

## What is Primary Amebic Meningoencephalitis (PAM)?

PAM is a very rare, usually fatal disease. Inflammation of the lining of the brain and spinal cord is 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 of PAM begin abruptly and can include high fever, headache, nausea, vomiting, lack of appetite, stiff neck, seizures, and coma as the condition worsens.

## How is PAM contracted?

The *Naegleria amebae* 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. Studies show that the likelihood of exposure is high, but the risk of infection is very low.

PAM infection occurs when water containing the amebae forcefully enters the nose and sinuses. Once in the nasal passages, the amebae moves to the brain, where it multiplies causing the symptoms associated with infection. PAM cannot be transmitted from person-to-person.

## Who is at risk for contracting PAM?

Fewer than 110 cases have been recorded worldwide due to the *Naegleria amebae*. From 1989-2002, there have been at least 30 cases of PAM reported in the United States. In most cases, victims are described as primarily young, healthy individuals who have actively participated in a recreational water activity three to seven days prior to onset of symptoms.

## What is the treatment for PAM?

Treatment has not been consistently effective. However, in those rare instances where treatment has been successful, it was started very early in the course of illness. Death generally occurs from three to seven days following infection with the organism.

## How can PAM infection be prevented?

PAM may be prevented by keeping water from entering the nose or mouth when swimming, jumping or diving into bodies of fresh warm water. This may be done by holding the nose shut or wearing a nose plug. Chlorine rapidly kills the ameba, so people who swim in a well maintained swimming pool are not at risk of developing PAM.

**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.

