



Office of Disease Control
and Health Protection

EPI-LOG

Disease Control

Paul Rehme, DVM, MPH
Paul.Rehme@flhealth.gov
386-274-0618

Epidemiology

Vacant
N/A

Public Health Preparedness

Melanie Black, MSW
Melanie.Black@flhealth.gov
386-274-0576

HIV/AIDS

Patrick Forand, MPH
Patrick.Forand@flhealth.gov
386-274-0585

Sexually Transmitted Disease

Travis Brown
Travis.brown@flhealth.gov
386-274-0663

Tuberculosis

Vacant
N/A
386-274-0654

Ivette Rainey
Staff Assistant
ivette.Rainey@flhealth.gov
386-274-0634

Ellen Brown
Staff Assistant
Ellen.Brown@flhealth.gov
386-274-0651

To report a disease or outbreak:

Phone: 386-274-0634 M-F, 8 a.m.-5 p.m.
Fax: 386-274-0641
After hours: 386-316-5030
P.O. Box 9190, Bin #111
Daytona Beach, FL 32120-9190

Water-borne Disease
By: David Parfitt, MPH, CPH

With the summer swimming season upon us the focus is on water safety. It is critically important to practice good water safety in terms of drowning prevention but it is also important to look at water safety in terms of disease prevention. According to the World Health Organization (WHO), water-related illnesses cover a broad spectrum of health concerns from micro-organisms and chemicals in our water supply to disease carrying vectors such as mosquitoes as well as drowning and other water related injuries. We wanted to focus on three particular illnesses in this article: vibriosis, cryptosporidiosis and primary amoebic meningoencephalitis (PAM).

Here in Florida, vibriosis (specifically the species *Vibrio vulnificus*) is a disease caused by naturally occurring bacteria found in saltwater environments (typically in slow moving warmer brackish water) such as in estuaries and other similar water sources. Infection can occur either by an exposure to the bacteria in an open wound or through the consumption of inadequately prepared and contaminated seafood. Medical providers should consider testing for vibriosis in patients experiencing stomach illness, a fever or shock after the consumption of raw seafood or a severe and progressing wound infection following saltwater exposure. Antibiotic treatment should be administered promptly for suspect vibrio infection with potential fatal outcomes for patients with underlying conditions including those who are immunocompromised. Prevention includes avoiding raw seafood, eating shellfish immediately after cooking and preparing, wearing protective gloves while handling seafood and staying clear of salt water environments with an open wound. Persons with underlying conditions such as liver disease, alcoholism, diabetes, and any immunosuppressive conditions are more susceptible and should be extremely cautious.



Cryptosporidiosis is a fecal-oral diarrheal illness caused by a highly resistant microscopic parasite, *Cryptosporidium*, spread most commonly through the ingestion of both recreational and drinking water. The parasite is found in the intestines of both infected animals or humans and spread via fecal contamination. Common symptoms of cryptosporidiosis include nausea, vomiting, fever and stomach pain beginning roughly 7 days after infection. Those most at risk for crypto include children in day care settings, international travelers, those who drink untreated water or unpasteurized milk, and swimmers accidentally ingesting contaminated water. Treatment is mostly

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symptomatic given that those with healthy immune systems will likely recover on their own. Prevention of disease spread includes frequent hand washing, the avoidance of swimming for 2 weeks after diarrhea has ended, exclusion of children from day care until symptoms have resolved, and most importantly avoid ingestion of any water that you swim in. One key point to be made is the organism can be resistant to routine chlorination so even well maintained pools could be a potential risk.

Naegleria fowleri is the free-living amoeba responsible for PAM. This organism is often found in both freshwater sources (especially in warm lakes of the southern-tier states) as well as in the soil. Infection is most often the result of water, containing the amoeba, entering the nasal passages then the brain resulting in encephalitis. Initial symptoms of PAM are similar to bacterial meningitis and start usually 5 days after infection. These symptoms can include nausea, fever and headache. As the disease progresses symptoms can include stiff neck, seizures and possibly hallucinations. This disease is almost always fatal usually within a week of symptom onset. Prevention includes limiting the amount of water that enters your nose especially in warm freshwater sources when diving. Swimmers should also limit jumping in the water or submerging their head completely. Infections have also been caused by sinus irrigation with contaminated tap water. *Naegleria fowleri* has been found in poorly treated swimming pool water, although this is extremely rare. There is an investigational drug known as miltefosine that has shown promise in treating this disease if given quickly after the exposure. It is only available through the Centers for Disease Control and Prevention. Any physician suspecting infection should call 770-488-7100 immediately, do not wait for confirmatory testing.



For further information on local water-related illnesses please contact the Florida Department of Health in Volusia County at (386) 274-0651.

Volusia County 2014-15			
Organism	2014	2015	2016 YTD
<i>Naegleria</i>	0	0	0
<i>Cryptosporidia</i>	49	37	8
<i>Vibrio sp.</i>	4	1	3

Zika Virus Disease Update

By: Paul Rehme, DVM, MPH

Zika virus disease continues to be a concern for the state of Florida. There have now been over 200 imported cases reported. There has been one sexually transmitted case but otherwise no cases of local mosquito transmission. There is now lab testing capability in the private sector through Quest or Labcorp but they can only test the urine or serum for the actual virus (PCR testing) and cannot do serology. Testing through those laboratories will only detect acute cases. Typically the virus can be found in the blood for 5-7 days after symptom onset and in the urine for up to fourteen. The state lab will continue to test all pregnant women with a travel history or others with two or more symptoms that meet specific criteria. The state lab can also conduct serology which detects past infection. We must be contacted if testing is to be done through the state lab and will guide you through the process. We reported two imported cases of Zika virus disease in May in Volusia County residents with travel to South America. However we did not have any subsequent local transmission. We continue to conduct surveillance for more cases and if identified work with mosquito control to assess local transmission risk so any potential risk can be mitigated or eliminated. The primary vector *Aedes aegypti*, as well as the secondary vector *Aedes albopictus* are becoming more active as the weather heats up. All county residents are reminded that these mosquitoes are container breeders and will lay eggs in anything that can hold water so the key to mosquito control is to eliminate the breeding areas. Residents are also reminded to protect themselves from all mosquito bites and all mosquito borne diseases by covering up or applying FDA approved repellents when outside. For up to date information go to: www.floridahealth.gov/zika or www.cdc.gov/zika.



Foodborne Disease Outbreaks

By: Jyothi Praveen, MPH, CPH

The Centers for Disease Control and Prevention recently released *Surveillance for Foodborne Disease Outbreaks, United States, 2014: Annual Report*. The document summarizes the data acquired from investigation of foodborne outbreaks.

In 2014, 864 foodborne disease outbreaks were reported to CDC, according to a recently released annual summary from the National Outbreak Reporting System (NORS). The data comes from reports that state, local, and territorial public health agencies made to the Foodborne Disease Outbreak Surveillance System using NORS. When two or more people get the same illness from the same contaminated food, the event is called a foodborne disease outbreak. Outbreaks provide important insights into how germs are spread, which food and germ combinations make people sick, and how to prevent food poisoning.

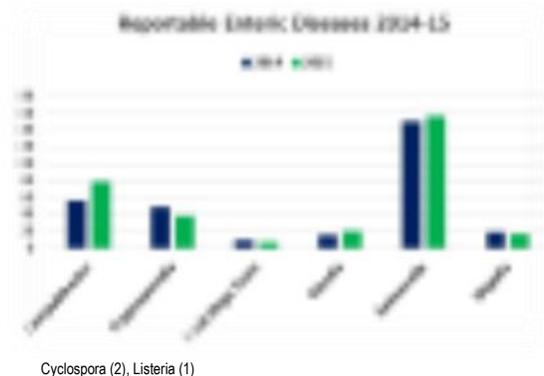
The main findings are:

- Reported foodborne disease outbreaks resulted in 13,246 illnesses, 712 hospitalizations, 21 deaths, and 21 food recalls.
- Ground beef was the contaminated food or ingredient in five of the 25 multistate outbreaks. Four were caused by Shiga toxin-producing *E. coli* and one by *Salmonella*.
- The most common single food categories implicated were fish (43 outbreaks), chicken (23), and dairy (19, of which 15 were due to unpasteurized products).
- The most outbreak-associated illnesses were from seeded vegetables (such as cucumbers or tomatoes, 428 illnesses), chicken (354), and dairy (267).
- Restaurants were the most commonly reported locations of food preparation, as reported in previous years. Restaurants were linked to 485 outbreaks, 65% of outbreaks reporting a single location of preparation. Restaurants with sit-down dining were the most commonly reported locations of food preparation with 394 outbreaks, 53% of outbreaks reporting a single location of preparation.

In the last two years in Volusia County we have investigated 21 potential outbreaks of gastrointestinal illness involving 215 total people. In five of those instances we were able to positively identify norovirus as the source of infection and on another we were able to identify cryptosporidium. In most cases we are unable to identify a specific agent and in no cases were able to pinpoint a specific food. In fact, most of the outbreaks were likely due to person to person spread of disease and not due to food. The chart at the right shows the enteric pathogen cases reported to us in 2014-15 that we investigated. Many of these pathogens were likely foodborne but in most cases we were unable to identify a specific food.

To read the entire report please go to: <http://www.cdc.gov/foodsafety/pdfs/foodborne-outbreaks-annual-report-2014-508.pdf>

For more information on foodborne illnesses go to: <http://www.cdc.gov/foodsafety/foodborne-germs.html> or to: <http://www.floridahealth.gov/diseases-and-conditions/food-and-waterborne-disease/index.html>



Volusia County Disease Activity*	1st Quarter 2016	1st Quarter 2015	Full Year 2015
Vaccine Preventable			
Mumps	0	0	0
Pertussis	0	2	2
Varicella	0	0	16
CNS Diseases and Bacteremias			
Creutzfeldt-Jakob disease (CJD)	0	0	0
Haemophilus influenzae (invasive)‡	2	0	3
Meningitis (bacterial, cryptococcal, mycotic)	0	0	1
Meningococcal disease	0	1	1
Staphylococcus aureus (GISA/VISA)	0	0	0
Streptococcus pneumoniae (invasive disease)‡	8	3	9
Enteric Infections			
Campylobacteriosis	19	17	75
Cryptosporidiosis	5	6	37
Cyclosporiasis	0	0	1
Escherichia coli, shiga-toxin producing (STEC)	4	0	7
Giardiasis	5	1	17
Listeriosis	0	0	1
Salmonellosis	20	26	154
Shigellosis	8	0	13
Typhoid Fever	0	0	0
Viral Hepatitis			
Hepatitis A	0	1	0
Hepatitis B, acute	3	2	11
Hepatitis B, chronic	20	18	88
Hepatitis C, acute	6	2	4
Hepatitis C, chronic	191	155	788
Hepatitis E	0	0	0
Hepatitis +HBsAg in pregnant women	1	0	3
Vector Borne, Zoonoses			
Brucellosis	0	0	1
Chikungunya	0	3	5
Dengue Fever	0	0	0
Ehrlichiosis/Anaplasmosis	0	0	3
Lyme disease	0	2	8
Malaria	0	0	0
Monkey bite	0	0	0
Q Fever, acute	0	0	0
Rabies, animal	1	0	3
Rabies (possible exposure)	37	12	146
Rocky Mountain spotted fever/Spotted Fever Rickettsiosis	1	1	6
West Nile virus, neuroinvasive	0	0	1
HIV/AIDS†			
HIV	34	41	123
AIDS	7	15	36
STDs†			
Chlamydia	606	397	2064
Gonorrhea	190	132	652
Syphilis			
Infectious (Primary and Secondary)	7	3	21
Early latent (Infection for <1 year)	18	3	21
Late latent (Tertiary)	5	4	17
Latent, unknown duration	0	0	5
Others			
Carbon monoxide poisoning	9	9	30
Ciguatera Fish Poisoning	0	0	0
Hansen's Disease (leprosy)	0	2	2
Hemolytic Uremic Syndrome	0	0	0
Influenza due to novel or pandemic strains	0	0	0
Influenza-associated pediatric mortality	0	0	0
Lead poisoning	3	0	16
Legionellosis	2	0	2
Pesticide related illness or injury	0	0	0
Tuberculosis	3	-	8
Vibriosis	0	0	1

*Includes reported confirmed/probable cases. Data is provisional and subject to changes.
† Numbers are for Area 12 (Volusia/Flagler)
‡ Only reportable for young children

Influenza Wrap-up

By: David Parfitt, MPH, CPH

According to the Centers for Disease Control and Prevention (CDC) influenza activity was moderate across the United States this past year. The 2015-2016 had a lower activity level and a peak later in the season compared to the last three years. This season showed a lower percentage of outpatient visits for influenza-like illness (ILI), lower hospitalization rates and a comparably lower percentage of deaths from pneumonia and influenza. Influenza A (H1N1) was most dominant overall although influenza A (H3N2) was frequently identified from October to December while influenza B was noticed toward the end of the season.

Here in the state of Florida we saw a similar pattern of activity as did the rest of the nation including a peak later in the season as compared to the last six years. In addition, the predominant strain for the season was influenza A(H1N1) with influenza B circulating later in the year. As well, here in Volusia County, we investigated relatively few outbreaks for influenza and ILI mostly in long term residential facilities.

According to the CDC the 2015-2016 influenza vaccine formulations were a good match for the strains of influenza seen over the last year. The 2016-2017 vaccine composition is currently in development and based on surveillance data related to characteristics of influenza isolates, serologic response to the current vaccine and the availability of strains and reagents. The CDC announced that the live attenuated influenza vaccine or the “nasal spray” vaccine should not be used during the 2016-2017 influenza season.

References: www.cdc.gov, www.fda.gov



Florida Department of Health in Volusia County
Office of Disease Control and Health Protection
1845 Holsonback Drive, Bin 111
Daytona Beach, Florida 32117