

UNIVERSITY STUDENT HEALTH SERVICES • Fact Sheet

MENINGITIS**WHAT IS IT?**

Meningitis refers to inflammation and swelling of the membranes (meninges) surrounding the brain and spinal cord. Most cases are due to infections, and consequences can be serious. **If meningitis is suspected, early evaluation and treatment is critical.** However, most people recover fully from meningitis without long-term complications.

WHAT CAUSES IT?

Meningitis can be divided into infectious and noninfectious types:

- **Infectious** causes of meningitis include viruses, bacteria, fungi, and parasites. Viral and bacterial causes are more common. It is important to recognize the signs and symptoms of **bacterial meningitis early as it is a life-threatening condition that requires immediate treatment.** Fortunately, most cases of meningitis are viral, which tends to be less severe and have fewer complications.
- **Noninfectious** causes of meningitis include cancers, head injuries, medications, and conditions like systemic lupus erythematosus (lupus).

❖ Bacterial Meningitis

- The major causes of community-acquired bacterial meningitis in adults living in developed countries are *Streptococcus pneumoniae* and *Neisseria meningitidis* (meningococcus).
- There are about 1.2 million cases of bacterial meningitis worldwide annually.

❖ Viral Meningitis

- Enteroviruses are the most common cause of meningitis. They are responsible for 85-95% of all meningitis cases. Infections by enteroviruses most frequently occur in the summer and fall.
- Less common causes of viral meningitis include the herpes simplex virus (HSV), varicella (chickenpox), measles, mumps, influenza, HIV, and arboviruses.
- Arboviruses can be transmitted by mosquitoes, ticks, and fleas. Examples include the West Nile virus and viruses that cause Yellow Fever and Dengue Fever.

HOW IS IT TRANSMITTED?**❖ Bacterial Meningitis**

- Transmission can occur via infected respiratory droplets from the nose and throat. These droplets become airborne when an infected person coughs, sneezes, laughs, or talks. Infected droplets can also be spread by kissing or sharing food, eating utensils, tissues, and towels.
- Bacterial meningitis cannot be spread by casual contact or by simply breathing the air where a person with meningitis has been.
- Fortunately, the chance of getting bacterial meningitis after a possible exposure is low. Most of the bacteria that cause meningitis are not as contagious as viruses that cause the common cold or flu.

❖ Viral Meningitis

- Enteroviruses are most commonly spread through fecal contamination. This can occur from poor hand-washing after using the toilet or changing a soiled diaper.
- Enteroviruses and other less common viruses can also be spread through infected respiratory secretions.
- Exposure to viral meningitis is more likely to lead to other types of infection caused by that virus (eg. cold symptoms) than to the development of meningitis.

WHAT ARE THE SYMPTOMS?

Symptoms of meningitis may develop over several hours or more slowly over a few days. Classic symptoms include:

- High fever (101°F or higher)
- Neck stiffness
- Severe headache
- Photophobia (sensitivity to light)
- Nausea/vomiting
- Confusion
- Extreme sleepiness

The severity of symptoms will also vary depending on the cause:

- Bacterial meningitis can be fatal within a few days if left untreated. Early treatment is also important in preventing complications, such as permanent brain damage, seizures, hearing loss, and learning disabilities.
- Viral meningitis is also a serious illness but rarely fatal in people with normal immune systems.

❖ **Bacterial Meningitis due to *Neisseria meningitidis***

- Symptoms can progress very rapidly, within a few hours of infection.
- A history of a mild sore throat or flu-like illness may precede initial symptoms.
- 70% of patients present with fever, neck stiffness, and altered mental status.
- A characteristic red, blotchy rash will develop on the trunk and legs if the infection enters the bloodstream. The rash can progress rapidly to large areas of deep purple bruising and blackened skin.
- Coma can occur 24 hours after infection.

❖ **Viral Meningitis**

- Early symptoms may be similar to that of bacterial meningitis. Therefore, it is important to seek medical care as soon as possible.
- Symptoms usually last 7-10 days and resolve without specific treatment.
- Patients with normal immune systems usually recover completely without complications.

HOW IS IT DIAGNOSED?

SEEK IMMEDIATE MEDICAL ATTENTION IF YOU SUSPECT MENINGITIS!

Early diagnosis and treatment are critical. A lumbar puncture (or spinal tap) is usually performed in the emergency room to confirm the diagnosis. This procedure involves inserting a needle into the lower back to remove a small amount of spinal fluid for testing.

WHAT IS THE TREATMENT?

- ❖ **Bacterial meningitis**, with its 10-15% fatality rate, requires emergency hospitalization and treatment with intravenous (IV) antibiotics. It is important to receive treatment early to prevent complications.
- ❖ **Viral meningitis** usually responds to supportive care with rest, hydration, and medications to treat fevers and headaches. Hospitalization is required in severe cases and in people with weakened immune systems. Antiviral medications can improve recovery in cases caused by the herpes virus or varicella virus.

HOW CAN IT BE PREVENTED?

A variety of common sense measures are effective ways to prevent infection:

- Good respiratory hygiene is important! Wash your hands well, cough or sneeze into a tissue or your elbow, and avoid individuals who are sick.
- Get vaccinated! Vaccines are effective in preventing infections by viruses and bacteria that can lead to meningitis. Most college students have already received childhood vaccines to prevent chickenpox, measles, and mumps. It is also important to get a flu shot annually, which is free at Student Health. Meningococcal vaccines are also available to protect against bacterial meningitis caused by certain strains of *Neisseria meningitidis*.
- Use insect repellents (28%-35% DEET or non-DEET) in high-risk areas to protect against arboviruses.

WHAT IF I AM EXPOSED TO BACTERIAL MENINGITIS?

Casual contact with an infected individual is not usually high risk for infection. This is because the *Neisseria meningitidis* bacterium is not easily transmitted. Up to 10% of the U.S. population harbors the *Neisseria meningitidis* bacteria in their nose or throat. During outbreaks of bacterial meningitis, up to 95% of the population can carry the bacteria, but only 1% will become ill.

However, because of the severity of the illness, close contacts and people in the same household of a person with meningococcal meningitis are advised to take antibiotics for preventive purposes.

- Prophylaxis reduces the chance of infection even in people who have received the meningitis vaccine.
- Students enrolled in the Health Sciences programs who have contact with a hospitalized patient with meningococcal meningitis may also be offered an antibiotic to prevent infection.

RECOMMENDED WEBSITES: www.cdc.gov, www.mayoclinic.org, www.nmaus.org