

EPIDEMIOLOGY ANNUAL REPORT 2013



Florida Department
of Health in
Charlotte County
(DOH-Charlotte)

Disease Control Prevention and Preparedness

The Epidemiology Program contained within the division of Disease Control Prevention and Preparedness at DOH-Charlotte conducts disease surveillance and investigates suspected occurrences of infectious diseases and conditions that are reported from physician's offices, hospitals, and laboratories. Surveillance is primarily conducted through passive reporting from the medical community as required by Chapter 381, Florida Statutes. Data is collected and examined to determine the existence of trends. The Epidemiology Program also conducts syndromic and influenza-like-illness surveillance activities. Syndromic surveillance was added to the disease reporting process as an active method of determining activities in the community that could be early indicators of outbreaks and bioterrorism.

CASE INVESTIGATIONS

In 2013, 479 cases of reportable communicable disease were reported and subsequently investigated in Charlotte County. Reportable diseases in Florida are broken down into one of the following six categories: 1. **Vaccine Preventable Diseases**, 2. **CNS Diseases and Bacteremias**, 3. **Enteric Infections**, 4. **Viral Hepatitis**, 5. **Vectorborne and Zoonoses**, and 6. **Other** (Figure 1). Enteric infections and viral hepatitis comprise the majority of cases reported to the Florida Department of Health in Charlotte County (DOH-Charlotte) in 2013. The enteric infections reported in 2013 include the following: campylobacteriosis, giardiasis, salmonellosis, and shigellosis. Enteric illnesses accounted for 17% of all reportable disease cases in the county (82/479 cases). The viral hepatitis cases reported included the following: hepatitis A, hepatitis B (+HBsAg in pregnant women), acute hepatitis B, chronic hepatitis B, acute hepatitis C, and chronic hepatitis C. All viral hepatitis infections combined accounted for 68% of all reportable disease cases in the county (326/479 cases). The Central Nervous System (CNS) diseases and bacteremias reported include: Creutzfeldt-Jakob Disease (CJD), *Haemophilus influenzae* (invasive disease), meningitis (bacterial, cryptococcal, and mycotic), *Strep pneumoniae* invasive disease drug-resistant and *Strep pneumoniae* invasive disease drug susceptible. CNS diseases and bacteremias accounted for 4% of all reportable in the county (17/479 cases). The vaccine preventable diseases reported include: mumps, pertussis, and varicella. Vaccine preventable diseases accounted for 2% of all reportable diseases in the county (8/479 cases). The vectorborne diseases and zoonoses reported include those attributed to animal bites to humans requiring rabies post exposure prophylaxis and also positive animal rabies cases. These combined accounted for 9% of all reportable diseases in the county (41/479 cases). In the disease category labeled as “other,” FDOH-Charlotte recorded lead poisoning, legionellosis, pesticide-related illness or injury, and *Vibrio parahaemolyticus*, which accounted for 1% of all reportable disease cases (5/479 cases).

Each case requires, at a minimum, contacting the patient for information regarding possible sources of exposure and any family or other close personal contacts who also may be at risk, and if necessary making further contacts with the patient’s physician, the hospital, and/or the diagnostic laboratory providing the information. If the patient works for (or attends) a setting where the risk of transmitting certain diseases is high (such as restaurants, hospitals or daycares), the epidemiology staff will also contact the co-workers or fellow attendees to advise them on preventive measures and to offer prophylaxis when appropriate.

SURVEILLANCE

Surveillance of reportable diseases involves the following steps:

1. Data collection - Healthcare providers, laboratories, school health personnel, and other community partners are required to report cases of reportable diseases. Individuals in the community are encouraged to report outbreaks or suspicious illnesses to the health department or their healthcare provider. The Epidemiology Program is responsible for receiving and investigating these cases of reportable diseases or conditions, and for providing prevention information to clients at risk for acquiring or transmitting communicable diseases.

2. Analysis - The Epidemiology Program uses the state surveillance system, “Merlin”, to track reportable diseases and conduct basic analyses of the data and reports including calculating frequencies, epidemic curves, and rates. Merlin is capable of displaying the data based on selected criteria such as demographics and risk factors. State laboratories and some private laboratories are capable of electronically submitting lab results through Merlin.

3. Dissemination of resulting information - The Epidemiology Program provides information that contains cumulative data on reportable disease trends and highlights information from local and statewide outbreak investigations, through postings on our website at <http://www.floridahealth.gov/chdCharlotte/>.

DOH-Charlotte Disease Control Prevention and Preparedness (DCPP) staff ensures that action is taken to prevent infectious disease outbreaks from occurring in the Charlotte County area through constant vigilance, communication, collaboration and networking with our community partners.

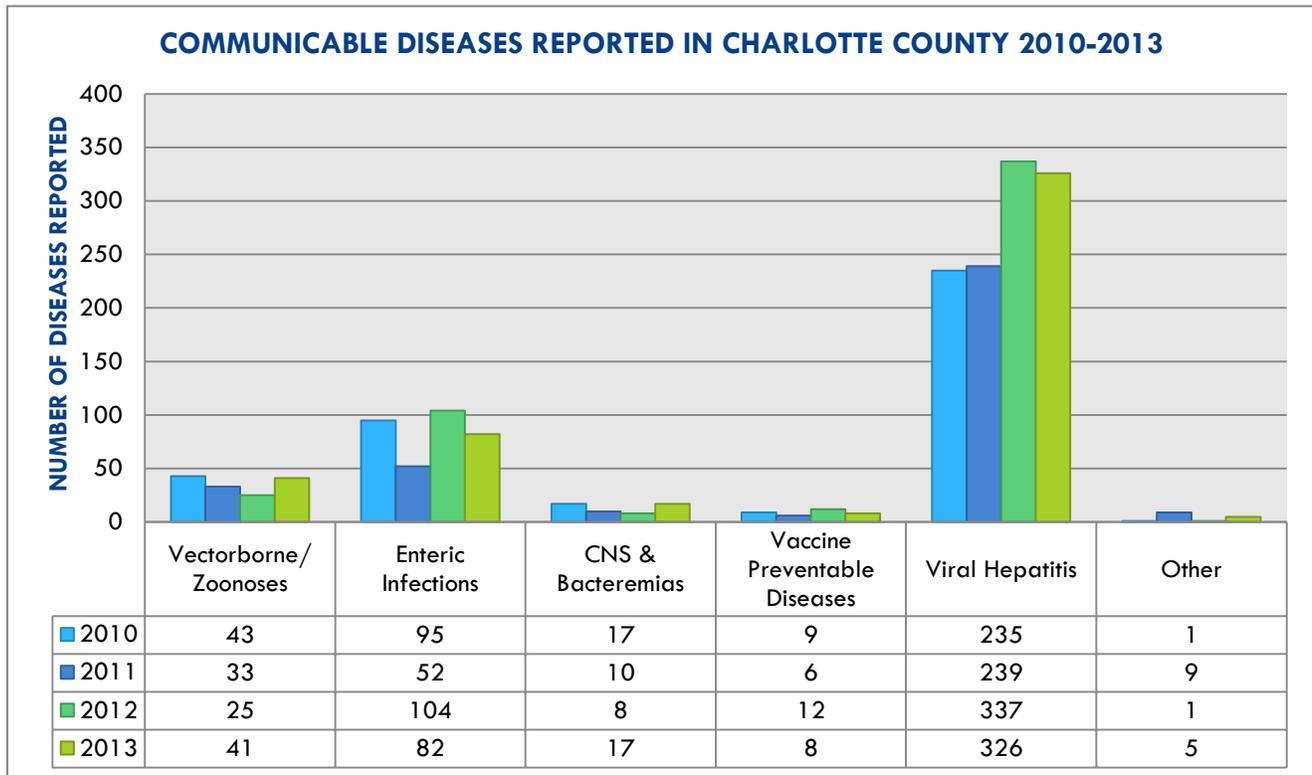


FIGURE 1 COMMUNICABLE DISEASES REPORTED 2010-2013

VACCINE PREVENTABLE DISEASES

In 2013, there were 8 cases of vaccine-preventable diseases in Charlotte County. The vaccine-preventable diseases reported to Charlotte County in 2013 include: mumps, pertussis, and varicella. Vaccine preventable diseases accounted for 2% of all reportable diseases in Charlotte County for 2013, down from 3% in 2012. Varicella was the most commonly reported vaccine-preventable disease with 4 cases.

Varicella (Chickenpox) The first full year of varicella case reporting in Florida began in 2007. Since 2007, the incidence rate for varicella has been steady in Charlotte County and is progressively decreasing. The incidence rate per 100,000 in 2009 was 4.38, in 2010 4.37, in 2011 3.74, in 2012 4.33, and this year (2013) the incidence rate was 2.48. Four cases of varicella were reported in 2013 and two were classified as probable. Each of the four cases had differing history of varicella and/or vaccination. Two of the cases were unvaccinated and exposed to a case of active shingles in an adult, one case

claimed religious exemption, and the final case had been vaccinated previously and had no contact with any known active varicella cases. Three out of the four cases occurred in children <11 years of age, with the final case being 18 years of age at the time of reporting. Because of the high incidence rates in these age groups, childcare centers and schools are the most common sites for varicella outbreaks.

Pertussis Pertussis is a severe respiratory disease caused by *Bordetella pertussis*; it is also known as whooping cough. Three cases were reported in Charlotte County in 2013. The incidence rate for pertussis has varied over the previous ten year period; the 2013 incidence rate was 1.86 per 100,000, down from 2.47 in 2012. The three cases were classified as confirmed; one case was sporadic and two were epi-linked (family cluster). Pertussis is most common in young children and infants. In 2013, two cases were male and one was female, ranging in age from 3 to 13 years.

Prevention The varicella vaccine is recommended at 12 to 15 months and at four to six years of age. Doses given prior to 13 years of age should be separated by at least three months. Doses given after 13 years of age should be separated by at least four weeks. Due to the occurrence of disease after one dose of vaccine, the current recommendation is for two doses of vaccine. Proof of varicella vaccination or healthcare provider documentation of disease is required for entry and attendance in childcare facilities, family daycare homes, and schools for certain grades.

Currently, only acellular pertussis vaccines combined with diphtheria and tetanus toxoids (DTaP and Tdap) are available in the U.S. The five DTaP doses should be administered to children at two months, four months, six months, 15 to 18 months, and four to six years of age. This vaccine is also available in combination with other childhood vaccines. The increase in disease in the early teenage years indicates that immunity decreases over time. Vaccine recommendations now include Adolescents 11-18 years of age (preferably at age 11-12 years) and adults 19 through 64 years of age should receive a single dose of Tdap. For adults 65 and older who have close contact with an infant and have not previously received Tdap, one dose should be received. As of school year 2011-2012, Tdap vaccine is required for children entering seventh grade. Post-exposure antibiotic and vaccine prophylaxis of close contacts of a case are the major outbreak control measures to prevent pertussis transmission.

Additional Resources

Varicella information is available from the Centers for Disease Control and Prevention at <http://www.cdc.gov/vaccines/vpd-vac/varicella/default.htm>

Pertussis information is available from the Centers for Disease Control and Prevention at www.cdc.gov/vaccines/vpd-vac/pertussis/default.htm

Recommended immunization schedule are available at <http://www.cdc.gov/vaccines/schedules/index.html>

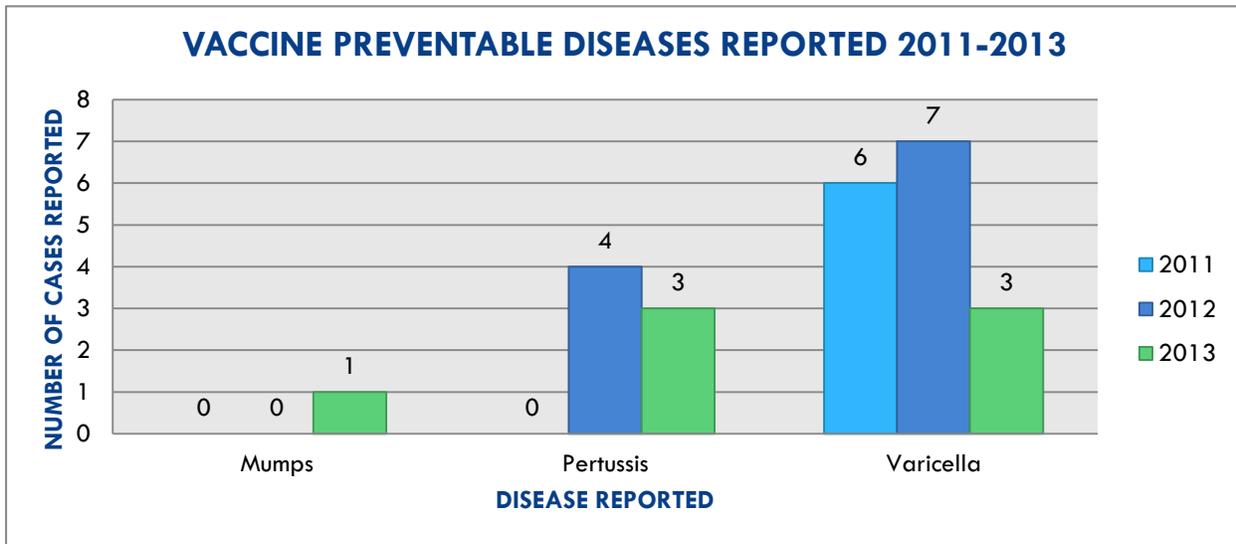


FIGURE 2 VACCINE PREVENTABLE DISEASES 2011-2013

Two Confirmed Cases of Pertussis in an Unvaccinated 7-year old and a 2-year old Sibling

On September 3, 2013, the Florida Department of Health in Charlotte County (DOH-Charlotte) was notified by a local hospital of a 7-year old female who had a confirmed PCR positive nasopharyngeal swab for *Bordetella pertussis*. An investigation commenced immediately.

Upon contacting the case's guardian, it was determined that the 7-year old female's cough onset around the week of August 4, 2013. This was reportedly a week after attending a church camp in Charlotte County, July 21-27, 2013. A review of medical records revealed that the child initially visited her primary care physician on August 26, 2013 and left diagnosed with an upper respiratory infection. When symptoms did not resolve, the female was taken to the emergency room on August 29 where a nasopharyngeal swab was completed and pertussis was confirmed.

The case was not vaccinated due to a religious exemption. The guardian chose not to accept antibiotic treatment for the patient, and chose to utilize high doses of Vitamin C. According to the guardian, the child is homeschooled and had no contacts outside of the home. The guardian also verified that there were no other known cases from the church camp. Recommendations for prophylaxis of those in contact with the case in the home were made, but the guardian declined, opting for high doses of Vitamin C instead.

At the time of the interview on September 4, 2013, the patient was still symptomatic. One household contact, the case's two-year old brother, was presenting with symptoms similar to his sister's persistent whooping cough. The guardian indicated that the sibling's symptoms onset around August 26, 2013. Recommendations were made for reducing the two cases' contacts outside of home.

A follow up interview was conducted on September 11, 2013 in which the guardian indicated that the two cases were still symptomatic. The guardian was again counseled on treatment and reducing contacts outside of the home.

No additional cases were identified.

CNS DISEASES AND BACTEREMIAS

In 2013, 17 cases of Central Nervous System (CNS) Diseases and Bacteremias were reported. The cases reported included Creutzfeldt-Jakob Disease (CJD), *Haemophilus influenzae* (invasive disease), Meningitis, *Strep pneumoniae* invasive disease (drug-resistant), and *Strep pneumoniae* invasive disease (drug-susceptible). *Strep pneumoniae* invasive disease (drug-susceptible) accounted for 7 of the 17 total CNS Diseases and Bacteremias Reported, with an incidence rate of 4.2 cases per 100,000. CNS Diseases and Bacteremias accounted for 3.5% of total cases reported to Charlotte County in 2013.

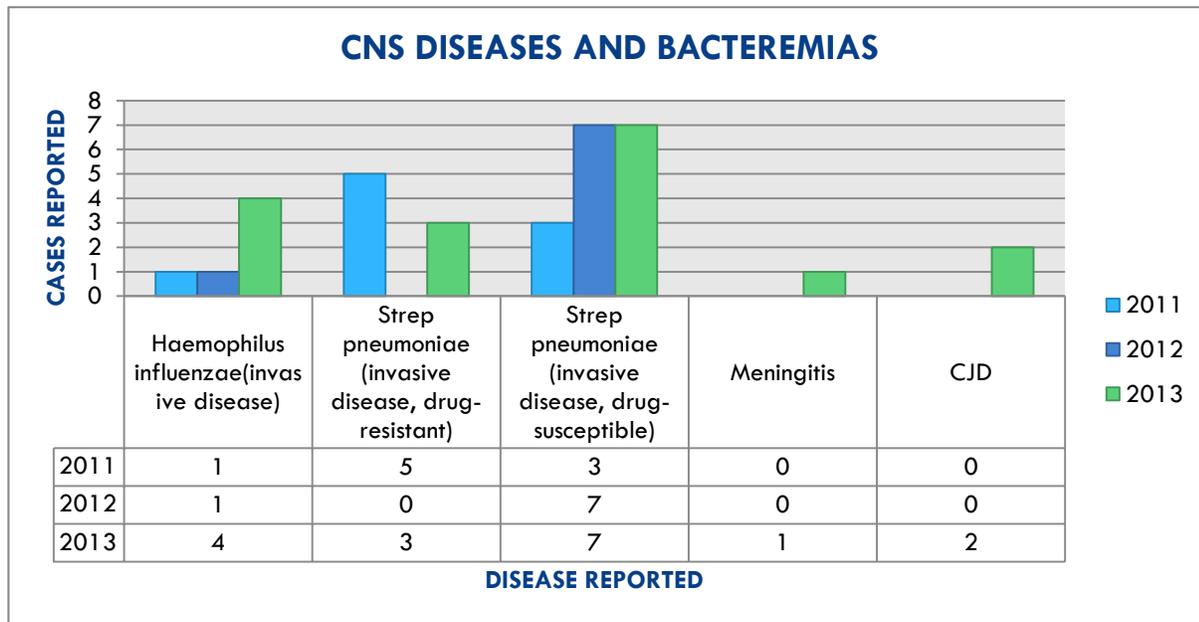


FIGURE 3 CNS DISEASES AND BACTEREMIAS 2011-2013

Prevention

Conjugate vaccines against *Haemophilus influenzae* type b (Hib) for infants and children are effective in preventing infection with the disease and are recommended by the Advisory Committee on Immunization Practices.

There are two meningococcal vaccines available in the United States, Meningococcal polysaccharide vaccine and Meningococcal conjugate vaccine. The vaccine is recommended by the Advisory Committee on Immunization Practices for all 11-12 year olds with a booster at age 16.

Additional Resources

More information on *Haemophilus influenzae*, meningitis, and CJD is available at the Center for Disease Control and Prevention (CDC) website at

Haemophilus influenzae and *Strep pneumoniae*

http://www.cdc.gov/ncidod/dbmd/diseaseinfo/haeminfluserob_t.htm

<http://www.cdc.gov/pneumococcal/clinicians/streptococcus-pneumoniae.html>

Meningitis:

<http://www.cdc.gov/vaccines/vpd-vac/mening/who-vaccinate-hcp.htm>

<http://www.cdc.gov/meningitis/index.html>

CJD:

<http://www.cdc.gov/ncidod/dvrd/cjd/>

ENTERIC INFECTIONS

The enteric infections reported in Charlotte County in 2013 include the following: campylobacteriosis, giardiasis, salmonellosis, and shigellosis. In 2013, there were 82 cases of enteric diseases reported in Charlotte County (Figure 3). Enteric diseases accounted for 17% of all reportable diseases in Charlotte County for 2013. Salmonellosis was the most commonly reported enteric disease with 44 cases and an incidence rate of 26.7. A 21% decrease in all enteric infections, including a 1% decrease in salmonellosis, was noted in Charlotte County from 2012 to 2013.

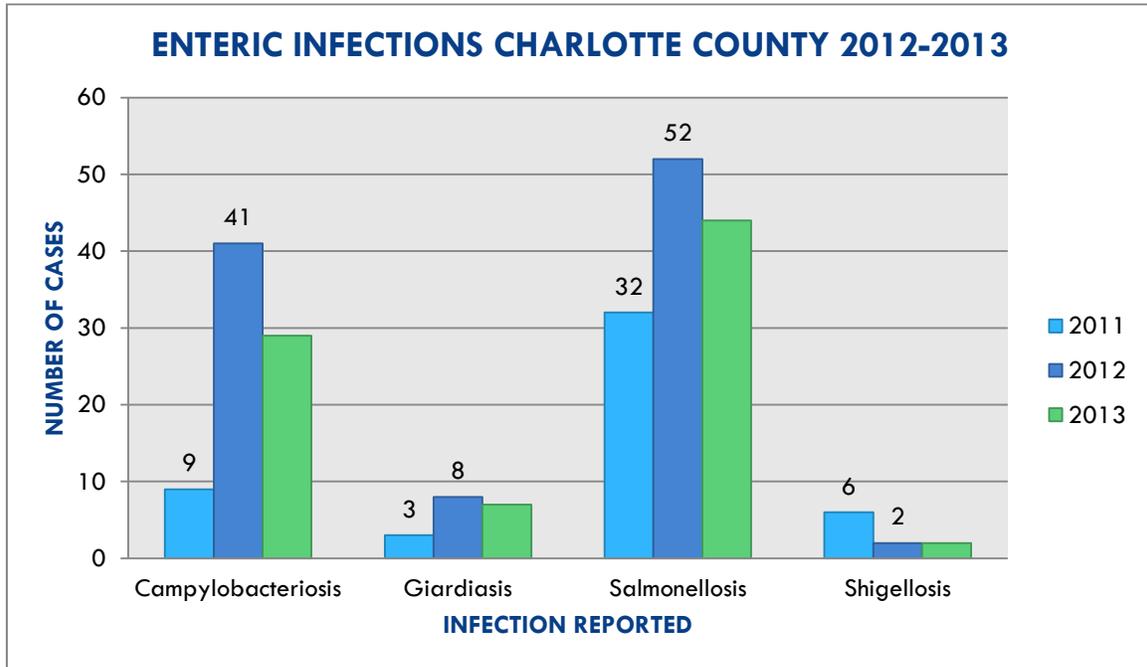


FIGURE 4 ENTERIC INFECTIONS 2012-2013

Prevention

Some simple food handling practices can help reduce the likelihood of contracting enteric infections:

- Cook all meats products thoroughly, particularly poultry products which should be cooked to reach a minimum internal temperature of 165 °F.
- Wash hands with soap before, during, and after food preparation.
- Prevent cross-contamination in the kitchen by making sure utensils, counter tops, cutting boards, and sponges are cleaned or do not come in contact with raw meat products.
- Avoid consuming unpasteurized milk and untreated surface water.
- Make sure that persons with diarrhea, especially children, wash their hands carefully and frequently with soap to reduce the risk of spreading the infection.
- Wash hands with soap after contact with any animals or their environment.

A swimmer's likelihood of contracting or spreading enteric infections in recreational water settings can be reduced by practicing the following healthy swimming practices:

- Avoid swallowing pool water or even getting it in your mouth.
- Shower before swimming and wash your hands after using the toilet or changing diapers.
- When swimming, take children on bathroom breaks or check diapers often.

- Change diapers in a bathroom and not at poolside and thoroughly clean the diaper changing area.
- Protect others by not swimming if you are experiencing diarrhea (this is essential for children in diapers) and for at least two weeks after diarrhea stops.

Additional Resources

Florida Online Foodborne Illness Complaint Form – Public Use

http://www.doh.state.fl.us/environment/medicine/foodsurveillance/Online_Foodborne_Complaint_Form.html

Florida Food Recall Searchable Database

http://www.doh.state.fl.us/environment/medicine/foodsurveillance/Recalls_Page.htm

Florida Department of Health – Norovirus Outbreak Control Documents

<http://www.floridahealth.gov/diseases-and-conditions/norovirus-infection/index.html>

VIRAL HEPATITIS

In 2013, there were 369 cases of viral hepatitis reported in Charlotte County, an 8% decrease in cases from 2012 (Figure 4). These include the following: Hepatitis A, Hepatitis B (+HBsAg) in pregnant women, acute and chronic Hepatitis B, acute Hepatitis C and chronic Hepatitis C. Hepatitis viruses accounted for 68% reported, with 290 cases.

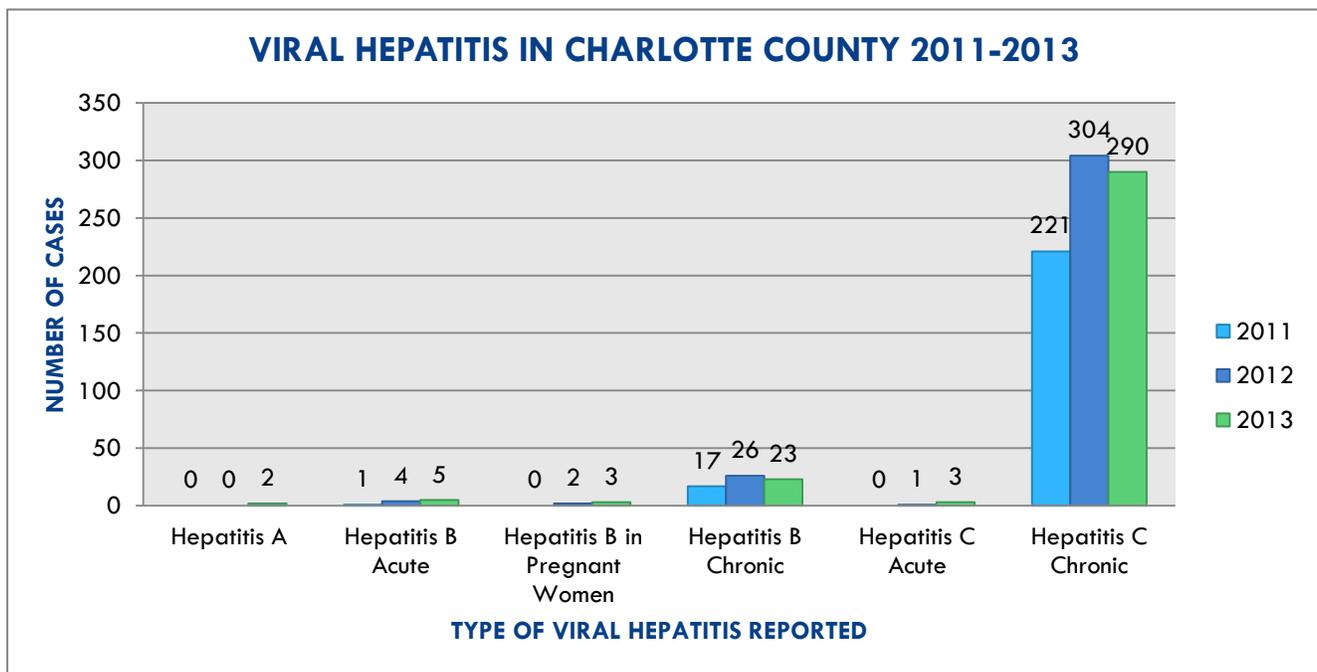


FIGURE 5 VIRAL HEPATITIS 2011-2013

Hepatitis A and Prevention

Two cases of Hepatitis A were reported in Charlotte County in 2013. Hepatitis A is, however, vaccine preventable. Currently, the single antigen, two-dose hepatitis A vaccine is recommended as part of the routine immunization schedule for all children, starting at age one. However, this is not a requirement for childcare or school entry in Florida. The doses should be spaced at least six months apart. A combined hepatitis A and hepatitis B vaccine is available for adults aged >18 years, and is administered in three doses.

In addition to routine childhood immunization, hepatitis A vaccine is also recommended for people without a documented history of vaccine or past disease who are at increased risk of infection, including:

- those traveling to developing countries,
- close contacts of adopted children newly arriving from developing countries,
- MSM (men who have sex with men),
- injection and non-injection drug users,
- persons with a clotting factor disorder,
- persons with chronic liver disease (at risk for fulminant hepatitis A), and
- persons who have occupational risk for infection.

Other efforts to prevent hepatitis A infection should focus on disrupting transmission through:

- good personal hygiene,
- hand washing after use of the toilet and before preparing food for others, and
- washing fruits and vegetables before eating.

Illness among food-handlers or persons in a childcare setting should be promptly identified and reported to allow prompt action to be taken to prevent further spread of the disease in those settings. In outbreak settings, immune-globulin may be administered to at-risk contacts of infected individuals, particularly children under one year and adults aged >40 years. Recently updated guidelines, based on results from a clinical trial, recommend using vaccine rather than immune globulin for post-exposure prophylaxis in healthy individuals aged between 1 and 40 years. All post-exposure prophylaxis should be administered within two weeks of exposure.

Hepatitis B and Prevention

In 2013, Charlotte County reported 31 total cases of Hepatitis B, with 3 acute cases, 25 chronic cases, and 2 cases identified in pregnant women. The three cases in pregnant women in Charlotte County were a concern for the Florida Department of Health in Charlotte County. A regimen combining Hepatitis B immune globulin (HBIG) and hepatitis B vaccine is 85%- 95% effective in preventing HBV infection when administered at birth to infants born to HBsAg+ mothers. HBIG and the first dose of hepatitis B vaccine should be administered within 12 hours of birth. The second dose should be given at one month of age and the third dose at six months of age. Dose three of hepatitis B vaccine should not be given before six months of age. Vaccine for children and adults is also available in combination vaccines.

A total of five cases of acute hepatitis B were reported in 2013, all of which were classified as confirmed. The incidence rate for hepatitis B acute has been on a steady decline since 2009, with an incidence rate of only 8.2 per 100,000 cases in 2013. As in previous years, there continues to be no

reported cases of acute Hepatitis B, which is most likely due to immunization campaigns after the creation of the Hepatitis B vaccine in 1981. The Florida Department of Health in Charlotte County works to raise awareness through education and prevention strategies, such as administering Hepatitis vaccines to those populations at risk.

As mentioned, Hepatitis B is vaccine preventable. In addition, healthcare settings, implement universal precautions for individuals in contact with body fluids. High-risk groups for infection include:

- drug users who share needles and other paraphernalia,
- healthcare workers who have contact with infected blood and other bodily fluids,
- MSM (men who have sex with men),
- people who have multiple sexual partners,
- those previously diagnosed with another type of viral hepatitis,
- household contacts of infected persons, and
- infants born to mothers who are hepatitis B carriers.

Hepatitis C and Prevention

Currently, a vaccine does not exist to protect against Hepatitis C. Hepatitis C accounted for 78.6% of total viral hepatitis cases in Charlotte County in 2013. The Florida Department of Health in Charlotte County works to educate residents of the county on risk behaviors and methods of transmission in order to prevent higher rates of Hepatitis C. DOH Charlotte also conducts many outreach activities in the local jail and behavioral health centers, offering free rapid Hepatitis C testing, equipping residents with the knowledge of their Hepatitis C status.

Additional Resources

Disease information is available from the Centers for Disease Control and Prevention (CDC) website at

- <http://www.cdc.gov/ncidod/diseases/hepatitis/b/index.htm>
- <http://www.cdc.gov/NCIDOD/diseases/hepatitis/a/index.htm>
- <http://www.cdc.gov/ncidod/diseases/hepatitis/recs/index.htm>

Also, information on Hepatitis in the state of Florida is available at

- <http://www.floridahealth.gov/diseases-and-conditions/hepatitis/index.html>

VECTORBORNE AND ZONOOSES

In 2013, 41 vectorborne and zoonotic cases were reported, making up 8.6% of all reportable disease cases. The reported cases included animal rabies and rabies possible exposure.

Electronic reporting was initiated in 2001 of animal encounters (bites, scratches, etc.) for which rabies post-exposure prophylaxis (PEP) is recommended. Rabies PEP is recommended when an individual is bitten, scratched, or has mucous membrane or fresh wound contact with the saliva or nervous tissue of a laboratory-confirmed rabid animal, or a suspected rabid animal that is not available for testing.

The number of cases of animal bites that require Rabies PEP has varied over the four year period in Charlotte County (Figure 6), steadily declining until 2013. In 2013, there was a 19% increase in comparison to the average reported cases from the previous 3-year average (32 cases). A total of 38 cases were reported in 2013.

Rabies is endemic in the raccoon and bat populations of Florida, and frequently spills out from raccoons into other animal species such as foxes and cats. Laboratory testing for animal rabies is only conducted when animals expose humans or domestic animals, and thus the data does not necessarily correlate with the true prevalence of rabies in Florida.

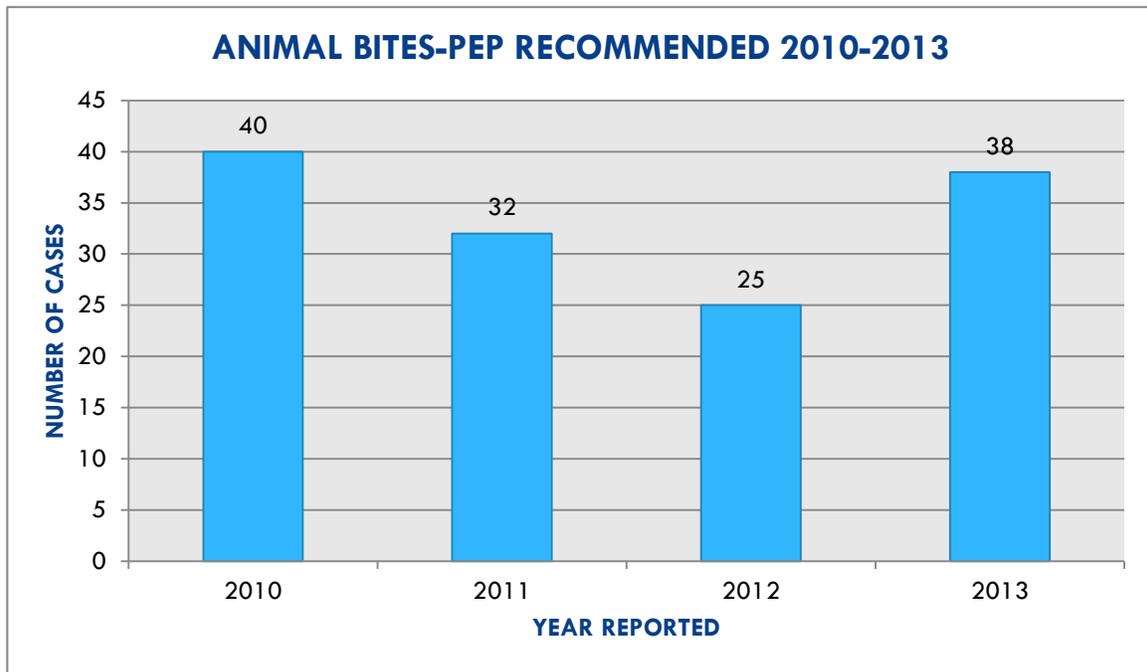


FIGURE 6 PEP RECOMMENDED ANIMAL BITES 2010-2013

Prevention

Use the following preventive measures that include the following strategies to lower risk: ▫

- Vaccinate pets and at-risk livestock.
- Avoid direct human and domestic animal contact with wild animals.
- Educate the public to reduce contact with stray and feral animals.
- Support animal control in efforts to reduce feral and stray animal populations.
- Bat-proof homes.
- Provide pre-exposure prophylaxis for people in high-risk professions, such as animal control and veterinary personnel, laboratory workers, and those working with wildlife.

Consider pre-exposure prophylaxis for those traveling extensively where rabies is common in domestic animals. Oral bait vaccination programs for wildlife are justified in some situations. These programs can be effective but require careful advance planning and substantial time and financial commitments.

Additional Resources

Information is available from the Florida Department of Health website at <http://www.doh.state.fl.us/environment/medicine/rabies/rabies-index.html>

Disease information is also available from the Centers for Disease Control and Prevention at <http://www.cdc.gov/rabies/>

OTHER

Five cases were reported in Charlotte County in 2013 that had no specific category. These included *Vibrio parahaemolyticus*, pesticide related illness or injury, Legionellosis, and lead poisoning. Each of the aforementioned conditions had one case, outside of Legionellosis, of which two cases were reported in 2013.

Although rare in many parts of the country, *Vibrio* is often seen in Florida where warm, brackish water is often present. The organism lives in the water at all times, however, when those with compromised immune systems or open wounds ingest infected seafood or expose open wounds to the water, adverse effects may occur and the individual may become infected. The Florida Department of Health in Charlotte County encourages residents and visitors to be vigilant when consuming raw or undercooked shellfish, especially if they are immunocompromised, and to also cover all open wounds when entering water.

Legionellosis is also a condition often seen in Florida with the large tourism industry and higher population of elderly, and therefore immunocompromised, people. Legionellosis is often aerosolized in spas as well as hotel, hospital, and multiple room housing facilities' air conditioning and duct systems.

Additional Resources

Information on *Vibrio* infections:

<http://www.floridahealth.gov/diseases-and-conditions/vibrio-infections/index.html>

<http://www.cdc.gov/vibrio/index.html>

Information on Legionellosis:

<http://www.cdc.gov/legionella/index.html>

Information on Lead Poisoning:

<http://www.cdc.gov/nceh/lead/>

Reportable Disease Cases for Charlotte County, Florida 2010-2013

DISEASE	CHARLOTTE 2010	CHARLOTTE 2011	CHARLOTTE 2012	CHARLOTTE 2013
Amebic Encephalitis	-*	0	0	0
Animal Bite, PEP Recommended	40	32	25	38
Animal Rabies	1	0	0	3
Campylobacteriosis	25	9	41	29
Carbon Monoxide Poisoning	-*	0	0	0
Creutzfeldt-Jakob Disease (CJD)	0	0	0	2
Cryptosporidiosis	1	0	1	0
Cryptosporiasis	1	1	0	0
Dengue Fever	0	0	0	0
Ehrlichiosis/Anaplasmosis, HME, E. Chaffeensis	0	0	0	0
E. Coli Shiga Toxin Producing	0	1	0	0
Giardiasis	10	3	8	7
H. influenza (Invasive Disease)	2	1	1	4
Hemolytic Uremic Syndrome	0	0	0	0
Hepatitis A	0	0	0	2
Hepatitis B (+HBsAg in Pregnant Women)	0	0	2	3
Hepatitis B, Acute	2	1	4	5
Hepatitis B, Chronic	20	17	26	23
Hepatitis B, Perinatal	0	0	0	0
Hepatitis C, Acute	1	0	1	3
Hepatitis C, Chronic	212	221	304	290
Hepatitis E	0	0	0	0
Lead Poisoning	0	4	0	1
Legionellosis	1	1	0	2
Leprosy (Hansen's Disease)	0	0	0	0
Listeriosis	2	0	0	0
Lyme Disease	2	1	0	0
Malaria	1	0	1	0
Measles	0	0	0	0
Meningitis, Bacterial, Cryptococcal, Mycotic	1	0	0	1
Meningococcal Disease	0	0	0	0
Mumps	0	0	0	1
Pertussis	1	0	4	3
Salmonellosis	49	32	52	44
Shigellosis	9	6	2	2
S. aureus, Community Associated Mortality	-*	0	0	0
S. pneumoniae, Invasive Disease, Resistant	6	5	0	3
S. pneumoniae, Invasive Disease, Susceptible	3	3	7	7
Streptococcal Disease Invasive Group A	3	1	0	0
Toxoplasmosis	0	0	0	0
Typhoid Fever	0	0	0	0
Varicella	7	6	7	4
V. alginolyticus	0	1	0	0
V. parahaemolyticus	0	2	1	1
V. vulnificus	0	1	0	0
TOTAL	400	349	487	479

*Disease was not on the reportable disease list during the years indicated