

EPI Log

PRIMARY AMEBIC MENINGOENCEPHALITIS (PAM)

Primary amebic meningoencephalitis (PAM) is a rare but lethal central nervous system infection caused by free-living amoebae, *Naegleria fowleri*, a microscopic amoeba commonly called a "brain-eating amoeba." This amoeba is found in the soil and freshwaters, such as ponds, lakes, rivers, streams, hot springs, and unchlorinated swimming pools. The initial symptoms of PAM are indistinguishable from bacterial meningitis and occur in healthy young individuals exposed to warm freshwater. This infection destroys brain tissue, causing severe brain swelling and death in most cases. The mortality rate is above 90%, despite antimicrobial therapy.

Risk factors for infection include: swimming, diving, waterskiing, surfing, and exposure to hot springs. PAM is more common in warmer regions, such as the southern part of the United States, and generally occurs in the warmer months of spring and summer, possibly due to the increased likelihood of participation in waterborne activities. *Naegleria fowleri* infects susceptible individuals when contaminated water enters the body through the nose.

Clinical presentation: Patients with *Naegleria fowleri* infection typically present with fever, severe headache, vomiting, nausea, altered mental status, photophobia, seizures, and behavioral abnormalities. A history of olfactory and taste abnormalities is frequently associated with PAM. Patients with PAM typically have a history of swimming, diving, bathing, or playing in warm, generally stagnant freshwater during the previous 1 through 9 days. On physical examination,

See PAM continued on page 4.

To report a disease or outbreak: Call (386) 274-0634 from 8 a.m. to 5 p.m., Monday through Friday. Fax: (386) 274-0641, After Hours: (386) 316-5030.
P.O. Box 9190, Bin #111, Daytona Beach, FL 32120-9190



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EPIDEMIOLOGY

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TICK-BORNE ILLNESSES

Here in Volusia County, there are many spring and summer outdoor activities our families and pets enjoy. Spring and summer are the most common seasons for tick-borne diseases to occur in northern states, **but tick-borne diseases can occur throughout the year in Florida due to the warmer weather.** Bacteria, viruses, or parasites can be transmitted to humans if they are bitten by infected ticks. Lyme disease, Babesiosis, Ehrlichiosis, Rocky Mountain Spotted Fever, Anaplasmosis, Southern Tick-Associated Rash Illness, Tick-Borne Relapsing Fever, and Tularemia are some of the most common reported tick-borne diseases in the United States. In 2023, Volusia County reported eighteen tick-borne illnesses to the state (four more cases

toms usually start within two weeks of being bitten by an infected tick. Although there are disease-specific symptoms such as the bull's eye rash that can be seen in some cases of Lyme disease (the most reported tick-borne disease in the United States), the most common symptoms for tick-borne disease are fever, headache, and muscle pain.

These symptoms may also be seen with many other types of illnesses. Therefore, if you become ill after recently being in or **walking in an area that is wooded with high grass, bushes, or leaf litter**, it is always important to let your healthcare provider know that you have been in tick habitat so that transmitted diseases can spread by ticks

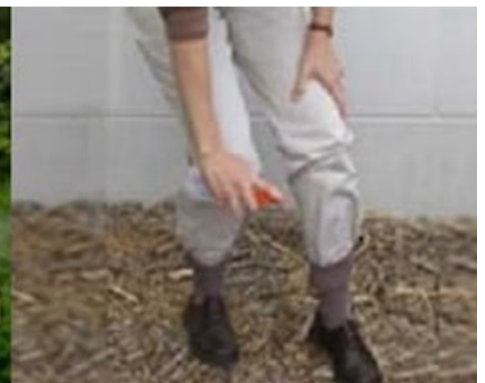
Symptoms of tick-borne illnesses include fever/chills, headaches, fatigue, muscle aches and joint pain.

compared to 2022).

Several species of ticks found in Florida transmit disease to humans. These include the American Dog tick (*Dermacentor variabilis*), Black-legged tick (*Ixodes scapularis*), Brown Dog tick (*Rhipicephalus sangeineus*), and the Lone star tick (*Amblyomma americanum*). Symp-

are considered. Outdoor workers in most regions of the United States should be extra careful to protect themselves in the spring, summer, and fall when ticks are most active. These diseases can be treated with appropriate antibiotics.

See TICKS continued on page 4.



| Volusia County Disease Activity of Frequent Occurrence* | 1st Quarter 2023 | 1st Quarter 2024 | YTD 2024 | Full Year 2023 |
|---|------------------|------------------|----------|-----------------|
| Vaccine Preventable | | | | |
| Mumps | 1 | 1 | 0 | 2 |
| Pertussis | 1 | 1 | 1 | 2 |
| Varicella | 7 | 3 | 3 | 39 |
| CNS Diseases and Bacteremia's | | | | |
| Creutzfeldt-Jakob disease (CJD) | 0 | 0 | 0 | 2 |
| Haemophilus influenzae (invasive)‡ | 3 | 4 | 0 | 22 |
| Meningitis (bacterial, cryptococcal, mycotic) | 1 | 1 | 1 | 1 |
| Meningococcal disease | 0 | 1 | 1 | 0 |
| Staphylococcus aureus (GISA/VISA) | 0 | 0 | 0 | 0 |
| Streptococcus pneumoniae (invasive disease)‡ | 12 | 11 | 0 | 3 |
| Enteric Infections | | | | |
| Campylobacteriosis | 29 | 31 | 33 | 145 |
| Cryptosporidiosis | 12 | 6 | 7 | 46 |
| Cyclosporiasis | 0 | 0 | 0 | 12 |
| Shiga-toxin producing E. coli, (STEC) infection | 6 | 5 | 7 | 34 |
| Giardiasis | 12 | 11 | 12 | 46 |
| Listeriosis | 0 | 0 | 0 | 1 |
| Salmonellosis | 20 | 28 | 29 | 237 |
| Shigellosis | 9 | 5 | 9 | 28 |
| Typhoid Fever (Salmonella Typhi infection) | 0 | 0 | 0 | 1 |
| Viral Hepatitis | | | | |
| Hepatitis A | 0 | 0 | 0 | 2 |
| Hepatitis B, acute | 7 | 9 | 5 | 24 |
| Hepatitis B, chronic | 29 | 23 | 19 | 126 |
| Hepatitis B, pregnant Women | 3 | 1 | 1 | 6 |
| Hepatitis C, acute | 14 | 4 | 5 | 35 |
| Hepatitis C, chronic | 155 | 121 | 123 | 569 |
| Vector Borne, Zoonoses | | | | |
| Babesiosis | 0 | 0 | 0 | 3 |
| Brucellosis | 0 | 1 | 0 | 1 |
| Dengue Fever | 0 | 1 | 2 | 5 |
| Ehrlichiosis/Anaplasmosis | 0 | 0 | 0 | 3 |
| Lyme disease | 1 | 2 | 6 | 12 |
| Malaria | 0 | 0 | 0 | 2 |
| Q Fever, acute | 0 | 0 | 0 | 0 |
| Rabies, animal | 1 | 0 | 0 | 2 |
| Rabies (possible exposure) | 43 | 69 | 67 | 322 |
| Rocky Mountain spotted fever/Spotted Fever | 0 | 0 | 0 | 0 |
| Rickettsiosis | 0 | 0 | 0 | 0 |
| West Nile virus, neuroinvasive | 0 | 0 | 0 | 0 |
| Others | | | | |
| Arsenic Poisoning/Mercury Poisoning | 1 | 0 | 0 | 1 |
| Pesticide-related illness and injury acute | 1 | 0 | 0 | 3 |
| Carbon monoxide poisoning | 3 | 2 | 0 | 10 |
| Ciguatera Fish Poisoning | 0 | 0 | 0 | 0 |
| Hansen's Disease (leprosy) | 1 | 1 | 1 | 5 |
| Coronavirus disease 2019 (COVID-2019) | 3313 | 2895 | 2907 | 12739 |
| Influenza due to novel or pandemic strains | 0 | 0 | 0 | 0 |
| Influenza-associated pediatric mortality | 1 | 0 | 0 | 1 |
| Lead poisoning | 22 | 15 | 15 | 74 |
| Legionellosis | 4 | 3 | 3 | 22 |
| Scombroid Poisoning | 0 | 0 | 0 | 0 |
| Tetanus | 0 | 0 | 0 | 1 |
| Vibriosis (Excluding Cholera) | 3 | 0 | 0 | 11 ³ |
| Monkeypox | 0 | 0 | 0 | 3 |

“PAM” CONTINUED FROM PAGE 1.

meningismus and cranial nerve palsies can be seen. The disease progresses rapidly with increased intracranial pressure leading to uncal herniation and death.

The Florida Department of Health would like to remind physicians to consider the diagnosis of PAM in any patient presenting with symptoms of meningitis and a history of exposure to fresh water. Physicians who suspect they have a patient with PAM should contact the Centers for Disease Control and Prevention (CDC) as soon as possible at 770-488-7100. The CDC will provide guidance regarding specimen collection, shipping instructions, and treatment recommendations. Nationally, there have been 157 reported cases of PAM from 1962–2022 with four known survivors.

PAM is a reportable disease under section 381.0031, Florida Statutes, and Chapter 64D-3.029, Florida Administrative Code.

For information go to: <https://www.cdc.gov/meningitis/about/amebic-meningitis.html>

“TICKS” CONTINUED FROM PAGE 2.

Ways to Prevent Tick Bites

- Use a repellent that contains 20-30% DEET
- Apply Permethrin to clothing and gear (kills ticks on contact). It can be used on clothing but not skin.
- Walk in the center of paths and trails
- Perform regular tick checks on yourself, your family, and your pets. Remember to check your hair, underarms, and groin for ticks.
- Shower soon after being in tick habitat.
- Wash and dry work clothes in a hot dryer to kill any ticks present.
- Use veterinarian-recommended products to keep ticks off pets
- Keep grass, shrubs, and trees close to your residence trimmed
- Wear light-colored long-sleeved shirts, long pants, socks, and hat when possible.

What to do if you find a tick on your skin:

- Immediately remove ticks from your body (within 24 hours reduces your risk of being infected).
- Grasp the tick firmly and as close to your skin as possible.
- Pull the tick’s body away from your skin with a steady motion.
- Clean the area with soap and water.
- Contact your medical provider as soon as possible.

For providers, it is important to document when reporting a tick-borne illness the size of the EM in cm as part of reporting documentation, as well as any serology or lab results to the health department.

For more information see <http://www.floridahealth.gov/diseases-and-conditions/tick-and-insect-borne-diseases/index.html> or <https://www.cdc.gov/ticks/about/index.html>

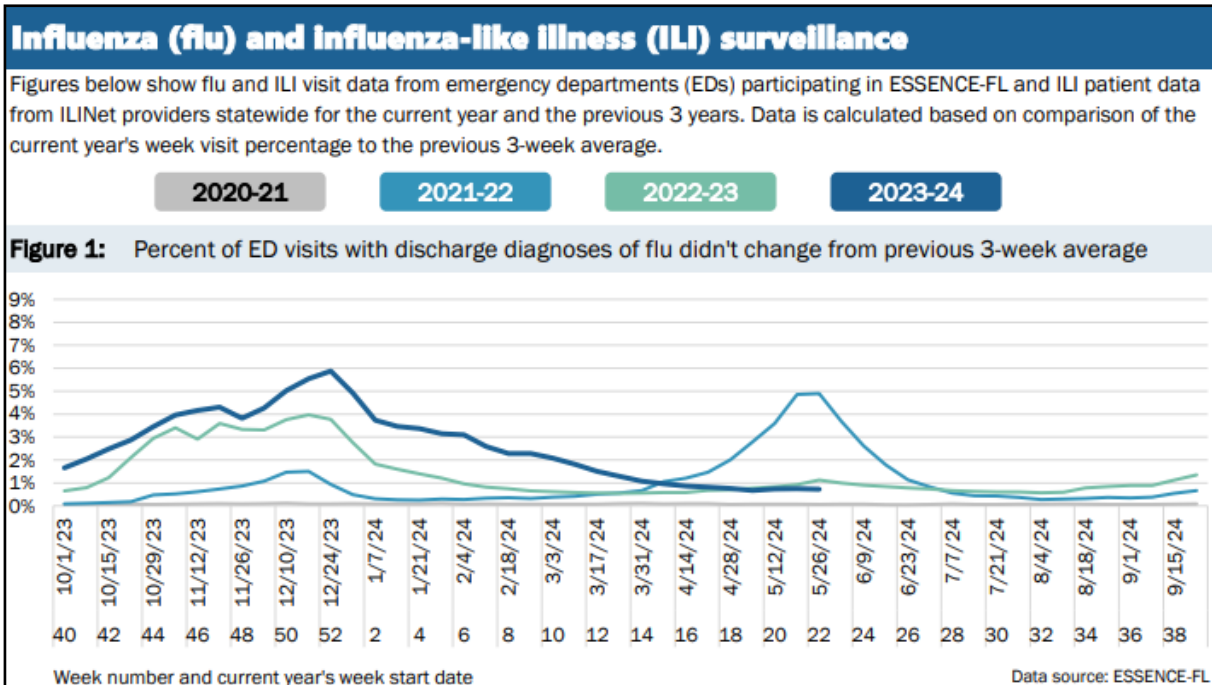
REFERENCES

Centers for Disease Control and Prevention, [cdc.gov/flu](https://www.cdc.gov/flu)

Florida Flu Review, Week 23
https://www.floridahealth.gov/diseases-and-conditions/respiratory-illness/influenza/_documents/2024-w22-flu-review.pdf

INFLUENZA SEASON 2023-2024 FROM FLORIDA FLU REVIEW WEEK 23

Influenza (flu) is a respiratory infection caused by a variety of flu viruses spread by droplets made when infected people cough, sneeze, or talk. Less often, a person might become infected with flu by touching a surface contaminated with flu virus and then touching their own mouth, eyes, or nose. **Influenza-like-illness (ILI)** is the presence of fever and cough or fever and sore throat without a laboratory-confirmed etiology.



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The flu reporting year uses standard reporting weeks outlined by the Centers for Disease Control and Prevention (CDC), where every year has 52 or 53 reporting weeks. In Florida, the 2023–24 flu year began October 2, 2023 (week 40) and is ending this year May 18, 2024 (week 20). Although flu season is over, surveillance continues year-round. Seasons vary in timing, severity, and duration. The current predominant strain circulating in our region is Influenza A H3.

Annual vaccination is the best way to protect yourself and others from potentially severe complications from flu. Flu shots take up to two weeks to become fully effective, so it's important to get vaccinated as soon as possible to reduce your chances of getting the flu this season. To locate a vaccine near you, visit: [VaccineFinder.org](https://www.vaccinefinder.org) or contact the Volusia County Health Department vaccine line at (386) 274-0509.

CDC recommends antiviral treatment be initiated as soon as possible for people with confirmed or suspected flu who are at higher risk for complications (children <2 years, adults ≥65 years, pregnant people, and people with underlying medical conditions). Treatment should be administered within 48 hours of illness onset. For more information, contact your health care provider.

Individual cases are not reportable in Florida with the exception of novel flu A (a new subtype of flu A) and flu-pediatric deaths. All outbreaks are reportable in FL. For more information on flu visit [Influenza \(Flu\) | CDC](https://www.cdc.gov/flu)