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Tests and diagnosis

By Mayo Clinic Staff

Your family doctor or pediatrician can diagnose meningitis based on a medical history, a physical exam and certain diagnostic tests. During the exam, your doctor may check for signs of infection around the head, ears, throat and the skin along the spine. You or your child may undergo the following diagnostic tests:

- **Blood cultures.** Blood drawn from a vein is sent to a laboratory and placed in a special dish to see if it grows microorganisms, particularly bacteria. A sample may also be placed on a slide to which stains are added (Gram's stain), then examined under a

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microscope for bacteria.

- **Imaging.** X-rays and computerized tomography (CT) scans of the head, chest or sinuses may reveal swelling or inflammation. These tests can also help your doctor look for infection in other areas of the body that may be associated with meningitis.
- **Spinal tap (lumbar puncture).** The definitive diagnosis of meningitis requires an analysis of your cerebrospinal fluid (CSF), which is collected during a procedure known as a spinal tap. In people with meningitis, the CSF fluid often shows a low sugar (glucose) level along with an increased white blood cell count and increased protein.

CSF analysis may also help your doctor identify the exact bacterium that's causing the illness. If your doctor suspects viral meningitis, he or she may order a DNA-based test known as a polymerase chain reaction (PCR) amplification or a test to check for antibodies against certain viruses to check for the specific causes of meningitis. This helps to determine proper treatment and prognosis.

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