Data Summaries for Reportable Diseases and Conditions

Section 1

Campylobacteriosis

Key Points

Campylobacteriosis is the most common bacterial cause of diarrheal illness in the U.S. The Centers for Disease Control and Prevention estimates that *Campylobacter* infection affects at least 1.5 million U.S. residents each year. While most cases are not part of recognized outbreaks, outbreaks in the U.S. have historically been associated with poultry, raw (unpasteurized) dairy products, seafood, produce, untreated water, puppies and live poultry.

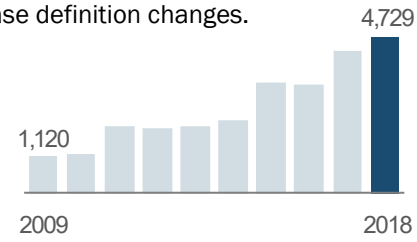
The use of culture-independent diagnostic testing (CIDT) to identify *Campylobacter* has increased dramatically in recent years. Florida changed the campylobacteriosis surveillance case definition in January and July 2011, January 2015 and January 2017 to account for CIDTs, increasing the number of reported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

Campylobacteriosis occurs year-round in Florida, with a slight seasonal increase in spring and summer. Campylobacteriosis incidence is consistently highest in infants <1 year old, followed by children 1 to 4 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

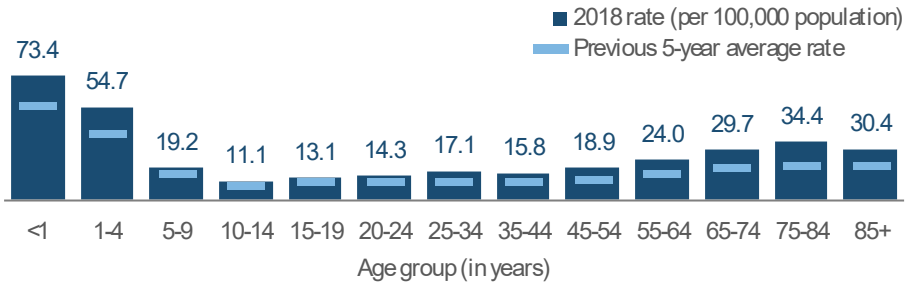
Campylobacteriosis incidence has increased over the past 10 years. Notable increases in 2011, 2015 and 2017 are primarily due to case definition changes.



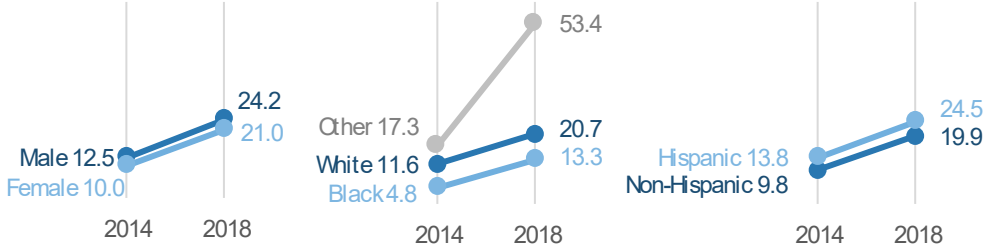
Disease Trends

Summary		
Number of cases		4,729
Rate (per 100,000 population)		22.6
Change from 5-year average rate		+49.1%
Age (in Years)		
Mean		43
Median		48
Min-max		0 - 100
Gender	**Number (Percent)**	**Rate**
Female	2,248 (47.5)	21.0
Male	2,481 (52.5)	24.2
Unknown gender	0	
Race	**Number (Percent)**	**Rate**
White	3,358 (75.2)	20.7
Black	472 (10.6)	13.3
Other	635 (14.2)	53.4
Unknown race	264	
Ethnicity	**Number (Percent)**	**Rate**
Non-Hispanic	3,097 (70.1)	19.9
Hispanic	1,320 (29.9)	24.5
Unknown ethnicity	312	

The campylobacteriosis rate (per 100,000 population) is highest in infants <1 year 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 from 2014 to 2018, particularly in other races. The rates are slightly higher in males, whites and Hispanics compared to females, blacks and non-Hispanics in 2018. The rate was notably higher in other races compared to whites and blacks in 2018.

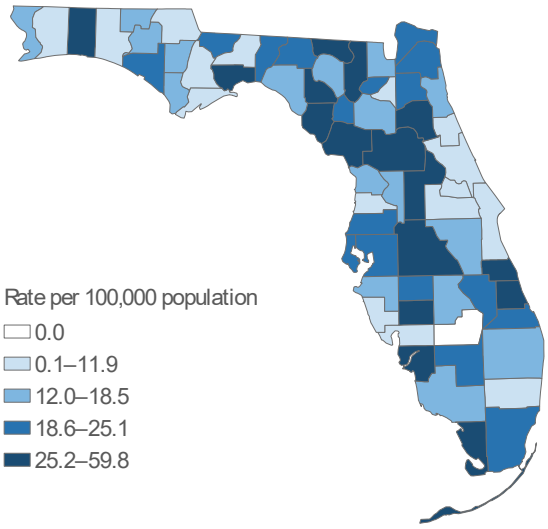


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Campylobacteriosis cases were missing 6.6% of ethnicity data in 2018 and 5.6% of race data in 2018.

Campylobacteriosis

Summary	Number	
Number of cases	4,729	
Case Classification	**Number**	**(Percent)**
Confirmed	1,401	(29.6)
Probable	3,328	(70.4)
Outcome	**Number**	**(Percent)**
Hospitalized	1,706	(36.1)
Died	19	(0.4)
Sensitive Situation	**Number**	**(Percent)**
Daycare	151	(3.2)
Health care	73	(1.5)
Food handler	49	(1.0)
Imported Status	**Number**	**(Percent)**
Acquired in Florida	3,790	(90.7)
Acquired in the U.S., not Florida	84	(2.0)
Acquired outside the U.S.	304	(7.3)
Acquired location unknown	551	
Outbreak Status	**Number**	**(Percent)**
Sporadic	4,242	(91.8)
Outbreak-associated	379	(8.2)
Outbreak status unknown	108	

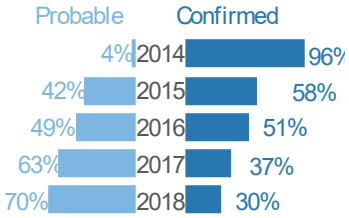
Campylobacteriosis occurs throughout the state. In 2018, rates (per 100,000 population) were highest in small, rural counties, particularly in the north central part of the state.



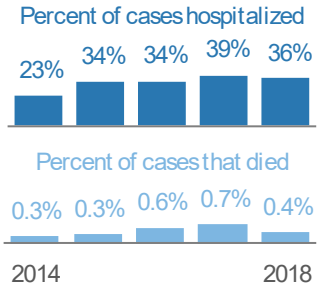
Rates are by county of residence for infections acquired in Florida (3,790 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

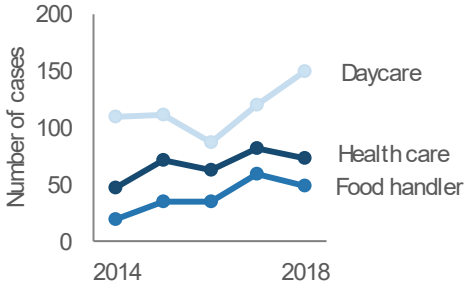
The percentage of probable cases began increasing in 2015 due to case definition changes and increased use of CIDT.



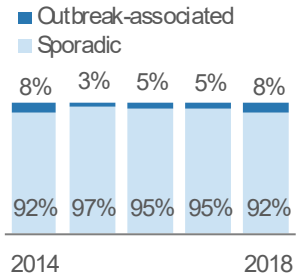
Between 20 and 40% of cases are hospitalized each year. Very few cases die.



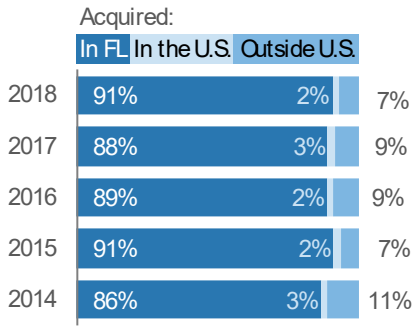
Cases in sensitive situations are monitored. No outbreaks have been identified in these settings in recent years.



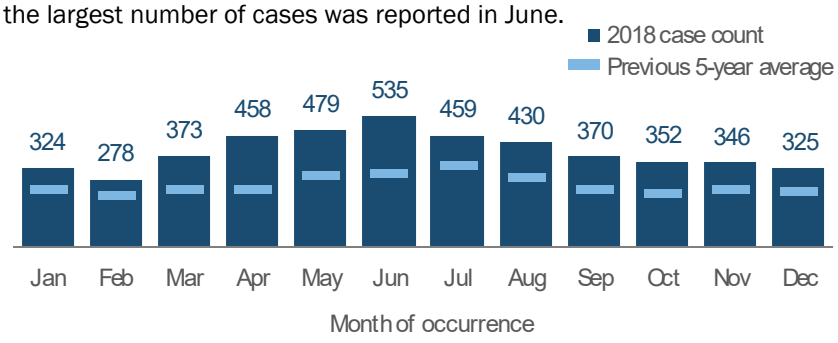
Most cases are sporadic; less than 10% are outbreak -associated and often reflect household clusters.



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



Campylobacteriosis occurred throughout 2018, though cases were slightly higher in spring and summer, which is consistent with past years. In 2018, the largest number of cases was reported in June.



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

Carbon Monoxide Poisoning

Key Points

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 or probable cases were associated with exposures related to Hurricane Irma; an additional 170 suspect cases were also identified.

In 2018, Hurricane Michael, a category 5 storm, made landfall in the Florida Panhandle on October 10, also causing extensive power outages and generator use in the area. However, only two sporadic confirmed or probable cases associated with inappropriate generator use after Hurricane Michael were reported. An additional 17 suspect cases were also identified. The fewer number of cases associated with Hurricane Michael reflects the smaller population of impacted counties compared to counties affected by Hurricane Irma.

The most commonly identified exposures for 2018 cases were automobile and recreational vehicles (RVs) (20%), generators (19%), fuel-burning appliances (16%) and fires (14%).

Disease Facts

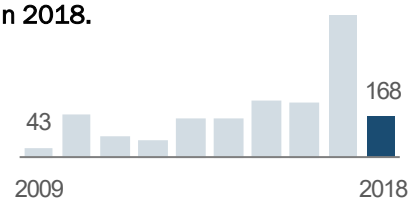
Caused by carbon monoxide (CO) gas

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

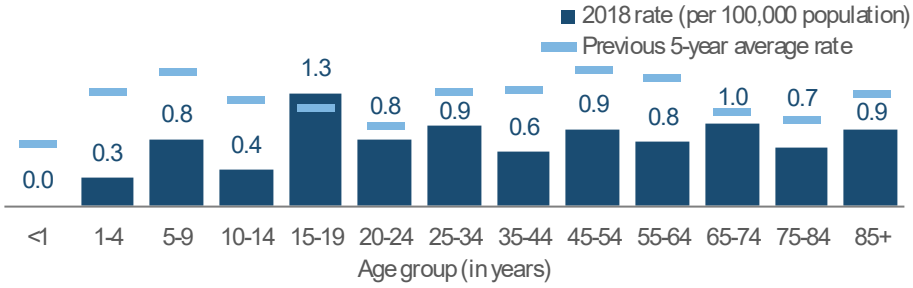
After the sharp increase in 2017 as a result of Hurricane Irma, CO poisoning incidence returned to an average level in 2018.



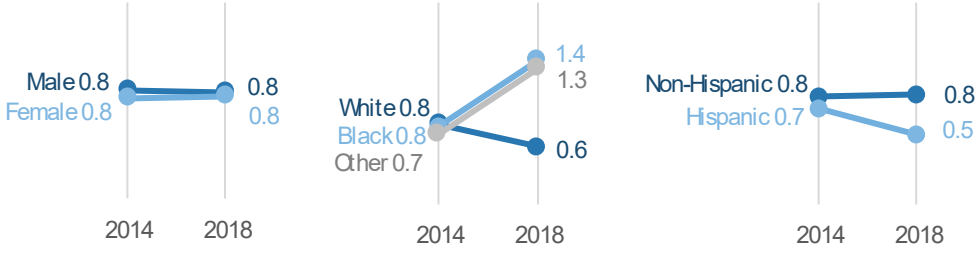
Disease Trends

Summary		
Number of cases		168
Rate (per 100,000 population)		0.8
Change from 5-year average rate		-39.9%
Age (in Years)		
Mean		43
Median		43
Min-max		3 - 96
Gender	**Number (Percent)**	**Rate**
Female	84 (50.0)	0.8
Male	84 (50.0)	0.8
Unknown gender	0	
Race	**Number (Percent)**	**Rate**
White	93 (58.1)	0.6
Black	51 (31.9)	1.4
Other	16 (10.0)	NA
Unknown race	8	
Ethnicity	**Number (Percent)**	**Rate**
Non-Hispanic	127 (81.9)	0.8
Hispanic	28 (18.1)	0.5
Unknown ethnicity	13	

In 2018, the CO poisoning rate (per 100,000 population) was highest in adolescents 15 to 19 years old and adults 65 to 74 years old. In past years, the rate was highest in adults 25 to 45 years old. The difference seen in the previous 5-year average rate is likely being driven by the spike in cases in 2017.



In 2018, CO poisoning rates (per 100,000 population) were the same for gender groups, but slightly higher in non-Hispanics and notably higher in blacks and other races. While the rates decreased slightly in whites and Hispanics over the past five years, rates increased in blacks and other races over the same time period.

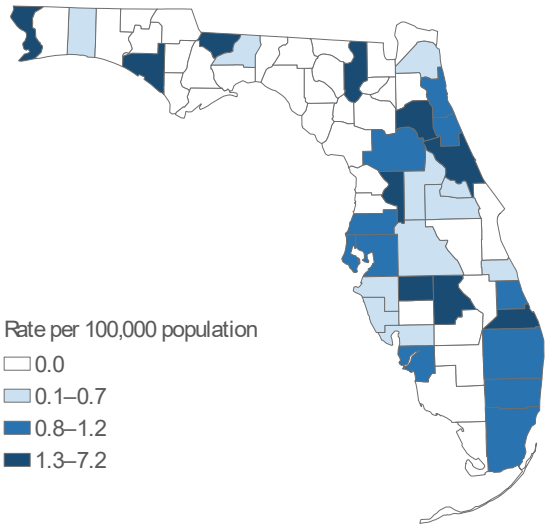


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Carbon monoxide poisoning cases were missing 7.7% of ethnicity data in 2018.

Carbon Monoxide Poisoning

Summary	Number	
Number of cases	168	
Case Classification	**Number**	**(Percent)**
Confirmed	142	(84.5)
Probable	26	(15.5)
Outcome	**Number**	**(Percent)**
Hospitalized	62	(36.9)
Died	7	(4.2)
Imported Status	**Number**	**(Percent)**
Exposed in Florida	167	(100.0)
Exposed in the U.S., not Florida	0	(0.0)
Exposed outside the U.S.	0	(0.0)
Exposed location unknown	1	
Outbreak Status	**Number**	**(Percent)**
Sporadic	89	(53.0)
Outbreak-associated	79	(47.0)
Outbreak status unknown	0	
Exposure Type	**Number**	**(Percent)**
Automobile/RV	34	(20.2)
Generator	31	(18.5)
Fuel-burning appliance	27	(16.1)
Fire	24	(14.3)
Other	35	(20.8)
Unknown	17	(10.1)

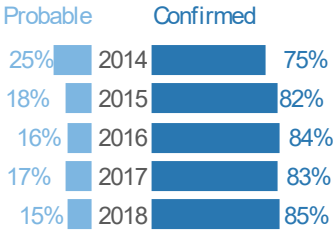
Carbon monoxide poisonings in 2018 were concentrated in northeast, central and southeast Florida. Rates (per 100,000) were highest in small, rural counties throughout the state.



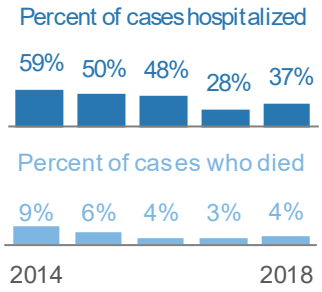
Rates are by county of residence for cases exposed in Florida (167 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

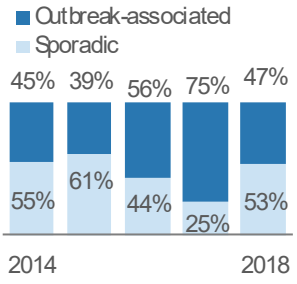
Most CO poisoning cases are confirmed. In 2018, 85% of cases were confirmed.



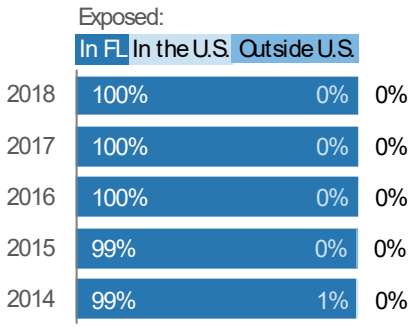
Between 25 and 60% of cases are hospitalized each year; deaths do occur.



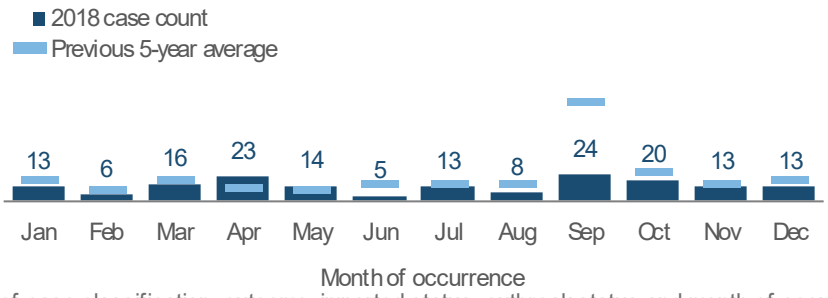
About half (47%) of CO poisoning cases were linked to at least one other case in 2018. Over half of these cases were associated with exposure to automobile (23 cases) or generator (19 cases) exhaust. Two distinct outbreaks (seven and five cases each) were identified in Miami-Dade County; both occurred in a school cafeteria and were caused by faulty exhaust.



Almost all CO poisoning cases are exposed in Florida.



CO poisoning cases were highest in April and September in 2018. 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 sexually transmitted disease in Florida and the U.S.; incidence rates have been slowly increasing over the past decade. Incidence is highest among females 20 to 24 years old and non-Hispanic blacks. If untreated, chlamydia can lead to serious reproductive complications and can make it difficult for females to conceive. As the infection is frequently asymptomatic, screening is necessary to identify most infections; early detection and treatment can prevent sequelae.

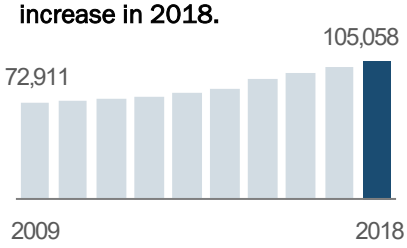
The rate of chlamydia in races other than white and black has increased over the past 10 years, particularly in the past four years. The rate has decreased in non-Hispanic blacks, primarily driven by a decrease in infections in young black females.

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

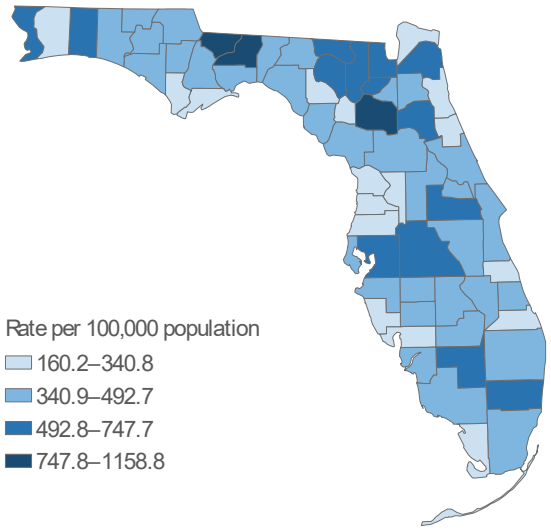
Disease Trends

Chlamydia incidence continued to increase in 2018.



Summary			
Number of cases			105,058
Rate (per 100,000 population)			501.3
Change from 5-year average rate			+11.2%
Age (in Years)			
Mean			25
Median			22
Min-max			5 - 99
Gender	**Number**	**(Percent)**	**Rate**
Female	68,691	(65.4)	641.2
Male	36,339	(34.6)	354.7
Unknown gender	28		
Race	**Number**	**(Percent)**	**Rate**
White	34,451	(40.2)	212.4
Black	35,581	(41.5)	1002.4
Other	15,649	(18.3)	1316.7
Unknown race	19,377		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	63,020	(79.2)	404.9
Hispanic	16,557	(20.8)	307.0
Unknown ethnicity	25,481		

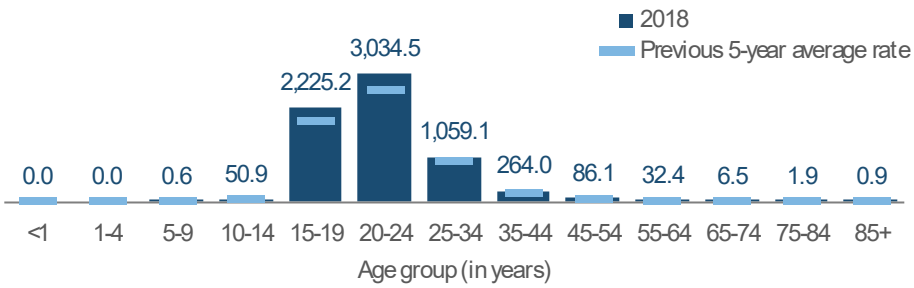
Chlamydia occurs throughout the state. The highest rates (per 100,000 population) in 2018 were in Leon (1,158.8), Gadsden (1,002.6), Alachua (938.8), Duval (747.7) and Orange (724.2) counties. These counties accounted for 22% of the state's cases, but only 14% of the state's population. The largest number of cases were reported in Miami-Dade (13,415 cases) and Broward (11,347 cases) counties. These two counties accounted for 24% of the state's cases and 22% of the state's population.



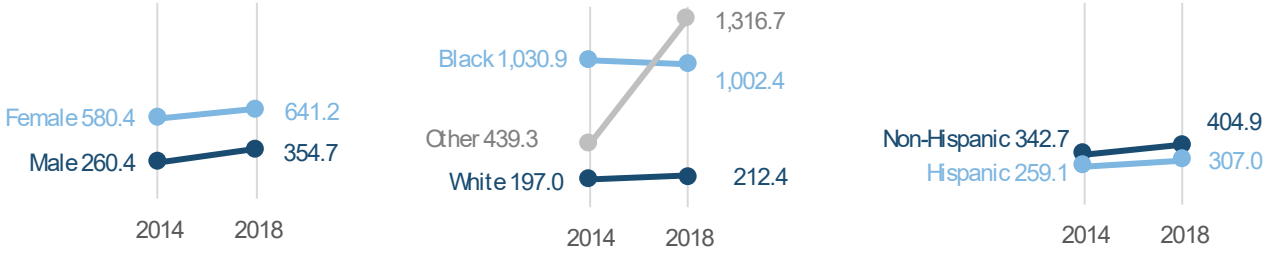
Rates are by county of residence, regardless of where infection was acquired (105,058 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

Chlamydia (Excluding Neonatal Conjunctivitis)

Chlamydia rates (per 100,000 population) are highest in adults 20 to 24 years old, followed by teenagers 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 ethnicity groups from 2014 to 2018, except in blacks where it decreased slightly. The rate in other races almost tripled in that time, and now that group has the highest rate, followed by blacks then whites.



Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Chlamydia cases (excluding neonatal conjunctivitis) were missing 23.9% of ethnicity data in 2014, 17.7% of race data in 2014, 24.3% of ethnicity data in 2018 and 18.4% of race data in 2018.

Chlamydia rates (per 100,000 population) are highest in adults 20 to 24 years old, followed by teenagers 15 to 19 years old. Overall, rates have increased in males in both age groups and in females 20 to 24 years old. 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

	2009 rate	10-year trend	2018 rate
Total	**2,795.8**		**2,502.2**
White	784.3		774.0
Black	1,612.1		962.9
Hispanic	341.1		455.0
Other	58.3		310.3

Males 15–19 years old

	2009 rate	10-year trend	2018 rate
Total	**639.6**		**764.1**
White	117.5		154.2
Black	441.8		404.2
Hispanic	67.6		114.4
Other	12.7		91.3

Females 20–24 years old

	2009 rate	10-year trend	2018 rate
Total	**2,729.5**		**3,174.6**
White	810.1		995.1
Black	1,463.7		1,212.5
Hispanic	391.7		590.6
Other	64.0		376.4

Males 20–24 years old

	2009 rate	10-year trend	2018 rate
Total	**1,104.9**		**1,400.9**
White	252.4		363.3
Black	675.1		617.2
Hispanic	148.2		254.6
Other	29.2		165.8

Ciguatera Fish Poisoning

Key Points

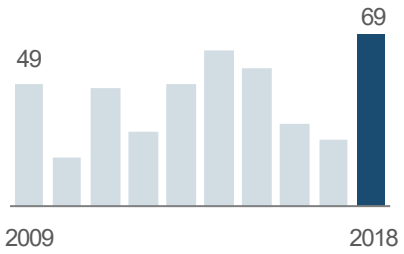
Ciguatoxin is produced by dinoflagellates in the genus *Gambierdiscus*. Marine dinoflagellates are typically found in tropical and subtropical waters and are eaten by herbivorous fish that are in turn eaten by larger carnivorous fish, causing the toxins to bioaccumulate in larger fish such as barracuda or grouper. 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. Forty-eight investigations occurred in 2018 involving 74 cases, of which 68 cases were in Florida residents and six cases were in non-Florida residents. One Florida resident case reported in 2018 was associated with an investigation that occurred in 2017. Investigations involved an average of 1.6 cases with a range of one to five cases. The most common fish consumed was barracuda. Cases were most commonly associated with recreationally harvested fish. In 2018, cases were investigated throughout the year, with the largest number of cases occurring in February, June, July and September.

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)

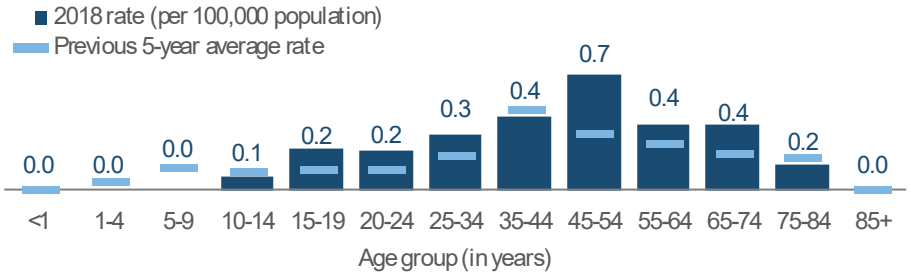
More ciguatera fish poisoning cases were reported in 2018 than any year since 2009.



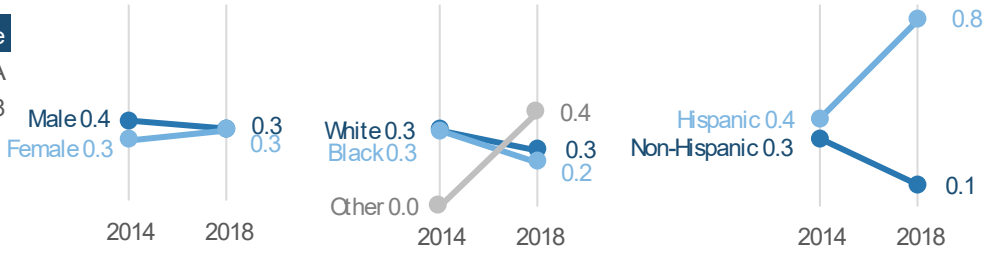
Disease Trends

Summary			
Number of cases			69
Rate (per 100,000 population)			0.3
Change from 5-year average rate			+43.0%
Age (in Years)			
Mean			47
Median			48
Min-max			13 - 78
Gender	**Number**	**(Percent)**	**Rate**
Female	35	(50.7)	0.3
Male	34	(49.3)	0.3
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	41	(77.4)	0.3
Black	7	(13.2)	NA
Other	5	(9.4)	NA
Unknown race	16		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	15	(25.0)	NA
Hispanic	45	(75.0)	0.8
Unknown ethnicity	9		

The ciguatera fish poisoning rate (per 100,000 population) is generally highest in adults aged 25 to 74 years. In 2018, 65 cases were reported in adults and three cases were reported in teenagers. Age was unknown for one case.



The ciguatera fish poisoning rate (per 100,000 population) is generally similar in males and females as well as in whites and blacks. The rate was slightly higher in other races and notably higher in Hispanics in 2018.

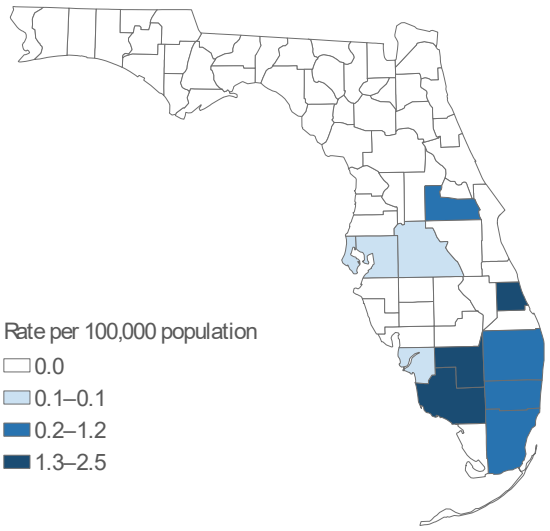


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Ciguatera fish poisoning cases were missing 13.0% of ethnicity data in 2018 and 23.2% of race data in 2018.

Ciguatera Fish Poisoning

Summary	Number	
Number of cases	69	
Outcome	**Number**	**(Percent)**
Hospitalized	11	(15.9)
Died	0	(0.0)
Imported Status	**Number**	**(Percent)**
Exposed in Florida	61	(89.7)
Exposed in the U.S., not Florida	0	(0.0)
Exposed outside the U.S.	7	(10.3)
Exposed location unknown	1	
Outbreak Status	**Number**	**(Percent)**
Sporadic	31	(44.9)
Outbreak-associated	38	(55.1)
Outbreak status unknown	0	

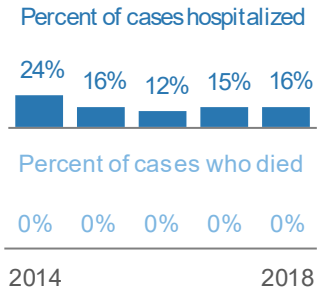
Ciguatera fish poisoning cases tend to occur in coastal counties, particularly in south Florida. In 2018, the rate per 100,000 population was highest in Hendry County (one case); Miami-Dade County accounted for just over half of all cases (38).



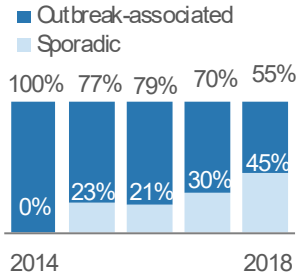
Rates are by county of residence for cases exposed in Florida (61 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

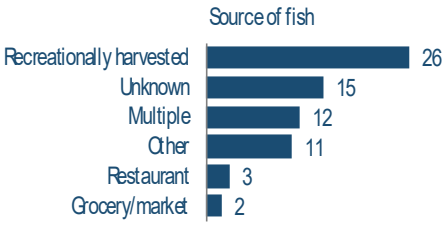
Less than 25% of cases are hospitalized. No deaths have been identified in recent years.



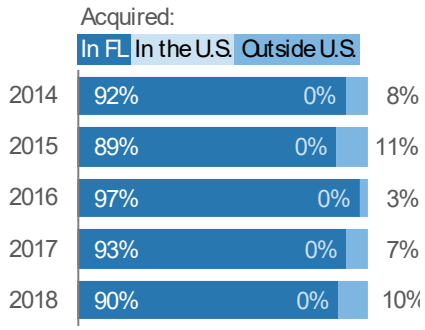
Most cases are outbreak-associated. Implicated fish are commonly shared by multiple people.



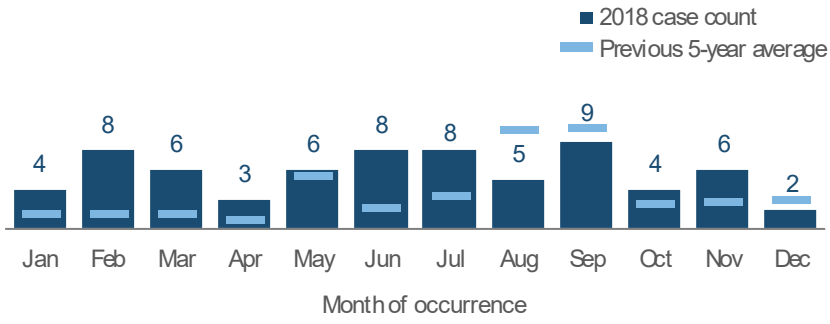
Most fish causing ciguatera fish poisoning were recreationally harvested. Frequently, multiple sources of fish are identified, and occasionally, no source can be identified.



More than 85% of cases are exposed in Florida each year.



Ciguatera fish poisoning generally peaks in August and September. However, more cases were identified in February, June, July and September in 2018.



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

Cryptosporidiosis

Key Points

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. 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 have generally decreased. Cryptosporidiosis incidence is consistently highest in children 1 to 4 years old.

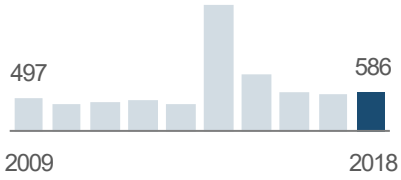
Disease Facts

- **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 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 two waterborne disease outbreaks due to *Cryptosporidium* in 2018. One outbreak (seven cases) was associated with recreational water at a natural spring while the second outbreak (seven cases) implicated a splash park as the source. There was one person-to-person outbreak (11 cases) in 2018 associated with a child care facility. Other reported clusters of illness were associated with person-to-person transmission, travel and daycares.

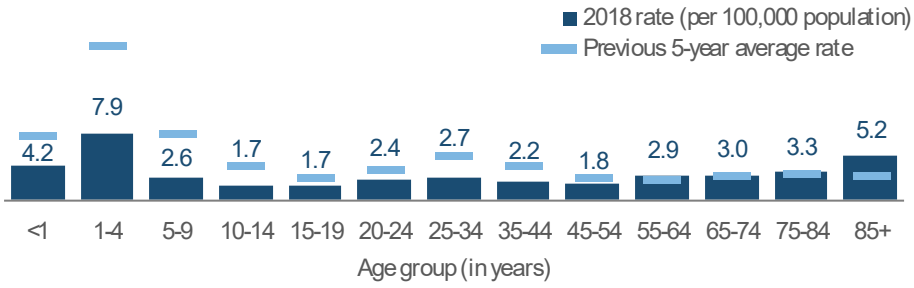
Cryptosporidiosis incidence increased sharply in 2014, decreased in 2015 and 2016, and has remained relatively stable since.



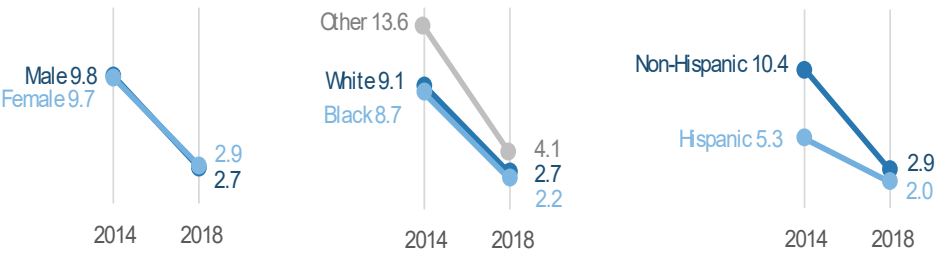
Disease Trends

Summary			
Number of cases			586
Rate (per 100,000 population)			2.8
Change from 5-year average rate			-35.7%
Age (in Years)			
Mean			41
Median			41
Min-max			0 - 102
Gender	**Number**	**(Percent)**	**Rate**
Female	309	(52.7)	2.9
Male	277	(47.3)	2.7
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	435	(77.3)	2.7
Black	79	(14.0)	2.2
Other	49	(8.7)	4.1
Unknown race	23		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	449	(80.8)	2.9
Hispanic	107	(19.2)	2.0
Unknown ethnicity	30		

The cryptosporidiosis rate (per 100,000 population) is consistently highest in children 1 to 4 years old, which remained true in 2018.



The cryptosporidiosis rate (per 100,000 population) decreased among all demographics from 2014 to 2018. Rates were similar by gender, race and ethnicity in 2018, with the exception of other races, which was higher.

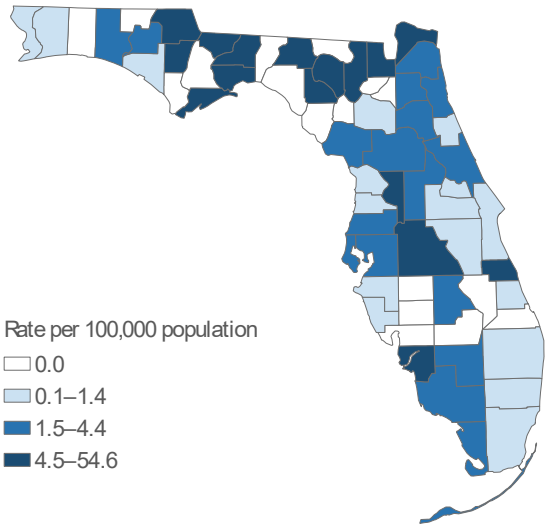


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Cryptosporidiosis cases were missing 5.2% of ethnicity data in 2014 and 5.1% of ethnicity data in 2018.

Cryptosporidiosis

Summary	Number	
Number of cases	586	
Case Classification	**Number**	**(Percent)**
Confirmed	250	(42.7)
Probable	336	(57.3)
Outcome	**Number**	**(Percent)**
Hospitalized	217	(37.0)
Died	1	(0.2)
Sensitive Situation	**Number**	**(Percent)**
Daycare	42	(7.2)
Health care	13	(2.2)
Food handler	13	(2.2)
Imported Status	**Number**	**(Percent)**
Acquired in Florida	472	(91.1)
Acquired in the U.S., not Florida	5	(1.0)
Acquired outside the U.S.	41	(7.9)
Acquired location unknown	68	
Outbreak Status	**Number**	**(Percent)**
Sporadic	495	(84.5)
Outbreak-associated	91	(15.5)
Outbreak status unknown	0	

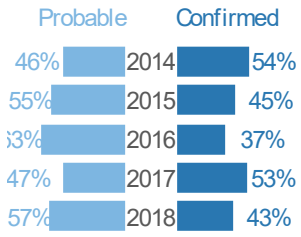
Cryptosporidiosis occurs throughout the state. The highest rates (per 100,000) in 2018 generally occurred in small, rural counties with lower rates in many of the large, metropolitan areas of the state.



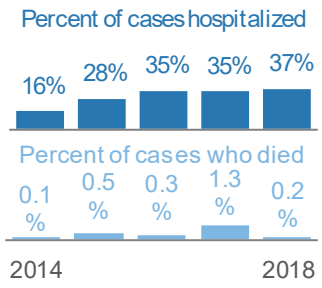
Rates are by county of residence for infections acquired in Florida (472 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

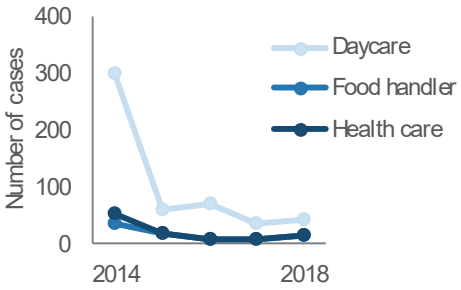
Unlike many other reportable diseases, only about half of cryptosporidiosis cases are confirmed.



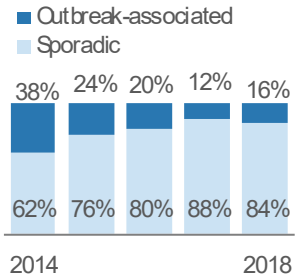
Hospitalizations and deaths are typically related to underlying conditions and comorbidities.



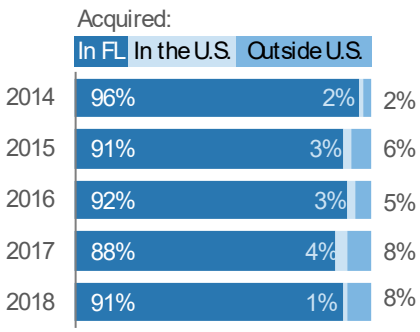
Many of the 2014 cases occurred in daycare settings. People in sensitive situations may pose a risk for transmitting infection to others.



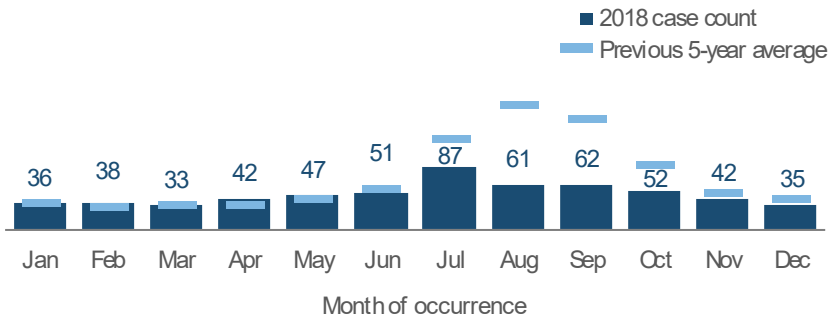
Most cryptosporidiosis case are sporadic. Only 16% were outbreak-associated in 2018.



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, 2015 and 2018. In the U.S., cyclosporiasis outbreaks are primarily foodborne and have been linked to various types of imported fresh produce, including basil, cilantro, mesclun lettuce, raspberries and snow peas.

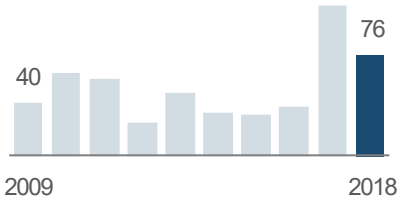
In 2018, 2,299 laboratory-confirmed cases of cyclosporiasis were reported nationally as of October 1, 2018 (the most recent date for which national data were available). These cases were reported by 33 different states, had illness onset from May to August 2018, and had no history of international travel during the 14-day period prior to illness onset. Florida reported 72 (95%) of its 76 cases during this same time period.

The national increase in cases was attributed, in part, to multiple large foodborne outbreaks reported from May to August 2018. Globalization of food distribution typically results in the same products being sold and consumed across the U.S. While cases cannot always be linked to a particular outbreak, Florida's elevated incidence in 2018 is likely a result of the same food products driving the national increase. In 2018, Florida identified one case associated with a multistate outbreak and four cases associated with two in-state household clusters (two cases in each cluster; vehicles unknown).

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

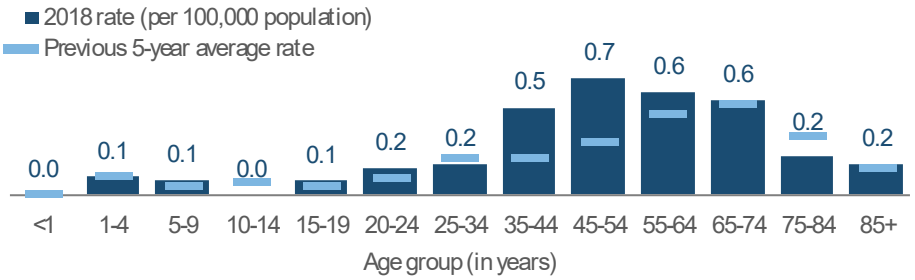
Cyclosporiasis incidence increased sharply in 2017 and remained elevated in 2018.



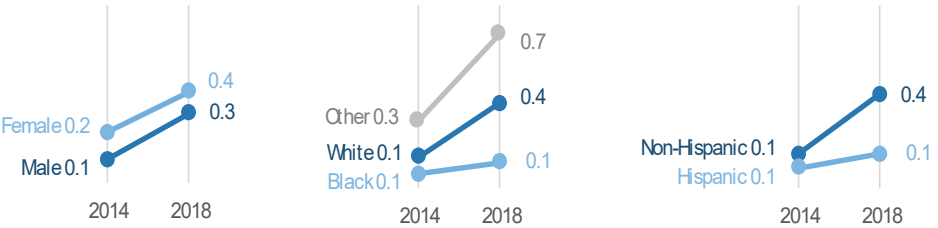
Disease Trends

Summary			
Number of cases			76
Rate (per 100,000 population)			0.4
Change from 5-year average rate			+38.9%
Age (in Years)			
Mean			52
Median			54
Min-max			3 - 89
Gender	**Number**	**(Percent)**	**Rate**
Female	44	(57.9)	0.4
Male	32	(42.1)	0.3
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	60	(83.3)	0.4
Black	4	(5.6)	NA
Other	8	(11.1)	NA
Unknown race	4		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	64	(88.9)	0.4
Hispanic	8	(11.1)	NA
Unknown ethnicity	4		

The cyclosporiasis rate (per 100,000 population) is consistently higher in adults ≥25 years old and was particularly high in adults 45 to 54 years old in 2018.



Driven primarily by the larger increase in 2017, cyclosporiasis rates (per 100,000 population) increased in all gender, race and ethnicity groups except blacks and Hispanics from 2014 to 2018. Rates were similar in gender groups, but higher in other races, whites and non-Hispanics in 2018.

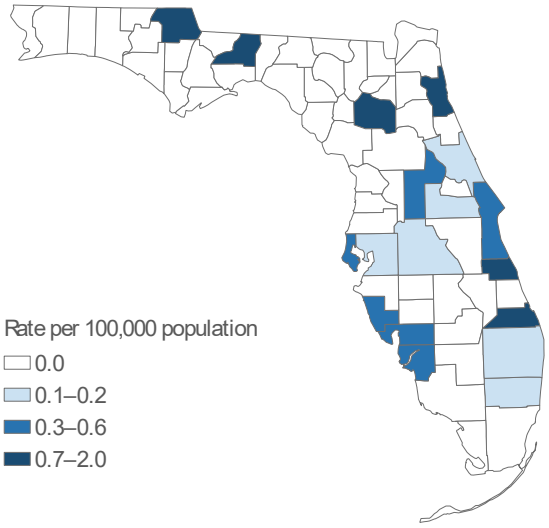


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Cyclosporiasis cases were missing 21.2% of ethnicity data in 2014, 21.2% of race data in 2014, 5.3% of ethnicity data in 2018 and 5.3% of race data in 2018.

Cyclosporiasis

Summary	Number	
Number of cases	76	
Case Classification	**Number**	**(Percent)**
Confirmed	75	(98.7)
Probable	1	(1.3)
Outcome	**Number**	**(Percent)**
Hospitalized	5	(6.6)
Died	0	(0.0)
Imported Status	**Number**	**(Percent)**
Acquired in Florida	38	(67.9)
Acquired in the U.S., not Florida	6	(10.7)
Acquired outside the U.S.	12	(21.4)
Acquired location unknown	20	
Outbreak Status	**Number**	**(Percent)**
Sporadic	65	(85.5)
Outbreak-associated	5	(6.6)
Outbreak status unknown	6	

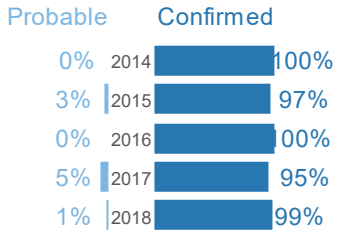
Cyclosporiasis cases occurred primarily in central and south Florida counties in 2018. The rate (per 100,000 population) was highest in Jackson County (one case); Alachua and Lee counties had the most reported cases (four cases each).



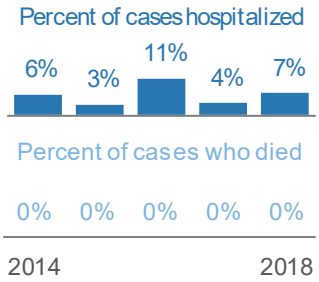
Rates are by county of residence for infections acquired in Florida (38 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

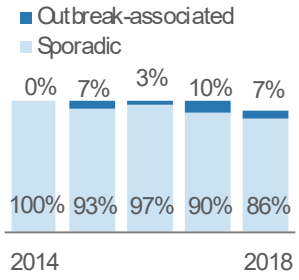
The majority of cyclosporiasis cases are confirmed. Probable cases are symptomatic people epidemiologically linked to confirmed cases.



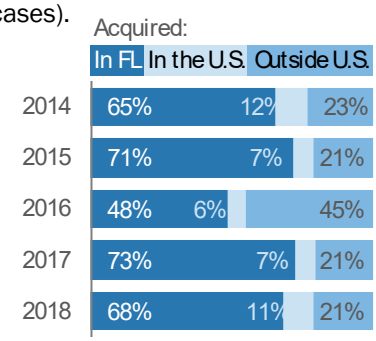
Few cyclosporiasis cases are hospitalized. No deaths have occurred in recent years.



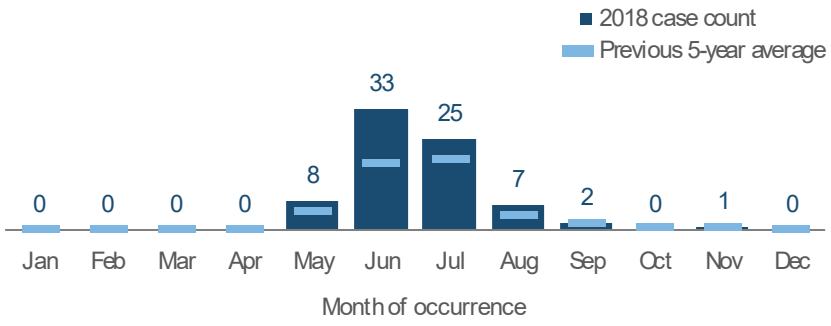
Most cyclosporiasis cases are sporadic. The percentage of outbreak-associated cases decreased to 7% in 2018.



Most cyclosporiasis infections are acquired in Florida. Over half of infections acquired outside the U.S. were from Mexico (seven 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

Historically the Americas, primarily the Caribbean, have served as primary sources of dengue virus exposures in Florida residents. However, at least one locally acquired case has been identified each year from 2009 to 2018, with the exception of 2017. Introductions have been primarily in south Florida. Two outbreaks of locally acquired dengue fever have occurred; one in Monroe County (2009 to 2010) and one in Martin County (2013). Dengue fever incidence was abnormally low in 2017 but returned to an average level in 2018.

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. Four dengue fever cases were identified in non-Florida residents while traveling in Florida in 2018.

Of the 87 cases reported in 2018, two were initially identified in previous years (one case each in 2016 and 2017). The 2016 case was first reported as a confirmed Zika case; additional laboratory testing allowed the person to also be reported as a confirmed dengue fever case. Five additional cases were identified in 2018 but were not reported until 2019 and will therefore be included in the 2019 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.

Disease Facts

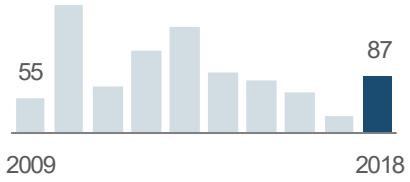
Caused by dengue viruses (DENV-1, DENV-2, DENV-3, DENV-4)

Illness is acute febrile with headache, joint and muscle pain, rash and eye pain; severe dengue (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, implement control measures to prevent introduction and active transmission, monitor incidence over time, estimate burden of illness

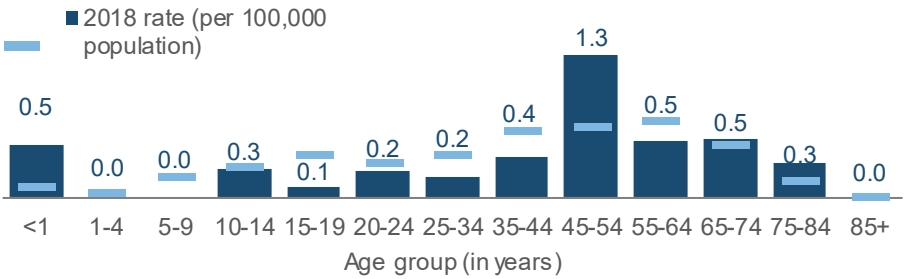
Dengue fever incidence returned to an average level in 2018.



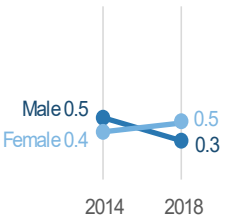
Disease Trends

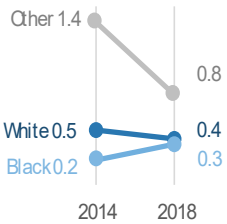
Summary			
Number of cases			87
Rate (per 100,000 population)			0.4
Change from 5-year average rate			-2.5%
Age (in Years)			
Mean			49
Median			50
Min-max			0 - 77
Gender	**Number**	**(Percent)**	**Rate**
Female	53	(60.9)	0.5
Male	34	(39.1)	0.3
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	62	(74.7)	0.4
Black	12	(14.5)	NA
Other	9	(10.8)	NA
Unknown race	4		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	26	(31.3)	0.2
Hispanic	57	(68.7)	1.1
Unknown ethnicity	4		

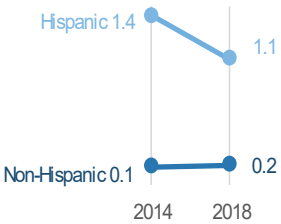
The dengue fever rate (per 100,000 population) has historically been highest in adults 25 to 74 years old. In 2018, the rate was highest in adults 45 to 54 years old; the youngest case was seven months old.



The dengue fever rate (per 100,000 population) is similar in males, females, blacks, whites and non-Hispanics. In 2014, rates were higher in other races and Hispanics, though there was less difference between race and ethnic groups in 2018.



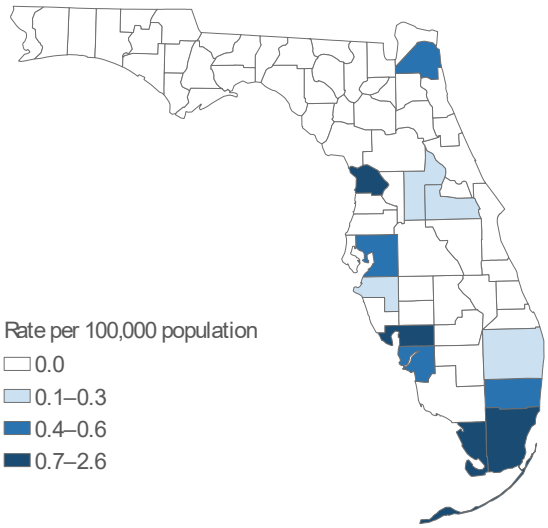




Dengue Fever

Summary	Number	
Number of cases	87	
Case Classification	**Number**	**(Percent)**
Confirmed	74	(85.1)
Probable	13	(14.9)
Outcome	**Number**	**(Percent)**
Hospitalized	46	(52.9)
Died	0	(0.0)
Imported Status	**Number**	**(Percent)**
Acquired in Florida	1	(1.1)
Acquired in the U.S., not Florida	1	(1.1)
Acquired outside the U.S.	85	(97.7)
Acquired location unknown	0	
Outbreak Status	**Number**	**(Percent)**
Sporadic	82	(94.3)
Outbreak-associated	5	(5.7)
Outbreak status unknown	0	

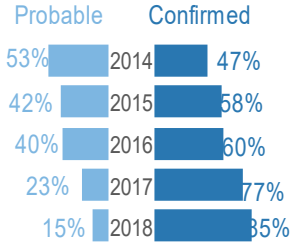
Dengue fever was identified more frequently in Miami-Dade County and Broward County residents in 2018, with 46 cases and 11 cases reported respectively.



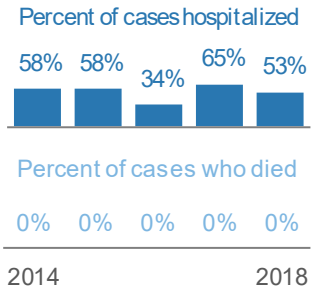
Rates are by county of residence, regardless of where infection was acquired (87 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

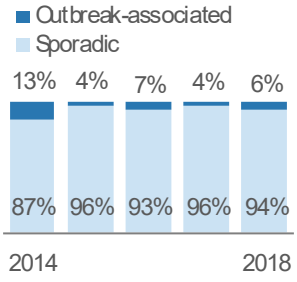
The percentage of confirmed cases was higher in 2018 than in the previous four years.



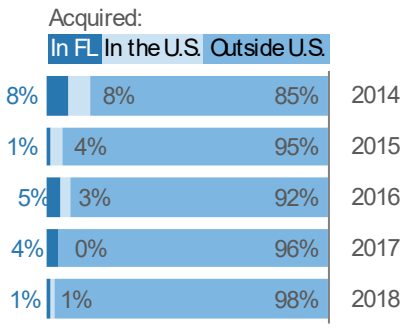
The rate of hospitalization is relatively high, but no deaths have occurred in recent years.



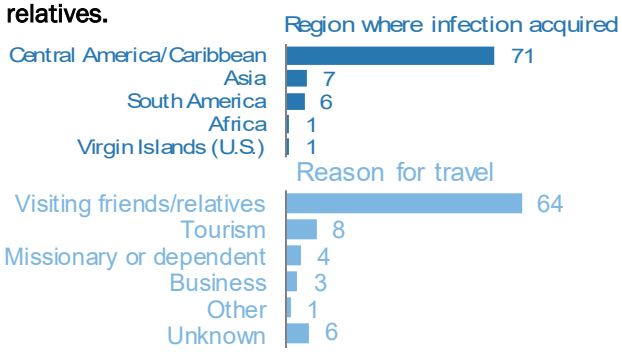
Four outbreak-associated cases in 2018 were linked to Haiti (mission trip: two cases; visiting relatives: two cases).



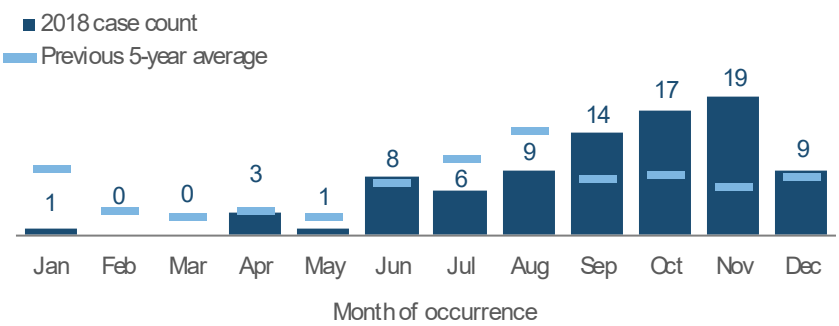
One case was acquired in Miami-Dade County in 2018; all others were imported from other countries or U.S. territories with endemic transmission.



Most dengue fever cases were acquired in the Caribbean, primarily Cuba, while visiting friends and relatives.



Dengue fever cases are most common in summer and fall, but can be imported any time of year. In 2018, 68% of cases occurred from August to November.



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

Ehrlichiosis

Key Points

Ehrlichiosis is a broad term used to describe illnesses caused by 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, called *Ehrlichia muris eauclairensis*, has been reported in a small number of cases in Minnesota and Wisconsin; it is transmitted by the black-legged tick (*Ixodes scapularis*).

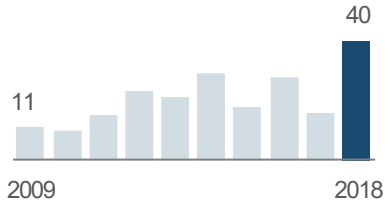
Disease Facts

- **Caused** by *Ehrlichia chaffeensis*, *Ehrlichia ewingii*, *Ehrlichia muris eauclairensis* bacteria
- **Illness** includes fever, headache, fatigue and muscle aches
- **Transmitted** via bite of infective tick; rarely through blood transfusion and organ transplant
- **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 *E. muris eauclairensis* are most frequently identified in immunocompromised patients. Severe illness is most frequent in adults >50 years old and those who are immunocompromised. Delays in treatment can increase risk for severe outcomes across all age groups.

Erhlichiosis incidence in Florida increased notably in 2018, consistent with general increases in tickborne rickettsial infections nationally. A larger proportion of cases (15%) with reported exposures outside of Florida also contributed to this increase. In 2018, the majority of cases were in males. Most cases were also in whites and non-Hispanics, which may in part be due to more homogenous population demographics in northern and central Florida where most exposures occur.

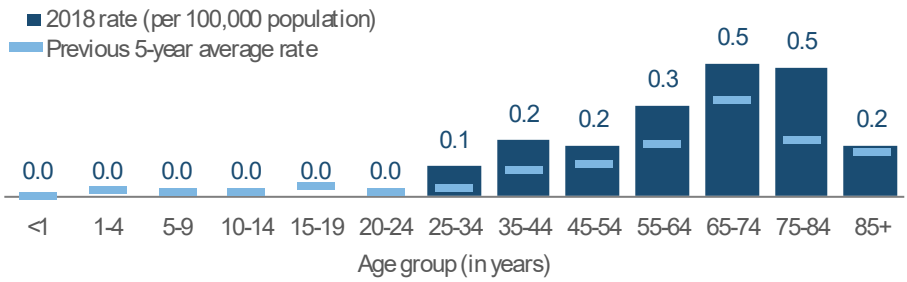
Ehrlichiosis incidence increased notably in 2018.



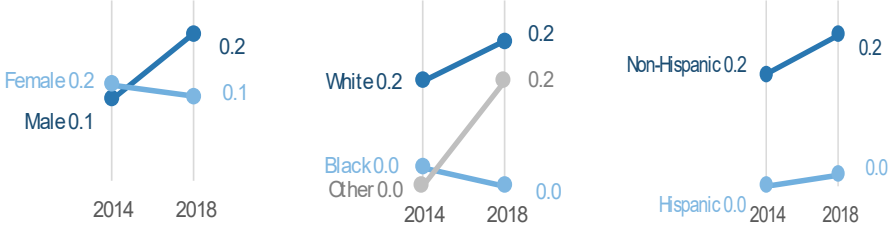
Disease Trends

The ehrlichiosis rate (per 100,000 population) is highest in adults, particularly in adults 55 to 84 years old.

Summary		
Number of cases		40
Rate (per 100,000 population)		0.2
Change from 5-year average rate		+69.3%
Age (in Years)		
Mean		60
Median		62
Min-max		25 - 86
Gender	**Number (Percent)**	**Rate**
Female	15 (37.5)	NA
Male	25 (62.5)	0.2
Unknown gender	0	
Race	**Number (Percent)**	**Rate**
White	38 (95.0)	0.2
Black	0 (0.0)	NA
Other	2 (5.0)	NA
Unknown race	0	
Ethnicity	**Number (Percent)**	**Rate**
Non-Hispanic	38 (97.4)	0.2
Hispanic	1 (2.6)	NA
Unknown ethnicity	1	



Ehrlichiosis rates (per 100,000 population) remained relatively stable in all demographics from 2014 to 2018, except for other races, where it increased slightly. Rates were higher in males, whites, other races and non-Hispanics in 2018.



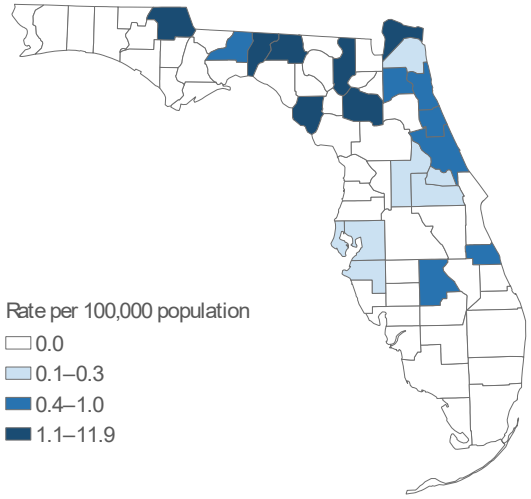
Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Ehrlichiosis cases were missing 6.9% of ethnicity data in 2014 and 6.9% of race data in 2014.

Ehrlichiosis

Summary	Number	
Number of cases	40	
Case Classification	**Number**	**(Percent)**
Confirmed	21	(52.5)
Probable	19	(47.5)
Outcome	**Number**	**(Percent)**
Hospitalized	29	(72.5)
Died	0	(0.0)
Imported Status	**Number**	**(Percent)**
Acquired in Florida	28	(82.4)
Acquired in the U.S., not Florida	6	(17.6)
Acquired outside the U.S.	0	(0.0)
Acquired location unknown	6	
Outbreak Status	**Number**	**(Percent)**
Sporadic	40	(100.0)
Outbreak-associated	0	(0.0)
Outbreak status unknown	0	

Of note, one "ehrlichiosis/anaplasmosis, undetermined" case was reported in 2018; it is not included in the ehrlichiosis case count. Serologic testing could not determine whether this infection was caused by *Ehrlichia* or *Anaplasma*; however, epidemiological data suggest it was likely caused by *Ehrlichia*.

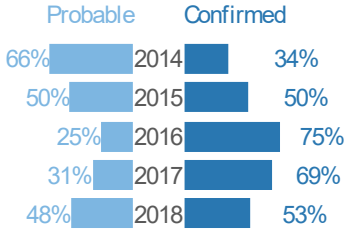
Most ehrlichiosis infections acquired within Florida are in residents of northern and central counties. In 2018, four cases were reported in Alachua County and two cases each in Dixie, Duval, Leon and Volusia counties. The remaining 16 counties each had one case reported.



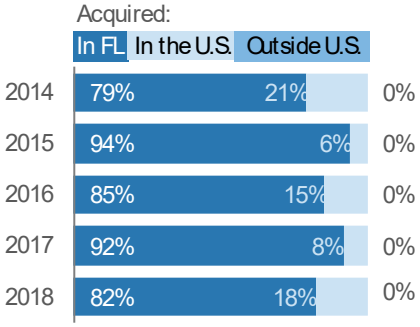
Rates are by county of residence for infections acquired in Florida (28 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

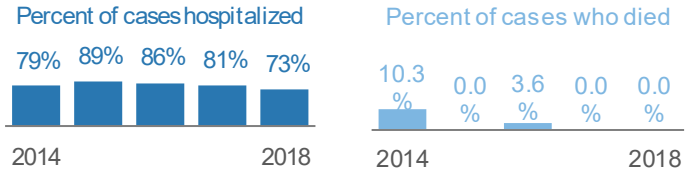
Between 34% and 75% of ehrlichiosis cases are confirmed; 53% of 2018 cases were confirmed.



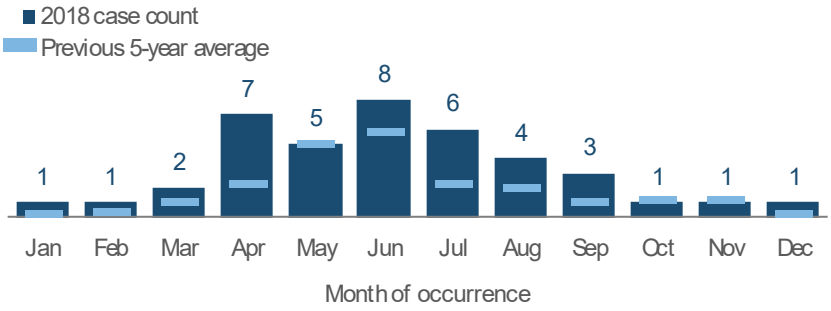
Most infections are acquired in Florida. In 2018, six infections were imported from other states. Three cases with unknown location of exposure spent time in both Florida and another state or country during their exposure periods.



Most ehrlichiosis cases are hospitalized; deaths are uncommon. Although severe illness is more common in older adults, six (67%) of the nine cases in people <50 years old were hospitalized in 2018.



Ehrlichiosis cases are reported year-round, though peak transmission typically occurs during the summer months. Activity was highest in April and June in 2018.



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.

Disease Facts

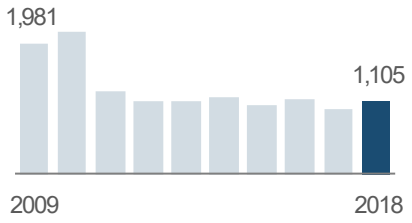
- **Caused** by *Giardia* parasites
- **Illness** is gastroenteritis (diarrhea, vomiting)
- **Transmitted** via fecal-oral route, including person to person, animal to person, waterborne and foodborne
- **Under surveillance** to identify and control outbreaks, identify and mitigate common sources (e.g.,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

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

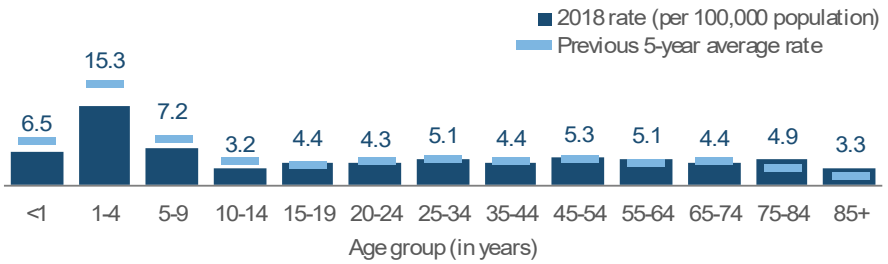
Giardia lives in the intestines of an infected person or animal and is shed through the feces. Outside of the body, *Giardia* has the potential to survive from weeks to months.

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

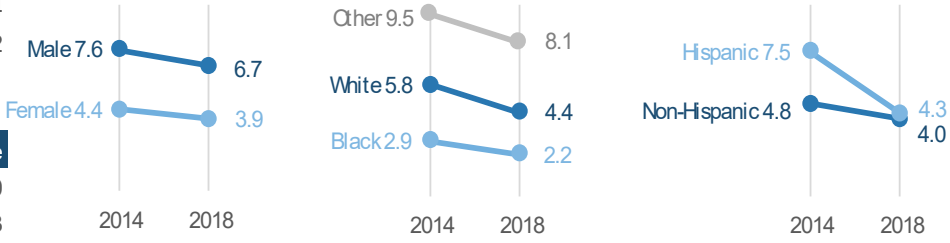


Disease Trends

The giardiasis rate (per 100,000 population) is consistently highest in children 1 to 4 years old, followed by infants <1 year old and children 5 to 9 years old, which remained true in 2018.



In 2018, the giardiasis rate (per 100,000 population) was lower in all gender, race and ethnicity groups compared to 2014. The decrease was most notable in Hispanics.



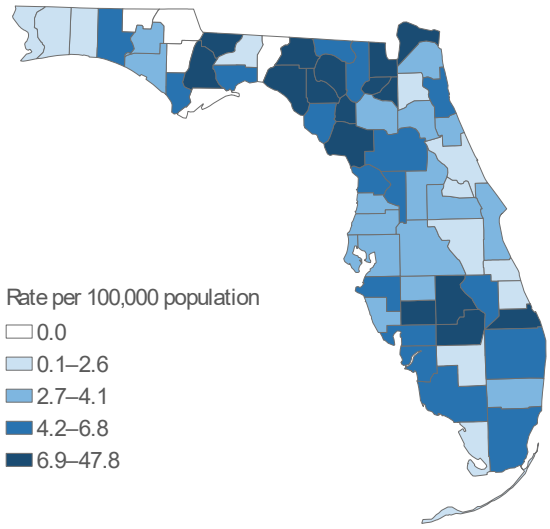
Summary			
Number of cases			1,105
Rate (per 100,000 population)			5.3
Change from 5-year average rate			-3.6%
Age (in Years)			
Mean			37
Median			37
Min-max			0 - 91
Gender	**Number**	**(Percent)**	**Rate**
Female	416	(37.6)	3.9
Male	689	(62.4)	6.7
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	711	(80.3)	4.4
Black	78	(8.8)	2.2
Other	96	(10.8)	8.1
Unknown race	220		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	628	(72.9)	4.0
Hispanic	233	(27.1)	4.3
Unknown ethnicity	244		

Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Acute giardiasis cases were missing 7.8% of ethnicity data in 2014, 7.3% of race data in 2014, 22.1% of ethnicity data in 2018 and 19.9% of race data in 2018.

Giardiasis, Acute

Summary	Number	
Number of cases	1,105	
Case Classification	**Number**	**(Percent)**
Confirmed	1,069	(96.7)
Probable	36	(3.3)
Outcome	**Number**	**(Percent)**
Hospitalized	137	(12.4)
Died	1	(0.1)
Sensitive Situation	**Number**	**(Percent)**
Daycare	42	(3.8)
Health care	24	(2.2)
Food handler	10	(0.9)
Imported Status	**Number**	**(Percent)**
Acquired in Florida	812	(85.7)
Acquired in the U.S., not Florida	25	(2.6)
Acquired outside the U.S.	110	(11.6)
Acquired location unknown	158	
Outbreak Status	**Number**	**(Percent)**
Sporadic	973	(89.4)
Outbreak-associated	115	(10.6)
Outbreak status unknown	17	

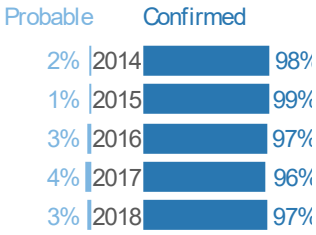
Giardiasis occurs throughout the state. In 2018, rates (per 100,000 population) were consistently highest in small, rural counties.



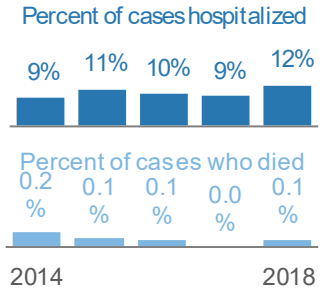
Rates are by county of residence for infections acquired in Florida (812 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

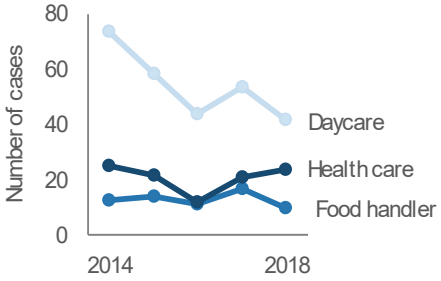
Most cases are confirmed. Probable cases are epidemiologically linked to confirmed cases.



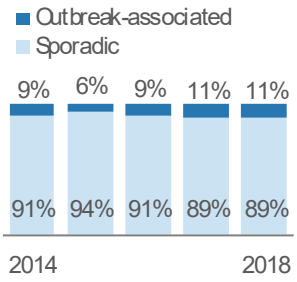
Between 9% and 12% of cases are hospitalized; deaths are very rare.



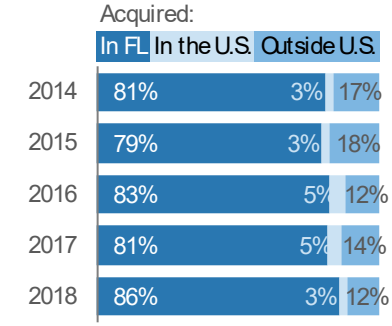
Cases in sensitive situations are monitored. People in sensitive situations may pose a risk for transmitting infection to others.



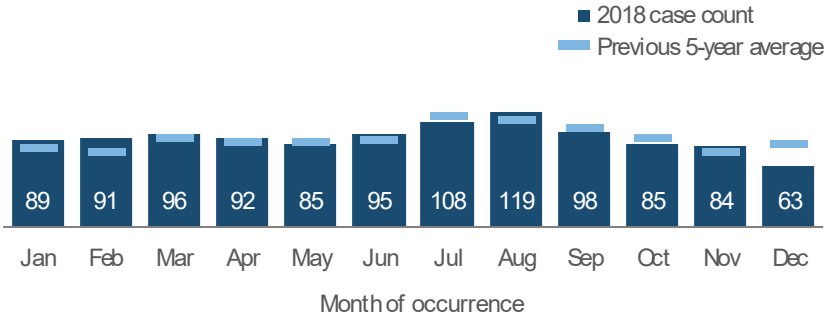
Outbreak-associated giardiasis cases typically reflect small household clusters.



Between 79% to 86% of giardiasis infections are acquired in Florida each year; some infections are acquired in other states and countries.



Giardiasis occurs throughout the year with a small increase in the summer and early fall months. In 2018, 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 persons 15 to 24 years old. During 2014, this shifted for persons 20 to 24 years old, with more male patients in that age group diagnosed. The rates in males have been increasing in most age groups since 2014.

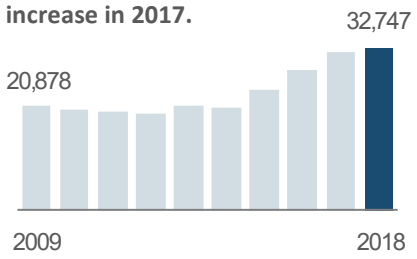
The Department is one of 10 recipients of the Centers for Disease Control and Prevention's (CDC) Sexually Transmitted Disease Surveillance Network Grant. This grant requires awardees to randomly sample 10% of the reported gonorrhea cases across the state and conduct in-depth interviews to gather more 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 are used to 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

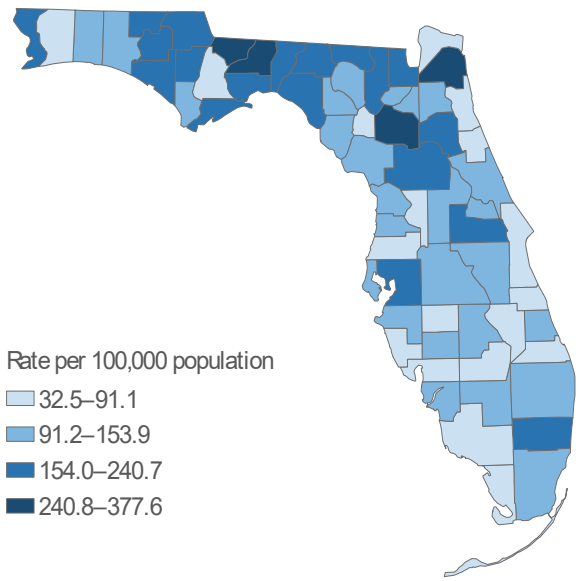
Disease Trends

Gonorrhea incidence continued to increase in 2017.



Summary			
Number of cases			32,747
Rate (per 100,000 population)			156.3
Change from 5-year average rate			+24.3%
Age (in Years)			
Mean			28
Median			26
Min-max			2 - 85
Gender	**Number**	**(Percent)**	**Rate**
Female	12,964	(39.6)	121.0
Male	19,779	(60.4)	193.1
Unknown gender	4		
Race	**Number**	**(Percent)**	**Rate**
White	10,469	(36.3)	64.5
Black	15,100	(52.3)	425.4
Other	3,293	(11.4)	277.1
Unknown race	3,885		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	22,850	(83.6)	146.8
Hispanic	4,487	(16.4)	83.2
Unknown ethnicity	5,410		

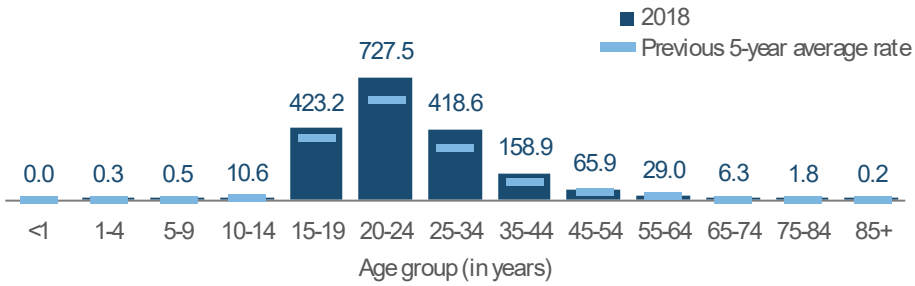
Gonorrhea occurs throughout the state. Higher rates (per 100,000 population) were clustered in the northern part of the state in 2018. The highest rates were in Leon (377.6), Duval (368.0), Alachua (309.4), Gadsden (296.8) and Jackson (240.7) counties. These counties accounted for 17% of the state's cases but only 8% of the state's population.



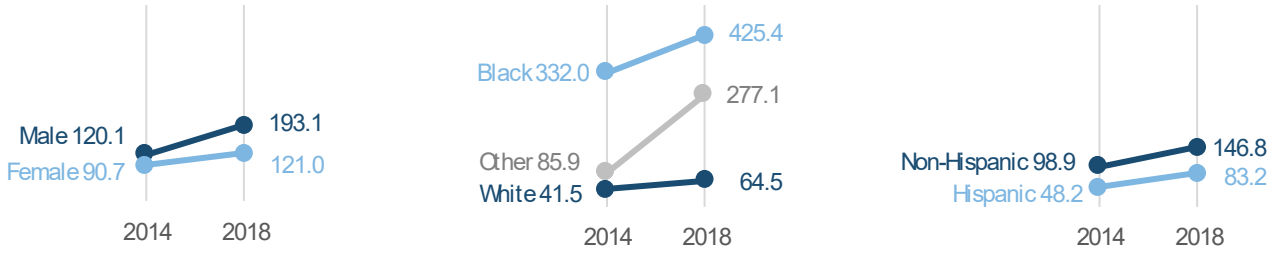
Rates are by county of residence, regardless of where infection was acquired (32,747 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

Gonorrhea (Excluding Neonatal Conjunctivitis)

Gonorrhea rates are highest in teenagers and adults 15 to 34 years old, peaking in adults 20 to 24 years old.



Gonorrhea rates (per 100,000 population) have increased in all gender, race and ethnicity groups from 2014 to 2018, but the most noticeable increase was in other races. The rates were almost seven times higher in blacks than whites in 2018. Rates are higher in males than females and higher in non-Hispanics than 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 17.4% of ethnicity data in 2014, 12.1% of race data in 2014, 16.5% of ethnicity data in 2018 and 11.9% of race data in 2018.

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 19 years old but has increased in young adults and adults 20 to 34 years old.

Teenagers 15–19 years old

Gender	2009 rate	10-year trend	2018 rate
Male	296.0		311.6
Female	639.0		490.1

Young adults 20–24 years old

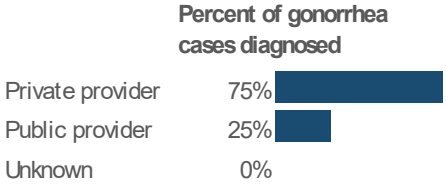
Gender	2009 rate	10-year trend	2018 rate
Male	509.9		702.5
Female	587.3		664.4

Adults 25–34 years old

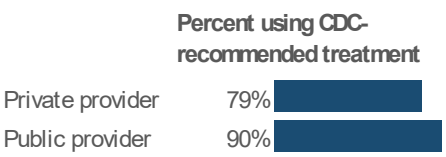
Gender	2009 rate	10-year trend	2018 rate
Male	250.3		527.5
Female	192.8		296.9

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.

In 2018, 75% of diagnosed gonorrhea cases in Florida were diagnosed at private providers' offices, while 25% were diagnosed in public providers' offices.



Public providers used CDC-recommended treatment more often than private providers in 2018. Common reasons for not receiving CDC-recommended treatment are drug allergies and medication cost.



Haemophilus influenzae Invasive Disease in Children <5 Years

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. There were no cases of invasive Hib reported in 2018, compared to two cases reported in 2017. *H. influenzae* invasive disease can sometimes result in serious complications and even death. There were three deaths among cases in 2018, two of which had nontypeable strains and one with a not type b strain. No deaths in 2018 had *H. influenzae* meningitis or bacteremia listed as a cause of death on the death certificates.

Disease Facts

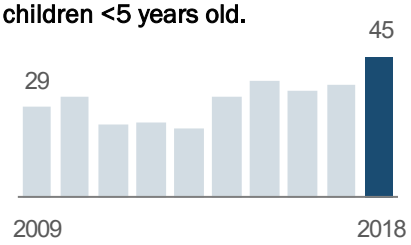
Caused by *Haemophilus influenzae* bacteria

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

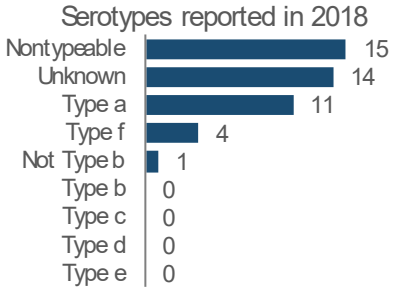
Between 20 and 45 invasive *H. influenzae* cases are reported each year in children <5 years old.

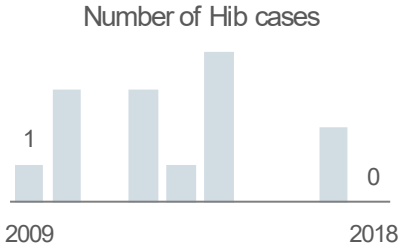


Disease Trends

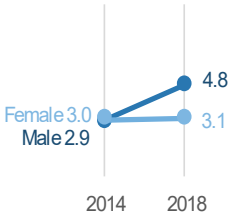
Summary		
Number of cases		45
Rate (per 100,000 population)		4.0
Change from 5-year average rate		+34.6%
Age (in Years)		
Mean		1
Median		0
Min-max		0 - 4
Gender	**Number (Percent)**	**Rate**
Female	17 (37.8)	NA
Male	28 (62.2)	4.8
Unknown gender	0	
Race	**Number (Percent)**	**Rate**
White	26 (57.8)	3.3
Black	11 (24.4)	NA
Other	8 (17.8)	NA
Unknown race	0	
Ethnicity	**Number (Percent)**	**Rate**
Non-Hispanic	38 (84.4)	4.9
Hispanic	7 (15.6)	NA
Unknown ethnicity	0	

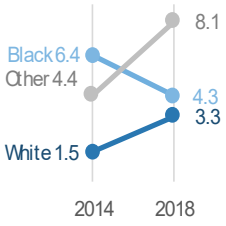
No invasive Hib cases in children <5 years old were reported in 2018 compared to two cases reported in 2017. One-third (33%) of cases had nontypeable strains, followed by serotype a (24%); samples from 14 cases (31%) were not available for serotype testing.

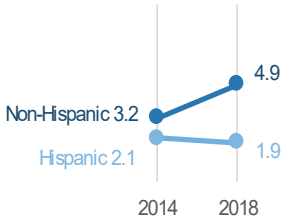




The rate (per 100,000 population) of invasive *H. influenzae* in children <5 years old is higher in males than females and higher in non-Hispanics than Hispanics in 2018. The rate is highest in other races, followed by blacks and then whites in 2018, though other races had the largest increase from 2014 to 2018.



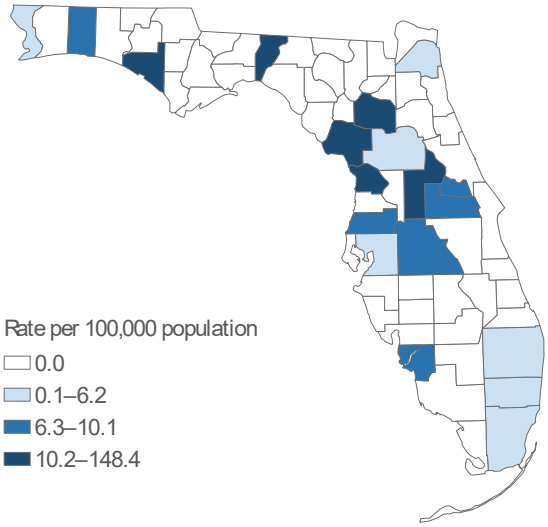




Haemophilus influenzae Invasive Disease in Children <5 Years

Summary	Number	
Number of cases	45	
Case Classification	**Number**	**(Percent)**
Confirmed	45	(100.0)
Probable	0	(0.0)
Outcome	**Number**	**(Percent)**
Hospitalized	43	(95.6)
Died	3	(6.7)
Imported Status	**Number**	**(Percent)**
Acquired in Florida	44	(97.8)
Acquired in the U.S., not Florida	0	(0.0)
Acquired outside the U.S.	1	(2.2)
Acquired location unknown	0	
Outbreak Status	**Number**	**(Percent)**
Sporadic	42	(95.5)
Outbreak-associated	2	(4.5)
Outbreak status unknown	1	

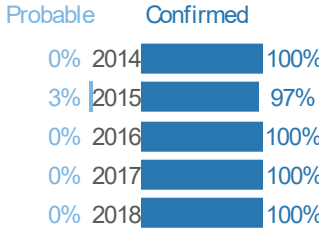
Invasive *H. influenzae* cases in children <5 years old were identified in most areas of the state in 2018, but primarily in central Florida. The highest rates (per 100,000 population) were in small, rural counties.



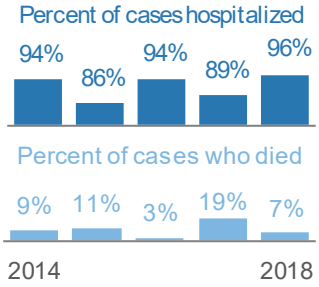
Rates are by county of residence for infections acquired in Florida (44 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

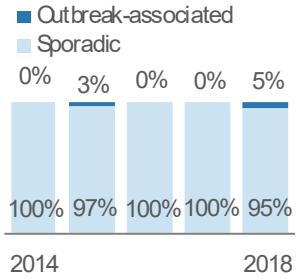
All cases were confirmed by culture or PCR in 2018, which is consistent with past years. Probable cases are based on Hib antigen detection in cerebrospinal fluid, which is rare.



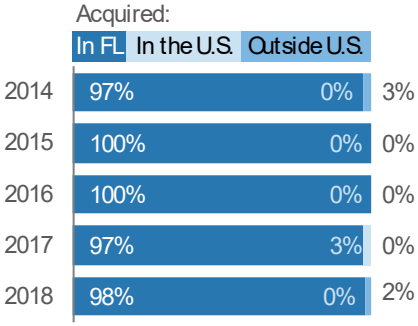
A large percentage of invasive *H. influenzae* cases in children <5 years old are hospitalized. Three children died in 2018.



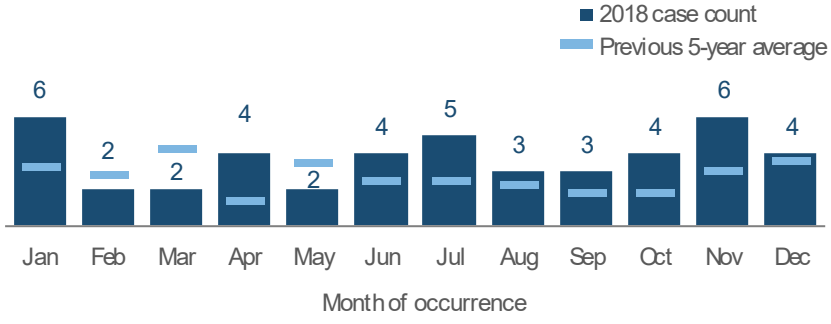
Almost all cases are sporadic. Outbreak-associated cases are usually vertical transmission from mother to infant.



Most infections are acquired in Florida. In 2018, one case was imported from Guatemala.



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 January, July and November in 2018.



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.

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

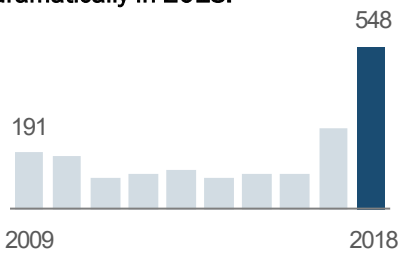
Under surveillance to identify and control outbreaks, identify and mitigate common sources (e.g., contaminated food product, ill food handler), monitor effectiveness of immunization programs

Incidence increased substantially in 2018, with almost three times as many cases reported in a single year since 2009.

Most cases occurred in central Florida, with almost half (263 cases) reported in Pinellas, Hillsborough and Pasco counties. The majority of cases were in adults (median of 38 years old), males, whites and non-Hispanics.

In 2018, the most commonly reported risk factor was drug use in 50% of cases. Other risk factors included homelessness in 13% of cases and men who have sex with men in 11% of cases. No foodborne outbreaks of hepatitis A were reported in 2018.

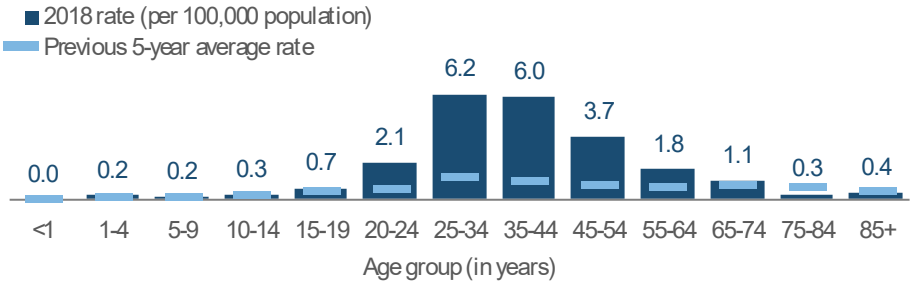
Hepatitis A incidence increased dramatically in 2018.



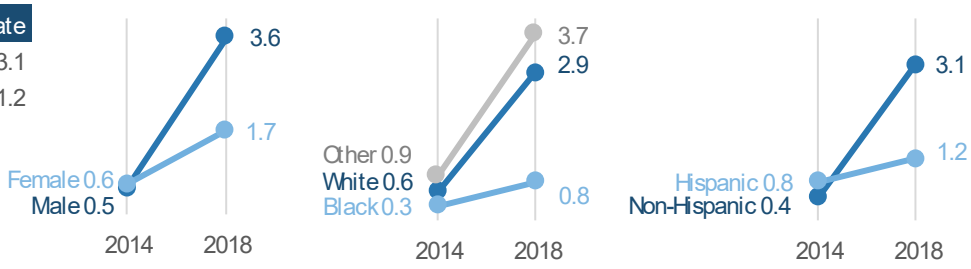
Disease Trends

Summary			
Number of cases			548
Rate (per 100,000 population)			2.6
Change from 5-year average rate			+244.6%
Age (in Years)			
Mean			40
Median			38
Min-max			2 - 88
Gender	**Number**	**(Percent)**	**Rate**
Female	181	(33.0)	1.7
Male	367	(67.0)	3.6
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	474	(87.0)	2.9
Black	27	(5.0)	0.8
Other	44	(8.1)	3.7
Unknown race	3		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	479	(88.1)	3.1
Hispanic	65	(11.9)	1.2
Unknown ethnicity	4		

The hepatitis A rate (per 100,000 population) is consistently highest in adults 25 to 34 years old. The increase in 2018 was most noticeable in this age group, but noticeable increases also occurred in adults 20 to 24 years old and 35 to 54 years old.



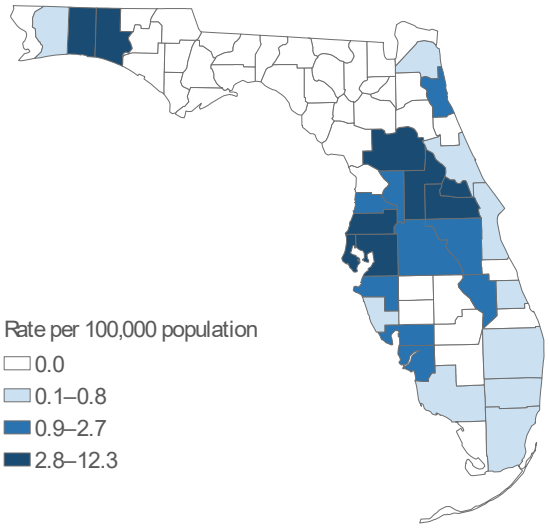
The increased hepatitis A incidence in 2018 was evident in rates (per 100,000 population) for all demographics, though most notably in males, whites, other races and non-Hispanics.



Hepatitis A

Summary	Number	
Number of cases	548	
Case Classification	**Number**	**(Percent)**
Confirmed	548	(100.0)
Probable	0	(0.0)
Outcome	**Number**	**(Percent)**
Hospitalized	433	(79.0)
Died	11	(2.0)
Sensitive Situation	**Number**	**(Percent)**
Daycare	1	(0.2)
Health care	16	(2.9)
Food handler	30	(5.5)
Imported Status	**Number**	**(Percent)**
Acquired in Florida	472	(95.9)
Acquired in the U.S., not Florida	4	(0.8)
Acquired outside the U.S.	16	(3.3)
Acquired location unknown	56	
Outbreak Status	**Number**	**(Percent)**
Sporadic	454	(83.5)
Outbreak-associated	90	(16.5)
Outbreak status unknown	4	

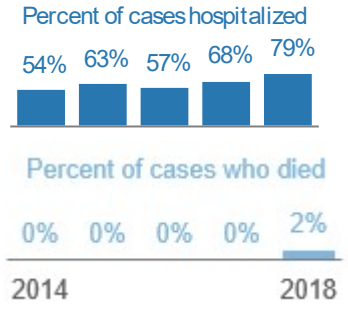
Hepatitis A cases occurred primarily in central Florida in 2018, though the rate (per 100,000 population) was high in some small, rural counties in the Panhandle and northeast Florida.



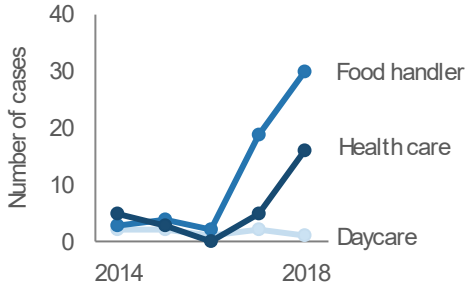
Rates are by county of residence for infections acquired in Florida (472 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

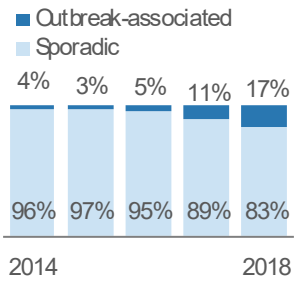
Each year, 50% to 80% of hepatitis A cases are hospitalized, though deaths are rare.



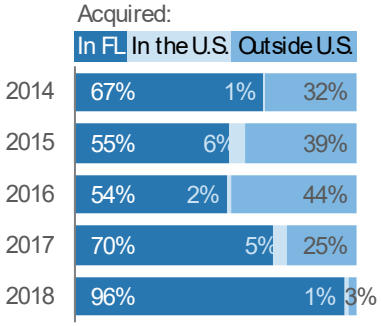
The increase in cases resulted in more infections in persons in sensitive situations, including food handlers and health care workers. However, no outbreaks were reported as a result of these infections.



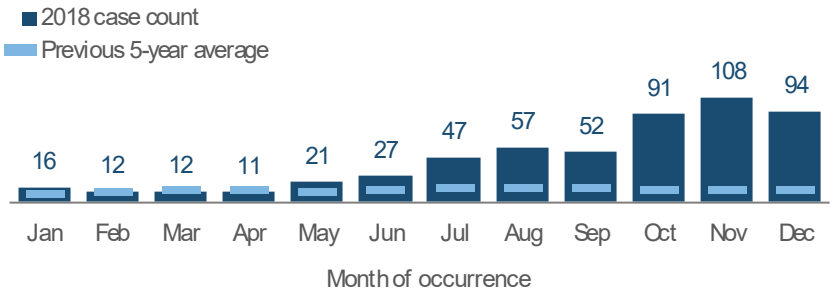
More outbreak-associated cases were identified in 2017 and 2018 than previous years.



A larger proportion of infections were acquired in Florida in 2018 compared to past years.



Hepatitis A cases began to increase in May and remained well above the previous 5-year average through December. The number of cases reported each month ranged from 11 in April to 108 in November.



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 18 to 25 years old 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.

Disease Facts

Caused by hepatitis B virus (HBV)

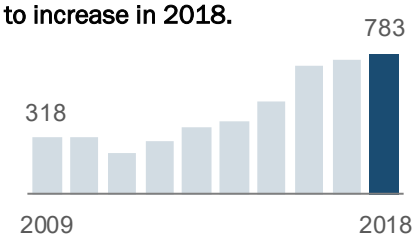
Illness includes inflammation of the liver, fever, malaise, loss of appetite, nausea, vomiting, abdominal discomfort and jaundice (can be asymptomatic)

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

In 2018, 176 cases (22%) 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.

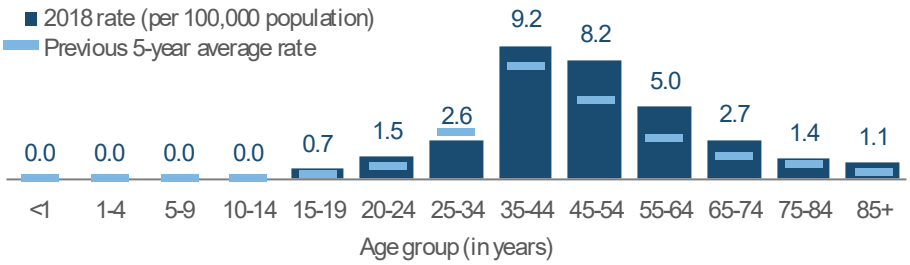
Acute hepatitis B incidence continued to increase in 2018.



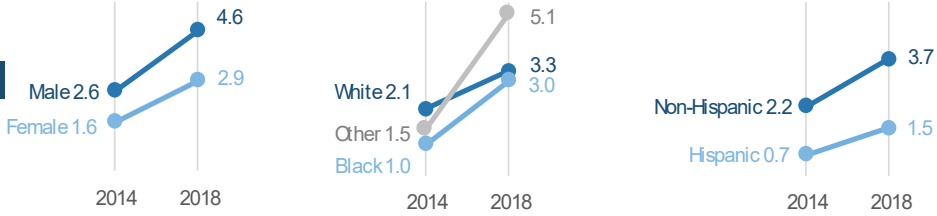
Disease Trends

Summary		
Number of cases		783
Rate (per 100,000 population)		3.7
Change from 5-year average rate		+35.7%
Age (in Years)		
Mean		48
Median		47
Min-max		17 - 90
Gender	**Number (Percent)**	**Rate**
Female	316 (40.4)	2.9
Male	467 (59.6)	4.6
Unknown gender	0	
Race	**Number (Percent)**	**Rate**
White	535 (76.1)	3.3
Black	107 (15.2)	3.0
Other	61 (8.7)	5.1
Unknown race	80	
Ethnicity	**Number (Percent)**	**Rate**
Non-Hispanic	575 (87.5)	3.7
Hispanic	82 (12.5)	1.5
Unknown ethnicity	126	

The acute hepatitis B rate (per 100,000 population) is consistently highest in adults 35 to 44 years old and decreases steadily with age. The rate in adults 25 to 34 years old was lower in 2018 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 2018, rates were similar in blacks and whites but notably higher in other races.



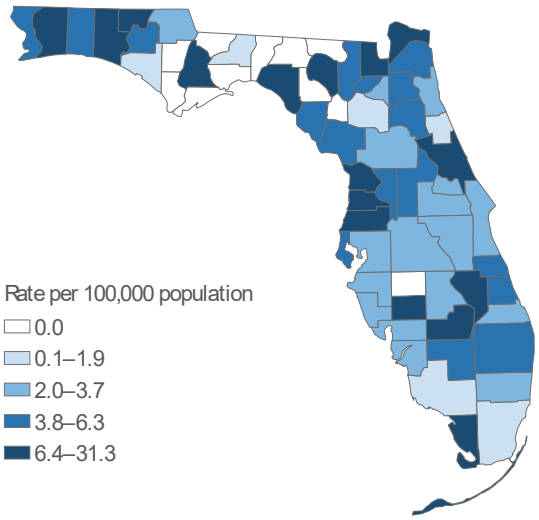
Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Acute hepatitis B cases were missing 12.3% of ethnicity data in 2014, 9.8% of race data in 2014, 16.1% of ethnicity data in 2018 and 10.2% of race data in 2018.

Hepatitis B, Acute

Summary	Number
Number of cases	783
Case Classification	**Number (Percent)**
Confirmed	617 (78.8)
Probable	166 (21.2)
Outcome	**Number (Percent)**
Hospitalized	459 (58.6)
Died	11 (1.4)
Imported Status	**Number (Percent)**
Acquired in Florida	532 (98.2)
Acquired in the U.S., not Florida	6 (1.1)
Acquired outside the U.S.	4 (0.7)
Acquired location unknown	241
Outbreak Status	**Number (Percent)**
Sporadic	590 (96.6)
Outbreak-associated	21 (3.4)
Outbreak status unknown	172

In 2018, 21 outbreak-associated cases were identified, including five dichotomous pairs of acute cases, five cases linked to chronic hepatitis B cases and two cases linked to acute cases reported in previous years. Most epidemiological linkages were household contacts (38%); others were sexual (29%) and personal (14%) contacts.

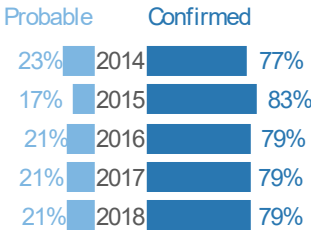
Acute hepatitis B cases occurred in most parts of the state in 2018, though less commonly in the central and eastern parts of the Florida Panhandle. The rates (per 100,000 population) were highest in the western part of the Panhandle and primarily small, rural counties across the rest of the state.



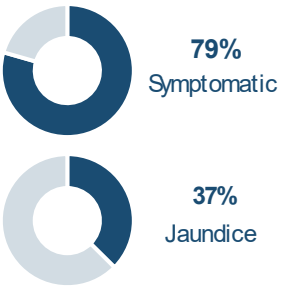
Rates are by county of residence, regardless of where infection was acquired (783 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

More than 75% of cases are confirmed each year. In 2018, 93% of cases were investigated.



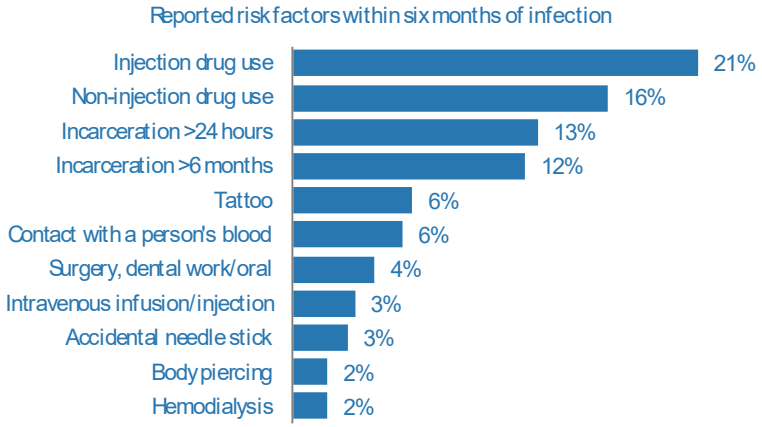
Almost 80% of acute hepatitis B cases reported in 2018 were symptomatic, but fewer than half had jaundice.



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	82%	Acute or chronic HBV infection, no immunity developed
Hepatitis B core antibdy, IgM	78%	HBV is multiplying
Hepatitis B DNA	42%	HBV has stopped multiplying
Hepatitis B core antibody, total	23%	Amount of HBV in blood
Hepatitis B e antigen	22%	Acute HBV infection
Hepatitis B e antibody	10%	Immunity to HBV
Hepatitis B surface antibody	10%	Hepatitis B core antibdy, IgM

Similar to past years, the most common risk factors for hepatitis B infection reported in 2018 included injection drug use, non-injection drug use and incarceration. In 2018, the percentage of unknown or missing responses to individual risk factors ranged from 37% to 52%.



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. Chronic cases are not required to be investigated.

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

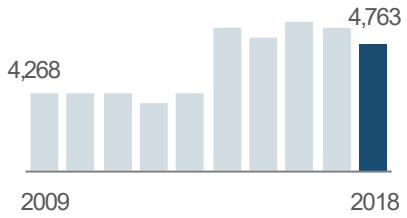
Caused by hepatitis B virus (HBV)

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

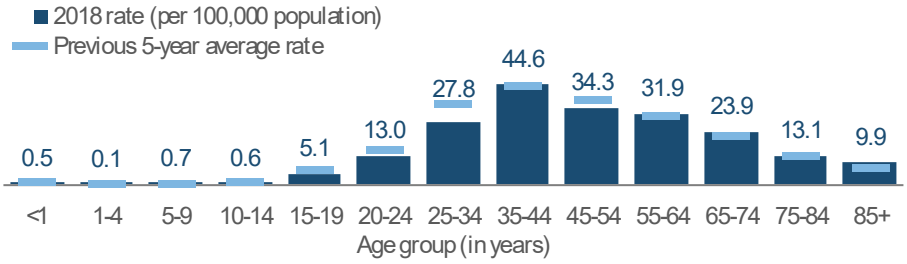
Chronic hepatitis B incidence has remained relatively constant since 2014.



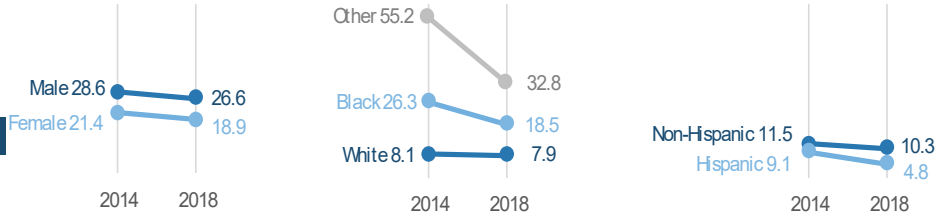
Disease Trends

Summary			
Number of cases			4,763
Rate (per 100,000 population)			22.7
Change from 5-year average rate			-5.3%
Age (in Years)			
Mean			48
Median			47
Min-max			0 - 96
Gender	**Number**	**(Percent)**	**Rate**
Female	2,023	(42.6)	18.9
Male	2,722	(57.4)	26.6
Unknown gender	18		
Race	**Number**	**(Percent)**	**Rate**
White	1,286	(55.1)	7.9
Black	656	(28.1)	18.5
Other	390	(16.7)	32.8
Unknown race	2,431		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	1,598	(86.1)	10.3
Hispanic	258	(13.9)	4.8
Unknown ethnicity	2,907		

Similar to acute hepatitis B, the rate (per 100,000 population) of chronic hepatitis B is highest in adults 35 to 44 years old. The rate in adults 25 to 34 years old was lower in 2018 than the previous 5-year average.



Chronic hepatitis B rates (per 100,000 population) are similar by gender and ethnicity groups, though rates vary by race. Few chronic cases are investigated, causing a large proportion of race and ethnicity data to be missing.

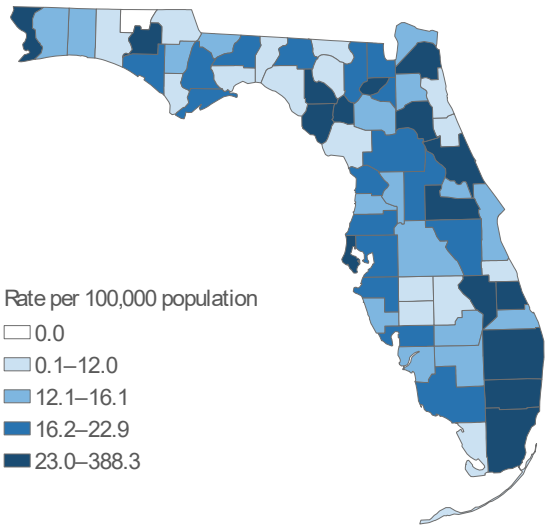


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Chronic hepatitis B cases were missing 56.3% of ethnicity data in 2014, 45.9% of race data in 2014, 61.0% of ethnicity data in 2018 and 51.0% of race data in 2018.

Hepatitis B, Chronic

Summary	Number	
Number of cases	4,763	
Case Classification	**Number**	**(Percent)**
Confirmed	2,090	(43.9)
Probable	2,673	(56.1)
Outcome	**Number**	**(Percent)**
Hospitalized	173	(3.6)
Died	12	(0.3)
Imported Status	**Number**	**(Percent)**
Acquired in Florida	514	(91.1)
Acquired in the U.S., not Florida	3	(0.5)
Acquired outside the U.S.	47	(8.3)
Acquired location unknown	4,199	
Outbreak Status	**Number**	**(Percent)**
Sporadic	785	(98.9)
Outbreak-associated	9	(1.1)
Outbreak status unknown	3,969	

Chronic hepatitis B occurred throughout the state in 2018, with the highest rates (per 100,000 population) in small, rural counties across the state and in large counties in southeast Florida.



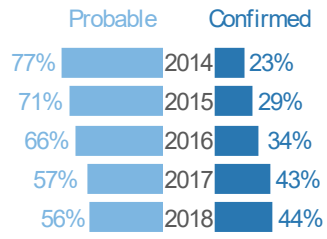
Rates are by county of residence, regardless of where infection was acquired (4,763 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

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, no immunity developed
Hepatitis B DNA	37%	HBV has stopped multiplying
Hepatitis B core antibody, total	27%	Acute HBV infection
Hepatitis B e antibody	15%	Immunity to HBV
Hepatitis B e antigen	10%	Amount of HBV in blood
Hepatitis B surface antibody	4%	HBV is multiplying
Hepatitis B core antibdy, IgM	2%	Hepatitis B core antibdy, IgM

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



In 2018, 257 chronic hepatitis B cases (5.4%) were also diagnosed with HIV. The majority of people with co-infections were male, black and 45 to 54 years old.

Gender	Percent of
Male	86%
Female	14%
Race	
White	46%
Black	49%
Other	2%
Unknow	4%

Age group	Percent of cases
15–19	0.4%
20–24	2.0%
25–34	11.7%
35–44	21.8%
45–54	29.6%
55–64	28.4%
65–74	5.5%
75–84	0.8%
85+	0.0%

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.

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.

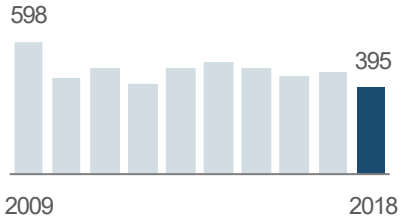
The 2016 National Immunization Survey estimates that HBV vaccination coverage for a birth dose administered from birth through 3 years old was 75% in the U.S. and 59% in Florida. Birthing hospitals have standing orders to administer the birth dose of the HBV vaccine; however, pediatricians sometimes 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 Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices recommends the birth dose be given 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 races category.

Disease Facts

- **Caused** by hepatitis B virus (HBV)
- **Illness** is acute or chronic; about 90% of children who are infected at birth or during the first year of life will become chronically infected
- **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

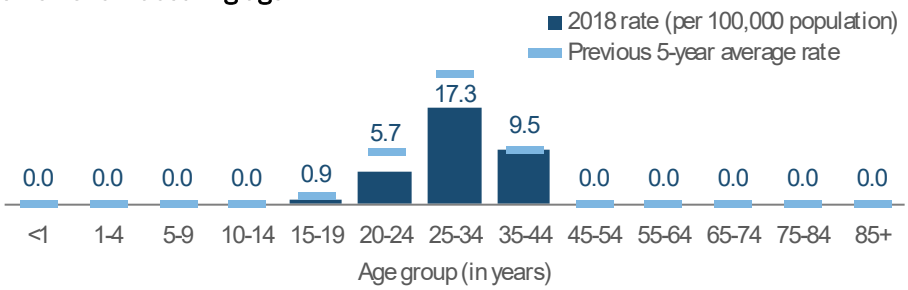
HBV infections in pregnant women have declined over the past 10 years, but have remained relatively consistent since 2010.



Disease Trends

Summary			
Number of cases			395
Rate (per 100,000 population)			10.3
Change from 5-year average rate			-20.1%
Age (in Years)			
Mean			32
Median			32
Min-max			17 - 44
Gender	**Number**	**(Percent)**	**Rate**
Female	395	(100.0)	10.3
Male	0	(0.0)	NA
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	73	(20.6)	2.6
Black	177	(49.9)	22.3
Other	105	(29.6)	39.8
Unknown race	40		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	307	(92.5)	11.4
Hispanic	25	(7.5)	2.2
Unknown ethnicity	63		

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 childbearing age.



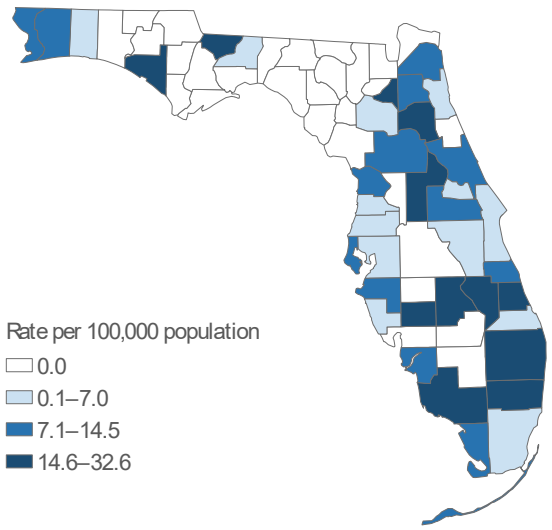
The HBV infection rate (per 100,000 population) in pregnant women decreased slightly across all demographics from 2014 to 2018, except in other races where the decrease was dramatic. The rate is highest in other races, followed by blacks and then whites, and higher in non-Hispanics than Hispanics.

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 7.8% of ethnicity data in 2014, 5.3% of race data in 2014, 15.9% of ethnicity data in 2018 and 10.1% of race data in 2018.

Hepatitis B, Pregnant Women

Summary	Number	
Number of cases	395	
Outcome	**Number**	**(Percent)**
Hospitalized	41	(10.4)
Died	0	(0.0)
Imported Status	**Number**	**(Percent)**
Acquired in Florida	178	(60.1)
Acquired in the U.S., not Florida	4	(1.4)
Acquired outside the U.S.	114	(38.5)
Acquired location unknown	99	

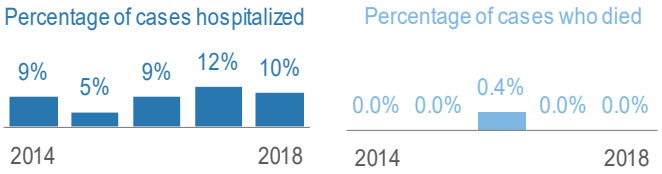
Similar to the distribution of chronic hepatitis B, the highest rates (per 100,000 population) of HBV infection in pregnant women are clustered in south Florida. Unlike chronic HBV infections, many counties in the Panhandle did not identify any HBV infections in pregnant women in 2018.



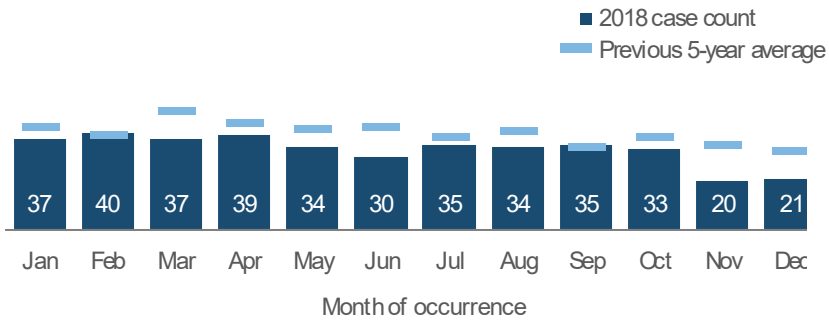
Rates are by county of residence, regardless of where infection was acquired (395 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

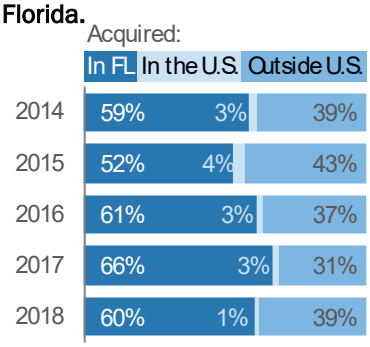
Between 5% and 12% of cases are hospitalized each year; deaths are rare. Two cases died in 2016, but neither death was related to HBV infection. No deaths were identified in 2018.



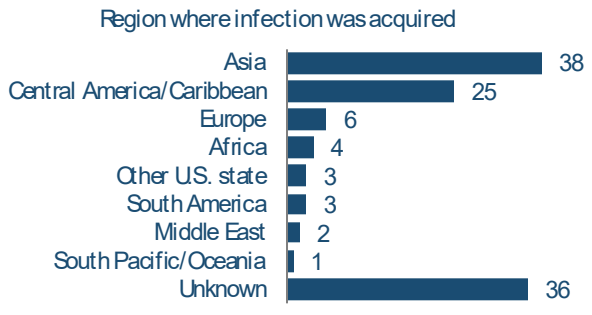
There is no seasonality to HBV infections in pregnant women. The number of cases that occurred in 2018 varied by month from 20 cases in November to 40 cases in February.



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



For infections known to be acquired outside Florida, Asia and Central America/Caribbean are the most common regions where exposure occurred.



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 2018, 73% of cases were determined to be acute based on negative results preceding positive results.

New hepatitis C diagnoses are frequently associated with drug use and sharing of injection equipment. In 2018, most reported cases were sporadic. Ten outbreak-associated cases were identified, each of which was epidemiologically linked to a chronic hepatitis C case. Of the 10 outbreak-associated cases, five (45%) were epidemiologically linked through sexual contact, three (27%) through personal contact and one (9%) through a family member with chronic hepatitis C. The remaining two (18%) outbreak-associated cases were linked for other reasons.

Disease Facts

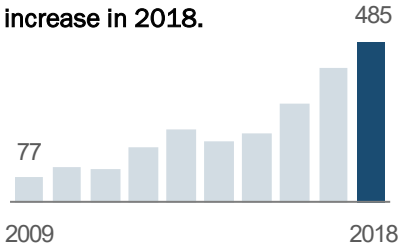
Caused by hepatitis C virus (HCV)

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

Acute hepatitis C incidence continued to increase in 2018.



Disease Trends

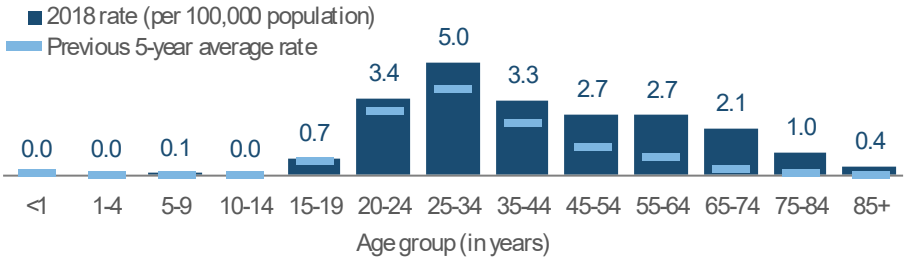
Summary	
Number of cases	485
Rate (per 100,000 population)	2.3
Change from 5-year average rate	+75.7%
Age (in Years)	
Mean	43
Median	40
Min-max	6 - 87

Gender	Number	(Percent)	Rate
Female	215	(44.3)	2.0
Male	270	(55.7)	2.6
Unknown gender	0		

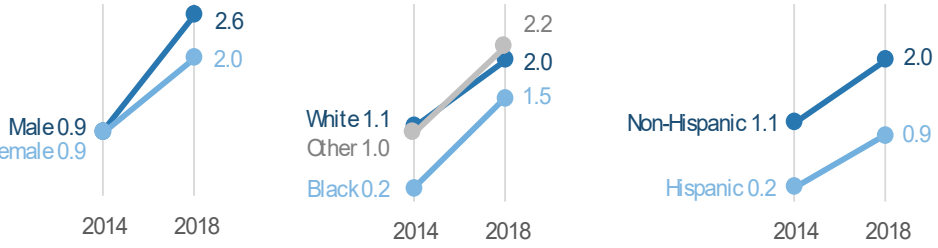
Race	Number	(Percent)	Rate
White	326	(80.7)	2.0
Black	52	(12.9)	1.5
Other	26	(6.4)	2.2
Unknown race	81		

Ethnicity	Number	(Percent)	Rate
Non-Hispanic	313	(86.2)	2.0
Hispanic	50	(13.8)	0.9
Unknown ethnicity	122		

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. In 2018, rates in all adult age groups exceeded the previous 5-year average.



The acute hepatitis C rates (per 100,000 population) increased across all age, race and ethnicity groups from 2014 to 2018. The rate was higher in males compared to females, higher in non-Hispanics compared to Hispanics and higher in whites and other races compared to blacks.

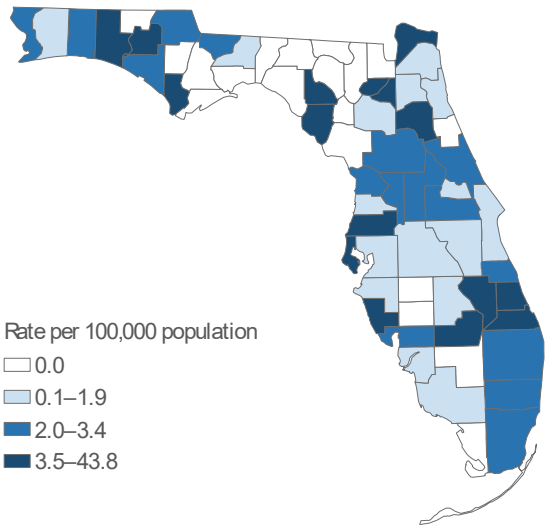


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Acute hepatitis C cases were missing 25.2% of ethnicity data in 2018 and 16.7% of race data in 2018.

Hepatitis C, Acute

Summary	Number	
Number of cases	485	
Case Classification	**Number**	**(Percent)**
Confirmed	435	(89.7)
Probable	50	(10.3)
Outcome	**Number**	**(Percent)**
Hospitalized	137	(28.2)
Died	2	(0.4)
Imported Status	**Number**	**(Percent)**
Acquired in Florida	277	(98.9)
Acquired in the U.S., not Florida	3	(1.1)
Acquired outside the U.S.	0	(0.0)
Acquired location unknown	205	
Outbreak Status	**Number**	**(Percent)**
Sporadic	326	(97.0)
Outbreak-associated	10	(3.0)
Outbreak status unknown	149	

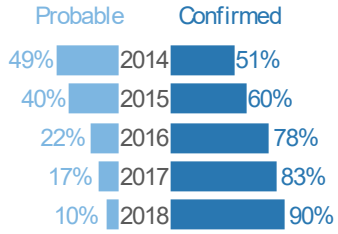
Acute hepatitis C cases were reported in most parts of the state in 2018, though less commonly in the central and eastern parts of the Florida Panhandle. The highest rates (per 100,000 population) occurred in small, rural counties across the state.



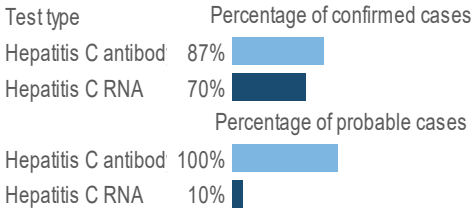
Rates are by county of residence, regardless of where infection was acquired (485 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

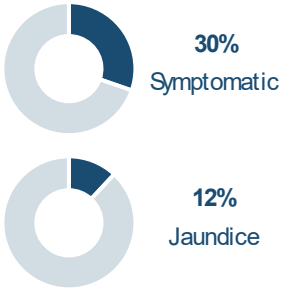
More than 75% of cases are confirmed each year. In 2018, 83% of cases were investigated.



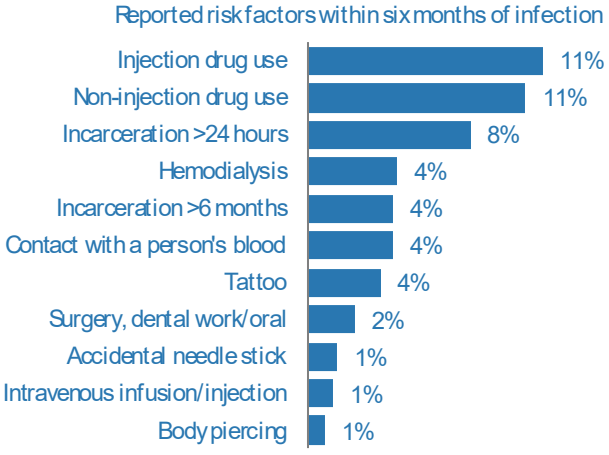
Almost all confirmed cases of acute hepatitis C were positive for hepatitis C antibody, and most were positive for hepatitis C RNA. Only a small portion of probable cases were positive for hepatitis C RNA.



About 1/3 of acute hepatitis C cases reported in 2018 were symptomatic, but only 12% had jaundice.



Similar to past years, the most common risk factors for hepatitis C infection reported in 2018 included injection drug use, non-injection drug use and incarceration. In 2018, the percentage of unknown or missing responses to individual risk ranged from 66% to 76% .



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

Hepatitis C, Chronic (Including Perinatal)

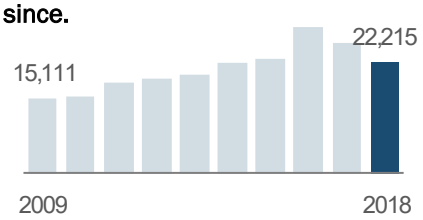
Key Points

Hepatitis C incidence is highest among adults 25 to 34 years old. 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, 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. Chronic cases are not required to be investigated. 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% to 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

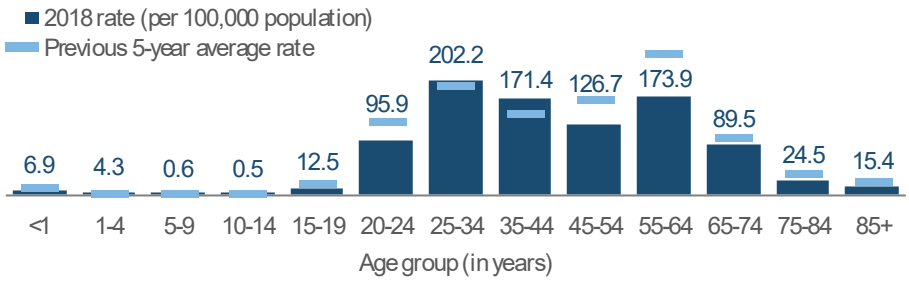
Chronic hepatitis C incidence increased in 2016 due to a case definition expansion but has decreased each year since.



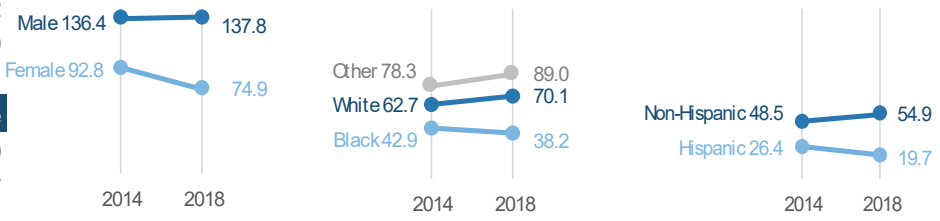
Disease Trends

Summary		
Number of cases		22,215
Rate (per 100,000 population)		106.0
Change from 5-year average rate		-12.6%
Age (in Years)		
Mean		45
Median		44
Min-max		0 - 98
Gender	**Number (Percent)**	**Rate**
Female	8,026 (36.2)	74.9
Male	14,116 (63.8)	137.8
Unknown gender	73	
Race	**Number (Percent)**	**Rate**
White	11,362 (82.5)	70.1
Black	1,356 (9.8)	38.2
Other	1,058 (7.7)	89.0
Unknown race	8,439	
Ethnicity	**Number (Percent)**	**Rate**
Non-Hispanic	8,539 (89.0)	54.9
Hispanic	1,060 (11.0)	19.7
Unknown ethnicity	12,616	

The rate of chronic hepatitis C (per 100,000 population) is highest in adults 25 to 34 years old.



The chronic hepatitis C rate (per 100,000 population) is higher in males than females and higher in non-Hispanics than Hispanics. Rates are lower in blacks than in whites and other races. Few chronic cases are investigated, causing a large proportion of race and ethnicity data to be missing.

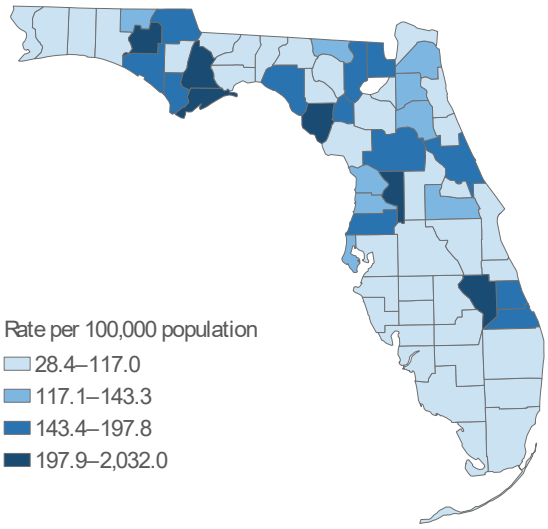


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Chronic hepatitis C cases (including perinatal) were missing 62.2% of ethnicity data in 2014, 47.4% of race data in 2014, 56.8% of ethnicity data in 2018 and 38.0% of race data in 2018.

Hepatitis C, Chronic (Including Perinatal)

Summary	Number	
Number of cases	22,215	
Case Classification	**Number**	**(Percent)**
Confirmed	16,229	(73.1)
Probable	5,986	(26.9)
Outcome	**Number**	**(Percent)**
Hospitalized	1,325	(6.0)
Died	24	(0.1)
Imported Status	**Number**	**(Percent)**
Acquired in Florida	2,639	(97.2)
Acquired in the U.S., not Florida	42	(1.5)
Acquired outside the U.S.	35	(1.3)
Acquired location unknown	19,499	
Outbreak Status	**Number**	**(Percent)**
Sporadic	4,622	(98.3)
Outbreak-associated	81	(1.7)
Outbreak status unknown	17,512	

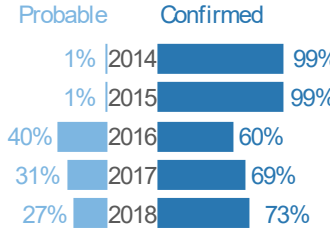
Chronic hepatitis C occurred throughout the state in 2018 with the highest rates in small counties in northern and central Florida, particularly in the Panhandle.



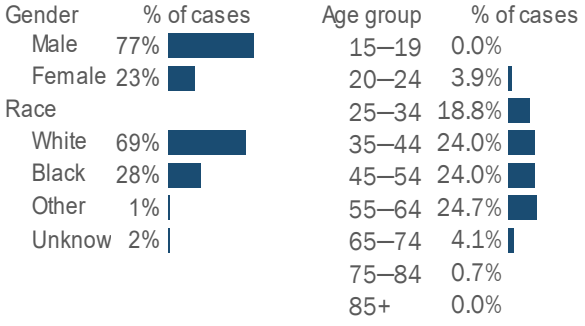
Rates are by county of residence, regardless of where infection was acquired (22,215 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

Almost 75% of chronic hepatitis C cases were confirmed in 2018. The probable case classification expanded in 2016, resulting in a large increase in probable cases.

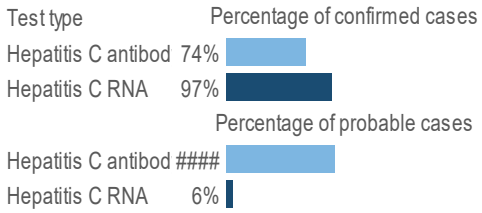


In 2018, 442 (2%) chronic hepatitis C cases were also diagnosed with HIV. The majority of people with co-infections were male, white and 55 to 64 years old.

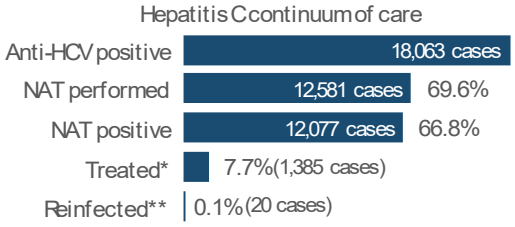


Order of infection can not be determined from these charts. Race and ethnicity data are from the enhanced HIV/AIDS Reporting System as demographic data were more complete for these cases.

Almost all confirmed cases of chronic hepatitis C were positive for hepatitis C ribonucleic acid (RNA) **and most were positive for hepatitis C antibody in 2018.** Only a small portion of probable cases were positive for hepatitis C RNA.



Of chronic hepatitis C cases positive for hepatitis C antibody (anti-HCV) in 2018 (18,063 cases), 67% had a positive nucleic acid test (NAT) to detect hepatitis C RNA. Less than 10% of anti-HCV positive cases were treated,* and very few cases were reinfected.**



*The number treated was calculated as a positive NAT result followed by two negative NAT results, all of which were ≥30 days apart.
**The number reinfected was calculated as a negative NAT result followed by a positive NAT result ≥30 days later.

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 (acquired immunodeficiency syndrome) 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 2018, male-to-male sexual contact continued to account for most (74%) HIV diagnoses among males.

Untreated, HIV can continue to weaken the immune system and develop into AIDS. Florida observed a 50% decrease in AIDS diagnoses from 2009 to 2018, 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

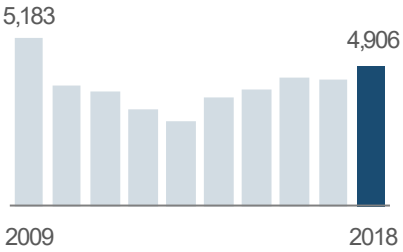
Caused by human immunodeficiency virus (HIV)

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

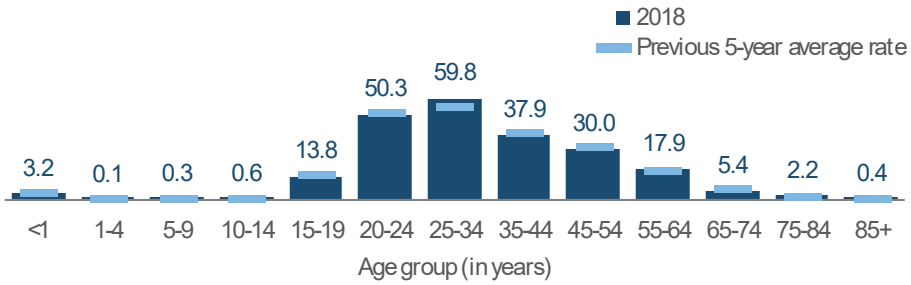
HIV incidence has been gradually increasing since 2013.



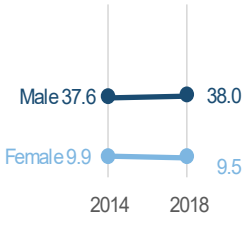
Disease Trends

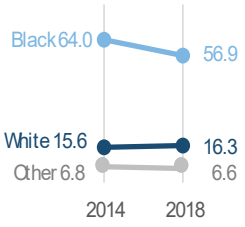
Summary			
Number of diagnoses			4,906
Rate (per 100,000 population)			23.4
Change from 5-year average rate			+0.6%
Age (in Years)			
Mean			37
Median			34
Min-max			0 - 94
Gender	**Number**	**(Percent)**	**Rate**
Female	1,014	(20.7)	9.5
Male	3,892	(79.3)	38.0
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	2,645	(55.8)	16.3
Black	2,020	(42.6)	56.9
Other	79	(1.7)	6.6
Unknown race	162		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	1,666	(34.3)	10.7
Hispanic	3,187	(65.7)	59.1
Unknown ethnicity	53		

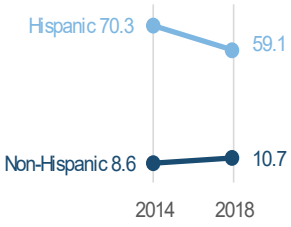
HIV incidence rates (per 100,000 population) are consistently highest in adults 20 to 34 years old.



In 2018, HIV incidence rates (per 100,000 population) were 4.0 times higher among males than females and 3.5 times higher among blacks than whites.







HIV/AIDS

Male-to-male sexual contact was the primary mode of exposure among males who received an HIV diagnosis in 2018 (74%), and heterosexual contact was the primary mode of exposure among females (89%) who received an HIV diagnosis in 2018.

Mode of exposure	Female		Male	
Male-to-male sexual contact (MMSC)	NA	NA	2,875	73.9%
Heterosexual contact	903	89.0%	741	19.0%
Injection drug use (IDU)	100	9.9%	138	3.6%
MMSC and IDU	NA	NA	105	2.7%
Pediatric transmission	9	0.9%	9	0.2%
Transgender sexual contact	2	0.2%	24	0.6%
Total	1,014		3,892	

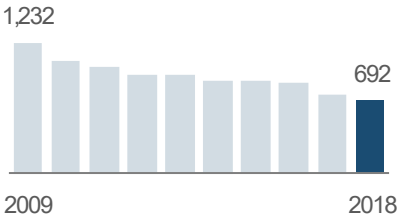
Note: Pediatric transmission includes perinatal exposure and pediatric diagnoses without a confirmed mode of exposure. Transgender sexual contact includes transgender males or females whose mode of exposure was sexual contact.

Race/ethnicity	Female	Male
White	3.5	18.1
Black	34.1	86.0
Hispanic	8.0	54.4

In 2018, the HIV incidence rate (per 100,000 population) among black females was 9.7 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 3.0 times higher than white males.

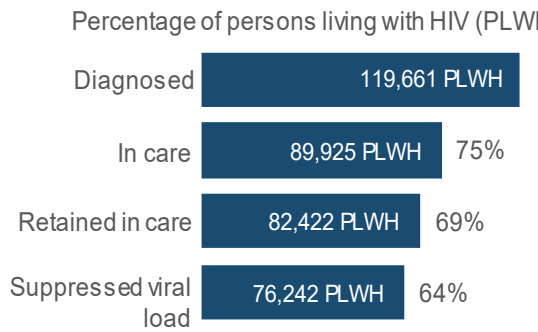
HIV was the ninth leading cause of death for people 24 to 44 years old in Florida in 2018. Following the advent of antiretroviral therapy, there has been an 84% decline in Florida resident deaths due to HIV from 1995 (4,336 deaths) to 2018 (692 deaths).

Deaths due to HIV decreased by 44% from 2009 to 2018 and by 8% since 2017 alone.

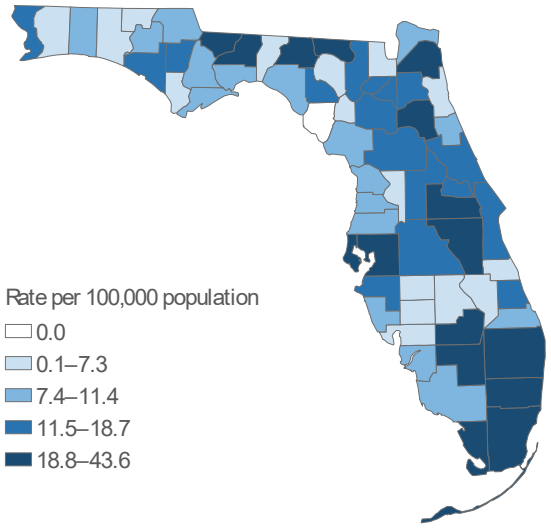


The HIV care continuum reflects the series of steps a person living with an HIV diagnosis takes from initial diagnosis to being retained in care and achieving a very low level of HIV in the body (viral suppression). Persons living with HIV (PLWH) with a suppressed viral load (less than 200 copies/mL)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

There were 119,661 PLWH in Florida in 2018, 69% of whom were retained in care and 64% of whom had a suppressed viral load.



High HIV incidence rates (per 100,000 population) occurred in the central and southeastern parts of the state in 2018. Almost 50% of diagnoses were in three counties, including Miami-Dade (1,224 diagnoses), Broward (661 diagnoses) and Orange (500 diagnoses).



Rates are by county of residence, regardless of where infection was acquired and excluding Florida Department of Corrections diagnoses (4,809 diagnoses). Rates based on <20 diagnoses 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 diagnoses in 2018 by county.

HIV care continuum definitions

In care: documented HIV-related care at least once in 2018

Retained in care: documented HIV-related care at least two times, at least three months apart in 2018

Suppressed viral load: less than 200 copies/mL

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. The Centers for Medicare and Medicaid Services requires blood lead screening in all Medicaid-enrolled children at 12 and 24 months old; if not previously screened, children must be screened between 24 and 72 months old. The Centers for Disease Control and Prevention recommends all children who are foreign-born or otherwise identified as high-risk be screened for lead. 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, 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 2018 are presented here.

Disease Facts

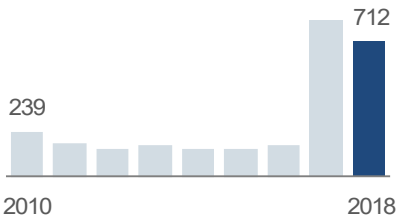
Caused by lead

Illness includes a 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

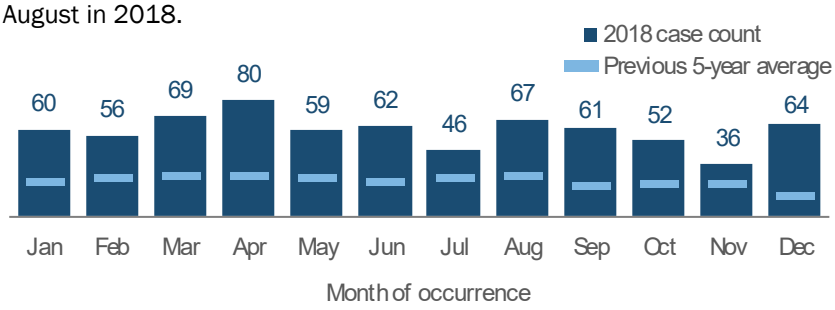
Lead poisoning incidence increased dramatically in 2017 due to a case definition expansion. Incidence decreased in 2018.



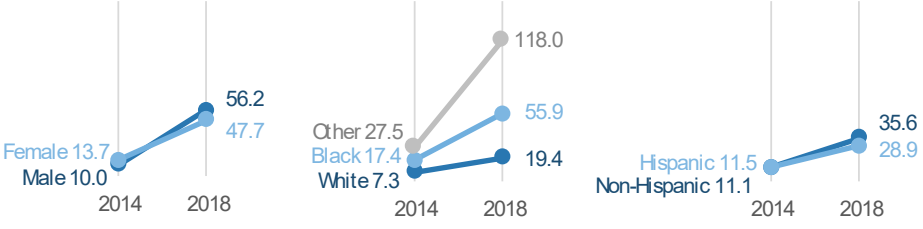
Disease Trends

Summary		
Number of cases		712
Rate (per 100,000 population)		52.0
Change from 5-year average rate		+137.0%
Age (in Years)		
Mean		2
Median		2
Min-max		0 - 5
Gender	**Number (Percent)**	**Rate**
Female	319 (44.8)	47.7
Male	393 (55.2)	56.2
Unknown gender	0	
Race	**Number (Percent)**	**Rate**
White	183 (37.0)	19.4
Black	171 (34.6)	55.9
Other	140 (28.3)	118.0
Unknown race	218	
Ethnicity	**Number (Percent)**	**Rate**
Non-Hispanic	332 (72.5)	35.6
Hispanic	126 (27.5)	28.9
Unknown ethnicity	254	

Lead poisoning in children <6 years old occurs throughout the year, with no distinct seasonality. The highest number of cases were reported in March, April and August in 2018.



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.

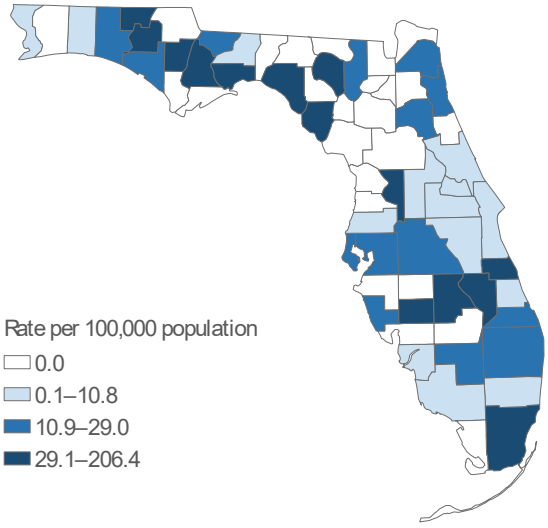


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Lead poisoning cases in children less than 6 years old were missing 5.2% of ethnicity data in 2014, 35.7% of ethnicity data in 2018 and 30.6% of race data in 2018.

Lead Poisoning in Children <6 Years Old

Summary	Number	
Number of cases	712	
Outcome	**Number**	**(Percent)**
Hospitalized	3	(0.4)
Died	0	(0.0)
Imported Status	**Number**	**(Percent)**
Exposed in Florida	225	(88.9)
Exposed in the U.S., not Florida	5	(2.0)
Exposed outside the U.S.	23	(9.1)
Exposed location unknown	459	
Outbreak Status	**Number**	**(Percent)**
Sporadic	325	(94.2)
Outbreak-associated	20	(5.8)
Outbreak status unknown	367	
Age Group	**Number**	**(Percent)**
Children (<6 years old)	712	(35.6)
Adult (≥6 years old)	1,290	(64.4)

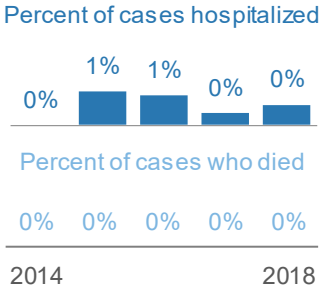
Lead poisoning in children <6 years old occurred in most parts of the state in 2018. The lead poisoning rates (per 100,000 population) are typically highest in small, rural counties.



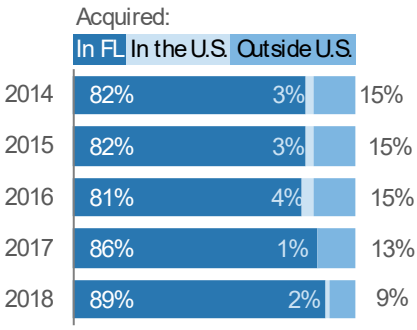
Rates are by county of residence for cases exposed in Florida (225 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

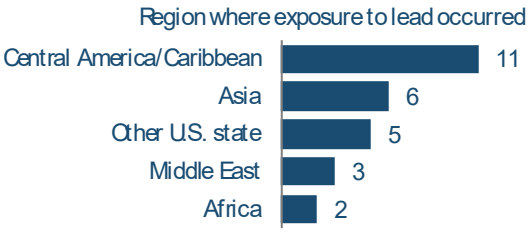
More Disease

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

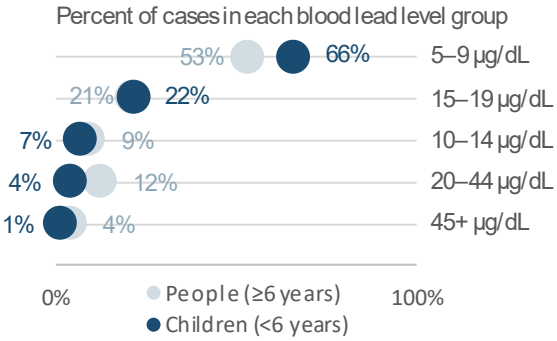


For cases known to be exposed outside Florida, Central America/Caribbean is the most common region where lead exposure occurred. As 75% of cases have blood lead levels ≥5 and <10 µg/dL and are not investigated, the location of exposure is unknown for 79% of cases.

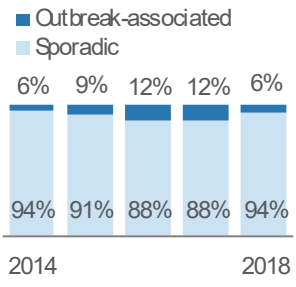




Children <6 years old have a larger proportion of cases that are ≥5 and <10 µg/dL compared to adults (66% versus 53%, respectively). Lead poisoning cases in adults are primarily identified through occupational testing, and they tend to have higher blood lead levels than children.



Most lead poisoning cases are sporadic. In 2018, there were 20 outbreak-associated cases associated with 16 different small household clusters, each ranging from two to four cases. Common exposures included imported food and spices, lead-based paint and persons who brought lead into the home from work or hobbies that involve lead exposure.



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. The Occupational Safety and Health Administration requires regular lead screening 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 2018 are presented here.

Disease Facts

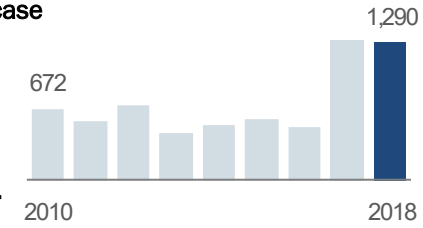
Caused by lead

Illness includes a 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 case definition expansion. Incidence decreased slightly in 2018.



Disease Trends

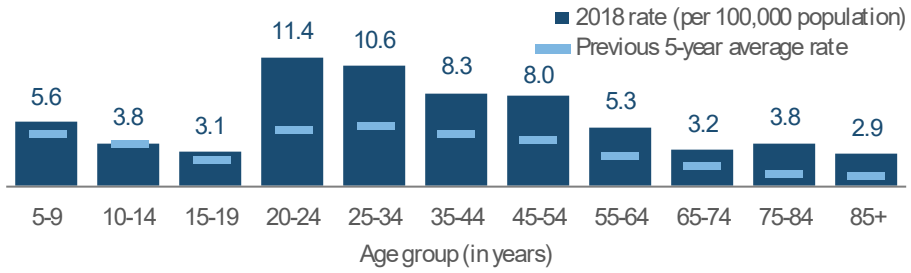
The rate (per 100,000 population) of lead poisoning in people >6 years old is highest in adults 20 to 24 years old, followed by adults 25 to 34 years old.

Summary	
Number of cases	1,290
Rate (per 100,000 population)	6.6
Change from 5-year average rate	+85.1%
Age (in Years)	
Mean	40
Median	38
Min-max	6 - 96

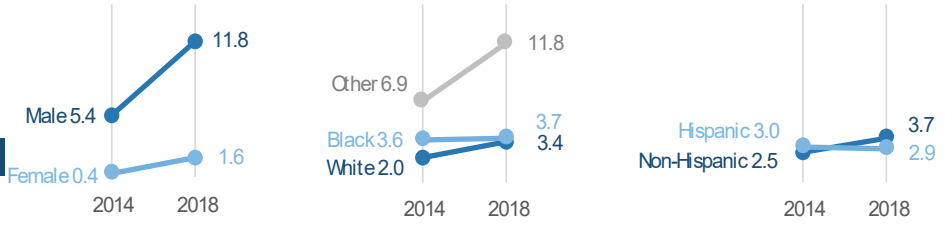
Gender	Number (Percent)	Rate
Female	164 (12.7)	1.6
Male	1,123 (87.3)	11.8
Unknown gender	3	

Race	Number (Percent)	Rate
White	518 (67.8)	3.4
Black	120 (15.7)	3.7
Other	126 (16.5)	11.8
Unknown race	526	

Ethnicity	Number (Percent)	Rate
Non-Hispanic	543 (79.0)	3.7
Hispanic	144 (21.0)	2.9
Unknown ethnicity	603	



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. Since few cases with blood lead levels ≥5 and <10 µg/dL are investigated, race and ethnicity data are missing for many cases.

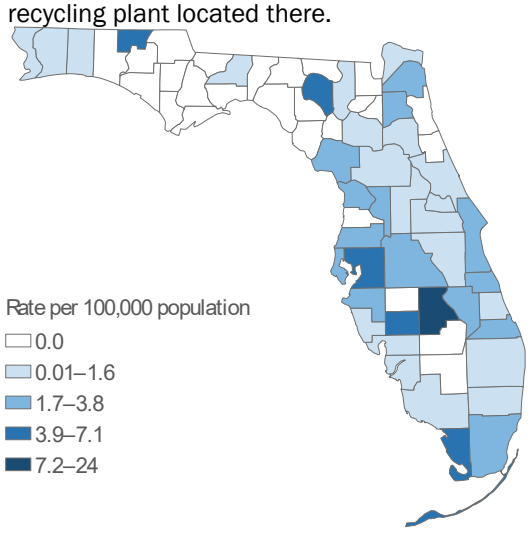


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Lead poisoning cases in people more than 6 years old were missing 7.8% of ethnicity data in 2014, 10.3% of race data in 2014, 46.7% of ethnicity data in 2018 and 40.8% of race data in 2018.

Lead Poisoning in People ≥6 Years Old

Summary	Number	
Number of cases	1,290	
Outcome	**Number**	**(Percent)**
Hospitalized	7	(0.5)
Died	0	(0.0)
Imported Status	**Number**	**(Percent)**
Exposed in Florida	396	(92.1)
Exposed in the U.S., not Florida	14	(3.3)
Exposed outside the U.S.	20	(4.7)
Exposed location unknown	860	
Outbreak Status	**Number**	**(Percent)**
Sporadic	535	(95.7)
Outbreak-associated	24	(4.3)
Outbreak status unknown	731	
Age Group	**Number**	**(Percent)**
Children (<6 years old)	712	(35.6)
Adult (≥6 years old)	1,290	(64.4)

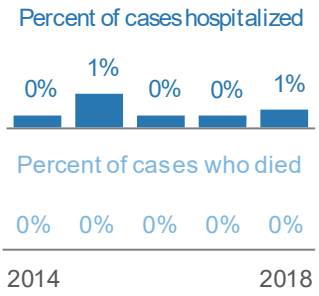
Lead poisoning in people ≥6 years old occurred in most parts of the state in 2018, though there are fewer counties with cases in the Panhandle region. Hillsborough County has the largest number of reported cases due to occupational screening at a large battery and metal recycling plant located there.



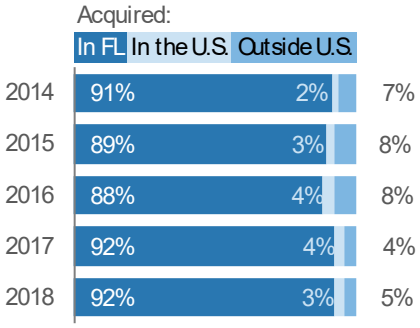
Rates are by county of residence for cases exposed in Florida (396 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

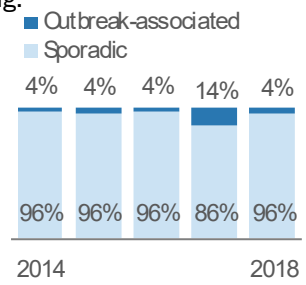
Hospitalizations and deaths in people ≥6 years old with lead poisoning are rare.



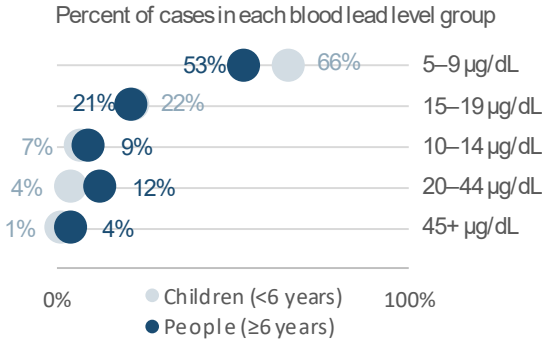
Of cases where the exposure location was known, most were exposed in Florida.



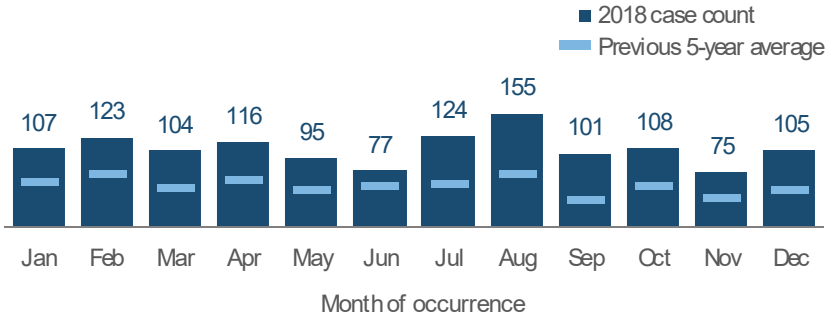
Most lead poisoning cases are sporadic. In 2018, 24 outbreak-associated cases were identified. Most cases (58%) were exposed from recreational target shooting.



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, with no distinct seasonality. The highest number of cases were reported in February, July and August in 2018.



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

Legionellosis

Key Points

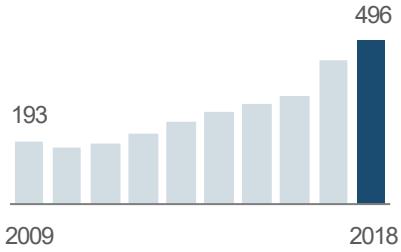
Recently identified sources of *Legionella* infection in Florida and the U.S. include decorative fountains, hot tubs, cooling towers (air conditioning units for large buildings) and potable water systems. Increasing incidence in Florida is consistent with the increase observed nationally over the past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

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

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 exposure 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.

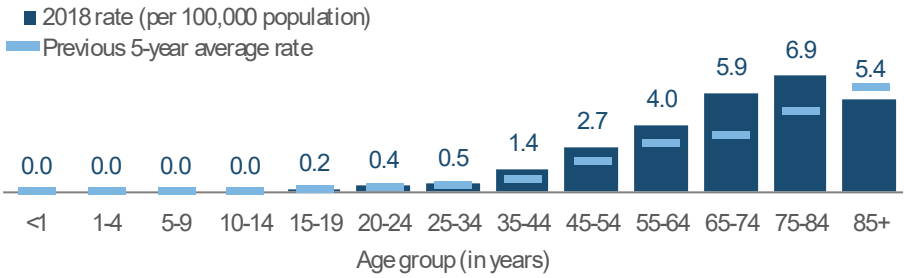
Legionellosis incidence continued to increase in 2018.



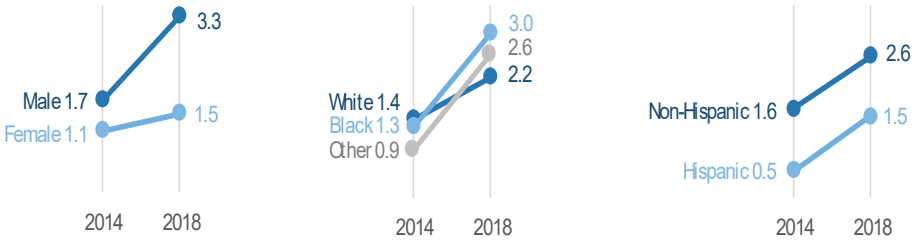
Disease Trends

Summary			
Number of cases			496
Rate (per 100,000 population)			2.4
Change from 5-year average rate			+47.9%
Age (in Years)			
Mean			64
Median			65
Min-max			18 - 97
Gender	**Number**	**(Percent)**	**Rate**
Female	158	(31.9)	1.5
Male	338	(68.1)	3.3
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	357	(72.3)	2.2
Black	106	(21.5)	3.0
Other	31	(6.3)	2.6
Unknown race	2		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	402	(83.4)	2.6
Hispanic	80	(16.6)	1.5
Unknown ethnicity	14		

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



The legionellosis rate (per 100,000 population) has increased in all demographics from 2014 to 2018. Rates were higher in males and non-Hispanics, but generally similar by race in 2018.

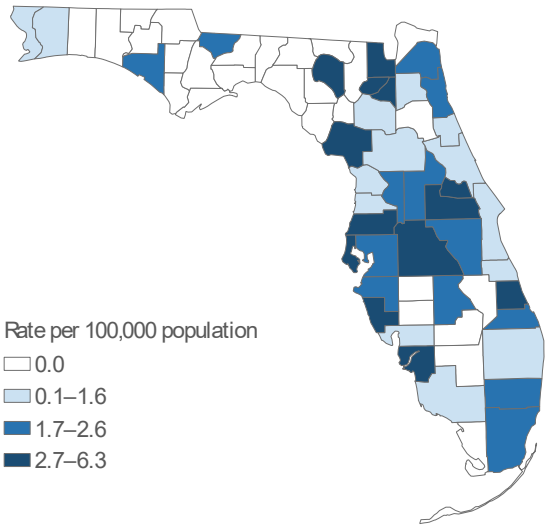


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Legionellosis cases were missing 5.4% of ethnicity data in 2014.

Legionellosis

Summary	Number	
Number of cases	496	
Outcome	**Number**	**(Percent)**
Hospitalized	483	(97.4)
Died	47	(9.5)
Imported Status	**Number**	**(Percent)**
Acquired in Florida	433	(95.8)
Acquired in the U.S., not Florida	13	(2.9)
Acquired outside the U.S.	6	(1.3)
Acquired location unknown	44	
Outbreak Status	**Number**	**(Percent)**
Sporadic	459	(93.7)
Outbreak-associated	31	(6.3)
Outbreak status unknown	6	

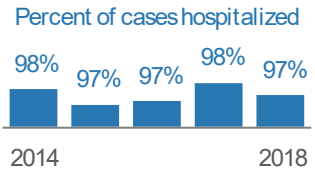
Legionellosis occurred in most parts of the state in 2018, but is notably absent from most counties in the Panhandle.

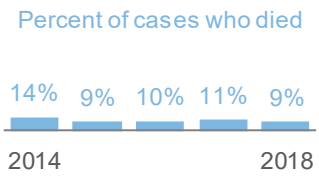


Rates are by county of residence for infections acquired in Florida (433 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

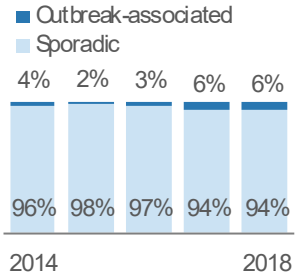
More Disease

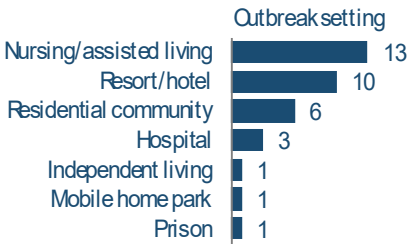
Most legionellosis cases are hospitalized, and deaths do occur. Those primarily affected are older adults and people with underlying conditions. Pneumonia is commonly identified among cases.



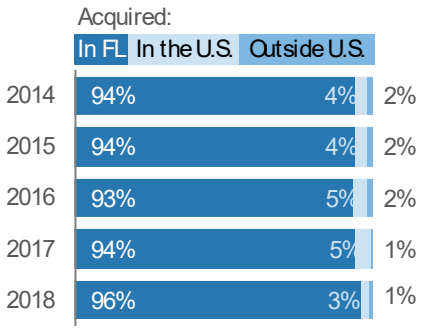


In 2018, 35 outbreaks were identified, some of which included non-Florida residents (who are not included in counts in this report). Nursing homes and assisted living facilities were the most commonly identified outbreak settings.

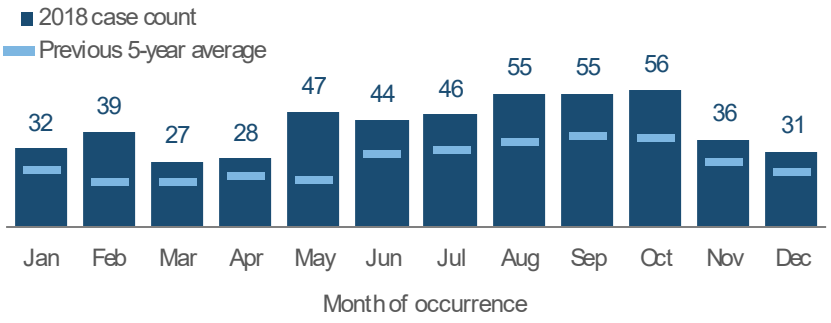




Between 93% and 96% of *Legionella* infections are acquired in Florida; some infections were imported from other states and countries.



Legionellosis cases increase slightly in the summer and early fall months with 46 to 56 cases reported each month from July to October 2018.



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 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.

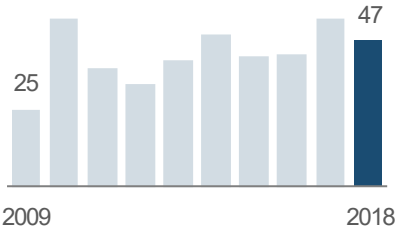
Historically, *Listeria* outbreaks have been linked to deli meats and hot dogs; however, new vehicles have been identified as sources of outbreaks including soft cheeses, frozen vegetables, sprouts, raw milk, melons, caramel apples, smoked seafood and ice cream.

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 monitors WGS data from across the country to identify clusters of possibly related cases. In 2018, Florida identified four cases associated with four different multistate outbreaks. While none of these outbreaks had an exposure source identified, one outbreak resulted in new linkages to two Florida cases reported in 2013.

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
- **Transmission** 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

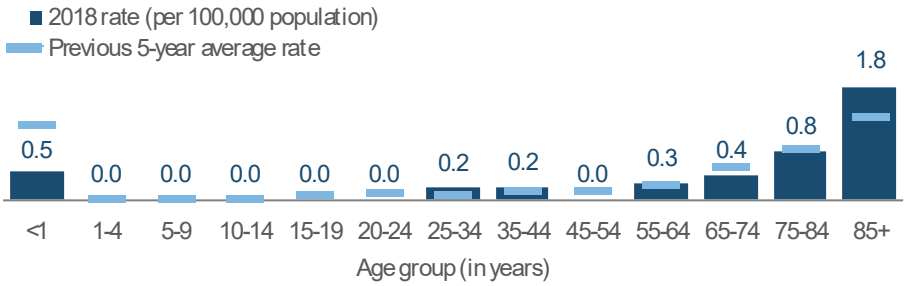
Summary	
Number of cases	47
Rate (per 100,000 population)	0.2
Change from 5-year average rate	-2.4%
Age (in Years)	
Mean	65
Median	69
Min-max	0 - 95

Gender	Number	(Percent)	Rate
Female	28	(59.6)	0.3
Male	19	(40.4)	NA
Unknown gender	0		

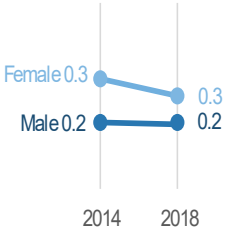
Race	Number	(Percent)	Rate
White	29	(63.0)	0.2
Black	12	(26.1)	NA
Other	5	(10.9)	NA
Unknown race	1		

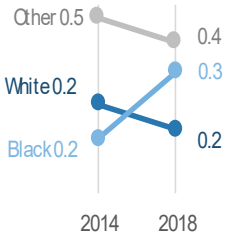
Ethnicity	Number	(Percent)	Rate
Non-Hispanic	39	(83.0)	0.3
Hispanic	8	(17.0)	NA
Unknown ethnicity	0		

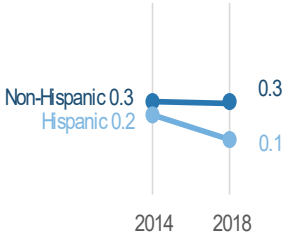
The listeriosis rate (per 100,000 population) is highest in infants (who can acquire infection from the mother during pregnancy) and adults ≥75 years old.



The listeriosis rate (per 100,000 population) was similar by gender, race and ethnicity in 2018. Most demographics remained stable from 2014 to 2018, except for other races and Hispanics who decreased slightly and blacks who increased slightly.



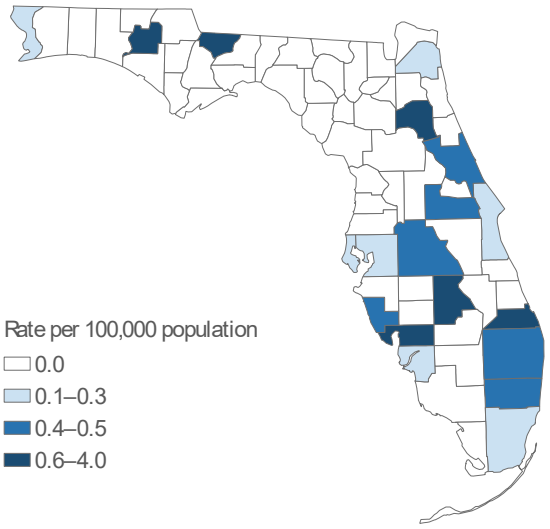




Listeriosis

Summary	Number	
Number of cases	47	
Outcome	**Number**	**(Percent)**
Hospitalized	46	(97.9)
Died	9	(19.1)
Imported Status	**Number**	**(Percent)**
Acquired in Florida	44	(97.8)
Acquired in the U.S., not Florida	1	(2.2)
Acquired outside the U.S.	0	(0.0)
Acquired location unknown	2	
Outbreak Status	**Number**	**(Percent)**
Sporadic	40	(85.1)
Outbreak-associated	6	(12.8)
Outbreak status unknown	1	

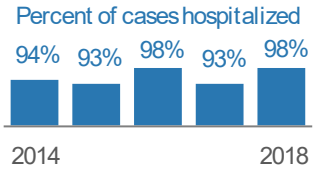
Listeriosis did not have a geographic pattern in 2018. Rates (per 100,000 population) were highest in small, rural counties in different parts of the state.

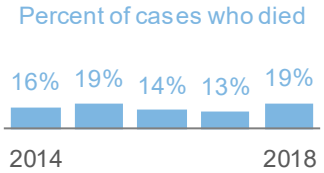


Rates are by county of residence for infections acquired in Florida (44 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

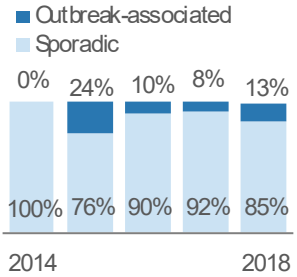
More Disease

Most listeriosis cases are hospitalized; deaths do occur. Those primarily affected are older adults who likely have underlying conditions.

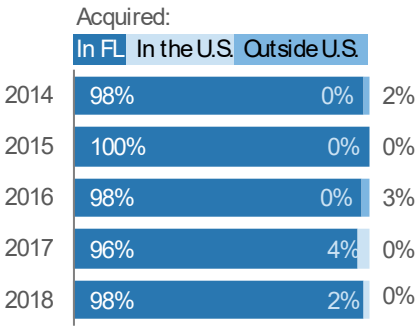




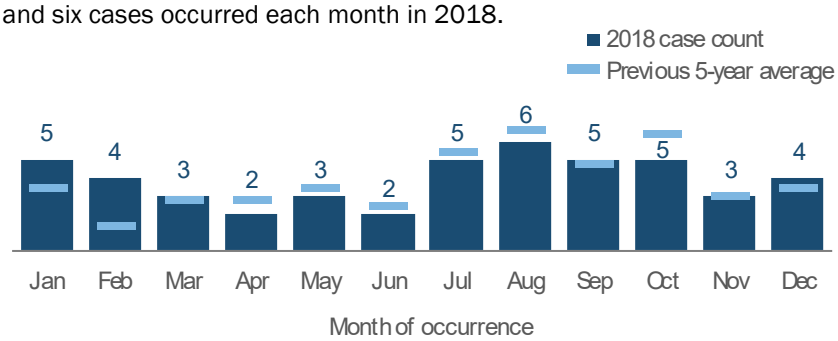
Each year, a few cases are linked to multistate outbreaks through whole genome sequencing. Four cases reported in 2018 matched multistate outbreaks.



Most *Listeria* infections are acquired in Florida; one infection was acquired from Puerto Rico in 2018.



Listeriosis cases occur all year and do not exhibit a strong seasonality; however, low case counts make it difficult to interpret trends. Between two and six cases occurred each month in 2018.



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 Centers for Disease Control and Prevention estimates that about 300,000 Lyme disease cases are reported each year. Nationally, Lyme disease cases are concentrated in the Northeast and upper Midwest, with 14 states accounting for over 96% of reported cases each year.

Lyme disease incidence in Florida has generally increased over the past decade. This increase 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. In 2018, incidence of Lyme disease decreased slightly from 2017, falling below the previous five-year average incidence.

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

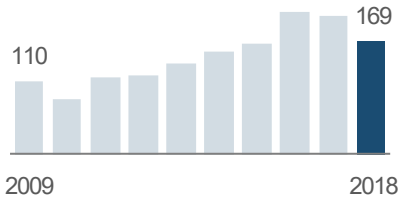
Transmitted via bite of infective *Ixodes scapularis* tick

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

While most Florida cases are acquired during travel to other U.S. states, a growing number of cases were acquired outside the U.S. in 2018, primarily in Europe (one case each from the Czech Republic, Germany, Hungary, Romania, Sweden and Italy or Spain) and Canada (two cases).

There were 75 acute and 94 late-manifestation Lyme disease cases reported in 2018. Three Lyme disease cases were co-infected with *Babesia*. Case counts and rates from this report may differ from those found in other tick-borne disease reports as different criteria are used to assemble the data.

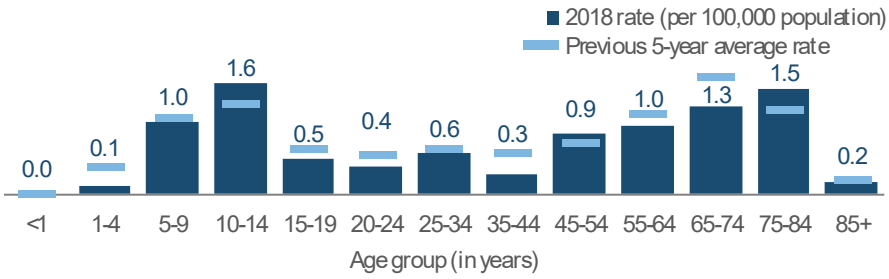
Lyme disease incidence in 2018 decreased slightly from 2017.



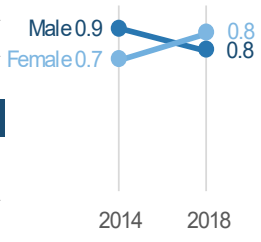
Disease Trends

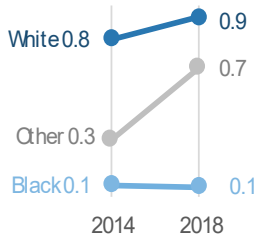
In 2018, the Lyme disease rate (per 100,000 population) was highest in adolescents 10 to 14 years old, followed by adults 75 to 84 years old and 65 to 74 years old. The rate in 2018 was notably lower than the previous five-year average rate for adults 35 to 44 years old and 65 to 74 years old.

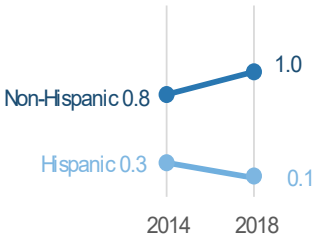
Summary		
Number of cases		169
Rate (per 100,000 population)		0.8
Change from 5-year average rate		-9.0%
Age (in Years)		
Mean		47
Median		54
Min-max		4 - 89
Gender	**Number (Percent)**	**Rate**
Female	91 (53.8)	0.8
Male	78 (46.2)	0.8
Unknown gender	0	
Race	**Number (Percent)**	**Rate**
White	152 (93.8)	0.9
Black	2 (1.2)	NA
Other	8 (4.9)	NA
Unknown race	7	
Ethnicity	**Number (Percent)**	**Rate**
Non-Hispanic	152 (95.0)	1.0
Hispanic	8 (5.0)	NA
Unknown ethnicity	9	



In 2018, the Lyme disease rate (per 100,000 population) was similar by gender groups, but higher in non-Hispanics. The rate was highest in whites, followed by other races, then blacks. The rate increased from 2014 to 2018 in all demographics except for males, blacks and Hispanics, which remained stable or decreased slightly.





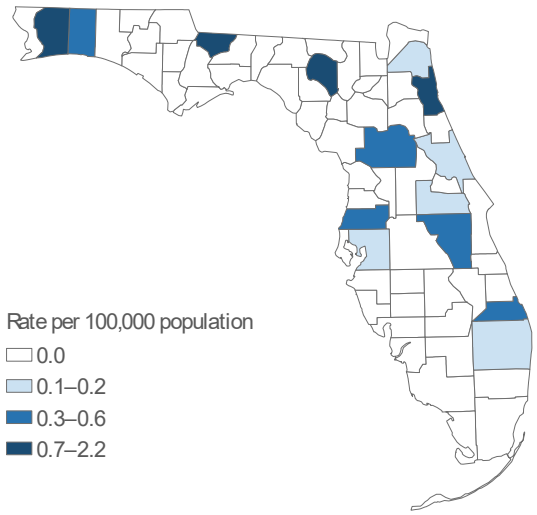


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Lyme disease cases were missing 15.5% of ethnicity data in 2014, 15.5% of race data in 2014 and 5.3% of ethnicity data in 2018.

Lyme Disease

Summary	Number	
Number of cases	169	
Case Classification	**Number**	**(Percent)**
Confirmed	98	(58.0)
Probable	71	(42.0)
Outcome	**Number**	**(Percent)**
Hospitalized	17	(10.1)
Died	0	(0.0)
Imported Status	**Number**	**(Percent)**
Acquired in Florida	18	(12.6)
Acquired in the U.S., not Florida	117	(81.8)
Acquired outside the U.S.	8	(5.6)
Acquired location unknown	26	
Outbreak Status	**Number**	**(Percent)**
Sporadic	169	(100.0)
Outbreak-associated	0	(0.0)
Outbreak status unknown	0	

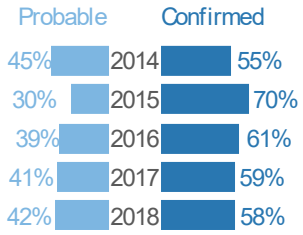
Lyme disease is primarily imported from other U.S. states where it is highly endemic; however, 18 infections were acquired in Florida in 2018. Four cases were reported in St. Johns County and two were reported in Santa Rosa County. The remaining 12 counties each had one case reported.



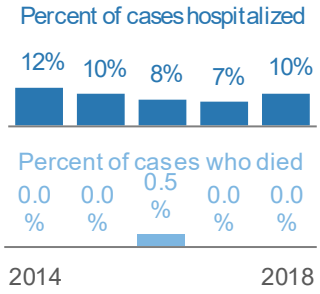
Rates are by county of residence for infections acquired in Florida (18 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

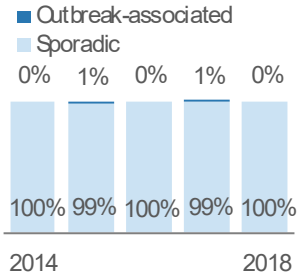
Between 55% and 70% of cases are confirmed annually; 58% of 2018 cases were confirmed.



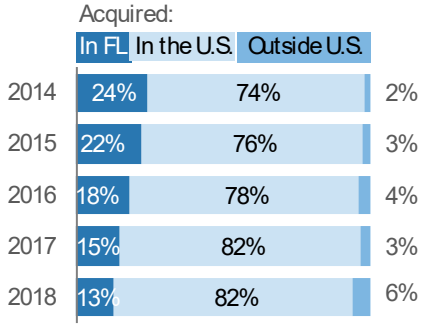
The hospitalization rate for people with Lyme disease is low; deaths are rare.



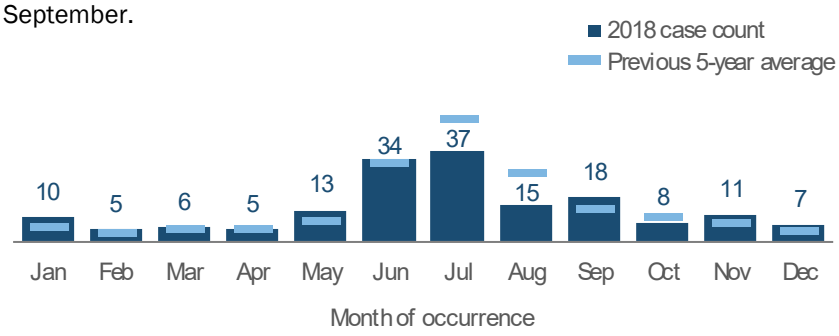
Almost all Lyme disease cases are sporadic.



Lyme disease is primarily imported from other U.S. states where it is highly endemic. Eight cases in 2018 were imported from other countries.



Lyme disease cases are reported year-round, but there is a strong seasonal peak in the summer. In 2018, 62% of cases occurred from June to September.



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

Malaria

Key Points

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. Excluding one, all cases in 2018 were among people traveling to countries with endemic transmission (primarily African countries) while visiting friends and relatives.

One 2018 case had illness onset in 2017, but was not identified and reported as a case until 2018. This person donated bone marrow to a sibling, resulting in a bone marrow transplant-associated malaria infection in Florida. The donor had traveled to Ghana 1.5 years before the donation. Upon returning, the donor reported malaria-like symptoms; blood smears at the time were negative. The recipient developed fever 15 days after the transplant. Additional testing indicated that the donor had a low level of parasitemia.

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; however, cases in non-Florida residents are not included in counts in this report. In 2018, 12 non-Florida residents were diagnosed with malaria while traveling in Florida.

Disease Facts

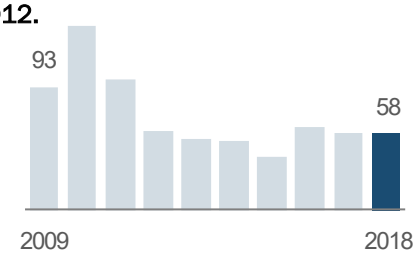
Caused by *Plasmodium falciparum, P. malariae, P. ovale, P. vivax* parasites

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

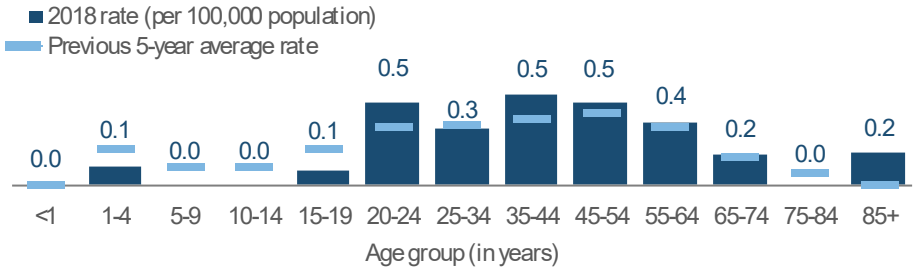
The number of reported malaria cases has remained relatively consistent since 2012.



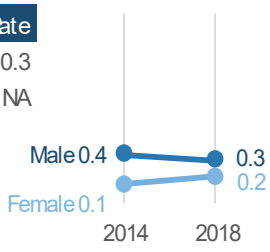
Disease Trends

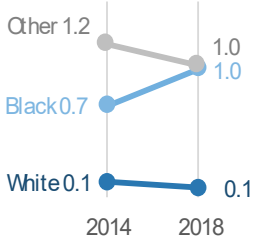
Summary			
Number of cases			58
Rate (per 100,000 population)			0.3
Change from 5-year average rate			+3.7%
Age (in Years)			
Mean			44
Median			44
Min-max			4 - 89
Gender	**Number**	**(Percent)**	**Rate**
Female	23	(39.7)	0.2
Male	35	(60.3)	0.3
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	11	(19.0)	NA
Black	35	(60.3)	1.0
Other	12	(20.7)	NA
Unknown race	0		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	47	(81.0)	0.3
Hispanic	11	(19.0)	NA
Unknown ethnicity	0		

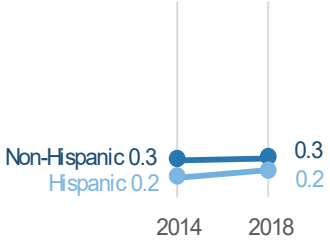
The malaria rate (per 100,000 population) varies by age. Historically, rates are highest in adults 20 to 64 years old. In 2018, rates were highest in adults 20 to 24, 35 to 44 and 45 to 54 years old. Children <5 years old are one of the most vulnerable groups affected by malaria and are at higher risk for severe disease and death. In 2018, the single case in a child 1 to 4 years old was infected with *P. falciparum* while visiting family in Togo.



The malaria rate (per 100,000 population) was similar in males, females, Hispanics and non-Hispanics in 2018. By race, the rate was low in whites and similar in blacks and other races in 2018.



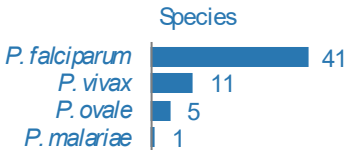




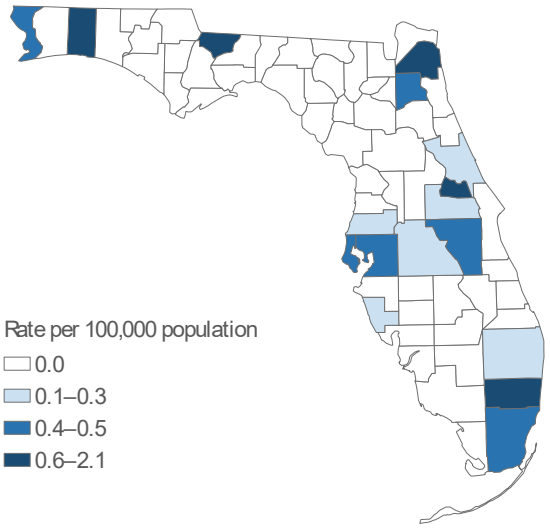
Malaria

Summary	Number
Number of cases	58
Outcome	**Number (Percent)**
Hospitalized	47 (81.0)
Died	0 (0.0)
Imported Status	**Number (Percent)**
Acquired in Florida	1 (1.7)
Acquired in the U.S., not Florida	0 (0.0)
Acquired outside the U.S.	57 (98.3)
Acquired location unknown	0
Outbreak Status	**Number (Percent)**
Sporadic	54 (93.1)
Outbreak-associated	4 (6.9)
Outbreak status unknown	0

In 2018, the majority (71%) of infections were caused by *P. falciparum*.



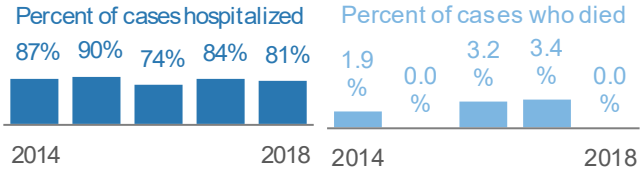
Malaria cases were identified in residents of 17 counties across Florida in 2018. Cases were most commonly reported in Broward (13) and Miami-Dade (11) counties.



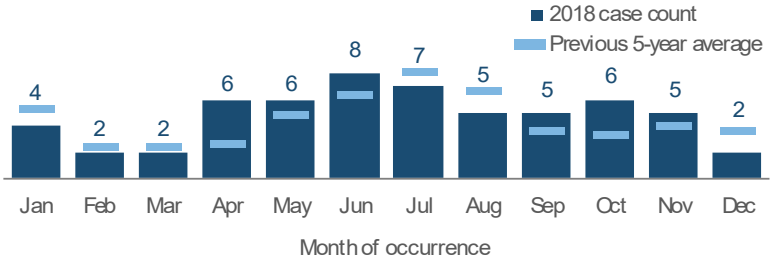
Rates are by county of residence, regardless of where infection was acquired (58 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

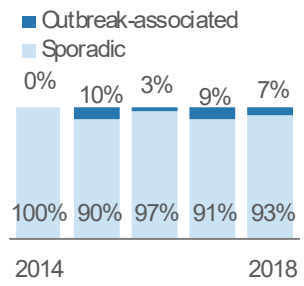
The majority of malaria cases are hospitalized; deaths do occur. No deaths were reported in 2018.



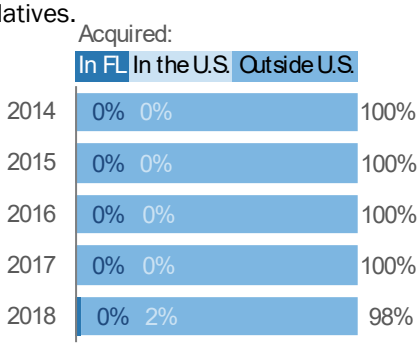
Malaria cases are imported into Florida year-round, but activity peaked in June and July in 2018.

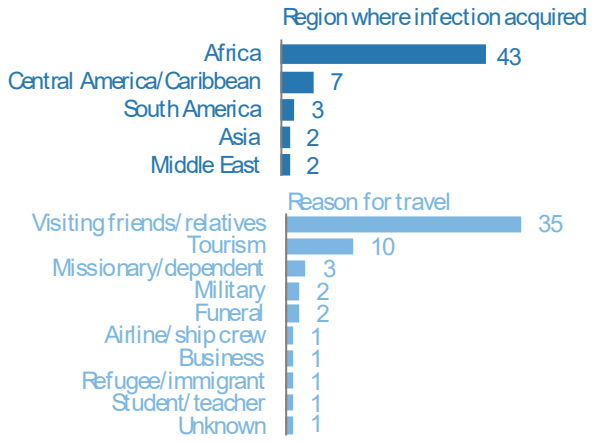


One family cluster was identified in 2018. Both cases traveled to Nigeria to visit family.



In 2018, one case was locally acquired through a bone marrow transplant. The remaining cases were all 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.

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, and remained elevated in 2018. This increase in cases 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. The U.S. Food and Drug Administration and the U.S. Environmental Protection Agency recommend that women of childbearing age and young children should eat fish with low mercury levels. The Department guidelines for fish consumption are available at FloridaHealth.gov/FloridaFishAdvice.

Disease Facts

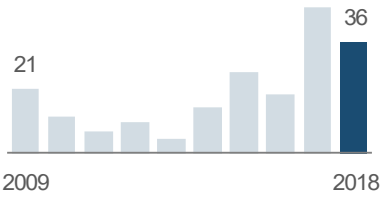
Caused by mercury (elemental or metallic mercury, organic mercury compounds, inorganic mercury compounds)

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 through 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

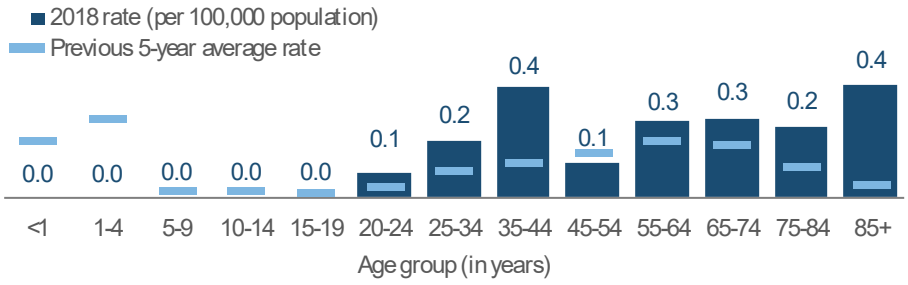
Mercury poisoning increased dramatically in 2017 and remained elevated in 2018.



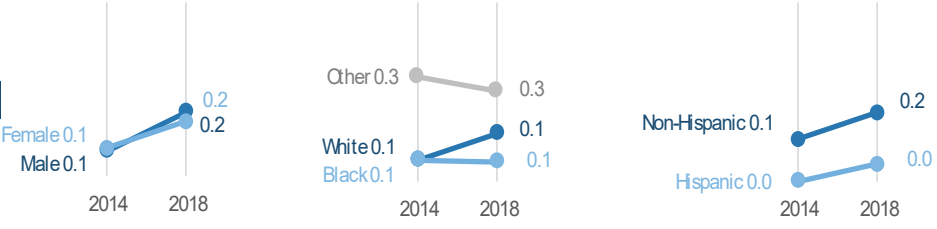
Disease Trends

Summary			
Number of cases			36
Rate (per 100,000 population)			0.2
Change from 5-year average rate			+54.5%
Age (in Years)			
Mean			54
Median			54
Min-max			24 - 96
Gender	**Number**	**(Percent)**	**Rate**
Female	17	(47.2)	NA
Male	19	(52.8)	NA
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	22	(81.5)	0.1
Black	2	(7.4)	NA
Other	3	(11.1)	NA
Unknown race	9		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	24	(92.3)	0.2
Hispanic	2	(7.7)	NA
Unknown ethnicity	10		

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 2018, rates were higher in adults; particularly adults 35 to 64 years old and ≥85 years old.



The mercury poisoning rate (per 100,000 population) has remained relatively stable in all demographics over the past five years. While rates increased slightly in both gender groups and non-Hispanics in 2018, the rate continues to be higher in other races compared to whites and blacks.

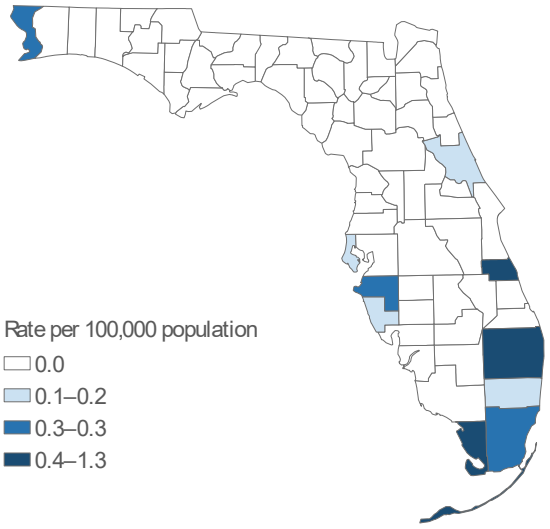


Note that trend graphs should be interpreted w ith caution w hen more than 5% of data are missing. Mercury poisoning cases w ere missing 6.7% of ethnicity data in 2014, 6.7% of race data in 2014, 27.8% of ethnicity data in 2018 and 25.0% of race data in 2018.

Mercury Poisoning

Summary	Number	
Number of cases	36	
Case Classification	**Number**	**(Percent)**
Confirmed	36	(100.0)
Probable	0	(0.0)
Outcome	**Number**	**(Percent)**
Hospitalized	0	(0.0)
Died	0	(0.0)
Imported Status	**Number**	**(Percent)**
Exposed in Florida	34	(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	36	(100.0)
Outbreak-associated	0	(0.0)
Outbreak status unknown	0	
Type of Exposure	**Number**	**(Percent)**
Fish consumption	30	(83.3)
Dental amalgam	1	(2.8)
Unknown	5	(13.9)

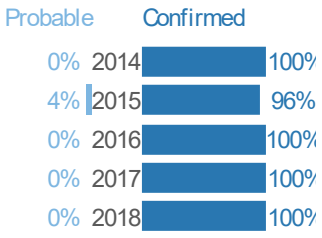
Mercury poisoning occurred primarily in southeast Florida in 2018. More than 65% of cases were reported in Palm Beach (18 cases) and Miami-Dade (7 cases) counties.



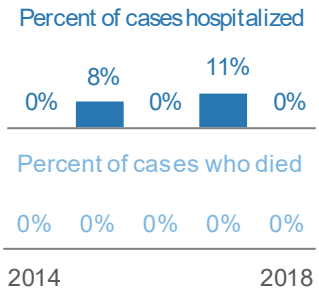
Rates are by county of residence for cases exposed in Florida (34 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

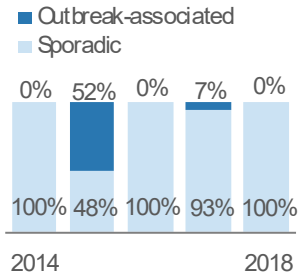
Almost all mercury poisoning cases are laboratory confirmed.



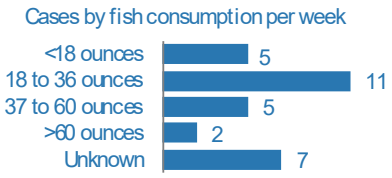
No mercury poisoning cases were hospitalized in 2018; no deaths have been identified in recent years.



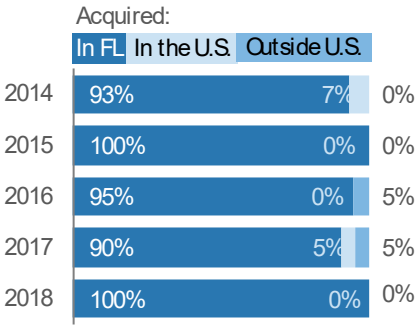
No outbreak-associated cases were identified in 2018.



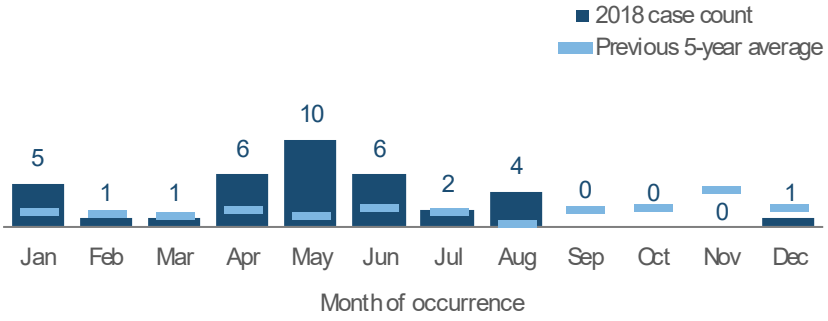
Mercury poisoning is mostly caused by fish consumption. The amount of fish consumed per week varies.



Most people with mercury poisoning are exposed in Florida.



Mercury poisoning occurs throughout the year, with little obvious seasonality in Florida, though 61% of cases occurred in April, May and June in 2018.



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, 2,515 mumps cases were reported in 2018, with over half in people 15 to 39 years old. Well over one-third of the cases were reported from the Pacific and Middle Atlantic regions of the country, with several college outbreaks driving the increased incidence in those states. Waning immunity is thought to play a role in these outbreaks.

Mumps incidence in Florida increased dramatically in 2017 and remained elevated in 2018. The elevated incidence over these two years was partly due to efforts by state and county health department staff to maintain awareness of mumps disease in the medical community by educating providers on reporting guidance and appropriate testing. In 2017 and 2018, staff also increased surveillance efforts to obtain specimens for testing at the state public health laboratory for both sporadic and outbreak-associated cases.

Disease Facts

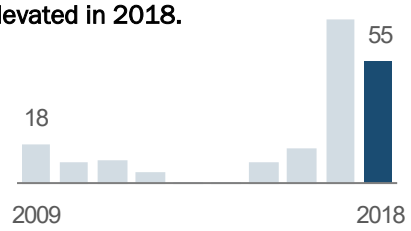
Caused by mumps virus

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 they cough, sneeze or talk

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

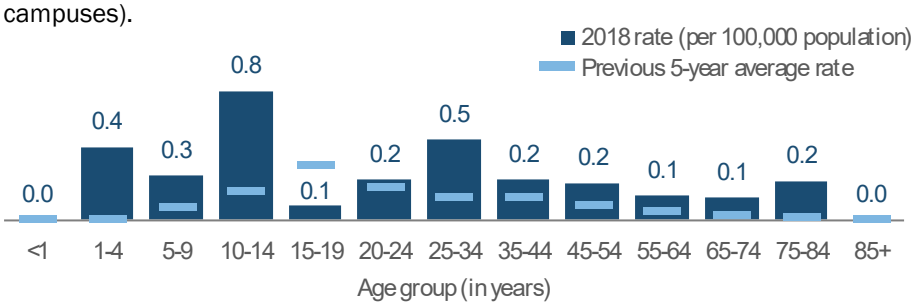
Mumps incidence increased dramatically in 2017 and remained elevated in 2018.



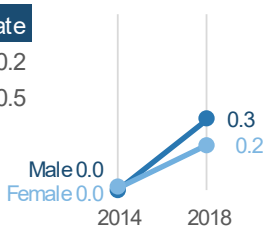
Disease Trends

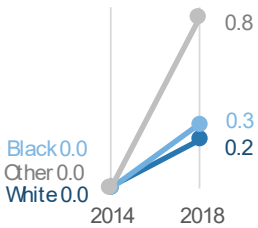
Summary			
Number of cases			55
Rate (per 100,000 population)			0.3
Change from 5-year average rate			+162.6%
Age (in Years)			
Mean			33
Median			30
Min-max			2 - 82
Gender	**Number**	**(Percent)**	**Rate**
Female	22	(40.0)	0.2
Male	33	(60.0)	0.3
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	35	(64.8)	0.2
Black	10	(18.5)	NA
Other	9	(16.7)	NA
Unknown race	1		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	28	(51.9)	0.2
Hispanic	26	(48.1)	0.5
Unknown ethnicity	1		

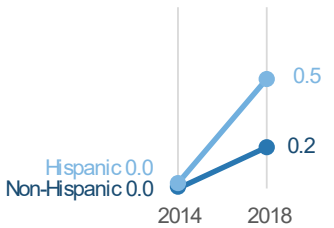
In 2018, the mumps rate (per 100,000 population) was highest in children 10 to 14 years old followed by adults 25 to 34 years old. This may be due to waning immunity from vaccine and time spent in close contact settings (e.g., school campuses).



Mumps rates (per 100,000 population) have increased across all gender, race and ethnicity groups from 2014 to 2018, though the increase was disproportionately larger among other races and Hispanics.



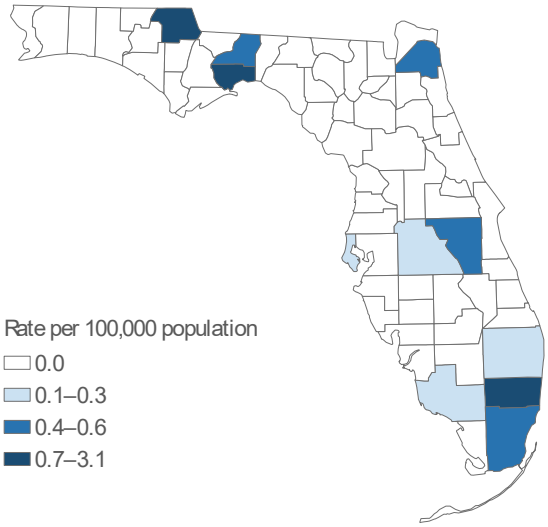




Mumps

Summary	Number	
Number of cases	55	
Case Classification	**Number**	**(Percent)**
Confirmed	23	(41.8)
Probable	32	(58.2)
Outcome	**Number**	**(Percent)**
Hospitalized	8	(14.5)
Died	0	(0.0)
Imported Status	**Number**	**(Percent)**
Acquired in Florida	41	(85.4)
Acquired in the U.S., not Florida	2	(4.2)
Acquired outside the U.S.	5	(10.4)
Acquired location unknown	7	
Outbreak Status	**Number**	**(Percent)**
Sporadic	37	(67.3)
Outbreak-associated	18	(32.7)
Outbreak status unknown	0	

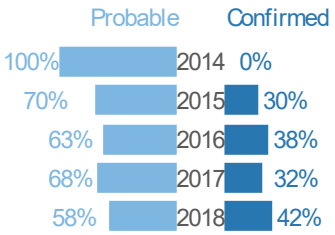
In 2018, most mumps cases were acquired in Florida. Cases occurred in residents of 11 counties, with the highest rates (per 100,000 population) in Wakulla, Jackson and Broward counties.



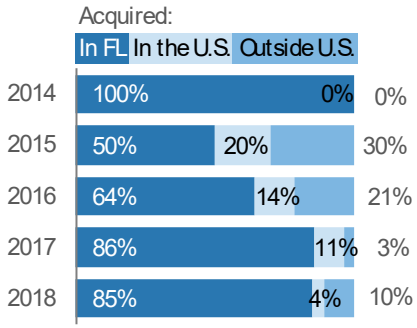
Rates are by county of residence for infections acquired in Florida (41 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

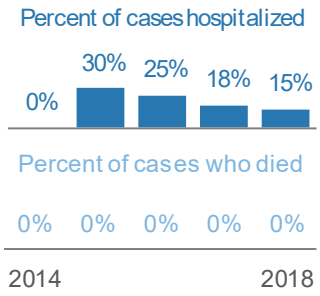
Generally between 30% and 45% of cases are confirmed each year (only one case was reported in 2014).



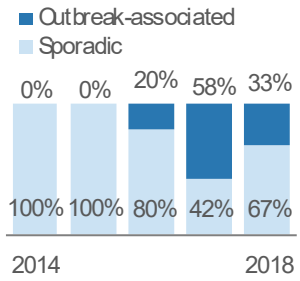
Most mumps infections were acquired in Florida in 2018; seven infections were imported from other states and countries.



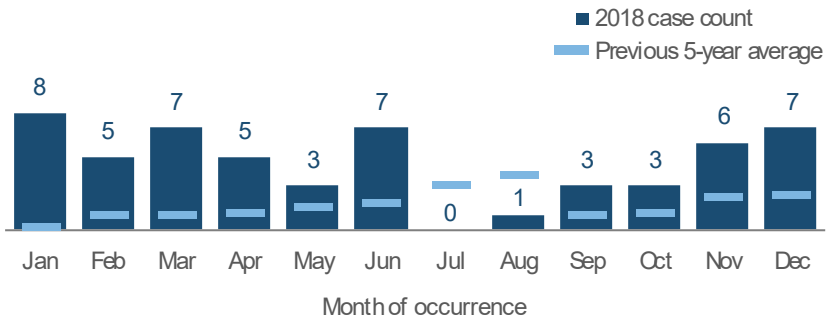
Some mumps cases are hospitalized. No deaths have been identified in recent years.



More outbreaks were identified in 2017 and 2018 than in the previous three years due to enhanced surveillance efforts.



Mumps cases occurred throughout the year in Florida in 2018. More cases were reported in January, March, June 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 2018 remained consistent with that 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. The Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices recommends that 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 11 pertussis outbreaks reported in 2018. The majority (64%) of outbreaks occurred in school and daycare settings, with the largest involving 10 cases.

Disease Facts

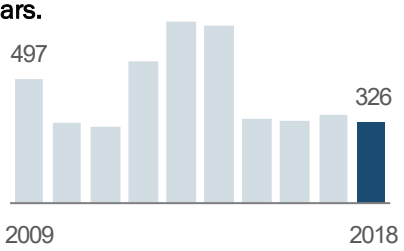
Caused by *Bordetella pertussis* bacteria

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

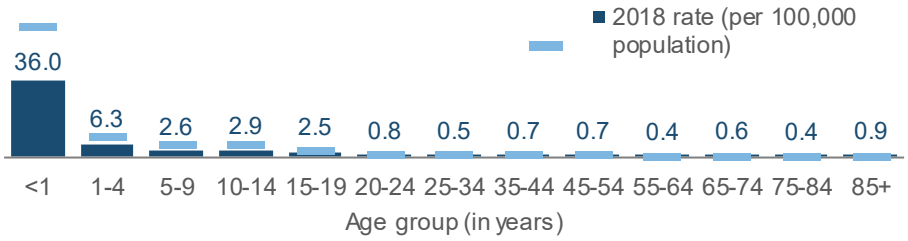
Pertussis incidence in 2018 was consistent with incidence in non-peak years.



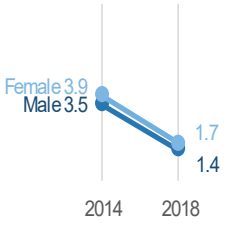
Disease Trends

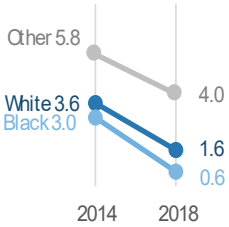
Summary		
Number of cases		326
Rate (per 100,000 population)		1.6
Change from 5-year average rate		-38.1%
Age (in Years)		
Mean		18
Median		9
Min-max		0 - 93
Gender	**Number (Percent)**	**Rate**
Female	181 (55.5)	1.7
Male	145 (44.5)	1.4
Unknown gender	0	
Race	**Number (Percent)**	**Rate**
White	254 (78.6)	1.6
Black	21 (6.5)	0.6
Other	48 (14.9)	4.0
Unknown race	3	
Ethnicity	**Number (Percent)**	**Rate**
Non-Hispanic	236 (74.2)	1.5
Hispanic	82 (25.8)	1.5
Unknown ethnicity	8	

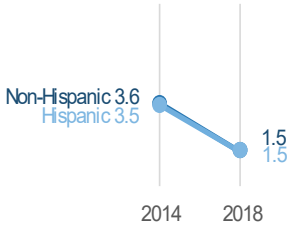
The pertussis rate (per 100,000 population) is highest in infants <1 year old.



Pertussis rates (per 100,000 population) have decreased in all gender, race and ethnicity groups since 2014. This is expected given the cyclical nature of pertussis, which last peaked in 2013.



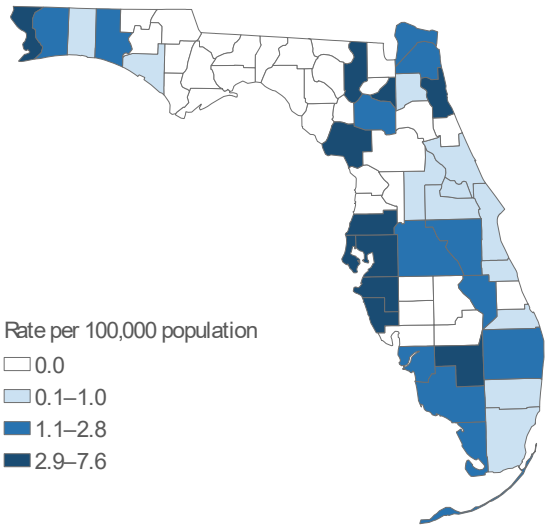




Pertussis

Summary	Number	
Number of cases	326	
Case Classification	**Number**	**(Percent)**
Confirmed	220	(67.5)
Probable	106	(32.5)
Outcome	**Number**	**(Percent)**
Hospitalized	75	(23.0)
Died	1	(0.3)
Imported Status	**Number**	**(Percent)**
Acquired in Florida	313	(98.4)
Acquired in the U.S., not Florida	5	(1.6)
Acquired outside the U.S.	0	(0.0)
Acquired location unknown	8	
Outbreak Status	**Number**	**(Percent)**
Sporadic	199	(61.4)
Outbreak-associated	125	(38.6)
Outbreak status unknown	2	

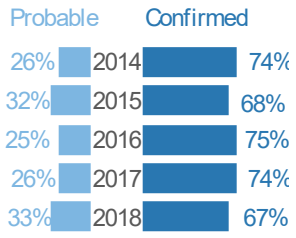
In 2018, pertussis cases primarily occurred in the more populated areas of the state in south and central Florida, as well as the western Panhandle and the northeastern corner of the state. Several of the counties with the highest rates reported pertussis outbreaks.



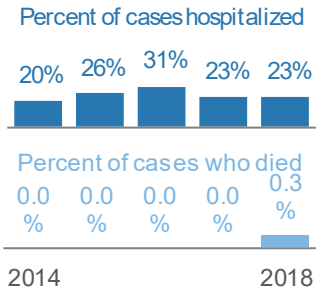
Rates are by county of residence for infections acquired in Florida (313 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

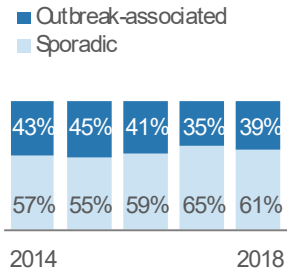
About 2/3 of pertussis cases are confirmed. Probable cases are clinically compatible but lack confirmatory testing.



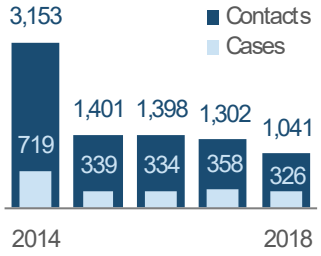
Between 20% to 31% of pertussis cases are hospitalized. Deaths from pertussis are rare.



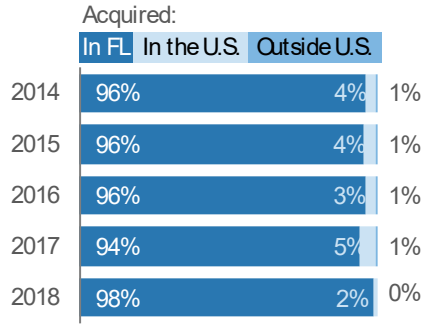
The percentage of cases that were outbreak-associated increased slightly in 2018. Eleven outbreaks were identified.



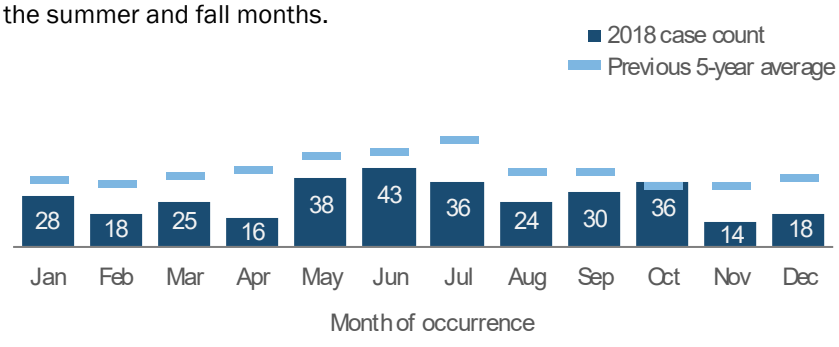
For each pertussis case, an average of three exposed contacts are recommended antibiotics to prevent illness.



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 2018. 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. Incidence since 2012 has remained relatively stable with a slight decrease in 2016.

In 2018, most cases (56%) had a low severity of illness and 36% had moderate severity of illness. One case had severe illness and three deaths were reported. Of the 32 outbreak-associated cases in 2018, 53% were related to four major in-state outbreaks. Two outbreaks were associated with structural fumigation (Miami-Dade County: four cases; Pinellas County: three cases), one was associated with an apartment sprayed for cockroaches (Palm Beach County: four cases), and one was related to hypocoagulopathy associated with synthetic cannabinoids use (Hillsborough County: six cases).

Disease Facts

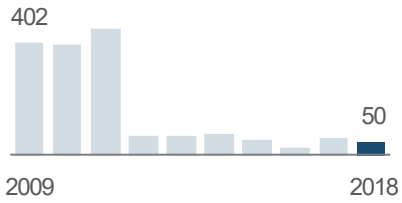
Caused by pesticides

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	50
Rate (per 100,000 population)	0.2
Change from 5-year average rate	-18.9%

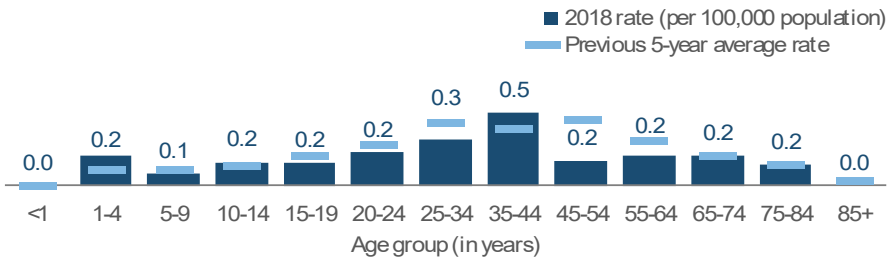
Age (in Years)	
Mean	40
Median	37
Min-max	3 - 79

Gender	Number	(Percent)	Rate
Female	26	(52.0)	0.2
Male	24	(48.0)	0.2
Unknown gender	0		

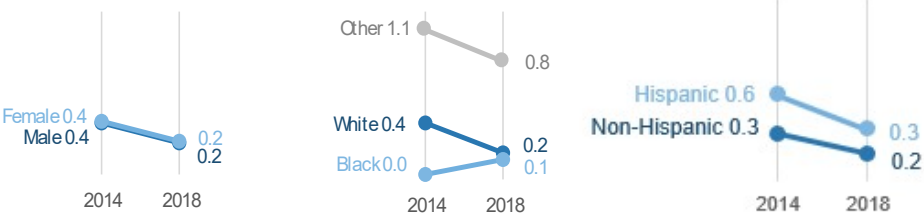
Race	Number	(Percent)	Rate
White	30	(66.7)	0.2
Black	5	(11.1)	NA
Other	10	(22.2)	NA
Unknown race	5		

Ethnicity	Number	(Percent)	Rate
Non-Hispanic	27	(60.0)	0.2
Hispanic	18	(40.0)	NA
Unknown ethnicity	5		

In 2018, the rate (per 100,000 population) of acute pesticide-related illness and injury was highest in people 35 to 44 years old and 25 to 34 years old.



Since 2014, rates (per 100,000 population) of acute pesticide-related illness and injury have decreased slightly in all demographics, except in blacks where it increased slightly. While rates were similar by gender and ethnicity groups in 2018, the rate was highest in other races compared to whites and blacks.

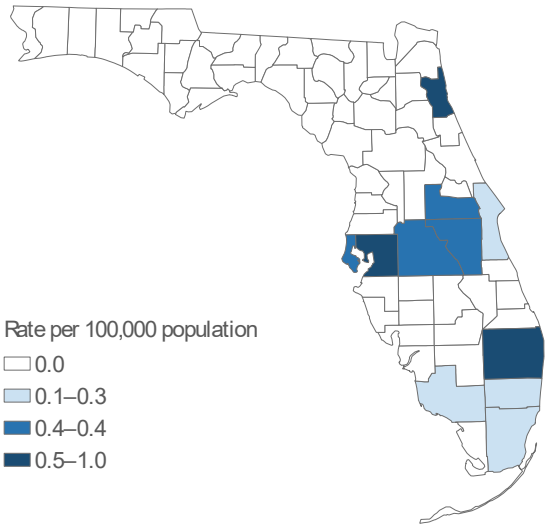


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Acute pesticide-related illness and injury cases were missing 10.0% of ethnicity data in 2018 and 10.0% of race data in 2018.

Pesticide-Related Illness and Injury, Acute

Summary	Number	
Number of cases	50	
Case Classification	**Number**	**(Percent)**
Confirmed	14	(28.0)
Probable	11	(22.0)
Suspect	25	(67.2)
Outcome	**Number**	**(Percent)**
Hospitalized	8	(16.0)
Died	3	(6.0)
Imported Status	**Number**	**(Percent)**
Exposed in Florida	49	(100.0)
Exposed in the U.S., not Florida	0	(0.0)
Exposed outside the U.S.	0	(0.0)
Exposed location unknown	1	
Outbreak Status	**Number**	**(Percent)**
Sporadic	18	(36.0)
Outbreak-associated	32	(64.0)
Outbreak status unknown	0	

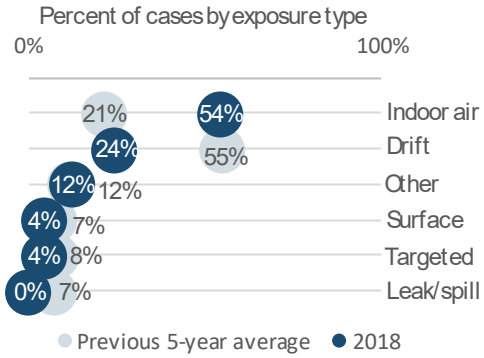
Acute pesticide-related illness and injuries occurred in residents of 13 Florida counties in 2018. Just over half of all cases occurred in Palm Beach (14 cases) and Hillsborough (12 cases) counties.



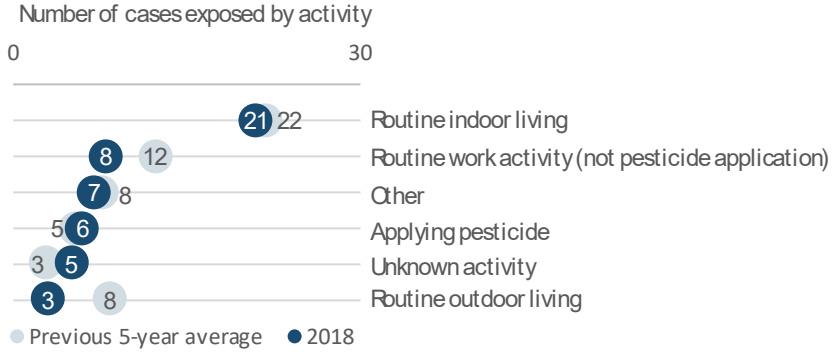
Rates are by county of residence, regardless of where exposure occurred (50 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

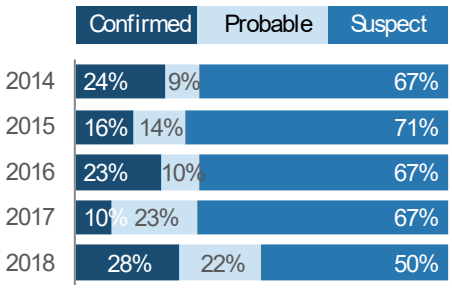
Indoor air was the most common exposure type and was above the previous five-year average in 2018. Note: cases can report >1 exposure type.



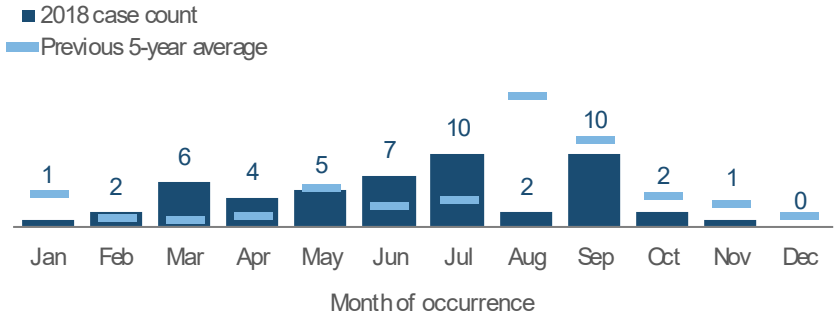
In 2018, 22 cases (44%) were exposed to pesticide while doing routine indoor activities, unrelated to pesticide application work. This is consistent with the previous 5-year average.



From 2014 to 2018, between 50% and 71% of cases were suspect each year. Less than 1/3 were confirmed in 2018.



Acute pesticide-related illness and injuries peak in late summer in July 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. In 2018, another human rabies case was reported in a 6-year-old male from Lake County. The child developed a fatal rabies infection after being bitten by a sick bat found near the family's home about two weeks prior to symptom onset. No medical attention was sought at the time of the bite. The rabies virus strain involved was associated with *Tadarida brasiliensis* (Brazilian free-tailed) bats.

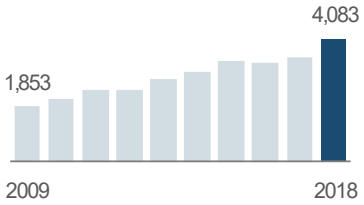
The animals most frequently diagnosed with rabies in Florida are raccoons, bats, unvaccinated cats and foxes. Rabies is endemic in the raccoon and bat populations of Florida. Rabies frequently spreads from raccoons, and occasionally bats, to other animal species such as foxes and cats.

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)

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. In addition, much of the Florida Panhandle was severely impacted by Hurricane Michael in 2018, which likely contributed to increased rates of rabies PEP recommended in that region. Case counts and rates from this report may differ from those found in other rabies reports as different criteria are used to assemble the data.

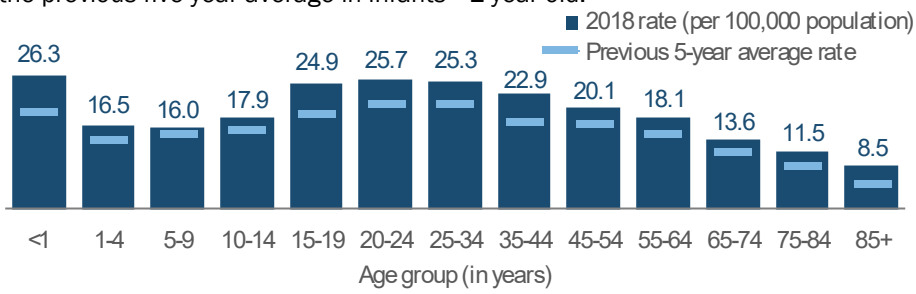
Possible human exposures to rabies increased notably in 2018.



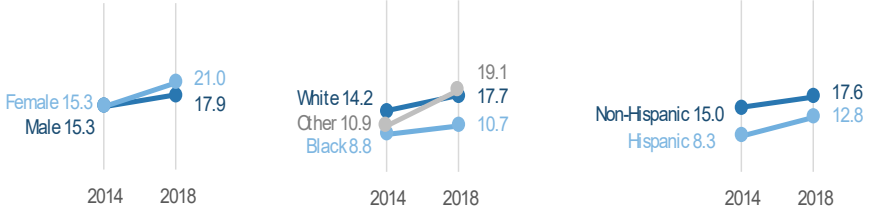
Human Trends

Summary		
Number of cases		4,083
Rate (per 100,000 population)		19.5
Change from 5-year average rate		+22.5%
Age (in Years)		
Mean		38
Median		36
Min-max		0 - 100
Gender	**Number (Percent)**	**Rate**
Female	2,245 (55.0)	21.0
Male	1,838 (45.0)	17.9
Unknown gender	0	
Race	**Number (Percent)**	**Rate**
White	2,864 (82.5)	17.7
Black	380 (10.9)	10.7
Other	227 (6.5)	19.1
Unknown race	612	
Ethnicity	**Number (Percent)**	**Rate**
Non-Hispanic	2,732 (79.9)	17.6
Hispanic	688 (20.1)	12.8
Unknown ethnicity	663	

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 in 2018 was notably higher than the previous five-year average in infants <1 year old.



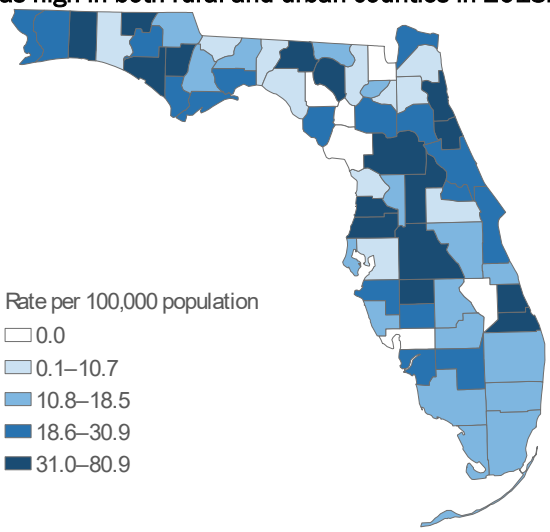
The rate (per 100,000 population) of human exposures to suspected rabid animals for which PEP is recommended is highest in females, other races, whites and non-Hispanics in 2018. The rate increased in all demographics from 2014 to 2018.



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 12.2% of ethnicity data in 2014, 14.2% of race data in 2014, 16.2% of ethnicity data in 2018 and 15.0% of race data in 2018.

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 2018.



Rates are by county of residence for cases exposed in Florida (3,952 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 2018 by county.

In 2018, rabies PEP was most frequently recommended for exposures to dogs (55%), cats (24%), raccoons (9%) and bats (8%). Poor response from dog bite victims to ensure proper follow-up with the biting dog has been identified as a challenge in some counties. Bat-related PEP was somewhat increased in 2018, which may reflect heightened public awareness following two bat rabies-related deaths since 2017 and increased collaborative reporting between wildlife professionals and public health officials.

In coordination with the Centers for Disease Control and Prevention, an international notification system was used to successfully identify two Swiss travelers to Florida who rescued a rabid bat in Collier County. Both travelers subsequently received PEP. For more information, see *Morbidity and Mortality Weekly Report*, January 2018 at cdc.gov/mmwr/volumes/67/wr/mm6716a5.htm.

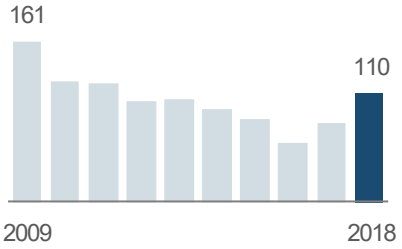
Animal Trends

Key Points for Animals

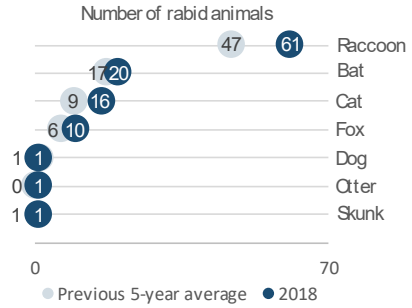
Laboratory testing for animal rabies is only done when animals potentially expose (e.g., bite) humans or domestic (owned) animals; thus, these data do not necessarily correlate with the true prevalence of rabies by animal species in Florida. A total of 110 laboratory-confirmed rabid animals were reported in 2018.

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 for these animals per section 828.30, *Florida Statues*.

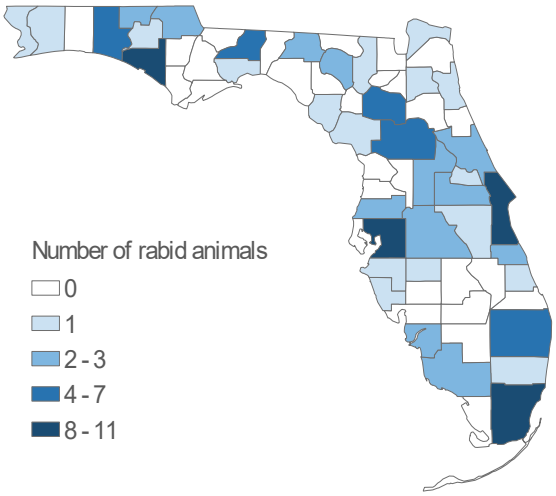
The number of rabid animals identified has generally decreased over the past decade, but has increased since 2017. Rabies activity is cyclical.



In 2018, raccoons remained the most commonly identified rabid animal, followed by bats, cats and foxes.



Rabid animals were identified throughout the state in 2018.



In 2018, Hillsborough County reported an unusual number of rabid cats (six), the most seen in a single county in one year. A rabies sequencing study was initiated with CDC to determine whether a cat-specific rabies virus had emerged. Although the study is ongoing, it appears more likely that the unusual activity was due to a high number of outside unvaccinated cats. In addition, Miami-Dade County elected to initiate a raccoon rabies oral rabies vaccine (ORV) program following a substantial increase in rabid animals in 2018 (eight raccoons, two cats, one otter).

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*. 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*).

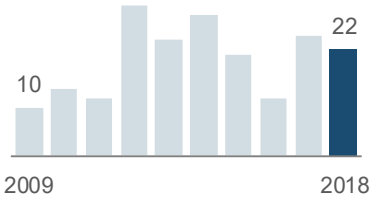
Human antibodies to spotted fever rickettsial species such as *R. parkeri*, *R. amblyommii*, *R. africae* and *R. conorii* cross-react with serologic tests for the RMSF organism *R. rickettsii*. Commercial antibody testing to differentiate other SFRs from RMSF is currently limited, though PCR testing of eschar swabs performed at reference laboratories can provide species. More than 95% of cases in 2018 were probable because eschar swabs or convalescent serology samples were either not available or not obtained. One case became ill during travel to South Africa, developing an eschar at the site of a tick bite. After returning home, their convalescent RMSF/SRF serology test was positive.

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. One RMSF and SFR case reported in 2018 had symptom onset in 2017.

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

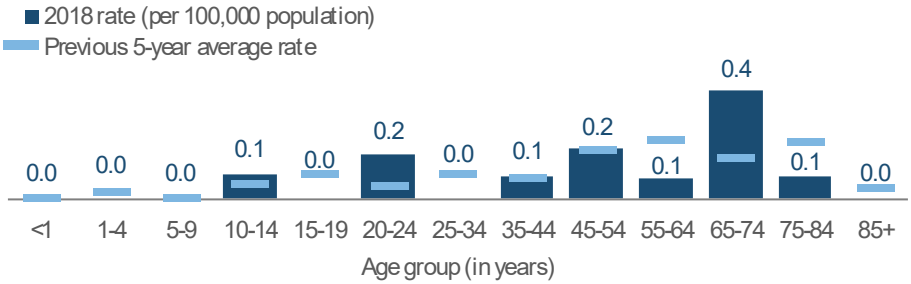
Summary	
Number of cases	22
Rate (per 100,000 population)	0.1
Change from 5-year average rate	-6.1%
Age (in Years)	
Mean	55
Median	60
Min-max	11 - 78

Gender	Number	(Percent)	Rate
Female	8	(36.4)	NA
Male	14	(63.6)	NA
Unknown gender	0		

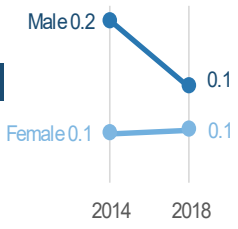
Race	Number	(Percent)	Rate
White	20	(90.9)	0.1
Black	1	(4.5)	NA
Other	1	(4.5)	NA
Unknown race	0		

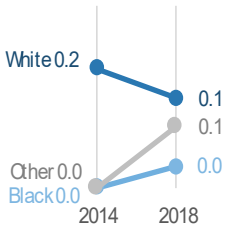
Ethnicity	Number	(Percent)	Rate
Non-Hispanic	20	(90.9)	0.1
Hispanic	2	(9.1)	NA
Unknown ethnicity	0		

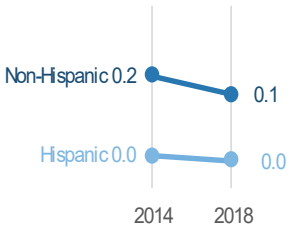
RMSF and SFR rates (per 100,000 population) are highest in adults, particularly between 45 and 84 years old. In 2018, the rate was highest in adults 65 to 74 years old.



RMSF and SFR rates (per 100,000 population) remained relatively stable from 2014 to 2018. Rates are generally slightly higher in males, whites and non-Hispanics, though rates were similar by gender and for whites and other races in 2018.





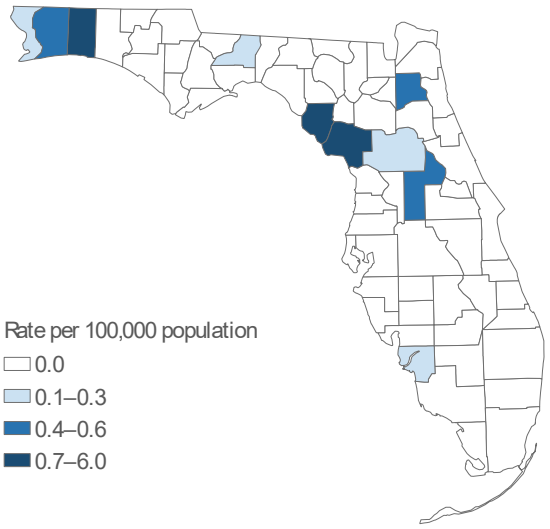


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Rocky Mountain spotted fever and spotted fever rickettsiosis cases were missing 13.8% of ethnicity data in 2014 and 13.8% of race data in 2014.

Rocky Mountain Spotted Fever and Spotted Fever Rickettsiosis

Summary	Number	
Number of cases	22	
Case Classification	**Number**	**(Percent)**
Confirmed	1	(4.5)
Probable	21	(95.5)
Outcome	**Number**	**(Percent)**
Hospitalized	9	(40.9)
Died	0	(0.0)
Imported Status	**Number**	**(Percent)**
Acquired in Florida	12	(57.1)
Acquired in the U.S., not Florida	8	(38.1)
Acquired outside the U.S.	1	(4.8)
Acquired location unknown	1	
Outbreak Status	**Number**	**(Percent)**
Sporadic	22	(100.0)
Outbreak-associated	0	(0.0)
Outbreak status unknown	0	

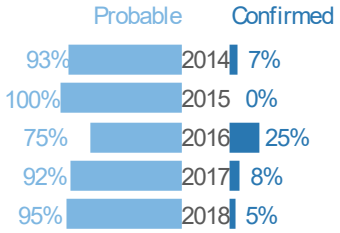
Most *Rickettsia* infections acquired within Florida are in residents of northern and central counties. Two cases each were reported in Okaloosa and Lake counties in 2018. The remaining eight counties each had one case reported.



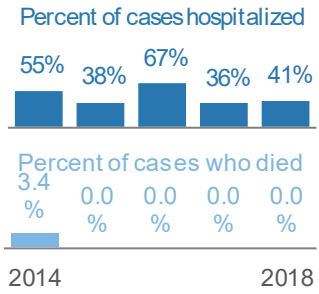
Rates are by county of residence for infections acquired in Florida (12 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

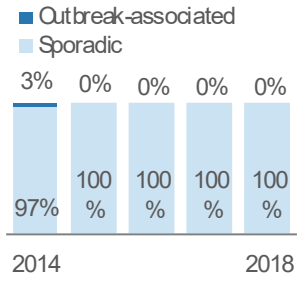
Most RMSF and SFR cases are not confirmed due to laboratory testing limitations. In 2018, the only confirmed case (Levy County) demonstrated a greater than four-fold increase in titer.



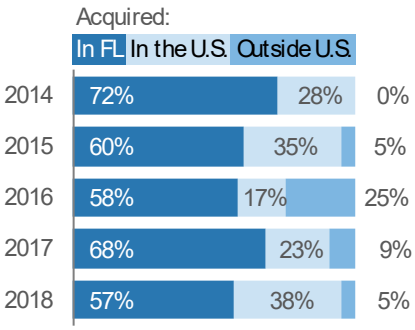
Typically more than 35% of cases are hospitalized; deaths are rare.



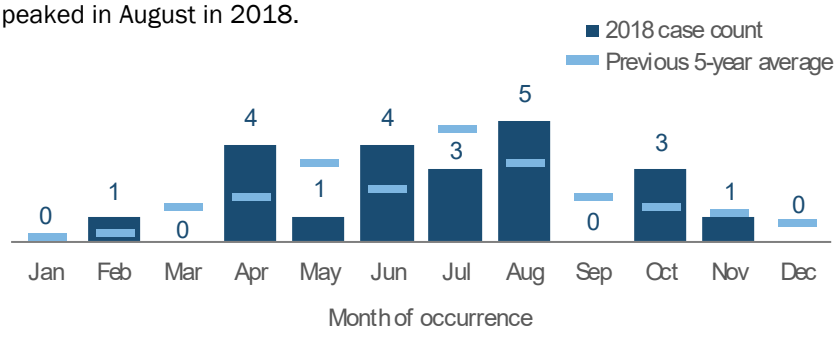
Most RMSF and SFR cases are sporadic. No outbreak-associated cases have been identified since 2014.



Most cases are acquired in Florida. In 2018, nine cases were imported from other states or countries.



RMSF and SFR cases are reported year-round without distinct seasonality, though peak transmission typically occurs during the summer months. Cases peaked in August in 2018.



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

Salmonellosis

Key Points

Salmonellosis is one of the most common bacterial causes of diarrheal illness in the U.S. The Centers for Disease Control and Prevention estimates that *Salmonella* bacteria cause about 1.35 million infections, 26,500 hospitalizations and 420 deaths in the U.S. each year. Florida frequently has the highest number and one of the highest incidence rates of salmonellosis cases in the U.S. The seasonal pattern is very strong, with cases peaking in late summer to early fall. Incidence is highest in infants <1 year old and decreases dramatically with age.

Disease Facts

Caused by *Salmonella* bacteria (excluding *Salmonella* serotype Typhi)

Illness is gastroenteritis (diarrhea, vomiting)

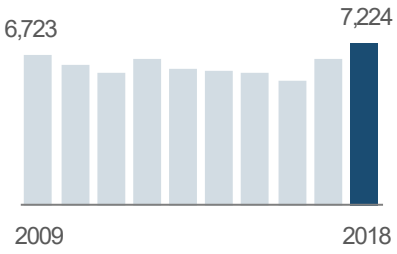
Transmitted via fecal-oral route, including person to person, animal to person, foodborne and waterborne

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

The use of culture-independent diagnostic testing (CIDT) to identify *Salmonella* has increased in recent years. Florida changed the salmonellosis surveillance case definition in January 2017 to include CIDT in the criteria for probable cases, contributing to the increase in cases reported in 2017.

Most outbreak-associated cases are reflective of household clusters; however, some cases are part of in-state or multistate outbreaks. In 2018, Florida identified 184 cases associated with 45 different multistate outbreaks. A variety of vehicles were identified for 25 of these multistate outbreaks, including chicken, turkey, ground beef, shelled eggs, Mexican style cheeses, cut melon, flour, kratom and live poultry. No in-state outbreaks were identified in 2018.

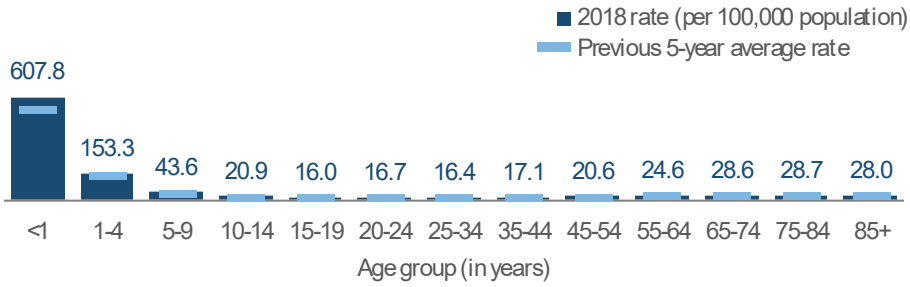
Salmonellosis incidence has remained relatively stable over the past ten years, but has increased consistently since 2016.



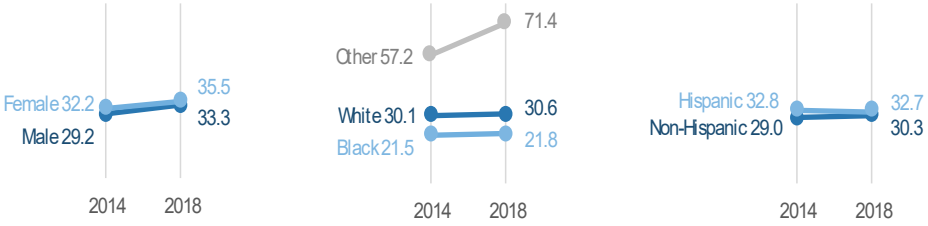
Disease Trends

Summary			
Number of cases			7,224
Rate (per 100,000 population)			34.5
Change from 5-year average rate			+13.6%
Age (in Years)			
Mean			29
Median			18
Min-max			0 - 102
Gender	**Number**	**(Percent)**	**Rate**
Female	3,807	(52.7)	35.5
Male	3,416	(47.3)	33.3
Unknown gender	1		
Race	**Number**	**(Percent)**	**Rate**
White	4,958	(75.4)	30.6
Black	773	(11.7)	21.8
Other	848	(12.9)	71.4
Unknown race	645		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	4,711	(72.8)	30.3
Hispanic	1,763	(27.2)	32.7
Unknown ethnicity	750		

The salmonellosis rate (per 100,000 population) is highest in infants <1 year old and children 1 to 4 years old, then decreases dramatically with age.



The salmonellosis rate (per 100,000 population) remained relatively stable in all demographics from 2014 to 2018 except in other races where it increased. The rates were similar across gender and ethnicity groups in 2018. The rate was notably higher in other races compared to whites and blacks in 2018.

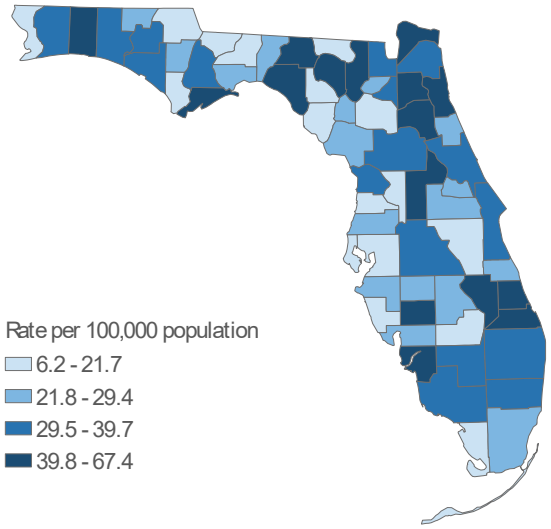


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Salmonellosis cases were missing 10.4% of ethnicity data in 2018 and 8.9% of race data in 2018.

Salmonellosis

Summary	Number	
Number of cases	7,224	
Case Classification	**Number**	**(Percent)**
Confirmed	6,321	(87.5)
Probable	903	(12.5)
Outcome	**Number**	**(Percent)**
Hospitalized	1,726	(23.9)
Died	31	(0.4)
Sensitive Situation	**Number**	**(Percent)**
Daycare	582	(8.1)
Health care	101	(1.4)
Food handler	61	(0.8)
Imported Status	**Number**	**(Percent)**
Acquired in Florida	6,196	(95.1)
Acquired in the U.S., not Florida	108	(1.7)
Acquired outside the U.S.	214	(3.3)
Acquired location unknown	706	
Outbreak Status	**Number**	**(Percent)**
Sporadic	6,303	(90.5)
Outbreak-associated	663	(9.5)
Outbreak status unknown	258	

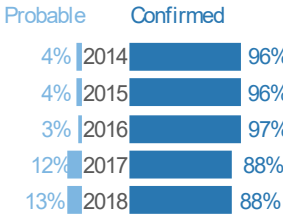
Salmonellosis occurs throughout the state. In 2018, the highest rates (per 100,000 population) were primarily in small, rural counties.



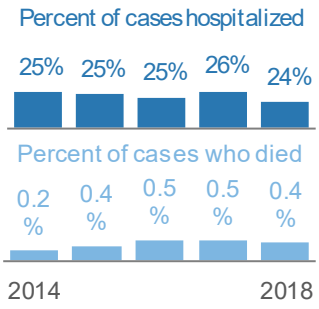
Rates are by county of residence for infections acquired in Florida (6,196 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

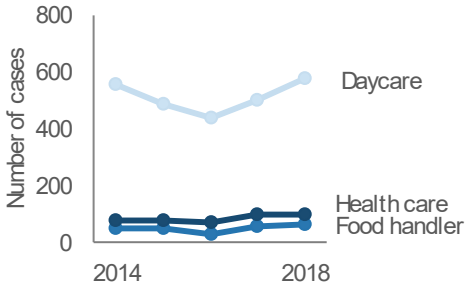
The case definition changed in 2017 to include CIDT in the probable case classification, resulting in more probable cases.



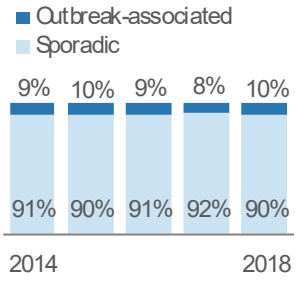
Approximately 25% of cases are hospitalized each year. Very few cases die.



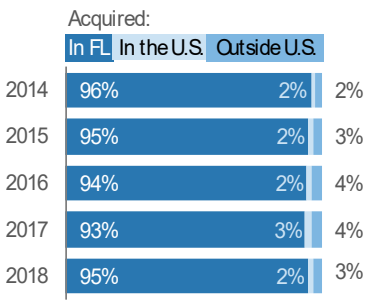
Cases in sensitive situations are monitored. The large number of cases in daycares reflects the age distribution of cases.



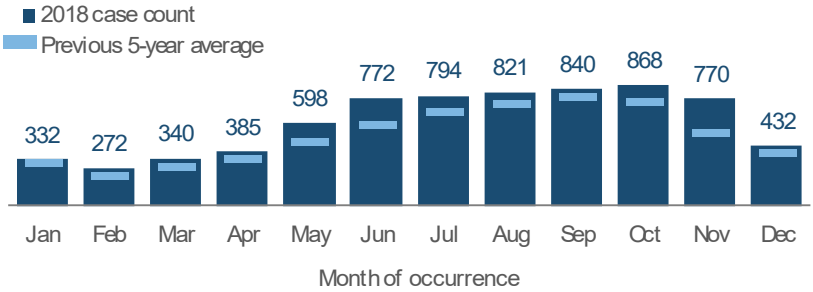
Most cases are sporadic; less than 10% are outbreak-associated and often reflect household clusters.



***Salmonella* infections are primarily acquired in Florida;** a small number of infections are imported from other states and countries.



Salmonellosis occurred throughout 2018 but has a strong seasonal pattern with cases peaking late summer to early fall, which is consistent with past years. The largest number of cases was reported in October in 2018.



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 is a common cause of diarrheal illness in the U.S., resulting in an estimated 265,000 illnesses each year. 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 dramatic increase in 2018 was due to a surveillance case definition change in January 2018 that expanded the probable case classification to include culture-independent diagnostic testing (CIDT).

Most outbreak-associated cases are reflective of household clusters; however, some cases are part of in-state or multistate outbreaks. In 2018, Florida identified 32 cases associated with six different multistate outbreaks. Of the four multistate outbreaks where a source was identified, three were linked to consumption of romaine lettuce and one to consumption of raw milk. In 2018, Florida identified 16 cases associated with five different in -state outbreaks. One outbreak was in a daycare, two outbreaks were associated with travel to Honduras and two outbreaks had unknown exposure sources.

Disease Facts

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

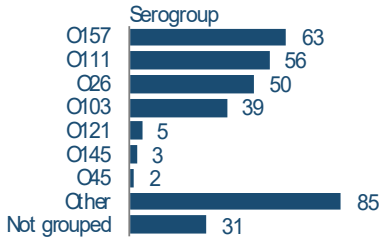
Illness is gastroenteritis (diarrhea, vomiting); less frequently, infection can lead to hemolytic uremic syndrome (HUS)

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

STEC infection incidence increased dramatically in 2018 due to a case definition change.

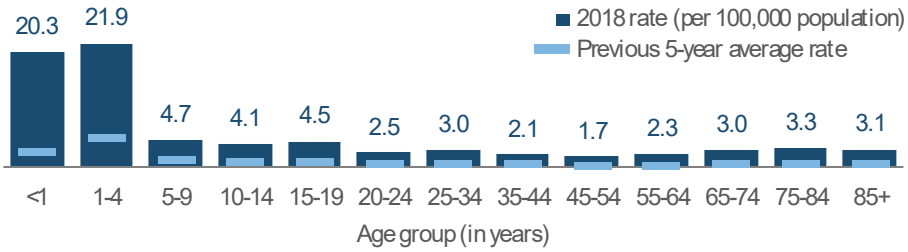
Serogroup O157 and the top six non-O157 serogroups were the cause of 65% of all confirmed STEC infections in 2018.



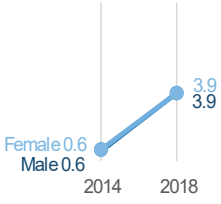
Disease Trends

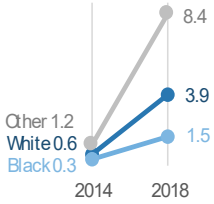
Summary		
Number of cases		809
Rate (per 100,000 population)		3.9
Change from 5-year average rate		+484.6%
Age (in Years)		
Mean		29
Median		20
Min-max		0 - 96
Gender	**Number (Percent)**	**Rate**
Female	414 (51.2)	3.9
Male	395 (48.8)	3.9
Unknown gender	0	
Race	**Number (Percent)**	**Rate**
White	633 (80.3)	3.9
Black	55 (7.0)	1.5
Other	100 (12.7)	8.4
Unknown race	21	
Ethnicity	**Number (Percent)**	**Rate**
Non-Hispanic	459 (58.5)	2.9
Hispanic	326 (41.5)	6.0
Unknown ethnicity	24	

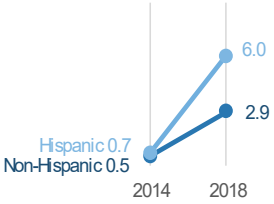
The STEC infection rate (per 100,000 population) is highest in children 1 to 4 years old followed by infants <1 year old. Children <5 years old are particularly vulnerable to STEC infection and are at highest risk of developing HUS. Four (50%) of the eight HUS cases reported in 2018 were in children ≤5 years old.



The STEC infection rate (per 100,000 population) increased in all demographics from 2014 to 2018, driven primarily by the dramatic increase in cases in 2018. The rates were similar by gender in 2018, but higher in Hispanics than non-Hispanics. The rate was notably higher in other races compared to whites and blacks in 2018.





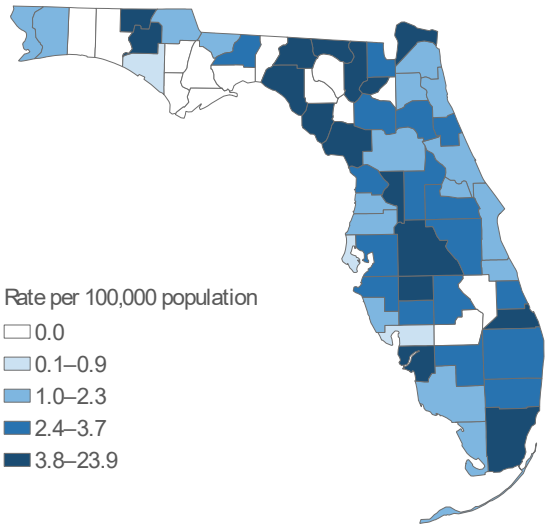


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Shiga toxin-producing E. coli infection cases were missing 10.3% of ethnicity data in 2014 and 6.8% of race data in 2014.

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

Summary	Number	
Number of cases	809	
Case Classification	**Number**	**(Percent)**
Confirmed	334	(41.3)
Probable	475	(58.7)
Outcome	**Number**	**(Percent)**
Hospitalized	175	(21.6)
Died	3	(0.4)
Sensitive Situation	**Number**	**(Percent)**
Daycare	55	(6.8)
Health care	5	(0.6)
Food handler	16	(2.0)
Imported Status	**Number**	**(Percent)**
Acquired in Florida	610	(90.2)
Acquired in the U.S., not Florida	5	(0.7)
Acquired outside the U.S.	61	(9.0)
Acquired location unknown	133	
Outbreak Status	**Number**	**(Percent)**
Sporadic	613	(79.0)
Outbreak-associated	163	(21.0)
Outbreak status unknown	33	

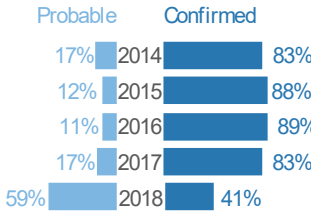
STEC infection cases occurred in most areas of the state, though less commonly in the Florida Panhandle in 2018. The highest rates (per 100,000 population) were primarily in small, rural counties in 2018.



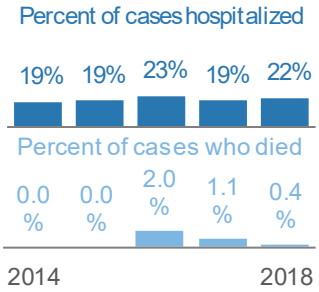
Rates are by county of residence for infections acquired in Florida (610 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

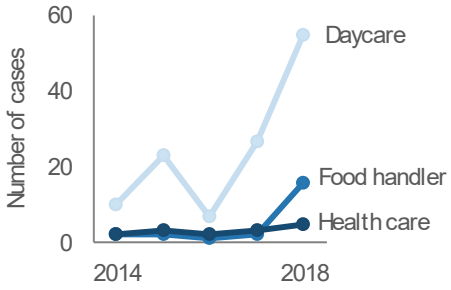
The case definition changed in 2018 to include CIDT in the probable case classification, resulting in more probable cases.



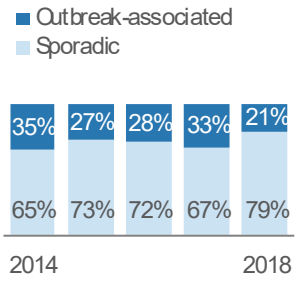
Between 15% and 25% of cases are hospitalized each year. Very few cases die (more likely in cases that develop HUS).



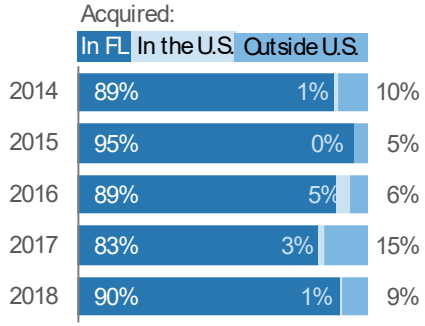
Outbreaks in daycares in 2015, 2017 and 2018 contributed to higher numbers of cases in that setting.



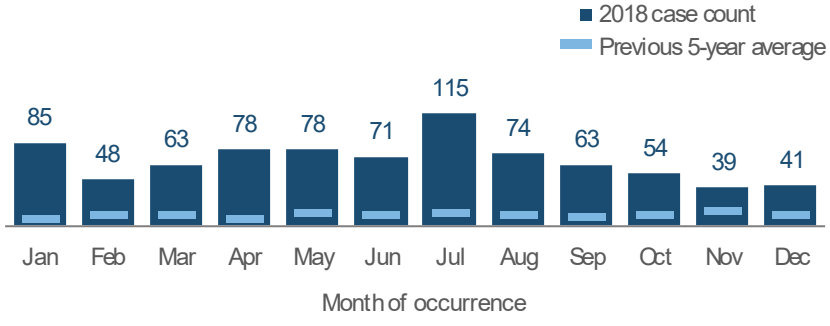
Less than 35% of cases are outbreak-associated each year.



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



There is no distinct seasonality to STEC infection cases in Florida. Cases occur at moderate levels year-round. More cases occurred in January and July in 2018.



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

Shigellosis

Key Points

Shigellosis is a common cause of diarrheal illness in the U.S., resulting in an estimated 450,000 illnesses each year. Shigellosis has a cyclic temporal pattern with large community-wide outbreaks, frequently involving daycare centers, occurring every three to five years. Incidence is consistently highest in children <10 years old.

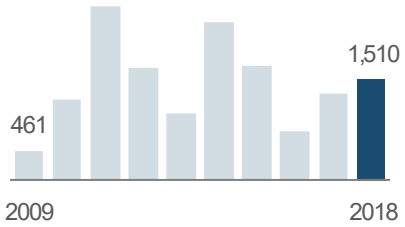
The use of culture-independent diagnostic testing (CIDT) to identify *Shigella* has increased in recent years. Florida changed the shigellosis surveillance case definition in January 2017 to include CIDT in the criteria for probable cases, contributing to the increase in cases reported in 2017.

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 steadily increased from 2015 to 2017 but decreased in 2018. For confirmed shigellosis cases with antimicrobial resistance testing results available (about 40% to 70% each year), the percentage of isolates resistant to one or more of these antibiotics increased from 2015 (37%) to 2017 (60%) but decreased in 2018 (46%).

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 2018, consistent with historic cyclical patterns; recent peaks occurred in 2011 and 2014.



Disease Trends

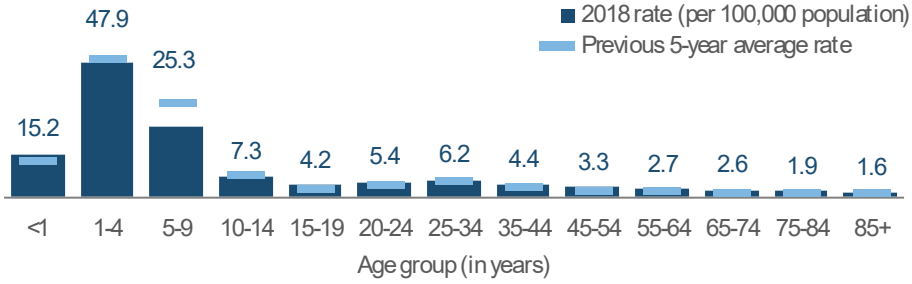
Summary	
Number of cases	1,510
Rate (per 100,000 population)	7.2
Change from 5-year average rate	-0.8%
Age (in Years)	
Mean	21
Median	9
Min-max	0 - 92

Gender	Number	(Percent)	Rate
Female	681	(45.1)	6.4
Male	829	(54.9)	8.1
Unknown gender	0		

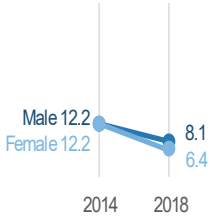
Race	Number	(Percent)	Rate
White	766	(52.4)	4.7
Black	468	(32.0)	13.2
Other	228	(15.6)	19.2
Unknown race	48		

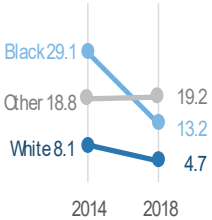
Ethnicity	Number	(Percent)	Rate
Non-Hispanic	990	(68.0)	6.4
Hispanic	466	(32.0)	8.6
Unknown ethnicity	54		

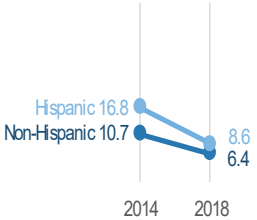
The shigellosis rate (per 100,000 population) is highest in children 1 to 4 years old, followed by children 5 to 9 years old then infants <1 year old.



The shigellosis rate (per 100,000 population) decreased in all demographics from 2014 to 2018, except in other races where it increased slightly. The rates were slightly higher in males and Hispanics compared to females and non-Hispanics in 2018. The rate was highest in other races, followed by blacks then whites in 2018.



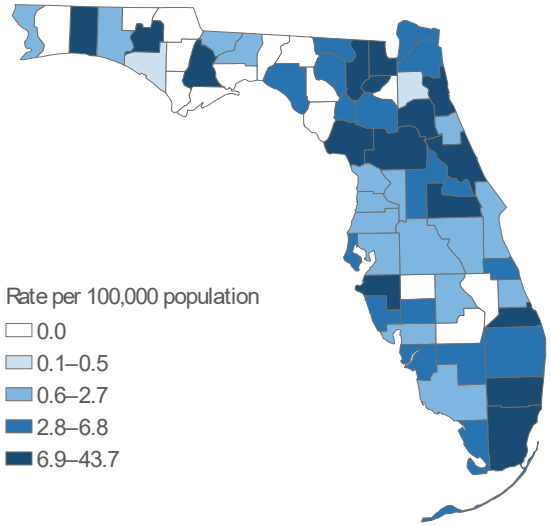




Shigellosis

Summary	Number	
Number of cases	1,510	
Case Classification	**Number**	**(Percent)**
Confirmed	776	(51.4)
Probable	734	(48.6)
Outcome	**Number**	**(Percent)**
Hospitalized	290	(19.2)
Died	1	(0.1)
Sensitive Situation	**Number**	**(Percent)**
Daycare	305	(20.2)
Health care	29	(1.9)
Food handler	25	(1.7)
Imported Status	**Number**	**(Percent)**
Acquired in Florida	1,282	(92.5)
Acquired in the U.S., not Florida	14	(1.0)
Acquired outside the U.S.	90	(6.5)
Acquired location unknown	124	
Outbreak Status	**Number**	**(Percent)**
Sporadic	992	(66.3)
Outbreak-associated	505	(33.7)
Outbreak status unknown	13	

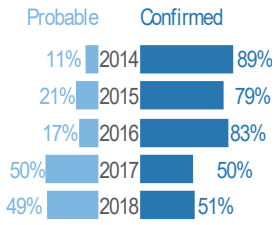
Shigellosis cases occurred in most areas of the state, though less commonly in the Florida Panhandle in 2018. The highest rates (per 100,000 population) were in northern and southeast Florida. Geographic distribution varies by year, often driven by clusters of counties experiencing large outbreaks.



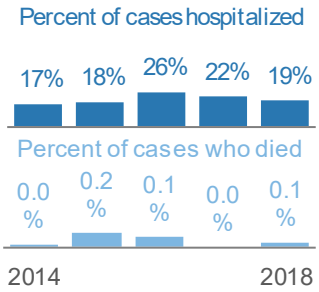
Rates are by county of residence for infections acquired in Florida (1,282 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

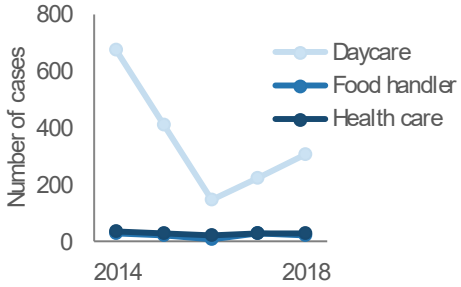
The case definition changed in 2017 to include CIDT in the probable case classification, resulting in more probable cases.



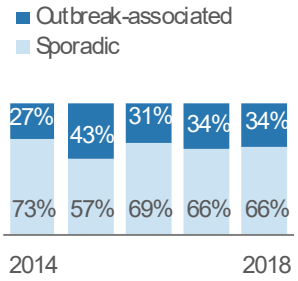
Between 15% and 30% of cases are hospitalized each year. Deaths are rare.



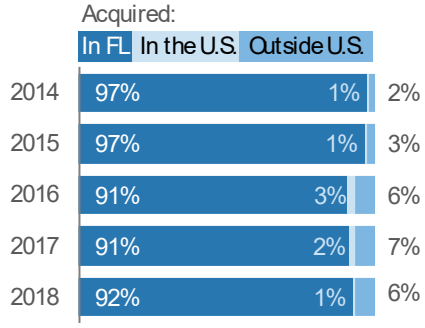
Person-to-person outbreaks are common in daycare settings. In 2018, 34% of outbreak-associated cases occurred in daycare settings.



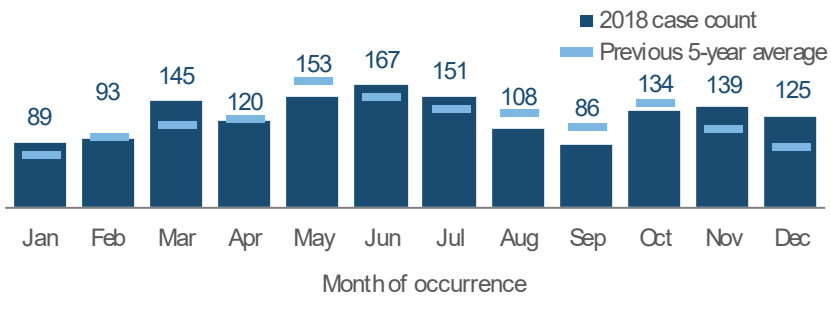
Outbreaks are common; as few as 10 *Shigella* bacteria can result in illness, making it easy to spread from person to person.



Most *Shigella* infections are acquired in Florida; a small number of infections are acquired from other states and countries.



Shigellosis occurred throughout 2018, with activity peaking during the summer. Activity in 2018 was relatively consistent with the previous five-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 of 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 2018, 33% of infectious syphilis cases were reported in individuals who were known to be coinfected with HIV, a 2% decrease from 2017.

Disease Facts

Caused by *Treponema pallidum* bacteria

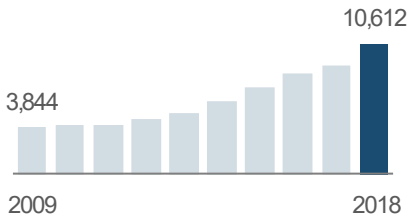
Illness includes sores on genitals, anus or mouth; rash on the body

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

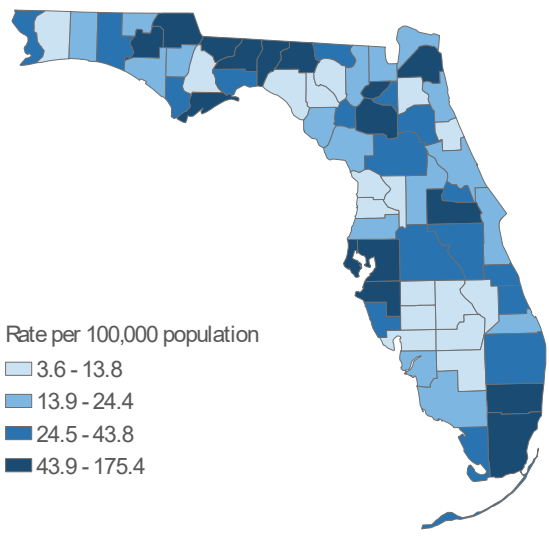
Disease Trends

In 2018, syphilis incidence continued to increase, both in Florida and nationally.



Summary			
Number of cases			10,612
Rate (per 100,000 population)			50.6
Change from 5-year average rate			+43.7%
Age (in Years)			
Mean			36
Median			34
Min-max			13 - 99
Gender	**Number**	**(Percent)**	**Rate**
Female	1,830	(17.2)	17.1
Male	8,782	(82.8)	85.7
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	5,365	(53.8)	33.1
Black	3,571	(35.8)	100.6
Other	1,031	(10.3)	86.7
Unknown race	645		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	6,447	(66.2)	41.4
Hispanic	3,289	(33.8)	61.0
Unknown ethnicity	876		

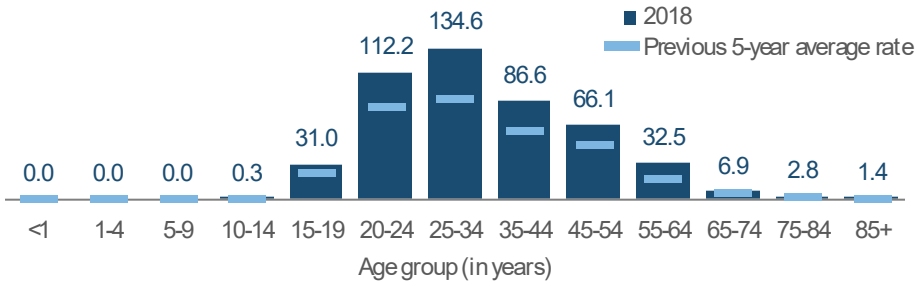
Syphilis occurs throughout the state. The highest rates (per 100,000 population) in 2018 were in large counties, including Miami-Dade (101.2), Broward (93.1) and Orange (74.9) as well as in small rural counties, including Union (175.4 based on 28 cases), Gadsden (107.9) and Washington (67.3).



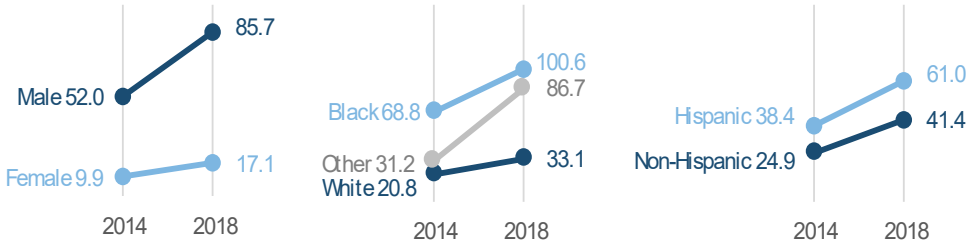
Rates are by county of residence, regardless of where infection was acquired (10,612 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

Syphilis (Excluding Congenital)

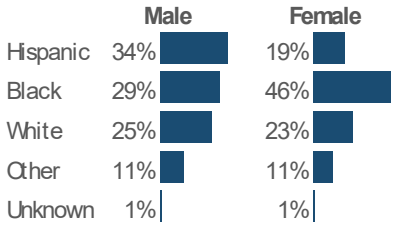
The syphilis rate (per 100,000 population) is highest in adults 20 to 54 years old and peaks in adults 25 to 34 years old.



The syphilis rate (per 100,000 population) increased in all gender, race and ethnic groups from 2014 to 2018. The increase was most notable in males and in other races. The rates are highest in men, blacks and Hispanics.



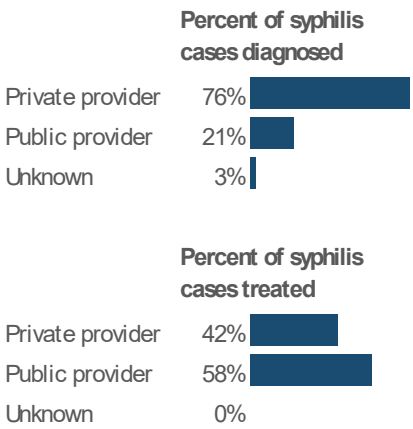
Race and ethnicity differed between genders. Black females and Hispanic males were at increased risk for syphilis.



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 2014, 8.3% of ethnicity data in 2018 and 6.1% of race data in 2018.

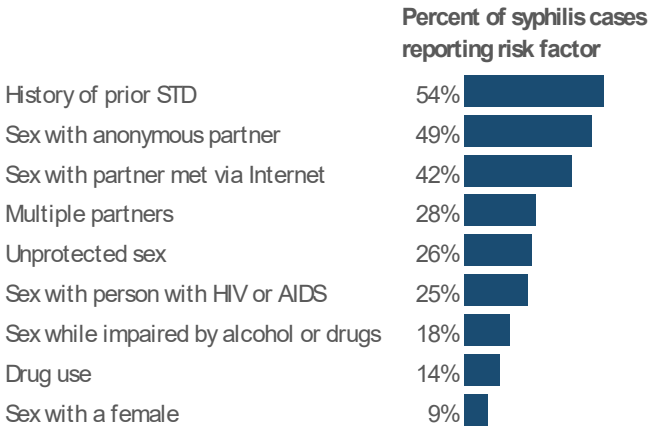
In 2018, most people (76%) went to their own private provider for STD testing. However, the recommended treatment for syphilis, per the Centers for Disease Control and Prevention, is parenterally administered penicillin G benzathine. As many providers do not keep the standard benzathine penicillin product Bicillin on hand, they often refer their patients to county health departments for treatment.

In 2018, 58% 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 incidence of the MSM risk is difficult to estimate due to many factors. In 2018, most (73%) syphilis cases in males were in men who reported having sex with other men.

MSM with syphilis who were interviewed in 2018 (6,065 men) disclosed an array of risk behaviors, which included sex with anonymous partners and sex with females.



Tuberculosis

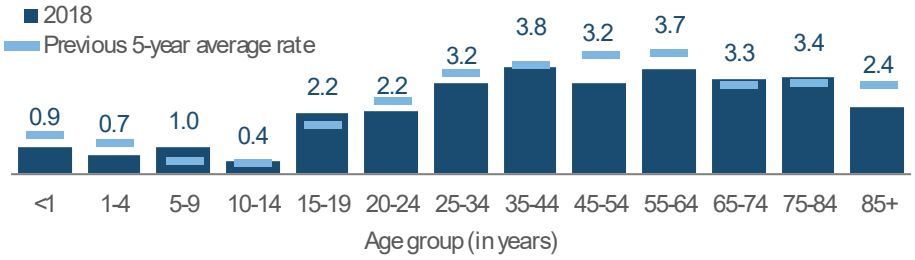
Key Points

Tuberculosis (TB) continues to be a public health threat in Florida. Incidence has generally declined over the past decade, though small fluctuations can occur year to year. Slight increases in 2015, 2016 and 2018 were observed after historic lows in 2014 and 2017. 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 almost three times as high as the rate in whites in 2018.

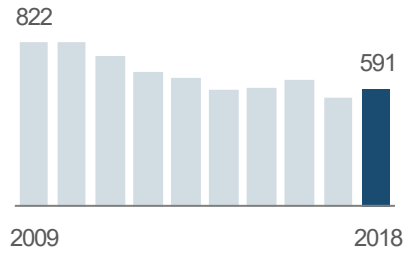
Disease Facts

- **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 3.2 to 3.8 in adults 25 to 84 years old.



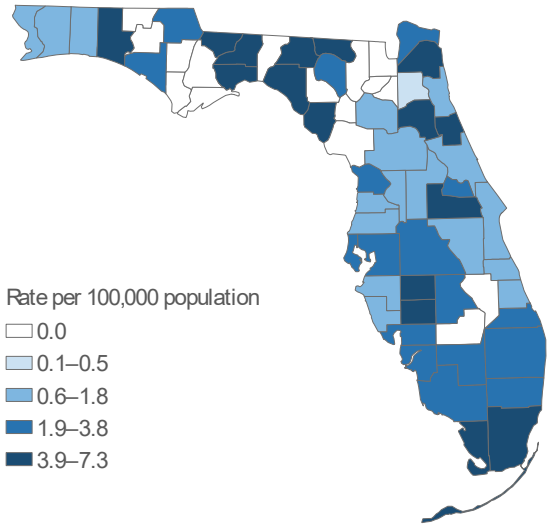
Despite a slight increase in 2018, TB incidence has generally decreased over the past decade.



Disease Trends

Summary			
Number of cases			591
Rate (per 100,000 population)			2.8
Change from 5-year average rate			-7.3%
Age (in Years)			
Mean			48
Median			47
Min-max			0 - 94
Gender	**Number**	**(Percent)**	**Rate**
Female	228	(38.6)	2.1
Male	363	(61.4)	3.5
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	309	(52.3)	1.9
Black	193	(32.7)	5.4
Other	89	(15.1)	7.5
Unknown race	0		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	396	(67.0)	2.5
Hispanic	195	(33.0)	3.6
Unknown ethnicity	0		

TB occurred in most parts of the state in 2018, though was less common in the Panhandle. While the highest rates (per 100,000 population) tended to be in small, rural counties, over 33% of all TB cases were in Miami-Dade (124 cases) and Broward (67 cases) counties.

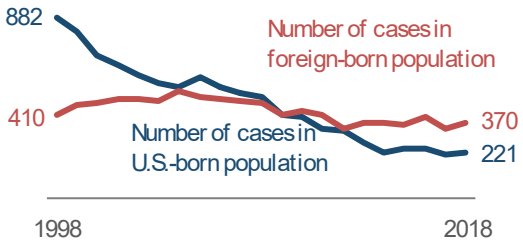


Rates are by county of residence, regardless of where infection was acquired (591 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

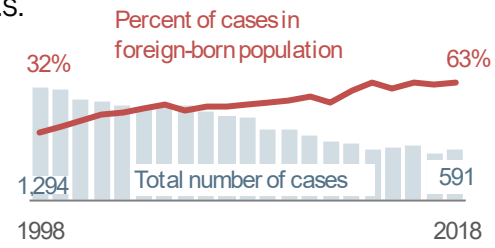
Tuberculosis

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 2018, 63% of all TB cases in Florida were in the foreign-born population. The most common countries of origin in 2018 included Haiti, Mexico, the Philippines, Vietnam, Guatemala, Colombia and Cuba, accounting for 213 (58%) of 370 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 2018, 67% more cases were in foreign-born people than U.S.-born.

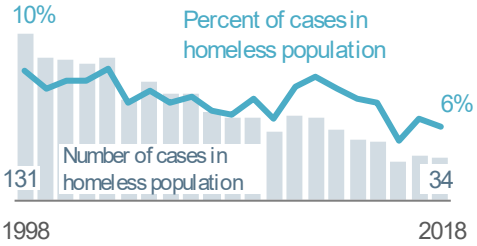


As the number of TB cases has declined in Florida, the percentage of those cases in the foreign-born population has increased. In 2018, 63% of cases were in people born outside the U.S.

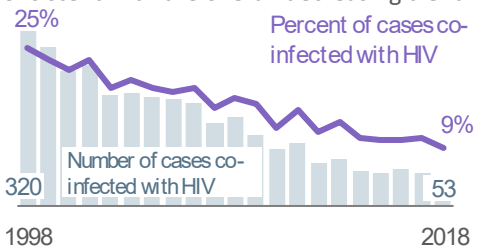


People experiencing homelessness are at increased risk for disease and are a focus for TB prevention and control efforts in Florida. Since 1998, the total number of TB cases among the homeless population in Florida has decreased by over 50%; however, in the same time period, the percentage of people with TB who are homeless remained relatively stable (8% to 10%) until 2012. Since 2012, the percentage of people with TB who are homeless decreased from 9.6% to 5.8% in 2018.

Despite a slight increase in 2017, the number and percentage of cases among the homeless population has steadily decreased since 2012.



In 2018, 9% of TB cases were co-infected with HIV. This is a slight decrease from 2017 and is consistent with the overall decreasing trend.



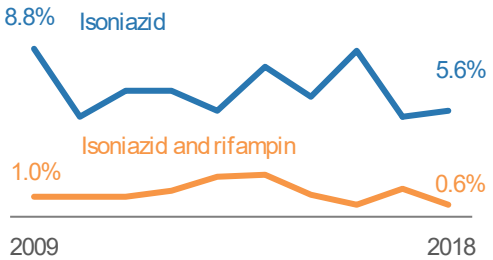
Untreated HIV infection remains the biggest risk factor for developing active TB disease following infection with TB and is a focus for TB prevention and control efforts in Florida. TB and HIV co-infection has been declining modestly but steadily over time in Florida. In the last three years the decline has leveled off at 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 2018, 485 TB cases were tested in Florida for resistance to isoniazid and rifampin. Over the past 10 years:

- Resistance to isoniazid alone ranged from 5% to 9%.
- Resistance to isoniazid and rifampin ranged from 0.6 to 2.2%.

In 2018, resistance to isoniazid alone increased and resistance to isoniazid and rifampin decreased, but were within the 10-year ranges.

In 2018, 5.6% of tested cases were resistant to isoniazid alone, and 0.6% were resistant to both isoniazid and rifampin.



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 two-dose schedule was recommended in 2008 by the Centers for Disease Control and Prevention's Advisory Committee on Immunization Practices. Beginning with the 2008 to 2009 school year, children entering kindergarten in Florida were required to receive two doses of varicella vaccine per Florida Administrative Code Rule 64D-3.046. Due to effective vaccination programs, there was a steady decrease in incidence in Florida from 2008 to 2014. Incidence increased slightly in 2015 and has remained elevated.

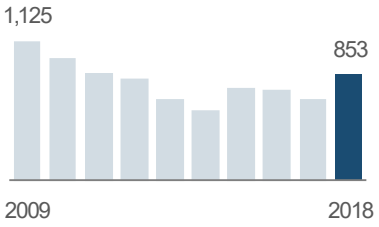
Disease Facts

- **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

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

The number of outbreak-associated cases increased from 125 (19.1%) in 2017 to 256 (30.8%) in 2018. Of the 256 outbreak-associated cases identified, most were small household clusters. Twelve outbreaks (defined as five or more cases linked in a single setting) were identified in 2018, including four outbreaks in correctional facilities, two outbreaks in daycares and six outbreaks in schools. Counties with ≥10 outbreak-associated cases included Broward (36), Pinellas (35), Palm Beach (27), Hillsborough (21), Polk (15), Miami-Dade (14) and Manatee (11).

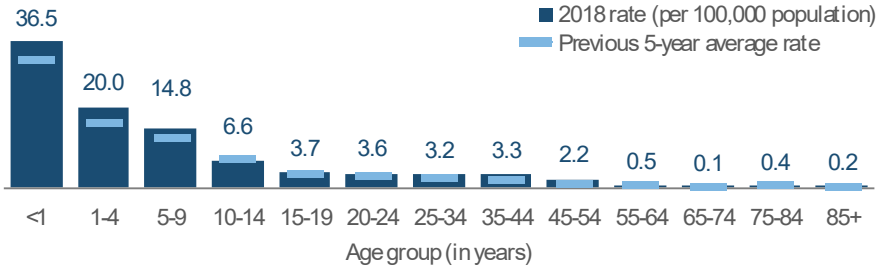
Varicella incidence increased in 2018.



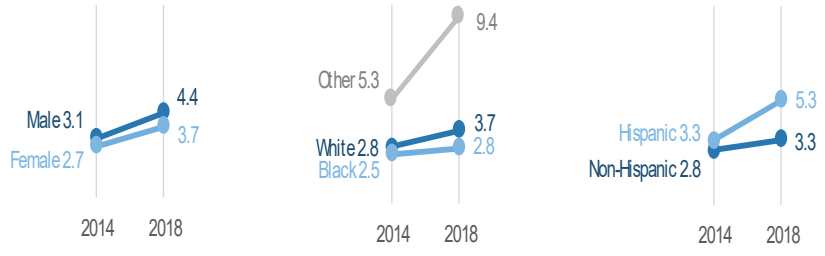
Disease Trends

Summary			
Number of cases			853
Rate (per 100,000 population)			4.1
Change from 5-year average rate			+20.7%
Age (in Years)			
Mean			17
Median			9
Min-max			0 - 89
Gender	**Number**	**(Percent)**	**Rate**
Female	399	(46.8)	3.7
Male	454	(53.2)	4.4
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	595	(73.8)	3.7
Black	99	(12.3)	2.8
Other	112	(13.9)	9.4
Unknown race	47		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	515	(64.5)	3.3
Hispanic	284	(35.5)	5.3
Unknown ethnicity	54		

Infants <1 year old are too young to be vaccinated. 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 2018, exceeding the previous 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, and since 2014, the rate in other races has increased notably. The rate in Hispanics has also increased since 2014.

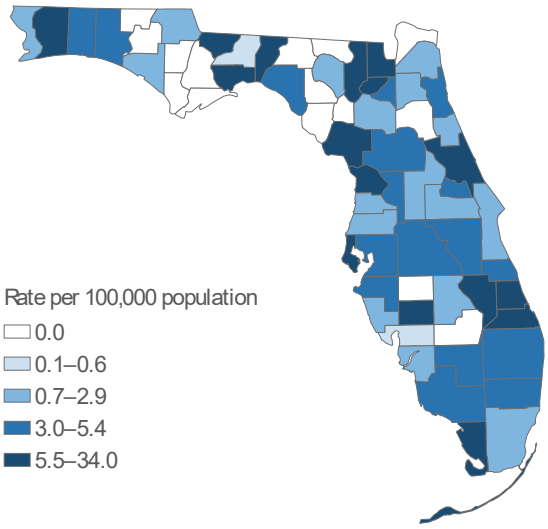


Note that trend graphs should be interpreted with caution when more than 5% of data are missing. Varicella cases were missing 6.3% of ethnicity data in 2018 and 5.5% of race data in 2018.

Varicella (Chickenpox)

Summary	Number	
Number of cases	853	
Case Classification	**Number**	**(Percent)**
Confirmed	339	(39.7)
Probable	514	(60.3)
Outcome	**Number**	**(Percent)**
Hospitalized	50	(5.9)
Died	1	(0.1)
Imported Status	**Number**	**(Percent)**
Acquired in Florida	768	(95.2)
Acquired in the U.S., not Florida	15	(1.9)
Acquired outside the U.S.	24	(3.0)
Acquired location unknown	46	
Outbreak Status	**Number**	**(Percent)**
Sporadic	576	(69.2)
Outbreak-associated	256	(30.8)
Outbreak status unknown	21	

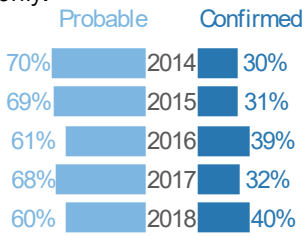
Varicella occurred throughout the state in 2018. Rates (per 100,000 population) varied regardless of county population. Rates ranged from 0 to 34 per 100,000.



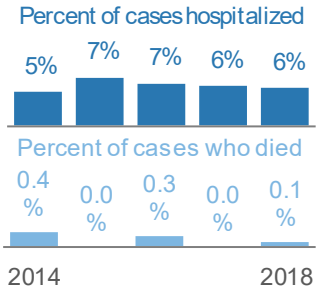
Rates are by county of residence for infections acquired in Florida (768 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

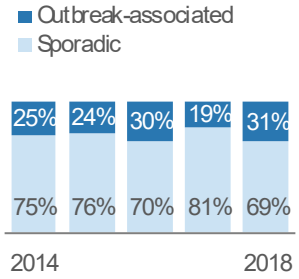
Just over one-third of cases are confirmed. Most varicella cases are classified as probable based on symptoms only.



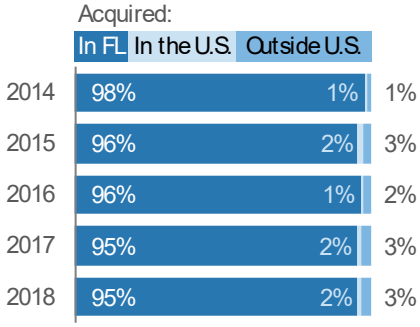
Most varicella cases do not require hospitalization; deaths are very rare.



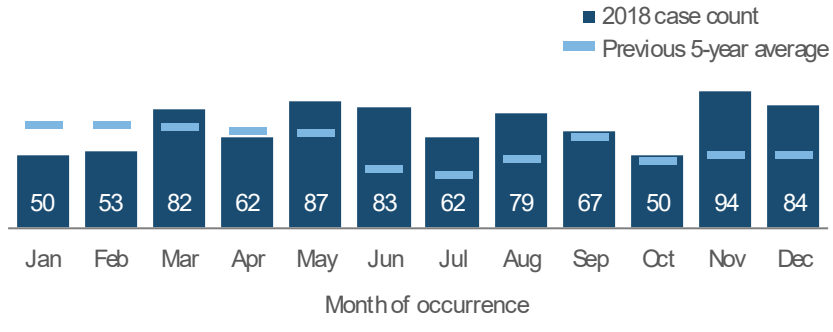
Less than one-third of cases are outbreak-associated. In 2018, 31% of cases were outbreak-associated.



Most VZV infections are acquired in Florida. Each year, a few cases are imported from other states and countries.



Due to robust vaccination programs, there is no longer discernable seasonality for varicella in Florida. Between 50 and 94 cases occurred each month in 2018.



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).

Vibrio vulnificus infections typically occur in people who have chronic kidney or liver disease, a history of alcoholism or are immunocompromised. Of the 42 *V. vulnificus* cases in 2018, 32 (76.2%) had underlying medical conditions. *V. vulnificus* can cause particularly severe disease, with about 50% of bloodstream infections being fatal.

Of the 42 cases due to *V. vulnificus* in 2018, 36 (86%) were hospitalized and nine (21%) died, accounting for 9 of the 12 total vibriosis deaths. The remaining three deaths were associated with infection with *V. parahaemolyticus* (one case), *V. furnissii* (one case) and an unidentified *Vibrio* species (one case).

Of the 12 people who died from vibriosis, three reported consuming seafood, four reported having a wound with seawater exposure, one had multiple exposures and four had other or unknown exposures.

Disease Facts

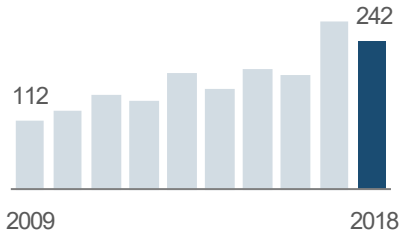
Caused by bacteria in the family Vibrionaceae

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, 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

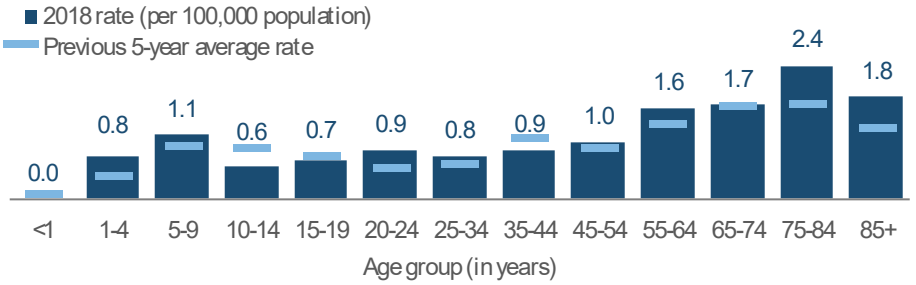
Vibriosis incidence decreased slightly in 2018.



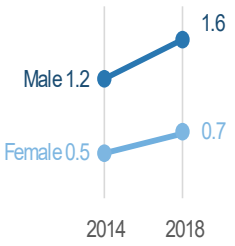
Disease Trends

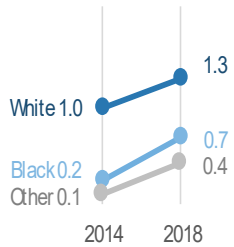
Summary		
Number of cases		242
Rate (per 100,000 population)		1.2
Change from 5-year average rate		+13.7%
Age (in Years)		
Mean		51
Median		55
Min-max		2 - 93
Gender	**Number (Percent)**	**Rate**
Female	73 (30.2)	0.7
Male	169 (69.8)	1.6
Unknown gender	0	
Race	**Number (Percent)**	**Rate**
White	207 (87.7)	1.3
Black	24 (10.2)	0.7
Other	5 (2.1)	NA
Unknown race	6	
Ethnicity	**Number (Percent)**	**Rate**
Non-Hispanic	197 (85.7)	1.3
Hispanic	33 (14.3)	0.6
Unknown ethnicity	12	

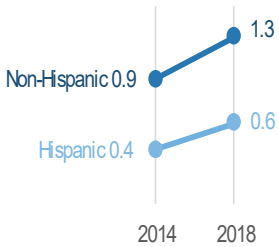
The vibriosis rate (per 100,000 population) is usually highest in adults 55 to 84 years old. In 2018, the rate was highest in adults 75 to 84 years old.



Vibriosis rates (per 100,000 population) increased in all gender, race and ethnicity groups from 2014 to 2018. The rate is consistently higher in males, whites and non-Hispanics.



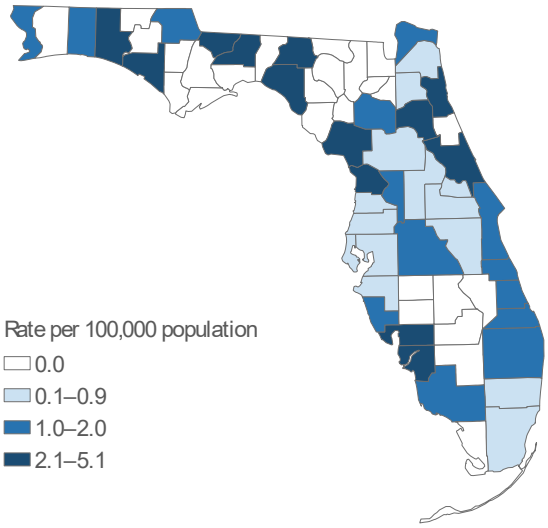




Vibriosis (Excluding Cholera)

Summary	Number	
Number of cases	242	
Case Classification	**Number**	**(Percent)**
Confirmed	186	(76.9)
Probable	56	(23.1)
Outcome	**Number**	**(Percent)**
Hospitalized	109	(45.0)
Died	12	(5.0)
Imported Status	**Number**	**(Percent)**
Acquired in Florida	214	(90.3)
Acquired in the U.S., not Florida	13	(5.5)
Acquired outside the U.S.	10	(4.2)
Acquired location unknown	5	
Outbreak Status	**Number**	**(Percent)**
Sporadic	240	(99.2)
Outbreak-associated	2	(0.8)
Outbreak status unknown	0	

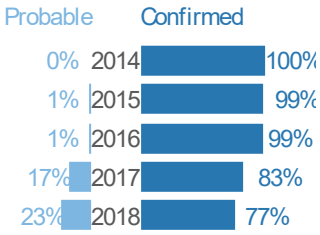
Vibriosis occurred in most parts of the state in 2018. The rates (per 100,000 population) varied across the state with some of the highest rates in low-population counties.



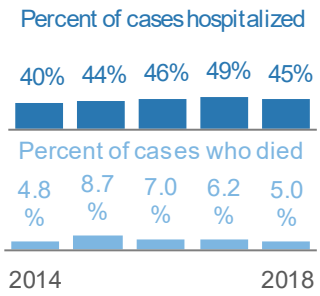
Rates are by county of residence for infections acquired in Florida (214 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

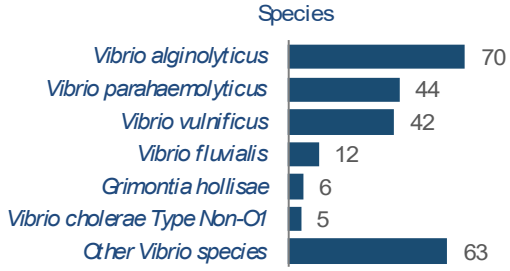
The case definition changed in 2017 to include CIDT in the probable case classification, resulting in more probable cases.



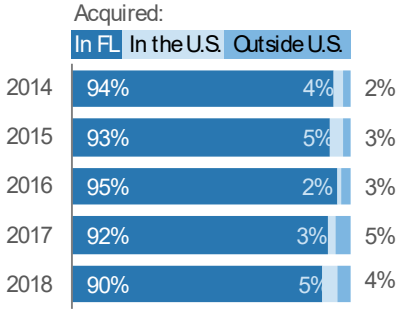
Between 40% and 50% of cases are hospitalized; deaths do occur. Nine people infected with *V. vulnificus* died in 2018.



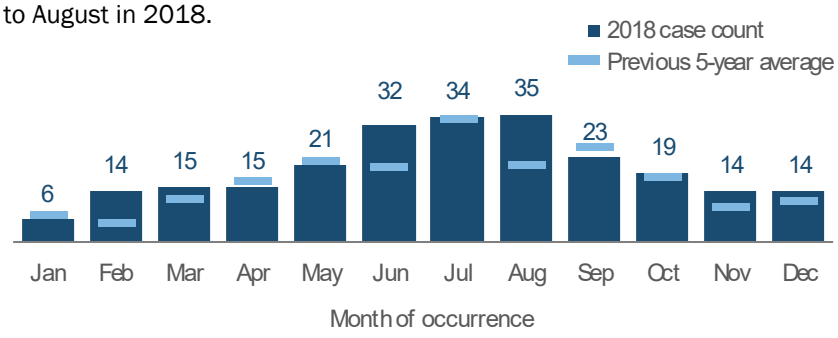
In 2018, the most commonly reported *Vibrio* species were *V. alginolyticus*, *V. parahaemolyticus* and *V. vulnificus*. The number of other *Vibrio* infections was largely due to CIDT, which cannot differentiate between species.



Most *Vibrio* infections are acquired in Florida. In 2018, 23 infections were acquired in other states or countries.



Vibriosis occurs throughout the year in Florida, with activity typically peaking during the summer months. Over 30 cases occurred each month from June to August in 2018.



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

West Nile Virus Disease

Key Points

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. Approximately 80% of people infected with WNV 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 bitten by a mosquito infected with WNV.

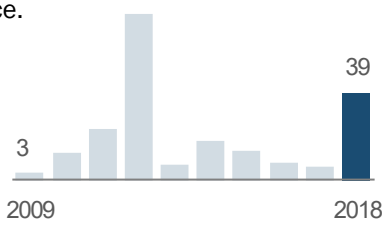
WNV can also be transmitted to humans via contaminated blood transfusion or organ transplantation. Since 2003, all blood donations are screened for WNV prior to transfusion. People spending large amounts of time outside (due to occupation, hobbies or homelessness) or not using insect repellant or other forms of prevention are at higher risk of becoming infected. In 2018, three WNV disease cases were identified through blood donor screening, testing positive prior to developing symptoms.

Two additional WNV disease cases were identified in 2018 but not reported until 2019 and will therefore be included in the 2019 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.

Disease Facts

- **Caused** by West Nile virus
- **Illness** can be asymptomatic, mild non-neuroinvasive (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

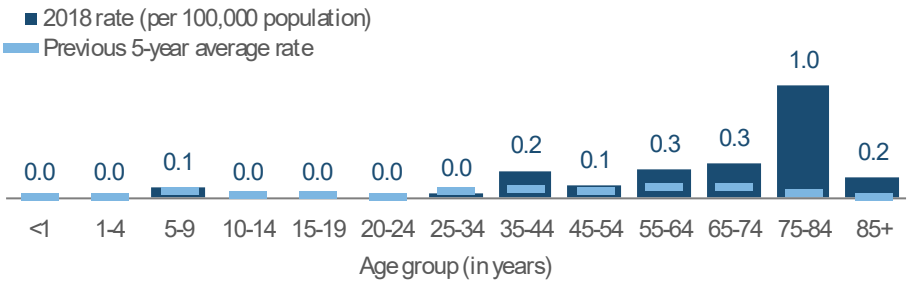
The incidence of West Nile virus disease increased sharply in 2018. Dry environmental conditions and herd immunity in bird populations may help explain periods of lower incidence.



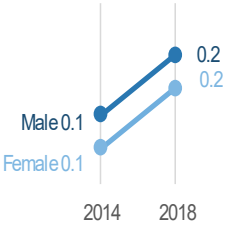
Disease Trends

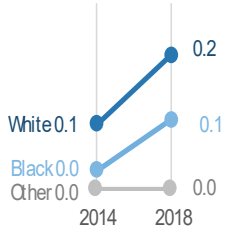
Summary			
Number of cases			39
Rate (per 100,000 population)			0.2
Change from 5-year average rate			+261.9%
Age (in Years)			
Mean			61
Median			66
Min-max			6 - 85
Gender	**Number**	**(Percent)**	**Rate**
Female	17	(43.6)	NA
Male	22	(56.4)	0.2
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	35	(89.7)	0.2
Black	4	(10.3)	NA
Other	0	(0.0)	NA
Unknown race	0		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	39	(100.0)	0.2
Hispanic	0	(0.0)	NA
Unknown ethnicity	0		

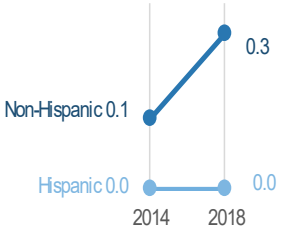
The rate of West Nile virus disease (per 100,000 population) was highest in adults 75 to 84 years old in 2018. People >60 years old are at greater risk of severe illness. In 2018, 59% of cases were among people >60 years old; all but one had neuroinvasive illness. Three of the four deaths were in people >60 years old.



The rate of West Nile virus disease (per 100,000 population) increased slightly in all demographics from 2014 to 2018, except for other races and Hispanics. In 2018, rates were similar by gender, race and ethnicity groups.



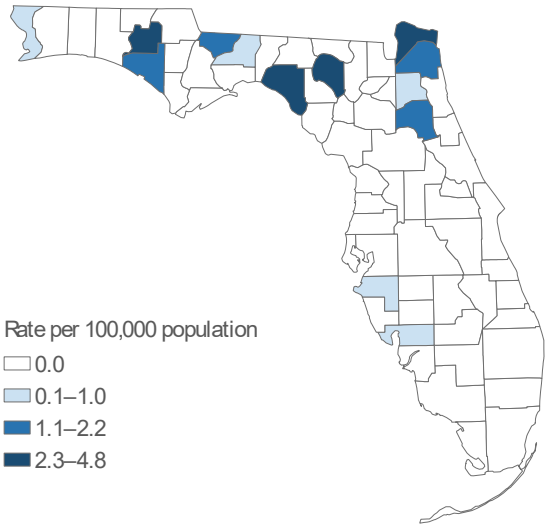




West Nile Virus Disease

Summary	Number
Number of cases	39
Case Classification	**Number (Percent)**
Confirmed	26 (66.7)
Probable	13 (33.3)
Clinical Type	**Number (Percent)**
Neuroinvasive	34 (87.2)
Non-neuroinvasive	5 (12.8)
Outcome	**Number (Percent)**
Hospitalized	33 (84.6)
Died	4 (10.3)
Imported Status	**Number (Percent)**
Acquired in Florida	33 (84.6)
Acquired in the U.S., not Florida	6 (15.4)
Acquired outside the U.S.	0 (0.0)
Acquired location unknown	0
Outbreak Status	**Number (Percent)**
Sporadic	39 (100.0)
Outbreak-associated	0 (0.0)
Outbreak status unknown	0

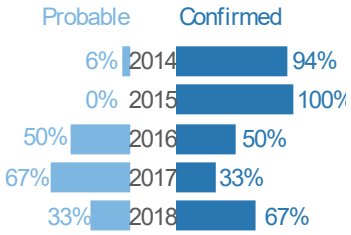
Locally acquired West Nile virus disease cases occurred in residents of 13 Florida counties in 2018, primarily in north Florida. Cases were most commonly reported in Duval (12), Bay (four) and Nassau (four) counties.



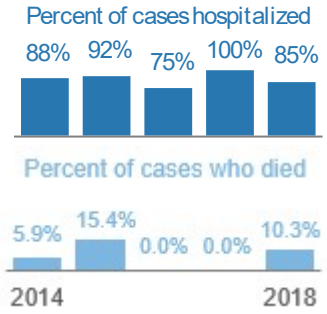
Rates are by county of residence for infections acquired in Florida (33 cases). Rates based on <20 cases are not reliable and should be interpreted with caution. See Tables 8 and 9 in Appendix I: Summary Data Tables for the number and rate of cases in 2018 by county.

More Disease

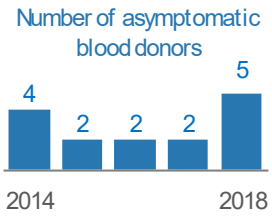
The percentage of confirmed cases increased in 2018, though it can vary by year.



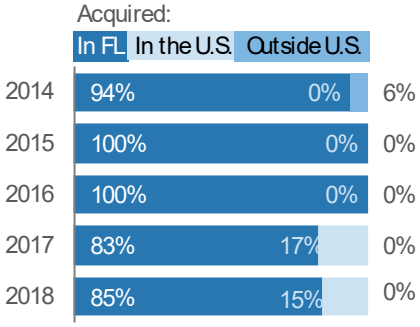
The majority of cases are hospitalized; deaths do occur.



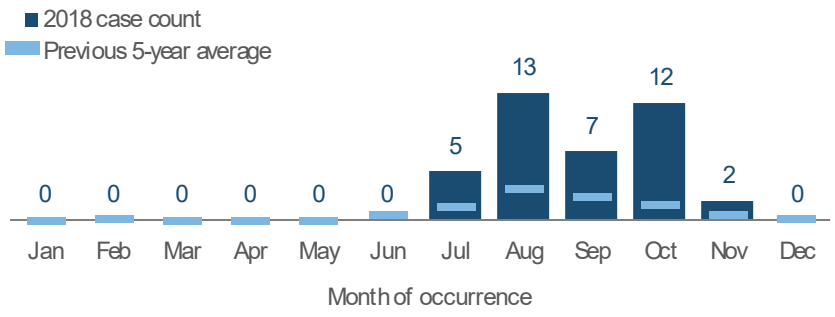
Five asymptomatic WNV-positive blood donors were identified in 2018. One blood donor had an unknown county of exposure, and two blood donors were experiencing homelessness. While blood donors do not meet case criteria if no symptoms are reported, they are still indicative of WNV activity occurring in the area and can be used to meet criteria for issuing mosquito-borne illness advisories and alerts if the county of exposure is known.



Most cases are acquired in Florida. In 2018, six cases were imported from other U.S. states.



West Nile virus disease has a strong seasonal pattern with cases primarily occurring July to November. In 2018, the largest number of cases were reported in August and October.



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, with most being travel-associated; however, 285 cases were locally acquired. An additional 15 locally acquired cases were identified in 2017, but their exposure was attributed to 2016, bringing the total number of locally acquired cases in 2016 to 300. Active transmission of Zika virus was identified in four areas in Miami-Dade County in 2016.

Unlike dengue fever, infection with Zika virus leads to lifetime immunity, which is believed to be the primary reason for the substantial decrease in incidence in endemic countries and subsequent decreased risk for introduction in non-endemic areas such as Florida. As a result, only two locally acquired cases were identified with symptom onset in September 2017.

Unlike other diseases and conditions in this report, non-Florida residents are included in Zika case counts. Non-Florida residents made up about 7% of cases reported from 2016 to 2017, compared to 18% of cases in 2018. Only 21% of cases were pregnant in 2016, compared to much larger proportions in 2017 (49%) and 2018 (71%). This increase was primarily related to increased availability of testing for asymptomatic pregnant women, as well as the possibility of prolonged IgM antibody detection of two years or longer which may have identified past exposure to Zika virus versus a recent infection.

Disease Facts

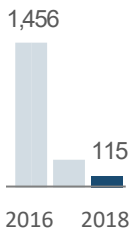
Caused by Zika virus

Illness is frequently asymptomatic; common symptoms include fever, rash, headache, joint pain, conjunctivitis and muscle pain; microcephaly and other severe birth defects may occur when mother is infected during pregnancy; post-infection Guillain-Barré syndrome

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

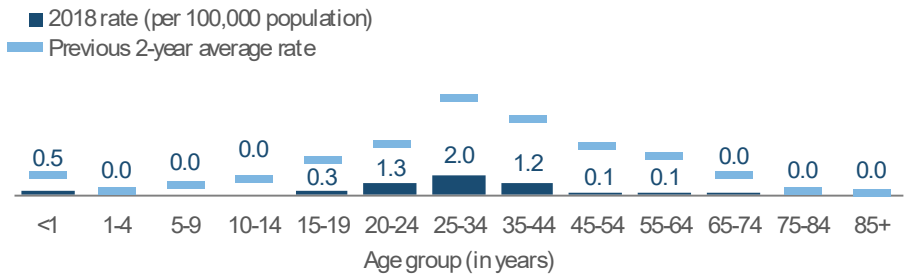
The incidence of Zika virus disease and infection has decreased drastically since 2016.



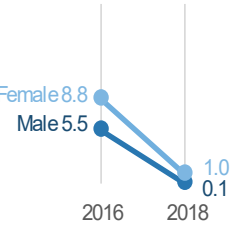
Disease Trends

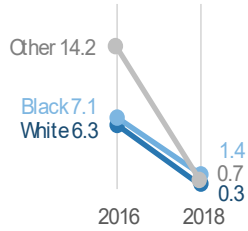
Summary			
Number of cases			115
Rate (per 100,000 population)			0.5
Change from 2-year average incidence			-87.2%
Age (in Years)			
Mean			32
Median			32
Min-max			0 - 71
Gender	**Number**	**(Percent)**	**Rate**
Female	107	(93.0)	1.0
Male	8	(7.0)	NA
Unknown gender	0		
Race	**Number**	**(Percent)**	**Rate**
White	56	(49.6)	0.3
Black	51	(44.3)	1.4
Other	8	(6.1)	NA
Unknown race	0		
Ethnicity	**Number**	**(Percent)**	**Rate**
Non-Hispanic	52	(45.2)	0.3
Hispanic	63	(54.8)	1.2
Unknown ethnicity	0		

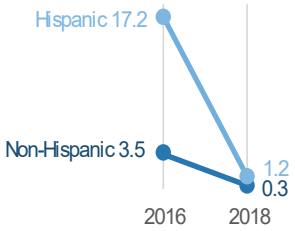
The rate of Zika virus disease and infection (per 100,000 population) is highest in adults 25 to 34 years old. Due to the possibility of adverse pregnancy and fetal outcomes associated with Zika virus infection during pregnancy, testing is focused on pregnant women; however, symptomatic individuals also meet testing criteria.



The rates of Zika virus disease and infection (per 100,000 population) vary by gender, race and ethnicity. In 2018, the rate in females was 10 times the rate in males, the rate in blacks was more than three times the rate in whites and the rate in Hispanics was four times the rate in non-Hispanics.



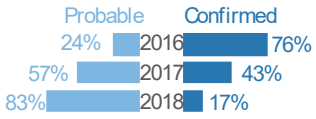




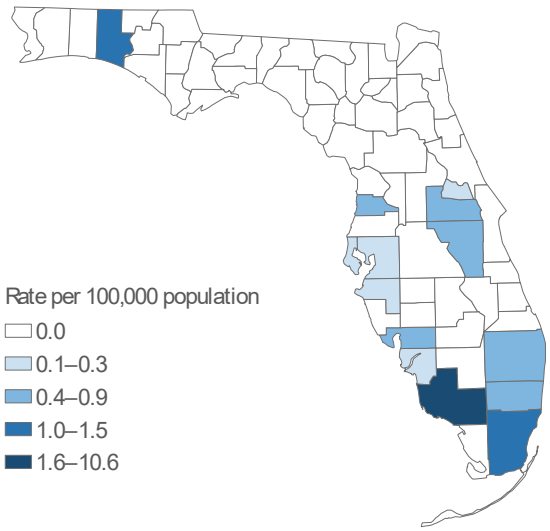
Zika Virus Disease and Infection

Summary	Number
Number of cases	115
Case Classification	**Number (Percent)**
Confirmed	19 (16.5)
Probable	96 (83.5)
Type	**Number (Percent)**
Non-Congenital	114 (99.1)
Congenital	1 (0.9)
Residence Status	**Number (Percent)**
Florida resident	94 (81.7)
Non-Florida resident	21 (18.3)
Special Populations	**Number (Percent)**
Pregnant women	82 (71.3)
Symptom Status	**Number (Percent)**
Symptomatic	15 (13.0)
Asymptomatic	99 (86.1)
Unknown	1 (0.9)

Very few cases met confirmatory case criteria in 2018; 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. Two locally acquired cases were identified in Broward (unknown exposure year) and Miami-Dade (laboratory exposure) counties in 2018.



Rates are by county of residence, regardless of where infection was acquired (115 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 2018 by county.

More Disease

Cuba is one of the top five countries where infections were acquired in both 2017 and 2018. In 2018, symptomatic cases were only reported from Cuba. The last symptomatic case with laboratory confirmation was in December 2018.

Top 5 exposure locations for 2018

Country	Number	Percent
Haiti	43	37%
Cuba	22	19%
Venezuela	16	14%
Honduras	8	7%
Dominican Republic	4	3%

Top 5 exposure locations for 2017

Country	Number	Percent
Cuba	90	32%
Haiti	41	15%
Venezuela	18	6%
Dominican Republic	10	4%
Jamaica	9	3%

Note: In 2017, the Cuba category included cases with exposure in Cuba only (87) and cases with exposure in Cuba and another country (3). In 2018, the Cuba category included cases with exposure in Cuba only.

In 2018, one locally acquired case in an asymptomatic person was identified; however, the year of exposure was unknown as antibodies against Zika virus can be detected for years in some people. In addition, one laboratory exposure by needlestick was reported in an employee at a research laboratory.

	2017		2018	
Imported Status	Number	Percent	Number	Percent
Travel-related	225	81%	111	97%
Undetermined (exposed in 2016)	35	13%	2	2%
Locally acquired (exposed in 2016)	15	5%	0	0%
Locally acquired (exposed in 2017)	2	1%	0	0%
Locally acquired (unknown exposure year)	0	0%	1	1%
Locally acquired (laboratory exposure)	0	0%	1	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 confirmed for these individuals.

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 Department. In 2018, one congenital Zika syndrome (CZS) case was reported for an infant whose mother was exposed to Zika virus during pregnancy. From 2016 to 2017, seven CZS cases and two healthy-appearing infants with Zika virus infection were reported. Six sexual transmission cases were reported from 2016 to 2017; however, none were reported in 2018.

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