age (in Years)			
Mean			29
Median			17
Min-max			0 - 104
Gender	**Number**	**(Percent)**	**Rate**
Female	3,511	(53.5)	33.4
Male	3,046	(46.5)	30.3
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	4,346	(74.8)	27.3
Black	728	(12.5)	21.0
Other	733	(12.6)	64.2
Unknown race	750		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	4,214	(73.3)	27.3
Hispanic	1,532	(26.7)	29.8
Unknown ethnicity	811		

The salmonellosis rate (per 100,000 population) is highest in infants <1 year old and decreases dramatically with age.



The salmonellosis rate (per 100,000 population) is slightly higher in whites than blacks and notably higher in other races compared to both whites and blacks. Rates were similar by gender groups and by ethnic groups. The rates in whites and blacks decreased slightly from 2013 to 2017, while the rate in other races increased.

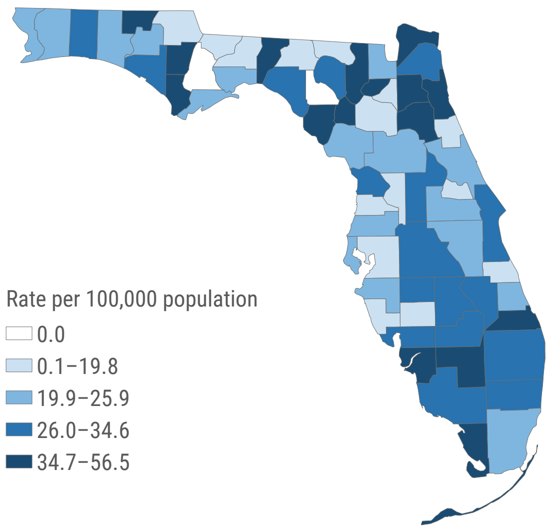


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Salmonellosis cases were missing 12.4% of ethnicity data in 2017 and 11.4% of race data in 2017.

Salmonellosis

Summary	Number
Number of cases	6,557
Case Classification	**Number (Percent)**
Confirmed	5,740 (87.5)
Probable	817 (12.5)
Outcome	**Number (Percent)**
Hospitalized	1,680 (25.6)
Died	32 (0.5)
Sensitive Situation	**Number (Percent)**
Daycare	505 (7.7)
Health care	97 (1.5)
Food handler	56 (0.9)
Imported Status	**Number (Percent)**
Acquired in Florida	5,406 (93.4)
Acquired in the U.S., not Florida	149 (2.6)
Acquired outside the U.S.	235 (4.1)
Acquired location unknown	767
Outbreak Status	**Number**
Sporadic	5,902 (92.4)
Outbreak-associated	482 (7.6)
Outbreak status unknown	173

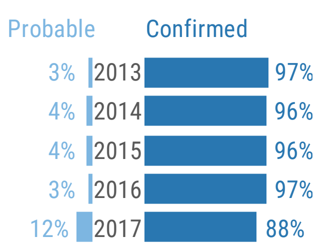
Geographic distribution is relatively consistent, though not well understood, with high rates (per 100,000 population) clustered in northern Florida and the Panhandle (particularly in lower population counties). This continued in 2017.



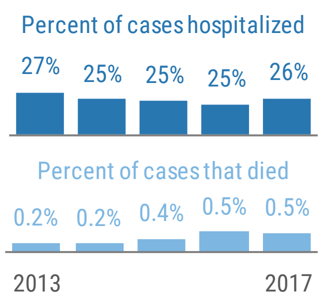
Rates are by county of residence for infections acquired in Florida (5,406 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

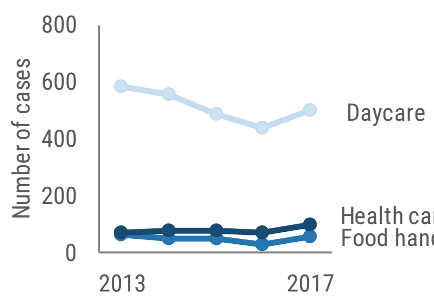
The percent of cases that are probable increased in 2017 due to case definition changes.



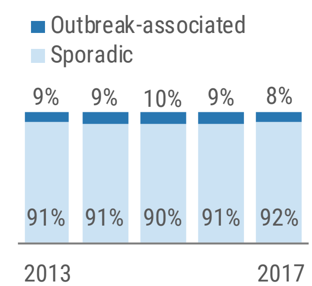
Approximately 25% of cases are hospitalized each year. Very few cases die.



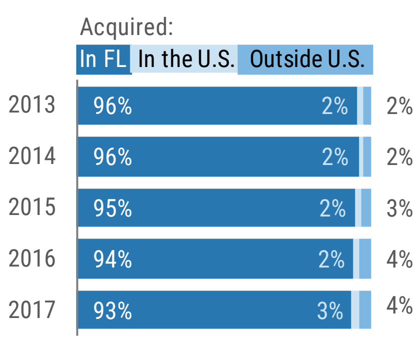
Cases in sensitive situations are monitored. The large number of cases in daycares reflects the age distribution of cases.



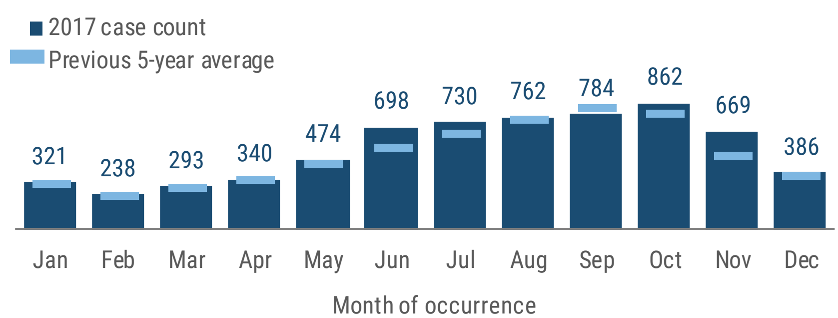
Most cases are sporadic; 10% or less are outbreak-associated.



Most cases are acquired in Florida; a small number of cases are imported from other states and countries.



Salmonellosis occurred throughout 2017, but has a strong seasonal pattern with cases peaking in late summer, which is consistent with past years.



See Appendix III: Report Terminology for explanations of case classification, outcome, sensitive situation, imported status, outbreak status, and month of occurrence.

Shiga Toxin-Producing *Escherichia coli* (STEC) Infection

Key Points

STEC infection incidence in Florida has generally increased over the past 10 years, likely due to advancements in laboratory techniques, resulting in improved identification of STEC infection. The notable increase in 2017 is likely related to revised testing and reporting protocols implemented at the state public health laboratory.

Most outbreak-associated cases are reflective of household clusters; however, some cases are part of larger clusters or multistate outbreaks. In 2017, Florida identified a cluster of 13 STEC infection cases caused by *E. coli* O123 at a daycare, causing a notable increase in cases in children 1 to 4 years old and cases in daycare settings. In 2015, a cluster of 10 STEC infections caused by *E. coli* O126 in a Florida daycare caused similar increases. In 2017, five Florida cases had isolates that matched three different multistate clusters of STEC infections caused by *E. coli* O157. Two cases were associated with a cluster caused by SoyNut Butter and three were associated with two other multistate clusters where no source of infection was identified.

Disease Facts

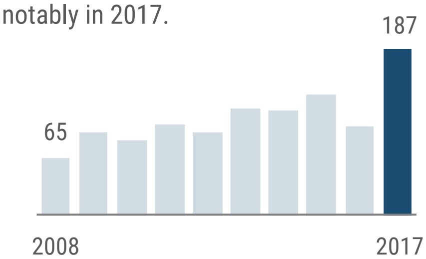
Caused by Shiga toxin-producing *Escherichia coli* (STEC) bacteria

Illness is gastroenteritis (diarrhea, vomiting); less frequently hemolytic uremic syndrome (HUS)

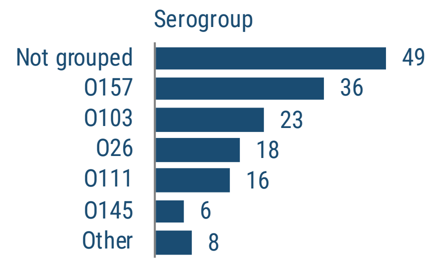
Transmitted via fecal-oral route; including person-to-person, animal-to-person, waterborne and foodborne

Under surveillance to identify and control outbreaks, identify and mitigate common sources (e.g., contaminated food product, ill food handler), monitor incidence over time, estimate burden of illness

STEC infection incidence has increased over the past 10 years and increased notably in 2017.



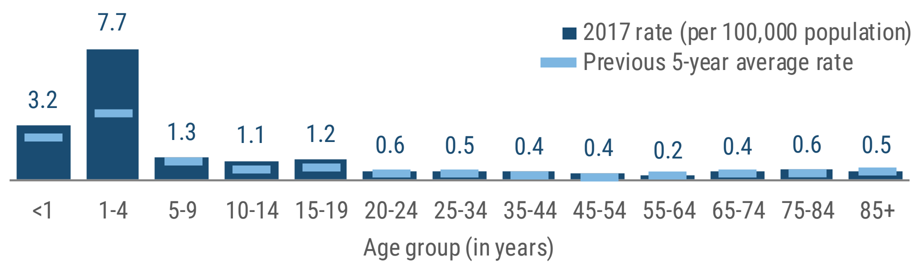
O157 remained the most commonly identified serogroup in 2017.



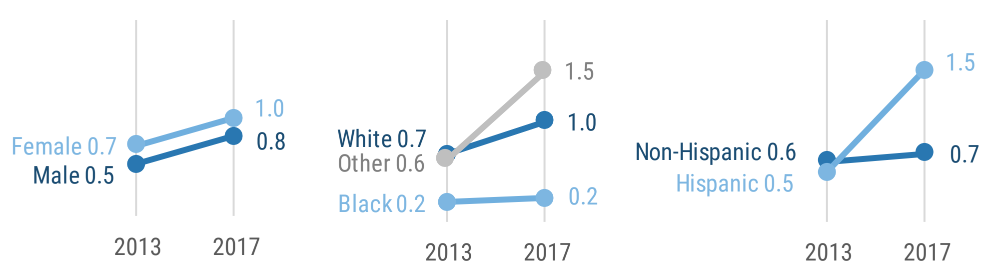
Disease Trends

Summary			
Number of cases			187
Rate (per 100,000 population)			0.9
Change from 5-year average rate			+58.0%
Age (in Years)			
Mean			21
Median			10
Min-max			0 - 94
Gender	**Number**	**(Percent)**	**Rate**
Female	105	(56.1)	1.0
Male	82	(43.9)	0.8
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	158	(86.3)	1.0
Black	8	(4.4)	NA
Other	17	(9.3)	NA
Unknown race	4		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	104	(57.5)	0.7
Hispanic	77	(42.5)	1.5
Unknown ethnicity	6		

The rate of STEC infection (per 100,000 population) is highest in children 1 to 4 years old and infants <1 year old. Children <4 years old are particularly vulnerable to STEC infection and at highest risk of developing hemolytic uremic syndrome (HUS).



The STEC infection rate (per 100,000 population) has increased slightly in all gender, race, and ethnicity groups, except blacks, since 2013. The rate was higher in females and Hispanics compared to males and non-Hispanics in 2017. The rate was highest in other races in 2017, followed by whites then blacks.

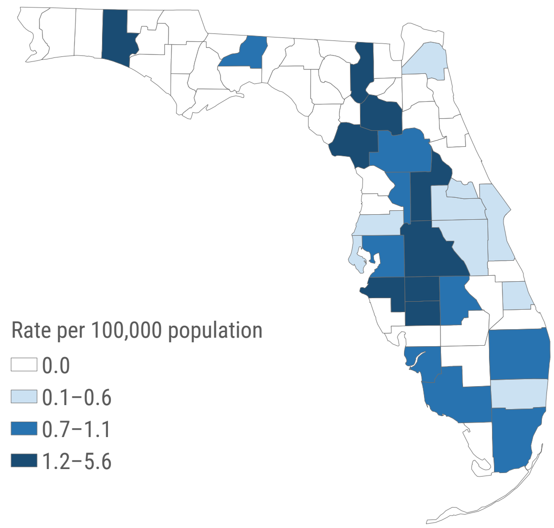


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Shiga toxin-producing *E. coli* infection cases were missing 9.1% of ethnicity data in 2013 and 6.6% of race data in 2013.

Shiga Toxin-Producing *Escherichia coli* (STEC) Infection

Summary	Number
Number of cases	187
Case Classification	**Number (Percent)**
Confirmed	156 (83.4)
Probable	31 (16.6)
Outcome	**Number (Percent)**
Hospitalized	36 (19.3)
Died	2 (1.1)
Sensitive Situation	**Number (Percent)**
Daycare	27 (14.4)
Health care	3 (1.6)
Food handler	2 (1.1)
Imported Status	**Number (Percent)**
Acquired in Florida	132 (82.5)
Acquired in the U.S., not Florida	4 (2.5)
Acquired outside the U.S.	24 (15.0)
Acquired location unknown	27
Outbreak Status	**Number**
Sporadic	119 (67.2)
Outbreak-associated	58 (32.8)
Outbreak status unknown	10

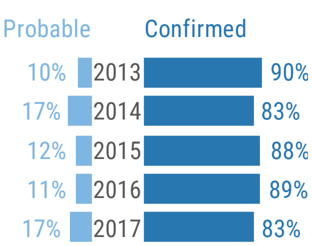
STEC infection cases occurred in most areas of the state, though minimally in the Florida Panhandle. The highest rates (per 100,000 population) were in small, rural counties.



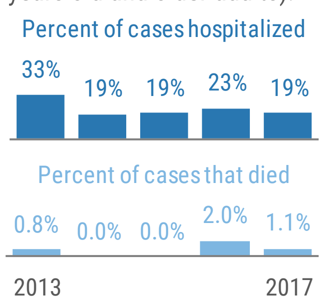
Rates are by county of residence for infections acquired in Florida (132 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

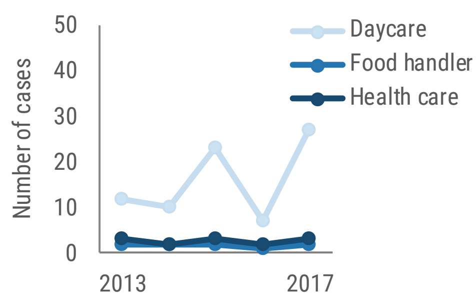
Most STEC infections were confirmed; less than 20% are probable each year.



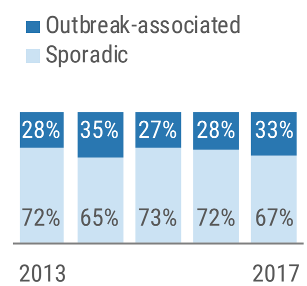
Each year, around 20% of cases are hospitalized. Deaths are rare (more likely in children <10 years old and older adults).



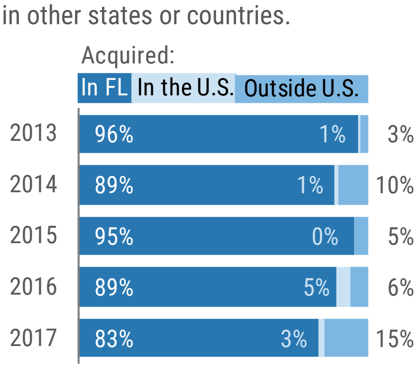
Single outbreaks in daycares in 2015 and 2017 resulted in higher numbers of cases in that setting.



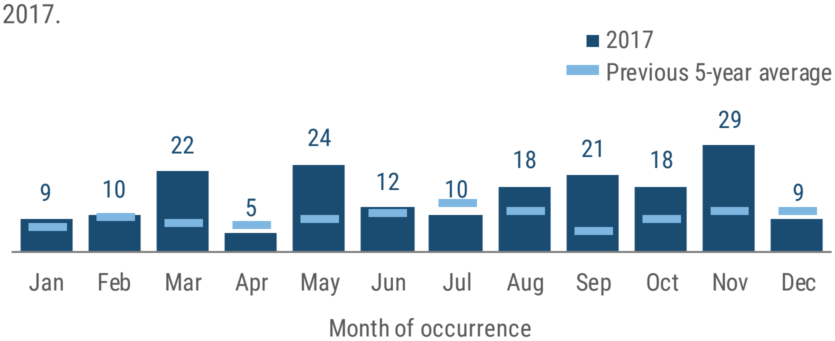
Between 25–35% of cases are outbreak-associated each year.



Most STEC infections were acquired in Florida; some infections were acquired in other states or countries.



There is no distinct seasonality to STEC infections in Florida. Cases occur at moderate levels year-round. More cases occurred in March, May, and November in 2017.



See Appendix III: Report Terminology for explanations of case classification, outcome, sensitive situation, imported status, outbreak status, and month of occurrence.

Shigellosis

Key Points

The use of culture-independent diagnostic testing (CIDT) for *Shigella* has increased in recent years. The shigellosis case definition expanded in January 2017 to include CIDT in the criteria for probable cases, resulting in an increase in cases reported in 2017.

Shigellosis has a cyclic temporal pattern with large, community-wide outbreaks, frequently involving daycare centers, occurring every three to five years. Of outbreak-associated cases in 2017, 25% occurred in daycare settings.

Antimicrobial resistance in *Shigella* is a growing concern. In the U.S., most *Shigella* is already resistant to ampicillin and trimethoprim/sulfamethoxazole. Health care providers rely on alternative drugs such as ciprofloxacin and azithromycin to treat *Shigella* infections when needed, though treatment of shigellosis with antibiotics is not routinely recommended. The proportion of cases with isolates resistant to ampicillin, trimethoprim/sulfamethoxazole, ciprofloxacin, or azithromycin has increased over the past few years. For confirmed shigellosis cases with antimicrobial resistance testing results available (between 40–50% of confirmed cases each year), the percent of isolates resistant to one or more of these antibiotics increased from 34% in 2016 to 57% in 2016 to 60% in 2017.

Disease Facts

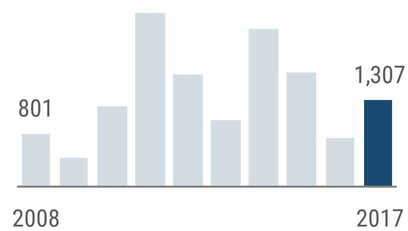
Caused by *Shigella* bacteria

Illness is gastroenteritis (diarrhea, vomiting)

Transmitted via fecal-oral route, including person-to-person, foodborne, and waterborne

Under surveillance to identify and control outbreaks, identify and mitigate common sources (e.g., ill daycare attendee), monitor incidence over time, estimate burden of illness

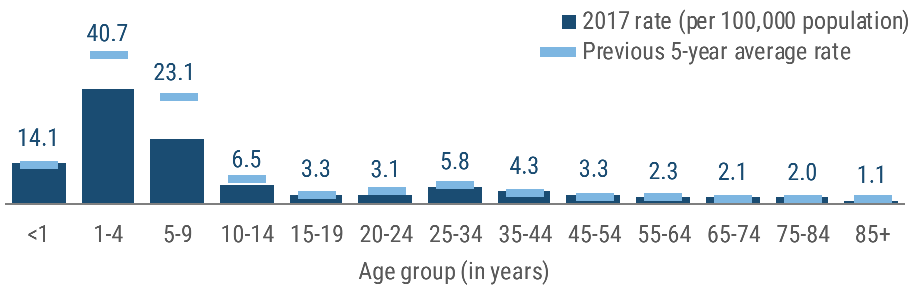
Shigellosis incidence increased in 2017, consistent with historic cyclical patterns; recent peaks occurred in 2011 and 2014.



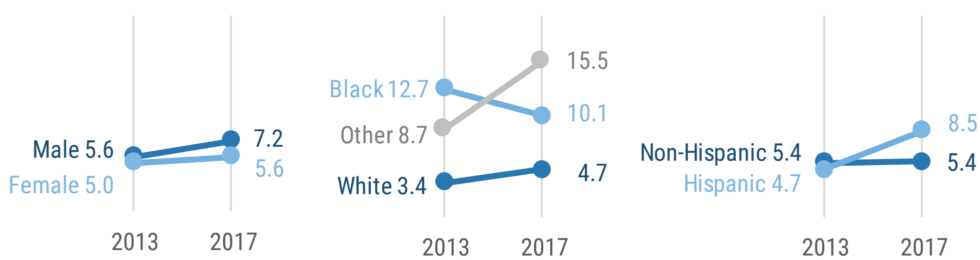
Disease Trends

Summary			
Number of cases			1,307
Rate (per 100,000 population)			6.4
Change from 5-year average rate			-18.2%
Age (in Years)			
Mean			21
Median			9
Min-max			0 - 94
Gender	**Number**	**(Percent)**	**Rate**
Female	585	(44.8)	5.6
Male	722	(55.2)	7.2
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	746	(58.6)	4.7
Black	349	(27.4)	10.1
Other	177	(13.9)	15.5
Unknown race	35		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	837	(65.6)	5.4
Hispanic	438	(34.4)	8.5
Unknown ethnicity	32		

The shigellosis rate (per 100,000 population) is highest in children 1-4 years and 5-9 years old, followed by infants <1 year old.



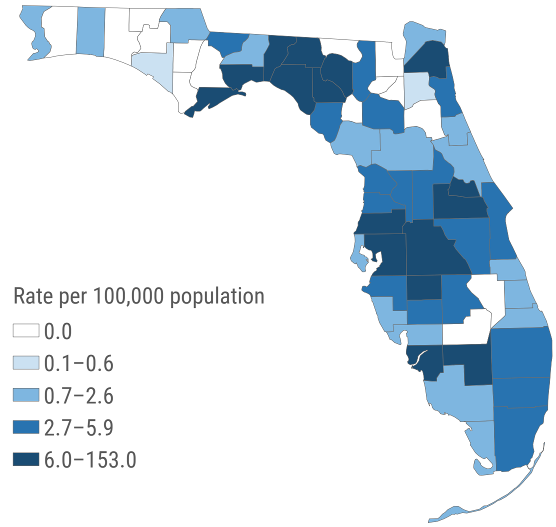
Shigellosis rates (per 100,000 population) increased slightly in males, females, whites, and Hispanics, and increased more notably in other races from 2013 to 2017. The rate among blacks decreased from 2013 to 2017.



Shigellosis

Summary	Number
Number of cases	1,307
Case Classification	**Number (Percent)**
Confirmed	657 (50.3)
Probable	650 (49.7)
Outcome	**Number (Percent)**
Hospitalized	291 (22.3)
Died	0 (0.0)
Sensitive Situation	**Number (Percent)**
Daycare	224 (17.1)
Health care	27 (2.1)
Food handler	27 (2.1)
Imported Status	**Number (Percent)**
Acquired in Florida	1,131 (91.4)
Acquired in the U.S., not Florida	24 (1.9)
Acquired outside the U.S.	82 (6.6)
Acquired location unknown	70
Outbreak Status	**Number**
Sporadic	846 (65.7)
Outbreak-associated	442 (34.3)
Outbreak status unknown	19

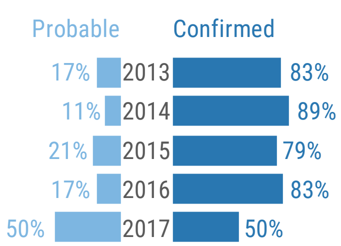
In 2017, the rate of shigellosis (per 100,000 population) was highest in the north central, central, and southwest parts of the state. Geographic distribution varies by year, often driven by clusters of counties experiencing large outbreaks.



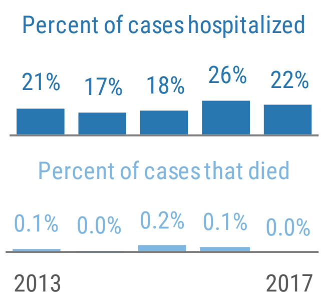
Rates are by county of residence for infections acquired in Florida (1,131 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

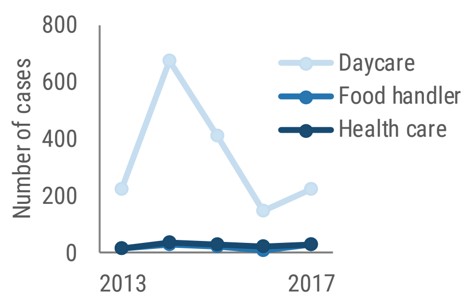
The percent of probable cases increased in 2017 due to case definition updates.



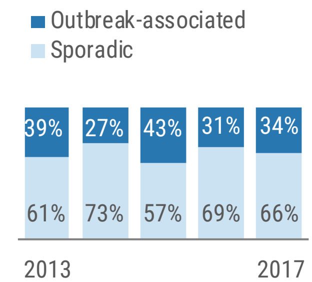
Hospitalizations do occur, but deaths are rare. In 2017, 22% of cases were hospitalized.



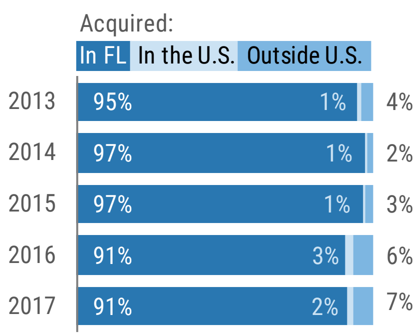
Person-to-person outbreaks are common in daycares; a large number of cases were identified in daycares.



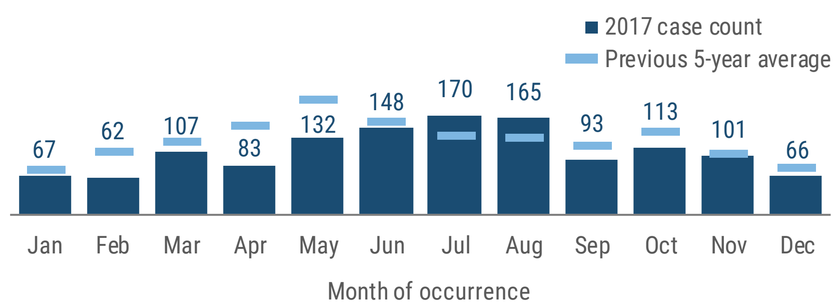
Outbreaks are common; as few as 10 *Shigella* bacteria can result in illness.



Most cases are acquired in Florida; a small number of cases are imported from other states and countries.



Shigellosis occurred throughout 2017, with activity peaking during July and August. A strong cyclic temporal pattern with peaks every three to five years explains the difference between 2017 and the previous 5-year average.



See Appendix III: Report Terminology for explanations of case classification, outcome, sensitive situation, imported status, outbreak status, and month of occurrence.

Syphilis (Excluding Congenital)

Key Points

Syphilis is separated into early syphilis (i.e., syphilis less than one year duration, which includes latent and infectious stages) and late or late latent syphilis (i.e., syphilis diagnosed more than one year after infection). Syphilis creates an open sore at the point of infection, called a primary lesion, during the infectious stage. A primary lesion can work as a conduit for HIV transmission and puts either the person displaying the lesion or their sexual partners at risk of HIV infection if either partner is living with HIV. In 2017, 35% of infectious syphilis cases were reported in individuals who were known to be coinfected with HIV, a 4% decrease from 2016.

Disease Facts

Caused by *Treponema pallidum* bacteria

Illness includes sores on genitals, anus, or mouth; or a rash on the body

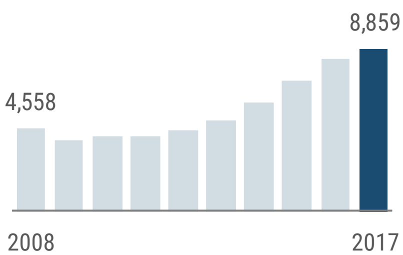
Transmitted sexually via anal, vaginal, or oral sex and sometimes from mother to infant during pregnancy or delivery

Under surveillance to implement interventions immediately for every case, monitor incidence over time, estimate burden of illness, target prevention education programs, evaluate treatment and prevention programs

In 2017, Florida was awarded a congenital syphilis-specific supplemental grant to help combat the increase in congenital syphilis cases the state is experiencing. These funds were allocated to five high-burden counties to pilot a variety of tools that could help decrease the number of congenital syphilis cases before implementing these techniques statewide. For more information, see Overview of 2017, Focus in 2017: Syphilis.

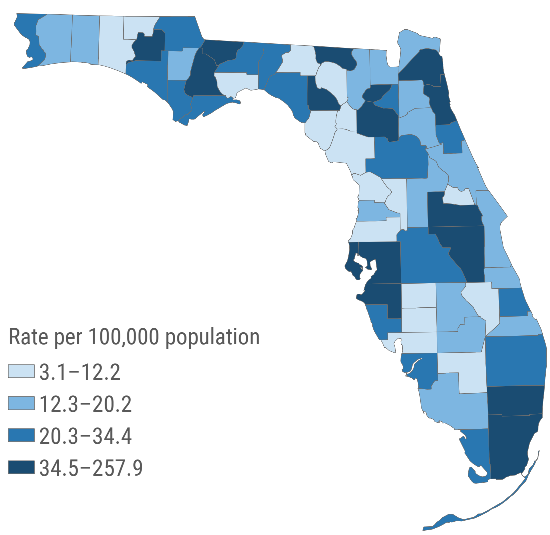
Disease Trends

In 2017, syphilis incidence continued to increase, both in Florida and nationally.



Summary			
Number of cases			8,859
Rate (per 100,000 population)			43.1
Change from 5-year average rate			+37.7%
Age (in Years)			
Mean			36
Median			33
Min-max			1 - 87
Gender	**Number**	**(Percent)**	**Rate**
Female	1,541	(17.4)	14.7
Male	7,317	(82.6)	72.9
Unknown gender	1		
Race	**Number**	**(Percent)**	**Rate**
White	4,657	(55.1)	29.2
Black	2,977	(35.2)	85.8
Other	813	(9.6)	71.3
Unknown race	412		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	5,533	(67.0)	35.9
Hispanic	2,725	(33.0)	53.1
Unknown ethnicity	601		

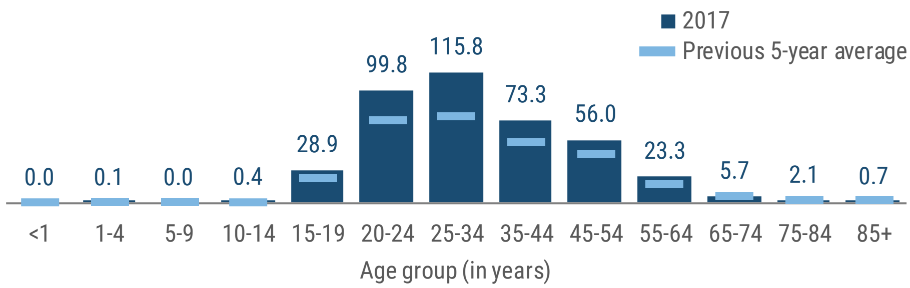
Syphilis occurs throughout the state. The highest rates (per 100,000 population) in 2017 were in large counties, including Miami-Dade (85.8), Broward (75.3), and Orange (69.7); and small rural counties, including Union (257.9 based on 41 cases), Washington (60.2), and Gadsden (59.6).



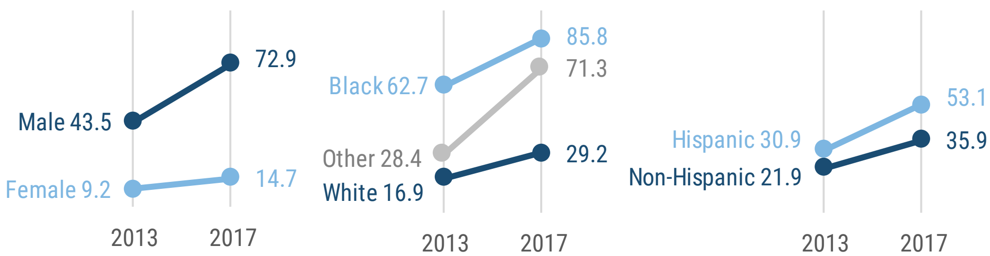
Rates are by county of residence, regardless of where infection was acquired (8,859 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

Syphilis (Excluding Congenital)

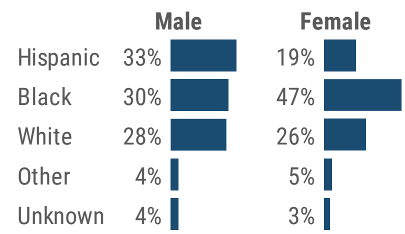
The syphilis rate (per 100,000 population) is highest in adults 20 to 54 years old and peaks in adults 25 to 34 years old.



The syphilis rate (per 100,000 population) increased in all gender, race, and ethnic groups from 2013 to 2017. The increase was most noticeable in other races and in males. The rates are highest in men, blacks, and Hispanics.



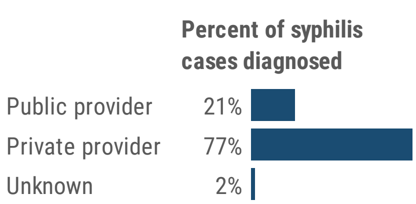
Race and ethnicity differed between genders. Black females and Hispanic males were at increased risk for syphilis.

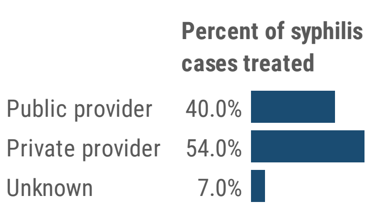


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Syphilis cases (excluding congenital) were missing 7.8% of ethnicity data in 2013 and 6.8% of ethnicity data in 2017.

In 2017, most people (77%) went to their own private provider for STD testing. However, the recommended treatment for syphilis is parenterally administered penicillin G benzathine. As many providers do not keep the standard benzathine penicillin product, Bicillin, on hand, they often refer their patients to county health departments for treatment. Additionally, during the recent Bicillin shortage, the Florida Department of Health managed distribution of this product, making the county health departments the easiest way for patients to obtain the treatments they needed.

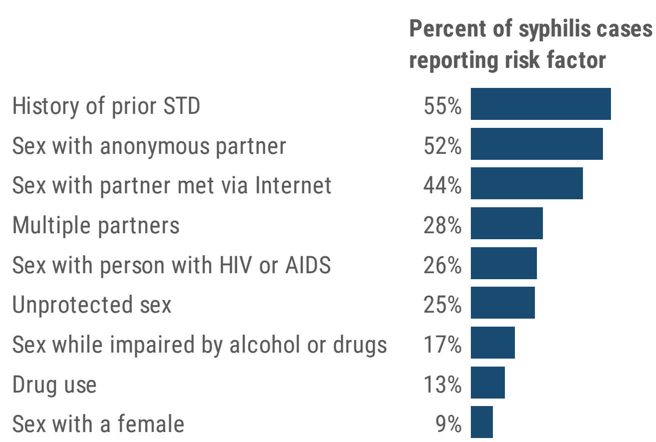
In 2017, 40% of syphilis cases were treated by public providers.





Men who have sex with men (MSM) are identified through risk behavior information collected during case investigations. The true prevalence of the MSM risk is difficult to estimate due to many factors. Most (72%) syphilis cases in males were in men who reported having sex with other men.

MSM with syphilis who were interviewed in 2017 (5,063 men) disclosed an array of risk behaviors, which included sex with anonymous partners and sex with females.



Tuberculosis

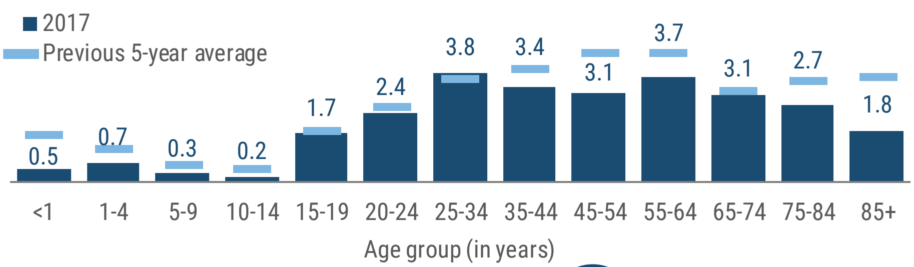
Key Points

Tuberculosis (TB) continues to be a public health threat in Florida. Incidence has declined over the past decade and continued to decrease in 2017 after small increases in 2015 and 2016. Medically underserved and low-income populations, including racial and ethnic minorities, have high rates of TB. In most countries and in Florida, TB incidence is much higher in men than women. The rate per 100,000 population in blacks in Florida was four times as high as the rate in whites in 2017.

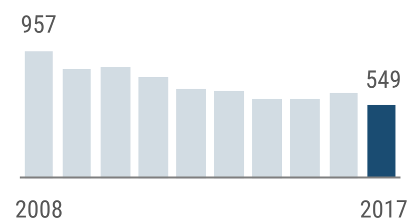
Disease Facts

- **Caused** by *Mycobacterium tuberculosis* bacteria
- **Illness** is usually respiratory (severe cough, pain in chest), but can affect all parts of the body including kidneys, spine, or brain
- **Transmitted** via inhalation of aerosolized droplets from people with active tuberculosis
- **Under surveillance** to implement effective interventions immediately for every case to prevent further transmission, monitor directly observed therapy prevention programs, evaluate trends

The TB rate (per 100,000 population) is low in children and ranged from 2.7–3.8 in adults 25 to 84 years old.



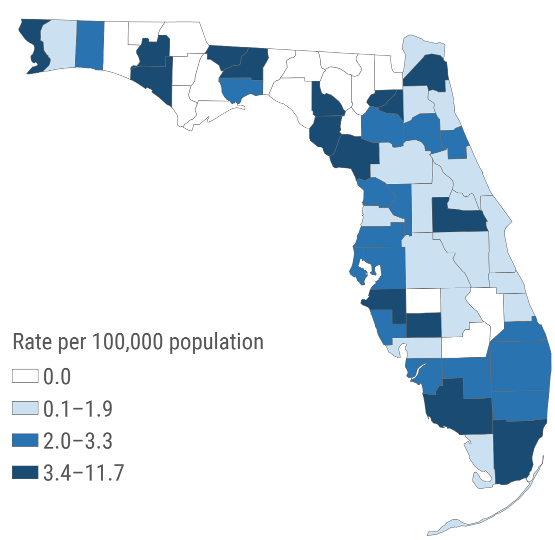
Tuberculosis incidence has generally decreased over the past decade and continued to decrease in 2017.



Disease Trends

Summary			
Number of cases			549
Rate (per 100,000 population)			2.7
Change from 5-year average rate			-17.3%
Age (in Years)			
Mean			47
Median			46
Min-max			0 - 93
Gender	**Number**	**(Percent)**	**Rate**
Female	207	(37.7)	2.0
Male	342	(62.3)	3.4
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	246	(44.8)	1.5
Black	208	(37.9)	6.0
Other	95	(17.3)	8.3
Unknown race	0		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	399	(72.7)	2.6
Hispanic	150	(27.3)	2.9
Unknown ethnicity	0		

TB occurred throughout the state in 2017, though was less common in the Panhandle. While the highest rates (per 100,000 population) tended to be in small, rural counties, almost one third of all TB cases were in two counties: Miami-Dade (99 cases) and Broward (60 cases).

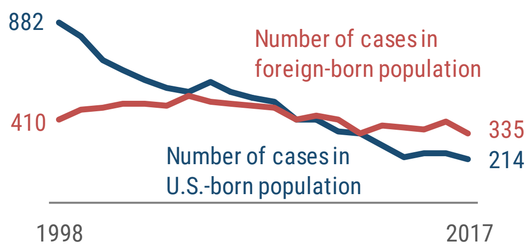


Rates are by county of residence, regardless of where infection was acquired (549 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

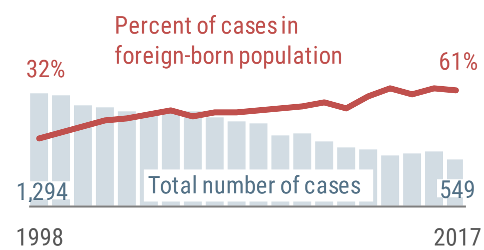
Tuberculosis

The rate of TB in the U.S.-born population in Florida has been decreasing faster than the rate among the foreign-born population. Being born in a country where TB is prevalent is one of the most significant risk factors for developing TB and is a focus for TB prevention and control efforts in Florida. In 2017, 61% of all TB cases in Florida were in the foreign-born population. The most common countries of origin in 2017 included Haiti, Mexico, the Philippines, Vietnam, Guatemala, Honduras, and Cuba, accounting for 212 (63%) of 335 cases identified in the foreign-born population.

In 1998, there were twice as many TB cases in the U.S.-born population than the foreign-born population. In 2017, 50% more cases were in foreign-born people than U.S.-born.

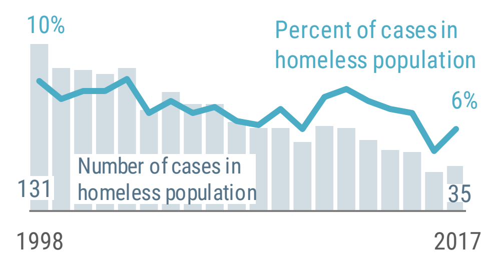


As the number of TB cases has declined in Florida, the percent of those cases in the foreign-born population has increased. In 2017, 61% of cases were in people born outside the U.S.

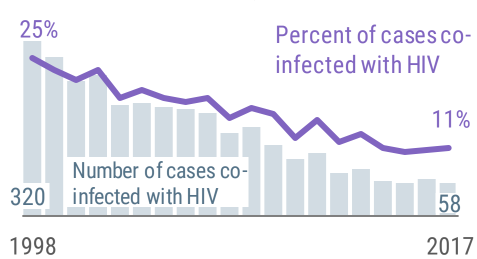


People experiencing homelessness are at increased risk for disease and are a focus for TB prevention and control efforts in Florida. Since 1998, the total number of TB cases among the homeless population in Florida has decreased by over 50%; however, in the same time period, the percent of people with TB who are homeless remained relatively stable (8–10%) until 2012. Since 2012, the percent of people with TB who are homeless decreased from 9.6% to 4.7% in 2016; however, the percent increased in 2017 to 6.5%.

The number and percent of cases among the homeless population increased in 2017 after several years of decreasing.



In 2017, 11% of TB cases were co-infected with HIV. This is a slight increase from 2016, but is similar to the past three years.



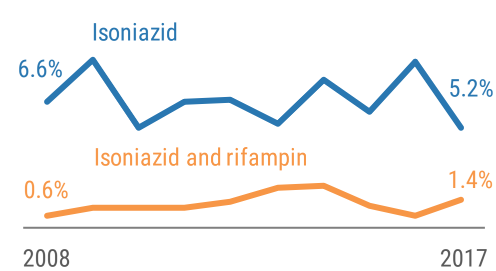
Untreated HIV infection remains the biggest risk factor for developing active TB disease following infection with TB and is a focus for TB prevention and control efforts in Florida. TB and HIV co-infection has been declining modestly but steadily over time in Florida. In the last three years the decline has leveled off around 10%.

Drug resistance arises due to improper use of antibiotics in the chemotherapy of drug-susceptible TB patients. Multidrug-resistant TB is caused by *M. tuberculosis* bacteria that are resistant to at least isoniazid and rifampin, the two most potent TB drugs. In 2017, 425 TB cases were tested in Florida for resistance to isoniazid and rifampin. Over the past 10 years:

- Resistance to isoniazid alone ranged from 5%–9%.
- Resistance to isoniazid and rifampin ranged from 0.6–2.1%.

In 2017, resistance to isoniazid alone decreased and resistance to isoniazid and rifampin increased, but were within the 10-year ranges.

In 2017, 5.2% of tested cases were resistant to isoniazid alone and 1.4% were resistant to both isoniazid and rifampin.



Typhoid Fever (*Salmonella* Serotype Typhi)

Key Points

Typhoid fever is common in most parts of the world except in industrialized regions such as the U.S., Canada, Western Europe, Australia, and Japan. Good sanitation and aggressive case follow-up help prevent typhoid fever from becoming endemic in industrialized regions.

Typically, about 85% of infections are acquired in other countries. In 2017, infections were acquired in Florida (2), India (5), Pakistan (4), Bangladesh (3), Haiti (2), Burundi (1) , Mexico (1), Asia (1), Florida or Pakistan (1). For the 18 people with travel outside the U.S., most (13) were visiting friends or family. Two were traveling for tourism, one was infected before immigrating to the U.S., and one was studying abroad.

While 13 of the 2017 cases were in U.S. citizens, 7 cases were in citizens of other countries who were currently living in Florida. Five of those non-U.S. citizens were infected in their country of origin while visiting friends and family or prior to immigrating to the U.S.

Routine typhoid vaccination is not recommended in the U.S., but is recommended for travelers to parts of the world where typhoid is common, people in close contact with a typhoid carrier, and laboratory workers who work with *Salmonella* serotype Typhi bacteria. Only one person with typhoid fever in 2017 reported being vaccinated.

Disease Facts

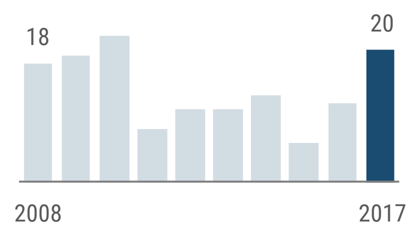
Caused by *Salmonella* serotype Typhi

Illness includes high fever and possibly weakness, stomach pains, headache, loss of appetite, or rash

Transmitted via fecal-oral route, including person-to-person, foodborne, and waterborne

Under surveillance to identify sources of public health concern (e.g., an infected food handler or contaminated commercially distributed food product), prevent transmission from infected people, identify other unrecognized cases

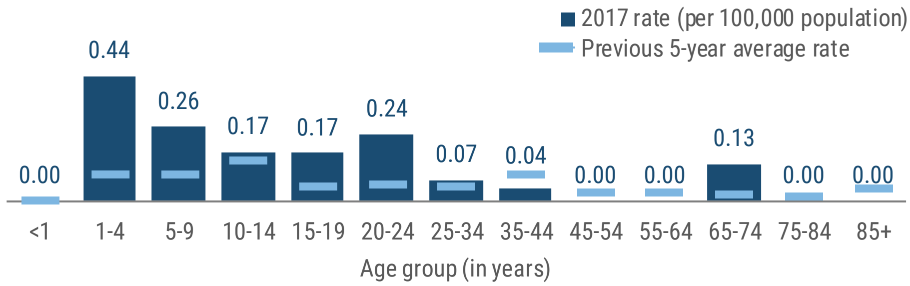
Typhoid fever incidence increased in 2017 compared to the previous six years.



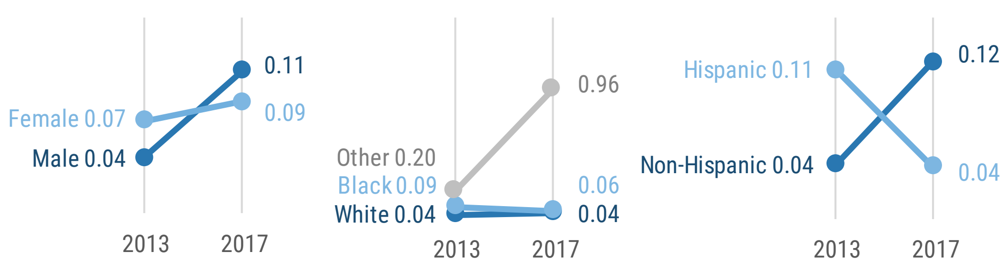
Disease Trends

Summary			
Number of cases			20
Rate (per 100,000 population)			0.1
Change from 5-year average rate			+79.9%
Age (in Years)			
Mean			23
Median			18
Min-max			1 - 74
Gender	**Number**	**(Percent)**	**Rate**
Female	9	(45.0)	NA
Male	11	(55.0)	NA
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	7	(35.0)	NA
Black	2	(10.0)	NA
Other	11	(55.0)	NA
Unknown race	0		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	18	(90.0)	NA
Hispanic	2	(10.0)	NA
Unknown ethnicity	0		

The typhoid fever rate (per 100,000 population) varies by age. Historically, rates are slightly higher in children and young adults than older adults. In 2017, rates were notably higher in children 1 to 9 years old and adults 20 to 24 years old compared to previous years.



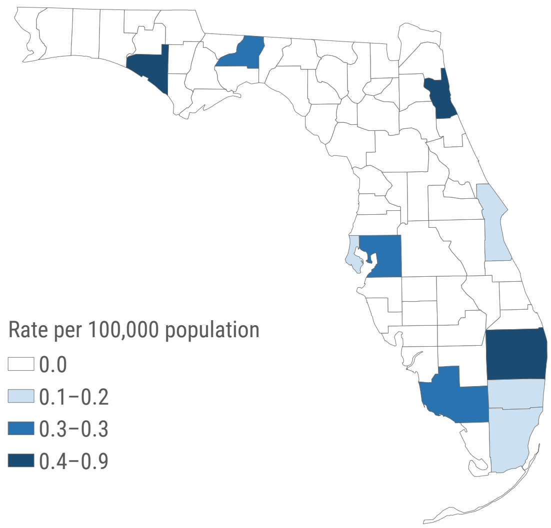
The typhoid fever rate (per 100,000 population) has increased in both genders, blacks, and non-Hispanics since 2013. In 2017, the rate was slightly higher in males than females, notably higher in other races than blacks and whites, and notably higher in non-Hispanics than Hispanics. Small numbers make rates unreliable and hard to interpret.



Typhoid Fever (*Salmonella* Serotype Typhi)

Summary	Number
Number of cases	20
Case Classification	**Number (Percent)**
Confirmed	16 (80.0)
Probable	4 (20.0)
Outcome	**Number (Percent)**
Hospitalized	11 (55.0)
Died	0 (0.0)
Sensitive Situation	**Number (Percent)**
Daycare	1 (5.0)
Health care	1 (5.0)
Food handler	0 (0.0)
Imported Status	**Number (Percent)**
Acquired in Florida	2 (10.5)
Acquired in the U.S., not Florida	0 (0.0)
Acquired outside the U.S.	17 (89.5)
Acquired location unknown	1
Outbreak Status	**Number**
Sporadic	14 (70.0)
Outbreak-associated	6 (30.0)
Outbreak status unknown	0

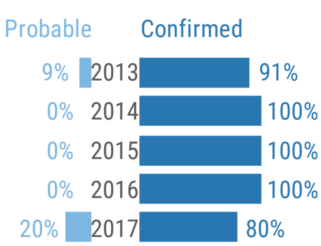
In 2017, 75% of cases were reported in population centers in central (Hillsborough, Pinellas) and south (Palm Beach, Broward, Miami-Dade, Collier) Florida.



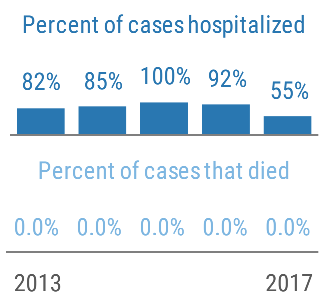
Rates are by county of residence, regardless of where infection was acquired (20 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

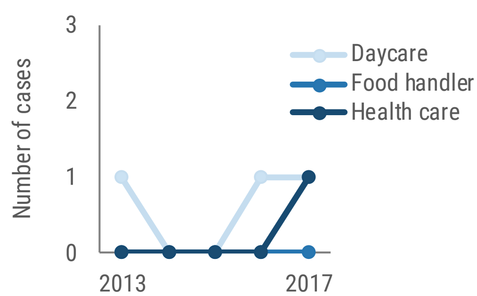
Most typhoid fever cases are confirmed. In 2017, four probable cases were part of a household cluster.



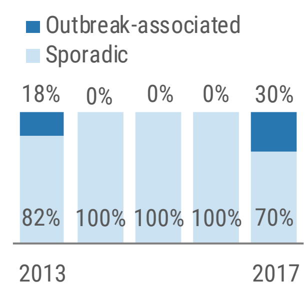
Only 55% of cases were hospitalized in 2017, compared to >80% in past years. Deaths are rare.



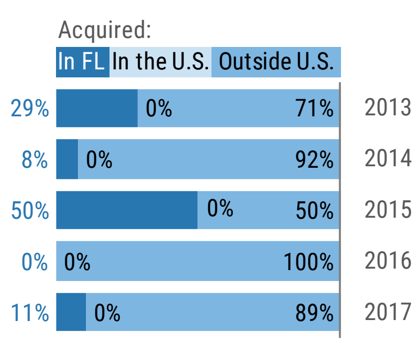
Cases in sensitive situations are monitored to prevent local transmission of disease.



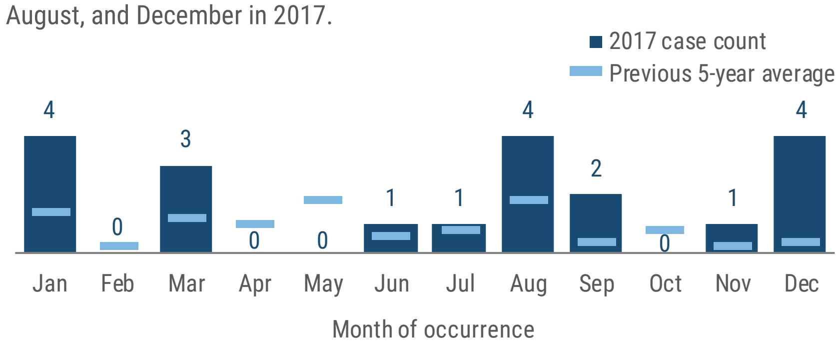
In 2017, six outbreak-associated cases occurred. Five were part of a household cluster and one was linked to cases reported in 2018.



Most typhoid fever cases are acquired outside of the U.S.



There is not a distinct seasonality to typhoid fever cases in Florida, with cases occurring at low levels year-round. More cases were reported in January, March, August, and December in 2017.



See Appendix III: Report Terminology for explanations of case classification, outcome, sensitive situation, imported status, outbreak status, and month of occurrence.

Varicella (Chickenpox)

Key Points

Varicella is a childhood disease that became reportable in Florida in late 2006. A vaccine was first released in the U.S. in 1995 and a 2-dose schedule was recommended in 2008. Beginning with the 2008–2009 school year, children entering kindergarten were required to receive two doses of varicella vaccine. Due to effective vaccination programs, there was a steady decrease in incidence in Florida from 2008 until 2015. Incidence increased slightly in 2015 and has remained elevated.

The rate of varicella remained highest among infants <1-year-old who are too young to be vaccinated and, as a result, vaccination of siblings and caregivers is particularly important to protect this group.

The number of outbreak-associated cases decreased from 217 (29.6%) in 2016 to 125 (19.1%) in 2017. Of the 125 outbreak-associated cases identified, most were small household clusters. Three outbreaks (defined as five or more cases linked in a single setting) were identified in 2017: two outbreaks in correctional facilities and one outbreak in a drug and mental health rehabilitation center. Counties with ≥10 outbreak-associated cases included Broward (4), Palm Beach (15), and Sumter(18). Counties with the highest incidence rates were counties that have low populations or had outbreaks during 2017.

Disease Facts

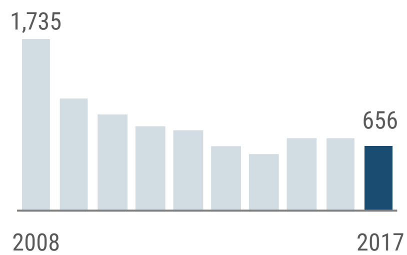
Caused by varicella-zoster virus (VZV)

Illness commonly includes vesicular rash, itching, tiredness, and fever

Transmitted person-to-person by contact with or inhalation of aerosolized, infective respiratory tract droplets or secretions, or direct contact with VZV vesicular lesions

Under surveillance to identify and control outbreaks, monitor effectiveness of immunization programs and vaccines, monitor trends and severe outcomes

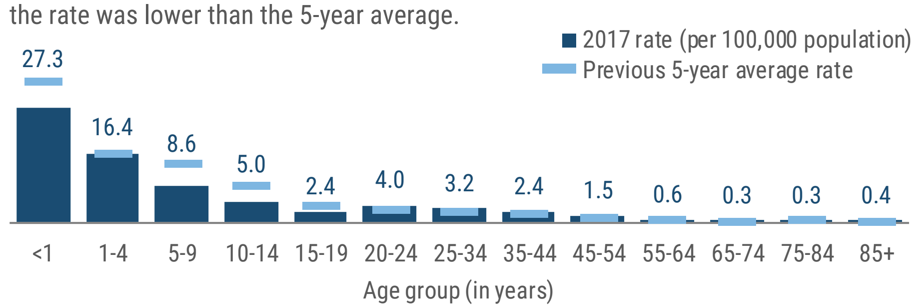
Varicella incidence decreased slightly in 2017.



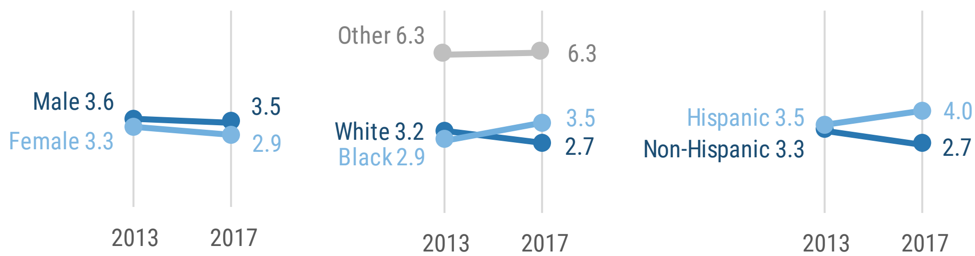
Disease Trends

Summary		
Number of cases		656
Rate (per 100,000 population)		3.2
Change from 5-year average rate		-11.0%
Age (in Years)		
Mean		18
Median		11
Min-max		0 - 90
Gender	**Number (Percent)**	**Rate**
Female	309 (47.1)	2.9
Male	347 (52.9)	3.5
Unknown gender	0	
Race	**Number (Percent)**	**Rate**
White	438 (69.2)	2.7
Black	123 (19.4)	3.5
Other	72 (11.4)	6.3
Unknown race	23	
Ethnicity	**Number (Percent)**	**Rate**
Non-Hispanic	416 (66.8)	2.7
Hispanic	207 (33.2)	4.0
Unknown ethnicity	33	

Infants <1 year old are too young to be vaccinated and, as a result, vaccination of siblings and caregivers is particularly important to protect this group. The varicella rate (per 100,000 population) remained highest in infants <1 year old in 2017, though the rate was lower than the 5-year average.



The varicella rate (per 100,000 population) is relatively similar among males and females. It is also similar among whites and blacks, though since 2013, the rate in whites increased while the rate in blacks decreased. The rate in Hispanics has also increased slightly since 2013.

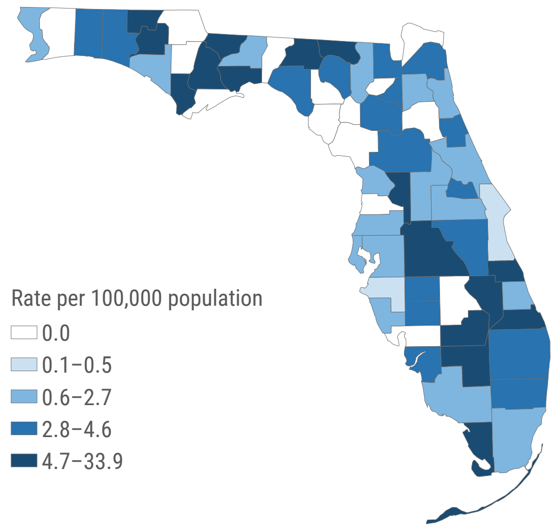


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Varicella cases were missing 5.0% of ethnicity data in 2017.

Varicella (Chickenpox)

Summary	Number
Number of cases	656
Case Classification	**Number (Percent)**
Confirmed	208 (31.7)
Probable	448 (68.3)
Outcome	**Number (Percent)**
Hospitalized	40 (6.1)
Died	0 (0.0)
Sensitive Situation	**Number (Percent)**
Daycare	65 (9.9)
Health care	17 (2.6)
Food handler	7 (1.1)
Imported Status	**Number (Percent)**
Acquired in Florida	585 (95.1)
Acquired in the U.S., not Florida	10 (1.6)
Acquired outside the U.S.	20 (3.3)
Acquired location unknown	41
Outbreak Status	**Number**
Sporadic	521 (80.7)
Outbreak-associated	125 (19.3)
Outbreak status unknown	10

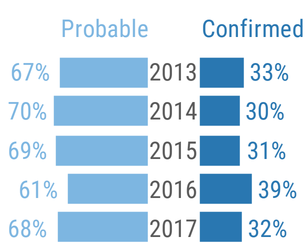
Varicella occurred throughout the state in 2017. Rates (per 100,000 population) tended to be highest in small, rural counties. Rates ranged from 0 to 33.9 per 100,000.



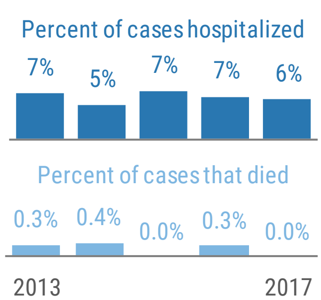
Rates are by county of residence for infections acquired in Florida (585 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

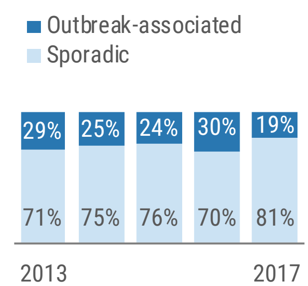
Only about 1/3 of cases are confirmed. Most varicella cases are classified as probable based on symptoms only.



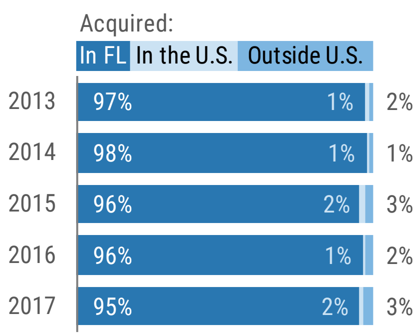
Most varicella cases do not require hospitalization and deaths are very rare.



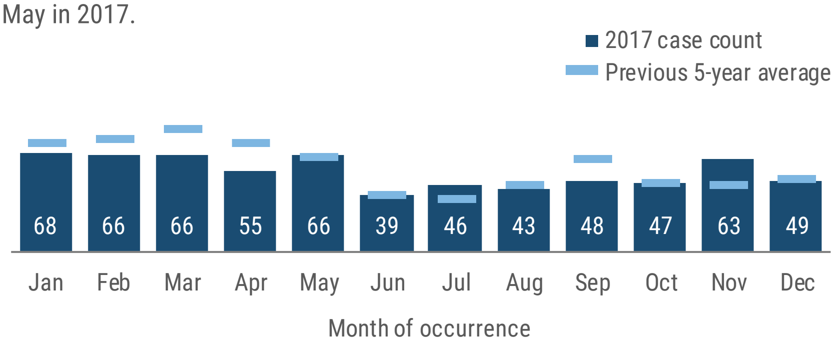
Usually between 25–30% of cases are outbreak associated; only 19% were outbreak-associated in 2017.



Most VZV infections are acquired in Florida. Each year, a few cases are imported from other states and countries.



Generally, more varicella cases occur in winter and spring, particularly in school-aged children. Between 55 and 68 cases occurred each month from January to May in 2017.



See Appendix III: Report Terminology for explanations of case classification, outcome, sensitive situation, imported status, outbreak status, and month of occurrence.

Vibriosis (Excluding Cholera)

Key Points

Vibrio species are endemic in Florida's seawater. Incidence is typically higher in the summer when exposure to seawater is more common and warmer water is conducive to bacterial growth. Incidence increased notably in 2017, largely due to a change in the probable case definition, which expanded in 2017 to include culture-independent diagnostic testing (CIDT).

V. vulnificus can cause particularly severe disease, with about 50% of bloodstream infections being fatal. Of the 51 cases due to *V. vulnificus* in 2017, 48 (94%) were hospitalized and 11 (22%) died, accounting for 11 of the 17 total vibriosis deaths. Of the 51 *V. vulnificus* cases, 36 (70.6%) had underlying medical conditions, which is typical of these infections.

Five *V. vulnificus* and one *V. cholera* non-O1 cases were associated with Hurricane Irma in 2017. Cases were in Collier (3), Broward (1), Manatee (1), and Monroe (1) counties. All five people infected with *V. vulnificus* were hospitalized, two died, and one case required an above-the-knee amputation; two reported underlying medical conditions. The person infected with *V. cholera* non-O1 did not report underlying medical conditions and was hospitalized for reasons other than the *Vibrio* infection. Five cases reported wounds with exposure to either floodwaters or debris from the hurricane, and one reported exposure to floodwaters only.

Disease Facts

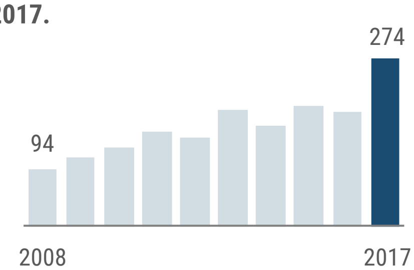
Caused by bacteria in the family *Vibrionaceae*

Illness can be gastroenteritis (diarrhea, vomiting), bacteremia, septicemia, wound infection, cellulitis; other common symptoms include low-grade fever, headache, and chills

Transmitted via food, water, and wound infections from direct contact with brackish water or salt water where the bacteria naturally live, or direct contact with marine wildlife

Under surveillance to identify sources of transmission (e.g., shellfish collection area) and mitigate source, monitor incidence over time, estimate burden of illness

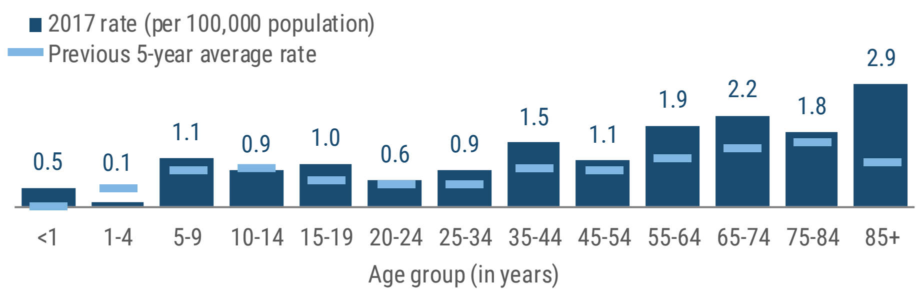
Vibriosis incidence increased notably in 2017.



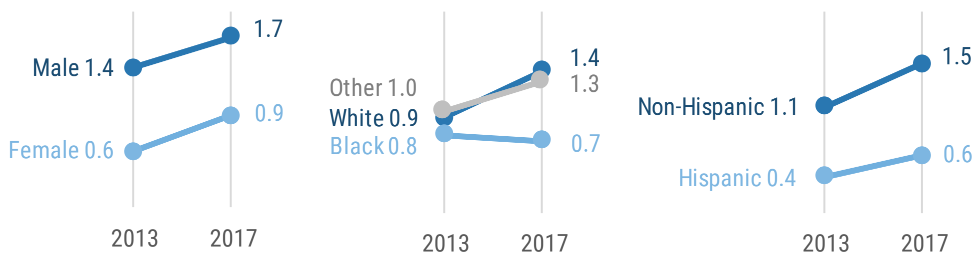
Disease Trends

Summary			
Number of cases			274
Rate (per 100,000 population)			1.3
Change from 5-year average rate			+47.6%
Age (in Years)			
Mean			51
Median			55
Min-max			0 - 92
Gender	**Number**	**(Percent)**	**Rate**
Female	99	(36.1)	0.9
Male	175	(63.9)	1.7
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	225	(84.9)	1.4
Black	25	(9.4)	0.7
Other	15	(5.7)	NA
Unknown race	9		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	228	(88.7)	1.5
Hispanic	29	(11.3)	0.6
Unknown ethnicity	17		

The vibriosis rate (per 100,000 population) is usually highest in older adults aged 55 to 84 years. In 2017, the rate was highest in elderly adults ≥85 years old.



Vibriosis rates (per 100,000 population) increased in all gender, race, and ethnicity groups except blacks. The rate is consistently higher in males, whites, other races, and non-Hispanics.

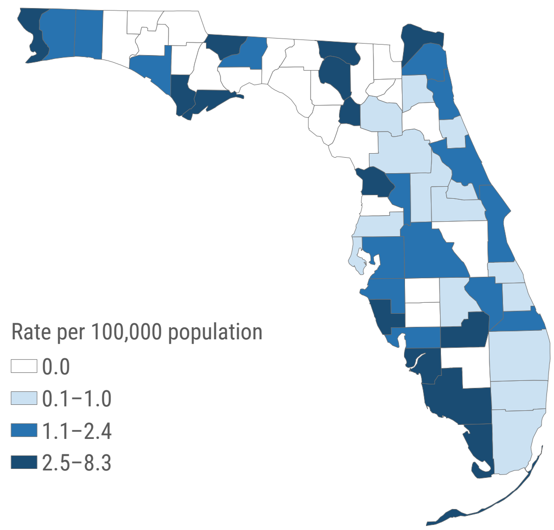


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Vibriosis cases (excluding cholera) were missing 9.4% of ethnicity data in 2013, 6.8% of race data in 2013, and 6.2% of ethnicity data in 2017.

Vibriosis (Excluding Cholera)

Summary	Number
Number of cases	274
Case Classification	**Number (Percent)**
Confirmed	228 (83.2)
Probable	46 (16.8)
Outcome	**Number (Percent)**
Hospitalized	135 (49.3)
Died	17 (6.2)
Imported Status	**Number (Percent)**
Acquired in Florida	246 (92.5)
Acquired in the U.S., not Florida	7 (2.6)
Acquired outside the U.S.	13 (4.9)
Acquired location unknown	8
Outbreak Status	**Number (Percent)**
Sporadic	269 (98.2)
Outbreak-associated	5 (1.8)
Outbreak status unknown	0

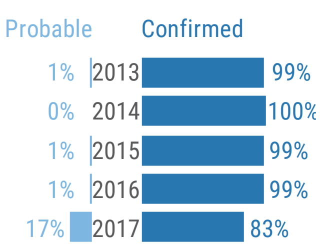
Vibriosis occurred in most parts of the state in 2017. The rates (per 100,000 population) were highest in southwest Florida and in low-population counties in the Panhandle.



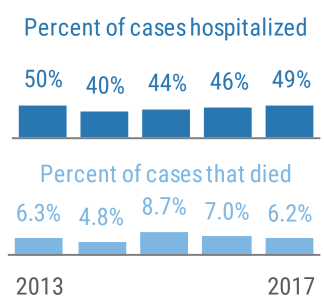
Rates are by county of residence for infections acquired in Florida (246 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

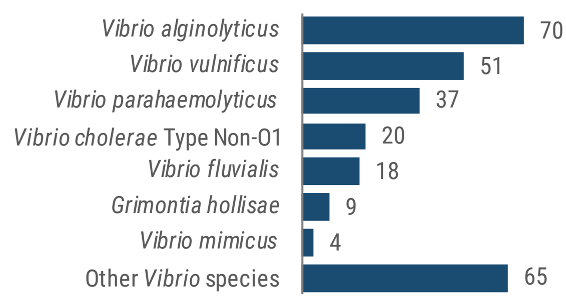
The case definition changed in 2017 to include CIDT in the probable classification, resulting in more probable cases.



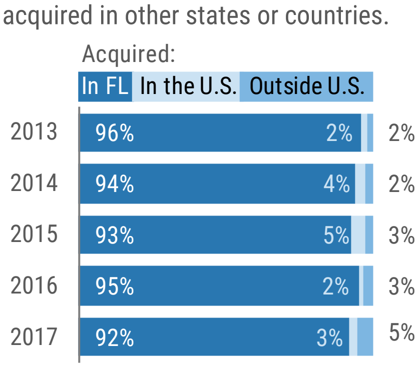
Between 40–50% of cases are hospitalized, and deaths do occur. Eleven people infected with *V. vulnificus* died in 2017.



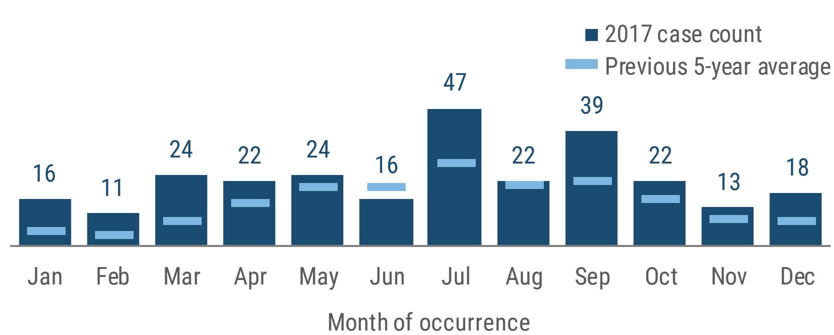
In 2017, the most commonly reported *Vibrio* species were *V. alginolyticus*, *V. vulnificus*, and *V. parahaemolyticus*. The number of other *Vibrio* infections was largely due to culture-independent testing, which cannot differentiate between species.



Most Vibrio infections are acquired in Florida. In 2017, 20 infections were acquired in other states or countries.



Vibriosis occurs throughout the year in Florida. In 2017, there was a summer peak in July and a peak in September.



See Appendix III: Report Terminology for explanations of case classification, outcome, imported status, outbreak status, and month of occurrence.

Zika Virus Disease and Infection

Key Points

Zika emerged in Brazil in 2015, followed by local transmission throughout the Americas and the Caribbean. In 2016, over 1,400 cases were reported in Florida, including 285 locally acquired cases and five congenital cases. Florida and Texas were the only two states in the continental U.S. with local Zika transmission following introduction. Active transmission of Zika virus was identified in four areas in Miami-Dade County in 2016. Due to the possibility of adverse pregnancy and fetal outcomes associated with Zika virus infection during pregnancy, outreach to pregnant women and their providers was a high priority for the Florida Department of Health. All infants born to Zika-positive mothers in 2016 and 2017 are followed until they are 2 years old.

Unlike other diseases and conditions in this report, non-Florida residents are included in Zika case counts. About 7% of the cases reported in both 2016 and 2017 were in non-Florida residents. In 2016, only 21% of the 1,456 Zika cases were pregnant, compared to a much larger 49% in 2017. This increase was primarily related to increased availability of testing for asymptomatic pregnant women, as well as the possibility of prolonged IgM antibody detection, which may have identified older Zika virus infections.

In 2016, four congenital Zika syndrome cases (CZS) and one healthy-appearing infant with Zika virus infection were reported. In 2017, three CZS cases and one healthy-appearing infant with Zika virus infection were reported. One of the congenital Zika infections in 2017 was in an infant born to a mother who did not travel outside Florida during pregnancy.

Disease Facts

Caused by Zika virus

Illness is frequently asymptomatic; common symptoms include fever, rash, headache, joint pain, conjunctivitis, and muscle pain; microcephaly and other severe fetal brain defects when mother is infected during pregnancy; post-infection Guillain-Barré syndrome has occurred

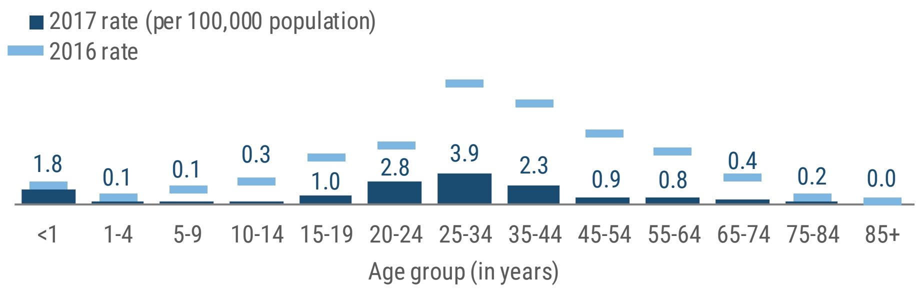
Transmitted via bite of infective mosquito, blood transfusions, sex with infected partner, or from mother to child during pregnancy

Under surveillance to identify individual cases and implement control measures to prevent local transmission, monitor incidence over time, estimate burden of illness, identify infants born to infected mothers for follow-up

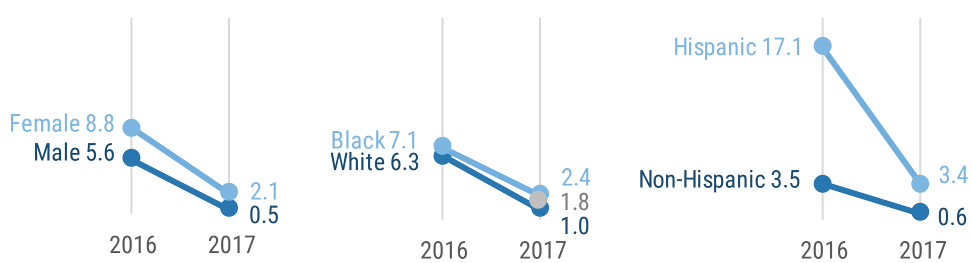
Disease Trends

Summary			
Number of cases			277
Rate (per 100,000 population)			1.3
Change from previous year incidence			-81.3%
Age (in Years)			
Mean			35
Median			33
Min-max			0 - 78
Gender	**Number**	**(Percent)**	**Rate**
Female	225	(81.2)	2.1
Male	52	(18.8)	0.5
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	166	(61.3)	1.0
Black	84	(31.0)	2.4
Other	21	(7.7)	1.8
Unknown race	6		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	94	(34.7)	0.6
Hispanic	177	(65.3)	3.4
Unknown ethnicity	6		

The rate of Zika virus disease and infection (per 100,000 population) is highest in adults 25–34 years of age. Due to the possibility of adverse pregnancy and fetal outcomes associated with Zika virus infection during pregnancy, testing was focused on pregnant women; however, symptomatic individuals also met testing criteria.



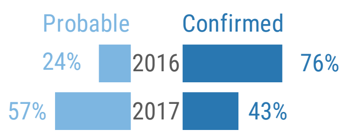
The rates of Zika virus disease and infection (per 100,000 population) vary by gender, race, and ethnicity. In 2017, the rate in females was four times the rate in males, the rate in whites was more than twice the rate in blacks, and the rate in Hispanics was more than five times the rate in non-Hispanics.



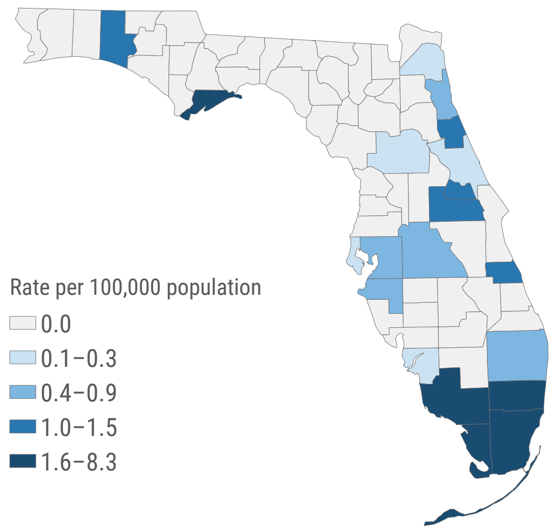
Zika Virus Disease and Infection

Summary	Number
Number of cases	277
Case Classification	**Number (Percent)**
Confirmed	120 (43.3)
Probable	157 (56.7)
Type	**Number (Percent)**
Non-congenital	273 (98.6)
Congenital	4 (1.4)
Residence status	**Number Percent**
Florida resident	257 (92.8%)
Non-Florida resident	20 (7.2)
Special populations	**Number (Percent)**
Pregnant women	136 (49.1)

Fewer cases of Zika virus infection met confirmatory case criteria in 2017; positive results were primarily for antibody testing rather than detection of Zika virus.



Imported Zika cases were more commonly reported in central and south Florida with the highest rates (per 100,000 population) concentrated in south Florida counties. Only two cases were locally acquired in 2017; one in Miami-Dade County and one in Manatee County.



Rates are by county of residence, regardless of where infection was acquired (277 cases). Non-Florida residents (20 cases) are included by the county where the case was reported. Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2017 by county.

More Disease Trends

In 2017, Cuba was the most common country where infections were acquired, accounting for over 30% of cases. In 2016, Puerto Rico was the most common location, but only accounted for 15% of cases.

Top 5 exposure locations for 2017

Country/territory	Number	Percent
Cuba	90	32%
Haiti	41	15%
Venezuela	18	6%
Dominican Republic	10	4%
Jamaica	9	3%

Top 5 exposure locations for 2016

Country/territory	Number	Percent
Puerto Rico	222	15%
Dominican Republic	150	10%
Nicaragua	124	9%
Jamaica	123	8%
Haiti	98	7%

The percent of cases that were locally acquired decreased from 20% in 2016 to only 6% in 2017. Of the 17 cases reported as locally acquired in 2017, only two were exposed in 2017; the other 15 were exposed in 2016 but not tested until 2017. All 15 cases reported in 2017 with undetermined imported status were also exposed in 2016. One of the congenital Zika cases in 2017 was in an infant born to a mother who did not travel outside Florida during pregnancy.

	2016		2017	
Imported status	Number	Percent	Number	Percent
Travel-related	1,122	77%	225	81%
Undetermined (exposed in 2016)	49	3%	35	13%
Locally acquired (exposed in 2016)	285	20%	15	5%
Locally acquired (exposed in 2017)	NA		2	1%

Note: The undetermined category includes individuals who spent time in Miami-Dade County where local transmission was ongoing in 2016 and who spent time in countries or territories with widespread Zika virus transmission. The exact location of exposure was not able to be confirmed for these individuals.

Two cases in 2017 were the result of local mosquito-borne transmission. Three travel-associated cases were the result of sexual transmission and all three involved male-to-female transmission. Two of the cases had no recent international travel but their sexual partners reported travel to Cuba. The third traveled with her sexual partner to Cuba but developed symptoms more than two weeks after travel.

Two non-congenital cases were hospitalized for Zika in 2017.

See Appendix III: Report Terminology for explanations of case classification, outcome, and month of occurrence.

Section 2:

Narratives for Uncommon Reportable Diseases/Conditions

Section 2: Narratives for Uncommon Diseases/Conditions

Anaplasmosis

Anaplasmosis was previously known as human granulocytic ehrlichiosis (HGE), but was later renamed human granulocytic anaplasmosis (HGA) when the bacterium genus was changed from *Ehrlichia* to *Anaplasma*. Anaplasmosis is transmitted to humans by tick bites primarily from *Ixodes scapularis*, the black-legged tick, and *Ixodes pacificus*, the western black-legged tick. Co-infection with other pathogens found in these vectors is possible. Unlike ehrlichiosis, most HGA cases reported in Florida are due to infections acquired in the northeastern and midwestern U.S. Anaplasma infections can be acquired in Florida but it is uncommon.

Disease Facts

Caused by *Anaplasma phagocytophilum* bacteria

Illness includes fever, headache, chills, malaise, and muscle aches; more severe infections can occur in elderly and immunocompromised people

Transmitted via bite of infective tick

Under surveillance to monitor incidence over time, estimate burden of illness, and target areas of high incidence for prevention education

Nationally, cases are most common in males more than 40 years old. All nine cases reported in 2017 in Florida were more than 45 years old. However, six of the nine cases were in females. Onset dates ranged from June to November 2017, which is consistent with national peak activity. Seven of the nine cases were acquired in northeastern U.S. states, while two were acquired in midwestern U.S. states. The vector is common in both regions and continues to expand its range.

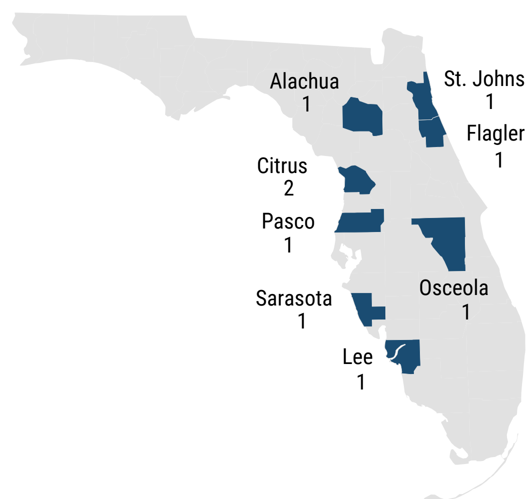
Cases counted in this report are based on year reported, whereas other reports may be based on date of onset. One case reported in 2017 had onset in 2016.

The number of anaplasmosis cases has increased slightly over the past five years. Cases occurred in adults and more commonly in females. All 2017 cases were in whites and primarily non-Hispanics. All cases were sporadic and acquired in other states.

Summary	
Number of cases in 2017	9
5-year trend (2013 to 2017)	
Age (in Years)	
Mean	69
Median	69
Min-max	48 - 82
Gender	**Number**
Female	6
Male	3
Unknown gender	0
Race	**Number**
White	9
Black	0
Other	0
Unknown race	0
Ethnicity	**Number**
Non-Hispanic	7
Hispanic	1
Unknown ethnicity	1

Case Classification	Number
Confirmed	8
Probable	1
Outcome	**Number**
Interviewed	6
Hospitalized	4
Died	0
Outbreak Status	**Number**
Sporadic	9
Outbreak-associated	0
Outbreak status unknown	0
State Where Exposed	**Number**
Maine	3
Massachusetts	3
Minnesota	1
Pennsylvania	1
Wisconsin	1

Imported anaplasmosis cases were identified in residents of eight Florida counties in 2017. Citrus County was the only one to have two cases identified in residents. All infections were acquired in other U.S. states.



See Appendix III: Report Terminology for explanations of case classification, outcome, and outbreak status.

Arsenic Poisoning

Arsenic poisoning became a reportable condition in Florida in November 2008. Arsenic is a naturally occurring element that is widely distributed in the environment. It is usually found in conjunction with other elements like oxygen, chlorine, and sulfur (inorganic arsenic). Arsenic in animals and plants combines with carbon and hydrogen to form organic arsenic compounds. Most arsenic-induced toxicity in humans is due to exposure to inorganic arsenic. Common sources of potential inorganic arsenic exposure are chromated copper arsenate (CCA)-treated wood, tobacco smoke, certain agricultural pesticides, and some homeopathic and naturopathic preparations and folk remedies. In addition, inorganic arsenic is a naturally occurring contaminant found in water in certain areas of Florida, affecting private drinking wells (which are not regulated).

Disease Facts

- **Caused** by inorganic arsenic
- **Illness** can include severe gastrointestinal signs and symptoms (e.g., vomiting, abdominal pain, and diarrhea) which may lead rapidly to dehydration and shock, dysrhythmias (prolonged QT, T-wave changes), altered mental status, and multisystem organ failure may follow, which can ultimately result in death
- **Transmitted** via ingestion of arsenic or inhalation of air containing arsenic
- **Under surveillance** to identify sources of arsenic exposure that are of public health concern (e.g., water source, workplace exposure, homeopathic medicines), prevent further exposure

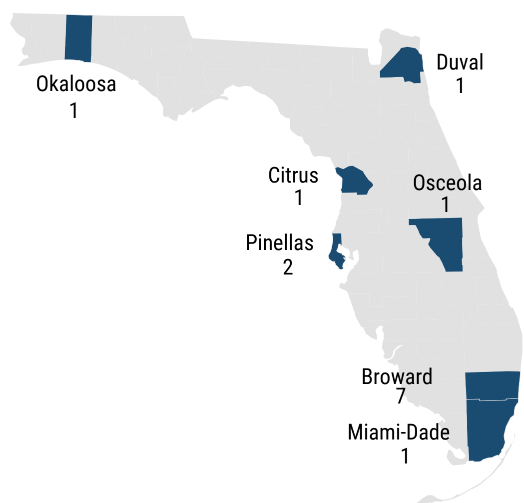
The number of cases decreased in 2017 compared to 2016. Most cases occurred in adults in their 60s and 70s. Arsenic poisoning cases occur year-round at low levels. Cumulatively over the past five years, there has been a small peak in June, though in 2017 activity peaked in July with five cases. All cases reported in 2017 were sporadic. Eight cases had known exposures related to drinking well/cistern water (3), chemicals (3), occupation (1), and smoking (1). For the remaining six cases, the source of exposure was unknown.

Between 2 and 21 arsenic poisoning cases have been identified each year from 2013 to 2017. Cases occurred in adults and more commonly in males. Most 2017 cases were in non-Hispanic whites. All cases were sporadic and most were acquired in Florida.

Summary	
Number of cases in 2017	14
5-year trend (2013 to 2017)	
Age (in Years)	
Mean	64
Median	66
Min-max	42 - 93
Gender	**Number**
Female	4
Male	10
Unknown gender	0
Race	**Number**
White	9
Black	2
Other	1
Unknown race	2
Ethnicity	**Number**
Non-Hispanic	10
Hispanic	1
Unknown ethnicity	3

Case Classification	Number
Confirmed	14
Probable	0
Outcome	**Number**
Interviewed	13
Hospitalized	2
Died	0
Outbreak Status	**Number**
Sporadic	14
Outbreak-associated	0
Outbreak status unknown	0
State Where Exposed	**Number**
Florida	12
Florida, Maryland, or New York	1
Michigan	1

Arsenic poisoning cases occurred in residents of seven Florida counties in 2017. Half of the cases were identified in Broward County.



See Appendix III: Report Terminology for explanations of case classification, outcome, and outbreak status.

Babesiosis

Babesiosis became nationally notifiable in 2011 and became reportable in Florida in October 2016. Most U.S. reported cases have been *B. microti* infections acquired in parts of the northeastern and north-central regions. Sporadic U.S. cases may be caused by other *Babesia* species, such as *B. duncani* and related organisms in several western states, as well as *B. divergens*-like variant M01 in various states. Zoonotic *Babesia* species have also been reported in Europe, Africa, Japan, Taiwan, India, and Mexico. Some infections may be asymptomatic and can lead to transfusion-associated cases in both endemic and non-endemic areas like Florida.

Disease Facts

Caused by *Babesia* parasites, most commonly *Babesia microti*

Illness includes hemolytic anemia and influenza-like symptoms (e.g., fever, chills, body aches, weakness, fatigue); complications can include thrombocytopenia, disseminated intravascular coagulation, hemodynamic instability, acute respiratory distress, myocardial infarction, renal failure, hepatic dysfunction, altered mental status, and death; can be asymptomatic

Transmitted via bite of infective tick

Under surveillance to monitor incidence over time, estimate burden of illness, and target areas of high incidence for prevention education

B. microti circulates between *Ixodes scapularis* (blacklegged tick) and animal reservoir hosts, primarily small mammals such as *Peromyscus leucopus* (white-footed mouse). In these regions, this enzootic cycle is shared by the etiologic agents of Lyme disease (*Borrelia burgdorferi*) and human anaplasmosis (*Anaplasma phagocytophilum*) and co-infections can occur. Babesiosis appears to have increasing case numbers and an expanding endemic range in some areas, although the U.S. incidence and the full geographic extent of *B. microti* and novel *Babesia* agents are unknown.

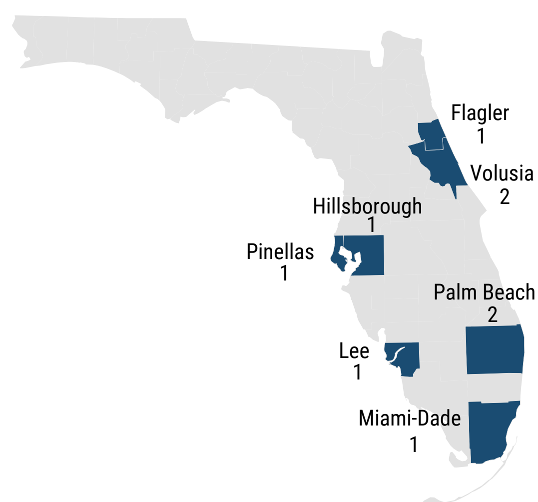
All nine cases reported in Florida in 2017 were exposed in U.S. states where babesiosis is endemic and were in people more than 50 years old. Four cases were confirmed through polymerase chain reaction testing; three were infected with *B. microti* and one was infected with a *Babesia* species. One case was co-infected with *Borrelia burgdorferi* and was also reported as a Lyme disease case.

Babesiosis became reportable in late 2016 and nine cases were identified in 2017. Cases occurred in adults and more commonly in males. All 2017 cases were in non-Hispanic whites. Most cases were hospitalized, but no deaths occurred.

Summary	
Number of cases in 2017	9
Age (in Years)	
Mean	66
Median	68
Min-max	52 - 79
Gender	**Number**
Female	3
Male	6
Unknown gender	0
Race	**Number**
White	9
Black	0
Other	0
Unknown race	0
Ethnicity	**Number**
Non-Hispanic	9
Hispanic	0
Unknown ethnicity	0

Case Classification	Number
Confirmed	7
Probable	2
Outcome	**Number**
Interviewed	7
Hospitalized	6
Died	0
Outbreak Status	**Number**
Sporadic	9
Outbreak-associated	0
Outbreak status unknown	0
State Where Exposed	**Number**
New York	4
Massachusetts	3
Rhode Island	1
Wisconsin	1

Imported babesiosis cases occurred in residents of seven Florida counties in 2017. Each of the seven counties had one or two cases identified. All infections were acquired in other U.S. states.



See Appendix III: Report Terminology for explanations of case classification, outcome, and outbreak status.

Brucellosis

Human infections in Florida are most commonly associated with exposure to feral swine infected with *B. suis*. Dogs and domestic livestock may also be infected with *B. suis*. Although dogs and other animals, such as dolphins, may be infected with their own *Brucella* species, human illness is not commonly associated with them. Outside the U.S., unpasteurized milk products from goats, sheep, and cattle infected with *B. melitensis* and *B. abortus* are important sources of human infections. Laboratorians can be at risk for exposure to *Brucella* species while working with human or animal cultures.

Disease Facts

Caused by *Brucella* bacteria

Illness includes fever, sweats, headaches, back pain, weight loss, and weakness; long-lasting or chronic symptoms can include recurrent fevers, joint pain, and fatigue

Transmitted primarily via ingestion of contaminated animal products, inhalation of bacteria, or skin/mucous membrane contact with infected animals

Under surveillance to target areas of high risk for prevention education, detect potentially contaminated products (e.g., food, transfusion, organ transplant products), provide prophylaxis to prevent laboratory exposure-related infections, detect and respond to a bioterrorist incident

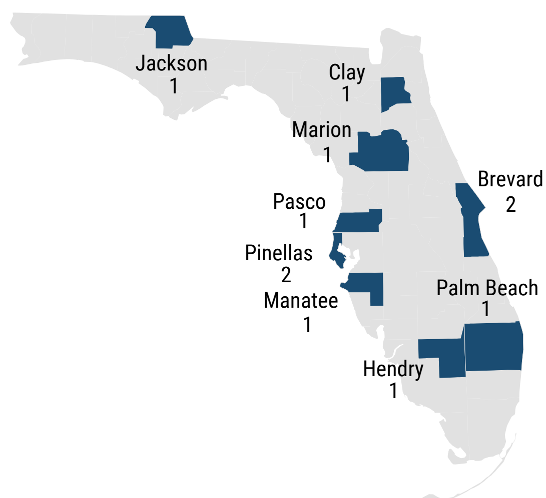
All five confirmed cases in 2017 were culture-positive for *B. suis*. *Brucella* is sometimes misidentified as *Ochrobactrum*. Initial culture results were reported as *Ochrobactrum* for one confirmed case and one probable case involved a pig hunter with a history of positive *Ochrobactrum* cultures. Two laboratorians who worked with those cultures were recommended to receive *Brucella* serologic follow-up as a precaution. At least 11 potential laboratory exposures involving laboratorians working with *Brucella* cultures were reported; laboratorians may have been exposed out of state as well. Risk factors for confirmed cases included pig hunting (five cases) and pig farming (one case). Risk factors for probable cases were pig hunting (three cases), deer hunting (one case), imported soft cheese (one case), and one case had unknown risk factors. Three of the six probable cases also had history of drug use and serologic cross-reaction with other more common bacteria is a possibility. One probable case who reported eating imported soft cheeses died; the person was also an intravenous drug user with a history of positive *Staphylococcus* cultures.

The number of brucellosis cases reported varies by year with no clear trend. Cases occurred in adults and more commonly in males. All 2017 cases were in whites and most were in non-Hispanics. All cases were sporadic. Eight cases were hospitalized and one death occurred, though it was unrelated to the brucellosis.

Summary	
Number of cases in 2017	11
5-year trend (2013 to 2017)	
Age (in Years)	0
Mean	44
Median	41
Min-max	29 - 63
Gender	**Number**
Female	2
Male	9
Unknown gender	0
Race	**Number**
White	11
Black	0
Other	0
Unknown race	0
Ethnicity	**Number**
Non-Hispanic	9
Hispanic	1
Unknown ethnicity	1

Case Classification	Number
Confirmed	5
Probable	6
Outcome	**Number**
Interviewed	11
Hospitalized	8
Died	1
Outbreak Status	**Number**
Sporadic	11
Outbreak-associated	0
Outbreak status unknown	0
State Where Exposed	**Number**
Florida	11

Brucellosis cases occurred in residents of nine Florida counties in 2017. Seven counties each had one or two cases identified. All infections were acquired in Florida.



See Appendix III: Report Terminology for explanations of case classification, outcome, and outbreak status.

Chikungunya Fever

Chikungunya virus is most often spread to people by *Aedes aegypti* and *Aedes albopictus* mosquitoes (the same mosquitoes that transmit dengue and Zika viruses). The first autochthonous transmission of chikungunya virus in the Americas was reported on the island of St. Martin in December 2013. Since then, local transmission has been identified in countries throughout the Caribbean and the Americas. In 2014, 442 cases were identified in Florida residents and Florida was the only continental U.S. state to report local cases of chikungunya fever, with 12 cases reported. No locally acquired cases were identified from 2015 to 2017.

Disease Facts

Caused by chikungunya virus

Illness is acute febrile with joint and muscle pain, headache, joint swelling, and rash; joint pain can persist for months to years and relapse can occur

Transmitted via bite of infective mosquito, rarely by blood transfusion or organ transplant

Under surveillance to identify individual cases and implement control measures to prevent endemicity, monitor incidence over time, estimate burden of illness

Extensive spread in Central and South America and the Caribbean in 2014 resulted in immunity for many people in those areas. Overall incidence in Florida decreased dramatically in 2015 (121 cases), 2016 (10 cases), and 2017 (4 cases). Infection with chikungunya virus is believed to lead to lifetime immunity, which is considered to be the primary reason for this decrease.

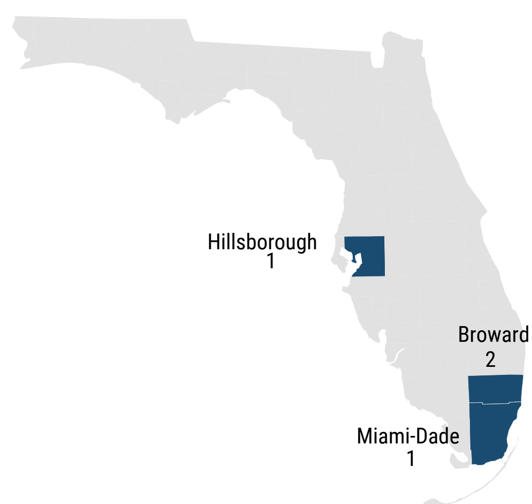
Case counts in this report are based on report year and may differ from other reports that use different criteria to assemble the data (such as onset date). One additional case had onset in 2017 but was not reported until 2018 and will therefore be included in the 2018 report.

Over 400 chikungunya fever cases were identified in 2014 and activity has decreased dramatically since. Four cases occurred in 2017 in adults who were infected in India (three cases) and Brazil (one case). Three of the four cases were confirmed.

Number of cases in 2017	4
5-year trend (2013 to 2017)	
Age (in Years)	
Mean	52
Median	49
Min-max	43 - 69
Gender	**Number**
Female	1
Male	3
Unknown gender	0
Race	**Number**
White	1
Black	0
Other	3
Unknown race	0
Ethnicity	**Number**
Non-Hispanic	3
Hispanic	1
Unknown ethnicity	0

Case Classification	
Confirmed	3
Probable	1
Outcome	**0 Number**
Interviewed	3
Hospitalized	1
Died	0
Outbreak Status	**0 Number**
Sporadic	4
Outbreak-associated	0
Outbreak status unknown	0
Country Where Exposed	**Number**
India	3
Brazil	1

Imported chikungunya cases occurred in residents of three Florida counties in 2017. Each of the three counties had one or two cases identified. All infections were acquired outside the U.S.



See Appendix III: Report Terminology for explanations of case classification, outcome, and outbreak status.

Ehrlichiosis

Ehrlichiosis is a broad term used to describe a group of bacterial pathogens. At least three different *Ehrlichia* species are known to cause human illness in the U.S. Both *Ehrlichia chaffeensis*, also known as human monocytic ehrlichiosis (HME) and *Ehrlichia ewingii* are transmitted by the lone star tick (*Amblyomma americanum*), one of the most commonly encountered ticks in the southeastern U.S. A third *Ehrlichia* species, provisionally called *Ehrlichia muris*-like (EML), has been reported in a small number of cases in Minnesota and Wisconsin, but no tick vector has been identified.

Disease Facts

- **Caused** by *Ehrlichia chaffeensis*, *Ehrlichia ewingii*, *Ehrlichia* muris-like bacteria
- **Illness** includes fever, headache, fatigue, and muscle aches
- **Transmitted** via bite of infective tick
- **Under surveillance** to monitor incidence over time, estimate burden of illness, understand epidemiology of each species, target areas of high incidence for prevention education

Ehrlichiosis cases present with similar symptoms regardless of species causing infection and are indistinguishable by serologic testing. *E. ewingii* and EML are most frequently identified in immunocompromised patients. Severe illness is most frequent in adults more than 50 years old. Delays in treatment can result in severe outcome. Unlike other tick-borne diseases, such as anaplasmosis and Lyme disease, most reported ehrlichiosis cases were acquired in Florida.

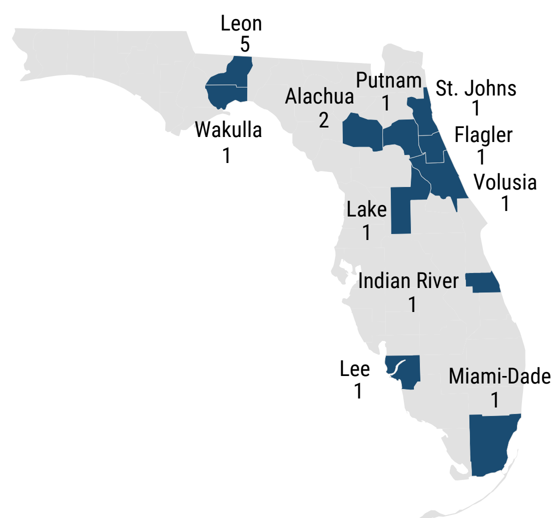
Ehrlichiosis was reported in four cases in people less than 50 years old, including two cases who were hospitalized. The overall hospitalization rate was high (81%), which may indicate that only the most severe illnesses are being reported. Though 13 people with ehrlichiosis were hospitalized, one person was hospitalized for other reasons (the other 12 were hospitalized for ehrlichiosis). Delays in recognition and doxycycline treatment may also have contributed to the elevated proportion of hospitalizations, with at least two of the hospitalized cases requiring more than one health care visit for a diagnosis to be made. One case was erroneously classified as probable due to late reporting of a positive PCR result. There should have been 12 cases reported as confirmed cases and four as probable cases in 2017 rather than 11 confirmed and five probable.

The number of ehrlichiosis cases reported varies by year with no clear trend. Cases occurred in adults and more commonly in males. All 2017 cases were in whites and most were in non-Hispanics. All cases were sporadic. Most cases were hospitalized but no deaths occurred.

Summary	
Number of cases in 2017	16
5-year trend (2013 to 2017)	
Age (in Years)	
Mean	59
Median	65
Min-max	22 - 76
Gender	**Number**
Female	4
Male	12
Unknown gender	0
Race	**Number**
White	16
Black	0
Other	0
Unknown race	0
Ethnicity	**Number**
Non-Hispanic	15
Hispanic	1
Unknown ethnicity	0

Case Classification	Number
Confirmed	11
Probable	5
Outcome	**Number**
Interviewed	12
Hospitalized	13
Died	0
Outbreak Status	**Number**
Sporadic	16
Outbreak-associated	0
Outbreak status unknown	0
Location Where Exposed	**Number**
Florida	12
Unknown	2
Florida or North Carolina	1
Georgia	1

Ehrlichiosis cases occurred in residents of 11 Florida counties in 2017. Five cases were identified in Leon County. Most infections were acquired in Florida.



See Appendix III: Report Terminology for explanations of case classification, outcome, and outbreak status.

Section 2: Narratives for Uncommon Diseases/Conditions

Hansen's Disease (Leprosy)

With early diagnosis and treatment, Hansen's disease can be cured. However, if left untreated, the nerve damage can be permanent. Leprosy was once feared as a highly contagious and devastating disease. However, it is now recognized that the disease is not spread through casual contact, and most people (about 95%) are resistant to infection. For those who do become infected, effective treatment is available. Historically, the disease was not thought to be endemic in Florida. More recently in Florida and other parts of the southern U.S., infections have been identified in both people and armadillos believed to have been exposed in the region.

Disease Facts

Caused by *Mycobacterium leprae* bacteria

Illness mainly affects the skin (e.g., discolored patches of skin, nodules on the skin, ulcers on soles of feet), nerves (e.g., numbness in affected areas, muscle weakness or paralysis, enlarged nerves), and mucous membranes (e.g., stuffy nose, nosebleeds)

Transmission thought to be person-to-person via respiratory droplets following extended close contact with an infected person (still not clearly defined, but it is hard to spread)

Under surveillance to facilitate early diagnosis and appropriate treatment by an expert to minimize permanent nerve damage and prevent further transmission

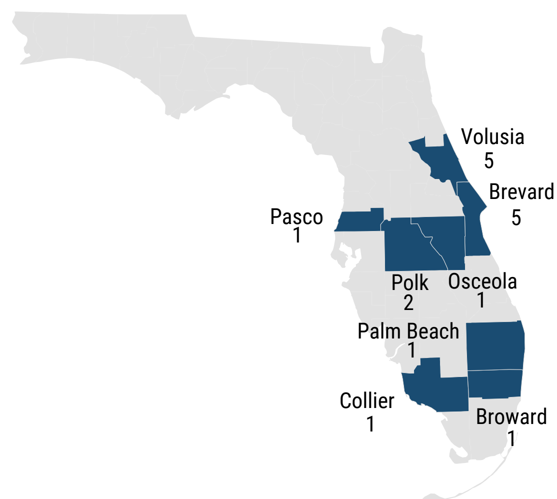
Due to the long incubation period for Hansen's disease and a mobile population, location of exposure is often difficult to identify. However, five infected people spent most or all their lives in Florida and were reported as infections acquired in Florida. Only one case reported direct armadillo contact; armadillo exposure was not provided or was unknown for five cases. The median age of infected people was 68 years and all except three were aged 50 years or older. This older age distribution differs from overall national cases reported to the National Hansen's Disease Program, which tend to have a younger median age. Nine cases (53%) were diagnosed within one year of onset, four (23%) within two years, two (12%) within 3 years, and two (12%) were diagnosed five or more years after onset.

The number of Hansen's disease cases ranges from 10 to 30 cases each year; 17 cases were reported in 2017. Cases occurred in adults and more commonly in males. Most 2017 cases were in non-Hispanic whites. No cases were known to be outbreak-associated and no cases were hospitalized or died.

Summary	
Number of cases in 2017	17
5-year trend (2013 to 2017)	
Age (in Years)	
Mean	65
Median	68
Min-max	31 - 85
Gender	**Number**
Female	5
Male	12
Unknown gender	0
Race	**Number**
White	15
Black	2
Other	0
Unknown race	0
Ethnicity	**Number**
Non-Hispanic	15
Hispanic	2
Unknown ethnicity	0

Outcome	Number
Interviewed	12
Hospitalized	0
Died	0
Outbreak Status	**Number**
Sporadic	16
Outbreak-associated	0
Outbreak status unknown	1
Location Where Exposed	**Number**
Florida	5
Unknown	5
Florida or Georgia	2
Brazil	1
Florida or Cuba	1
Florida or Haiti	1
Hawaii	1
Netherlands	1

Infected people primarily resided in counties in the central and southern part of the state, with infections acquired in Florida in the central region. It is unclear if this distribution is due to enhanced regional training and outreach efforts, population demographics, or other factors.



See Appendix III: Report Terminology for explanations of case classification, outcome, and outbreak status.

Hepatitis E

Hepatitis E is usually self-limiting, but some cases may develop into acute liver failure, particularly among pregnant woman and persons with preexisting liver disease. HEV may also cause chronic infection, primarily in immunocompromised persons. Although rare in developed countries, individual cases and outbreaks have been linked to exposure to pigs; consumption of undercooked pork, wild game, or shellfish; and blood transfusions. Most locally acquired infections report no specific risk factors. Surveillance for hepatitis E worldwide is important because it is a significant cause of morbidity with an estimated 20 million HEV infections, three million acute cases of hepatitis E, and over 57,000 hepatitis E-related deaths. Pregnant women with hepatitis E, particularly those in the second or third trimester, are at an increased risk of acute liver failure, fetal loss, and death.

Disease Facts

- **Caused** by hepatitis E virus (HEV)
- **Illness** includes inflammation of the liver, fever, malaise, loss of appetite, nausea, vomiting, abdominal discomfort, and jaundice (can be asymptomatic)
- **Transmitted** via fecal-oral route, including foodborne and waterborne
- **Under surveillance** to monitor incidence and trends

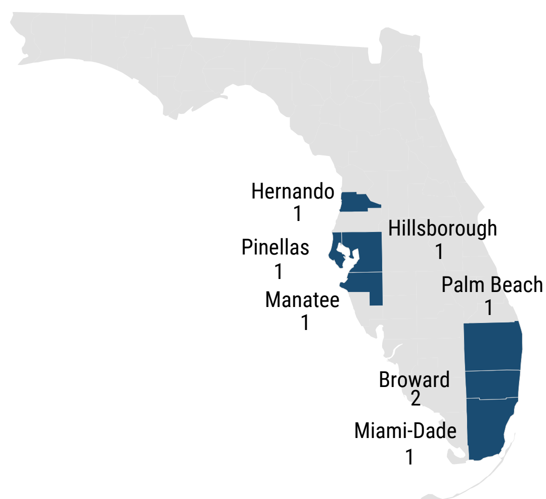
In 2017, six of eight hepatitis E cases were acquired in Florida, while in 2016, most cases were associated with international travel. All cases were interviewed, but investigations did not identify any common risk factors.

The number of hepatitis E cases reported each year has increased slightly, but remained low in 2017. All cases occurred in adults and most commonly in females. Most cases were in whites and non-Hispanics. All cases were sporadic. Five cases were hospitalized.

Summary	
Number of cases in 2017	8
5-year trend (2013 to 2017)	
Age (in Years)	
Mean	43
Median	39
Min-max	22 - 69
Gender	**Number**
Female	6
Male	2
Unknown gender	0
Race	**Number**
White	6
Black	0
Other	2
Unknown race	0
Ethnicity	**Number**
Non-Hispanic	5
Hispanic	3
Unknown ethnicity	0

Case Classification	Number
Confirmed	8
Probable	0
Outcome	**Number**
Interviewed	8
Hospitalized	5
Died	0
Outbreak Status	**Number**
Sporadic	8
Outbreak-associated	0
Outbreak status unknown	0
Location Where Exposed	**Number**
Florida	6
Dominican Republic	1
Peru	1

Hepatitis E cases occurred in residents of seven Florida counties in 2017. Broward County had two cases; each of the other seven counties had one case. Most infections were acquired in Florida.



See Appendix III: Report Terminology for explanations of case classification, outcome, and outbreak status.

Section 2: Narratives for Uncommon Diseases/Conditions

Staphylococcus aureus Infection, Intermediate Resistance to Vancomycin (VISA)

Disease Facts

- **Caused** by *Staphylococcus aureus* bacteria that are partially or fully resistant to vancomycin
- **Illness** is typically minor skin infections; serious or fatal bloodstream infections, wound infections, or pneumonia can occur
- **Transmitted** person-to-person via direct contact
- **Under surveillance** to evaluate risk factors for infected people, assess the risk of a patient transmitting infection to others and prevent such transmission, track emergence of a relatively new and rare clinically important organism

Most *Staphylococcus aureus* infections are minor, but sometimes serious or fatal bloodstream infections, wound infections, or pneumonia can occur. *S. aureus* is also an important cause of health care-associated infections, especially among chronically ill patients who have recently had invasive procedures or who have indwelling medical devices. Commonly found among health care workers, *S. aureus* is spread by hands that become contaminated by contact with colonized or infected patients; colonized or infected body sites of the health care workers themselves, or devices, items; or other environmental surfaces contaminated with body fluids containing *S. aureus*.

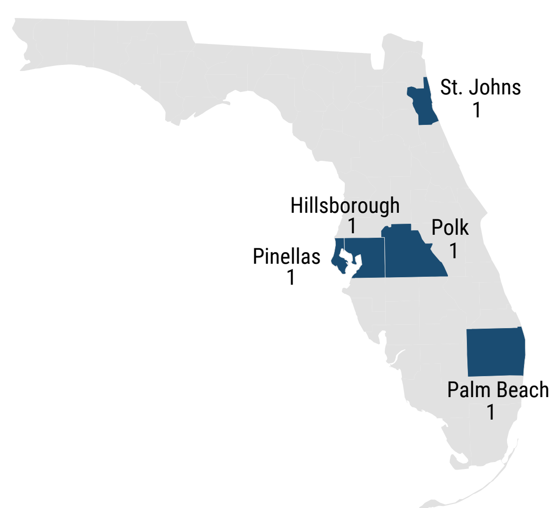
S. aureus with resistance to many antibiotics has become more common in the last decade. Consequently, physicians rely heavily on vancomycin as the primary antibiotic for treating patients infected with bacteria that are resistant to many antibiotics. When the bacteria become resistant to vancomycin as well, treatment options are limited. Vancomycin-intermediate *S. aureus* (VISA) and vancomycin-resistant *S. aureus* (VRSA) have acquired intermediate or complete resistance to vancomycin. VISA emerges when a patient with preexisting *S. aureus* infection or colonization is exposed to repeated vancomycin use and the *S. aureus* strain develops a thicker cell wall. This resistance mechanism is not transferrable to susceptible strains. In contrast, VRSA emerges when a strain of *S. aureus* acquires the *vanA* gene from a vancomycin-resistant *Enterococcus* (VRE) organism. Recent exposure to vancomycin is not necessary. This type of gene-mediated resistance is theoretically transferable to susceptible strains or organisms, so there is potential for person-to-person transmission. No VRSA infection has ever been detected in Florida.

Each year, four or five VISA infection cases are reported in Florida residents. All 2017 cases were in adult non-Hispanic males. All 2017 cases were hospitalized and one death occurred. All cases were sporadic.

Summary	
Number of cases in 2017	5
5-year trend (2013 to 2017)	
Age (in Years)	0
Mean	62
Median	57
Min-max	53 - 85
Gender	**Number**
Female	0
Male	5
Unknown gender	0
Race	**Number**
White	3
Black	2
Other	0
Unknown race	0
Ethnicity	**Number**
Non-Hispanic	5
Hispanic	0
Unknown ethnicity	0

Outcome	Number
Interviewed	0
Hospitalized	5
Died	1
Outbreak Status	**Number**
Sporadic	5
Outbreak-associated	0
Outbreak status unknown	0
Location Where Exposed	**Number**
Florida	4
Unknown	1

VISA infection cases occurred in residents of five Florida counties in 2017; each county had one case. No infections were known to have been acquired outside of Florida.



See Appendix III: Report Terminology for explanations of case classification, outcome, and outbreak status.

Section 2: Narratives for Uncommon Diseases/Conditions

West Nile Virus Disease

West Nile virus (WNV) is a mosquito-borne flavivirus that was first introduced to the northeastern U.S. in 1999 and first detected in Florida in 2001. Since its initial detection, WNV activity has been reported in all 67 Florida counties. People infected with WNV can experience a wide range of symptoms. Approximately 80% of those infected show no clinical symptoms, 20% have mild non-neuroinvasive illness, and less than 1% suffer from the neuroinvasive form of illness. *Culex* species (mosquitoes) and wild birds are the natural hosts. Humans and horses can become infected when they are bitten by a mosquito infected with WNV. WNV can also be transmitted to humans via contaminated blood transfusions and less frequently through organ transplantation. Since 2003, all blood donations are screened for the presence of WNV prior to transfusion. People spending large amounts of time outside (due to occupation, hobbies, or homelessness) or not using insect repellant or other forms of prevention are at higher risk of becoming infected.

Disease Facts

Caused by West Nile virus

Illness can be asymptomatic, mild (e.g., headache, fever, pain, fatigue), or neuroinvasive (e.g., meningitis and encephalitis with possible irreversible neurological damage, paralysis, coma, or death)

Transmitted via bite of infective mosquito or by blood transfusion or organ transplant

Under surveillance to identify areas where WNV is being transmitted to target prevention education for the public, monitor incidence over time, estimate burden of illness

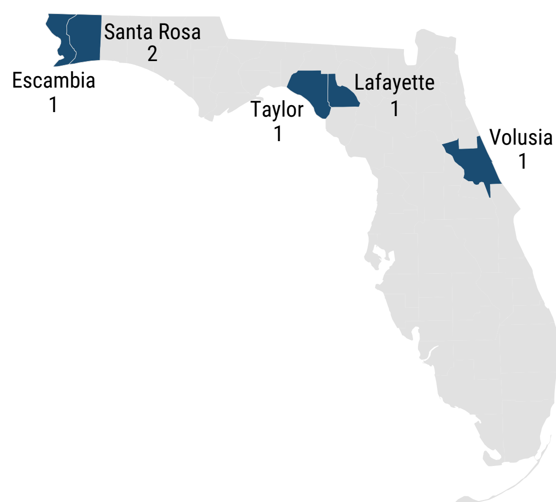
Five of the six cases reported in 2017 were exposed in Florida. Four cases had neuroinvasive symptoms, including a 5-year-old child. Two additional WNV-positive, asymptomatic individuals were identified through blood donor screening. While blood donors do not meet case criteria if no symptoms are reported, they are still indicative of WNV activity occurring in the area and can be used to meet criteria for issuing mosquito-borne illness advisories and alerts. Donors were identified in Escambia (August) and Lee (November) counties.

Fewer West Nile virus disease cases were reported in 2017 than in the past five years. Cases occurred in male and female non-Hispanic whites. All cases were sporadic and all were hospitalized but no deaths were identified.

Summary	
Number of cases in 2017	6
5-year trend (2013 to 2017)	
Age (in Years)	
Mean	50
Median	58
Min-max	5 - 71
Gender	**Number**
Female	3
Male	3
Unknown gender	0
Race	**Number**
White	6
Black	0
Other	0
Unknown race	0
Ethnicity	**Number**
Non-Hispanic	6
Hispanic	0
Unknown ethnicity	0

Case Classification	Number
Confirmed	2
Probable	4
Outcome	**Number**
Interviewed	5
Hospitalized	6
Died	0
Outbreak Status	**Number**
Sporadic	5
Outbreak-associated	1
Outbreak status unknown	0
State Where Exposed	**Number**
Florida	5
California	1

West Nile virus disease cases occurred in residents of five Florida counties in 2017, primarily in north Florida. Five of the six cases identified in 2017 were infected in Florida.



See Appendix III: Report Terminology for explanations of case classification, outcome, and outbreak status.

Section 3:

Notable Outbreaks and Case Investigations

Section 3: Notable Outbreaks and Case Investigations

In Florida, any disease outbreak in a community, hospital, or institution, and any grouping or clustering of patients having similar disease, symptoms, syndromes or etiological agents that may indicate the presence of an outbreak are reportable as per Florida Administrative Code Chapter 64D-3. Selected outbreaks and case investigations of public health importance that occurred in 2017 are briefly summarized in this section.

Table of Contents

Section 3: Notable Outbreaks and Case Investigations

Bacterial Diseases

Investigation of Verona Integron-Encoded Metallo-β-Lactamase-Producing *Pseudomonas aeruginosa* Associated With a Long-Term Acute-Care Hospital, Orange County, July 2017–April 2018

Authors
Danielle Rankin, MPH, CIC; Luz Caicedo, MPH, CPH, CIC; Nychie Dotson, MPH, CIC, CPHQ; Alvina Chu, MHS

Background
On July 5, 2017, the Florida Department of Health Bureau of Public Health Laboratories (BPHL) notified the Florida Department of Health in Orange County (DOH-Orange) of an isolate of Verona integron-encoded metallo-β-lactamase (VIM)-producing *Pseudomonas aeruginosa* (VIM-Pa). The isolate was from a patient who had been hospitalized at a local long-term acute-care hospital (LTACH) since May 2017. Immediately upon notification, DOH-Orange contacted the LTACH's infection preventionist to request medical records and provide verbal infection control recommendations.

P. aeruginosa is a common pathogen causing health care-associated infections among hospitalized patients due to their ubiquity and ability to colonize and survive in hospital reservoirs. VIM is a mechanism of resistance that can be horizontally transferred to *P. aeruginosa* through mobile genetic elements. Mechanisms and frequency of resistance exchange are poorly understood and are not regularly found in the central Florida region. Thus, identification of VIM-producing organisms is a sentinel event that warrants investigation and careful management.

Methods
DOH-Orange epidemiology staff reviewed the colonized patient's medical records and extracted exposures and procedures that may have potentially contributed to acquisition. An interview with the patient's proxy was conducted to inquire about international medical procedures and travel history. The patient had no international medical procedures or exposures, was not on contact precautions, and was frequently transferred across the LTACH. Monthly non-regulatory site visits were conducted in August, September, October, November, December, January, and February to continually evaluate infection control practices and procedures (i.e., infection control assessment) such as hand hygiene, personal protective equipment (PPE) use, and environmental cleaning. Prospective laboratory surveillance was established and all *P. aeruginosa* isolates resistant to carbapenems (e.g., imipenem, meropenem, doripenem, ertapenem) were forwarded to BPHL for mechanism testing. Florida Health collaborated with the Tennessee Department of Health, the Southeast Regional Antibiotic Resistance Laboratory Network in Tennessee, and the Centers for Disease Control and Prevention to conduct antimicrobial resistance testing for all patients upon admission, discharge, and on a biweekly basis.

Results
On August 1, 2017, DOH-Orange conducted an initial infection control assessment and identified gaps in hand hygiene (adherence rate was 61%), use of PPE (gown adherence rate was 61%; glove adherence rate was 67%), contact precautions, and environmental cleaning. Infection control recommendations and education were provided to the LTACH to improve and enhance practices among health care personnel. DOH-Orange conducted additional infection control observations on hand hygiene, PPE use, and environmental cleaning to monitor and document improvements and adherence to recommendations throughout the investigation.

From July 5, 2017 to April 3, 2018, 13 cases of VIM-Pa colonization were identified through laboratory surveillance (i.e., admission, discharge, biweekly point prevalence surveys, and prospective surveillance). Colonized patients ranged from 21 to 80 years old, with a median age of 65 years, and 62% were males. Of the 13 colonized patients, 10 had tracheostomy tubes, 10 were undergoing invasive mechanical ventilation, and six were receiving hemodialysis. No cases of infection or complications associated with VIM-Pa colonization were reported at the LTACH.

Conclusions
This investigation documents the first identification of VIM-Pa in Florida. Transmission can occur via hand carriage by health care personnel, through shared medical equipment, and through fomites. The lack of adherence to hand hygiene, contact precautions, and proper environmental cleaning and disinfecting of patient rooms and shared medical equipment likely contributed to transmission. Constant education and reinforcement of proper infection control practices are imperative to halt transmission. In addition, it is vital to frequently communicate and collaborate with the outbreak facility.

Investigations of Campylobacteriosis Related to Pet Store Puppies, Multiple Counties, 2017–2018

Authors
Kirtana Ramadugu, MPH; Danielle Stanek, DVM; Jamie DeMent, MNS; Alvina Chu, MHS; Jennifer Jackson, MPH; Ashley Vineyard, MPH; Heyda Rodriguez; Nicole Sodders, MPH; Patrick Lynch, MPH; Candy Luciano-Green, RN; Nancy Pickens, MPH, MLS; John Nasir, MLS; Amber Ginn, Kelly Tomson, MS, MLS; Jason Blanton, PhD

Background
The Florida Department of Health in Orange County (DOH-Orange) investigated three human *Campylobacter* infections between April and June 2017. All reported exposure to animals at two locations of a multi-state pet store chain or puppies purchased from those stores. DOH-Orange notified the store of the human illnesses on July 11, and on July 18 used EpiCom, Florida's outbreak communication system, to request that other Florida counties report campylobacteriosis cases with exposure to pet store animals, including puppies, to the State Public Health Veterinarian. Florida Health subsequently published a Centers for Disease Control and Prevention (CDC) Epi-X notification to alert health departments nationally.

Based on similar investigations being conducted in several states and a molecular linkage between pet store puppies and human samples, the CDC launched a multi-state investigation in September 2017. The CDC confirmed antibiotic resistance to several antibiotics in many of the cases; this became the focus of the national outbreak investigation (for the full national report, see www.cdc.gov/mmwr/volumes/67/wr/mm6737a3.htm?s_cid=mm6737a3_w). This report summarizes multiple puppy-linked campylobacteriosis cases identified in Florida and is not restricted to those linked to the national outbreak.

Methods
Epidemiologic Investigation
Campylobacteriosis is reportable in Florida. Interviews are conducted on all individuals who test positive for any *Campylobacter* species (including *jejuni*) by culture or culture-independent diagnostic testing (CIDT). Cases were defined as persons meeting the national outbreak case definition or persons with symptoms consistent with campylobacteriosis and positive laboratory test results (culture or CIDT) who either worked at or visited a pet store or had contact with a puppy purchased in the 10 days prior to illness onset since January 1, 2017.

Laboratory Analysis
Human stool samples tested at commercial and hospital laboratories were forwarded to the Bureau of Public Health Laboratories (BPHL) for confirmatory culture if samples were still available. Available samples collected from puppies linked to human illnesses were also tested at BPHL. If *Campylobacter jejuni* was isolated, specimens were further characterized using whole-genome sequencing (WGS). WGS results were uploaded to the national CDC PulseNet database; this allowed for comparison of Florida isolates to those obtained from other cases and states.

Results
Between April 2017 and August 2018, Florida Health investigated 31 confirmed and probable cases of human campylobacteriosis associated with pet stores or puppies recently purchased from pet stores (23 in 2017 and 8 in 2018). Cases were in people ranging from 0 to 72 years old with a median age 24; four cases were in children ≤10 years old. The most common symptoms were diarrhea (100%) and abdominal pain (80%); one person reported joint-related sequelae. Seven cases were hospitalized, though three of those cases did not meet the national outbreak criteria. Cases were in residents of eight counties and reported exposure to puppies (30 cases), pet stores (9 cases), or dog breeders (2 cases). Of the 31 cases, 9 were occupational exposures, 18 were exposures to owned puppies, and the remaining 4 were related to visiting pet stores and contacting animals. Of the nine cases exposed to pet stores, eight were pet stores that were part of a national chain associated with the multi-state outbreak.

Conclusions and Recommendations
This investigation highlights that companion animals can be a source of *C. jejuni*, and this transmission mechanism should be considered when conducting future campylobacteriosis investigations. *Campylobacter* carriage can be common in puppies, kittens, and potentially ferrets, particularly animals subjected to increased stress or crowding. These animals may be asymptomatic or only mildly affected. Pet owners and pet store employees and visitors should routinely be reminded to use proper hand hygiene techniques after contacting an animal or its stool. More work to develop industry standards and educational materials on infection control for pet stores and commercial breeders should be considered. Veterinarians treating companion animals for enteric diseases should use antibiotics responsibly and emphasize the importance of responsible antibiotic use to their clients.

Legionnaires' Disease Outbreak Associated With a Local Fitness Center, Orange County, April 2017

Author
Kathy Abusager, MPH

Background
Between April 10 and 11, 2017, the Florida Department of Health in Orange County (DOH-Orange) was notified by a local hospital of two confirmed cases of Legionnaires' disease (LD). During routine case investigation interviews, the two cases of LD were found to have common exposures to a local fitness center in the 2 to 10 days prior to symptom onset. The first case (Patient A) developed respiratory symptoms on April 6 and a follow-up chest x-ray confirmed pneumonia. *Legionella pneumophila* serogroup 1 antigen (Lp1) was detected on April 9 in a urine specimen. The second case (Patient B) developed symptoms on April 6 with a chest x-ray-confirmed pneumonia diagnosis. On April 10, a urine antigen test detected Lp1 antigen. DOH-Orange Epidemiology Program notified the Florida Health Bureau of Epidemiology and DOH-Orange Environmental Health, and an outbreak investigation was initiated on April 12. An investigation was conducted to determine the extent of the outbreak, confirm common exposures, and identify potential sources of *Legionella* contamination.

Methods
Epidemiologic Investigation
In this investigation, a confirmed case was defined as a person with a *Legionella*-positive urinary antigen test or culture and an illness that was clinically compatible with legionellosis 2 to 10 days following exposure to the fitness center. Medical records and laboratory results were reviewed and initial phone interviews were conducted with the cases' proxies to identify and assess common exposures.

Various methods were used to identify additional LD cases associated with the fitness center. Information pertaining to travel, health care settings, and exposure to whirlpool spas in the 10 days prior to illness onset was collected using a national case report form and an additional county-specific case report form. Syndromic surveillance data were reviewed. The DOH-Orange exposure tracking log was also used to retrospectively identify cases with exposures to the fitness center. On April 15 and 16, DOH-Orange contacted two major hospital systems in Orange County via telephone and email to alert them of the ongoing investigation and to consider appropriate testing should patients present with signs or symptoms consistent with legionellosis. On April 17, DOH-Orange sent a notification to all county health departments in Florida using EpiCom, Florida's outbreak communication system, advising them of the LD outbreak. Pursuant to the DOH-Orange recommendations, a guest notification letter highlighting the ongoing investigation of LD cases associated with the fitness center and general legionellosis information was provided to the fitness center on April 13 for same-day distribution to guests at check-in. On April 18, the same letter was provided to prior guests from March 15 to April 14 via email. Guests were provided an opportunity to make an informed decision based on their personal assessment of risk to seek medical care for appropriate testing, diagnosis, and treatment if symptoms developed within 14 days after exposure to aerosolized water at the fitness center.

Environmental Investigation
On April 13, Florida Health conducted a joint epidemiological and environmental assessment of the fitness center to determine potential sources of aerosolized water mechanisms and provide recommendations to prevent additional cases of legionellosis. Maintenance records of the spa and premise plumbing system were requested for the exposure period. Previous inspection records from Florida Health were reviewed. An understanding of the storage and distribution of the hot water system for the facility was solicited and observed. Inquiries and observations were made for any additional sources that could produce aerosolized mists in and around the fitness center. A sampling plan was developed based on the on-site observations and current epidemiological data of the two cases. Biocide, pH, and temperature measurements were taken at each location where samples were collected. On April 13, bulk water samples and biofilm swabs were collected by DOH-Orange. Water samples and swabs were collected from multiple sites throughout the facility to capture the potable water currently in the distribution system. Post-remediation and follow-up water samples were collected from the fitness center by a private water treatment management company on April 20, May 31, and June 29. Samples were shipped to the Florida Health Bureau of Public Health Laboratories (BPHL).

Laboratory Investigation
BPHL cultured bulk water and swab samples for the presence of *Legionella*. Testing for *Legionella* was conducted by the private water company at an independent Environmental Legionella Isolation Techniques Evaluation (ELITE) Program-certified laboratory.

Results

Epidemiologic Investigation

A third case (Patient C) was identified on April 14 via ongoing disease surveillance. Patient C had symptom onset on April 5 with chest x-ray-confirmed pneumonia. Lp1 antigen was detected on April 14 in a urine specimen. On May 10, a sputum culture from Patient B identified Lp1. No additional cases were identified via the exposure tracking log. A total of three confirmed LD cases associated with the fitness center were identified.

The three infected people were 59, 65, and 79 years old and two were female. Two people had symptom onset on April 6 and one on April 5. All three cases had fever and cough and were hospitalized. One person died due to hypertension and atherosclerotic cardiovascular disease. Interviews with case proxies identified that all three had visited the fitness center on multiple days in the 2 to 10 days prior to illness. At the fitness center, all three people used the shower and pool and one person used the spa. The pool and spa were in close proximity in an enclosed area.

Environmental Investigation

The fitness center is located in a commercial real estate building that is composed of eight single commercial retail businesses, including the fitness center. There were no cooling towers or decorative fountains at the fitness center. The facility has central heating and cooling systems and water is supplied from the municipal water system. Two water heaters are used to store and heat water prior to being distributed throughout the facility. Temperature controls for the hot water heaters were set at 124ºF and 123ºF. The actual measured values of the water directly from the two hot water heaters were 110ºF and 105ºF, respectively. The fitness center did not have a water management program for the control and prevention of *Legionella*. Prior to April 2017, there were no reported LD or Pontiac fever cases associated with this fitness center nor any outbreaks or clusters.

Water samples were collected and analyzed on April 13, April 20, May 31, and June 29. Water temperatures, pH, and residual free chlorine was measured for the premise plumbing and the spa. The right spa filter was not sampled during the May 31 and June 29 follow-up testing, therefore the level of *Legionella* could not be monitored in consecutive sampling. On April 13, the spa was hyperchlorinated by the fitness center. The spa reopened on April 15. On April 18, the water treatment management company hyperchlorinated the domestic water supply and cleaned/disinfected the spa. Shower use was restricted until point-of-use filters were installed on April 17. Upon receipt of the post-remediation results on May 4, the fitness center removed point-of-use filters from the showerheads.

Per the fitness center's management, regularly scheduled maintenance for the pool and spa was performed by a swimming pool maintenance entity and occurred three days per week on Mondays, Wednesdays, and Fridays. According to management, the free chlorine, pH, and water temperature of the spa and pool are measured daily. On April 5, 2017, DOH-Orange Environmental Health conducted an inspection at the fitness center due to a complaint they received stating the water had a brown/green color in appearance and an odor. The free chlorine in the spa was zero when measured by DOH-Orange on April 5 at 4:15 p.m. However, the requested pool and spa logs suggested the measured free chlorine on April 5 at 8:03 a.m. was 4.5 ppm.

Observed onsite environmental conditions identified areas favorable for biofilm production and *Legionella* harborage and growth, including water temperatures conducive for *Legionella* and low chlorine levels in the premise plumbing system.

Laboratory Investigation

Lp1 was not detected in the samples collected on April 13. Post-remediation samples indicated an Lp1 concentration of 0.8 CFU/ml in one of the spa filter samples. *Legionella* was not detected in the two follow-up samples collected on May 31 and June 29.

Conclusions

Three confirmed LD cases were associated with the fitness center. The cases had multiple days of exposure at the fitness center in the 2 to 10 days prior to illness. Urinary antigen laboratory testing was used to confirm the three LD cases. Lp1 was isolated from one case's sputum culture, suggesting a link to the fitness center based on detection of Lp1 in one of the spa filter samples during post-remediation sampling. Epidemiologic investigation strongly indicates the potable water system as the most likely source for all three cases reporting repeated shower use during their incubation periods. The spa was used by one case; however two other cases reported using the swimming pool adjacent to the spa. Proximity of the cases to the spa is not known and hard to determine. Aerosolized mists from spas can travel when the spa jets are in operation. Observed on-site environmental conditions identified areas favorable for biofilm production and *Legionella* harborage and growth, including water temperatures conducive for *Legionella* growth and low chlorine levels in the premise plumbing system. The presence of a low level of Lp1 in the spa post-remediation could indicate sporadic Lp1 in the facility water systems, which need to be controlled with a water safety management program.

DOH-Orange required documentation and evidence of implemented control measures and continuous sampling results. In conjunction with the private water treatment management company, a schedule for routine follow-up testing was developed and executed, highlighting the frequency of water testing (monthly for the first three months and then quarterly for the remaining year). DOH-Orange also required water samples to be cultured at an ELITE-certified lab. In the event *Legionella* were found in a sample, remediation and additional testing would be required. The sampling plan for continued monitoring included proximal and distal sites that were based on the original DOH-Orange sampling conducted on April 13, 2017. DOH-Orange's strong relationship with the local hospital systems in Orange County assisted in reporting and investigating LD cases in a timely manner. However, cases are possibly underreported since legionellosis is an under-diagnosed illness, so appropriate laboratory testing for *Legionella* is not always ordered by health care providers.

Based on the findings from the epidemiologic and environmental investigations, DOH-Orange recommended remediation and ongoing maintenance of the premise plumbing system to reduce and prevent *Legionella* transmission. The fitness center implemented water restrictions to control and reduce exposure to aerosolized water generated from spa and shower use. DOH-Orange recommended that the fitness center hire a private water treatment management company and develop a water management plan. In conjunction with the water treatment and management company, the fitness center developed and implemented a remediation and sampling plan of the potable water system to minimize the risk of *Legionella* transmission.

Lyme Borreliosis Cases Acquired in Central Europe, 2017

Authors

Dana Giandomenico, MPH, CPH, REHS; Andrea Morrison, PhD, MSPH; Danielle Stanek, DVM

Background

Lyme disease, caused by *Borrelia burgdorferi* bacteria, is the most common vector-borne disease in the U.S. Although Lyme disease can be acquired in Florida, the majority of cases reported to the Florida Department of Health are acquired outside of the state. Collecting data on location of exposure is important in understanding where the risk for exposure is highest to tailor prevention education for the public and to track changes in pathogen geographic distribution. Outside of North America in other temperate regions of the Northern Hemisphere, including northern and central Europe and Asia, the clinical disease is referred to as Lyme borreliosis, and is caused by different serotypes or genospecies than infections in the U.S. These genospecies may not be detected using the standard Lyme disease laboratory testing offered in the U.S. Differences in testing and a lack of awareness of Lyme borreliosis among travelers abroad may lead to under-reporting of internationally acquired cases. Multiple health agencies in Europe have reported increased geographical distribution of the tick vectors as well as a rise in incidence of cases. In 2017, five cases of Lyme borreliosis with exposure in European countries were reported to Florida Heath, which was above the 10-year average of 2.2 cases per year from 2007 to 2016.

Methods

Lyme disease cases are classified as confirmed, probable, or suspect using the national Centers for Disease Control and Prevention (CDC) surveillance case definition. Cases reported to Florida Health from January 1, 2007 through December 31, 2017 were reviewed to identify exposures in Europe. Lyme borreliosis incidences in European countries were obtained from data reported by the European Centre for Disease Prevention and Control (ECDC) and the World Health Organization.

Results

Three probable and two confirmed Lyme borreliosis cases with exposure in four European countries were reported in 2017. Three of the five cases had acute manifestations of Lyme borreliosis. The two confirmed cases had health care provider-diagnosed erythema migrans. Three cases reported a known tick bite and all five cases reported outdoor activities that exposed them to tick habitats while abroad. Countries of exposure included Austria, Czech Republic, Germany (2), and Sweden. Austria, Czech Republic, and Germany are located in central Europe and share a border with one another. This region is recognized by the ECDC as the highest area for Lyme borreliosis infection rates on the continent. ECDC has also recognized Sweden (mostly southern Sweden) as an endemic area for Lyme borreliosis.

Conclusions

The ECDC currently provides specific Lyme borreliosis educational materials for travelers to endemic areas of Europe. The CDC has online resources where travelers can look up disease information by country of destination, but these resources do not include information on Lyme or other tick-borne diseases by location of travel. Including tick-borne disease risk information by country of destination would be helpful for both travelers and their health care providers. Florida Health is adding information on Lyme borreliosis and other international tick-borne disease risks to existing tick-borne disease resources. A protocol was also created for county epidemiology staff to use when investigating Lyme disease cases with exposure in other countries, as the current Lyme disease case definition only references exposure in high and low incidence U.S. states.

Mycobacterium abscessus Injection Site Infections at a Pain Management Clinic, Collier County, March–October 2017

Authors

Ana Zegarra, MPH; Brionna Powell, MPH; Angela Armstrong, MPH, CPH; Ann Schmitz, DVM, AM; Terri Harder, BSN, RN; Jennifer Roth, MSPH

Background

Nontuberculous mycobacteria (NTM) are ubiquitous in the environment and evidence suggests that nosocomial transmission of these organisms is increasing. Health care-associated infections due to NTM are most commonly of the skin or percutaneous tissues. These organisms have also been known to contaminate medications and medical devices. In August 2017, the Florida Department of Health in Collier County (DOH-Collier) was notified of a patient with a paraspinal abscess and laboratory results indicated infection with an NTM, *Mycobacterium abscessus*. The patient reported receiving spinal injections at a local pain management clinic.

Methods

A confirmed case of injection-site abscess was defined as a person who had an injection at pain management clinic A between March 1, 2017 through October 24, 2017 and a diagnosed soft tissue or joint infection culture-positive for *M. abscessus*. The laboratory component differed for probable and suspect cases, with laboratory evidence of NTM infection and diagnosis of soft tissue or joint infection, respectively. Cases were identified through retrospective surveillance of health care system patients, querying syndromic surveillance data, and review of NTM-positive isolates received at the Florida Health Bureau of Public Health Laboratories (BPHL) from Lee and Collier counties. On December 7, DOH mailed 982 notification letters to pain management clinic patients potentially exposed during the period of interest. Available clinical isolates were submitted to BPHL for further characterization, including identification by polymerase chain reaction (PCR)-restriction analysis, PCR to determine *M. abscessus* subspecies *massiliense*, and whole-genome sequencing (WGS). Sequence data were submitted to CDC for species and subspecies confirmation using multilocus sequence type (MLST) and phylogenetic analysis by high-quality single-nucleotide polymorphism (hqSNP) analysis. An Infection Prevention and Control Assessment Tool for Outpatient Settings (ICAR) site visit of the pain management clinic was conducted.

Results

A total of 982 pain management patients received injections from March 1 through October 24, 2017. Twenty (2%) patients met the case definition for an injection site abscess. The cases identified included 11 (55%) confirmed, 1 (5%) probable, and 8 (40%) suspect. Ages of infected people ranged from 43 to 90 years old, with a mean age of 69 years. Half of the infected people were males and half were females. During the week of May 21 to May 27, 33 injections were administered among 10 patients. Of the 12 isolates submitted to BPHL, all were confirmed as *M. abscessus* subspecies *massiliense*. Phylogenetic analysis showed these isolates were 0–1 SNPs different by sequence analysis and formed a cluster that appears to represent a common source. The findings of the ICAR assessment include several recommendations for improvements in infection control procedures, availability of personal protective equipment, record keeping, client education, and storage of supplies.

Conclusions

The epidemiologic investigation showed exposure likely occurred in the setting of this pain management clinic, but efforts to identify the source were complicated by poor record keeping and infection control practices. Medication records were unavailable and many cases received multiple injections during the six-month exposure period, making it difficult to differentiate between a possible point-source or common intermittent exposure. Laboratory evaluation of available isolates was crucial for identification of the etiology of this cluster and common source. The ICAR assessment showed clinic practices could have played a role in transmission in this setting. Identification of NTM clusters can be further complicated by prolonged incubation periods and lack of active reporting, as sporadic cases of NTM infections are not reportable conditions in Florida. Clinicians should remain vigilant in cases of NTM where patients report injections and be aware that clusters or outbreaks of these infections are reportable. Effective collaboration between DOH-Lee, DOH-Collier, and laboratories at local, state, and federal levels was essential for identification of this health care-acquired infection cluster.

Viral Diseases

Human Rabies Investigation, Highlands County, October 2017

Authors
Patrick Hickey, BSN, RN; Mary Kay Burns, RN, BSN, MBA; Kirtana Ramadugu, MPH; Danielle Stanek, DVM

Background
Human rabies cases are rare in the U.S., with one to three cases reported annually. This is largely due to effective domestic animal rabies vaccination policies, well-established animal control organizations, and access to rabies post-exposure prophylaxis (PEP) for individuals who are exposed to a rabid animal. Rabid bats have been identified in 49 of 50 states in the U.S., with the exception of Hawaii. At least some bat rabies virus variants appear to have the capacity to cause infections through inoculation in very minor wounds, possibly a viral adaptation to the small size of U.S. bats' teeth. Rabies infection can be prevented with timely rabies PEP; however, once clinical illness develops, mortality approaches 100%. On the afternoon of October 12, 2017, a central Florida hospital notified the Florida Department of Health in Highlands County (DOH-Highlands) of a suspected rabies infection in 56-year-old woman residing in Highlands County. A rabies investigation was immediately initiated by DOH-Highlands. On October 15, a nuchal skin biopsy collected October 13 tested positive for rabies by standard direct fluorescent antibody as well as polymerase chain reaction.

Methods
Human rabies is a nationally reportable condition. A case is defined in the Centers for Disease Control and Prevention (CDC) national surveillance case definition; cases must meet clinical criteria and test positive for rabies at the CDC laboratory. Identification of a human rabies case triggers investigations to ensure other people were not exposed to either the original rabid animal or to the human patient after they became ill or in the 14 days prior to illness onset.

Results
Symptom onset was October 6, when the patient developed a subjective fever and sharp neck pain that extended into the right arm. The pain worsened over the next three days, and symptomatic treatment for cervical disc disease was provided at two health care facilities. The patient's condition continued to deteriorate, with development of headache, gaze deviation to the right, nystagmus, garbled speech, right arm spasms, tremors, blurred vision, hearing sensitivity, and agitation. The patient was admitted to a local hospital on October 10, and then transferred to a tertiary facility on October 11. The patient reported a bat bite to a family member shortly before being transferred. After this information was reported to health care providers at the tertiary facility, the patient was placed in isolation. Further investigation determined the bite occurred August 11 when the patient picked up what appeared to be a dead bat in the backyard. The patient cleaned the bite site but did not seek further medical care for the minor wound. No one else was exposed to the bat. Although intensive, high-level medical care was provided and the Milwaukee protocol was attempted, the patient passed away approximately two weeks after symptom onset. Post-mortem testing of the brain confirmed the presence of rabies virus antigen. Virus typing was consistent with a rabies virus variant found in *Tadarida brasiliensis* (Brazilian free-tailed bats) in the U.S.

A traceback of patient contacts from September 22 through October 21 identified 62 contacts. All contacts were interviewed. Rabies PEP was recommended for 22; 9 were family members and close friends and 13 were health care providers from the tertiary facility that had contact with the patient prior to placement in isolation. The employee health program at that tertiary facility strongly encouraged their employees to complete the rabies PEP series. Although human-to-human transmission of rabies is not well documented, rabies PEP was recommended to the family and close friends due to their social habits. Most of those for whom rabies PEP was recommended completed the series except for one who declined.

Conclusions
Because of the minor nature of bat bites compared to other types of animal bites, bat bite victims may be less likely to seek medical care, particularly if they are unaware of the risk for rabies. Standard rabies prevention education needs to highlight that rabies can result from bat bites that cause minor or no obvious wounds.

Investigation of Potential Exposure to Rabies After Consumption of a Commercially Distributed Product, Santa Rosa County, April 2017

Authors
Laura Matthias, MPH

Background
On April 3, 2017, the Florida Department of Health was notified of a possible exposure to rabies by a complainant who reported consuming part of a salad mix purchased from a local supermarket on April 2. The complainant was preparing to consume more of the salad on April 3 and discovered parts of a dead bat in the container of salad. In response to this complaint an investigation was initiated.

Methods
Epidemiologic Investigation
The Florida Department of Health in Santa Rosa County (DOH-Santa Rosa) was notified as the complaint was for residents of Santa Rosa County. DOH-Santa Rosa interviewed the individuals to assess symptoms, exposure, and purchase information. Florida Health requested pictures of the bat and salad mix and receipts showing purchase of the salad mix from the supermarket. A case was defined as someone who consumed organic spring mix with a best buy date of April 14, 2017 that had parts of a dead bat in it.

Environmental Assessment
Florida Health notified the Florida Department of Agriculture and Consumer Services (FDACS) and the U.S. Food and Drug Administration (FDA) Florida District office on the evening of April 3. All Florida county health departments where product was shipped were notified. FDACS visited the local supermarket on April 4 to conduct an assessment and collect items from the same lot for analysis. FDACS and FDA initiated a traceback and trace forward on the salad mix.

Laboratory Analysis
DOH-Santa Rosa collected the leftover salad and container from the private home and shipped it to the Florida Health Bureau of Public Health Laboratories (BPHL) for analysis. DOH-Santa Rosa collected the bat and shipped it to the Centers for Disease Control and Prevention (CDC) for analysis. FDACS collected two containers from the same lot at the local supermarket and sent them to the FDACS Bureau of Laboratories for analysis.

Results
Epidemiologic Investigation
Two people consumed the spring mix with parts of dead bat in it. Case 1 reported experiencing two loose bowel movements around 6:00 a.m. on April 3 and a headache and nausea around 5:00 p.m. on April 3 after discovering the bat in the salad mix. Case 2 reported nausea around 5:00 p.m. on April 3 and two loose bowel movements at 7:00 a.m. on April 4. The cases were 35 and 37 years old; one was male, one was female. The salad was purchased on April 2 from a local supermarket. Both cases reported consuming a portion of the salad mix at 8:00 p.m. on April 2. They discovered the dead bat on April 3 between 4:30–5:00 p.m. as they were preparing to consume more salad. Rabies post-exposure prophylaxis (PEP) was recommended for these two individuals by CDC. Rabies immune globulin and rabies vaccine dose one were given on April 7. Subsequent doses of rabies vaccine were administered at DOH-Santa Rosa on April 10, April 14, and April 21. DOH obtained pictures of the salad, bat, and packaging (pictures to the right).

Tadarida brasiliensis bat in salad

T. brasiliensis bat separated from salad

Environmental Assessment
FDA obtained invoices and records that indicated processing facility information. The salad mix was processed on March 30 at a facility in Morrow, GA. Components of the salad mix were from Arizona and California. A full investigation was completed at the processing facility in Morrow, GA on April 6–9. A review of the process from receiving product to packaging was completed. A precautionary recall was issued on April 8. There were 8,152 packages distributed to eight states. Prior to the official recall, the supermarket chain issued guidance to their stores to remove the product from the shelves and destroyed any remaining product. Florida received 2,448 units of product distributed among 17 counties. Of those, 2,214 (90%) were sold and the remaining 234 (10%) were withdrawn and destroyed by the stores.

Laboratory Analysis
BPHL received the salad mix and packaging; however no analysis was conducted for this product. CDC identified the bat as a juvenile Brazilian free-tailed bat and determined that roughly 65% of the bat had been shipped to them. CDC reported inconclusive rabies results on the bat using polymerase chain reaction and direct flourescent antibody testing. FDACS reported both samples were negative for *E. coli*, Shiga toxin-producing *E. coli*, and *Salmonella*. FDACS reported finding a whole flying insect and another insect head inside one of the containers.

Conclusions
This investigation was undertaken primarily due to the pathogen of concern. Rabies is an acute viral infection that is nearly always fatal. Exposure to rabies is usually through saliva containing the virus from a rabid animal introduced through a bite or scratch. Though quite rare, it is possible that someone could acquire rabies if the saliva gets directly into their eyes, nose, mouth, or a wound. Since the head of the dead bat was still in the salad, there was potential for exposure to saliva and central nervous tissue. The cases consumed some of the salad on April 2. It may have been difficult to discern smaller bits of the bat tissue from the leafy green mixture. Due to the bat testing inconclusive for rabies, the fatality rate of the disease, and the possible risk of exposure, rabies PEP was recommended. CDC treats inconclusive rabies testing results as though they were positive. Additionally, out of an abundance of caution, the product was recalled.

Through analysis of the bat, CDC determined that the bat was a *Tadarida brasiliensis*, commonly referred to as a Mexican free-tailed bat or Brazilian free-tailed bat. CDC conducted additional phylogenetic analysis on the bat and determined it was most likely a *T. brasiliensis mexicana*, a subspecies that occurs from east Texas to California and into Mexico. This suggests that the bat likely did not live in Florida or Georgia and came from somewhere in the Southwest. Traceback information collected during the investigation indicated the bat likely entered the product during harvest and not during processing at the facility.

No other reports of illness, other animal parts in products, or other concerns were reported to Florida Health.

Measles in a Vaccinated Patient Following Exposure During Airline Travel, Polk County, April 2017

Authors
Gregory Danyluk, PhD, MPH, MS

Background
On March 27, 2017, the Florida Department of Health in Polk County (DOH-Polk) was notified by the Florida Health Bureau of Epidemiology, following notification by CDC, that a 23-year-old male Polk County resident had been exposed to measles during a domestic flight on March 21. DOH-Polk contacted the resident regarding his current health status, confirmed with him that he had received two doses of measles-mumps-rubella (MMR) vaccine during childhood, and advised him to notify DOH-Polk prior to visiting a health care provider if he became symptomatic. On April 7, DOH-Polk was notified after hours by the infection preventionist (IP) of a local hospital that a patient had presented to their emergency department with fever, rash, and diarrhea who had mentioned being contacted by the county health department the previous week regarding possible exposure to measles.

Methods
DOH-Polk interviewed the patient on April 7 and reviewed his activities for that day and during the four days prior to the onset of his rash in order to identify exposed individuals while he was potentially infectious. Contacts who were subsequently identified were interviewed regarding their immune status and current health, provided with information on measles signs and symptoms, and encouraged to visit their health care providers if they became ill during the two weeks following their exposures.

Blood and urine specimens from the patient were collected at the hospital and delivered to the Florida Health Bureau of Public Health Laboratories (BPHL) on April 10, and the urine tested positive for measles by polymerase chain reaction (PCR) later that day; the serum was forwarded to the Centers for Disease Control and Prevention for further sequencing and genotyping. The patient's immunization records and those of his three roommates were requested from their respective health care providers who had administered the MMR doses.

The patient reported working at a high school while infectious; therefore, DOH-Polk school health staff reviewed vaccine coverage among students, worked with the school principal to review the immune status of staff, and provided an information letter to distribute to parents and staff notifying them of a possible measles exposure. A letter to local health care providers notifying them of the case and providing the Florida Health "Think Measles" infographic was distributed via email and blast fax on April 11, encouraging enhanced surveillance through April 27. Surveillance for additional cases presenting at emergency departments was conducted using Florida's syndromic surveillance system.

Results

The patient reported that his rash began on April 5, and other than working at the school, he left his home twice in the previous four days, once to visit a local gym (April 1) and once for grocery shopping (April 2). He worked at the school on April 3 and 4, and then briefly on the morning of April 6. He reported that his mother visited him and he stayed in her hotel from April 7 to April 9, but he kept the mask on that he had received from the hospital until he was in her room and remained there the entire time with a "Do Not Disturb" sign on the door. The patient's roommates' immunization records confirmed that they had received two MMR doses. The gym manager provided a list of names and contact information for staff and members who, according to their records, were there at the same time as the patient or up to two hours afterward. DOH-Polk contacted 35 of the 39 directly and notified them of their exposures. The managers of the grocery store and the hotel where the patient had stayed were also contacted and asked to notify staff of their possible exposures. The IP at the hospital where the patient presented confirmed that the only exposure was to the triage nurse, who was immune.

DOH-Polk school health staff reviewed students' immunization records on April 11 and determined that all who attended that school had received two MMR doses. One student with an immune deficiency was identified; the student's parents were contacted and advised to follow up with the student's health care provider. On April 12, DOH-Polk immunizations staff provided post-exposure MMR doses to 12 school staff members whose immune status was uncertain or who had not received two doses previously.

In addition to the positive PCR result from urine, on April 12 the patient's serum tested positive for measles IgG at BPHL. The virus isolated from the patient was identified by CDC on April 20 as genotype B3; in a separate communication from CDC, nucleotide sequences from the isolate were identical to those of isolates from both the index case and another passenger who had become ill after traveling on the same flight. The patient's immunization records were obtained from his health care provider and documented that MMR had been administered at 12 months and 43 months old.

Conclusions

This measles case investigation demonstrated the value of notifying county health departments of possible exposures to known measles cases during airline travel. The patient had already been made aware of his exposure by DOH-Polk and, although he presented at an emergency department without notifying DOH-Polk prior to his visit as requested, he was able to alert the triage nurse of the likely cause of his illness, which allowed the contact investigation to begin immediately afterwards. The investigation also demonstrated that an exposed, fully vaccinated individual may nevertheless develop the disease.

Adult Lead Poisoning Cluster at a Shooting Range, Lake County, May 2017

Authors

Sudha Rajagopalan, MPH; Brittany Becht MPH, CIC; Giselle A. Barreto, MPH

Background

Lead is a toxic substance with well-known long-term adverse health outcomes. Shooting guns at firing ranges is an occupational necessity for security personnel, police officers, and military, and is increasingly a recreational activity for the public. Discharge of lead dust and gases is a consequence of shooting guns. Starting in 2017, a blood lead level (BLL) ≥5 μg/dL is considered lead poisoning in Florida (previously a BLL ≥10 μg/dL was considered lead poisoning). On May 23, 2017, the Florida Department of Health in Sumter County (DOH-Sumter) received elevated BLL results ranging from 11.6 to 30 μg/dL for four residents.

Methods

DOH-Sumter initiated an investigation that included reviewing laboratory results, interviewing employees of the gun range, conducting a site visit, and assessing the work environment.

Results

The original BLL results received by DOH-Sumter were for three males and one female aged 70 to 80 years. Investigation determined they were exposed to lead while shooting at a gun range located in the city of Leesburg in Lake County. On May 30, DOH-Sumter received elevated BLL results for five additional males aged 67 to 71 years. Four of the five new cases also reported recreational shooting at the same gun range. As of July 19, 2018, 43 cases have been identified. Forty-one of the 43 cases were reported among Sumter County residents and two cases were reported among Lake County residents. None of the cases reported any symptoms of lead poisoning.

A joint investigation by DOH-Sumter and DOH-Lake identified that the cases exposed at the gun range belonged to a shooting club. The shooting club consists of 2,000 members. The club has various groups who shoot recreationally. Members of the all these groups usually target practice in an indoor range. The total number of potentially exposed individuals was unknown; rosters from the shooting club's website indicated several thousand members.

DOH-Lake conducted a site visit of the indoor gun range to discuss the owner's knowledge and familiarity with lead exposure, determine the number of employees at risk for lead exposure, and recommend testing for the rest of the employees. DOH-Lake learned that the range had been operating as a family business for the past 17 years. In that time, the range had not updated their ventilation systems. The range had a direct exhaust system which brings in fresh air from outside and then vents the range air (with airborne lead) outside. It is not clear if this air was filtered. It is also unclear whether the vent systems had any high-efficiency particulate air (HEPA) filters installed or whether the exhaust vent was located away from human activity. The gun range owner stated that airborne lead levels had not been tested despite the regular use of the gun range. DOH-Lake recommended use of a separate ventilation system for firing lanes.

The gun range owner claimed employees maintained and cleaned the facility often and used personal protective equipment, but did not have a schedule or set protocol for regular maintenance. It was not clear if respirator masks were tested for a correct fit for each gun range employee or how well the equipment was maintained. DOH-Lake recommended a written protocol for cleaning practices such as using wet mopping or a vacuum with a HEPA filter instead of dry sweeping to remove dust.

Good hygiene practices were followed at the gun range and shooters used different bathrooms from shop employees and customers. DOH-Lake further emphasized education on good hygiene practices after shooting, such as cleaning thoroughly after target practice with effective lead removal products, changing clothes before going home, and laundering clothes used for target practice in a separate laundry load.

The gun range had six employees including the owner. Four of the six employees are contractors who are not screened regularly for lead exposure, and there was no employee lead screening program available at the gun range. DOH-Lake reiterated Occupational Safety and Health Administration (OSHA) recommendations for lead monitoring at the facility and an employee lead screening program. Employees were advised to send family members for lead screening due to the potential for people exposed at the gun range bringing lead into their homes.

DOH-Lake also recommended use of jacketed or lead-free bullets to reduce lead exposure. The range continued to operate; however, the club suspended their shooting activities at this range. Additional follow-up interviews indicated that the gun range did not implement additional measures to prevent lead exposure and members are still concerned regarding additional lead exposure.

Conclusions

The findings suggest that improper design, operation, and maintenance of the gun range were likely causes of elevated BLLs among the gun club members. This investigation highlighted the risk for lead exposure at indoor firing ranges, despite federal regulations and specific guidelines pertaining to range design and operation. Recommendations were made to minimize employee exposure to lead and the owner was educated on risks to employees and customers from airborne and surface lead exposure.

Investigation of Liquid Nitrogen Exposure at a Local Fair, Escambia County, October 2017

Authors

Laura Matthias, MPH

Background

On October 23, 2017, the Florida Department of Health in Escambia County (DOH-Escambia) received reports of burn-like injuries in people who had consumed a dessert called Dragon's Breath at a local fair. A provider who had seen patients with these injuries reported it to the health department. DOH-Escambia initiated an investigation into the reported exposures.

Methods

Epidemiologic Investigation

DOH-Escambia attempted to interview all people who reported having burn-like injuries after consuming the dessert with an incident-specific questionnaire. DOH-Escambia requested medical records for those who sought medical treatment. Active case finding was conducted using Florida's syndromic surveillance system and by asking those interviewed individuals if they knew of others who became ill or suffered injuries. A case was defined as someone who developed a burn-like injury after consuming or touching the Dragon's Breath dessert at the Pensacola Fair between October 20–23, 2017.

Environmental Investigation

DOH-Escambia contacted the Florida Department of Business and Professional Regulation (DBPR) and the Florida Department of Agriculture and Consumer Services (FDACS) to schedule a joint environmental assessment of the vendor. During the environmental assessment, DOH-Escambia reviewed the vendor's permit, the vendor's supplies for making the dessert, and the procedures and instructions for serving and consuming the dessert.

Results

Epidemiologic Investigation

Three people met the outbreak case definition. No additional cases were found after reviewing syndromic surveillance data. DOH-Escambia interviewed the parents of the three affected teenagers. Exact incubation times were not able to be calculated, as the specific time the product was consumed was not assessed; however, cases reported rapid onsets of symptoms ranging from immediate to within 30 minutes of product consumption. Duration of symptoms ranged from three to four days. Parents of all three teenagers reported not being fully aware of the risk of consuming or handling this product. Two reported that instructions were given on how to handle the product.

Case A was in a 14-year-old female resident of Escambia County. She reported eating a "few" pieces of the dessert with her hands on October 20, as a stick was not provided to eat the dessert. She reported burning her thumb after holding the cup that contained the dessert and also reported abdominal pain and a headache starting on October 21. She sought medical care at an emergency department on October 22 with a chief complaint of a chemical burn and infected nail bed and was treated with antibiotics for the infection. She was with three other friends who also consumed the dessert. It was reported that one other friend also suffered a minor burn but DOH-Escambia was unable to reach that person for further follow-up.

Case B was in a was a 15-year-old female resident of Santa Rosa County. She reported slight swelling of the tongue and numbness/blistering of the tongue and top of her mouth within 30 minutes after consuming the dessert on October 21 (top right picture). She reported consuming a "few" pieces of the cereal and giving the rest to her sibling. When finished with the dessert, the remaining liquid was thrown away. She sought medical care at a pediatrician's office on October 23 and was diagnosed with a burn of the mouth and pharynx and was advised to use over-the-counter burn coating gel for the injury. She had a sibling who also reported consuming the dessert but the sibling did not have any injuries.

Case B: View of mouth with burns to the inside roof of the mouth

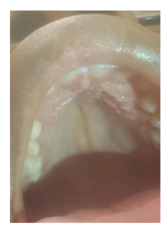


Photo credit: Pensacola pediatrics, Facebook page, Posted October 25, 2017

Case C was in a 13-year-old male resident of Escambia County. He reported what appeared to be frostbite on the roof of his mouth and difficulty swallowing after consuming two pieces of the dessert on October 23. He sought medical attention at a pediatrician's office on October 24 and was referred to a pediatric gastroenterologist for possible esophageal injury. Three other people consumed the dessert but no one else reported injuries.

Dragon's Breath dessert: Three cup holders hide the liquid nitrogen boiling at the bottom of the cup.

Photo credit: Dorothy Kramer

Environmental Investigation

On October 26, DOH-Escambia, DBPR, and FDACS conducted a joint assessment of the vendor. DOH-Escambia obtained information on how the vendor sold the product. Nitrogen was obtained from a supplier (the actual supplier was never revealed, therefore the grade of nitrogen used is unknown) and brought to the fairgrounds in a small tank called a dewar. Other supplies used were hot coffee sleeves (three per cup), disposable cups, skewers, and cereal (source and brand was also never revealed). The liquid nitrogen is added to the cereal in a cooler for a minimum of five minutes. The mixture was ladled into a cup and liquid nitrogen could be seen boiling at the bottom of the cup (bottom right picture). It was then served to customers and the vendor demonstrated how to consume by following the directions posted on a sign (picture to right). While DOH-Escambia was there, the vendor demonstrated how he could pour out the liquid nitrogen left in the cup and let it roll off the back of his hand without causing him harm. However, the vendor said not let the nitrogen pool in the palm of your hand. The inspector questioned the vendor on consuming the product and the vendor assured them that customers would not be harmed if they followed directions. Instructions were not provided on what to do with any uneaten product. Prior to this site visit, the vendor had been unlicensed to operate at this event. DBPR issued a permit to the vendor on October 26 after the vendor obtained the necessary items required for permitting.

Directions posted on vendor tent for consumers to follow before/when consuming the dessert

Photo credit: Dorothy Kramer

Conclusions

Liquid nitrogen is used in the food community to quickly freeze foods. When in liquid state, it is at an extremely low temperature and the gas can flash freeze foods as well as give off a dense fog that can add a flair element to food preparation. Liquid nitrogen has not been recognized as safe by the U.S. Food and Drug Administration for use in this type of dessert and there is a hazard to consumers if the product is not handled appropriately. Because it is at such a low temperature, it is unsafe for consumers to ingest the liquid and it is only after the liquid has evaporated that food should be consumed. In this investigation, there were reports of liquid being left at the bottom of the cup and liquid nitrogen is known to cause frost-bite-like or burn injuries if not handled appropriately. Instructions did not provide directions on how to dispose of any unconsumed product or the liquid at the bottom of the cups. One case reported throwing away the leftover liquid in the trash. Liquid nitrogen should be disposed of outdoors by slowly pouring the liquid on gravel or the ground so that it can evaporate. The liquid should not be poured on pavement. Throwing away leftover liquid at the bottom of a cup would likely not allow for quick evaporation of the product and could potentially harm others when removing the trash bag or if the bag was spilled. This dessert should not be served with liquid nitrogen at the bottom.

This investigation into the use of liquid nitrogen as a food additive highlights the risk of consuming the product if not handled appropriately. This was a novel dessert to Florida Health investigators and information was shared statewide with county health department environmental health directors in case a vendor like this appears at any other events in the future. The manager of this event stated that a vendor like this would not be allowed to operate at this event in the future; however, this does not prevent a similar vendor from preparing a similar product at other events around the state.

Neurotoxic Shellfish Poisoning Associated With Recreationally Harvested Horse Conch, Orange County, March 2017

Authors

Jennifer T. Jackson, MPH, CIC

Background

On March 23, 2017, the Florida Department of Health in Orange County (DOH-Orange) was notified by a physician at a local emergency department (ED) of Patient A who had signs and symptoms of neurotoxic shellfish poisoning (NSP) after consuming two recreationally harvested horse conch from Sarasota Bay off Florida's Gulf Coast on March 23. On the same day, public health interviews with the treating physician and the symptomatic patient identified additional family members who had the same exposure. DOH-Orange immediately began the investigation by requesting medical records, clinical specimens, and leftover conch meat. Later that same day, Patient B presented to the same ED with signs and symptoms of possible NSP. Patient B indicated exposure to the same conch meal as Patient A. Patient B presented with generalized weakness, unusual fatigue, diffuse numbness, dizziness, and paresthesia approximately six hours after ingestion of conch. Numbness and paresthesia had subsided by the time the patient arrived at the hospital.
NSP is caused by consuming molluscan shellfish contaminated with brevetoxin produced by a dinoflagellate, *Karenia brevis*, typically responsible for red tides in Florida. Diagnosis is typically based on clinical presentation with a recent history of exposure to shellfish. Therapy is supportive and duration of illness is short and self-limiting. Shellfish contaminated with brevetoxin cannot be distinguished by taste or smell. Brevetoxin cannot be destroyed by heating or cooling food.

Methods

Epidemiologic Investigation

Active and passive surveillance were conducted to identify any potential cases of NSP. On March 27, a statewide notification to all Florida county health departments was distributed via EpiCom, Florida's outbreak communication system. A case was defined as a person with symptoms compatible with NSP, including numbness, paresthesia, and dizziness, within 12 hours after ingesting recreationally harvested shellfish. Interviews with individuals were conducted with open-ended questions and the location of the recreationally harvested conch was requested.

Laboratory Analysis

Leftover horse conch from the initial meal was obtained. Serum and urine specimens were collected from Patients A and B on March 23. Clinical specimens were shipped to the U.S. Food and Drug Administration (FDA) Gulf Coast Seafood Laboratory.

Environmental Assessment

The Florida Fish and Wildlife Conservation Commission (FWC) collected representative shellfish samples, including horse conch (33 cm with shell and 780 g without shell), lightning whelk (25 cm with shell and 150 g without shell), banded tulip, and a sunray venus clam from the approximate location provided by Patients A and B. Shellfish samples were shipped to the FDA Laboratory. Historical data on the presence of *K. brevis* in the described harvest area for February and March 2017 were collected from the FWC website.

Results

Epidemiologic Investigation

During public health interviews conducted March 23–April 3, DOH-Orange learned that four individuals had consumed recreationally harvested horse conch. Two horse conch were caught in Sarasota Bay on March 22 at 4:00 p.m. The individuals seasoned the conch meat with ginger and prepared the conch by boiling the meat in water for 45 minutes. The conch was consumed by all four individuals on March 23 at midnight. Three out of four exposed individuals were interviewed and two were symptomatic, making them cases. The symptomatic individuals were a 39-year-old female and a 35-year-old male. Both experienced body numbness, paresthesia, and dizziness. Illness onsets occurred on March 23 at 4:00 a.m. and 6:00 a.m. (incubation periods were four hours and six hours). Duration of illness was 24 hours for one case and 36 hours for the other.

Laboratory Analysis

Urine specimens from both cases tested positive for brevetoxin. Horse conch viscera, lightning whelk viscera, banded tulip A and B viscera, and whole sunray venus clam were contaminated with brevetoxins at high levels, which exceeded the assay guidance level of 0.8 ppm.

Specimen/sample	Results	
Urine Case A	Brevetoxin-3 detected	
Urine Case B	Brevetoxin-3 detected	
Horse Conch (muscle)	Brevetoxin major metabolites detected	0.03 ug/g
Horse Conch (viscera)	Brevetoxin major metabolites detected	1.77 ug/g
Lightning Whelk (muscle)	Brevetoxin major metabolites detected	Trace
Lightning Whelk (viscera)	Brevetoxin major metabolites detected	5.23 ug/g
Banded Tulip A (muscle)	Brevetoxin major metabolites detected	0.3 ug/g
Banded Tulip A (viscera)	Brevetoxin major metabolites detected	10.33 ug/g
Banded Tulip B (muscle)	Brevetoxin major metabolites detected	0.21 ug/g
Banded Tulip B (viscera)	Brevetoxin major metabolites detected	58.15 ug/g
Sunray Venus Clam (whole)	Brevetoxin major metabolites detected	13.88 ug/g

Environmental Assessment

The harvest area experienced severe red tide with high counts of *K. brevis* (>1,000,000 cells/L) from September 2016 through February 2017. In March 2017, FWC determined that *K. brevis* was either not present or present at very low levels (<10,000 cells/L).

Conclusions

On March 23, DOH-Orange investigated two confirmed cases of NSP associated with consumption of recreationally harvested horse conch from Sarasota Bay on March 22. Laboratory toxin testing confirmed the presence of brevetoxin in urine specimens for both cases. FWC collected horse conch, lightning whelk, sunray venus clam, and a banded tulip at the approximate location provided by the cases; toxin testing confirmed high levels of brevetoxin in the muscle and visceral homogenates of all harvested samples.

The Florida Department of Agricultural and Consumer Services (FDACS) only regulates the harvest of bivalves (e.g., clams, oysters). FDACS tests for biotoxins only in clams and oysters as part of a biotoxin monitoring plan. When FDACS orders the closure of water areas for harvesting, it only applies to bivalves. Other gastropods, such as conch, can be harvested from anywhere at any time. Improved outreach regarding the hazards of harvesting any seafood in areas closed to consumers and recreational fishermen can help with lowering the risk of NSP. Consumers wishing to recreationally harvest seafood can lower their risk of brevetoxin exposure by observing any closed harvesting areas and "No Fishing" notices.

Section 4:

Health Care-Associated Infections (HAIs) and Antimicrobial Resistance

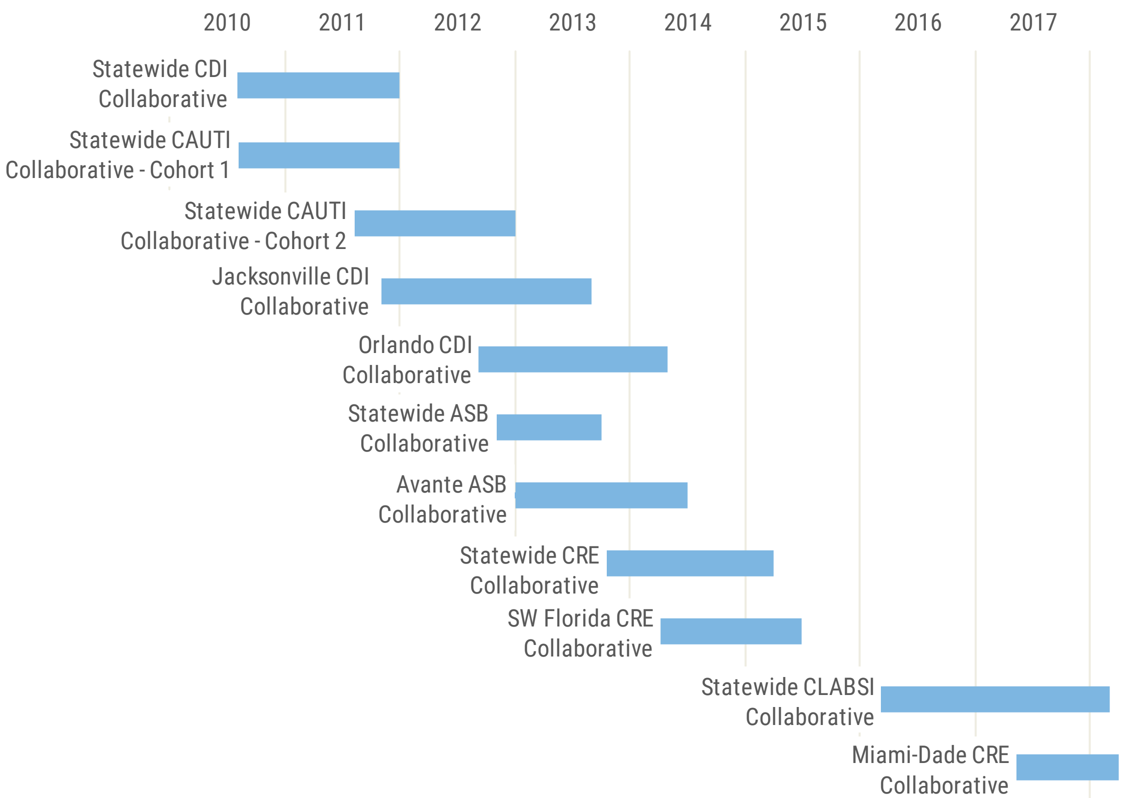
Section 4: HAIs and Antimicrobial Resistance

HAI Background

The Florida Department of Health Care-Associated Infection (HAI) Prevention Program was established in 2010 through the Centers for Disease Control and Prevention (CDC) Epidemiology and Laboratory Capacity cooperative agreement. The HAI Prevention Program goals included:

- Establishing an HAI Prevention Program infrastructure
- Conducting HAI and antimicrobial resistance surveillance
- Engaging in prevention activities with internal and external partners (e.g., supporting county health department investigations, responding to outbreaks, and promoting infection control best practices and judicious use of antibiotics)

Since its installation, the HAI Prevention Program has facilitated a number of statewide and regional collaboratives, working in conjunction with local health care partners to promote effective infection control practices.



Abbreviations: CDI, *Clostridium difficile* infection; CAUTI, catheter-associated urinary tract infection; ASB, asymptomatic bacteriuria; CRE, carbapenem-resistant Enterobacteriaceae; CLABSI, central line-associated bloodstream infection

Over the past few years, antimicrobial resistance has become an urgent public health threat affecting health care, veterinary, and agricultural industries around the world. The increased spread of antimicrobial-resistant organisms has been fueled by modern globalization, increasing the ease by which people, animals, and goods move around the globe. To minimize this threat, the HAI Prevention Program works in concert with local, state, and federal partners to implement containment strategies designed to stop the spread of antimicrobial-resistant organisms through early and aggressive action.

In 2015, CDC created the infection control assessment response (ICAR), which was designed to assess a facility's capability to identify, isolate, inform, prepare for transport, and provide care for persons with highly infectious diseases, such as Ebola. Florida Health accompanied CDC on the first ICAR conducted in a Florida hospital in 2015. Using this experience, in combination with other lessons learned and evidence-based best practices, the HAI Prevention Program created a standardized ICAR assessment process and implemented that process in health care facilities across the continuum of patient care settings.

Section 4: HAIs and Antimicrobial Resistance

HAI Infection Control Assessment Responses (ICARs)

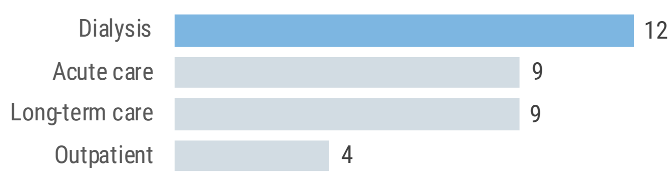
The HAI Prevention Program conducted the majority of ICARs in 2017. During the second half of the year, the Program extended ICARs to the county level to continue the growth of the program and share tools and resources to promote infection prevention.

34 ICARs conducted in 32 facilities in 2017

4 conducted as part of a collaborative

10 conducted in response to outbreak investigations

ICARs were most frequently performed in dialysis facilities in 2017. Dialysis facilities were targeted for ICARs due to patients' increased risk for infection.

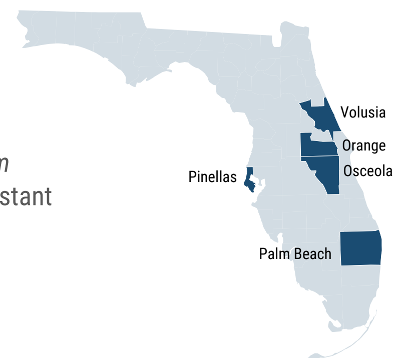


The top three areas where gaps in infection prevention were identified through ICARs were:

- Hand hygiene
- Personal protective equipment
- Environmental cleaning

Facilities were provided with specific recommendations and resources (e.g., auditing tools, checklists, example policies) to address gaps identified during site visits.

In July 2017, the HAI Prevention Program developed a five-person ICAR team focused on conducting ICARs in health care facilities as an infection prevention tool. ICAR team staff were stationed in five county health departments chosen for their previous participation in infection control collaboratives and a high burden of *Clostridium difficile* or carbapenem-resistant Enterobacteriaceae (CRE) infections in their counties.



HAI Collaboratives

The HAI Prevention Program has been facilitating collaboratives since its start in 2010. Collaboratives serve as a way to engage facilities in infection prevention of important organisms. Facilities are provided with education and training, networking opportunities, and on-site assessments. Through the data collected during collaboratives, Florida Health is able to measure the impact of interventions and target regions needing further support.

Statewide CLABSI Collaborative

- March 2016–March 2018
- 8 long-term acute-care hospitals
- Goals:
  - ◊ Prevent, detect, and contain CLABSI
  - ◊ Understand and implement current guidelines for CLABSI detection and prevention
  - ◊ Effective communication across the continuum of care

Miami-Dade CRE Collaborative

- May 2017–December 2018
- 13 acute-care hospitals, 4 nursing homes, 1 inpatient rehabilitation facility, 1 long-term acute-care hospital
- Goals:
  - ◊ Increase awareness of CRE
  - ◊ Increase education on how to prevent CRE infections
  - ◊ Improve detection and surveillance for CRE
  - ◊ Determine prevalence of CRE in Miami-Dade region
  - ◊ Improve communication between health care facilities and transport companies on preventing the spread of CRE
  - ◊ Promote antibiotic stewardship initiatives

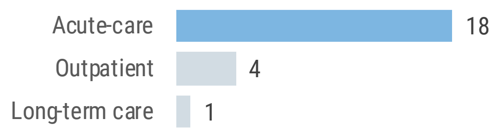
Section 4: HAIs and Antimicrobial Resistance

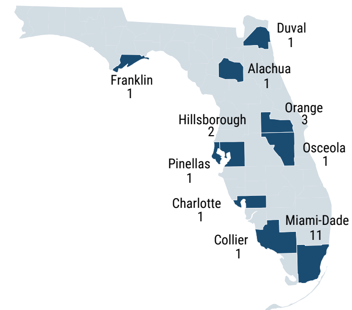
HAI Outbreaks

The HAI Program works with county health departments and health care facilities to assist in the development of plans for prompt response to multidrug-resistant microorganisms to prevent transmission. These plans assist in coordinating investigations, including on-site infection control assessments, health care personnel observations, and colonization screening.

23 outbreaks in **10** counties of multidrug-resistant organisms reported in 2017

Majority were identified in **acute-care** facilities





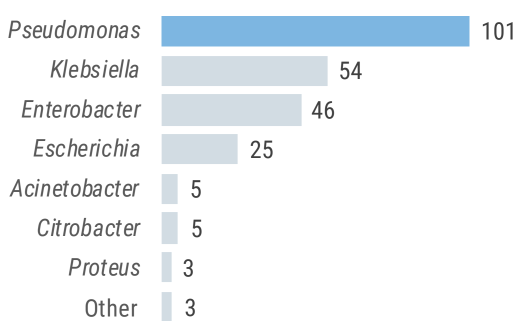
8 facilities received on-site assistance

HAI Laboratory Testing

CRE is a drug-resistant family of bacteria that has gained media attention as a significant threat to human health due to its high levels of resistance to antibiotics. To further improve surveillance and awareness of CRE, Florida Health's Bureau of Public Health Laboratories (BPHL) expanded CRE testing capabilities in 2017 to identify types of resistance mechanisms used by organisms. Carbapenemase production is a resistance mechanism of concern. A carbapenemase is an enzyme that breaks down carbapenem antibiotics and can be transferred between organisms. A variety of carbapenemases have been reported in the U.S. and in Florida: *Klebsiella pneumoniae* carbapenemase (KPC), Verona integron-encoded metallo-β-lactamase (VIM), New Delhi metallo-β-lactamase (NDM), and oxicillinase (OXA)-48-like.

263 isolates tested by BPHL for CRE mechanism in 2017

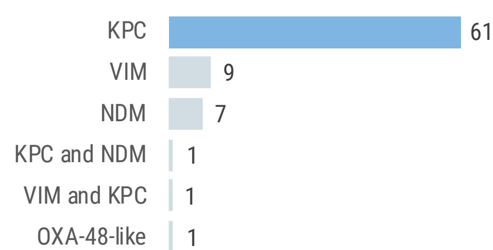
Pseudomonas* was most common organism identified



*In response to an outbreak, Florida Health requested that all *Pseudomonas* isolates from the facility involved be sent to BPHL for additional testing.

30% of isolates tested were carbapenemase-producing

KPC was most common resistance mechanism



Section 4: HAIs and Antimicrobial Resistance

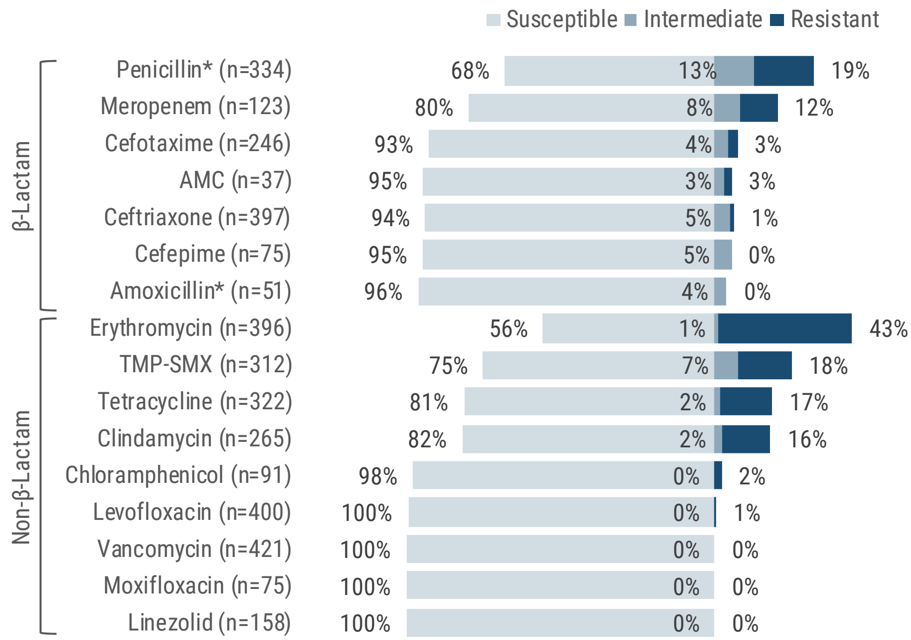
Antimicrobial Resistance Key Points

Streptococcus pneumoniae in 2017

624 *S. pneumoniae* invasive disease cases reported

40% had isolates resistant to at least one antibiotic

19% resistant to penicillin and **0%** resistant to amoxicillin
(recommended first-line antibiotics)



AMC=amoxicillin/clavulanate
TMP-SMX=trimethoprim/sulfamethoxazole
* Recommended first-line antibiotics, according to *The Sanford Guide to Antimicrobial Therapy 2018*

Organism Facts

- Gram-positive, facultative anaerobic bacterium
- Major cause of pneumonia and meningitis
- Transmitted via direct contact

S. pneumoniae susceptibility data for 2013–2017

Antibiotic type	Antibiotic name	2013		2014		2015		2016		2017	
		Number tested	Percent susceptible	Number tested	Percent susceptible	Number tested	Percent susceptible	Number tested	Percent susceptible	Number tested	Percent susceptible
β-Lactam	Amoxicillin*	138	95%	105	97%	21	86%	32	97%	51	96%
	AMC	182	90%	115	90%	22	95%	33	88%	37	95%
	Cefepime	157	96%	113	91%	24	100%	46	100%	75	95%
	Cefotaxime	525	92%	329	93%	93	94%	135	96%	246	93%
	Ceftriaxone	900	93%	599	93%	177	92%	249	96%	397	94%
	Imipenem	27	85%	8	63%	5	100%	7	100%	19	89%
	Meropenem	338	87%	229	89%	49	84%	87	89%	123	80%
	Penicillin*	967	72%	618	72%	158	69%	234	71%	334	68%
Non-β-Lactam	Chloramphenicol	238	96%	180	98%	52	96%	71	96%	91	98%
	Clindamycin	396	82%	306	81%	79	73%	133	84%	265	82%
	Erythromycin	840	58%	581	56%	187	49%	256	52%	396	56%
	Levofloxacin	774	99%	567	99%	138	98%	227	95%	400	100%
	Linezolid	193	99%	185	100%	46	100%	78	100%	158	100%
	Moxifloxacin	194	99%	159	99%	37	97%	47	89%	75	100%
	Ofloxacin	55	96%	65	94%	19	89%	34	91%	27	85%
	Rifampin	42	98%	23	100%	7	100%	15	100%	22	100%
	Tetracycline	566	81%	406	78%	98	73%	177	76%	322	81%
	TMP-SMX	680	70%	462	73%	114	68%	172	69%	312	75%
	Vancomycin	962	100%	654	100%	174	100%	253	99%	421	100%

Due to inconsistencies in laboratory reporting formats, meningitis and non-meningitis breakpoints for penicillin and ceftriaxone results cannot be separated. This report includes *S. pneumoniae* invasive disease data from cases that were reported to Florida Health by health care providers and laboratories as part of mandatory case-based disease reporting. If multiple isolates were tested for one case, the most recent results were included in the analysis. When both a susceptible and resistant result were reported for one of these antibiotics on the same laboratory result, the resistant result was used for analysis.

AMC=amoxicillin/clavulanate
TMP-SMX=trimethoprim/sulfamethoxazole
* Recommended first-line antibiotics, according to *The Sanford Guide to Antimicrobial Therapy 2018*

Antimicrobial Resistance Key Points (Continued)

Staphylococcus aureus in 2017

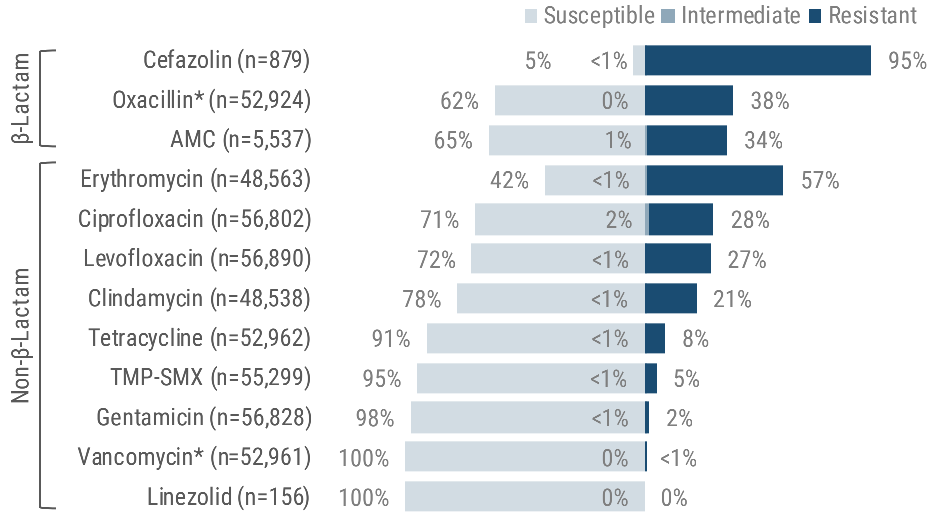
57,095 isolates reported

38% resistant to oxacillin (i.e., MRSA)
(susceptibility testing now done on oxacillin rather than methicillin)

0% resistant to vancomycin
(recommended first-line antibiotic when resistant to oxacillin)

Organism Facts

- Gram-positive bacterium, often part of body's normal flora, frequently found in nose, respiratory tract, and on skin
- Leading cause of skin and soft tissue infections
- Transmitted via direct contact



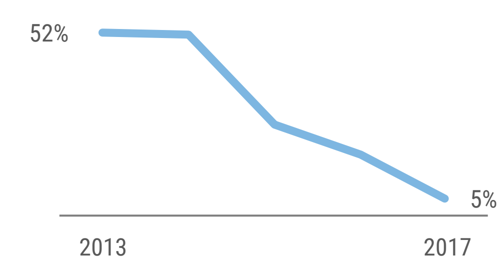
AMC=amoxicillin/clavulanate
TMP-SMX=trimethoprim/sulfamethoxazole
* Recommended first-line antibiotics, according to *The Sanford Guide to Antimicrobial Therapy 2018*

S. *aureus* susceptibility data for 2013–2017

Antibiotic type	Antibiotic name	2013		2014		2015		2016		2017	
		Number tested	Percent susceptible	Number tested	Percent susceptible	Number tested	Percent susceptible	Number tested	Percent susceptible	Number tested	Percent susceptible
β-Lactam	AMC	50,178	53%	53,455	54%	29,442	56%	17,424	59%	5,537	65%
	Cefazolin	16,740	52%	717	51%	723	26%	909	17%	879	5%
	Oxacillin*	51,579	53%	55,990	54%	55,303	58%	53,902	60%	52,924	62%
Non-β-Lactam	Ciprofloxacin	55,714	66%	57,633	63%	57,895	67%	57,371	69%	56,802	71%
	Clindamycin	47,831	78%	52,191	76%	51,506	77%	49,553	77%	48,538	78%
	Erythromycin	47,843	35%	52,192	35%	51,519	38%	49,596	40%	48,563	42%
	Gentamicin	56,032	97%	57,629	96%	57,921	97%	57,378	97%	56,828	98%
	Levofloxacin	56,151	70%	57,690	68%	57,958	70%	57,422	71%	56,890	72%
	Linezolid	189	100%	262	100%	203	100%	178	100%	156	100%
	Tetracycline	51,678	93%	56,103	92%	55,353	92%	53,933	91%	52,962	91%
	TMP-SMX	54,468	97%	56,951	97%	56,821	96%	55,925	95%	55,299	95%
	Vancomycin*	51,686	100%	56,097	100%	55,394	100%	53,967	100%	52,961	100%

AMC=amoxicillin/clavulanate
TMP-SMX=trimethoprim/sulfamethoxazole
* Recommended first-line antibiotics, according to *The Sanford Guide to Antimicrobial Therapy 2018*

Susceptibility to cefazoline decreased notably from 52% to 5% since 2013. Susceptibility to other antibiotics remained relatively stable over the past five years.

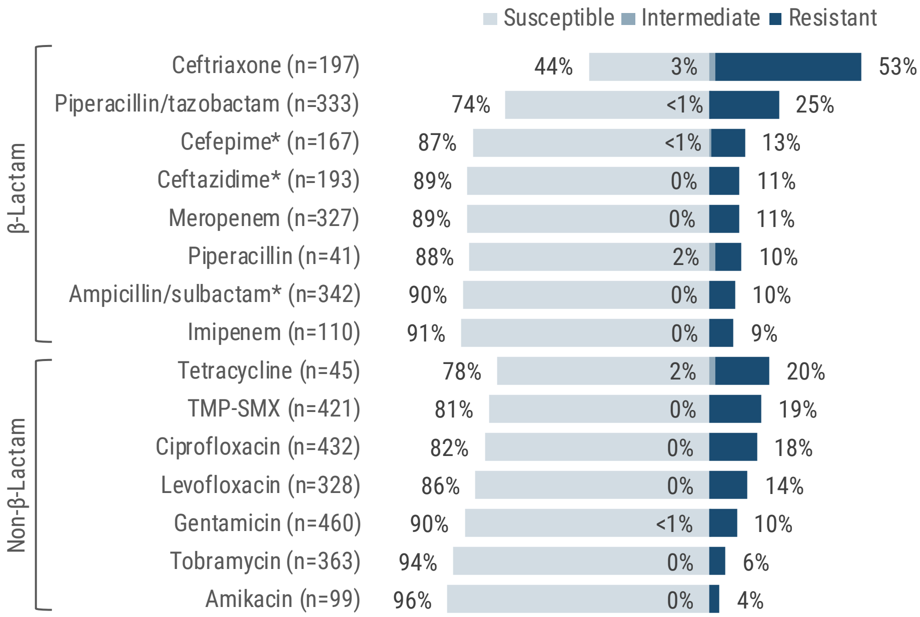


Commercial laboratory partnership

Since 2006, Florida Health has partnered with one of the largest commercial laboratories in the state to receive antimicrobial resistance testing results for all *S. aureus* isolates tested there. Resistance data presented here are from this commercial facility only.

Antimicrobial Resistance Key Points (Continued)

Acinetobacter species in 2017



TMP-SMX=trimethoprim/sulfamethoxazole
* Recommended first-line antibiotics, according to *The Sanford Guide to Antimicrobial Therapy 2018*
Note: indeterminate results not included in this figure

498 isolates reported

11% resistant to one or more carbapenems (doripenem, ertapenem, imipenem, meropenem)

10–13% resistant to recommended antibiotics: cefepime, ceftazidime, ampicillin/sulbactam

Organism Facts

- Gram-negative bacteria, frequently found in soil and water; *A. baumannii* is most common species causing disease in humans
- Causes pneumonia, blood infections, meningitis, urinary tract infections, skin or wound infections
- Transmitted via direct contact

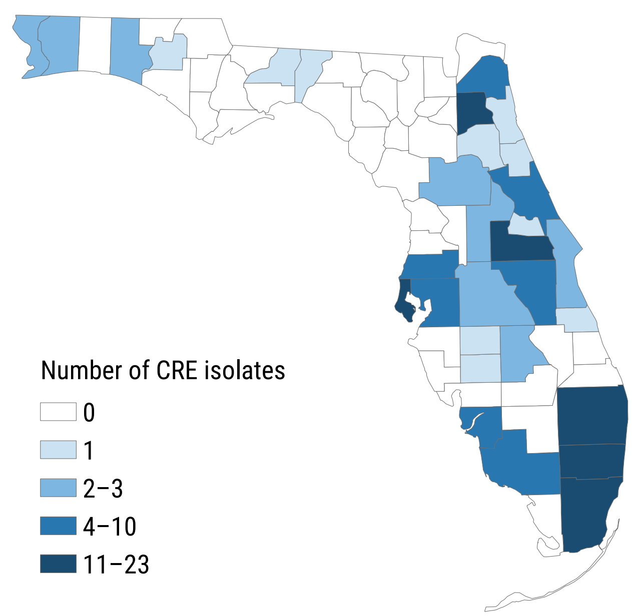
Enterobacteriaceae in 2017

28,166 isolates reported

0.6% resistant to carbapenem (i.e., CRE)

Organism Facts

- Family of bacteria that includes *Escherichia coli*, *Klebsiella pneumoniae*, *Salmonella* species, and *Shigella* species
- Often occur in health care settings in patients who require devices or antibiotic therapy
- Transmission depends on organism



Antimicrobial Resistance Key Points (Continued)

Escherichia coli in 2017

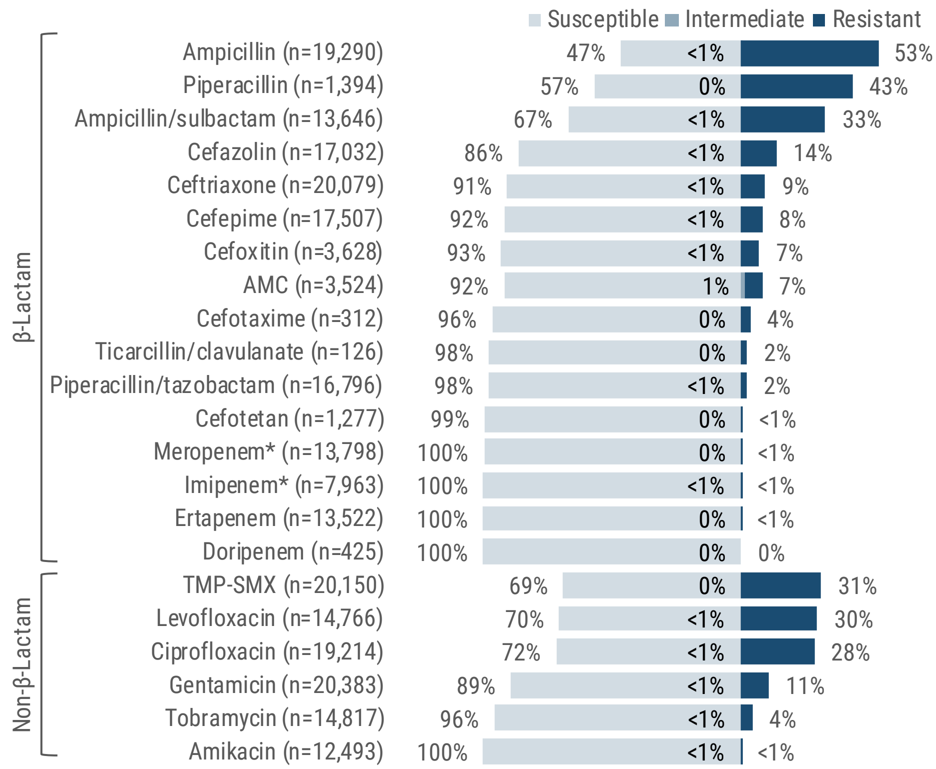
20,523 isolates reported

0.2% resistant to one or more carbapenems (i.e., CRE)

<1% resistant to imipenem or meropenem (recommended first-line antibiotics)

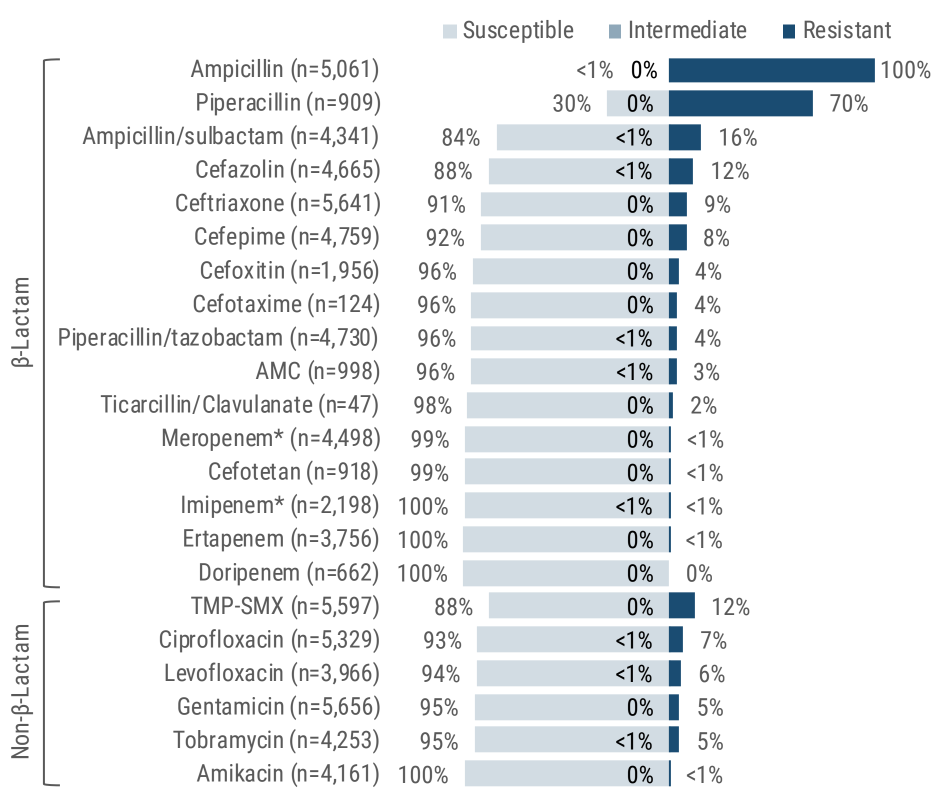
Organism Facts

- Gram-negative, facultative aerobic bacterium, frequently found in lower intestine
- Cause of food poisoning, pneumonia, breathing problems, and urinary tract infections
- Transmitted via fecal-oral route



AMC=amoxicillin/clavulanate
TMP-SMX=trimethoprim/sulfamethoxazole
* Recommended first-line antibiotics, according to *The Sanford Guide to Antimicrobial Therapy 2018*
Note: indeterminate results not included in this figure

Klebsiella species in 2017



5,761 isolates reported

0.8% resistant to one or more carbapenems (i.e., CRE)

<1% resistant to imipenem or meropenem (recommended first-line antibiotics)

Organism Facts

- Ubiquitous, gram-negative bacteria; *K. oxytoca* and *K. pneumoniae* are most common species causing disease
- Causes food poisoning, pneumonia, breathing problems, urinary tract infections
- Transmitted via direct contact

AMC=amoxicillin/clavulanate
TMP-SMX=trimethoprim/sulfamethoxazole
* Recommended first-line antibiotics, according to *The Sanford Guide to Antimicrobial Therapy 2018*
Note: indeterminate results not included in this figure

Section 4: HAIs and Antimicrobial Resistance

Antimicrobial Resistance Surveillance Methods

Antimicrobial resistance is the ability of a microorganism to evade antimicrobial treatment. One reason microorganisms have become resistant to antibiotics is that they are often inappropriately used to treat infections with the wrong dose, duration, or drug choice. Antibiotics are often prescribed for viral infections such as a cold or flu, or to treat bacteria in urine in the absence of symptoms, neither of which require antibiotic treatment. In the food industry, antibiotics are used to treat diseased animals. Giving antibiotics to food animals can foster resistance in bacteria. These organisms can contaminate meat when the animal is slaughtered and processed, or enter the environment from manure that is used for fertilizer or through irrigation, and make their way into the food supply and ultimately infect humans. Infections caused by drug-resistant organisms are difficult to treat and often require extended hospital stays, treatment with more toxic drugs, and increased medical costs.

Antimicrobial resistance can be reduced by improving infection control practices, reducing overuse and improper use of antibiotics, tracking and reporting resistance rates, improving laboratory capacity, and developing new drugs. Surveillance data are used to identify occurrences of novel resistant organisms, analyze trends over time, target facilities for interventions to improve antibiotic prescribing, and guide empiric therapy.

Case-based surveillance

As of 2017, health care providers and laboratories must report antimicrobial resistance testing results to Florida Health for:

- *Streptococcus pneumoniae* isolates from normally sterile sites, such as blood or cerebrospinal fluid
    - ◊ Starting in June 2014, only laboratories participating in electronic laboratory reporting (ELR) are required to submit such results for people ≥6 years old. All laboratories are required to submit test results for children <6 years old.
- *Staphylococcus aureus* isolates that are not susceptible to vancomycin
- *Mycobacterium tuberculosis*
    - ◊ Specimens for all tuberculosis cases must be forwarded to the Florida Health Bureau of Public Health Laboratories for *M. tuberculosis* testing; all positive samples undergo a rapid test for isoniazid and rifampin resistance.
    - ◊ For information on M. tuberculosis resistance, see Section 1: Data Summaries for Common Reportable Diseases/ Conditions.

Electronic laboratory reporting (ELR) surveillance

Since June 2014, all laboratories participating in ELR must report antimicrobial resistance testing results for all *Acinetobacter baumannii*, *Citrobacter* species, *Enterococcus* species, *Enterobacter* species, *Escherichia coli*, *Klebsiella* species, *Pseudomonas aeruginosa*, *Serratia* species, and *S. aureus* isolates from normally sterile sites. Due to the high volume of antimicrobial resistance testing results received electronically, Florida Health does not review results individually. Resistance results are processed electronically in the state's reportable disease surveillance system. Any results that do not meet technical standards for reporting or contain errors are excluded from processing and from this report. Note that only the first isolate per person organism per 365 days was included in the analysis. Due to the number of individual species received, the antibiogram in this report includes those organisms which are of most concern and most commonly found in reports on antimicrobial resistance.

Antimicrobial Resistance Appendix: 2017 Antibiogram

Antibiotic type	Antibiotic agent	*Acinetobacter baumannii* Total Tested	*Acinetobacter baumannii* Percent Susceptible	*Citrobacter freundii* Total Tested	*Citrobacter freundii* Percent Susceptible	*Citrobacter koseri* Total Tested	*Citrobacter koseri* Percent Susceptible	*Enterobacter aerogenes* Total Tested	*Enterobacter aerogenes* Percent Susceptible	*Enterobacter cloacae* Total Tested	*Enterobacter cloacae* Percent Susceptible
β-Lactam	AMC	--		25	0%	18	100%	33	0%	116	1%
	Ampicillin	115	0%	12	8%	11	0%	16	6%	80	9%
	Ampicillin/Sulbactam	309	87%	5	20%	3	100%	8	0%	34	9%
	Aztreonam	68	0%	56	86%	61	97%	26	73%	138	78%
	Cefazolin	131	0%	90	0%	49	92%	75	0%	202	1%
	Cefepime	143	78%	80	96%	82	100%	68	99%	275	89%
	Cefotaxime	14	64%	9	56%	4	100%	9	78%	39	72%
	Cefotetan	1	0%	5	0%	1	100%	4	0%	11	0%
	Cefoxitin	72	0%	59	0%	13	92%	55	0%	111	1%
	Ceftazidime	198	73%	80	80%	20	100%	72	75%	158	78%
	Ceftriaxone	292	16%	130	82%	85	98%	102	79%	270	74%
	Cefuroxime	--		--	--	--		1	0%	2	50%
	Doripenem	15	27%	4	100%	1	100%	3	100%	8	100%
	Ertapenem	--		95	100%	67	100%	67	100%	140	96%
	Imipenem	37	86%	69	94%	19	100%	59	97%	83	87%
	Meropenem	279	87%	75	97%	76	100%	57	96%	252	94%
	Oxacillin	--		--		--		--		1	100%
	Penicillin	--		--		--		--		1	100%
	Piperacillin	41	73%	8	50%	2	0%	6	50%	29	52%
	Piperacillin/tazobactam	282	70%	79	89%	87	100%	71	82%	260	79%
Non β-Lactam	Amikacin	70	93%	64	100%	70	99%	37	100%	211	100%
	Chloramphenicol	--		--		--		--		--	
	Ciprofloxacin	321	78%	120	91%	88	100%	93	98%	267	94%
	Clindamycin	--		--		--		--		2	100%
	Daptomycin	--		--		--		1	100%	3	100%
	Doxycycline	--		1	100%	--		3	100%	8	88%
	Erythromycin	--		--		--		1	0%	2	100%
	Gentamicin	348	85%	133	95%	93	99%	110	97%	305	96%
	Levofloxacin	248	80%	95	88%	40	100%	96	99%	241	93%
	Linezolid	--		--		--		--		2	100%
	Minocycline	16	63%	--		--		--		--	
	Moxifloxacin	--		--		--		--		--	
	Nitrofurantoin	46	0%	45	100%	14	100%	36	17%	44	57%
	Norfloxacin	1	0%	--		--		--		--	
	Ofloxacin	--		--		--		--		--	
	Rifampin	--		--		--		--		1	100%
	Tetracycline	35	69%	22	86%	11	100%	23	91%	100	81%
	Tobramycin	316	91%	77	94%	89	99%	54	96%	257	95%
	Trimethoprim	9	89%	4	100%	3	100%	10	100%	35	77%
	TMP-SMX	306	81%	129	91%	86	100%	100	96%	275	88%
	Vancomycin	--		--		--		1	100%	3	100%

AMC=amoxicillin/clavulanate

TMP-SMX=trimethoprim/sulfamethoxazole

Note that indeterminate results are included in this table. The percent susceptible is unreliable when less than 30 isolates are tested.

Antimicrobial Resistance Surveillance Methods

Antibiotic type	Antibiotic agent	*Enterococcus avium*		*Enterococcus faecalis*		*Enterococcus faecium*		*Escherichia coli*		*Haemophilus influenzae*	
		Total Tested	Percent Susceptible	Total Tested	Percent Susceptible	Total Tested	Percent Susceptible	Total Tested	Percent Susceptible	Total Tested	Percent Susceptible
β-Lactam	AMC	4	0%	134	100%	40	15%	3,945	82%	24	96%
	Ampicillin	118	91%	3,154	99%	372	28%	19,500	46%	798	66%
	Ampicillin/Sulbactam	5	80%	4	25%	1	0%	17,249	53%	11	100%
	Aztreonam	1	100%	4	50%	--		7,531	92%	1	100%
	Cefazolin	--		4	25%	--		17,370	85%	1	100%
	Cefepime	1	100%	7	86%	--		17,512	92%	10	100%
	Cefotaxime	--		3	33%	--		312	96%	657	98%
	Cefotetan	--		1	100%	--		1,284	99%	--	
	Cefoxitin	--		1	100%	--		3,987	85%	--	
	Ceftazidime	--		2	50%	--		7,500	91%	--	
	Ceftriaxone	2	50%	7	57%	--		20,174	90%	105	96%
	Cefuroxime	--		--		--		23	100%	42	98%
	Doripenem	--		--		--		424	100%	--	
	Ertapenem	1	100%	3	100%	--		13,521	100%	1	100%
	Imipenem	3	100%	4	75%	--		7,964	100%	22	100%
	Meropenem	1	100%	5	100%	--		13,799	100%	33	100%
	Oxacillin	1	0%	1	0%	--		2	50%	--	
	Penicillin	48	96%	957	99%	121	36%	10	60%	--	
	Piperacillin	--		1	0%	--		1,439	55%	--	
	Piperacillin/tazobactam	1	100%	4	75%	--		17,232	95%	1	100%
Non β-Lactam	Amikacin	1	100%	5	100%	--		12,509	100%	1	100%
	Chloramphenicol	12	92%	277	94%	44	100%	--		660	97%
	Ciprofloxacin	50	84%	2,065	72%	174	24%	19,281	71%	2	100%
	Clindamycin	1	0%	4	75%	--		10	90%	--	
	Daptomycin	31	100%	1,891	100%	35	100%	4	100%	--	
	Doxycycline	26	38%	1,032	22%	101	26%	31	87%	--	
	Erythromycin	53	26%	2,005	9%	190	6%	11	45%	--	
	Gentamicin	10	100%	138	70%	37	84%	20,441	89%	1	100%
	Levofloxacin	50	64%	2,115	73%	209	22%	14,882	70%	51	100%
	Linezolid	61	97%	2,496	100%	304	100%	6	100%	--	
	Minocycline	12	25%	183	17%	--		4	100%	--	
	Moxifloxacin	1	100%	--		--		--		--	
	Nitrofurantoin	14	36%	1,464	99%	146	14%	15,137	96%	--	
	Norfloxacin	11	82%	274	51%	41	24%	--		--	
	Ofloxacin	--		--		--		--		29	100%
	Rifampin	7	86%	210	56%	19	21%	2	100%	30	100%
	Tetracycline	33	33%	1,783	22%	157	27%	2,064	73%	44	57%
	Tobramycin	1	100%	6	83%	--		15,967	89%	1	100%
	Trimethoprim	--		--		--		263	68%	8	63%
	TMP-SMX	3	67%	5	60%	--		20,147	69%	688	63%
	Vancomycin	120	100%	3,285	98%	387	56%	15	93%	--	

AMC=amoxicillin/clavulanate

TMP-SMX=trimethoprim/sulfamethoxazole

Note that indeterminate results are included in this table. The percent susceptible is unreliable when less than 30 isolates are tested.

Antimicrobial Resistance Appendix: 2017 Antibiogram

Antibiotic type	Antibiotic agent	*Klebsiella pneumoniae* Total Tested	*Klebsiella pneumoniae* Percent Susceptible	*Klebsiella oxytoca* Total Tested	*Klebsiella oxytoca* Percent Susceptible	*Pseudomonas aeruginosa* Total Tested	*Pseudomonas aeruginosa* Percent Susceptible	*Serratia marcescens* Total Tested	*Serratia marcescens* Percent Susceptible	*Staphylococcus epidermidis* Total Tested	*Staphylococcus epidermidis* Percent Susceptible
β-Lactam	AMC	985	94%	44	95%	7	43%	89	0%	298	37%
	Ampicillin	4,833	0%	245	0%	805	1%	41	0%	487	0%
	Ampicillin/Sulbactam	4,465	79%	189	62%	800	1%	21	5%	495	16%
	Aztreonam	2,660	93%	133	95%	221	54%	211	99%	1	100%
	Cefazolin	4,516	88%	197	72%	822	0%	225	0%	419	28%
	Cefepime	4,561	91%	202	96%	3,057	90%	322	98%	3	100%
	Cefotaxime	111	95%	13	100%	11	0%	25	88%	1	0%
	Cefotetan	918	99%	3	100%	--		6	0%	--	
	Cefoxitin	1,906	94%	76	93%	583	1%	75	0%	3	67%
	Ceftazidime	1,799	94%	81	94%	1,978	88%	153	94%	--	
	Ceftriaxone	5,380	91%	270	95%	1,108	1%	372	95%	318	50%
	Cefuroxime	3	100%	--		--		1	0%	--	
	Doripenem	659	100%	3	100%	20	25%	6	100%	--	
	Ertapenem	3,568	100%	189	100%	7	29%	255	100%	1	100%
	Imipenem	2,093	99%	109	100%	1,223	90%	18	94%	122	34%
	Meropenem	4,327	99%	173	100%	2,260	91%	286	99%	1	100%
	Oxacillin	--		--		3	33%	--		2,368	39%
	Penicillin	2	50%	--		1	100%	--		1,131	4%
	Piperacillin	965	28%	6	67%	92	65%	15	93%	--	
	Piperacillin/tazobactam	4,687	93%	199	95%	2,524	94%	68	88%	1	0%
Non β-Lactam	Amikacin	4,013	100%	153	100%	1,908	98%	244	100%	1	100%
	Chloramphenicol	--		--		--		--		66	98%
	Ciprofloxacin	5,185	91%	235	97%	2,961	84%	334	95%	1,968	48%
	Clindamycin	--		--		4	75%	--		1,842	54%
	Daptomycin	--		--		7	100%	--		1,095	100%
	Doxycycline	12	67%	--		2	0%	1	100%	704	87%
	Erythromycin	--		--		6	17%	--		1,932	29%
	Gentamicin	5,434	94%	269	99%	3,160	91%	382	97%	2,414	84%
	Levofloxacin	3,889	92%	163	98%	2,574	79%	217	94%	2,325	47%
	Linezolid	1	100%	--		5	100%	--		2,165	100%
	Minocycline	10	80%	--		--		--		143	100%
	Moxifloxacin	1	100%	--		--		--		747	65%
	Nitrofurantoin	3,464	39%	67	84%	320	1%	30	0%	681	99%
	Norfloxacin	8	100%	--		--		--		--	
	Ofloxacin	--		--		--		--		--	
	Rifampin	--		--		3	100%	--		1,986	97%
	Tetracycline	1,187	86%	32	97%	10	60%	52	21%	2,239	81%
	Tobramycin	4,188	92%	190	98%	2,658	97%	315	81%	1	100%
	Trimethoprim	93	94%	8	100%	--		17	100%	--	
	TMP-SMX	5,336	87%	261	95%	796	2%	345	99%	1,535	53%
	Vancomycin	2	100%	--		9	89%	--		2,476	100%

AMC=amoxicillin/clavulanate

TMP-SMX=trimethoprim/sulfamethoxazole

Note that indeterminate results are included in this table. The percent susceptible is unreliable when less than 30 isolates are tested.

Section 5:

Influenza and Influenza-Like Illness

Section 5: Influenza and Influenza-Like Illness

Key Points for the 2017–18 Influenza Season

The predominant strain was influenza A (H3).

Increased influenza spread occurred from mid-November to late April; activity peaked in late January.

Influenza activity was unprecedented in Florida and nationally.

The season was classified as having high severity overall and in all age groups nationally.

Background

Influenza causes an estimated 9.2–35.6 million illnesses annually, with 140,000–710,000 of those resulting in hospitalization and 12,000–56,000 resulting in death. The best way to prevent influenza infection, and its potentially severe complications, is to get vaccinated each year.

Influenza A and B viruses routinely spread among the human population and are responsible for seasonal influenza epidemics each year. Influenza A viruses are more commonly associated with the ability to cause epidemics or pandemics than influenza B viruses. Over the course of an influenza season, several different influenza A and B viruses will circulate and cause illness, but there is typically a predominantly circulating strain, which varies by season.

Influenza activity in Florida and nationally can vary widely from season to season, underscoring the importance of robust influenza surveillance. The Florida Department of Health conducts regular surveillance of influenza and influenza-like illness (ILI) using a variety of surveillance systems, including laboratory-based surveillance and syndromic surveillance. Florida's syndromic surveillance system, ESSENCE-FL, collects chief complaint data from emergency departments and urgent care centers. During the 2017–18 influenza season, 331 facilities submitted data into ESSENCE-FL, capturing 97% of all emergency department visits in Florida. Individual cases of influenza are not reportable in Florida, except for novel influenza (a new subtype of influenza) and influenza-associated pediatric deaths. All outbreaks, including those due to influenza or ILI, are reportable in Florida. Florida Health produces a weekly report during influenza season (October through May) and a biweekly report during the other months. These reports summarize influenza and ILI surveillance information and are available at FloridaHealth.gov/FloridaFlu.

The 2017–18 season was classified as having a high severity overall as well as having high severity in all age groups (children, adolescents, adults, and older adults). This is the first time a season was classified as high severity in all age groups.

Disease Facts

Caused by influenza viruses

Illness is respiratory, including fever, cough, sore throat, runny or stuffy nose, muscle/body aches, headache, fatigue

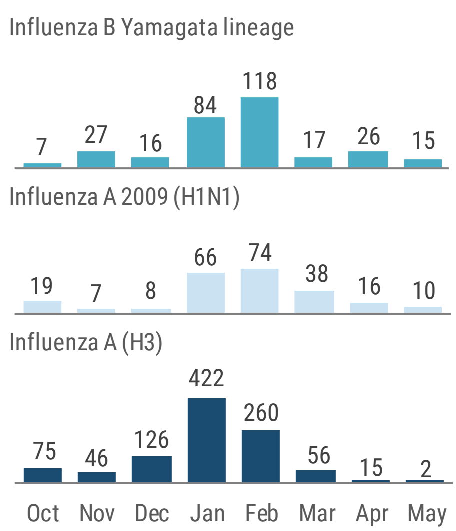
Transmitted person-to-person by direct contact with respiratory droplets from nose or throat of infected person

Under surveillance to detect changes in influenza virus to inform vaccine composition; identify unusually severe presentations of influenza; detect outbreaks; determine the onset, peak, and wane of the influenza season to assist with influenza prevention

Influenza A (H3) viruses predominated during the 2017–18 season in Florida and nationwide. Over the past 10 years, influenza A (H3) or influenza A 2009 (H1N1) have predominated in Florida. Seasons where influenza A (H3) viruses predominate are typically associated with increased morbidity and mortality, particularly in adults ≥65 years old and children ≤4 years old.

Influenza A 2009 (H1N1)	Influenza A (H3)	Influenza A 2009 (H1N1)	Influenza A (H3)	Influenza A (H3)
2013-14	2014-15	2015-16	2016-17	2017-18

Influenza B Yamagata lineage viruses were most commonly reported from April to May, and influenza A 2009 (H1N1) viruses circulated at lower levels throughout the season. This is consistent with past seasons in Florida.

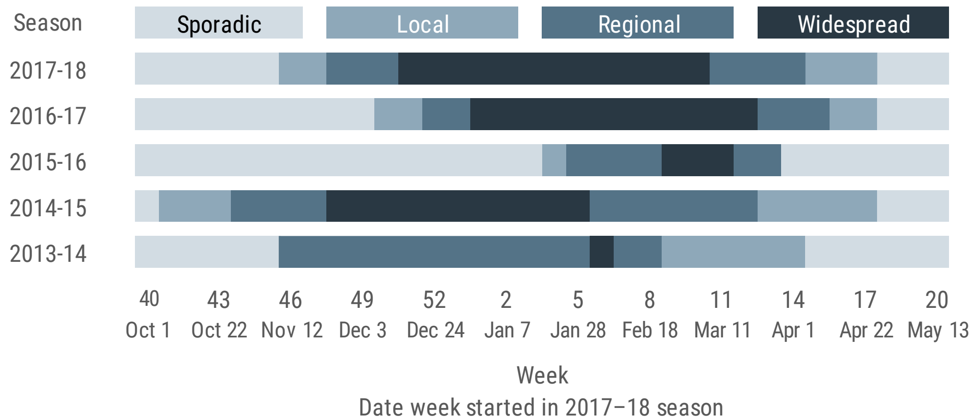


The Florida Health Bureau of Public Health Laboratories tests and subtypes surveillance specimens from sentinel providers, outbreak investigations, patients with severe or unusual influenza presentations, and medical examiners. This represents only a small number of all influenza cases.

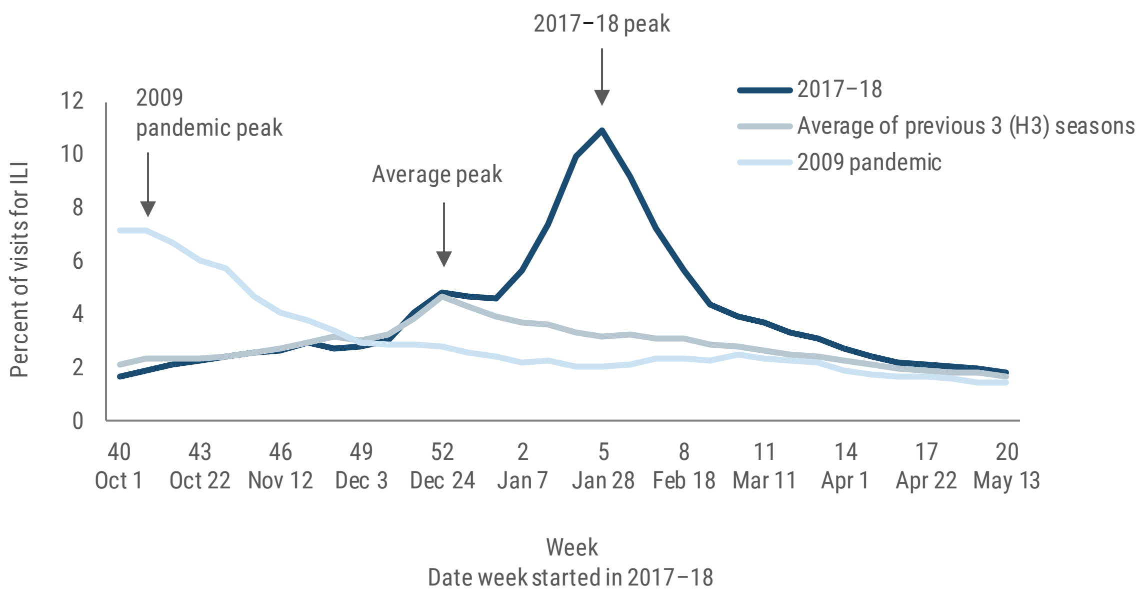
Section 5: Influenza and Influenza-Like Illness

General Trends

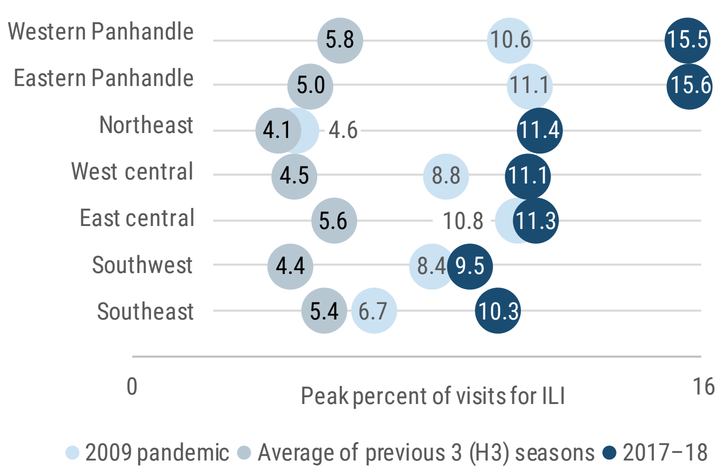
Increased spread of influenza was observed from mid-November to late April during Florida's 2017–2018 influenza season. Although influenza activity in Florida often differs from national influenza trends, the 2017–18 Florida season mirrored the national season with peak activity observed during week 5 (starting January 28, 2018).

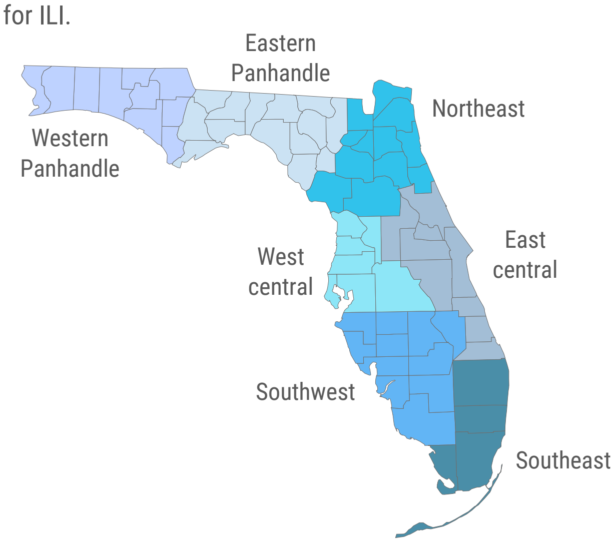


Influenza activity in the 2017–18 season was unprecedented, both nationally and in Florida. The percent of emergency department and urgent care center visits in ESSENCE-FL for ILI in Florida peaked at 10.9% statewide, the highest percentage on record, 133% higher than the average influenza (H3) season peak, and 53% higher than the 2009 pandemic peak.



Peak influenza activity for the 2017–18 season was higher than the average influenza (H3) season peak and the 2009 pandemic peak in all regions of the state. Florida Panhandle counties had the highest peaks in the state for the 2017–18 season. Peaks are based on percent of emergency department and urgent care center visits in ESSENCE-FL for ILI.





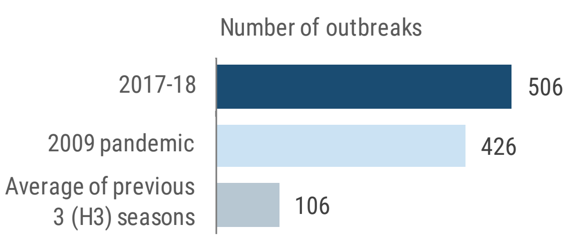
The influenza reporting year is defined by standard reporting weeks outlined by Centers for Disease Control and Prevention, where every year has either 52 or 53 reporting weeks; there were 52 reporting weeks in 2017. In Florida, increased surveillance for influenza begins in week 40 (October 1, 2017) and ends in week 20 of the following year (May 19, 2018).

Section 5: Influenza and Influenza-Like Illness

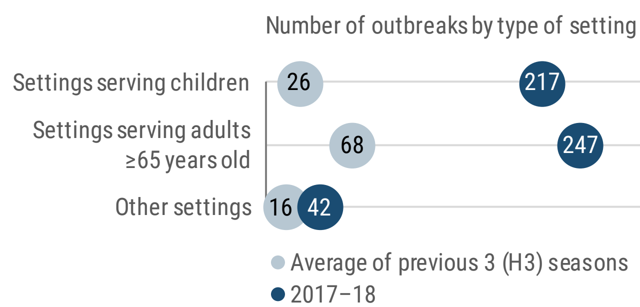
Outbreaks

The number of outbreaks reported and the types of outbreak settings vary each season and often serve as indicators of disease severity and population affected. The majority of outbreaks (92%) were reported in facilities serving people at higher risk for complications from influenza infection (children and adults ≥65 years old), which is consistent with past influenza A (H3) seasons. Settings that serve these groups include child daycares, schools/camps, assisted living facilities, nursing facilities, and other long-term care facilities. During the 2017–18 season, most early season outbreaks were in facilities serving adults aged 65 years and older, a pattern that was also observed during the last influenza A (H3) dominant season (2016–17). Prior to 2016–17, early season outbreaks were often observed in facilities serving children before progressing into facilities serving other age groups.

More outbreaks were reported during the 2017–18 season than any previous season on record, including the 2009 pandemic, underscoring the season's severity. Almost 5 times the average number of outbreaks was reported during the 2017–18 season.



In the 2017–18, more than 8 times as many outbreaks were reported in facilities serving children and more than **3 times as many outbreaks** were reported in facilities serving adults ≥65 years old compared to the average for (H3) seasons.



Influenza-Associated Intensive Care Unit Admissions

In response to sharp increases in influenza activity in February 2018, Florida Health requested that hospitals report all influenza-associated intensive care unit (ICU) admissions in Florida residents aged <65 years to identify unusually severe presentations of influenza. This enhanced surveillance was continued through the end of the traditional influenza season in May.

378 influenza-associated ICU admissions reported

56%

Over half of people admitted were 50 to 64 years old

Most (88%) people admitted had underlying medical conditions

69% of people admitted had not received current influenza vaccine (of 242 people with known vaccination status)

Deaths

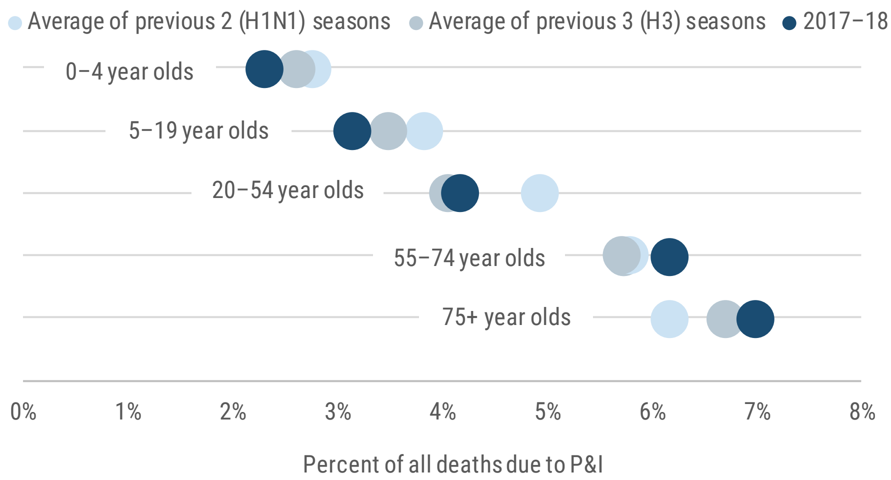
Influenza-associated deaths in children <18 years old are reportable in Florida. Typically, two to eight deaths are reported each year. Eight deaths were reported in children during the 2017–18 season. Of the eight children who died, none had received seasonal influenza vaccination and five had underlying health conditions. Influenza-positive specimens collected from children who die frequently go untyped, and given the small number deaths each year, it is difficult to interpret how pediatric mortality might be affected by strain.

Although not individually reportable, pneumonia and influenza deaths in people of all ages are monitored through review of death certificate data. Estimating the number of deaths due to influenza is challenging because:

- Influenza is not frequently listed on the death certificates of people who die from influenza-related complications.
- Many influenza-related deaths occur one to two weeks after a person's initial infection, often due to development of secondary bacterial infection (e.g., pneumonia) or because infection aggravated an existing chronic illness (e.g., congestive heart failure, chronic obstructive pulmonary disease).
- Most people who die from influenza are never tested.

For these reasons, influenza deaths are estimated by looking at both pneumonia and influenza (P&I) deaths.

During the 2017–18 influenza season, deaths due to P&I were lower than previous seasons in children and young adults (≤19 years old) and higher in older adults (≥55 years old). Compared to influenza (H1N1) seasons, (H3) seasons tend to have lower mortality in young and middle-aged adults (20–54 years old) and higher mortality in elderly adults (≥75 years old).



References

Centers for Disease Control and Prevention. Disease Burden of Influenza. www.cdc.gov/flu/about/disease/burden.htm. Accessed September 25, 2018.

Garten R, Blanton L, Abd Elal AI, Alabi N, Barnes J, Biggerstaff M, et al. Update: Influenza activity in the United States during the 2017–18 season and composition of the 2018-19 influenza vaccine. *Morbidity and Mortality Weekly Report*. 2018; 67(22):634-642. doi: 10.15585/mmwr.mm6722a4. Available at www.cdc.gov/mmwr/volumes/67/wr/mm6722a4.htm.

Section 6:

Respiratory Syncytial Virus (RSV)

Section 6: Respiratory Syncytial Virus (RSV)

Key Points for RSV

Overall RSV activity in Florida typically peaks between November and January.

RSV activity varies by region; southeast Florida has a year-round season.

RSV in children <5 years old was higher in 2017–18 season than previous three seasons.

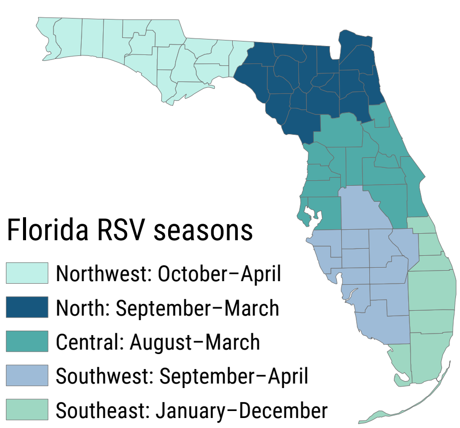
RSV surveillance data indicated peak activity in mid-November for 2017–18

Background

Respiratory syncytial virus (RSV) is a common respiratory virus that primarily infects young children. Children <5 years old and older adults are at increased risk of hospitalization for complications due to RSV infection. An estimated 57,000 children in the U.S. will be hospitalized within their first 5 years of life due to RSV infection. RSV infection is the most common cause of bronchiolitis (inflammation of small airways in the lungs) and pneumonia in infants <1 year old.

In the U.S., RSV activity is most common during the fall, winter, and spring months, though activity varies in timing and duration regionally. RSV activity in Florida typically peaks between November and January, with an overall decrease in activity during the summer months. Although summer months typically have less RSV activity overall, RSV season in southeast Florida is considered year-round based on laboratory data.

The Florida Department of Health established regular RSV seasons based on the first two consecutive weeks during which the average percent of specimens that test positive for RSV at hospital laboratories is 10% or higher. Southeast Florida's season is year-round.



Disease Facts

Caused by respiratory syncytial virus

Illness is respiratory, including fever, cough, and runny nose; can cause severe symptoms like wheezing or difficulty breathing, especially in children with underlying health conditions

Transmitted person-to-person by direct contact with respiratory droplets from nose or throat of infected person

Under surveillance to support clinical decision-making for prophylaxis of at-risk children

The determination of unique seasonal and geographic trends of RSV activity has important implications for prescribing patterns for initiating prophylaxis in children considered at high risk for complications due to RSV infection. The 2018 American Academy of Pediatrics *Red Book* currently recommends that preapproval for prophylactic treatment for these children be made based on state surveillance data. This recommendation, in conjunction with Florida's unique RSV seasons, led to the implementation of statewide surveillance for RSV to support clinical decision-making for prophylaxis of at-risk children. Palivizumab is an antibody used as prophylaxis to reduce the risk of RSV infection, but it is not a treatment for current infection. Palivizumab is administered in five monthly doses and provides protection for six months, beginning at the time of the first administered dose. The timing of RSV season in Florida influences the timing of palivizumab administration and the pre-approval of prophylactic treatment, underscoring the importance of RSV surveillance in Florida.

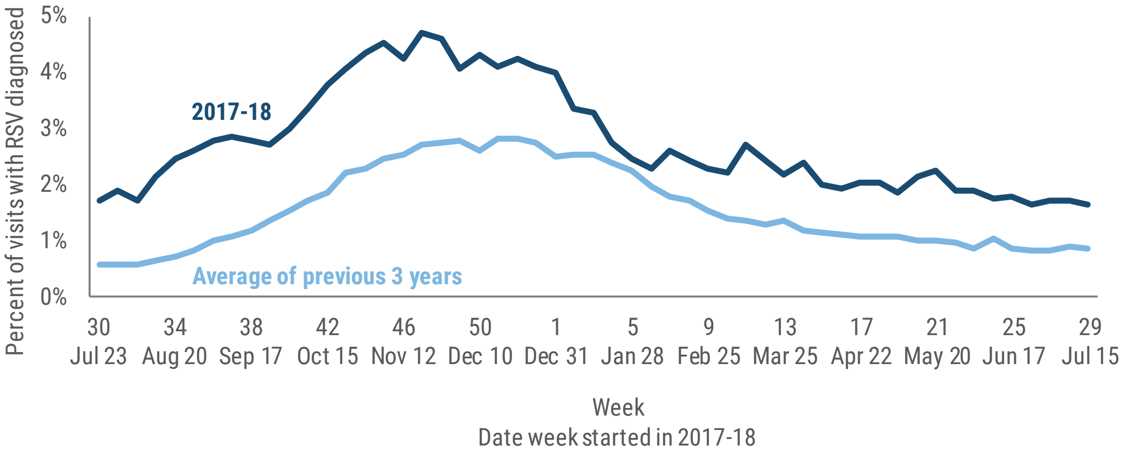
Florida's syndromic surveillance system, ESSENCE-FL, collects chief complaint and discharge diagnosis data from 331 emergency departments (EDs) and urgent care centers (UCCs). These data are used to monitor trends in visits to EDs and UCCs where RSV or RSV-associated illness is included in the discharge diagnosis. The National Respiratory and Enteric Virus Surveillance System (NREVSS) is a voluntary, laboratory-based surveillance system through which participating laboratories report RSV test results. Data from NREVSS and validated electronic laboratory reporting data are also used to monitor temporal patterns of RSV.

Florida produces a weekly RSV report as part of a larger respiratory disease report during the influenza season (October through May) and a biweekly report during the other months that summarizes RSV surveillance data. These reports are available at FloridaHealth.gov/RSV.

Section 6: Respiratory Syncytial Virus (RSV)

General Trends

During the 2017–18 RSV season in Florida, the percent of children <5 years old diagnosed with RSV at emergency department and urgent care centers in ESSENCE-FL increased from October to January and peaked in mid-November. The percent for 2017–18 season was greater than the average of the previous three seasons every week.



Laboratory surveillance data for RSV (percent of specimens testing positive for RSV) also peaked in November. Laboratory data include results for people of all ages, whereas the emergency department and urgent care center RSV diagnosis data are limited to children <5 years old. This likely accounts for the difference in patterns observed between these two data sources.

The RSV reporting year is defined by standard reporting weeks as outlined by the Centers for Disease Control and Prevention, where every year has either 52 or 53 reporting weeks; there were 52 weeks in 2017. In Florida, surveillance for RSV is conducted year-round, beginning in week 30 (July 23, 2017) and ending in week 29 of the following year (July 21, 2018).

References

Centers for Disease Control and Prevention. RSV in Infants and Young Children. www.cdc.gov/rsv/high-risk/infants-young-children.html. Accessed September 28, 2018.

American Academy of Pediatrics. Respiratory Syncytial Virus. In: Kimberlin DW, Brady MT, Jackson MA, Long SS, eds. Red Book: 2018 Report of the Committee on Infectious Diseases. 31st ed. Itasca, IL: American Academy of Pediatrics; 2018:682-692.

Section 7:
Cancer

Section 7: Cancer

Key Points

112,503

Primary cancers diagnosed in Florida in 2015

Cancer rate per 100,000 population increased from 408 to 419 from 1981 to 2015

59% of newly diagnosed cancers in 2015 in Florida were in adults ≥65 years old

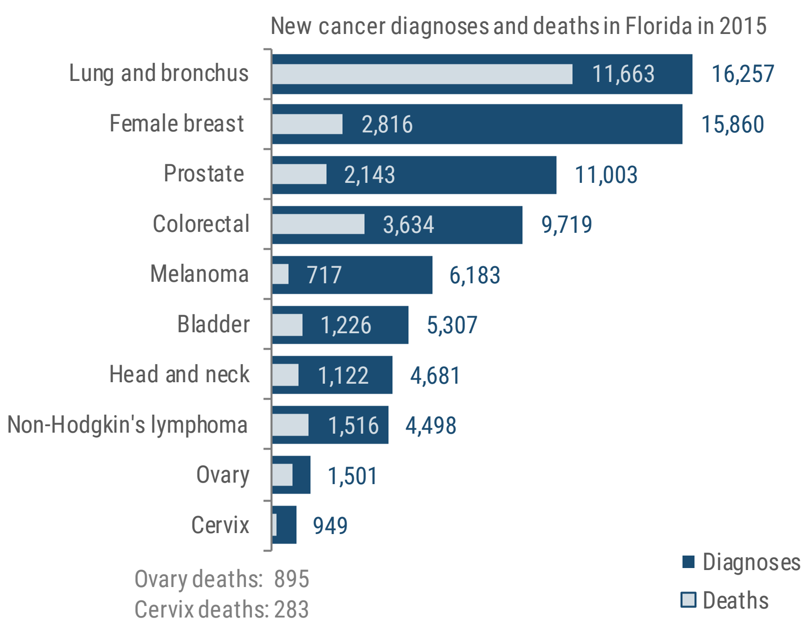
4 most common cancers in 2015 in Florida:
- Lung and bronchus (14%)
- Female breast (14%)
- Prostate (10%)
- Colorectal (9%)

General Trends for 2015

During 2015, physicians diagnosed 112,503 primary cancers (i.e., the site or organ where the cancer starts) among Floridians, an average of 308 new cases per day. The overall rate of occurrence for all cancers combined in the state has increased from 407.8 new cases per 100,000 in 1981 to 419.0 new cases per 100,000 in 2015. However, this has not been a steady increase from 1981 to 2015, as cancer patterns vary year to year. Cancer occurs predominantly among older people as age is the top risk factor. Almost 60% of the newly diagnosed cancers in 2015 occurred in people ≥65 years old; this age group accounted for 18% of Florida's 2015 population.

From 2006–2015, disparities in Florida for all cancers combined include:
- A higher cancer incidence and death for males compared to females.
- A lower cancer incidence for black females compared to white females, though no significant difference in the rate of death.
- A higher incidence and death rate for black males compared to white males, though the racial gap has lessened.

The most common cancers in Floridians were lung and bronchus, breast, prostate, and colorectal. These accounted for 53% of all new cases in blacks and 46% of all new cases in whites.

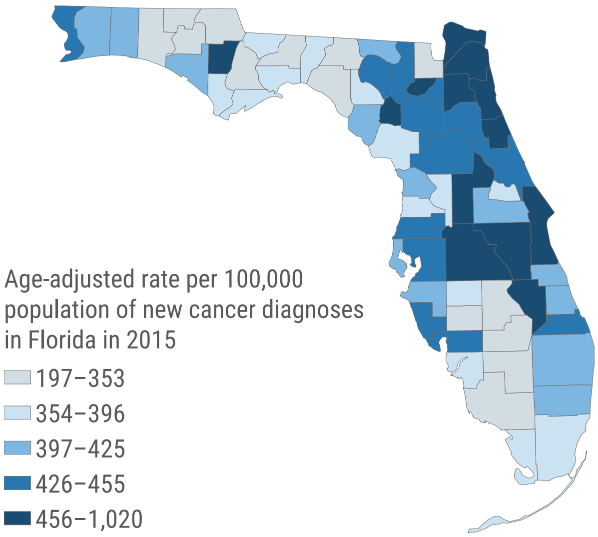


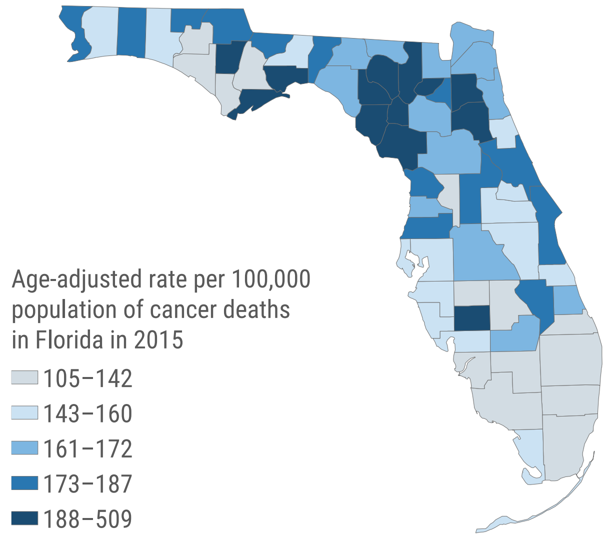
Cancer remains the second leading cause of death in Florida with over 43,000 cancer deaths occurring in 2015. In years of potential life lost up to age 75, cancer ranks first, surpassing heart disease and stroke combined and unintentional injuries.

Characteristic	All cancer diagnoses	All cancer deaths
Florida	**112,503**	**43,438**
Sex		
Female	55,403	19,834
Male	57,061	23,604
Race		
Black	11,897	4,552
White	96,456	37,961
Sex and race		
Black female	5,992	2,175
White female	47,241	17,187
Black male	5,900	2,377
White male	49,183	20,774

Section 7: Cancer

Collectively, the number of new cancer cases and deaths that occurred in Miami-Dade, Broward, Palm Beach, Hillsborough, and Pinellas counties accounted for approximately 38% of new cancer diagnoses and 36% of cancer deaths in Florida during 2015. For all cancers combined, the Florida age-adjusted rate of occurrence for new cancer cases was 419.0 per 100,000 population and 152.1 per 100,00 population for cancer-related deaths.





For more data on cancer and death incidence in 2015, see the Cancer Appendix: 2015 Data.

Background

The term cancer covers many diseases that share the common feature of abnormal cell growth. It can occur in almost any part of the body. Early detection through routine health and cancer screenings and timely quality treatment and care may improve prognosis and survival. Each type of cancer develops differently and has different risk factors. For example, the main risk factor for lung cancer is cigarette smoking, but for skin cancer it is sun exposure. The cause of some common cancers, such as breast cancer, remain unknown; however, age is the number one risk factor for all cancer types.

Reporting and Surveillance

Florida Statutes Section 385.202 requires all hospitals and outpatient facilities licensed in Florida to report to the Florida Department of Health each patient diagnosed or treated for cancer. Information to be reported on each patient includes routine personal and demographic data, diagnosis, stage of disease at diagnosis, medical history, laboratory data, tissue diagnosis, and initial course of treatment. Cancer incidence data are collected, verified, and maintained by the Florida Cancer Data System (FCDS), Florida's statewide cancer registry. The FCDS is administered by the Florida Department of Health's Public Health Research Section and operated by the Sylvester Comprehensive Cancer Center at the University of Miami Leonard M. Miller School of Medicine. The FCDS is used by the state and its partners to monitor the occurrence of cancer incidence and mortality, aid in research studies to reduce cancer morbidity and mortality, focus cancer control activities, and address public questions and concerns regarding cancer.

The FCDS began operations with a pilot project for cancer registration in 1980 and commenced statewide collection of cancer incidence data (i.e., new cancer cases) from all Florida hospitals in 1981. The FCDS now collects incidence data from hospitals, freestanding ambulatory surgical centers, radiation therapy facilities, pathology laboratories, and private physician offices. Each facility, laboratory, and practitioner is required to report to the FCDS within six months of each diagnosis and within six months of the date of each treatment. Consequently, there is an inherent time lag of one to two years in the release of cancer registry data for surveillance activities and publications. At the time this report was published, the most recent FCDS data available were from 2015.

For more information about the burden of cancer in Florida, see the Florida Annual Cancer Report, an epidemiological series available on the FCDS web site at https://fcds.med.miami.edu/inc/publications.shtml.

Cancer Appendix: 2015 Data

Number of new cancer diagnoses by sex and race in Florida in 2015

Characteristic	All cancers	Lung and bronchus	Female breast	Prostate	Colorectal	Melanoma
Florida	**112,503**	**16,257**	**15,860**	**11,003**	**9,719**	**6,183**
Sex						
Female	55,403	7,747	15,860	NA	4,632	2,219
Male	57,061	8,502	NA	11,003	5,083	3,964
Race						
Black	11,897	1,290	1,843	1,908	1,210	--
White	96,456	14,580	13,307	8,751	8,129	6,183
Sex and race						
Black female	5,992	568	1,843	NA	577	--
White female	47,241	7,011	13,307	NA	3,869	2,219
Black male	5,900	722	NA	1,908	632	--
White male	49,183	7,562	NA	8,751	4,257	3,964

Number of new cancer diagnoses by sex and race in Florida in 2015 (continued)

Characteristic	Bladder	Head and neck	Non-Hodgkin's lymphoma	Ovary	Cervix
Florida	**5,307**	**4,681**	**4,498**	**1,501**	**949**
Sex					
Female	1,265	1,163	2,063	1,501	949
Male	4,040	3,515	2,433	NA	NA
Race					
Black	239	381	424	138	188
White	4,876	4,173	3,907	1,299	720
Sex and race					
Black female	70	93	211	138	188
White female	1,155	1,041	1,782	1,299	720
Black male	169	288	212	NA	NA
White male	3,720	3,129	2,124	NA	NA

Number of cancer deaths by sex and race in Florida in 2015

Characteristic	All cancers	Lung and bronchus	Female breast	Prostate	Colorectal	Melanoma
Florida	**43,438**	**11,663**	**2,816**	**2,143**	**3,634**	**717**
Sex						
Female	19,834	5,217	2,816	NA	1,701	220
Male	23,604	6,446	NA	2,143	1,933	497
Race						
Black	4,552	943	415	348	459	--
White	37,961	10,530	2,324	1,742	3,079	717
Sex and race						
Black female	2,175	357	415	NA	214	--
White female	17,187	4,767	2,324	NA	1,441	220
Black male	2,377	586	NA	348	245	--
White male	20,774	5,763	NA	1,742	1,638	497

-- Counts for cells with <10 cases are suppressed
NA Not applicable for gender-specific cancer types

Number of cancer deaths by sex and race in Florida in 2015 (continued)

Characteristic	Bladder	Head and neck	Non-Hodgkin's lymphoma	Ovary	Cervix
Florida	**1,226**	**1,122**	**1,516**	**895**	**283**
Sex					
Female	365	268	642	895	283
Male	861	854	874	NA	NA
Race					
Black	70	110	145	80	44
White	1,139	993	1,342	794	230
Sex and race					
Black female	29	23	76	80	44
White female	329	239	549	794	230
Black male	41	87	69	NA	NA
White male	810	754	793	NA	NA

-- Counts for cells with <10 cases are suppressed
NA Not applicable for gender-specific cancer types

Age-adjusted cancer incidence and mortality rates per 100,000 population per year in Florida in 2015 (age adjusted to the 2000 U.S. Standard Population)

	Age-adjusted incidence rate (confidence interval)	Age-adjusted mortality rate (confidence interval)
All cancers	**419.0 (416.5, 421.6)**	**152.1 (150.6, 153.5)**
Breast	117.9 (115.9, 119.8)	19.3 (18.5, 20.0)
Prostate	81.9 (80.4, 83.5)	16.4 (15.8, 17.2)
Lung and bronchus	56.7 (55.8, 57.6)	40.3 (39.5, 41.0)
Colorectal	35.9 (35.2, 36.7)	12.8 (12.4, 13.3)
Melanoma	27.5 (26.8, 28.2)	3.1 (2.8, 3.3)
Bladder	18.4 (17.9, 18.9)	4.1 (3.9, 4.3)
Head and neck	17.3 (16.8, 17.8)	3.9 (3.7, 4.2)
Non-Hodgkin's lymphoma	17.1 (16.6, 17.7)	5.3 (5.1, 5.6)
Ovary	11.0 (10.4, 11.6)	5.8 (5.5, 6.3)
Cervix	9.0 (8.4, 9.6)	2.3 (2.0, 2.6)

Number of new cancer diagnoses by county in Florida in 2015

	All cancers	Lung and bronchus	Prostate	Breast	Colorectal	Bladder	Head and neck	Non-Hodgkin's lymphoma	Melanoma	Ovary	Cervix
Florida	**112,503**	**16,257**	**11,003**	**15,860**	**9,719**	**5,307**	**4,681**	**4,498**	**6,183**	**1,501**	**949**
Alachua	1,172	141	130	181	96	40	43	45	75	15	11
Baker	102	19	--	13	10	--	--	--	--	--	--
Bay	919	168	92	122	83	42	47	30	41	--	13
Bradford	148	30	19	16	18	--	--	--	--	--	--
Brevard	4,016	663	360	578	307	224	182	158	270	59	23
Broward	9,271	1,109	855	1,425	820	402	387	386	421	102	105
Calhoun	88	17	--	--	--	--	--	--	--	--	--
Charlotte	1,524	270	120	174	151	87	57	44	149	22	--
Citrus	1,149	205	95	140	108	41	76	41	55	18	13
Clay	1,100	177	102	139	73	43	44	42	76	16	12
Collier	1,845	228	239	245	128	68	58	74	193	26	17
Columbia	396	76	40	55	30	13	14	15	15	--	--
Desoto	152	22	23	13	14	11	--	--	--	--	--
Dixie	111	23	--	12	--	--	--	--	--	--	--
Duval	4,683	687	390	679	387	193	219	197	210	66	41

-- Counts for cells with <10 cases are suppressed

Number of new cancer diagnoses by county in Florida in 2015 (continued)

	All cancers	Lung and bronchus	Prostate	Breast	Colorectal	Bladder	Head and neck	Non-Hodgkin's lymphoma	Melanoma	Ovary	Cervix
Escambia	1,703	291	149	230	158	75	58	78	93	17	--
Flagler	876	140	80	101	74	50	33	32	96	13	--
Franklin	57	12	--	--	--	--	--	--	--	--	--
Gadsden	222	36	32	31	16	--	--	--	--	--	--
Gilchrist	102	22	--	15	10	--	--	--	--	--	--
Glades	41	--	--	--	--	--	--	--	--	--	--
Gulf	88	16	--	13	13	--	--	--	--	--	--
Hamilton	77	21	--	--	--	--	--	--	--	--	--
Hardee	110	12	--	17	15	--	--	--	--	--	--
Hendry	133	24	15	11	16	--	--	--	--	--	--
Hernando	1,175	214	58	155	105	63	48	32	60	28	10
Highlands	629	129	35	95	54	43	19	20	39	--	--
Hillsborough	6,408	831	644	956	534	269	242	235	302	86	63
Holmes	75	14	--	--	10	--	--	--	--	--	--
Indian River	1,108	183	98	147	94	79	35	33	108	19	--
Jackson	197	45	--	16	16	--	--	--	--	--	--
Jefferson	78	--	--	--	--	--	--	--	--	--	--
Lafayette	36	--	--	--	--	--	--	--	--	--	--
Lake	2,381	342	235	314	203	151	112	74	153	30	15
Lee	4,058	628	377	610	312	205	193	158	274	53	27
Leon	914	121	107	154	77	19	34	43	32	--	--
Levy	250	54	28	31	21	--	10	12	--	--	--
Liberty	18	--	--	--	--	--	--	--	--	--	--
Madison	63	--	--	10	--	--	--	--	--	--	--
Manatee	2,235	319	199	319	190	99	98	75	179	26	18
Marion	2,559	396	208	345	225	156	109	102	161	40	18
Martin	1,243	176	124	154	106	77	58	49	113	--	--
Miami-Dade	12,216	1,355	1,467	1,814	1,256	464	435	568	245	171	147
Monroe	449	64	62	47	37	18	35	14	35	--	--
Nassau	534	78	50	74	45	28	25	15	31	--	--
Okaloosa	936	163	58	122	78	48	37	38	81	11	12
Okeechobee	265	67	18	33	17	15	16	--	--	--	--
Orange	5,123	623	544	708	478	210	207	208	186	72	58
Osceola	1,532	185	174	236	152	56	54	76	58	11	14
Palm Beach	8,852	1,228	888	1,252	642	479	332	429	547	112	59
Pasco	3,113	541	251	409	283	149	143	122	196	44	22
Pinellas	6,283	991	591	919	538	351	279	241	389	96	28
Polk	4,102	600	403	597	359	182	168	170	284	61	39
Putnam	469	98	44	57	45	16	27	18	17	--	--
Santa Rosa	762	106	57	119	70	33	43	35	56	12	--
Sarasota	3,356	520	374	422	267	229	126	109	295	50	13
Seminole	2,033	296	204	300	167	101	91	66	76	26	27
St. Johns	1,414	221	134	205	102	72	56	48	90	18	11
St. Lucie	1,712	251	176	237	145	91	79	67	70	27	18
Sumter	1,193	209	165	153	82	62	37	47	59	13	--
Suwannee	282	44	23	46	31	12	15	11	15	--	--
Taylor	108	25	--	16	11	--	--	--	--	--	--
Union	195	33	37	11	17	--	25	12	--	--	--
Volusia	3,522	580	299	446	317	160	165	150	211	48	27
Wakulla	137	21	--	24	14	--	--	--	--	--	--
Walton	291	35	25	47	34	15	12	10	14	--	--
Washington	112	24	--	--	14	--	--	--	--	--	--

-- Counts for cells with <10 cases are suppressed

Section 7: Cancer

Number of cancer deaths by county in Florida in 2015

	All cancers	Lung and bronchus	Prostate	Breast	Colorectal	Bladder	Head and neck	Non-Hodgkin's lymphoma	Melanoma	Ovary	Cervix
Florida	**43,438**	**11,663**	**2,143**	**2,816**	**3,634**	**1,226**	**1,122**	**1,516**	**717**	**895**	**283**
Alachua	443	100	19	32	46	--	21	17	--	13	--
Baker	45	15	--	--	--	--	--	--	--	--	--
Bay	239	71	--	16	21	--	--	--	--	--	--
Bradford	62	23	--	--	--	--	--	--	--	--	--
Brevard	1,687	499	75	91	125	44	31	54	29	19	--
Broward	3,340	750	179	270	340	98	81	116	44	53	28
Calhoun	39	10	--	--	--	--	--	--	--	--	--
Charlotte	634	199	33	36	50	13	20	14	--	--	--
Citrus	582	177	22	37	44	21	21	16	11	14	--
Clay	417	125	28	28	26	--	11	15	--	--	--
Collier	767	179	55	47	41	22	16	32	27	13	--
Columbia	179	70	--	--	15	--	--	--	--	--	--
Desoto	89	28	--	--	12	--	--	--	--	--	--
Dixie	58	21	--	--	--	--	--	--	--	--	--
Duval	1,660	462	68	111	122	39	55	62	27	45	10
Escambia	734	238	36	53	45	21	19	22	11	14	--
Flagler	294	89	12	18	32	--	--	--	--	--	--
Franklin	35	--	--	--	--	--	--	--	--	--	--
Gadsden	107	29	--	--	13	--	--	--	--	--	--
Gilchrist	56	18	--	--	--	--	--	--	--	--	--
Glades	33	13	--	--	--	--	--	--	--	--	--
Gulf	25	--	--	--	--	--	--	--	--	--	--
Hamilton	31	12	--	--	--	--	--	--	--	--	--
Hardee	40	--	--	--	--	--	--	--	--	--	--
Hendry	57	19	--	--	--	--	--	--	--	--	--
Hernando	559	176	17	19	45	22	10	18	11	13	--
Highlands	313	105	17	19	29	--	--	--	--	--	--
Hillsborough	2,302	581	92	130	208	67	58	86	20	57	14
Holmes	50	14	--	--	--	--	--	--	--	--	--
Indian River	463	118	23	30	46	12	11	18	10	14	--
Jackson	127	42	--	10	--	--	--	--	--	--	--
Jefferson	38	--	--	--	--	--	--	--	--	--	--
Lafayette	18	--	--	--	--	--	--	--	--	--	--
Lake	967	274	50	66	79	30	20	30	19	20	--
Lee	1,635	466	79	89	126	55	52	63	30	30	11
Leon	378	87	21	28	34	14	--	13	--	--	--
Levy	152	49	--	--	14	--	--	--	--	--	--
Liberty	11	--	--	--	--	--	--	--	--	--	--
Madison	46	12	--	--	--	--	--	--	--	--	--
Manatee	875	237	43	57	85	28	17	29	17	18	--
Marion	1,057	297	49	64	88	30	27	31	20	22	--
Martin	446	126	30	27	27	11	--	19	--	--	--
Miami-Dade	4,227	861	282	333	422	120	112	161	32	92	35
Monroe	174	44	13	10	13	--	--	--	--	--	--
Nassau	193	60	--	15	19	--	--	--	--	--	--
Okaloosa	414	138	21	23	28	11	12	13	--	--	--
Okeechobee	99	37	--	11	--	--	--	--	--	--	--
Orange	1,756	390	97	129	126	51	45	56	21	52	15
Osceola	449	112	27	27	35	11	11	15	--	--	--
Palm Beach	3,294	835	151	209	282	99	53	157	58	80	20
Pasco	1,337	402	51	77	120	44	35	37	28	31	10

-- Counts for cells with <10 cases are suppressed

Number of cancer deaths by county in Florida in 2015 (continued)

	All cancers	Lung and bronchus	Prostate	Breast	Colorectal	Bladder	Head and neck	Non-Hodgkin's lymphoma	Melanoma	Ovary	Cervix
Pinellas	2,584	733	95	190	223	73	84	99	48	63	13
Polk	1,488	442	67	84	113	47	32	50	23	37	14
Putnam	230	78	14	16	20	--	--	--	--	--	--
Santa Rosa	293	94	11	20	17	--	11	10	--	--	--
Sarasota	1,319	362	61	65	102	25	29	45	30	27	--
Seminole	793	200	39	59	58	22	17	33	11	15	--
St. Johns	493	158	22	38	35	--	16	--	10	--	--
St. Lucie	745	210	34	54	67	23	22	28	10	12	--
Sumter	455	136	28	21	37	--	--	19	--	10	--
Suwannee	126	44	--	--	13	--	--	--	--	--	--
Taylor	56	26	--	--	--	--	--	--	--	--	--
Union	87	30	--	--	--	--	--	--	--	--	--
Volusia	1,501	414	84	82	104	45	44	47	36	29	12
Wakulla	69	21	--	--	--	--	--	--	--	--	--
Walton	125	49	--	--	11	--	--	--	--	--	--
Washington	41	16	--	--	--	--	--	--	--	--	--

-- Counts for cells with <10 cases are suppressed

Section 8:
Congenital and Perinatal Conditions

Section 8: Congenital and Perinatal Conditions

Birth Defects

Every 4½ minutes, a baby is born with a birth defect in the U.S. Major birth defects are conditions present at birth that cause structural changes in one or more parts of the body. They can have a serious adverse effect on health, development, or functional ability. Birth defects are one of the leading causes of infant mortality, causing one in five infant deaths. In Florida, there are approximately 220,000 live births annually and 1 out of every 28 babies is born with a major birth defect. Despite their substantial impact, only 35% of birth defects have a known cause and research suggests a complex interaction between genetic and environmental factors. In 1997, the Florida Legislature provided funding to the Florida Department of Health to operate and manage a statewide population-based birth defects registry, the Florida Birth Defects Registry (FBDR). Birth defects are reportable to the FBDR.

FBDR surveillance data are used for:

- Tracking and detecting trends in birth defects.
- Identifying when and where birth defects can possibly be prevented.
- Providing the basis for studies on the genetic and environmental causes of birth defects.
- Planning and evaluating the impact of efforts to prevent birth defects.
- Helping Florida's families whose infants and children need appropriate medical, educational, and social services.

The FBDR collects information on more than 100,000 infants born with serious birth defects. Data are collected on live infants born to mothers residing in Florida who are diagnosed with one or more structural, genetic, or other specified birth outcomes in the first year of life. The FBDR links secondary source datasets, including the Florida Division of Public Health Statistics and Performance Management birth records and the Agency for Health Care Administration hospital inpatient and ambulatory discharge databases. There is an inherent delay in FBDR data since they include all outcomes through the first year of life. At the time this report was published, the most recent FBDR data available were from 2015.

In 2015, Down syndrome was the most commonly identified birth defect among those listed. The number and rate per 10,000 live births of each type of birth defect reported in 2015 were similar to the number reported in 2014.

	2010–2014 average		2011–2015 average	
Central nervous system defects	Number	Rate	Number	Rate
Spina bifida without anencephalus	59	2.8	56	2.6
Anencephalus	17	0.8	18	0.9
Cardiovascular defects				
Tetralogy of Fallot	105	4.9	104	4.8
Atrioventricular septal defect	88	4.1	86	4.0
Hypoplastic left heart syndrome	69	3.2	68	3.2
Transposition of the great arteries	51	2.4	53	2.5
Orofacial defects				
Cleft palate without cleft lip	110	5.1	107	5.0
Cleft lip with cleft palate	106	5.0	110	5.1
Musculoskeletal defects				
Gastroschisis	100	4.7	96	4.4
All limb deficiencies (reduction deformities)	81	3.8	76	3.5
Chromosomal defects				
Trisomy 21 (Down syndrome)	289	13.5	283	13.1

For more information, please visit FloridaHealth.gov/diseases-and-conditions/birth-defects/index.html.

Section 8: Congenital and Perinatal Conditions

Neonatal Abstinence Syndrome

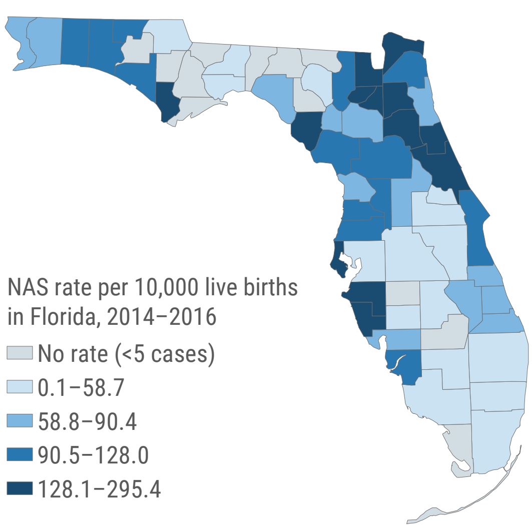
Neonatal abstinence syndrome (NAS) occurs in a newborn who was exposed to addictive opiate drugs while in the mother's womb. The most common opiate drugs that are associated with NAS are heroin, codeine, oxycodone (oxycontin), methadone, and buprenorphine. Symptoms of withdrawal depend on the drug involved.

Symptoms can begin within one to three days after birth, or may take up to 10 days to appear and may include:

- Blotchy skin coloring (mottling)
- Diarrhea
- Excessive or high-pitched crying
- Excessive sucking
- Fever
- Hyperactive reflexes
- Increased muscle tone
- Irritability
- Jitteriness
- Poor feeding
- Rapid breathing
- Seizures
- Sleep problems
- Slow weight gain
- Stuffy nose
- Sneezing
- Sweating
- Trembling (tremors)
- Vomiting

NAS became a reportable condition in Florida in June 2014. FBDR conducts enhanced surveillance for NAS. Surveillance incorporates multi-source passive case finding efforts and trained abstractor review of maternal and infant hospital medical records to obtain all relevant clinical information to classify potential NAS cases, determine specific agents the mother and infant were exposed to, and to develop a more complete understanding of the public health issue. Currently, there is substantial variation in the diagnosis and reporting of NAS across institutions, providers, and surveillance systems. There is an inherent delay in FBDR data since they include all outcomes through the first year of life. At the time this report was published, the most recent NAS data available were from 2016.

NAS rates per 10,000 live births in Florida for 2014–2016 were highest in low-population counties, particularly in northeast Florida.



More NAS cases were identified in 2015 than in 2014 or 2016. Each year, the most cases are identified in males, whites, and non-Hispanics.

	2014	2015	2016	3-year trend
Gender				
Female	689	715	696	
Male	772	795	784	
Race				
White	1,281	1,327	1,289	
Black	83	86	103	
Other	97	97	88	
Ethnicity				
Hispanic	74	67	47	
Non-Hispanic	1,387	1,443	1,433	
Total	1,461	1,510	1,480	

For more information, please visit FloridaHealth.gov/diseases-and-conditions/birth-defects/NeonatalAbstinenceSyndromeNAS.html.

Section 8: Congenital and Perinatal Conditions

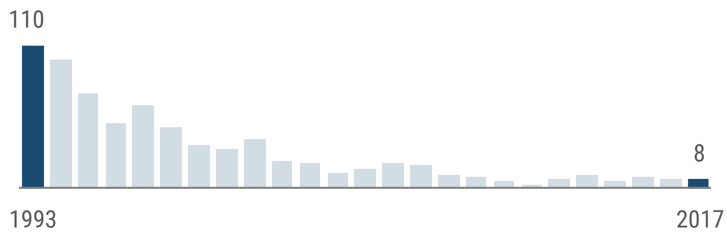
Perinatally Acquired HIV

Perinatal HIV transmission, also known as vertical HIV transmission, can occur at any point during pregnancy, labor, delivery, or ingestion of breast milk. The Centers for Disease Control and Prevention (CDC) recommends that all women who are pregnant or planning to become pregnant be tested for HIV before pregnancy and as early as possible during every pregnancy. Per Florida Administrative Code Rule 64D-3.042, all pregnant women must be tested for HIV and other sexually transmitted infections at their at their initial prenatal care visit, at 28–32 weeks, and at labor and delivery. This testing requirement allows Florida's providers to address any potential missed opportunities for HIV prevention during the prenatal period. If a pregnant mother living with HIV is aware of her HIV status, takes HIV antiretroviral medications as prescribed throughout pregnancy, labor, and delivery, and gives antiretroviral medications to her infant for 4–6 weeks after delivery, there is less than 1% chance of perinatal HIV transmission.

Prevention for perinatally acquired HIV in Florida is focused on:

- Prevention services for women of child bearing age.
- Ensuring women of child bearing age living with HIV are virally suppressed.
- Ensuring medical and social services for pregnant women living with HIV and their infants.
- Education and technical assistance for providers who treat pregnant women.

Infants with perinatally acquired HIV born in Florida have decreased by 93% from 1993 to 2017. Initiation of highly active antiretroviral therapy (HAART) between 1992–1994 played a significant role in this decrease. Treatment with HAART helps pregnant mothers living with HIV achieve viral suppression, which reduces vertical transmission.



Florida 2017

460
Infants perinatally **exposed** to HIV

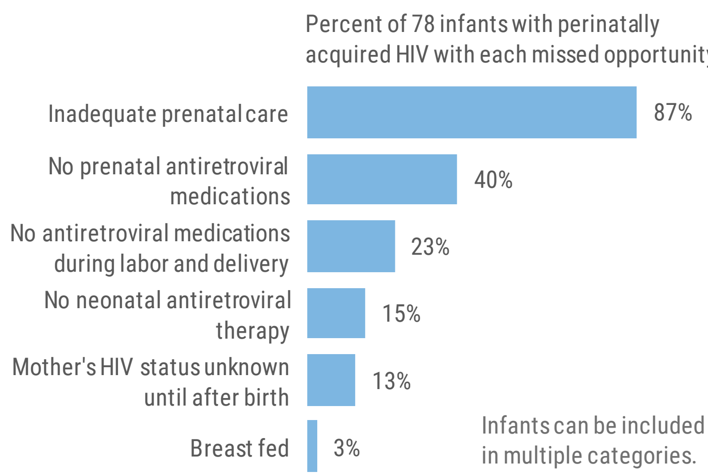
8
Infants born with perinatally **acquired** HIV

1
Infant **developed** AIDS

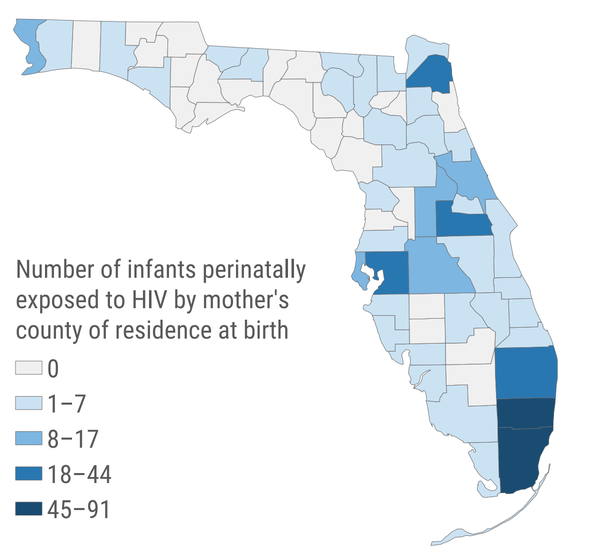
Florida 2008–2017

78
Infants born with perinatally **acquired** HIV

The most common missed opportunity for HIV prevention among the 78 infants with perinatally acquired HIV from 2008–2017 was inadequate prenatal care (87% of exposed infants). Inadequate prenatal care means prenatal care occurring after the fourth month of pregnancy and less than five visits.



In 2017, 460 Infants were perinatally exposed to HIV throughout the state (including those who acquired HIV). South Florida, particularly Miami-Dade and Broward counties, have more perinatal exposures, likely due to the high burden of HIV in this area.



For additional information on HIV/AIDS, see the Overview of 2017, Focus in 2017: HIV/AIDS and Section 1: Data Summaries for Common Reportable Diseases/Conditions. For more information about perinatal prevention services, see FloridaHealth.gov/diseases-and-conditions/aids/prevention/topwa1.html.

Section 8: Congenital and Perinatal Conditions

Congenital Syphilis

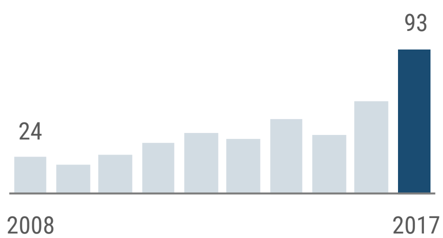
Congenital syphilis can occur when an infant is exposed to syphilis while in the womb. The exposure can be due to a new or an untreated old infection in the mother. Although untreated infections from prior to a mother's pregnancy can still result in congenital syphilis, infant outcomes are typically worse if the mother is newly infected while pregnant, as the bacterial count in the mother is higher. An infant born with congenital syphilis can develop an array of symptoms, including failure to thrive, skeletal and facial deformities, watery fluid from the nose, rash, blindness, joint swelling, and death. Per Florida Administrative Code Rule 64D-3.042, all pregnant women must be tested for HIV and other sexually transmitted infections, including syphilis, at their initial prenatal care visit and again at 28–32 weeks gestation.

Congenital syphilis prevention in Florida is focused on:

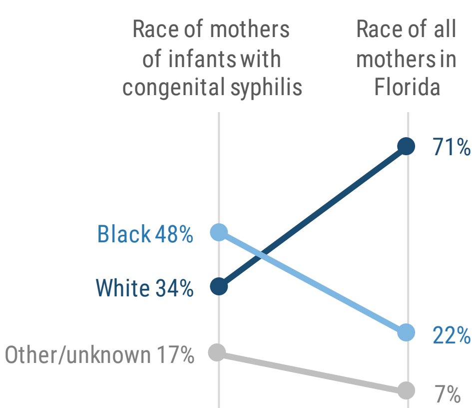
- Ensuring pregnant women have access to prenatal care and STD prevention services.
- Increased testing of pregnant females during the first and last trimester.
- Educating and training providers on the importance of testing and the recommended treatment for pregnant females.

To prevent congenital syphilis, an infected mother must begin adequate treatment more than 30 days prior to delivery. In 2017, 37% of the 93 infants in Florida with congenital syphilis were born to mothers who were not tested for syphilis more than 30 days prior to delivery, and therefore could not begin treatment in time to prevent congenital syphilis.

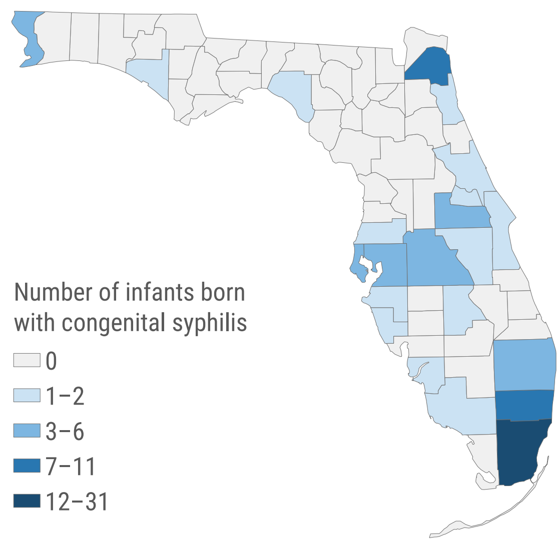
Congenital syphilis cases have increased in Florida. In 2017, 361 pregnant women were diagnosed with syphilis and 93 infants were born with congenital syphilis, including five stillbirths.



Compared to the race distribution of all mothers in Florida, black mothers were disproportionately more likely to have an infant with congenital syphilis than white mothers in 2017.



In 2017, congenital syphilis cases occurred primarily in central and south Florida. The most cases occurred in Miami-Dade (31) and Broward (11) counties.



Most mothers (58%) who gave birth to infants with congenital syphilis were <30 years old, which is comparable to the statewide age breakdown of mothers (54% <30 years old).

Mother's age	Number	Percent
15–19	8	8.6%
20–24	23	24.7%
25–29	23	24.7%
30–34	22	23.7%
35–39	14	15.1%
40–44	3	3.2%

For additional information on syphilis, see the Overview of 2017, Focus in 2017: Syphilis, Section 1: Data Summaries for Common Reportable Diseases/Conditions, and FloridaHealth.gov/diseases-and-conditions/sexually-transmitted-diseases/std-fact-sheets/congenital-syphilis.html.

Section 8: Congenital and Perinatal Conditions

Perinatal Hepatitis B

Hepatitis B virus (HBV) during pregnancy poses a serious risk to the infant at birth. Without post-exposure prophylaxis (PEP), approximately 40% of infants born to mothers with HBV in the U.S. will develop chronic HBV infection, approximately one-fourth of whom will eventually die from chronic liver disease. Perinatal HBV transmission can be prevented by identifying pregnant women with HBV and providing hepatitis B immune globulin and hepatitis B vaccine to their infants within 12 hours of birth. Preventing perinatal HBV transmission is an integral part of the national strategy to eliminate hepatitis B in the U.S.

National guidelines call for the following:

- Universal screening of pregnant women for HBV surface antigen during each pregnancy.
- Case management of mothers and their infants with HBV.
- Provision of immunoprophylaxis for infants born to mothers with HBV, including hepatitis B vaccine and hepatitis B immune globulin.
- Routine hepatitis B vaccination for all infants, with the first dose administered at birth.

Please see Hepatitis B, Pregnant Women in Section 1: Data Summaries for Common Reportable Diseases/Conditions for additional information on HBV surveillance in pregnant women. The 2016 National Immunization Survey estimates that HBV vaccination coverage for birth dose administered from birth through 3 days of age was 71.1% in the U.S. and 59.0% in Florida. Birthing hospitals have a standing order to administer the birth dose of hepatitis B vaccine; however, pediatricians sometimes choose to wait to give the first dose in their private offices. With lower-than-expected vaccination rates, Florida is currently working with the Florida Chapter of the American Academy of Pediatrics to provide education reminding health care providers that the recommendation is now to provide the vaccine birth dose within 24 hours to help decrease HBV infections in newborns. Despite low compliance with administering the birth dose of HBV vaccine, only 10 perinatal hepatitis B cases have been reported over the past 10 years, with one case reported in 2017 and the most recent cases prior to that in 2014.

Hill HA, Elam-Evans LD, Yankey D, Singleton JA, Kang Y. 2017. Vaccination coverage among children aged 19–35 months — United States, 2016. *Morbidity and Mortality Weekly Report*. 2017; 66(43):1171–1177. doi: 10.15585/mmwr.mm6539a4. Available at www.cdc.gov/mmwr/volumes/66/wr/mm6643a3.htm.

Centers for Disease Control and Prevention. 2016 Childhood Hepatitis B (HepB) Vaccination Coverage Report. www.cdc.gov/vaccines/imz-managers/coverage/childvaxview/data-reports/hepb/reports/2016.html. Accessed November 15, 2018.

Perinatal Hepatitis C

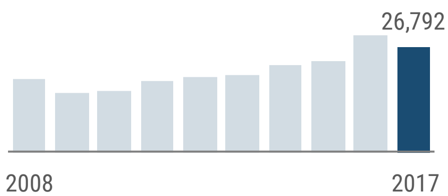
Hepatitis C virus (HCV) infection is a leading cause of liver-related morbidity and mortality. Transmission of HCV is primarily via parenteral blood exposure, and HCV can be transmitted vertically from mother to child. Compared to vertical transmission for infants born to mothers with HBV, the rate of vertical transmission for HCV is much lower. Vertical transmission occurs in approximately 6% of infants born to mothers with HCV, although that rate can double for women who are also living with HIV or who have high HCV viral loads. According to the CDC, the rate of acute hepatitis C increased three-fold among women across the U.S. from 2010 to 2016, and women of childbearing age testing positive for HCV increased by 22% from 2011 to 2014. CDC recommends that health care providers assess all pregnant women for risk factors associated with hepatitis C and test those who may be at risk. CDC also recommends testing for all infants born to mothers with HCV. Having a pediatric specialist can assist in monitoring disease progression in babies and aid in intervention when needed. These children should be vaccinated against hepatitis A and B, and specialists should monitor any medication that could potentially harm the already fragile liver. More research is needed to better understand if treatment for hepatitis C is safe for pregnant women and children. Florida enhanced its efforts to identify and perform outreach to those mothers and infants at highest risk for HCV transmission. Infants born to mothers with HCV should be tested for HCV at the first well-baby visit, again at 2 months, and followed up to identify any adverse health outcomes.

Changes in treatment options for HCV have led to an increased focus on identifying HCV infections. Given the large number of chronic hepatitis C cases reported and limited county health department resources, there have been concerns regarding data completeness and case ascertainment in the past. Earlier data are less reliable. Over the past few years, improvements in electronic laboratory reporting and increased focus on surveillance are believed to have improved case ascertainment. To improve case ascertainment of perinatal infections, Florida developed and implemented a surveillance case definition for perinatal hepatitis C in 2016. Previously, these cases were captured within the chronic hepatitis C case definition.

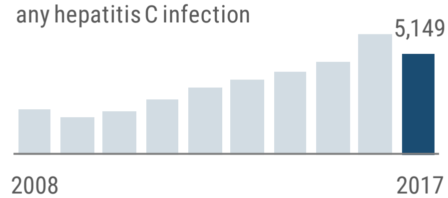
Section 8: Congenital and Perinatal Conditions

The number of people with acute or chronic hepatitis C increased by 43% from 2008 to 2017. The number of women of childbearing age with acute or chronic hepatitis C increased 122% in that same period. Despite this increase among women, the number of children <3 years old identified with acute, chronic, or perinatal hepatitis C has not increased over the past 10 years.

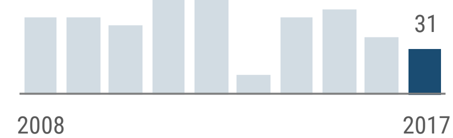
All people with any hepatitis C infection



Women 15–44 years old with any hepatitis C infection



Children <3 years old with any hepatitis C infection

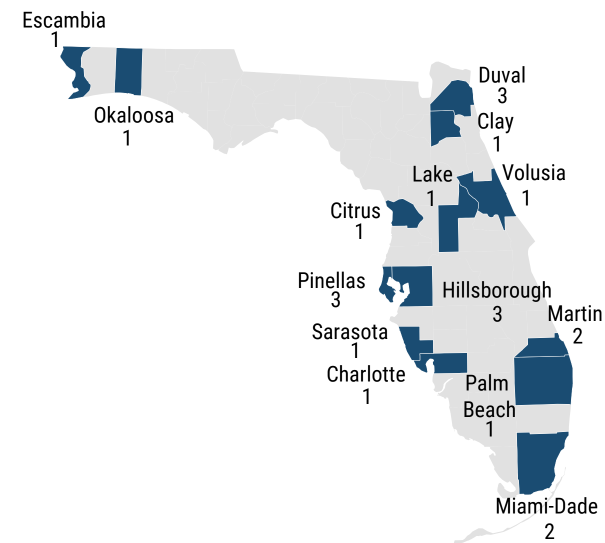


The number of perinatal hepatitis C cases decreased from 34 in 2016 to 22 in 2017. In 2017, more cases were in males, whites, and non-Hispanics. Most cases were confirmed. Note that perinatal hepatitis C has only been reportable since 2016. Acute and chronic hepatitis C cases can still be reported in children <3 years old if the infections are determined not to be perinatal (not included in this table or map).

Summary	
Number of cases in 2017	22
Number of cases in 2016	34
Gender	**Number**
Female	9
Male	13
Unknown gender	0
Race	**Number**
White	15
Black	1
Other	1
Unknown race	5

Ethnicity	Number
Non-Hispanic	13
Hispanic	1
Unknown ethnicity	8
Case Classification	**Number**
Confirmed	19
Probable	3

Perinatal hepatitis C cases occurred in counties throughout the state in 2017. No county had more than three cases.



Koneru A, Nelson N, Hariri S, Canary L, Sanders KJ, Maxwell JF, et al. Increased hepatitis C virus (HCV) detection in women of childbearing age and potential risk for vertical transmission — United States and Kentucky, 2011–2014. *Morbidity and Mortality Weekly Report*. 2016; 65(28):705-710. doi: 10.15585/mmwr.mm652. Available at www.cdc.gov/mmwr/volumes/65/wr/mm6528a2.htm.

Centers for Disease Control and Prevention. Surveillance for Viral Hepatitis – United States, 2016. Available at www.cdc.gov/hepatitis/statistics/2016surveillance/commentary.htm. Accessed November 15, 2018.

Centers for Disease Control and Prevention. Increases in Hepatitis C Threaten Young Women and Babies. www.cdc.gov/nchhstp/newsroom/2016/hcv-perinatal-press-release.html. Accessed November 15, 2018.

Section 9:
Publications and Reports in 2017

Section 9: Publications and Reports in 2017

Publications with Florida Department of Health Authors

Below is the list of articles with Florida Department of Health authors that were published in peer-reviewed journals in 2017. Note that Florida Health authors appear in bold font.

Adebanjo T, Godfred-Cato S, Viens L, Fischer M, Staples E, Kuhnert-Tallman W, et al. Contributors including **Blackmore C**, **Pasley CG**. Update: interim guidance for the diagnosis, evaluation, and management of infants with possible congenital Zika virus infection — United States, October 2017. *Morbidity and Mortality Weekly Report*. 2017; 66(41):1089-1099. doi:10.15585/mmwr.mm6641a1. Available at www.cdc.gov/mmwr/volumes/66/wr/mm6641a1.htm.

Alton M, Cohen J, Weinstein D, **Dweck M.** Best practices in the management and treatment of postpartum hemorrhage. *Contemporary OB/GYN*. 2017; 62(8)(suppl): 1-8. Available at http://go.medicaleconomics.com/acton/attachment/12262/f-018b/1/-/-/-/-/Managment%20and%20Treatment%20of%20Postpartum%20Hemorrhage%20COG_Lupin.pdfutm_campaign=crowdfire&utm_content=crowdfire&utm_medium=social&utm_source=facebook_page#426894720665952-fp1508601742393.

Culpepper AB, Atrubin D, Hamilton JJ. The evaluation of triage notes using ESSENCE-FL for active case finding of Zika. *Online Journal of Public Health Informatics*. 2017; 9(1): e023. doi:10.5210/ojphi.v9i1.7601.

Cyrus E, Dawson C, Fennie KP, Sheehan DM, Mauck DE, Sanchez M, **Maddox ML**, et al. Disparity in retention in care and viral suppression for Black Caribbean-born immigrants living with HIV in Florida. *International Journal of Environmental Research and Public Health*. 2017; 14(3):285. doi:10.3390/ijerph14030285. Available at www.mdpi.com/1660-4601/14/3/285/htm.

Daly RF, House J, **Stanek D**, Stobierski MG. Compendium of measures to prevent disease associated with animals in public settings, 2017. *Journal of the American Veterinary Medical Association*. 2017; 251(11):1268-1292. doi:10.2460/javma.251.11.1268. Available at https://avmajournals.avma.org/doi/10.2460/javma.251.11.1268.

Fordan S, Bennett B, Lee M, Crowe S. Comparative performance of the Geenius™ HIV-1/HIV-2 supplemental test in Florida's public health testing population. *Journal of Clinical Virology*. 2017; 91:79-83. doi:10.1016/j.jcv.2017.04.005.

Galel SA, Williamson PC, Busch MP, **Stanek D**, Bakkour S, Stone M, et al. First Zika-positive donations in the continental United States. Transfusion. 2017; 57(3pt2):762-769. doi:10.1111/trf.14029. Available at https://onlinelibrary.wiley.com/doi/full/10.1111/trf.14029.

Griffin I, Zhang G, Fernandez D, Cordero C, Logue T, White S, Llau A, Thomas L, Moore E, Noya-Chaveco P, Etienne M, Rojas M, Goldberg C, Rodriguez G, Mejia-Echeverry A, Rico E, Gillis L, Cone MR, Jean R, Rivera L. Epidemiology of pediatric Zika virus infections. *The Americans Academy of Pediatrics*. 2017;140(6): e20172044. doi:10.1542/peds.2017–2044.

Grubaugh ND, Ladner JT, Kraemer MUG, Dudas G, Tan AL, Gangavarapu K, Wiley MR, **White S**, Thézé J, Magnani DM, Prieto K, Reyes D, **Bingham AM**, Paul LM, Robles-Sikisaka R, Oliveira G, **Pronty D**, Barcellona CM, Metsky HC, Baniecki ML, Barnes KG, Chak B, Freije CA, Gladden-Young A, Gnirke A, Luo C, MacInnis B, Matranga CB, Park DJ, Qu J, Schaffner SF, Tomkins-Tinch C, West KL, Winnicki SM, Wohl S, Yozwiak NL, Quick J, Fauver JR, Khan K, Brent SE, Reiner RC, Lichtenberger PN, Ricciardi MJ, Bailey VK, Watkins DI, **Cone MR, Kopp EW, Hogan KN, Cannons AC, Jean R**, Monaghan AJ, Garry RF, Loman NJ, Faria NR, Porcelli MC, Vasquez C, Nagle ER, Cummings DAT, **Stanek D**, Rambaut A, Sanchez-Lockhart M, Sabeti PC, **Gillis LD**, et al. Genomic epidemiology reveals multiple introductions of Zika virus into the United States. *Nature*. 2017; 546(7658):401-405. doi:10.1038/nature22400. Available at www.researchgate.net/publication/317188079_Genomic_epidemiology_reveals_multiple_introductions_of_Zika_virus_into_the_United_States.

Honein MA, Dawson AL, Petersen EE, Jones AM, Lee EH, Yazdy MM, Ahmad N, Macdonald J, Evert N, **Bingham A**, Ellington SR, Shapiro-Mendoza CK, Oduyebo T, Fine AD, Brown CM, Sommer JN, Gupta J, **Cavicchia P**, et al. Birth defects among fetuses and infants of US women with evidence of possible Zika virus infection during pregnancy. *The Journal of American Medical Association*. 2017;317(1):59. doi:10.1001/jama.2016.19006. Available at https://jamanetwork.com/journals/jama/fullarticle/2593702.

Kintziger K, Jordan M, DuClos C, Gray A, Palcic JD. Measuring arsenic exposure among residents of Hernando county, Florida, 2012-2013. The Journal of Environmental Health. 2017; 80(3):22-32. Available at www.neha.org/node/59294.

Publications with Florida Department of Health Authors (Continued)

Kintziger K, Ortegren J, **DuClos C**, **Jordan M**, Smith T, Foglietti R, **Merritt R**, **Donado L**. Health impact assessments and extreme weather – challenges for environmental health. The *Journal of Public Health Management and Practice*. 2017; 23(suppl 5): S60-S66. doi:10.1097/PHH.0000000000000604.

Loschen W, Burkom H, **Atrubin D**. Jurisdictional usage of the new ESSENCE word alert feature. *Online Journal of Public Health Informatics*. 2017; 9(1): e132. doi:10.5210/ojphi.v9i1.7718. Available at https://ojphi.org/ojs/index.php/ojphi/article/view/7718/6236.

Krishnasamy V, Mauldin MR, Wise ME, Wallace R, Whitlock L, Basler C, Morgan C, **Grissom D**, **Worley S**, **Stanek D**, **DeMent J**, et al. Notes from the field: postexposure prophylaxis for rabies after consumption of a prepackaged salad containing a bat carcass, Florida, 2017. *Morbidity and Mortality Weekly Report*. 2017; 66(42):1154-1155. doi:10.15585/mmwr.mm6642a7. Available at www.cdc.gov/mmwr/volumes/66/wr/mm6642a7.htm.

Matthias J, Cavicchia P, Pritchard S, Bernstein R. Polymicrobial injection-site abscesses associated with contaminated methylprednisolone injections in Florida. *Research in Medical & Engineering Sciences*. 2017; 2(1):1-6. doi:10.31031/RMES.2017.02.000529. Available at https://crimsonpublishers.com/rmes/pdf/RMES.000529.pdf.

Matthias JM, Rahman MM, Newman DR, Peterman TA. Effectiveness of prenatal screening and treatment to prevent congenital syphilis, Louisiana and Florida, 2013–2014. *Sexually Transmitted Diseases*, 2017; 44(8): 498-502. doi:10.1097/OLQ.0000000000000638. Available at https://journals.lww.com/stdjournal/Fulltext/2017/08000/Effectiveness_of_Prenatal_Screening_and_Treatment.10.aspx.

Munroe J, Straver R, Rubino H, Pritchard S, Atrubin D, Hamilton JJ. MERS PUI surveillance and retrospective Identification in ESSENCE-FL, 2013-2015. *Online Journal of Public Health Informatics*. 2017; 9(1): e113. doi:10.5210/ojphi.v9i1.7696. Available at https://ojphi.org/ojs/index.php/ojphi/article/view/7696/6216.

Rankin D, Caicedo L, Dotson N, Gable P, **Chu A**. Notes from the field: verona integron-encoded metallo-beta-lactamase–producing *Pseudomonas aeruginosa* outbreak in a long-term acute care hospital — Orange county, Florida, 2017. *Morbidity and Mortality Weekly Report*. 2018; 67(21):611-612. doi:10.15585/mmwr.mm6721a6. Available at www.cdc.gov/mmwr/volumes/67/wr/mm6721a6.htm.

Reagan-Steiner S, Simeone R, Simon E, Bhatnagar J, Oduyebo T, Free R, Denison AM, Rabeneck DB, Ellington S, Petersen E, Gary J, Hale G, Keating MK, Martines RB, Muehlenbachs A, Ritter J, Lee E, Davidson A, Conners E, Scotland S, Sandhu K, **Bingham A**, et al. Evaluation of placental and fetal tissue specimens for Zika virus infection — 50 states and District of Columbia, January–December, 2016. *Morbidity and Mortality Weekly Report*. 2017; 66(24):636-643. doi:10.15585/mmwr.mm6624a3. Available at www.cdc.gov/mmwr/volumes/66/wr/mm6624a3.htm.

Reynolds MR, Jones AM, Petersen EE, Lee EH, Rice ME, **Bingham A**, Ellington SR, Evert N, Reagan-Steiner S, Oduyebo T, Brown CM, Martin S, Ahmad N, Bhatnagar J, Macdonald J, Gould C, Fine AD, Polen KD, **Lake-Burger H**, et al. Vital signs: update on Zika virus–associated birth defects and evaluation of all U.S. infants with congenital Zika virus exposure — U.S. Zika Pregnancy Registry, 2016. *Morbidity and Mortality Weekly Report*. 2017; 66(13):366-373. doi:10.15585/mmwr.mm6613e1. Available at www.cdc.gov/mmwr/volumes/66/wr/mm6613e1.htm.

Rubino H, Atrubin D, Hamilton JJ. Identifying and communicating the importance of the variable nature of SyS Data. *Online Journal of Public Health Informatics*. 2017; 9(1): e076. doi:10.5210/ojphi.v9i1.7655. Available at https://ojphi.org/ojs/index.php/ojphi/article/view/7655/6177.

Russell K, Hills SL, Oster AM, Porse CC, **Danyluk G**, **Cone MR**, et al. Male-to-female sexual transmission of Zika virus-United States, January-April 2016. *Clinical Infectious Diseases*. 2017; 64(2):211-213. doi:10.1093/cid/ciw692. Available at https://academic.oup.com/cid/article/64/2/211/2698913.

Séraphin MN, **Doggett R, Johnston L, Zabala J**, Gerace AM, Lauzardo M. Association between Mycobacterium tuberculosis lineage and site of disease in Florida, 2009–2015. *Infection, Genetics and Evolution*. 2017; 55:366-371. doi:10.1016/j.meegid.2017.10.004.

Publications with Florida Department of Health Authors (Continued)

Sheehan DM, Fennie KP, Mauck DE, **Maddox LM**, Lieb S, Trepka MJ. Retention in HIV care and viral suppression: individual- and neighborhood-level predictors of racial/ethnic differences, Florida, 2015. *AIDS Patient Care and STDs.* 2017; 31(4):167-175. doi:10.1089/apc.2016.0197.

Sheehan DM, Mauck DE, Fennie KP, Cyrus EA, **Maddox ML**, Lieb S, et al. Black–White and country of birth disparities in retention in HIV care and viral suppression among Latinos with HIV in Florida, 2015. The *International Journal of Environmental Research and Public Health*. 2017; 14(2):120. doi:10.3390/ijerph14020120. Available at www.mdpi.com/1660-4601/14/2/120/htm.

Sheehan DM, Trepka MJ, Fennie KP, Prado G, Madhivanan P, Dillon FR, **Maddox LM**. Individual and neighborhood determinants of late HIV diagnosis among Latinos, Florida, 2007-2011. The *Journal of Immigrant and Minority Health*, 2017; 19(4):825-834. doi:10.1007/s10903-016-0422-2.

Tewell M, Spoto S, Wiese M, Aleguas A, Peredy T. Mercury poisoning at a home day care center — Hillsborough county, Florida, 2015. *Morbidity and Mortality Weekly Report*. 2017; 66:433-435. doi:10.15585/mmwr.mm6617a1. Available at www.cdc.gov/mmwr/volumes/66/wr/mm6617a1.htm.

Trepka MJ, Auf R, Fennie KP, Sheehan DM, **Maddox LM**, Niyonsenga T. Deaths due to screenable cancers among people living with HIV infection, Florida, 2000–2014. *The American Journal of Preventive Medicine*. 2017; 53(5):705-709. doi:10.1016/j.amepre.2017.05.018.

Trepka MJ, Mukherjee S, Beck-Sagué C, **Maddox LM**, Fennie KP, Sheehan DM, et al. Missed opportunities for preventing perinatal transmission of human immunodeficiency virus, Florida, 2007–2014. *The Southern Medical Journal*. 2017; 110(2):116-128. doi:10.14423/SMJ.0000000000000609.

Section 9: Publications and Reports in 2017

Articles Published in Florida *Epi Update* Issues

The Florida Department of Health Bureau of Epidemiology publishes a quarterly report called *Epi Update* to showcase epidemiological work from around the state. Both state- and local-level staff submit articles for publication. Below is a list of articles published in 2017 issues.

2017 Issue 1

Analysis of Positive Rubella IgM Labs Reported in Florida, 2014–2016

Authors:	Andrea Leapley, MPH	(Florida Health Bureau of Epidemiology)
	Scott Pritchard, MPH	(Florida Health Bureau of Epidemiology)

Florida Year-to-Date Mosquito-Borne Disease Summary, 2017

Authors:	Andrea Morrison, PhD, MSPH	(Florida Health Bureau of Epidemiology)
	Danielle Stanek, DVM	(Florida Health Bureau of Epidemiology)
	Valerie Mock,	(Florida Health Bureau of Public Health Laboratories)
	Lylah Seaton, MPH, MT(ASCP)	(Florida Health Bureau of Public Health Laboratories)

Monthly Reportable Disease/Conditions in Florida, January–March, 2017

Authors:	Brandon Ramsey, MS	(Florida Health Bureau of Epidemiology)

2017 Issue 2

Foodborne *Staphylococcus aureus* Outbreak Associated with a Science Competition in Columbia County

Authors:	Rebecca Lazensky, PhD, MPH	(Florida Health Bureau of Epidemiology)
	Sallie Ford	(Florida Health in Columbia County)
	Mark Lander, MS	(Florida Health in Columbia County)
	Marjorie Rigdon, RN, DON	(Florida Health in Columbia County)

Vibriosis: *Grimontia hollisae*

Authors:	Laura Matthias, MPH	(Florida Health Bureau of Epidemiology)
	Jamie DeMent, MNS, CPM	(Florida Health Bureau of Epidemiology)

Investigation of a Salmonellosis Outbreak Associated with a Restaurant, Nassau County, August 2016

Authors:	Emily Cason, MPH	(Florida Health in Nassau County)
	Jenny Crain, MS, MPH, CPH	(Florida Health Bureau of Epidemiology)

Florida Year-to-Date Mosquito-Borne Disease Summary, 2017

Authors:	Andrea Morrison, PhD, MSPH	(Florida Health Bureau of Epidemiology)
	Danielle Stanek, DVM	(Florida Health Bureau of Epidemiology)
	Blake Scott, MPH	(Florida Health Bureau of Epidemiology)
	Vanessa Landis, MPH	(Florida Health Bureau of Epidemiology)
	Juliana Prieto, MPH	(Florida Health Bureau of Epidemiology)
	Valerie Mock	(Florida Health Bureau of Public Health Laboratories)
	Lea Heberlein-Larson, MPH, SM (ASCP)	(Florida Health Bureau of Public Health Laboratories)

Monthly Reportable Disease/Conditions in Florida, April-September 2017

Authors:	Mwedu Mtenga, MPH	(Florida Health Bureau of Epidemiology)

Section 9: Publications and Reports in 2017

Additional Reports Available Online

Florida Arboviral Disease Reports
FloridaHealth.gov/diseases-and-conditions/mosquito-borne-diseases/surveillance.html

Florida Birth Defects Registry Reports
FloridaHealth.gov/AlternateSites/FBDR/Data_Research/publications.html

Florida Bureau of Public Health Laboratories Reports
FloridaHealth.gov/programs-and-services/public-health-laboratories/forms-publications/index.html

Florida Cancer Reports
FloridaHealth.gov/diseases-and-conditions/cancer/cancer-registry/reports/index.html

Florida Community Health Assessment Resource Tool Set
www.FLHealthCHARTS.com

Florida Environmental Public Health Tracking
www.FloridaTracking.com

Florida Food and Waterborne Disease Reports
FloridaHealth.gov/diseases-and-conditions/food-and-waterborne-disease/fwdp-annual-reports.html

Florida HIV/AIDS Reports
FloridaHealth.gov/diseases-and-conditions/aids/surveillance/epi-slide-sets.html

Florida Influenza Reports
FloridaHealth.gov/FloridaFlu

Florida Integrated Food Safety Center of Excellence Resources
www.CoEFoodSafetyTools.org

Florida Sexually Transmitted Disease Reports
FloridaHealth.gov/diseases-and-conditions/sexually-transmitted-diseases/std-statistics/

Florida Tick-Borne Disease Reports
FloridaHealth.gov/diseases-and-conditions/tick-and-insect-borne-diseases/tick-surveillance.html

Florida Tuberculosis Reports
FloridaHealth.gov/diseases-and-conditions/tuberculosis/tb-statistics/

Appendices

Appendices

Appendix I: Summary Data Tables

Table 1: Number of Common Reportable Diseases/Conditions, Florida, 2008–2017

Reportable disease/condition	10-year trend	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Campylobacteriosis		1,118	1,120	1,211	2,039	1,964	2,027	2,195	3,351	3,262	4,318
Carbon Monoxide Poisoning		NR	43	172	85	69	161	157	227	224	573
Chlamydia (Excluding Neonatal Conjunctivitis)		70,716	72,911	74,745	76,050	77,871	80,787	83,127	90,633	94,720	100,057
Ciguatera Fish Poisoning		53	49	20	48	30	49	63	56	33	27
Creutzfeldt-Jakob Disease (CJD)		23	15	13	16	23	20	24	28	20	33
Cryptosporidiosis		549	497	408	437	470	409	1,905	856	582	556
Cyclosporiasis		59	40	63	58	25	47	33	32	37	113
Dengue Fever		33	55	195	71	124	160	92	79	62	26
Giardiasis, Acute		1,391	1,981	2,139	1,255	1,095	1,114	1,165	1,038	1,128	997
Gonorrhea (Excluding Neonatal Conjunctivitis)		23,232	20,878	20,169	19,704	19,554	21,006	20,597	24,186	28,153	31,710
Haemophilus influenzae Invasive Disease in Children <5 Years Old[1]		25	29	32	23	24	22	32	37	34	36
Hepatitis A		165	191	178	110	118	133	107	122	122	276
Hepatitis B, Acute		358	318	315	235	292	375	408	519	709	745
Hepatitis B, Chronic		1,617	4,268	4,265	4,279	4,180	4,271	4,914	4,827	4,972	4,927
Hepatitis B, Pregnant Women[1]		599	598	438	481	413	482	510	476	447	464
Hepatitis C, Acute		53	77	105	100	168	220	183	210	301	405
Hepatitis C, Chronic (Including Perinatal)		18,690	15,111	15,488	18,363	19,018	19,757	22,412	22,981	29,457	26,411
HIV[2]		6,058	5,194	4,712	4,667	4,492	4,369	4,599	4,691	4,805	4,949
Lead Poisoning Cases in Children <6 Years Old[1,2]		--	--	239	179	151	172	153	146	166	828
Lead Poisoning Cases in People >=6 Years Old[1,2]		--	--	674	561	699	436	514	573	501	1,314
Legionellosis		148	193	172	185	213	250	280	306	328	435
Listeriosis		50	25	54	38	33	41	49	42	43	54
Lyme Disease		88	110	84	115	118	138	155	166	216	210
Malaria		65	93	139	99	59	54	52	40	62	58
Meningitis, Bacterial or Mycotic		199	210	183	192	191	153	132	122	112	110
Meningococcal Disease		51	52	60	51	45	58	50	23	18	21
Mercury Poisoning		69	21	12	7	10	5	15	26	19	47
Mumps		16	18	10	11	5	1	1	10	16	74
Pertussis		314	497	328	312	575	732	719	339	334	358
Pesticide-Related Illness and Injury, Acute[3]		451	402	396	451	71	68	75	58	30	61
Rabies, Animal		138	161	121	120	97	98	88	79	59	79
Rabies, Possible Exposure		1,618	1,853	2,114	2,410	2,371	2,721	2,995	3,364	3,302	3,478
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis		19	10	14	12	31	24	29	21	12	25
Salmonellosis		5,312	6,741	6,282	5,923	6,523	6,133	6,019	5,924	5,621	6,557
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection		65	94	85	103	93	121	117	135	99	187
Shigellosis		801	461	1,212	2,635	1,702	1,018	2,396	1,737	753	1,307
Streptococcus pneumoniae Invasive Disease, Drug-Resistant		792	779	816	645	457	537	391	167	207	251
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible		704	701	693	679	531	552	401	264	412	373
Syphilis (Excluding Congenital)		4,558	3,844	4,053	4,110	4,472	5,015	5,973	7,118	8,273	8,859
Syphilis, Congenital[1]		24	19	25	33	39	35	48	38	60	93
Tuberculosis		957	822	833	754	678	651	595	602	639	549
Typhoid Fever (*Salmonella* Serotype Typhi)		18	19	22	8	11	11	13	6	12	20
Varicella (Chickenpox)		1,735	1,125	977	861	815	659	570	740	733	656
Vibriosis (Excluding Cholera)		94	112	130	155	147	191	166	196	187	274
Zika Virus Disease and Infection		NR	NR	NR	NR	NR	NR	NR	NR	1,458	277

NR Not reportable.

1 For *Haemophilus influenzae*, the rate is per 100,000 children <5 years old. For hepatitis B surface antigen in pregnant women, the rate is per 100,000 women aged 15–44 years old. For lead poisoning in children <6 years old, the rate is per 100,000 children <6 years old. For lead poisoning in people ≥6 years old, the rate is per 100,000 people ≥6 years old. For congenital syphilis, the rate is per 100,000 live births and fetal deaths.

2 The number of cases reported in past years should not change for most reportable diseases. Different reconciliation processes are in place for HIV. As a result, case numbers for prior years in the above tables may vary from previous reports. In 2017, lead poisoning cases were reviewed and re-evaluated, resulting in small changes in the number of cases reported in previous reports.

3 Acute pesticide-related illness and injury counts include suspect cases, unlike other diseases in this report.

Appendices

Table 2: Rate Per 100,000 Population of Common Reportable Diseases/Conditions, Florida, 2008–2017

Reportable disease/condition	10-year trend	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Campylobacteriosis		6.0	6.0	6.4	10.8	10.3	10.5	11.2	16.8	16.1	21.0
Carbon Monoxide Poisoning		NR	0.2	0.9	0.4	0.4	0.8	0.8	1.1	1.1	2.8
Chlamydia (Excluding Neonatal Conjunctivitis)		379.4	389.7	397.2	401.5	407.3	418.3	424.6	455.5	468.2	486.8
Ciguatera Fish Poisoning		0.3	0.3	0.1	0.3	0.2	0.3	0.3	0.3	0.2	0.1
Creutzfeldt-Jakob Disease (CJD)		0.1	--	--	--	0.1	0.1	0.1	0.1	0.1	0.2
Cryptosporidiosis		2.9	2.7	2.2	2.3	2.5	2.1	9.7	4.3	2.9	2.7
Cyclosporiasis		0.3	0.2	0.3	0.3	0.1	0.2	0.2	0.2	0.2	0.5
Dengue Fever		0.2	0.3	1.0	0.4	0.6	0.8	0.5	0.4	0.3	0.1
Giardiasis, Acute		7.5	10.6	11.4	6.6	5.7	5.8	5.9	5.2	5.6	4.9
Gonorrhea (Excluding Neonatal Conjunctivitis)		124.7	111.6	107.2	104.0	102.3	108.8	105.2	121.6	139.2	154.3
Haemophilus influenzae Invasive Disease in Children <5 Years Old[1]		2.2	2.5	3.0	2.1	2.2	2.1	3.0	3.4	3.1	3.2
Hepatitis A		0.9	1.0	0.9	0.6	0.6	0.7	0.5	0.6	0.6	1.3
Hepatitis B, Acute		1.9	1.7	1.7	1.2	1.5	1.9	2.1	2.6	3.5	3.6
Hepatitis B, Chronic		8.7	22.8	22.7	22.6	21.9	22.1	25.1	24.3	24.6	24.0
Hepatitis B, Pregnant Women[1]		16.9	17.0	12.4	13.4	11.5	13.3	14.0	12.9	12.0	12.3
Hepatitis C, Acute		0.3	0.4	0.6	0.5	0.9	1.1	0.9	1.1	1.5	2.0
Hepatitis C, Chronic (Including Perinatal)		100.3	80.8	82.3	96.9	99.5	102.3	114.5	115.5	145.6	128.5
HIV[2]		32.5	27.8	25.0	24.6	23.5	22.6	23.5	23.6	23.8	24.1
Lead Poisoning Cases in Children <6 Years Old[1,2]		--	--	18.8	13.8	11.7	13.3	11.8	11.1	12.4	61.2
Lead Poisoning Cases in People >=6 Years Old[1,2]		--	--	3.8	3.2	3.9	2.4	2.8	3.1	2.7	6.8
Legionellosis		0.8	1.0	0.9	1.0	1.1	1.3	1.4	1.5	1.6	2.1
Listeriosis		0.3	0.1	0.3	0.2	0.2	0.2	0.3	0.2	0.2	0.3
Lyme Disease		0.5	0.6	0.4	0.6	0.6	0.7	0.8	0.8	1.1	1.0
Malaria		0.3	0.5	0.7	0.5	0.3	0.3	0.3	0.2	0.3	0.3
Meningitis, Bacterial or Mycotic		1.1	1.1	1.0	1.0	1.0	0.8	0.7	0.6	0.6	0.5
Meningococcal Disease		0.3	0.3	0.3	0.3	0.2	0.3	0.3	0.1	--	0.1
Mercury Poisoning		0.4	0.1	--	--	--	--	--	0.1	--	0.2
Mumps		--	--	--	--	--	--	--	--	--	0.4
Pertussis		1.7	2.7	1.7	1.6	3.0	3.8	3.7	1.7	1.7	1.7
Pesticide-Related Illness and Injury, Acute[3]		2.4	2.1	2.1	2.4	0.4	0.4	0.4	0.3	0.1	0.3
Rabies, Animal		--	--	--	--	--	--	--	--	--	--
Rabies, Possible Exposure		8.7	9.9	11.2	12.7	12.4	14.1	15.3	16.9	16.3	16.9
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis		--	--	--	--	0.2	0.1	0.1	0.1	--	0.1
Salmonellosis		28.5	36.0	33.4	31.3	34.1	31.8	30.7	29.8	27.8	31.9
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection		0.3	0.5	0.5	0.5	0.5	0.6	0.6	0.7	0.5	0.9
Shigellosis		4.3	2.5	6.4	13.9	8.9	5.3	12.2	8.7	3.7	6.4
Streptococcus pneumoniae Invasive Disease, Drug-Resistant		4.2	4.2	4.3	3.4	2.4	2.8	2.0	0.8	1.0	1.2
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible		3.8	3.7	3.7	3.6	2.8	2.9	2.0	1.3	2.0	1.8
Syphilis (Excluding Congenital)		24.5	20.5	21.5	21.7	23.4	26.0	30.5	35.8	40.9	43.1
Syphilis, Congenital[1]		0.1	0.1	0.1	0.2	0.2	0.2	0.2	0.2	0.3	0.5
Tuberculosis		5.1	4.4	4.4	4.0	3.5	3.4	3.0	3.0	3.2	2.7
Typhoid Fever (*Salmonella* Serotype Typhi)		--	--	0.1	--	--	--	--	--	--	0.1
Varicella (Chickenpox)		9.3	6.0	5.2	4.5	4.3	3.4	2.9	3.7	3.6	3.2
Vibriosis (Excluding Cholera)		0.5	0.6	0.7	0.8	0.8	1.0	0.8	1.0	0.9	1.3
Zika Virus Disease and Infection		NR	NR	NR	NR	NR	NR	NR	NR	7.2	1.3

NR Not reportable.

-- Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table. Animal rabies is only expressed as the number of cases because no reliable denominators exist for animal populations. Prior to 2010, lead poisoning case data were primarily stored outside of the state's reportable disease surveillance system and are not included in this table.

1 For *Haemophilus influenzae*, the rate is per 100,000 children <5 years old. For hepatitis B surface antigen in pregnant women, the rate is per 100,000 women aged 15–44 years old. For lead poisoning in children <6 years old, the rate is per 100,000 children <6 years old. For lead poisoning in people ≥6 years old, the rate is per 100,000 people ≥6 years old. For congenital syphilis, the rate is per 100,000 live births and fetal deaths.

2 The number of cases reported in past years should not change for most reportable diseases. Different reconciliation processes are in place for HIV. As a result, case numbers for prior years in the above tables may vary from previous reports. In 2017, lead poisoning cases were reviewed and re-evaluated, resulting in small changes in the number of cases reported in previous reports.

3 Acute pesticide-related illness and injury counts include suspect cases, unlike other diseases in this report.

Appendices

Table 3: Number of Uncommon Reportable Diseases/Conditions, Florida, 2008–2017

Reportable disease/condition	10-year trend	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Amebic Encephalitis		NR	3	0	1	0	1	1	1	1	0
Anaplasmosis		2	3	3	11	5	2	7	5	6	9
Anthrax		0	0	0	1	0	0	0	0	0	0
Arboviral Disease, Other		NR	NR	NR	NR	NR	NR	0	0	0	0
Arsenic Poisoning		NR	9	14	7	5	13	2	16	21	14
Babesiosis		NR	NR	NR	NR	NR	NR	NR	NR	0	9
Botulism, Foodborne		0	0	0	0	0	0	0	0	0	0
Botulism, Infant		1	1	1	0	1	0	0	0	0	1
Botulism, Other		0	0	0	0	0	0	0	1	1	0
Botulism, Wound		0	0	0	0	0	0	0	0	0	0
Brucellosis		10	9	9	6	17	9	3	8	2	11
California Serogroup Virus Disease		1	0	0	1	0	0	1	1	0	0
Chancroid		0	1	1	0	0	0	0	0	0	0
Chikungunya Fever		NR	NR	NR	NR	NR	NR	442	121	10	4
Cholera (*Vibrio cholerae* Type O1)		0	0	4	11	7	4	2	3	1	1
Conjunctivitis in Neonates <14 Days Old, Chlamydia[1]		0	1	1	0	0	0	0	0	0	0
Conjunctivitis in Neonates <14 Days Old, Gonorrhea[1]		0	1	1	0	0	0	0	0	0	0
Diphtheria		0	0	0	0	0	0	0	0	0	0
Eastern Equine Encephalitis		1	0	4	0	2	2	1	0	1	1
Ehrlichiosis		10	11	10	15	23	21	29	18	28	16
Flavivirus Disease and Infection		NR	NR	NR	NR	NR	NR	NR	NR	0	0
Glanders (*Burkholderia mallei*)		0	0	0	0	0	0	0	0	0	0
Granuloma Inguinale		0	1	1	0	0	0	0	0	0	0
Hansen's Disease (Leprosy)		10	7	12	11	10	10	10	29	18	17
Hantavirus Infection		0	0	0	0	0	0	0	0	0	0
Hemolytic Uremic Syndrome (HUS)		5	5	8	4	1	14	7	5	8	11
Hepatitis B, Perinatal		3	0	1	0	1	2	1	0	0	1
Hepatitis D		0	1	0	0	0	1	1	1	1	2
Hepatitis E		0	2	1	7	1	0	3	6	5	8
Hepatitis G		0	1	0	2	0	0	0	0	0	0
Herpes Simplex Virus in Infants <60 Days Old[1]		0	1	1	0	0	0	0	0	0	0
Human Papillomavirus in Children <=12 Years Old		0	1	1	0	0	0	0	0	0	0
Leptospirosis		0	1	2	4	1	1	0	4	2	3
Lymphogranuloma Venereum		0	1	1	0	0	0	0	0	0	0
Measles (Rubeola)		1	5	1	8	0	7	0	5	5	3
Melioidosis (*Burkholderia pseudomallei*)		0	0	0	0	1	0	0	0	0	0
Middle East Respiratory Syndrome (MERS)		NR	NR	NR	NR	NR	NR	1	0	0	0
Neurotoxic Shellfish Poisoning		0	0	0	0	0	0	0	0	0	2
Plague		0	0	0	0	0	0	0	0	0	0
Poliomyelitis		0	0	0	0	0	0	0	0	0	0
Psittacosis (Ornithosis)		2	0	0	0	0	0	1	1	0	0
Q Fever (*Coxiella burnetii*)		1	1	2	3	1	2	1	1	0	3
Rabies, Human		0	0	0	0	0	0	0	0	0	1
Ricin Toxin Poisoning		0	0	0	0	0	1	0	4	1	0
Rubella		3	0	0	0	0	0	0	0	1	0
Saxitoxin Poisoning (Paralytic Shellfish Poisoning)		0	0	0	0	0	3	0	0	1	0
Severe Acute Respiratory Syndrome (SARS)		0	0	0	0	0	0	0	0	0	0
Smallpox		0	0	0	0	0	0	0	0	0	0
St. Louis Encephalitis		0	0	0	0	0	0	2	0	0	0
Staphylococcal Enterotoxin B Poisoning		2	0	0	0	0	0	0	0	0	0
Staphylococcus aureus Infection, Intermediate Resistance to Vancomycin (VISA)		3	6	1	3	7	5	4	4	4	5

NR Not reportable.

1 Age in days is determined by the age of the child on the specimen collection date.

Table 3: Number of Uncommon Reportable Diseases/Conditions, Florida, 2008–2017 (Continued)

Reportable disease/condition	10-year trend	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
Staphylococcus aureus Infection, Resistant to Vancomycin (VRSA)		0	0	0	0	0	0	0	0	0	0
Tetanus		2	0	5	3	4	5	2	4	5	2
Trichinellosis (Trichinosis)		1	0	0	0	0	0	0	0	0	0
Tularemia (*Francisella tularensis*)		0	1	0	0	0	1	1	0	0	0
Typhus Fever		0	1	0	2	0	0	0	0	0	0
Vaccinia Disease		0	0	0	1	0	0	0	1	0	0
Venezuelan Equine Encephalitis		0	0	0	0	0	0	0	0	0	0
Viral Hemorrhagic Fever		0	0	0	0	0	0	0	0	0	0
West Nile Virus Disease		3	3	12	23	74	7	17	13	8	6
Western Equine Encephalitis		0	0	0	0	0	0	0	0	0	0
Yellow Fever		0	0	0	0	0	0	0	0	0	0

NR Not reportable.

1 Age in days is determined by the age of the child on the specimen collection date.

Table 4: Number of Common Reportable Diseases/Conditions by Age Group (in Years), Florida, 2017

Reportable disease/condition	<1	1–4	5–9	10–14	15–19	20–24	25–34	35–44	45–54	55–64	65–74	75–84	85+
Campylobacteriosis	158	397	193	123	164	185	398	395	481	619	621	393	191
Carbon Monoxide Poisoning	3	23	50	46	42	25	71	74	87	71	48	22	11
Chlamydia (Excluding Neonatal Conjunctivitis)	0	1	4	589	25,481	36,877	27,716	6,317	2,126	756	150	30	10
Ciguatera Fish Poisoning	0	1	0	0	0	0	6	7	8	5	0	0	0
Creutzfeldt-Jakob Disease (CJD)	0	0	0	0	0	0	0	0	3	13	14	2	1
Cryptosporidiosis	13	68	40	16	17	29	76	55	61	58	63	48	12
Cyclosporiasis	0	2	0	2	2	3	14	11	12	23	31	11	2
Dengue Fever	0	0	1	0	1	2	0	5	9	3	4	1	0
Giardiasis, Acute	21	142	80	45	46	64	120	108	111	120	95	32	13
Gonorrhea (Excluding Neonatal Conjunctivitis)	0	3	6	154	5,304	9,108	10,734	3,684	1,818	746	132	20	1
Haemophilus influenzae Invasive Disease in Children <5 Years Old[1]	17	19	0	0	0	0	0	0	0	0	0	0	0
Hepatitis A	0	1	0	3	7	16	88	58	43	25	21	10	4
Hepatitis B, Acute	0	0	0	0	4	20	67	235	208	115	62	28	6
Hepatitis B, Chronic[2]	0	2	8	11	86	190	899	1,112	999	849	507	189	61
Hepatitis B, Pregnant Women[1]	0	0	0	0	3	50	294	116	1	0	0	0	0
Hepatitis C, Acute	0	1	0	0	10	52	129	83	57	50	18	4	1
Hepatitis C, Chronic (Including Perinatal)[2]	9	22	3	4	141	1,482	5,951	4,500	4,487	6,577	2,595	453	154
HIV	9	2	2	4	187	627	1,572	1,005	837	512	158	34	0
Lead Poisoning Cases in Children <6 Years Old[1]	44	726	58	0	0	0	0	0	0	0	0	0	0
Lead Poisoning Cases in People >=6 Years Old[1]	0	0	127	113	61	107	232	169	193	136	111	46	19
Legionellosis	0	0	0	0	1	6	10	24	59	104	105	83	43
Listeriosis	3	0	0	1	0	2	3	1	4	9	13	8	10
Lyme Disease	0	3	13	23	11	3	16	15	27	48	30	20	1
Malaria	0	4	1	1	4	6	6	12	8	12	3	1	0
Meningitis, Bacterial or Mycotic	24	0	5	2	8	5	9	10	12	18	11	6	0
Meningococcal Disease	2	0	1	1	1	1	4	2	4	2	2	1	0
Mercury Poisoning	1	1	1	1	1	0	5	9	12	10	4	2	0
Mumps	0	0	4	9	16	8	13	10	7	4	2	1	0
Pertussis	88	66	41	44	39	11	6	16	13	11	13	6	4
Pesticide-Related Illness and Injury, Acute[3]	0	1	1	2	6	5	9	12	14	3	6	2	0
Rabies, Possible Exposure[2]	26	123	166	202	257	298	599	450	464	444	279	119	36
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	0	0	0	0	1	0	2	3	5	7	5	2	0
Salmonellosis[2]	1,299	1,259	424	208	193	194	374	346	487	641	625	354	151
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	7	70	15	13	14	7	14	11	10	6	10	7	3
Shigellosis	31	368	263	75	39	39	155	105	90	63	48	25	6
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	11	23	6	3	0	3	17	17	29	63	39	23	17
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	9	20	15	6	0	4	10	25	51	76	82	43	32
Syphilis (Excluding Congenital)	0	1	0	5	343	1,269	3,104	1,804	1,541	632	130	26	4
Syphilis, Congenital[1]	93	0	0	0	0	0	0	0	0	0	0	0	0
Tuberculosis	1	6	3	2	20	31	103	83	86	100	70	34	10
Typhoid Fever (*Salmonella* Serotype Typhi)	0	4	3	2	2	3	2	1	0	0	3	0	0
Varicella (Chickenpox)	60	148	98	58	29	51	85	59	40	15	7	4	2
Vibriosis (Excluding Cholera)	1	1	13	10	12	8	23	37	30	52	49	22	16
Zika Virus Disease and Infection	4	1	1	3	12	35	104	57	25	22	10	3	0

1 For *Haemophilus influenzae*, the rate is per 100,000 children <5 years old. For hepatitis B surface antigen in pregnant women, the rate is per 100,000 women aged 15–44 years old. For lead poisoning in children <6 years old, the rate is per 100,000 children <6 years old. For lead poisoning in people ≥6 years old, the rate is per 100,000 people ≥6 years old. For congenital syphilis, the rate is per 100,000 live births and fetal deaths.

2 Age is unknown for 14 chronic hepatitis B cases, 33 chronic hepatitis C cases, 15 possible rabies exposure cases, and 2 salmonellosis cases.

3 Acute pesticide-related illness and injury counts include suspect cases, unlike other diseases in this report.

Table 5: Rate Per 100,000 Population of Common Reportable Diseases/Conditions by Age Group (in Years), Florida, 2017

Reportable disease/condition	<1	1–4	5–9	10–14	15–19	20–24	25–34	35–44	45–54	55–64	65–74	75–84	85+
Campylobacteriosis	71.8	43.9	16.9	10.7	13.8	14.5	14.9	16.1	17.5	22.8	27.4	31.3	34.6
Carbon Monoxide Poisoning	--	2.5	4.4	4.0	3.5	2.0	2.6	3.0	3.2	2.6	2.1	1.8	--
Chlamydia (Excluding Neonatal Conjunctivitis)	--	--	--	51.2	2,147.0	2,900.1	1,034.3	256.8	77.3	27.8	6.6	2.4	--
Ciguatera Fish Poisoning	--	--	--	--	--	--	--	--	--	--	--	--	--
Creutzfeldt-Jakob Disease (CJD)	--	--	--	--	--	--	--	--	--	--	--	--	--
Cryptosporidiosis	--	7.5	3.5	--	--	2.3	2.8	2.2	2.2	2.1	2.8	3.8	--
Cyclosporiasis	--	--	--	--	--	--	--	--	--	0.8	1.4	--	--
Dengue Fever	--	--	--	--	--	--	--	--	--	--	--	--	--
Giardiasis, Acute	9.5	15.7	7.0	3.9	3.9	5.0	4.5	4.4	4.0	4.4	4.2	2.6	--
Gonorrhea (Excluding Neonatal Conjunctivitis)	--	--	--	13.4	446.9	716.3	400.6	149.8	66.1	27.4	5.8	1.6	--
Haemophilus influenzae Invasive Disease in Children <5 Years Old[1]	--	--	--	--	--	--	--	--	--	--	--	--	--
Hepatitis A	--	--	--	--	--	--	3.3	2.4	1.6	0.9	0.9	--	--
Hepatitis B, Acute	--	--	--	--	--	1.6	2.5	9.6	7.6	4.2	2.7	2.2	--
Hepatitis B, Chronic[2]	--	--	--	--	7.2	14.9	33.5	45.2	36.3	31.2	22.4	15.1	11.0
Hepatitis B, Pregnant Women[1]	--	--	--	--	--	8.1	22.2	9.3	--	--	--	--	--
Hepatitis C, Acute	--	--	--	--	--	4.1	4.8	3.4	2.1	1.8	--	--	--
Hepatitis C, Chronic (Including Perinatal)[2]	--	2.4	--	--	11.9	116.6	222.1	182.9	163.2	242.0	114.5	36.1	27.9
HIV	--	--	--	--	15.8	49.3	58.7	40.9	30.4	18.8	7.0	2.7	--
Lead Poisoning Cases in Children <6 Years Old[1]	20.0	80.3	25.4	--	--	--	--	--	--	--	--	--	--
Lead Poisoning Cases in People >=6 Years Old[1]	--	--	13.9	9.8	5.1	8.4	8.7	6.9	7.0	5.0	4.9	3.7	--
Legionellosis	--	--	--	--	--	--	--	1.0	2.1	3.8	4.6	6.6	7.8
Listeriosis	--	--	--	--	--	--	--	--	--	--	--	--	--
Lyme Disease	--	--	--	2.0	--	--	--	--	1.0	1.8	1.3	1.6	--
Malaria	--	--	--	--	--	--	--	--	--	--	--	--	--
Meningitis, Bacterial or Mycotic	10.9	--	--	--	--	--	--	--	--	--	--	--	--
Meningococcal Disease	--	--	--	--	--	--	--	--	--	--	--	--	--
Mercury Poisoning	--	--	--	--	--	--	--	--	--	--	--	--	--
Mumps	--	--	--	--	--	--	--	--	--	--	--	--	--
Pertussis	40.0	7.3	3.6	3.8	3.3	--	--	--	--	--	--	--	--
Pesticide-Related Illness and Injury, Acute[3]	--	--	--	--	--	--	--	--	--	--	--	--	--
Rabies, Possible Exposure[2]	11.8	13.6	14.6	17.5	21.7	23.4	22.4	18.3	16.9	16.3	12.3	9.5	6.5
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	--	--	--	--	--	--	--	--	--	--	--	--	--
Salmonellosis[2]	590.7	139.3	37.2	18.1	16.3	15.3	14.0	14.1	17.7	23.6	27.6	28.2	27.3
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	--	7.7	--	--	--	--	--	--	--	--	--	--	--
Shigellosis	14.1	40.7	23.1	6.5	3.3	3.1	5.8	4.3	3.3	2.3	2.1	2.0	--
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	--	2.5	--	--	--	--	--	--	1.1	2.3	1.7	1.8	--
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	--	2.2	--	--	--	--	--	1.0	1.9	2.8	3.6	3.4	5.8
Syphilis (Excluding Congenital)	--	--	--	--	28.9	99.8	115.8	73.3	56.0	23.3	5.7	2.1	--
Syphilis, Congenital[1]	42.3	--	--	--	--	--	--	--	--	--	--	--	--
Tuberculosis	--	--	--	--	1.7	2.4	3.8	3.4	3.1	3.7	3.1	2.7	--
Typhoid Fever (*Salmonella* Serotype Typhi)	--	--	--	--	--	--	--	--	--	--	--	--	--
Varicella (Chickenpox)	27	16	9	5	2	4	3	2	1	--	--	--	--
Vibriosis (Excluding Cholera)	--	--	--	--	--	--	1	2	1	2	2	2	--
Zika Virus Disease and Infection	--	--	--	--	--	3	4	2	1	1	--	--	--

-- Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table.

1 For *Haemophilus influenzae*, the rate is per 100,000 children <5 years old. For hepatitis B surface antigen in pregnant women, the rate is per 100,000 women aged 15–44 years old. For lead poisoning in children <6 years old, the rate is per 100,000 children <6 years old. For lead poisoning in people ≥6 years old, the rate is per 100,000 people ≥6 years old. For congenital syphilis, the rate is per 100,000 live births and fetal deaths.

2 Age is unknown for 14 chronic hepatitis B cases, 33 chronic hepatitis C cases, 15 possible rabies exposure cases, and 2 salmonellosis cases.

3 Acute pesticide-related illness and injury counts include suspect cases, unlike other diseases in this report.

Appendices

Table 6: Top 10 Reportable Diseases/Conditions by Age Group (in Years), Florida, 2017

Rank	<1	1–4	5–9	10–14	15–19	20–24	25–34	35–44	45–54	55–64	65–74	75–84	85+
	Age group (in years)												
1	Salmonellosis (Count: 1,299) (Rate: 590.7)	Salmonellosis (Count: 1,259) (Rate: 139.3)	Salmonellosis (Count: 424) (Rate: 37.2)	Chlamydia (Count: 589) (Rate: 51.2)	Chlamydia (Count: 25,481) (Rate: 2,147.0)	Chlamydia (Count: 36,877) (Rate: 2,900.1)	Chlamydia (Count: 27,716) (Rate: 1,034.3)	Chlamydia (Count: 6,317) (Rate: 256.8)	Hepatitis C, Chronic (Count: 4,487) (Rate: 163.2)	Hepatitis C, Chronic (Count: 6,577) (Rate: 242.0)	Hepatitis C, Chronic (Count: 2,595) (Rate: 114.5)	Hepatitis C, Chronic (Count: 453) (Rate: 36.1)	Campylobacteriosis (Count: 191) (Rate: 34.6)
2	Campylobacteriosis (Count: 158) (Rate: 71.8)	Lead Poisoning (Count: 726) (Rate: 80.3)	Shigellosis (Count: 263) (Rate: 23.1)	Salmonellosis (Count: 208) (Rate: 18.1)	Gonorrhea (Count: 5,304) (Rate: 446.9)	Gonorrhea (Count: 9,108) (Rate: 716.3)	Gonorrhea (Count: 10,734) (Rate: 400.6)	Hepatitis C, Chronic (Count: 4,500) (Rate: 182.9)	Chlamydia (Count: 2,126) (Rate: 77.3)	Hepatitis B, Chronic (Count: 849) (Rate: 31.2)	Salmonellosis (Count: 625) (Rate: 27.6)	Campylobacteriosis (Count: 393) (Rate: 31.3)	Hepatitis C, Chronic (Count: 154) (Rate: 27.9)
3	Syphilis, Congenital (Count: 93) (Rate: 42.3)	Campylobacteriosis (Count: 397) (Rate: 43.9)	Campylobacteriosis (Count: 193) (Rate: 16.9)	Rabies, Possible Exposure (Count: 202) (Rate: 17.5)	Syphilis (Count: 343) (Rate: 28.9)	Hepatitis C, Chronic (Count: 1,482) (Rate: 116.6)	Hepatitis C, Chronic (Count: 5,951) (Rate: 222.1)	Gonorrhea (Count: 3,684) (Rate: 149.8)	Gonorrhea (Count: 1,818) (Rate: 66.1)	Chlamydia (Count: 756) (Rate: 27.8)	Campylobacteriosis (Count: 621) (Rate: 27.4)	Salmonellosis (Count: 354) (Rate: 28.2)	Salmonellosis (Count: 151) (Rate: 27.3)
4	Pertussis (Count: 88) (Rate: 40.0)	Shigellosis (Count: 368) (Rate: 40.7)	Rabies, Possible Exposure (Count: 166) (Rate: 14.6)	Gonorrhea (Count: 154) (Rate: 13.4)	Rabies, Possible Exposure (Count: 257) (Rate: 21.7)	Syphilis (Count: 1,269) (Rate: 99.8)	Syphilis (Count: 3,104) (Rate: 115.8)	Syphilis (Count: 1,804) (Rate: 73.3)	Syphilis (Count: 1,541) (Rate: 56.0)	Gonorrhea (Count: 746) (Rate: 27.4)	Hepatitis B, Chronic (Count: 507) (Rate: 22.4)	Hepatitis B, Chronic (Count: 189) (Rate: 15.1)	Hepatitis B, Chronic (Count: 61) (Rate: 11.0)
5	Varicella (Chickenpox) (Count: 60) (Rate: 27.3)	Varicella (Chickenpox) (Count: 148) (Rate: 16.4)	Lead Poisoning (Count: 127) (Rate: 13.9)	Campylobacteriosis (Count: 123) (Rate: 10.7)	Salmonellosis (Count: 193) (Rate: 16.3)	HIV (Count: 627) (Rate: 49.3)	HIV (Count: 1,572) (Rate: 58.7)	Hepatitis B, Chronic (Count: 1,112) (Rate: 45.2)	Hepatitis B, Chronic (Count: 999) (Rate: 36.3)	Salmonellosis (Count: 641) (Rate: 23.6)	Rabies, Possible Exposure (Count: 279) (Rate: 12.3)	Rabies, Possible Exposure (Count: 119) (Rate: 9.5)	*S. pneumoniae* Invasive Disease (Count: 49) (Rate: 8.9)
6	Lead Poisoning (Count: 44) (Rate: 20.0)	Giardiasis, Acute (Count: 142) (Rate: 15.7)	Varicella (Chickenpox) (Count: 98) (Rate: 8.6)	Lead Poisoning (Count: 113) (Rate: 9.8)	HIV (Count: 187) (Rate: 15.8)	Rabies, Possible Exposure (Count: 298) (Rate: 23.4)	Hepatitis B, Chronic (Count: 899) (Rate: 33.5)	HIV (Count: 1,005) (Rate: 40.9)	HIV (Count: 837) (Rate: 30.4)	Syphilis (Count: 632) (Rate: 23.3)	HIV (Count: 158) (Rate: 7.0)	Legionellosis (Count: 83) (Rate: 6.6)	Legionellosis (Count: 43) (Rate: 7.8)
7	Shigellosis (Count: 31) (Rate: 14.1)	Rabies, Possible Exposure (Count: 123) (Rate: 13.6)	Giardiasis, Acute (Count: 80) (Rate: 7.0)	Shigellosis (Count: 75) (Rate: 6.5)	Campylobacteriosis (Count: 164) (Rate: 13.8)	Salmonellosis (Count: 194) (Rate: 15.3)	Rabies, Possible Exposure (Count: 599) (Rate: 22.4)	Rabies, Possible Exposure (Count: 450) (Rate: 18.3)	Salmonellosis (Count: 487) (Rate: 17.7)	Campylobacteriosis (Count: 619) (Rate: 22.8)	Chlamydia (Count: 150) (Rate: 6.6)	*S. pneumoniae* Invasive Disease (Count: 66) (Rate: 5.3)	Rabies, Possible Exposure (Count: 36) (Rate: 6.5)
8	Rabies, Possible Exposure (Count: 26) (Rate: 11.8)	Shiga Toxin-Producing *E. coli* (Count: 70) (Rate: 7.7)	Lead Poisoning (Count: 58) (Rate: 25.4)	Varicella (Chickenpox) (Count: 58) (Rate: 5.0)	Hepatitis C, Chronic (Count: 141) (Rate: 11.9)	Hepatitis B, Chronic (Count: 190) (Rate: 14.9)	Campylobacteriosis (Count: 398) (Rate: 14.9)	Campylobacteriosis (Count: 395) (Rate: 16.1)	Campylobacteriosis (Count: 481) (Rate: 17.5)	HIV (Count: 512) (Rate: 18.8)	Gonorrhea (Count: 132) (Rate: 5.8)	Cryptosporidiosis (Count: 48) (Rate: 3.8)	Lead Poisoning (Count: 19) --
9	Meningitis, Bacterial/Mycotic (Count: 24) (Rate: 10.9)	Cryptosporidiosis (Count: 68) (Rate: 7.5)	Carbon Monoxide Poisoning (Count: 50) (Rate: 4.4)	Carbon Monoxide Poisoning (Count: 46) (Rate: 4.0)	Hepatitis B, Chronic (Count: 86) (Rate: 7.2)	Campylobacteriosis (Count: 185) (Rate: 14.5)	Salmonellosis (Count: 374) (Rate: 14.0)	Salmonellosis (Count: 346) (Rate: 14.1)	Rabies, Possible Exposure (Count: 464) (Rate: 16.9)	Rabies, Possible Exposure (Count: 444) (Rate: 16.3)	Syphilis (Count: 130) (Rate: 5.7)	Lead Poisoning (Count: 46) (Rate: 3.7)	Vibriosis (Excluding Cholera) (Count: 16) --
10	Giardiasis, Acute (Count: 21) (Rate: 9.5)	Pertussis (Count: 66) (Rate: 7.3)	Pertussis (Count: 41) (Rate: 3.6)	Giardiasis, Acute (Count: 45) (Rate: 3.9)	Lead Poisoning (Count: 61) (Rate: 5.1)	Lead Poisoning (Count: 107) (Rate: 8.4)	Hepatitis B, Pregnant Women (Count: 294) (Rate: 22.2)	Hepatitis B, Acute (Count: 235) (Rate: 9.6)	Hepatitis B, Acute (Count: 208) (Rate: 7.6)	*S. pneumoniae* Invasive Disease (Count: 139) (Rate: 5.1)	*S. pneumoniae* Invasive Disease (Count: 121) (Rate: 5.3)	HIV (Count: 34) (Rate: 2.7)	Giardiasis, Acute (Count: 13) --

Enteric Diseases
Vaccine-Preventable Diseases
Tuberculosis
Invasive Bacterial Diseases
Vector-Borne Diseases
Environmental Poisonings
Sexually Transmitted Diseases
HIV Infection/AIDS
Viral Hepatitis

-- Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table.

Appendices

Table 7: Number of Common Reportable Diseases/Conditions by Month of Occurrence,[1] Florida, 2017

Selected reportable disease/condition	12-month trend	Jan	Feb	Mar	Apr	May	*Jun*	Jul	Aug	Sep	Oct	Nov	Dec
Campylobacteriosis		316	297	329	332	424	*436*	457	401	324	341	344	317
Carbon Monoxide Poisoning		18	10	9	8	10	*17*	22	12	369	51	22	25
Ciguatera Fish Poisoning		4	2	2	1	4	*2*	0	1	0	4	3	4
Creutzfeldt-Jakob Disease (CJD)		8	0	4	1	3	*4*	3	4	2	1	0	3
Cryptosporidiosis		28	17	40	39	44	*28*	65	79	64	64	54	34
Cyclosporiasis		0	0	1	0	20	*29*	52	9	1	1	0	0
Dengue Fever		1	1	0	1	1	*1*	3	4	5	5	2	2
Giardiasis, Acute		84	67	78	88	79	*83*	98	92	81	72	86	89
Haemophilus influenzae Invasive Disease in Children <5 Years Old		3	3	6	1	3	*2*	2	4	2	2	3	5
Hepatitis A		12	21	29	18	26	*27*	16	30	23	25	23	26
Hepatitis B, Acute		55	56	67	50	57	*70*	70	70	73	64	55	58
Hepatitis B, Chronic		407	407	454	464	453	*424*	400	406	291	423	414	384
Hepatitis B, Pregnant Women		54	36	53	34	46	*34*	33	35	26	30	43	40
Hepatitis C, Acute		38	25	29	38	31	*46*	33	33	31	38	34	29
Hepatitis C, Chronic (Including Perinatal)		2,056	2,148	2,362	2,416	2,344	*2,289*	2,242	2,376	1,871	2,169	2,072	2,066
Lead Poisoning Cases in Children <6 Years Old		86	78	97	86	77	*69*	76	68	45	62	53	31
Lead Poisoning Cases in People >=6 Years Old		155	134	111	112	107	*134*	102	162	63	83	68	83
Legionellosis		31	24	19	31	33	*35*	51	46	57	59	31	18
Listeriosis		7	2	4	2	4	*3*	7	6	5	7	4	3
Lyme Disease		11	7	12	4	9	*34*	61	27	16	12	11	6
Malaria		5	3	3	6	2	*7*	11	5	3	4	5	4
Meningitis, Bacterial or Mycotic		5	7	8	11	9	*13*	11	11	8	10	5	12
Meningococcal Disease		4	0	2	1	2	*1*	3	0	1	1	2	4
Mercury Poisoning		5	2	5	3	2	*6*	2	1	6	6	7	2
Mumps		1	2	1	5	4	*5*	13	14	2	6	10	11
Pertussis		17	26	42	27	48	*36*	49	26	20	18	29	20
Pesticide-Related Illness and Injury, Acute[2]		1	1	2	3	7	*3*	3	14	23	2	0	2
Rabies, Animal[3]		8	5	10	3	9	*9*	4	6	7	3	11	4
Rabies, Possible Exposure[4]		253	230	289	266	299	*305*	321	299	314	300	310	292
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis		0	1	1	3	2	*2*	7	3	2	1	2	1
Salmonellosis		321	238	293	340	474	*698*	730	762	784	862	669	386
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection		9	10	22	5	24	*12*	10	18	21	18	29	9
Shigellosis		67	62	107	83	132	*148*	170	165	93	113	101	66
Streptococcus pneumoniae Invasive Disease, Drug-Resistant		23	26	29	21	16	*25*	14	9	23	12	26	27
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible		40	41	37	25	21	*24*	20	12	27	24	48	54
Typhoid Fever (*Salmonella* Serotype Typhi)		4	0	3	0	0	*1*	1	4	2	0	1	4
Varicella (Chickenpox)		68	66	66	55	66	*39*	46	43	48	47	63	49
Vibriosis (Excluding Cholera)		16	11	24	22	24	*16*	47	22	39	22	13	18
Zika Virus Disease and Infection		23	18	21	28	24	*19*	30	31	31	23	14	15

1 The earliest date associated with the case was used to determine month of occurrence, unless otherwise noted. Dates associated with cases include illness onset date, diagnosis date, laboratory report date, and the date the county health department was notified.

2 Acute pesticide-related illness and injury counts include suspect cases, unlike other diseases in this report.

3 Month of occurrence is based on the month of laboratory report.

4 Month of occurrence is based on the month of exposure.

Note that this table includes all common reportable diseases/conditions except chlamydia, gonorrhea, HIV, syphilis, congenital syphilis, and tuberculosis.

Appendices

Table 8: Number of Common Reportable Diseases/Conditions by County of Residence, Florida, 2017

Reportable disease/condition	Alachua	Baker	Bay	Bradford	Brevard	Broward	Calhoun	Charlotte	Citrus	Clay	Collier
Campylobacteriosis	54	5	30	4	105	254	3	45	33	46	86
Carbon Monoxide Poisoning	6	0	5	0	12	52	0	3	2	1	17
Chlamydia (Excluding Neonatal Conjunctivitis)	2,192	130	820	106	2,080	11,289	77	317	344	805	1,084
Ciguatera Fish Poisoning	0	0	0	0	0	3	0	0	0	0	1
Creutzfeldt-Jakob Disease (CJD)	2	1	0	0	2	3	0	0	0	0	0
Cryptosporidiosis	7	0	1	0	37	35	1	0	19	2	10
Cyclosporiasis	0	0	0	0	3	5	0	1	1	0	2
Dengue Fever	0	0	0	0	1	3	0	0	0	0	0
Giardiasis, Acute	12	3	11	3	16	96	2	3	12	7	17
Gonorrhea (Excluding Neonatal Conjunctivitis)	618	49	322	50	611	3,941	16	85	107	237	141
Haemophilus influenzae Invasive Disease in Children <5 Years Old	1	0	0	0	1	2	0	0	0	0	0
Hepatitis A	2	1	0	0	2	35	0	1	0	0	3
Hepatitis B, Acute	1	2	7	1	15	57	0	11	20	5	4
Hepatitis B, Chronic	58	10	36	2	92	684	5	36	25	33	70
Hepatitis B, Pregnant Women	8	0	4	1	3	104	0	0	2	1	11
Hepatitis C, Acute	2	1	3	2	3	27	0	2	5	3	11
Hepatitis C, Chronic (Including Perinatal)	180	48	373	55	722	2,187	24	212	224	302	259
HIV[1]	56	2	33	4	61	715	2	9	6	20	48
Lead Poisoning Cases in Children <6 Years Old	6	1	9	1	14	50	0	6	0	3	10
Lead Poisoning Cases in People >=6 Years Old	5	1	16	0	45	66	0	11	16	14	17
Legionellosis	3	0	4	2	6	46	0	1	1	3	10
Listeriosis	0	1	0	0	0	9	0	0	1	2	0
Lyme Disease	1	2	2	0	4	12	0	0	2	0	5
Malaria	3	0	1	0	2	5	0	0	0	0	1
Meningitis, Bacterial or Mycotic	1	0	5	0	4	9	0	0	1	1	2
Meningococcal Disease	1	0	1	0	0	2	0	0	0	0	0
Mercury Poisoning	0	0	0	0	0	17	0	0	0	0	0
Mumps	0	0	0	0	2	15	0	0	0	0	9
Pertussis	0	0	0	0	4	24	0	0	1	1	12
Pesticide-Related Illness and Injury, Acute	0	0	0	0	0	2	0	0	0	0	0
Rabies, Animal	4	0	4	0	4	4	1	1	2	1	0
Rabies, Possible Exposure	73	3	69	0	151	173	1	6	17	4	89
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	0	0	1	0	0	0	0	0	0	1	0
Salmonellosis	55	10	69	4	234	644	8	62	56	92	146
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	6	0	0	0	3	19	0	0	0	0	7
Shigellosis	8	0	1	0	34	107	0	3	4	2	10
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	0	0	1	0	2	38	1	0	2	1	1
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	1	8	0	0	6	56	0	0	4	5	5
Syphilis (Excluding Congenital)	124	4	45	6	91	1,420	2	9	9	33	50
Syphilis, Congenital	0	0	1	0	1	11	0	0	0	0	1
Tuberculosis	6	0	6	2	11	60	0	1	3	3	13
Typhoid Fever (*Salmonella* Serotype Typhi)	0	0	1	0	1	2	0	0	0	0	1
Varicella (Chickenpox)	11	1	2	1	4	90	0	0	3	4	10
Vibriosis (Excluding Cholera)	2	0	3	0	11	10	0	3	6	2	12
Zika Virus Disease and Infection	0	0	0	0	0	32	0	0	0	0	12

1 County totals exclude 68 Florida Department of Corrections cases.

Appendices

Table 8: Number of Common Reportable Diseases/Conditions by County of Residence, Florida, 2017 (Continued)

Reportable disease/condition	Columbia	DeSoto	Dixie	Duval	Escambia	Flagler	Franklin	Gadsden	Gilchrist	Glades	Gulf
Campylobacteriosis	38	17	5	159	76	26	2	8	5	4	3
Carbon Monoxide Poisoning	0	0	0	0	3	4	0	0	0	0	0
Chlamydia (Excluding Neonatal Conjunctivitis)	346	104	87	6,928	2,126	343	30	387	46	53	35
Ciguatera Fish Poisoning	0	0	0	0	0	0	0	0	0	0	0
Creutzfeldt-Jakob Disease (CJD)	0	0	0	1	0	0	0	0	0	0	0
Cryptosporidiosis	2	0	0	16	3	4	0	1	0	0	0
Cyclosporiasis	0	0	0	3	1	0	0	0	0	0	0
Dengue Fever	0	0	0	0	0	0	0	0	0	0	0
Giardiasis, Acute	2	2	2	34	10	3	1	0	2	1	1
Gonorrhea (Excluding Neonatal Conjunctivitis)	164	24	10	3,241	827	72	19	151	6	2	12
Haemophilus influenzae Invasive Disease in Children <5 Years Old	0	0	0	1	0	0	0	0	0	0	0
Hepatitis A	0	0	0	2	0	0	0	0	0	0	0
Hepatitis B, Acute	5	1	4	32	17	3	0	1	2	0	1
Hepatitis B, Chronic	11	5	8	291	60	11	4	6	2	0	3
Hepatitis B, Pregnant Women	0	0	0	32	9	3	0	0	0	0	1
Hepatitis C, Acute	1	2	0	15	6	1	0	2	0	0	0
Hepatitis C, Chronic (Including Perinatal)	216	38	60	1,826	616	108	34	58	26	15	55
HIV[1]	8	2	1	307	65	20	0	10	0	2	1
Lead Poisoning Cases in Children <6 Years Old	6	3	1	61	7	2	1	6	1	0	2
Lead Poisoning Cases in People >=6 Years Old	3	0	3	94	23	1	0	1	0	0	3
Legionellosis	0	1	0	20	6	4	0	0	0	0	0
Listeriosis	1	0	0	0	2	0	0	0	0	0	0
Lyme Disease	1	1	0	3	0	0	0	1	0	0	1
Malaria	0	1	0	3	2	0	0	0	0	0	0
Meningitis, Bacterial or Mycotic	0	0	0	5	0	0	0	0	0	0	0
Meningococcal Disease	0	0	0	1	0	0	0	0	0	0	0
Mercury Poisoning	0	0	0	2	0	0	0	0	0	0	0
Mumps	0	0	0	7	0	0	0	0	0	0	0
Pertussis	0	0	0	22	13	0	0	0	0	0	0
Pesticide-Related Illness and Injury, Acute	0	0	0	1	0	0	0	0	0	0	0
Rabies, Animal	0	0	1	1	1	0	0	0	0	0	0
Rabies, Possible Exposure	2	3	4	17	140	22	1	2	0	0	0
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	1	0	1	1	1	0	0	0	0	0	0
Salmonellosis	32	7	10	347	81	22	4	9	10	5	9
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	2	2	0	5	0	1	0	0	0	0	0
Shigellosis	5	2	2	78	4	2	2	2	0	0	0
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	0	0	0	9	14	6	0	1	0	0	1
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	1	0	0	15	13	3	4	2	0	0	0
Syphilis (Excluding Congenital)	13	3	1	552	105	26	3	29	2	2	5
Syphilis, Congenital	0	0	0	9	5	0	0	0	0	0	0
Tuberculosis	0	2	2	38	11	3	0	4	0	0	0
Typhoid Fever (*Salmonella* Serotype Typhi)	0	0	0	0	0	0	0	0	0	0	0
Varicella (Chickenpox)	1	1	0	39	9	3	0	6	0	1	2
Vibriosis (Excluding Cholera)	0	0	0	12	8	2	1	3	1	1	2
Zika Virus Disease and Infection	0	0	0	1	0	1	1	0	0	0	0

1 County totals exclude 68 Florida Department of Corrections cases.

Table 8: Number of Common Reportable Diseases/Conditions by County of Residence, Florida, 2017 (Continued)

Reportable disease/condition	Hamilton	Hardee	Hendry	Hernando	Highlands	Hillsborough	Holmes	Indian River	Jackson	Jefferson
Campylobacteriosis	1	8	14	40	9	315	3	41	13	4
Carbon Monoxide Poisoning	0	0	0	2	6	32	0	8	0	0
Chlamydia (Excluding Neonatal Conjunctivitis)	87	102	220	520	336	8,326	95	504	318	69
Ciguatera Fish Poisoning	0	0	0	0	0	3	0	0	0	0
Creutzfeldt-Jakob Disease (CJD)	0	0	0	1	0	2	0	0	0	0
Cryptosporidiosis	0	0	2	2	0	55	1	6	1	0
Cyclosporiasis	0	0	1	0	0	12	0	2	0	0
Dengue Fever	0	0	0	0	0	0	0	0	0	0
Giardiasis, Acute	1	1	0	6	6	73	1	3	2	0
Gonorrhea (Excluding Neonatal Conjunctivitis)	17	15	28	189	70	2,455	24	116	99	15
Haemophilus influenzae Invasive Disease in Children <5 Years Old	0	0	1	0	0	4	0	0	0	0
Hepatitis A	0	0	0	0	1	10	0	2	1	0
Hepatitis B, Acute	0	0	0	35	3	55	0	2	3	0
Hepatitis B, Chronic	4	3	10	21	12	330	1	23	11	0
Hepatitis B, Pregnant Women	0	0	0	2	0	14	0	0	0	0
Hepatitis C, Acute	0	0	2	5	2	35	0	1	1	0
Hepatitis C, Chronic (Including Perinatal)	48	22	11	294	108	1,626	40	146	134	17
HIV[1]	3	1	4	20	6	331	0	11	5	3
Lead Poisoning Cases in Children <6 Years Old	1	4	2	6	15	119	0	9	9	1
Lead Poisoning Cases in People >=6 Years Old	0	1	2	14	21	193	0	6	5	1
Legionellosis	0	0	1	1	1	19	0	13	0	0
Listeriosis	0	0	0	0	1	4	0	1	0	0
Lyme Disease	0	0	0	2	1	12	0	3	0	0
Malaria	0	0	0	0	0	7	0	0	0	0
Meningitis, Bacterial or Mycotic	0	1	0	0	0	6	0	1	0	0
Meningococcal Disease	0	0	0	0	0	0	0	0	0	0
Mercury Poisoning	0	0	0	0	1	3	0	1	0	0
Mumps	0	0	0	1	0	8	0	0	0	0
Pertussis	0	0	2	2	0	45	0	2	0	0
Pesticide-Related Illness and Injury, Acute	0	0	0	0	0	37	0	0	0	0
Rabies, Animal	0	0	0	0	1	3	0	0	1	1
Rabies, Possible Exposure	1	5	2	111	13	125	2	27	2	0
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	0	0	0	0	0	1	0	1	0	0
Salmonellosis	5	9	18	35	39	315	7	38	6	6
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	0	1	0	0	2	16	0	0	0	0
Shigellosis	0	9	24	5	3	165	0	3	2	3
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	0	0	0	0	5	20	0	7	0	1
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	0	3	0	0	3	19	0	3	1	0
Syphilis (Excluding Congenital)	8	1	4	27	18	595	2	30	11	5
Syphilis, Congenital	0	0	0	0	1	3	0	0	0	0
Tuberculosis	0	0	1	3	1	27	0	2	0	0
Typhoid Fever (*Salmonella* Serotype Typhi)	0	0	0	0	0	3	0	0	0	0
Varicella (Chickenpox)	1	1	3	0	0	35	1	10	0	0
Vibriosis (Excluding Cholera)	1	0	0	0	1	21	0	2	0	0
Zika Virus Disease and Infection	0	0	0	0	0	11	0	2	0	0

1 County totals exclude 68 Florida Department of Corrections cases.

Table 8: Number of Common Reportable Diseases/Conditions by County of Residence, Florida, 2017 (Continued)

Reportable disease/condition	Lafayette	Lake	Lee	Leon	Levy	Liberty	Madison	Manatee	Marion	Martin
Campylobacteriosis	7	146	147	49	5	0	3	81	75	50
Carbon Monoxide Poisoning	0	8	47	2	0	0	0	1	16	10
Chlamydia (Excluding Neonatal Conjunctivitis)	15	1,100	2,841	3,344	207	26	82	1,522	1,541	344
Ciguatera Fish Poisoning	0	0	0	0	0	0	0	0	0	0
Creutzfeldt-Jakob Disease (CJD)	0	2	2	0	0	0	0	0	0	0
Cryptosporidiosis	2	25	22	29	1	0	0	9	8	8
Cyclosporiasis	0	3	23	2	0	0	0	5	2	1
Dengue Fever	0	0	0	0	0	0	0	1	0	0
Giardiasis, Acute	0	25	52	27	1	2	3	24	19	4
Gonorrhea (Excluding Neonatal Conjunctivitis)	3	312	771	1,034	50	11	30	480	593	50
Haemophilus influenzae Invasive Disease in Children <5 Years Old	0	0	1	2	1	0	1	0	0	2
Hepatitis A	0	3	12	0	0	0	0	4	1	1
Hepatitis B, Acute	1	13	26	6	0	0	0	9	12	7
Hepatitis B, Chronic	0	58	124	58	12	2	1	64	32	27
Hepatitis B, Pregnant Women	0	1	16	2	0	0	0	5	3	4
Hepatitis C, Acute	0	11	6	3	1	0	0	7	19	4
Hepatitis C, Chronic (Including Perinatal)	25	410	797	230	88	29	25	450	450	219
HIV[1]	1	50	83	65	6	0	2	48	42	12
Lead Poisoning Cases in Children <6 Years Old	0	11	22	13	1	0	1	10	12	4
Lead Poisoning Cases in People >=6 Years Old	0	21	27	15	3	0	0	13	11	5
Legionellosis	0	5	33	0	0	1	0	9	2	2
Listeriosis	0	0	3	0	0	0	0	0	0	1
Lyme Disease	0	3	9	3	0	0	0	12	11	9
Malaria	0	0	3	7	0	0	0	0	1	0
Meningitis, Bacterial or Mycotic	0	0	4	0	0	0	0	3	4	1
Meningococcal Disease	0	0	0	1	0	0	0	0	0	0
Mercury Poisoning	0	0	2	0	0	0	0	0	0	3
Mumps	0	0	0	0	0	0	0	0	0	1
Pertussis	0	6	23	3	0	0	0	4	0	2
Pesticide-Related Illness and Injury, Acute	0	2	0	0	0	0	0	0	0	1
Rabies, Animal	0	1	2	2	0	0	0	0	4	3
Rabies, Possible Exposure	2	66	198	9	1	0	1	66	157	85
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	1	0	0	0	1	1	0	1	0	0
Salmonellosis	0	122	360	65	14	0	3	114	110	79
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	0	5	6	2	1	0	0	8	3	4
Shigellosis	1	16	70	9	1	0	16	18	4	5
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	0	6	2	2	0	0	0	3	2	0
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	0	4	7	13	0	1	0	3	0	2
Syphilis (Excluding Congenital)	3	47	146	76	5	4	1	202	74	21
Syphilis, Congenital	0	0	1	0	0	0	0	2	0	0
Tuberculosis	1	2	22	10	2	0	0	15	5	5
Typhoid Fever (*Salmonella* Serotype Typhi)	0	0	0	1	0	0	0	0	0	0
Varicella (Chickenpox)	0	9	26	2	0	3	1	4	17	9
Vibriosis (Excluding Cholera)	0	2	28	4	0	0	0	7	2	3
Zika Virus Disease and Infection	0	0	1	0	0	0	0	2	1	0

1 County totals exclude 68 Florida Department of Corrections cases.

Table 8: Number of Common Reportable Diseases/Conditions by County of Residence, Florida, 2017 (Continued)

Reportable disease/condition	Miami Dade	Monroe	Nassau	Okaloosa	Okeechobee	Orange	Osceola	Palm Beach	Pasco	Pinellas
Campylobacteriosis	701	29	19	105	17	192	67	230	112	207
Carbon Monoxide Poisoning	98	16	2	1	5	29	8	65	11	15
Chlamydia (Excluding Neonatal Conjunctivitis)	12,271	208	206	1,093	194	9,527	1,434	5,888	1,479	4,188
Ciguatera Fish Poisoning	14	0	0	0	0	0	0	6	0	0
Creutzfeldt-Jakob Disease (CJD)	1	0	1	0	0	2	0	4	1	2
Cryptosporidiosis	44	0	0	2	0	33	3	25	10	40
Cyclosporiasis	5	1	0	1	0	4	0	3	1	6
Dengue Fever	17	0	1	0	0	0	0	2	0	0
Giardiasis, Acute	140	7	6	6	1	51	13	58	22	45
Gonorrhea (Excluding Neonatal Conjunctivitis)	3,541	38	57	327	30	3,101	357	1,378	448	1,574
Haemophilus influenzae Invasive Disease in Children <5 Years Old	6	2	0	0	0	3	1	3	2	0
Hepatitis A	132	1	0	2	0	10	5	16	9	1
Hepatitis B, Acute	46	1	7	11	3	29	8	53	66	51
Hepatitis B, Chronic	815	23	16	31	9	412	60	448	109	231
Hepatitis B, Pregnant Women	33	4	1	9	1	56	8	50	10	25
Hepatitis C, Acute	16	1	3	2	7	29	9	38	22	30
Hepatitis C, Chronic (Including Perinatal)	2,291	98	101	281	92	1,479	402	1,725	974	1,620
HIV[1]	1,195	17	6	13	6	512	91	323	44	183
Lead Poisoning Cases in Children <6 Years Old	165	4	1	2	3	23	8	53	14	21
Lead Poisoning Cases in People >=6 Years Old	250	1	1	4	12	43	8	83	35	78
Legionellosis	43	3	2	2	1	46	2	32	10	23
Listeriosis	9	1	0	0	0	2	1	9	0	0
Lyme Disease	21	2	1	7	0	8	6	15	4	17
Malaria	6	1	0	0	0	3	1	4	1	0
Meningitis, Bacterial or Mycotic	12	0	0	2	1	1	1	5	4	7
Meningococcal Disease	8	0	0	0	0	3	1	0	1	0
Mercury Poisoning	2	0	0	0	0	1	0	8	1	1
Mumps	10	0	0	0	0	4	1	5	1	2
Pertussis	38	0	6	3	0	27	5	27	11	36
Pesticide-Related Illness and Injury, Acute	4	0	0	1	0	0	0	9	0	0
Rabies, Animal	2	0	1	4	0	3	1	5	4	3
Rabies, Possible Exposure	285	12	9	81	7	86	14	277	141	140
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	2	0	0	5	0	1	0	0	0	1
Salmonellosis	822	38	54	72	14	349	93	544	132	278
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	37	2	2	0	0	8	1	13	3	9
Shigellosis	124	2	1	2	0	129	17	87	32	26
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	28	0	2	1	0	16	3	14	2	5
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	55	1	1	0	7	25	3	29	9	15
Syphilis (Excluding Congenital)	2,364	25	11	24	3	918	124	452	54	377
Syphilis, Congenital	31	0	0	0	0	6	2	4	2	4
Tuberculosis	99	1	1	4	0	55	2	44	10	28
Typhoid Fever (*Salmonella* Serotype Typhi)	2	0	0	0	0	0	0	6	0	1
Varicella (Chickenpox)	68	7	1	10	3	45	13	43	11	24
Vibriosis (Excluding Cholera)	19	4	3	6	1	8	0	18	3	11
Zika Virus Disease and Infection	167	4	0	0	0	19	0	9	0	2

1 County totals exclude 68 Florida Department of Corrections cases.

Appendices

Table 8: Number of Common Reportable Diseases/Conditions by County of Residence, Florida, 2017 (Continued)

Reportable disease/condition	Polk	Putnam	Santa Rosa	Sarasota	Seminole	St. Johns	St. Lucie	Sumter	Suwannee	Taylor	Union
Campylobacteriosis	192	6	39	56	61	51	48	25	17	12	5
Carbon Monoxide Poisoning	40	0	0	6	9	3	7	0	0	2	0
Chlamydia (Excluding Neonatal Conjunctivitis)	3,269	342	517	1,148	1,816	698	1,178	221	210	85	87
Ciguatera Fish Poisoning	0	0	0	0	0	0	0	0	0	0	0
Creutzfeldt-Jakob Disease (CJD)	0	0	0	2	3	1	0	0	0	0	0
Cryptosporidiosis	30	0	2	8	7	7	10	6	2	0	0
Cyclosporiasis	4	0	3	5	3	0	2	0	0	0	0
Dengue Fever	0	0	0	0	1	0	0	0	0	0	0
Giardiasis, Acute	49	2	2	40	14	14	11	3	4	0	1
Gonorrhea (Excluding Neonatal Conjunctivitis)	1,020	111	120	371	522	137	255	96	60	36	21
Haemophilus influenzae Invasive Disease in Children <5 Years Old	0	0	0	1	0	0	0	0	0	1	0
Hepatitis A	6	0	0	2	4	0	1	2	0	0	0
Hepatitis B, Acute	10	9	4	6	12	3	21	3	7	0	3
Hepatitis B, Chronic	97	21	22	60	74	33	79	13	8	1	23
Hepatitis B, Pregnant Women	7	0	1	5	2	4	17	0	0	1	0
Hepatitis C, Acute	9	2	8	8	3	2	19	3	0	1	0
Hepatitis C, Chronic (Including Perinatal)	552	154	256	572	311	306	492	291	63	35	323
HIV[1]	98	5	12	37	79	23	66	6	6	2	2
Lead Poisoning Cases in Children <6 Years Old	44	6	3	6	10	2	18	4	1	2	1
Lead Poisoning Cases in People >=6 Years Old	24	6	5	19	5	3	14	44	3	3	0
Legionellosis	20	4	3	13	10	1	7	3	2	0	0
Listeriosis	0	0	0	3	1	0	0	1	0	0	0
Lyme Disease	6	0	1	5	4	2	4	2	0	0	0
Malaria	1	0	1	0	1	1	1	0	0	0	0
Meningitis, Bacterial or Mycotic	9	1	2	3	1	2	4	3	0	0	0
Meningococcal Disease	1	0	0	0	0	1	0	0	0	0	0
Mercury Poisoning	0	0	0	1	0	1	3	0	0	0	0
Mumps	1	0	0	0	2	3	1	1	0	0	0
Pertussis	12	0	2	4	6	1	2	1	0	1	0
Pesticide-Related Illness and Injury, Acute	1	0	0	0	0	2	1	0	0	0	0
Rabies, Animal	2	0	5	0	4	0	0	0	2	0	0
Rabies, Possible Exposure	213	1	65	56	71	81	103	29	15	1	0
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	1	0	1	0	0	0	1	1	0	0	0
Salmonellosis	234	35	47	95	76	113	80	22	13	14	8
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	10	0	0	1	2	0	2	2	0	0	0
Shigellosis	129	0	0	7	35	8	4	5	6	55	0
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	14	1	5	1	7	0	4	0	0	1	0
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	8	1	3	0	2	1	11	1	0	0	0
Syphilis (Excluding Congenital)	146	12	33	97	15	101	97	10	5	6	41
Syphilis, Congenital	3	0	0	1	2	1	0	0	0	1	0
Tuberculosis	10	2	2	8	8	2	3	4	0	0	1
Typhoid Fever (*Salmonella* Serotype Typhi)	0	0	0	0	0	2	0	0	0	0	0
Varicella (Chickenpox)	41	0	0	4	24	6	7	20	2	1	0
Vibriosis (Excluding Cholera)	14	0	3	13	1	6	1	3	2	0	0
Zika Virus Disease and Infection	4	0	0	0	4	2	0	0	0	0	0

1 County totals exclude 68 Florida Department of Corrections cases.

Table 8: Number of Common Reportable Diseases/Conditions by County of Residence, Florida, 2017 (Continued)

Reportable disease/condition	Volusia	Wakulla	Walton	Washington
Campylobacteriosis	79	10	12	7
Carbon Monoxide Poisoning	19	0	0	0
Chlamydia (Excluding Neonatal Conjunctivitis)	2,127	169	250	124
Ciguatera Fish Poisoning	0	0	0	0
Creutzfeldt-Jakob Disease (CJD)	0	0	0	0
Cryptosporidiosis	12	5	1	0
Cyclosporiasis	7	0	1	0
Dengue Fever	0	0	0	0
Giardiasis, Acute	16	0	2	0
Gonorrhea (Excluding Neonatal Conjunctivitis)	884	42	87	30
Haemophilus influenzae Invasive Disease in Children <5 Years Old	0	0	0	0
Hepatitis A	3	0	0	1
Hepatitis B, Acute	24	0	5	2
Hepatitis B, Chronic	77	2	10	8
Hepatitis B, Pregnant Women	3	0	1	0
Hepatitis C, Acute	9	0	1	0
Hepatitis C, Chronic (Including Perinatal)	884	55	83	164
HIV[1]	82	3	3	2
Lead Poisoning Cases in Children <6 Years Old	7	0	0	0
Lead Poisoning Cases in People >=6 Years Old	12	0	2	2
Legionellosis	12	0	1	1
Listeriosis	1	0	0	0
Lyme Disease	4	0	1	0
Malaria	1	0	0	0
Meningitis, Bacterial or Mycotic	1	0	2	1
Meningococcal Disease	0	0	0	0
Mercury Poisoning	0	0	0	0
Mumps	0	0	0	0
Pertussis	6	3	1	0
Pesticide-Related Illness and Injury, Acute	0	0	0	0
Rabies, Animal	0	0	0	1
Rabies, Possible Exposure	135	3	0	3
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	0	0	0	0
Salmonellosis	126	9	23	5
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	0	0	2	0
Shigellosis	14	4	0	0
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	13	0	8	1
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	17	1	1	0
Syphilis (Excluding Congenital)	106	1	8	15
Syphilis, Congenital	1	0	0	0
Tuberculosis	2	1	0	1
Typhoid Fever (*Salmonella* Serotype Typhi)	0	0	0	0
Varicella (Chickenpox)	6	2	3	5
Vibriosis (Excluding Cholera)	7	0	1	0
Zika Virus Disease and Infection	1	0	1	0

1 County totals exclude 68 Florida Department of Corrections cases.

Appendices

Table 9: Rate Per 100,000 Population of Common Reportable Diseases/Conditions by County of Residence, Florida, 2017

Reportable disease/condition	Alachua	Baker	Bay	Bradford	Brevard	Broward	Calhoun	Charlotte	Citrus	Clay	Collier
Campylobacteriosis	20.8	--	16.8	--	18.2	13.5	--	25.9	22.8	21.8	24.0
Carbon Monoxide Poisoning	--	--	--	--	--	2.8	--	--	--	--	--
Chlamydia (Excluding Neonatal Conjunctivitis)	845.2	480.3	458.2	381.2	360.5	599.0	525.3	182.2	237.4	381.9	302.4
Ciguatera Fish Poisoning	--	--	--	--	--	--	--	--	--	--	--
Creutzfeldt-Jakob Disease (CJD)	--	--	--	--	--	--	--	--	--	--	--
Cryptosporidiosis	--	--	--	--	6.4	1.9	--	--	--	--	--
Cyclosporiasis	--	--	--	--	--	--	--	--	--	--	--
Dengue Fever	--	--	--	--	--	--	--	--	--	--	--
Giardiasis, Acute	--	--	--	--	--	5.1	--	--	--	--	--
Gonorrhea (Excluding Neonatal Conjunctivitis)	238.3	181.0	179.9	179.8	105.9	209.1	--	48.9	73.8	112.4	39.3
Haemophilus influenzae Invasive Disease in Children <5 Years Old	--	--	--	--	--	--	--	--	--	--	--
Hepatitis A	--	--	--	--	--	1.9	--	--	--	--	--
Hepatitis B, Acute	--	--	--	--	--	3.0	--	--	13.8	--	--
Hepatitis B, Chronic	22.4	--	20.1	--	15.9	36.3	--	20.7	17.3	15.7	19.5
Hepatitis B, Pregnant Women	--	--	--	--	--	28.4	--	--	--	--	--
Hepatitis C, Acute	--	--	--	--	--	1.4	--	--	--	--	--
Hepatitis C, Chronic (Including Perinatal)	69.4	177.3	208.4	197.8	125.1	116.0	163.7	121.9	154.6	143.3	72.2
HIV[1]	21.6	--	18.4	--	10.6	37.9	--	--	--	9.5	13.4
Lead Poisoning Cases in Children <6 Years Old	--	--	--	--	--	37.8	--	--	--	--	--
Lead Poisoning Cases in People >=6 Years Old	--	--	--	--	8.3	3.8	--	--	--	--	--
Legionellosis	--	--	--	--	--	2.4	--	--	--	--	--
Listeriosis	--	--	--	--	--	--	--	--	--	--	--
Lyme Disease	--	--	--	--	--	--	--	--	--	--	--
Malaria	--	--	--	--	--	--	--	--	--	--	--
Meningitis, Bacterial or Mycotic	--	--	--	--	--	--	--	--	--	--	--
Meningococcal Disease	--	--	--	--	--	--	--	--	--	--	--
Mercury Poisoning	--	--	--	--	--	--	--	--	--	--	--
Mumps	--	--	--	--	--	--	--	--	--	--	--
Pertussis	--	--	--	--	--	1.3	--	--	--	--	--
Pesticide-Related Illness and Injury, Acute	--	--	--	--	--	--	--	--	--	--	--
Rabies, Animal	--	--	--	--	--	--	--	--	--	--	--
Rabies, Possible Exposure	28.1	--	38.6	--	26.2	9.2	--	--	--	--	24.8
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	--	--	--	--	--	--	--	--	--	--	--
Salmonellosis	21.2	--	38.6	--	40.6	34.2	--	35.6	38.6	43.7	40.7
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	--	--	--	--	--	--	--	--	--	--	--
Shigellosis	--	--	--	--	5.9	5.7	--	--	--	--	--
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	--	--	--	--	--	2.0	--	--	--	--	--
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	--	--	--	--	--	3.0	--	--	--	--	--
Syphilis (Excluding Congenital)	47.8	--	25.1	--	15.8	75.3	--	--	--	15.7	13.9
Syphilis, Congenital	--	--	--	--	--	--	--	--	--	--	--
Tuberculosis	--	--	--	--	--	3.2	--	--	--	--	--
Typhoid Fever (*Salmonella* Serotype Typhi)	--	--	--	--	--	--	--	--	--	--	--
Varicella (Chickenpox)	--	--	--	--	--	4.8	--	--	--	--	--
Vibriosis (Excluding Cholera)	--	--	--	--	--	--	--	--	--	--	--
Zika Virus Disease and Infection	--	--	--	--	--	1.7	--	--	--	--	--

-- Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table.

1 County totals exclude 68 Florida Department of Corrections cases.

Appendices

Table 9: Rate Per 100,000 Population of Common Reportable Diseases/Conditions by County of Residence, Florida, 2017 (Continued)

Reportable disease/condition	Columbia	DeSoto	Dixie	Duval	Escambia	Flagler	Franklin	Gadsden	Gilchrist	Glades	Gulf
Campylobacteriosis	54.9	--	--	16.9	24.3	24.5	--	--	--	--	--
Carbon Monoxide Poisoning	--	--	--	--	--	--	--	--	--	--	--
Chlamydia (Excluding Neonatal Conjunctivitis)	499.6	293.3	510.6	734.8	679.6	323.4	249.9	794.8	271.0	399.6	206.4
Ciguatera Fish Poisoning	--	--	--	--	--	--	--	--	--	--	--
Creutzfeldt-Jakob Disease (CJD)	--	--	--	--	--	--	--	--	--	--	--
Cryptosporidiosis	--	--	--	--	--	--	--	--	--	--	--
Cyclosporiasis	--	--	--	--	--	--	--	--	--	--	--
Dengue Fever	--	--	--	--	--	--	--	--	--	--	--
Giardiasis, Acute	--	--	--	3.6	--	--	--	--	--	--	--
Gonorrhea (Excluding Neonatal Conjunctivitis)	236.8	67.7	--	343.7	264.4	67.9	--	310.1	--	--	--
Haemophilus influenzae Invasive Disease in Children <5 Years Old	--	--	--	--	--	--	--	--	--	--	--
Hepatitis A	--	--	--	--	--	--	--	--	--	--	--
Hepatitis B, Acute	--	--	--	3.4	--	--	--	--	--	--	--
Hepatitis B, Chronic	--	--	--	30.9	19.2	--	--	--	--	--	--
Hepatitis B, Pregnant Women	--	--	--	16.2	--	--	--	--	--	--	--
Hepatitis C, Acute	--	--	--	--	--	--	--	--	--	--	--
Hepatitis C, Chronic (Including Perinatal)	311.9	107.2	352.1	193.7	196.9	101.8	283.2	119.1	153.1	--	324.3
HIV[1]	--	--	--	32.6	20.8	18.9	--	--	--	--	--
Lead Poisoning Cases in Children <6 Years Old	--	--	--	80.6	--	--	--	--	--	--	--
Lead Poisoning Cases in People >=6 Years Old	--	--	--	10.8	7.9	--	--	--	--	--	--
Legionellosis	--	--	--	2.1	--	--	--	--	--	--	--
Listeriosis	--	--	--	--	--	--	--	--	--	--	--
Lyme Disease	--	--	--	--	--	--	--	--	--	--	--
Malaria	--	--	--	--	--	--	--	--	--	--	--
Meningitis, Bacterial or Mycotic	--	--	--	--	--	--	--	--	--	--	--
Meningococcal Disease	--	--	--	--	--	--	--	--	--	--	--
Mercury Poisoning	--	--	--	--	--	--	--	--	--	--	--
Mumps	--	--	--	--	--	--	--	--	--	--	--
Pertussis	--	--	--	2.3	--	--	--	--	--	--	--
Pesticide-Related Illness and Injury, Acute	--	--	--	--	--	--	--	--	--	--	--
Rabies, Animal	--	--	--	--	--	--	--	--	--	--	--
Rabies, Possible Exposure	--	--	--	--	44.8	20.7	--	--	--	--	--
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	--	--	--	--	--	--	--	--	--	--	--
Salmonellosis	46.2	--	--	36.8	25.9	20.7	--	--	--	--	--
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	--	--	--	--	--	--	--	--	--	--	--
Shigellosis	--	--	--	8.3	--	--	--	--	--	--	--
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	--	--	--	--	--	--	--	--	--	--	--
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	--	--	--	--	--	--	--	--	--	--	--
Syphilis (Excluding Congenital)	--	--	--	58.5	33.6	24.5	--	59.6	--	--	--
Syphilis, Congenital	--	--	--	--	--	--	--	--	--	--	--
Tuberculosis	--	--	--	4.0	--	--	--	--	--	--	--
Typhoid Fever (*Salmonella* Serotype Typhi)	--	--	--	--	--	--	--	--	--	--	--
Varicella (Chickenpox)	--	--	--	4.1	--	--	--	--	--	--	--
Vibriosis (Excluding Cholera)	--	--	--	--	--	--	--	--	--	--	--
Zika Virus Disease and Infection	--	--	--	--	--	--	--	--	--	--	--

-- Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table.

1 County totals exclude 68 Florida Department of Corrections cases.

Table 9: Rate Per 100,000 Population of Common Reportable Diseases/Conditions by County of Residence, Florida, 2017 (Continued)

Reportable disease/condition	Hamilton	Hardee	Hendry	Hernando	Highlands	Hillsborough	Holmes	Indian River	Jackson	Jefferson
Campylobacteriosis	--	--	--	21.9	--	22.7	--	27.3	--	--
Carbon Monoxide Poisoning	--	--	--	--	--	2.3	--	--	--	--
Chlamydia (Excluding Neonatal Conjunctivitis)	589.9	368.6	568.8	284.1	327.5	599.8	471.9	336.2	632.2	474.9
Ciguatera Fish Poisoning	--	--	--	--	--	--	--	--	--	--
Creutzfeldt-Jakob Disease (CJD)	--	--	--	--	--	--	--	--	--	--
Cryptosporidiosis	--	--	--	--	--	4.0	--	--	--	--
Cyclosporiasis	--	--	--	--	--	--	--	--	--	--
Dengue Fever	--	--	--	--	--	--	--	--	--	--
Giardiasis, Acute	--	--	--	--	--	5.3	--	--	--	--
Gonorrhea (Excluding Neonatal Conjunctivitis)	--	--	72.4	103.2	68.2	176.9	119.2	77.4	196.8	--
Haemophilus influenzae Invasive Disease in Children <5 Years Old	--	--	--	--	--	--	--	--	--	--
Hepatitis A	--	--	--	--	--	--	--	--	--	--
Hepatitis B, Acute	--	--	--	19.1	--	4.0	--	--	--	--
Hepatitis B, Chronic	--	--	--	11.5	--	23.8	--	15.3	--	--
Hepatitis B, Pregnant Women	--	--	--	--	--	--	--	--	--	--
Hepatitis C, Acute	--	--	--	--	--	2.5	--	--	--	--
Hepatitis C, Chronic (Including Perinatal)	325.4	79.5	--	160.6	105.3	117.1	198.7	97.4	266.4	--
HIV[1]	--	--	--	10.9	--	23.8	--	--	--	--
Lead Poisoning Cases in Children <6 Years Old	--	--	--	--	--	111.7	--	--	--	--
Lead Poisoning Cases in People >=6 Years Old	--	--	--	--	21.7	15.1	--	--	--	--
Legionellosis	--	--	--	--	--	--	--	--	--	--
Listeriosis	--	--	--	--	--	--	--	--	--	--
Lyme Disease	--	--	--	--	--	--	--	--	--	--
Malaria	--	--	--	--	--	--	--	--	--	--
Meningitis, Bacterial or Mycotic	--	--	--	--	--	--	--	--	--	--
Meningococcal Disease	--	--	--	--	--	--	--	--	--	--
Mercury Poisoning	--	--	--	--	--	--	--	--	--	--
Mumps	--	--	--	--	--	--	--	--	--	--
Pertussis	--	--	--	--	--	3.2	--	--	--	--
Pesticide-Related Illness and Injury, Acute	--	--	--	--	--	2.7	--	--	--	--
Rabies, Animal	--	--	--	--	--	--	--	--	--	--
Rabies, Possible Exposure	--	--	--	60.6	--	9.0	--	18.0	--	--
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	--	--	--	--	--	--	--	--	--	--
Salmonellosis	--	--	--	19.1	38.0	22.7	--	25.3	--	--
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	--	--	--	--	--	--	--	--	--	--
Shigellosis	--	--	62.1	--	--	11.9	--	--	--	--
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	--	--	--	--	--	1.4	--	--	--	--
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	--	--	--	--	--	--	--	--	--	--
Syphilis (Excluding Congenital)	--	--	--	14.7	--	42.9	--	20.0	--	--
Syphilis, Congenital	--	--	--	--	--	--	--	--	--	--
Tuberculosis	--	--	--	--	--	1.9	--	--	--	--
Typhoid Fever (*Salmonella* Serotype Typhi)	--	--	--	--	--	--	--	--	--	--
Varicella (Chickenpox)	--	--	--	--	--	2.5	--	--	--	--
Vibriosis (Excluding Cholera)	--	--	--	--	--	1.5	--	--	--	--
Zika Virus Disease and Infection	--	--	--	--	--	--	--	--	--	--

-- Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table.

1 County totals exclude 68 Florida Department of Corrections cases.

Table 9: Rate Per 100,000 Population of Common Reportable Diseases/Conditions by County of Residence, Florida, 2017 (Continued)

Reportable disease/condition	Lafayette	Lake	Lee	Leon	Levy	Liberty	Madison	Manatee	Marion	Martin
Campylobacteriosis	--	43.8	21.0	16.8	--	--	--	22.1	21.3	32.8
Carbon Monoxide Poisoning	--	--	6.7	--	--	--	--	--	--	--
Chlamydia (Excluding Neonatal Conjunctivitis)	--	329.7	405.4	1,145.7	507.0	294.2	425.0	414.6	437.7	225.8
Ciguatera Fish Poisoning	--	--	--	--	--	--	--	--	--	--
Creutzfeldt-Jakob Disease (CJD)	--	--	--	--	--	--	--	--	--	--
Cryptosporidiosis	--	7.5	3.1	9.9	--	--	--	--	--	--
Cyclosporiasis	--	--	3.3	--	--	--	--	--	--	--
Dengue Fever	--	--	--	--	--	--	--	--	--	--
Giardiasis, Acute	--	7.5	7.4	9.3	--	--	--	6.5	--	--
Gonorrhea (Excluding Neonatal Conjunctivitis)	--	93.5	110.0	354.3	122.5	--	155.5	130.7	168.4	32.8
Haemophilus influenzae Invasive Disease in Children <5 Years Old	--	--	--	--	--	--	--	--	--	--
Hepatitis A	--	--	--	--	--	--	--	--	--	--
Hepatitis B, Acute	--	--	3.7	--	--	--	--	--	--	--
Hepatitis B, Chronic	--	17.4	17.7	19.9	--	--	--	17.4	9.1	17.7
Hepatitis B, Pregnant Women	--	--	--	--	--	--	--	--	--	--
Hepatitis C, Acute	--	--	--	--	--	--	--	--	--	--
Hepatitis C, Chronic (Including Perinatal)	289.0	122.9	113.7	78.8	215.5	328.1	129.6	122.6	127.8	143.8
HIV[1]	--	15.0	11.8	22.3	--	--	--	13.1	11.9	--
Lead Poisoning Cases in Children <6 Years Old	--	--	54.3	--	--	--	--	--	--	--
Lead Poisoning Cases in People >=6 Years Old	--	6.7	4.1	--	--	--	--	--	--	--
Legionellosis	--	--	4.7	--	--	--	--	--	--	--
Listeriosis	--	--	--	--	--	--	--	--	--	--
Lyme Disease	--	--	--	--	--	--	--	--	--	--
Malaria	--	--	--	--	--	--	--	--	--	--
Meningitis, Bacterial or Mycotic	--	--	--	--	--	--	--	--	--	--
Meningococcal Disease	--	--	--	--	--	--	--	--	--	--
Mercury Poisoning	--	--	--	--	--	--	--	--	--	--
Mumps	--	--	--	--	--	--	--	--	--	--
Pertussis	--	--	3.3	--	--	--	--	--	--	--
Pesticide-Related Illness and Injury, Acute	--	--	--	--	--	--	--	--	--	--
Rabies, Animal	--	--	--	--	--	--	--	--	--	--
Rabies, Possible Exposure	--	19.8	28.3	--	--	--	--	18.0	44.6	55.8
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	--	--	--	--	--	--	--	--	--	--
Salmonellosis	--	36.6	51.4	22.3	--	--	--	31.1	31.2	51.9
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	--	--	--	--	--	--	--	--	--	--
Shigellosis	--	--	10.0	--	--	--	--	--	--	--
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	--	--	--	--	--	--	--	--	--	--
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	--	--	--	--	--	--	--	--	--	--
Syphilis (Excluding Congenital)	--	14.1	20.8	26.0	--	--	--	55.0	21.0	13.8
Syphilis, Congenital	--	--	--	--	--	--	--	--	--	--
Tuberculosis	--	--	3.1	--	--	--	--	--	--	--
Typhoid Fever (*Salmonella* Serotype Typhi)	--	--	--	--	--	--	--	--	--	--
Varicella (Chickenpox)	--	--	3.7	--	--	--	--	--	--	--
Vibriosis (Excluding Cholera)	--	--	4.0	--	--	--	--	--	--	--
Zika Virus Disease and Infection	--	--	--	--	--	--	--	--	--	--

-- Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table.

1 County totals exclude 68 Florida Department of Corrections cases.

Table 9: Rate Per 100,000 Population of Common Reportable Diseases/Conditions by County of Residence, Florida, 2017 (Continued)

Reportable disease/condition	Miami Dade	Monroe	Nassau	Okaloosa	Okeechobee	Orange	Osceola	Palm Beach	Pasco	Pinellas
Campylobacteriosis	25.4	37.5	--	53.9	--	14.6	19.7	16.3	22.1	21.5
Carbon Monoxide Poisoning	3.6	--	--	--	--	2.2	--	4.6	--	--
Chlamydia (Excluding Neonatal Conjunctivitis)	445.4	269.1	258.8	561.1	467.8	723.0	422.4	417.3	291.7	435.7
Ciguatera Fish Poisoning	--	--	--	--	--	--	--	--	--	--
Creutzfeldt-Jakob Disease (CJD)	--	--	--	--	--	--	--	--	--	--
Cryptosporidiosis	1.6	--	--	--	--	2.5	--	1.8	--	4.2
Cyclosporiasis	--	--	--	--	--	--	--	--	--	--
Dengue Fever	--	--	--	--	--	--	--	--	--	--
Giardiasis, Acute	5.1	--	--	--	--	3.9	--	4.1	4.3	4.7
Gonorrhea (Excluding Neonatal Conjunctivitis)	128.5	49.2	71.6	167.9	72.3	235.3	105.2	97.7	88.3	163.7
Haemophilus influenzae Invasive Disease in Children <5 Years Old	--	--	--	--	--	--	--	--	--	--
Hepatitis A	4.8	--	--	--	--	--	--	--	--	--
Hepatitis B, Acute	1.7	--	--	--	--	2.2	--	3.8	13.0	5.3
Hepatitis B, Chronic	29.6	29.8	--	15.9	--	31.3	17.7	31.7	21.5	24.0
Hepatitis B, Pregnant Women	6.0	--	--	--	--	18.6	--	20.8	--	15.8
Hepatitis C, Acute	--	--	--	--	--	2.2	--	2.7	4.3	3.1
Hepatitis C, Chronic (Including Perinatal)	83.2	126.8	126.9	144.2	221.9	112.2	118.4	122.2	192.1	168.5
HIV[1]	43.4	--	--	--	--	38.9	26.8	22.9	8.7	19.0
Lead Poisoning Cases in Children <6 Years Old	86.6	--	--	--	--	23.1	--	60.3	--	40.4
Lead Poisoning Cases in People >=6 Years Old	9.7	--	--	--	--	3.5	--	6.3	7.4	8.6
Legionellosis	1.6	--	--	--	--	3.5	--	2.3	--	2.4
Listeriosis	--	--	--	--	--	--	--	--	--	--
Lyme Disease	0.8	--	--	--	--	--	--	--	--	--
Malaria	--	--	--	--	--	--	--	--	--	--
Meningitis, Bacterial or Mycotic	--	--	--	--	--	--	--	--	--	--
Meningococcal Disease	--	--	--	--	--	--	--	--	--	--
Mercury Poisoning	--	--	--	--	--	--	--	--	--	--
Mumps	--	--	--	--	--	--	--	--	--	--
Pertussis	1.4	--	--	--	--	2.0	--	1.9	--	3.7
Pesticide-Related Illness and Injury, Acute	--	--	--	--	--	--	--	--	--	--
Rabies, Animal	--	--	--	--	--	--	--	--	--	--
Rabies, Possible Exposure	10.3	--	--	41.6	--	6.5	--	19.6	27.8	14.6
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	--	--	--	--	--	--	--	--	--	--
Salmonellosis	29.8	49.2	67.8	37.0	--	26.5	27.4	38.6	26.0	28.9
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	1.3	--	--	--	--	--	--	--	--	--
Shigellosis	4.5	--	--	--	--	9.8	--	6.2	6.3	2.7
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	1.0	--	--	--	--	--	--	--	--	--
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	2.0	--	--	--	--	1.9	--	2.1	--	--
Syphilis (Excluding Congenital)	85.8	32.3	--	12.3	--	69.7	36.5	32.0	10.6	39.2
Syphilis, Congenital	1.1	--	--	--	--	--	--	--	--	--
Tuberculosis	3.6	--	--	--	--	4.2	--	3.1	--	2.9
Typhoid Fever (*Salmonella* Serotype Typhi)	--	--	--	--	--	--	--	--	--	--
Varicella (Chickenpox)	2.5	--	--	--	--	3.4	--	3.0	--	2.5
Vibriosis (Excluding Cholera)	--	--	--	--	--	--	--	--	--	--
Zika Virus Disease and Infection	6.1	--	--	--	--	--	--	--	--	--

-- Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table.

1 County totals exclude 68 Florida Department of Corrections cases.

Table 9: Rate Per 100,000 Population of Common Reportable Diseases/Conditions by County of Residence, Florida, 2017 (Continued)

Reportable disease/condition	Polk	Putnam	Santa Rosa	Sarasota	Seminole	St. Johns	St. Lucie	Sumter	Suwannee	Taylor	Union
Campylobacteriosis	28.9	--	22.7	13.7	13.3	22.2	16.0	20.2	--	--	--
Carbon Monoxide Poisoning	6.0	--	--	--	--	--	--	--	--	--	--
Chlamydia (Excluding Neonatal Conjunctivitis)	492.3	468.1	300.8	281.7	397.3	304.4	392.7	178.3	471.7	382.5	547.3
Ciguatera Fish Poisoning	--	--	--	--	--	--	--	--	--	--	--
Creutzfeldt-Jakob Disease (CJD)	--	--	--	--	--	--	--	--	--	--	--
Cryptosporidiosis	4.5	--	--	--	--	--	--	--	--	--	--
Cyclosporiasis	--	--	--	--	--	--	--	--	--	--	--
Dengue Fever	--	--	--	--	--	--	--	--	--	--	--
Giardiasis, Acute	7.4	--	--	9.8	--	--	--	--	--	--	--
Gonorrhea (Excluding Neonatal Conjunctivitis)	153.6	151.9	69.8	91.0	114.2	59.8	85.0	77.5	134.8	162.0	132.1
Haemophilus influenzae Invasive Disease in Children <5 Years Old	--	--	--	--	--	--	--	--	--	--	--
Hepatitis A	--	--	--	--	--	--	--	--	--	--	--
Hepatitis B, Acute	--	--	--	--	--	--	7.0	--	--	--	--
Hepatitis B, Chronic	14.6	28.7	12.8	14.7	16.2	14.4	26.3	--	--	--	144.7
Hepatitis B, Pregnant Women	--	--	--	--	--	--	--	--	--	--	--
Hepatitis C, Acute	--	--	--	--	--	--	--	--	--	--	--
Hepatitis C, Chronic (Including Perinatal)	83.1	210.8	149.0	140.4	68.0	133.5	164.0	234.8	141.5	157.5	2,032.0
HIV[1]	14.8	--	--	9.1	17.3	10.0	22.0	--	--	--	--
Lead Poisoning Cases in Children <6 Years Old	92.9	--	--	--	--	--	--	--	--	--	--
Lead Poisoning Cases in People >=6 Years Old	3.9	--	--	--	--	--	--	36.4	--	--	--
Legionellosis	3.0	--	--	--	--	--	--	--	--	--	--
Listeriosis	--	--	--	--	--	--	--	--	--	--	--
Lyme Disease	--	--	--	--	--	--	--	--	--	--	--
Malaria	--	--	--	--	--	--	--	--	--	--	--
Meningitis, Bacterial or Mycotic	--	--	--	--	--	--	--	--	--	--	--
Meningococcal Disease	--	--	--	--	--	--	--	--	--	--	--
Mercury Poisoning	--	--	--	--	--	--	--	--	--	--	--
Mumps	--	--	--	--	--	--	--	--	--	--	--
Pertussis	--	--	--	--	--	--	--	--	--	--	--
Pesticide-Related Illness and Injury, Acute	--	--	--	--	--	--	--	--	--	--	--
Rabies, Animal	--	--	--	--	--	--	--	--	--	--	--
Rabies, Possible Exposure	32.1	--	37.8	13.7	15.5	35.3	34.3	23.4	--	--	--
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	--	--	--	--	--	--	--	--	--	--	--
Salmonellosis	35.2	47.9	27.3	23.3	16.6	49.3	26.7	17.8	--	--	--
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	--	--	--	--	--	--	--	--	--	--	--
Shigellosis	19.4	--	--	--	7.7	--	--	--	--	247.5	--
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	--	--	--	--	--	--	--	--	--	--	--
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	--	--	--	--	--	--	--	--	--	--	--
Syphilis (Excluding Congenital)	22.0	--	19.2	23.8	--	44.1	32.3	--	--	--	257.9
Syphilis, Congenital	--	--	--	--	--	--	--	--	--	--	--
Tuberculosis	--	--	--	--	--	--	--	--	--	--	--
Typhoid Fever (*Salmonella* Serotype Typhi)	--	--	--	--	--	--	--	--	--	--	--
Varicella (Chickenpox)	6.2	--	--	--	5.3	--	--	16.1	--	--	--
Vibriosis (Excluding Cholera)	--	--	--	--	--	--	--	--	--	--	--
Zika Virus Disease and Infection	--	--	--	--	--	--	--	--	--	--	--

-- Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table.

1 County totals exclude 68 Florida Department of Corrections cases.

Table 9: Rate Per 100,000 Population of Common Reportable Diseases/Conditions by County of Residence, Florida, 2017 (Continued)

Reportable disease/condition	Volusia	Wakulla	Walton	Washington
Campylobacteriosis	15.0	--	--	--
Carbon Monoxide Poisoning	--	--	--	--
Chlamydia (Excluding Neonatal Conjunctivitis)	405.0	525.9	380.4	497.3
Ciguatera Fish Poisoning	--	--	--	--
Creutzfeldt-Jakob Disease (CJD)	--	--	--	--
Cryptosporidiosis	--	--	--	--
Cyclosporiasis	--	--	--	--
Dengue Fever	--	--	--	--
Giardiasis, Acute	--	--	--	--
Gonorrhea (Excluding Neonatal Conjunctivitis)	168.3	130.7	132.4	120.3
Haemophilus influenzae Invasive Disease in Children <5 Years Old	--	--	--	--
Hepatitis A	--	--	--	--
Hepatitis B, Acute	4.6	--	--	--
Hepatitis B, Chronic	14.7	--	--	--
Hepatitis B, Pregnant Women	--	--	--	--
Hepatitis C, Acute	--	--	--	--
Hepatitis C, Chronic (Including Perinatal)	168.3	171.2	126.3	657.7
HIV[1]	15.6	--	--	--
Lead Poisoning Cases in Children <6 Years Old	--	--	--	--
Lead Poisoning Cases in People >=6 Years Old	--	--	--	--
Legionellosis	--	--	--	--
Listeriosis	--	--	--	--
Lyme Disease	--	--	--	--
Malaria	--	--	--	--
Meningitis, Bacterial or Mycotic	--	--	--	--
Meningococcal Disease	--	--	--	--
Mercury Poisoning	--	--	--	--
Mumps	--	--	--	--
Pertussis	--	--	--	--
Pesticide-Related Illness and Injury, Acute	--	--	--	--
Rabies, Animal	--	--	--	--
Rabies, Possible Exposure	25.7	--	--	--
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis	--	--	--	--
Salmonellosis	24.0	--	35.0	--
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection	--	--	--	--
Shigellosis	--	--	--	--
Streptococcus pneumoniae Invasive Disease, Drug-Resistant	--	--	--	--
Streptococcus pneumoniae Invasive Disease, Drug-Susceptible	--	--	--	--
Syphilis (Excluding Congenital)	20.2	--	--	--
Syphilis, Congenital	--	--	--	--
Tuberculosis	--	--	--	--
Typhoid Fever (*Salmonella* Serotype Typhi)	--	--	--	--
Varicella (Chickenpox)	--	--	--	--
Vibriosis (Excluding Cholera)	--	--	--	--
Zika Virus Disease and Infection	--	--	--	--

-- Not applicable. Rates calculated for less than 20 cases are unreliable and therefore are not included in this table.

1 County totals exclude 68 Florida Department of Corrections cases.

Appendices

Appendix II: Data Sources

Data presented in this report are based on reportable disease information received by county and state health department staff from physicians, hospitals, and laboratories throughout the state obtained through passive and active surveillance. Notifying Florida Health of cases of reportable diseases and conditions in the state of Florida is mandated under section 381.0031, Florida Statutes and Florida Administrative Code Chapter 64D-3. Laboratories, hospitals, medical facilities, or other facilities providing health services (which can include schools, nursing homes, and state institutions) are required to report certain diseases and conditions and the associated laboratory test results as listed in the Table of Notifiable Diseases or Conditions to Be Reported, Florida Administrative Code Chapter 64D-3. Reporting of test results by a laboratory does not nullify a practitioner's obligation to report the disease or condition. These data are the basis for providing useful information on reportable diseases and conditions in Florida to health care workers and policymakers and would not be possible without the cooperation of the extensive network involving both private and public sector participants. Data in this report are collected by a variety of means described on the following page.

Case-based passive surveillance is the most common surveillance approach for reportable diseases. Passive surveillance relies on physicians, laboratories, and other health care providers to report diseases to the Florida Department of Health confidentially in one of three forms: electronically, by telephone, or by facsimile. Increasingly, information about cases of reportable diseases and conditions is passed from providers, especially laboratories, to Florida Health as electronic records. This occurs automatically, without the involvement of a person once the electronic transmission process has been established between Florida Health and the reporting partner. Case-based reporting implies that some action is taken for every case, such as interviewing the case to identify risk factors or detect outbreaks.

Laboratory-based surveillance is when laboratory data are used to assess trends. In Florida, laboratory-based surveillance is used to monitor antimicrobial resistance patterns in the community and is the primary means of monitoring diseases such as chronic hepatitis. Laboratories participating in electronic laboratory reporting (ELR) are required to submit antimicrobial resistance testing for a variety of bacteria. These laboratories are also required to submit all positive and negative results to Florida Health for hepatitis viruses, human papillomavirus, influenza virus, respiratory syncytial virus (RSV), and *Staphylococcus aureus*. Individual cases of these diseases are not investigated (except for acute hepatitis infections); surveillance relies entirely on laboratory results. Additionally, the CDC's National Respiratory and Enteric Virus Surveillance System (NREVSS) is a laboratory-based system used to monitor temporal and geographic circulation patterns of RSV and other respiratory viruses in Florida.

Sentinel surveillance is when a sample of providers or laboratories are used to represent a wider population. ILINet is a nationwide surveillance system of sentinel providers, predominately outpatient health care providers, to monitor influenza and influenza-like illness (ILI) in the community.

Syndromic surveillance uses existing health-related data that precede diagnosis to identify cases of reportable diseases that would have otherwise gone unreported, identify outbreaks, monitor health trends in the community, and provide situational awareness during public health responses. Florida uses the Electronic Surveillance System for the Early Notification of Community-Based Epidemics (ESSENCE-FL) to monitor influenza, ILI, and RSV trends across the state through chief complaints and discharge diagnoses from participating emergency departments and urgent care centers.

Registries are another passive surveillance approach. The Florida Cancer Data System (FCDS) is Florida's legislatively mandated population-based statewide cancer registry. All hospital and outpatient facilities licensed in Florida must report each patient admitted for treatment of cancer to Florida Health. The Florida Birth Defects Registry (FBDR) is a passive statewide population-based surveillance system. FBDR utilizes and links multiple datasets, including vital statistics and hospital records, to identify infants with birth defects.

Active surveillance entails Florida Health staff regularly contacting hospitals, laboratories, and physicians in an effort to identify all cases of a given disease or condition. This approach can be used in outbreak situations or to support an event or case investigation of urgent public health importance.

Appendices

Appendix III: Interpreting the Data

Information in this report should be interpreted in light of the limitations below.

1: Under-Reporting

The data presented in this report are primarily based on passive reporting by health care providers and laboratories across Florida. Case reporting is most often dependent upon a person becoming ill, seeking medical attention, the health care provider ordering laboratory testing, and finally the health care provider or laboratory reporting the case. Frequently, not all steps in this process occur, so the number of reported cases represents a fraction of the true number of cases of reportable illnesses occurring in Florida each year. Evaluations of infectious disease reporting systems have indicated that the completeness of reporting varies by disease. The less common but more severe reportable diseases such as bacterial meningitis, diphtheria, polio, botulism, anthrax, tuberculosis, and congenital syphilis are more completely reported than the more common diseases with less severe symptoms such as hepatitis A or campylobacteriosis. Variation in identified disease incidence at the local level probably reflects, to varying degrees, both differences in the true incidence of disease and differences in the vigor with which surveillance is performed.

2: Reliability of Rates

All incidence rates in this report are expressed as the number of reported cases of a disease or condition per 100,000 population unless otherwise specified. All population estimates are from the Community Health Assessment Resource Tool Set (CHARTS), a Florida Department of Health web-based data query system with community tools, health indicators, and data queries for public consumption (www.FLHealthCHARTS.com). Population estimates within CHARTS are provided by the Florida Department of Health, Division of Public Health Statistics and Performance Management, in consultation with the Florida Legislature's Office of Economic and Demographic Research. Estimates in CHARTS are updated at least once per year, and population data were extracted from CHARTS for this report on May 25, 2018. Note that previous editions of this report may show somewhat different populations for a given year than the ones shown here, as these estimates are revised periodically. Revisions to population estimates can also impact disease rates.

Animal rabies is not expressed as a rate; it is only expressed as the number of cases because no reliable denominators exist for animal populations.

Rates for diseases with only a few cases reported per year can be unstable and should be interpreted with caution. The observation of zero events is especially difficult to interpret. Rates were not generally calculated in this report when there were less than 20 cases, except as part of graphs and maps. In some cases, even though maps and graphs (e.g., by year, gender, race) may have small individual counts, rates were calculated. These maps include footnotes as a reminder that rates based on less than 20 cases are not reliable.

3: Determining How Cases Are Counted: Reporting Period and Cases Included

Unless otherwise noted, confirmed and probable cases reported in Florida residents are included in this report. There are important differences by disease that determine how cases are counted and summarized in this report. The date of illness onset or the date of diagnosis may not be available for all cases. Cases reported early in 2017 may have actually had onset or diagnosis in 2016; rarely, cases reported in 2017 may have onset or diagnosis dates prior to 2016. Additionally, cases with illness onset or diagnosis late in 2017 may not have been reported to public health by the end of the 2017 report year, and thus would not be included in this report for most diseases. Information by disease is listed on the following page.

AIDS and HIV cases

Year: Data are aggregated by calendar year.

Cases included: HIV cases are based on the date, county of residence, and state of residence of the first confirmed HIV test. AIDS cases are based on the date, county of residence, and state of residence of the first CD4 count below 200 cells/mm3 or AIDS-defining opportunistic infection in a person with HIV. The 2017 HIV and AIDS case dataset was frozen on June 30, 2018. Changes occurring after that point that affect the number of cases in 2017 or earlier will be updated in the following year’s dataset.

Please note that prior to 2014, HIV and AIDS cases were assigned to a report year based on the date the case was entered into the surveillance system. For more information about how AIDS and HIV cases are counted, please see the HIV Data Center website (FloridaHealth.gov/diseases-and-conditions/aids/surveillance/index.html).

Sexually transmitted diseases (STDs)

Year: Data are aggregated by calendar year.

Cases included: Cases are assigned to a report year based on the date the case was entered into the surveillance system. Occasionally, STD reports are received after the end of the reporting year that should have been included based on the laboratory result date. For these cases, the laboratory result date is used for the report date.

Tuberculosis

Year: Data are aggregated by calendar year.

Cases included: Cases are assigned to a report year based on the date when the suspected diagnosis is confirmed by clinical, radiographic, and laboratory testing (often referred to as "date counted").

Zika virus disease and infection (including congenital)

Year: Data are aggregated by the standard reporting year as outlined by the Centers for Disease Control and Prevention (CDC), where every year has 52 or 53 weeks (there were 52 weeks in 2017). This is referred to as the Morbidity and Mortality Weekly Report (MMWR) year.

Cases included: Cases are assigned to a report year based on the earliest date associated with the case (onset date, diagnosis date, laboratory report date, or date Florida Health was notified of the case). In the surveillance application, Merlin, this is referred to as "event date."

All other diseases

Year: Data are aggregated by MMWR year (see above for explanation of MMWR year).

Cases included: Cases are assigned to a report year based on the date the case was determined to have enough information to be submitted by county health department epidemiology staff to the Florida Health Bureau of Epidemiology (BOE) for state-level review. In the surveillance application, Merlin, this is referred to as "date reported to BOE."

Disease-specific reports describing data by other dates, such as disease onset and diagnosis dates, may also be published and available on the Florida Department of Health website; numbers may vary from this report based on different inclusion criteria.

4: Case Definitions

Cases of most diseases are classified as confirmed, probable, or suspect at the state level using a published set of surveillance case definitions consistent with national case definitions where appropriate (Surveillance Case Definitions for Selected Reportable Diseases in Florida, available at FloridaHealth.gov/DiseaseCaseDefinitions). Case classifications are reviewed at the state level for most diseases. Following CDC MMWR print criteria (available at www.cdc.gov/nndss/script/downloads.aspx), only confirmed and probable cases have been included in this report unless otherwise specified (i.e., suspect cases are excluded).

Changes to case definitions can affect the number of cases reported, which can impact calculated incidence rates, but ultimately case definition changes do not change the true incidence of a disease. Each year case definitions are evaluated for necessary revisions. A number of changes were made to reportable disease case definitions in 2017 as a result of position statements approved by the Council of State and Territorial Epidemiologists (CSTE) in 2016.

Summary of case definition changes effective January 2017:

a. Amebic encephalitis:
   - Added presumptive laboratory criteria for *Naegleria fowleri* causing primary amebic meningoencephalitis including visualization of motile amebae in a wet mount of cerebrospinal fluid and isolation of *N. fowleri*
   - Removed culture from laboratory criteria for *Balamuthia mandrillaris* disease and *Acanthamoeba* disease
   - Removed *Acanthamoeba* keratitis from the case definition

b. Arboviruses: added a new suspect case classification for West Nile virus disease based on blood donor screening

c. Babesiosis: created a case definition based on the national surveillance case definition

d. Campylobacteriosis:
   - Specified clinical criteria for case classification
   - Removed qualifiers from presumptive laboratory criteria so that culture-independent diagnostic testing is sufficient to meet the probable case classification and removed the suspect case classification
   - Refined epidemiological linkage criteria

e. Dengue fever and severe dengue fever: added negative or indeterminate Zika virus component to one of the possible confirmatory laboratory scenarios

f. Hepatitis B, perinatal: expanded laboratory criteria and created a new probable case classification for children whose mothers' hepatitis B virus status is unknown

g. Hepatitis B, pregnant women: expanded laboratory criteria

h. Hepatitis C, perinatal: created a new probable case classification for children whose mothers' hepatitis B virus status is unknown

i. Lead poisoning: lowered the blood lead level threshold for poisoning from ≥10 μg/dL to ≥5 μg/dL to align with the national surveillance case definition

j. Lyme disease: updated epidemiologic criteria for case classification to differentiate between high incidence states (states with a three-year average incidence of ≥10 cases per 100,000 persons) and low incidence states (states with a three-year average incidence of <10 cases per 100,000 persons for confirmed cases and clarified that suspect cases have no clinical information available

k. Paratyphoid fever: added a new case definition specifically for paratyphoid fever (*Salmonella* serotypes Paratyphi A, B, and C)

l. Rubella: added language excluding asymptomatic pregnant women who have no risk factors for disease from meeting the case definition

m. Salmonellosis:
   - Specified clinical criteria for case classification
   - Moved culture-independent diagnostic testing from supportive laboratory criteria to presumptive laboratory criteria
   - Refined epidemiological linkage criteria
   - Added criteria for distinguishing a new case from previous reports

n. Shiga toxin-producing *Escherichia coli*: specified clinical criteria for case classification and refined epidemiological linkage criteria

o. Shigellosis:
   - Specified clinical criteria for case classification
   - Moved culture-independent diagnostic testing from supportive laboratory criteria to presumptive laboratory criteria
   - Refined epidemiological linkage criteria
   - Added criteria for distinguishing a new case from previous reports

p. *Streptococcus pneumoniae* invasive disease: added presumptive laboratory criteria including culture-independent diagnostic testing and added criteria for distinguishing a new case from previous reports

q. Tularemia: expanded presumptive laboratory criteria to include polymerase chain reaction and added criteria for distinguishing a new case from previous reports

r. Typhoid fever: specified clinical criteria for case classification

s. Vibriosis:
   - Moved culture-independent diagnostic testing from supportive laboratory criteria to presumptive laboratory criteria
   - Refined epidemiological linkage criteria
   - Added criteria for distinguishing a new case from previous reports

5: Assigning Cases to Counties
Cases are assigned to Florida counties following national guidance and based on the county of residence at the time of the disease identification, regardless of where they became ill or were hospitalized, diagnosed, or exposed. Cases who reside outside of Florida are not counted as Florida cases regardless of whether they became ill or were hospitalized, diagnosed, or exposed in Florida. Zika virus disease and infection cases do include residents of other states; however cases of other diseases in out-of-state residents are not included in this report unless specifically noted. These cases are referred through an interstate reciprocal notification system to the state where the person resides.

6: Population Estimates
All population estimates are from the Community Health Assessment Resource Tool Set (CHARTS), a Florida Department of Health web-based data query system with community tools, health indicators, and data queries for public consumption (www.FLHealthCHARTS.com). Population estimates within CHARTS are provided by the Florida Department of Health Division of Public Health Statistics and Performance Management in consultation with the Florida Legislature's Office of Economic and Demographic Research. Estimates in CHARTS are updated at least once per year, and population data were extracted from CHARTS for this report on May 25, 2018. Note that previous editions of this report may show somewhat different populations for a given year than the ones shown here, as these estimates are revised periodically. Revisions to population estimates can also impact disease rates.

7: Florida Disease Codes in Merlin
Reported case data for most reportable diseases (excluding HIV/AIDS, STDs, and tuberculosis) are stored in Merlin, Florida's web-based reportable disease surveillance system. When entering case data into Merlin, users assign a Florida Disease Code based on the disease. Due to changes in case definitions over time, new codes have been added and outdated codes have expired. In addition, some diseases have multiple disease codes that represent different clinical manifestations.

Diseases that include cases from multiple or expired Florida Disease Codes in this report:

a. Amebic Encephalitis
   Amebic Infections (*Acanthamoeba*) - 13621
   Amebic Infections (*Balamuthia mandrillaris*) - 13625
   Amebic Infections (*Naegleria fowleri*) - 13629
   Amebic Encephalitis - 13620 (EXPIRED)

b. California Serogroup Virus Disease
   California Serogroup Virus Neuroinvasive Disease - 06250
   California Serogroup Virus Non-Neuroinvasive Disease - 06251

c. Dengue Fever
   Dengue Fever - 06100
   Dengue Fever, Severe - 06101

d. Eastern Equine Encephalitis
   Eastern Equine Encephalitis Neuroinvasive Disease - 06220
   Eastern Equine Encephalitis Non-Neuroinvasive Disease - 06221

e. Ehrlichiosis
   Ehrlichiosis (*Ehrlichia ewingii*) - 08383
   Ehrlichiosis, HME (*Ehrlichia chaffeensis*) - 08382

f. *Haemophilus influenzae* Invasive Disease in Children <5 Years Old
   Haemophilus influenzae Invasive Disease - 03841
   Cellulitis (*Haemophilus influenzae*) - 69290 (EXPIRED)
   Epiglottitis (*Haemophilus influenzae*) - 46430 (EXPIRED)
   Meningitis (*Haemophilus influenzae*) - 32000 (EXPIRED)
   Pneumonia (*Haemophilus influenzae*) - 48220 (EXPIRED)
   Septic Arthritis (*Haemophilus influenzae*) - 71100 (EXPIRED)

g. Hantavirus Infection
   Hantavirus Infection, Non-Pulmonary Syndrome - 07870
   Hantavirus Pulmonary Syndrome - 07869

h. Listeriosis
Listeriosis - 02700
Meningitis (*Listeria monocytogenes*) - 32070 (EXPIRED)

i. Plague
Plague, Bubonic - 02000
Plague, Pneumonic - 02050

j. Poliomyelitis
Poliomyelitis, Nonparalytic - 04520
Poliomyelitis, Paralytic - 04590

k. Q Fever (*Coxiella burnetii*)
Q Fever, Acute (*Coxiella burnetii*) - 08301
Q Fever, Chronic (*Coxiella burnetii*) - 08302
Q Fever - 08300 (EXPIRED)

l. Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis
Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis - 08309
Rocky Mountain Spotted Fever - 08200 (EXPIRED)

m. Rubella
Rubella - 05690
Rubella, Congenital Syndrome - 77100

n. Salmonellosis
Paratyphoid Fever (*Salmonella* Serotypes Paratyphi A, B, C) - 00210
Salmonellosis - 00300

o. Shiga Toxin-Producing *Escherichia coli* Infection
Escherichia coli, Shiga Toxin-Producing (STEC) Infection - 00800
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection, Non-O157 - 41602 (EXPIRED)
Shiga Toxin-Producing *Escherichia coli* (STEC) Infection, O157:H7 - 41601 (EXPIRED)

p. St. Louis Encephalitis
St. Louis Encephalitis Neuroinvasive Disease - 06230
St. Louis Encephalitis Non-Neuroinvasive Disease - 06231

q. Typhus Fever
Typhus Fever, Epidemic (*Rickettsia prowazekii*) - 08000
Typhus Fever, Endemic (*Rickettsia typhi*) - 08100 (EXPIRED)
Typhus Fever - 08190 (EXPIRED)

r. Venezuelan Equine Encephalitis
Venezuelan Equine Encephalitis Neuroinvasive Disease - 06620
Venezuelan Equine Encephalitis Non-Neuroinvasive Disease - 06621

s. Vibriosis (Excluding Cholera)
Vibriosis (*Grimontia hollisae*) - 00196
Vibriosis (*Vibrio alginolyticus*) - 00195
Vibriosis (*Vibrio cholerae* Type Non-O1) - 00198
Vibriosis (*Vibrio fluvialis*) - 00194
Vibriosis (*Vibrio mimicus*) - 00197
Vibriosis (*Vibrio parahaemolyticus*) - 00540
Vibriosis (*Vibrio vulnificus*) - 00199
Vibriosis (Other *Vibrio* Species) - 00193

t. Viral Hemorrhagic Fever
Crimean-Congo Hemorrhagic Fever - 06591
Ebola Hemorrhagic Fever - 06592
Guanarito Hemorrhagic Fever - 06593
Junin Hemorrhagic Fever - 06594
Lassa Fever - 06595
Lujo Virus - 06596
Machupo Hemorrhagic Fever - 06597
Marburg Fever - 06598
Sabia-Associated Hemorrhagic Fever - 06599
Viral Hemorrhagic Fever - 06590 (EXPIRED)

u. West Nile Virus Disease
West Nile Virus Neuroinvasive Disease - 06630
West Nile Virus Non-Neuroinvasive Disease - 06631

v. Western Equine Encephalitis
Western Equine Encephalitis Neuroinvasive Disease - 06210
Western Equine Encephalitis Non-Neuroinvasive Disease - 06211

Appendix IV: Report Terminology

Section 1: Data Summaries for Common Reportable Diseases/Conditions and Section 2: Narratives for Uncommon Reportable Diseases/Conditions each include tables and figures that summarize characteristics of cases. Those characteristics are defined below.

Case classification: all cases are classified as confirmed or probable according to the surveillance case definition based on clinical, laboratory, and epidemiologic information. Current and historical case definitions can be found here: FloridaHealth.gov/DiseaseCaseDefinitions.

Hospitalized: a person with a reportable disease was hospitalized, though the hospitalization may not necessarily have been due to the reportable disease or condition.

Died: A person with a reportable disease or condition died, though the death may not necessarily have been due to the illness and may have occurred after the illness.

Sensitive situation: settings where people with certain diseases may be more likely to infect others. For example, a food handler with an enteric illness like salmonellosis may contaminate food and infect people who eat the food. In this report, sensitive situations include daycare staff and attendees, health care workers, and food handlers.

Imported status: where a person was most likely exposed to the organism or environment that caused the reportable disease or condition. Note that Puerto Rico and the U.S. Virgin Islands are U.S. territories and are included in the category “acquired in the U.S., not Florida.”

Outbreak status: Two or more cases that are epidemiologically linked are considered outbreak-associated, unless otherwise noted.

Month of occurrence: Determined by the earliest date associated with the case, which is most frequently the date of onset, but can also be the diagnosis date, the laboratory report date, or the date the county health department was notified of the case.

Appendix V: List of Reportable Diseases/Conditions in Florida, 2017

Subsection 381.0031(2), Florida Statutes, provides that "Any practitioner licensed in this state to practice medicine, osteopathic medicine, chiropractic medicine, naturopathy, or veterinary medicine; any hospital licensed under part I of Chapter 395, Florida Statutes; or any laboratory licensed under Chapter 483, Florida Statutes that diagnoses or suspects the existence of a disease of public health significance shall immediately report the fact to the Department of Health." This list of reportable diseases and conditions is maintained in Florida Administrative Code Rule 64D-3.029. The Rule was last revised in October 2016. The list below reflects the diseases and conditions that were reportable in 2017.

Any disease outbreak
Any grouping or clustering of disease
Acquired immune deficiency syndrome (AIDS)
Amebic encephalitis
Anthrax
Arsenic poisoning
Arboviral diseases not otherwise listed
Babesiosis
Botulism
Brucellosis
California serogroup virus disease
Campylobacteriosis
Cancer (excluding non-melanoma skin cancer and including benign and borderline intracranial and CNS tumors)
Carbon monoxide poisoning
Chancroid
Chikungunya fever
Chlamydia
Cholera (*Vibrio cholerae* type O1)
Ciguatera fish poisoning
Congenital anomalies
Conjunctivitis in neonates <14 days old
Creutzfeldt-Jakob disease (CJD)
Cryptosporidiosis
Cyclosporiasis
Dengue fever
Diphtheria
Eastern equine encephalitis
Ehrlichiosis/anaplasmosis
Escherichia coli infection, Shiga toxin-producing
Giardiasis, acute
Glanders
Gonorrhea
Granuloma inguinale
Haemophilus influenzae invasive disease in children <5 years old (all ages for electronic laboratory reporting laboratories)
Hansen's disease (leprosy)
Hantavirus infection
Hemolytic uremic syndrome (HUS)
Hepatitis A
Hepatitis B, C, D, E, and G
Hepatitis B surface antigen in pregnant women or children <2 years old
Herpes B virus, possible exposure
Herpes simplex virus (HSV) in infants <60 days old with disseminated infection and liver involvement; encephalitis; and infections limited to skin, eyes, and mouth; anogenital HSV in children <12 years old
Human immunodeficiency virus (HIV) infection
HIV, exposed infants <18 months old born to an HIV-infected woman
Human papillomavirus (HPV), associated laryngeal papillomas or recurrent respiratory papillomatosis in children <6 years old; anogenital papillomas in children <12 years old (all HPV DNA for electronic laboratory reporting laboratories)
Influenza A, novel or pandemic strains
Influenza-associated pediatric mortality in children <18 years old
Lead poisoning
Legionellosis
Leptospirosis
Listeriosis
Lyme disease
Lymphogranuloma venereum (LGV)
Malaria
Measles (rubeola)
Melioidosis
Meningitis, bacterial or mycotic
Meningococcal disease
Mercury poisoning
Mumps
Neonatal abstinence syndrome (NAS)
Neurotoxic shellfish poisoning
Paratyphoid fever (*Salmonella* serotypes Paratyphi A, B, C)
Pertussis
Pesticide-related illness and injury, acute
Plague
Poliomyelitis
Psittacosis (ornithosis)
Q Fever
Rabies (human, animal, possible exposure)
Ricin toxin poisoning
Rocky Mountain spotted fever and other spotted fever rickettsioses
Rubella
St. Louis encephalitis
Salmonellosis
Saxitoxin poisoning (paralytic shellfish poisoning)
Severe acute respiratory disease syndrome associated with coronavirus infection
Shigellosis
Smallpox
Staphylococcal enterotoxin B poisoning
Staphylococcus aureus infection, intermediate or full resistance to vancomycin (VISA, VRSA)
Streptococcus pneumoniae invasive disease in children <6 years old (all ages for electronic laboratory reporting laboratories)
Syphilis
Tetanus
Trichinellosis (trichinosis)
Tuberculosis (TB)
Tularemia
Typhoid fever (*Salmonella* serotype Typhi)
Typhus fever, epidemic
Vaccinia disease
Varicella (chickenpox)
Venezuelan equine encephalitis
Vibriosis (infections of *Vibrio* species and closely related organisms, excluding *Vibrio cholerae* type O1)
Viral hemorrhagic fevers
West Nile virus disease
Yellow fever
Zika fever

Electronic laboratory reporting laboratories only:

Antimicrobial resistance results for isolates from a normally sterile site for *Acinetobacter baumannii*, *Citrobacter* species, *Enterococcus* species, *Enterobacter* species, *Escherichia coli*, *Klebsiella* species, *Pseudomonas aeruginosa*, and *Serratia* species
Hepatitis B, C, D, E, and G viruses, all test results (positive and negative) and all liver function tests
Influenza virus, all test results (positive and negative)
Respiratory syncytial virus, all test results (positive and negative)
Staphylococcus aureus isolated from a normally sterile site

Appendices

Appendix VI: Florida County Boundaries

Appendices

Appendix VII: Florida Population Estimates

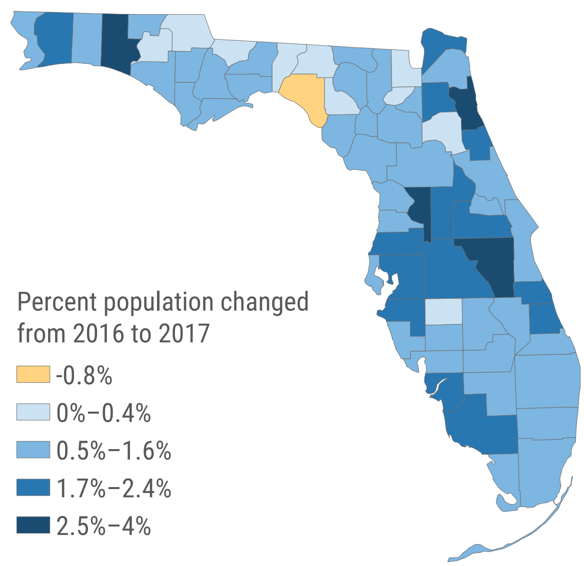
The estimated population in 2017 increased 1.6% from 2016. Note that increases are not uniform across all demographic groups, though increases occurred in most demographic groups. The increase was very similar between males and females, but was notably higher for Hispanics and other races. The largest increases were in older age groups, particularly adults 65 to 74 years old. Population decreased for infants <1 year old and young adults 20 to 24 years old. Taylor was the only county whose population decreased from 2016 to 2017. Increases in other counties varied from 0% to 4%.

All population estimates are from the Community Health Assessment Resource Tool Set (CHARTS), a Florida Department of Health web-based data query system with community tools, health indicators, and data queries for public consumption (www.FLHealthCHARTS.com). Population estimates within CHARTS are provided by the Florida Department of Health Division of Public Health Statistics and Performance Management in consultation with the Florida Legislature's Office of Economic and Demographic Research. Estimates in CHARTS are updated at least once per year, and population data were extracted from CHARTS for this report on May 25, 2018. Note that previous editions of this report may show somewhat different populations for a given year than the ones shown here, as these estimates are revised periodically. Revisions to population estimates can also impact disease rates.

Year	Population
2008	18,636,837
2009	18,711,844
2010	18,820,280
2011	18,941,742
2012	19,118,938
2013	19,314,396
2014	19,579,871
2015	19,897,762
2016	20,231,092
2017	20,555,728

Gender	2016 Population	2017 Population	Percent Change
Female	10,343,928	10,512,809	+1.6%
Male	9,887,164	10,042,919	+1.6%
Race	**2016 Population**	**2017 Population**	**Percent Change**
White	15,722,428	15,944,707	+1.4%
Black	3,408,734	3,470,100	+1.8%
Other	1,099,930	1,140,921	+3.7%
Ethnicity	**2016 Population**	**2017 Population**	**Percent Change**
Non-Hispanic	15,268,108	15,419,874	+1.0%
Hispanic	4,962,984	5,135,854	+3.5%
Age	**2016 Population**	**2017 Population**	**Percent Change**
<1	220,904	219,916	-0.4%
1–4	889,872	904,104	+1.6%
5–9	1,130,984	1,140,565	+0.8%
10–14	1,141,142	1,151,511	+0.9%
15–19	1,179,821	1,186,803	+0.6%
20–24	1,295,161	1,271,555	-1.8%
25–34	2,608,186	2,679,629	+2.7%
35–44	2,443,227	2,460,078	+0.7%
45–54	2,742,649	2,749,785	+0.3%
55–64	2,645,654	2,717,927	+2.7%
65–74	2,175,153	2,266,620	+4.2%
75–84	1,218,261	1,254,557	+3.0%
85+	540,078	552,678	+2.3%
Total	**20,231,092**	**20,555,728**	**+1.6%**

Larger population increases were clustered in central Florida. Taylor was the only county whose population decreased.



Appendices

County	2016 Population	2017 Population	Percent Change
Alachua	257,478	259,349	+0.7%
Baker	26,967	27,066	+0.4%
Bay	176,637	178,953	+1.3%
Bradford	27,498	27,808	+1.1%
Brevard	570,496	576,970	+1.1%
Broward	1,860,979	1,884,545	+1.3%
Calhoun	14,594	14,658	+0.4%
Charlotte	171,219	173,954	+1.6%
Citrus	143,458	144,922	+1.0%
Clay	206,387	210,767	+2.1%
Collier	351,768	358,506	+1.9%
Columbia	68,687	69,250	+0.8%
DeSoto	35,215	35,454	+0.7%
Dixie	16,844	17,040	+1.2%
Duval	927,903	942,841	+1.6%
Escambia	310642	312811	+0.7%
Flagler	103584	106076	+2.4%
Franklin	11,937	12,006	+0.6%
Gadsden	48,527	48,690	+0.3%
Gilchrist	16,862	16,977	+0.7%
Glades	13,101	13,263	+1.2%
Gulf	16,718	16,957	+1.4%
Hamilton	14,666	14,749	+0.6%
Hardee	27,643	27,675	+0.1%
Hendry	38,436	38,675	+0.6%
Hernando	180,213	183,065	+1.6%
Highlands	101,727	102,590	+0.8%
Hillsborough	1,359,850	1,388,111	+2.1%
Holmes	20,037	20,132	+0.5%
Indian River	147,163	149,930	+1.9%
Jackson	50,311	50,303	0.0%
Jefferson	14,501	14,530	+0.2%
Lafayette	8,620	8,651	+0.4%
Lake	325,887	333,598	+2.4%
State total	20,231,092	20,555,728	+1.6%

County	2016 Population	2017 Population	Percent Change
Lee	684,465	700,837	+2.4%
Leon	288,495	291,879	+1.2%
Levy	40,599	40,832	+0.6%
Liberty	8,754	8,839	+1.0%
Madison	19,252	19,295	+0.2%
Manatee	359,486	367,130	+2.1%
Marion	346,956	352,067	+1.5%
Martin	151,081	152,333	+0.8%
Miami-Dade	2,712,144	2,754,749	+1.6%
Monroe	76,461	77,300	+1.1%
Nassau	78,174	79,592	+1.8%
Okaloosa	193,247	194,811	+0.8%
Okeechobee	40,983	41,469	+1.2%
Orange	1,287,703	1,317,704	+2.3%
Osceola	326,342	339,470	+4.0%
Palm Beach	1,395,117	1,411,054	+1.1%
Pasco	497,991	507,081	+1.8%
Pinellas	956,302	961,253	+0.5%
Polk	650,552	663,999	+2.1%
Putnam	73,004	73,068	+0.1%
Santa Rosa	168,026	171,851	+2.3%
Sarasota	401,316	407,501	+1.5%
Seminole	450,706	457,028	+1.4%
St. Johns	222,006	229,272	+3.3%
St. Lucie	294,144	299,962	+2.0%
Sumter	119,433	123,928	+3.8%
Suwannee	44,340	44,522	+0.4%
Taylor	22,400	22,220	-0.8%
Union	15,873	15,896	+0.1%
Volusia	519,037	525,121	+1.2%
Wakulla	31,706	32,134	+1.3%
Walton	63,562	65,724	+3.4%
Washington	24,880	24,935	+0.2%
State total	27,897,647	28,336,600	+1.6%

Appendix VIII: References

The following references were used throughout this report.

Centers for Disease Control and Prevention. CDC A-Z Index. www.cdc.gov/az/a.html. Accessed October 2018.

Centers for Disease Control and Prevention. *Epidemiology and Prevention of Vaccine-Preventable Diseases*. 13th ed. Washington, D.C.: Public Health Foundation; 2015. Available at www.cdc.gov/vaccines/pubs/pinkbook/index.html

Centers for Disease Control and Prevention. *Manual for the Surveillance of Vaccine-Preventable Diseases*. www.cdc.gov/vaccines/pubs/surv-manual/index.html. Accessed October 2018.

Centers for Disease Control and Prevention. *The Yellow Book: CDC Health Information for International Travel 2016*. New York, NY: Oxford University Press; 2016.

Heymann DL, ed. *Control of Communicable Diseases Manual*. 20th ed. Washington, D.C.: American Public Health Association Press; 2015.

Hill HA, Elam-Evans LD, Yankey D, Singleton JA, Kang Y. 2017. Vaccination coverage among children aged 19–35 months — United States, 2016. *Morbidity and Mortality Weekly Report*. 2017; 66(43):1171–1177. doi: 10.15585/mmwr.mm6539a4. Available at www.cdc.gov/mmwr/volumes/66/wr/mm6643a3.htm.

Appendices

Appendix IX. Editors and Contributors

Editors

Nicole Kikuchi, MPH, CPM (Lead Editor)	Division of Disease Control and Health Protection, Bureau of Epidemiology
Leah Eisenstein, MPH (Senior Editor)	Division of Disease Control and Health Protection, Bureau of Epidemiology
Nushrat Alam, MPH (Section Editor)	Division of Disease Control and Health Protection, Bureau of Epidemiology
Amy Bogucki, MPH (Section Editor)	Division of Disease Control and Health Protection, Bureau of Epidemiology
Justine Celli, MSPH (Section Editor)	Division of Disease Control and Health Protection, Bureau of Epidemiology
Danielle Curatolo, MPH (Section Editor)	Division of Disease Control and Health Protection, Bureau of Communicable Diseases, HIV/AIDS Section
Jamie DeMent, MNS (Section Editor)	Division of Disease Control and Health Protection, Bureau of Epidemiology
Nychie Dotson, MPH, CIC, CPHQ (Section Editor)	Division of Disease Control and Health Protection, Bureau of Epidemiology
Shana Geary, MPH, CPH (Section Editor)	Division of Disease Control and Health Protection, Bureau of Communicable Diseases, STD and Viral Hepatitis Section and HIV/AIDS Section
Tara Hylton, MPH (Section Editor)	Division of Community Health Promotion, Public Health Research, Registries and Surveillance Section
Heather Lake-Burger, MS, MPH (Section Editor)	Division of Community Health Promotion, Public Health Research, Registries and Surveillance Section
Joseph Lowry, MPH (Section Editor)	Division of Community Health Promotion, Public Health Research, Registries and Surveillance Section
Lorene Maddox, MPH (Section Editor)	Division of Disease Control and Health Protection, Bureau of Communicable Diseases, HIV/AIDS Section
Julia Munroe, MS (Section Editor)	Division of Disease Control and Health Protection, Bureau of Epidemiology
Victoria Pearson, PhD (Section Editor)	Division of Disease Control and Health Protection, Bureau of Communicable Diseases, STD and Viral Hepatitis Section
Scott Pritchard, MPH (Section Editor)	Division of Disease Control and Health Protection, Bureau of Epidemiology
Heather Rubino, PhD (Section Editor)	Division of Disease Control and Health Protection, Bureau of Epidemiology
Thomas Troelstrup, MPH (Section Editor)	Division of Disease Control and Health Protection, Bureau of Epidemiology
Michael Wydotis (Reviewer)	Division of Disease Control and Health Protection, Bureau of Epidemiology
Donna Morrill (Reviewer)	Division of Disease Control and Health Protection, Bureau of Epidemiology

Editors (Continued)

Russell Eggert, MD, MPH, FACPM, FAAFP .... Division of Disease Control and Health Protection, Bureau of Epidemiology, Chief

Carina Blackmore, DVM, PhD, Dipl ACVPM .... Division of Disease Control and Health Protection, Director

Celeste Philip, MD, MPH .... Florida Department of Health State Surgeon General and Secretary

Florida Department of Health (DOH) Contributors

Kathy Abusager, MPH .... DOH-Orange

Angela Armstrong, MPH, CPH .... DOH-Collier

Giselle Barreto, MPH .... DOH-Lake

Brittany Becht, MPH, CIC .... DOH-Sumter

Jason Blanton, PhD .... Division of Disease Control and Health Protection, Bureau of Public Health Laboratories

Amy Bogucki, MPH .... Division of Disease Control and Health Protection, Bureau of Epidemiology

Mary Kay Burns, RN, BSN, MBA .... DOH-DeSoto

Luz Caicedo, MPH, CPH, CIC .... DOH-Orange

Alvina Chu, MHS .... DOH-Orange

Danielle Curatolo, MPH .... Division of Disease Control and Health Protection, Bureau of Communicable Diseases, HIV/AIDS Section

Gregory Danyluk, PhD, MPH, MS .... DOH-Polk

Jamie DeMent, MNS .... Division of Disease Control and Health Protection, Bureau of Epidemiology

Nychie Dotson, MPH, CIC, CPHQ .... Division of Disease Control and Health Protection, Bureau of Epidemiology

Sonya du Bernard, MPH .... Division of Disease Control and Health Protection, Bureau of Communicable Diseases, STD and Viral Hepatitis Section

Tricia Foster, MPH .... Division of Disease Control and Health Protection, Bureau of Epidemiology

Shana Geary, MPH, CPH .... Division of Disease Control and Health Protection, Bureau of Communicable Diseases, STD and Viral Hepatitis Section and HIV/AIDS Section

Dana Giandomenico, MPH, CPH, REHS .... Division of Disease Control and Health Protection, Bureau of Epidemiology

Amber Ginn .... Division of Disease Control and Health Protection, Bureau of Public Health Laboratories

Tess Gorden, MPH .... Division of Disease Control and Health Protection, Bureau of Epidemiology

Terri Harder, BSN, RN .... DOH-Collier

Patrick Hickey, BSN, RN .... DOH-Highlands

Jennifer Jackson, MPH, CIC .... DOH-Orange

Florida Department of Health (DOH) Contributors (Continued)

Lori Johnston .... Division of Disease Control and Health Protection, Bureau of Communicable Diseases, Tuberculosis Control Section

Katie Kendrick, MPH .... Division of Disease Control and Health Protection, Bureau of Epidemiology

Nicole Kikuchi, MPH, CPM .... Division of Disease Control and Health Protection, Bureau of Epidemiology

Andrea Leapley, MPH .... Division of Disease Control and Health Protection, Bureau of Epidemiology

Candy Luciano-Green, RN .... DOH-Escambia

Patrick Lynch, MPH .... DOH-Escambia

Lorene Maddox, MPH .... Division of Disease Control and Health Protection, Bureau of Communicable Diseases, HIV/AIDS Section

Laura Matthias, MPH .... Division of Disease Control and Health Protection, Bureau of Epidemiology

Sharon Mayfield, BSN, RN .... Division of Disease Control and Health Protection, Bureau of Epidemiology

Andrea Morrison, PhD, MSPH .... Division of Disease Control and Health Protection, Bureau of Epidemiology

Prakash Mulay, MBBS, MPH .... Division of Disease Control and Health Protection, Bureau of Epidemiology

John Nasir, MLS .... Division of Disease Control and Health Protection, Bureau of Public Health Laboratories

Victoria Pearson, PhD .... Division of Disease Control and Health Protection, Bureau of Communicable Diseases, STD and Viral Hepatitis Section

Nancy Pickens, MPH, MLS .... Division of Disease Control and Health Protection, Bureau of Public Health Laboratories

Brionna Powell, MPH .... DOH-Lee

Juliana Prieto, MPH, CPH .... Division of Disease Control and Health Protection, Bureau of Epidemiology

Scott Pritchard, MPH .... Division of Disease Control and Health Protection, Bureau of Epidemiology

Sudha Rajagopalan, MPH .... Division of Disease Control and Health Protection, Bureau of Epidemiology

Kirtana Ramadugu, MPH .... Division of Disease Control and Health Protection, Bureau of Epidemiology

Danielle Rankin, MPH, CIC .... DOH-Orange

Heyda Rodriguez .... DOH-Orange

Jennifer Roth, MSPH .... DOH-Lee

Ann Schmitz, DVM, AM .... Division of Disease Control and Health Protection, Bureau of Epidemiology

Emma Spencer, PhD, MPH .... Division of Disease Control and Health Protection, Bureau of Communicable Diseases, HIV/AIDS Section

Florida Department of Health (DOH) Contributors (Continued)

Nicole Sodders, MPH........DOH-Broward

Danielle Stanek, DVM........Division of Disease Control and Health Protection, Bureau of Epidemiology

Kimberly Stockdale, MSPH........Division of Disease Control and Health Protection, Bureau of Epidemiology

Kelly Tomson, MS, MLS........Division of Disease Control and Health Protection, Bureau of Public Health Laboratories

Ashley Vineyard, MPH........DOH-Orange

Ana Zegarra, MPH........DOH-Collier

Appendix X: Selected Division of Disease Control and Health Protection Contacts

Bureau of Epidemiology
850-245-4401 (accessible 24 hours a day, 7 days a week, 365 days a year)

Immunization Section
850-245-4342

Bureau of Communicable Diseases

HIV/AIDS Section
850-245-4334

STD and Viral Hepatitis Section
850-245-4303

Tuberculosis Control Section
850-245-4350

Division of Disease Control and Health Protection
Bureau of Epidemiology
4052 Bald Cypress Way, Bin #A-12
Tallahassee, FL 32399
FloridaHealth.gov/MorbidityStatisticsReport