

What is *Naegleria fowleri*?

Amoebae that live in warm water, soil, and vegetation around the world. *N. fowleri* may infect humans when water is forced into the nose by diving or jumping into, or swimming underwater in warm, fresh water, stagnant ponds or lakes, or inadequately maintained public heated swimming pools. Springs are considered safe because their water temperature consistently remains below 80 degrees, and the organisms need hotter water to thrive. Once the amoebae enter into the nose, they travel to the brain, causing a disease called Primary Amoebic Meningitis (PAM). It is a very rare, but serious, disease with a 95% mortality rate, and has been linked to more than 180 deaths worldwide since it was identified in 1965. It cannot be spread from person to person.

How Common is *N. Fowleri*?

Over 46% of lakes surveyed in Florida have the pathogenic amoebae, and it is believed that an all-inclusive study would reveal that most state lakes harbor the organism. Though *N. fowleri* is very common, it rarely causes illness. From 1962-2000, 18 cases had been documented in Florida, most originating from the central region of the state. Other sporadic cases may have occurred, but such records have not been compiled by the Florida Department of Health.

How Does *N. fowleri* affect the Body?

After *N. fowleri* reaches the brain, it rests for 3-7 days, causing no symptoms. After this resting period, PAM may damage the body in the following ways:

- swelling and fluid buildup in the brain
- severe headaches and nausea result from increased pressure
- sore throat and neck stiffness
- confusion often develops and the infected patient may have seizures and lapse into a coma
- rapid death of the patient once symptoms become apparent

What Are the Signs and Symptoms of *N. fowleri* and PAM?

- stiffness, cramping, and pain of muscles in back and neck
- weakness, severe headaches, and seizures
- light sensitive eyes, double vision, and droopy eyelids
- nosebleeds
- rapid, shallow breathing
- swollen, painful lymph nodes
- decreased appetite, nausea, and vomiting
- loss of smell, problems tasting food
- confusion, hallucinations, difficulty with concentration

How Can Infection be Avoided?

- be aware of symptoms after extended swimming in warm, freshwater lakes
- be aware of past outbreaks where the infection has been acquired in the past and use the information accordingly
- if you own a swimming pool, maintain residual chlorine level of 1-2 parts per million
- insist that any public swimming pool visited be properly chlorinated
- simply blow nose forcefully after swimming. This should remove any *N. fowleri* that could have been inhaled

What are the treatment options?

Treatment is usually with antibiotic and antifungal medications that are used together. These drugs are called Amphotericin B, rifampicin, and miconazole.