



Primary Amebic Meningoencephalitis Fact Sheet

What is Primary Amebic Meningoencephalitis (PAM)?

PAM is a very rare disease resulting in inflammation of the lining of the brain and spinal cord caused by a single celled organism called an amebae. *Naegleria fowleri* as well as other amebae may cause this disease.

What are the symptoms of PAM?

Symptoms start 1-9 days after swimming or other nasal exposure to *Naegleria*-containing water. People die 1-18 days after symptoms begin. Symptoms can include fever, headache, nausea and vomiting. Stiff neck and coma can occur as the condition worsens.

How do you get PAM?

Naegleria fowleri is distributed widely around the world. It is present in soil and in virtually all natural surface waters such as lakes, ponds and rivers. Warm water temperatures caused by the hot summer months allow the amebae to multiply because their food source (bacteria) increases during hot weather. Thus, the risk may be greater in very warm and particularly shallow waters. People do not become infected from drinking contaminated water or from an infected person.

PAM infection can only occur when several conditions occur at the same time:

- The amebae must be able to multiply to large numbers.

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- Water containing the amoebae must get up your nose.
- Once in the nose, the amoebae move up the nasal passages to the brain, where it multiplies and causes the symptoms associated with infection. PAM cannot be transmitted from person to person.

Who is at risk for contracting PAM?

Since the disease was recognized 25 years ago, fewer than 100 cases have been recorded in the United States. The Centers for Disease Control and Prevention (CDC) states that 1 to 3 infections occur in the nation each year. In all cases, victims are described as primarily young, healthy individuals who have actively participated in a recreational water activity.

What is the treatment for PAM?

Treatment with an antibiotic or other drugs must be started immediately in order to be effective. Very few of those persons infected are treated successfully. Death occurs from 3 to 10 days following infection with the amoebae.

How can PAM infection be prevented?

Remember a few common sense precautions:

- Never swim in stagnant or polluted water or improperly maintained pools.
- Avoid under water swimming and hold your nose or use nose plugs when jumping or diving into natural waters.

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REMEMBER: PAM is extremely rare. Every year many more deaths and injuries result from diving into shallow waters or natural waters that hide rocks and debris, from using alcohol and or drugs while boating or swimming, and from leaving children unattended in water even for short periods of time. Remember to always use a personal flotation device.

*For further information, contact the
Oklahoma City County Health Department
(405) 425-4437*

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