

What doctors want patients to know about bacterial meningitis



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Bacterial meningitis is a serious and potentially life-threatening infection that kills more than 300,000 people a year worldwide. The condition affects the protective membranes surrounding the brain and spinal cord and can develop quickly, requiring prompt medical attention. While [bacterial meningitis](#) is rare, understanding its symptoms, causes and prevention could be a lifesaver.

Since 2021, cases of meningococcal meningitis have risen sharply, exceeding levels prior to the COVID-19 public health emergency. In 2023, there were 438 confirmed and probable cases reported, which is the largest number of U.S. meningococcal disease cases reported since 2013. The recent increase is due to *Neisseria meningitidis* serogroup Y and it has disproportionately affected people between 30 and 60 years old, Black people and adults with HIV, [according to the Centers for Disease Control and Prevention](#) (CDC).

The AMA's What Doctors Want Patients to Know™ series gives physicians a platform to share what they want patients to understand about today's health care headlines.

Jeffrey Silvers, MD, an infectious diseases physician and medical director of infection control at Sutter Health, took time to discuss what to know about bacterial meningitis.

[Sutter Health](#) is a member of the [AMA Health System Program](#), which provides enterprise solutions to equip leadership, physicians and care teams with resources to help drive the future of medicine.

It is a serious bacterial infection



Jeffrey Silvers, MD

“Bacterial meningitis is an infection of both the fluid—also called cerebrospinal fluid, or CSF—that bathes the brain and spinal cord and the membrane that holds the fluid in place,” Dr. Silvers explained. “The irritation from that infection causes fevers, irritability, problems sleeping or concentrating, light sensitivity, a stiff neck and headaches.

“In severe cases, the person can have seizures, become unresponsive or even die,” he added. “In some cases, the infection can progress extremely quickly, and the person can die within a few hours.”

Prevalence has changed

“There are several different bacteria that can cause bacterial meningitis. Some, such as *Listeria*, are found in young infants or persons with problems with their immune system,” Dr. Silvers said, noting that the Food and Drug Administration “is more frequently reporting foods that are contaminated with *Listeria* to minimize consumption.”

“Before availability of the *Hemophilus* vaccine, *Hemophilus influenzae*—unrelated to the influenza virus—was the leading cause of bacterial meningitis and invasive disease in children younger than 5 years old with about 20,000 cases per year in the United States,” he said. “Seizures and permanent hearing loss were common in survivors. In the 10 years from 2009–2018, only 36 patients younger than 5 years old were reported. Almost 75% were unvaccinated or undervaccinated.”

Meanwhile, “meningococcal meningitis makes the most news, and it is a vaccine-preventable infection, but *Streptococcal pneumoniae*—Pneumococcal—and *Hemophilus influenzae* meningitis can be equally severe and are also preventable by vaccinations,” Dr. Silvers emphasized.

Viral is more common than bacterial

About 8% of meningitis cases are caused by bacterial infections. This means that “viral meningitis is much more common than bacterial or fungal meningitis,” Dr. Silvers said. “In the majority of persons, the viral infection improves significantly over a few days to a few weeks.

“Fungal meningitis progresses slowly, can be life-threatening, but is not contagious from person to person,” he added.

Bacterial meningitis is an emergency

“Bacterial meningitis signs and symptoms can be deceiving,” said Dr. Silvers. But it is important to note that “it is a medical emergency.”

“A child can progress from not hungry, tired, with fever and headache to dying within a few hours,” he warned. “If the child cannot touch their chin to their chest without pain in combination with a fever or headache, obtain emergent medical care.”

Once symptoms appear, “the time course varies and actually can take a few days sometimes,” Dr. Silvers said. “The biggest concern are the cases that progress extremely quickly. The person can go from awake and answering questions to unresponsive in just a few hours.”

Any concern is worth a doctor visit

“As soon as you are concerned about meningitis, you should go for immediate medical care,” Dr. Silvers said, noting that a physician “can determine whether the patient has

meningitis.” He noted that “fevers, headaches and inability to touch the chin to the chest suggest meningitis.”

But the key is “you want to seek care before the person becomes unresponsive,” he said. This is important because “most people with bacterial meningitis who are treated recover.”

“A lot of families have feelings of guilt for not bringing their loved one in for medical care sooner,” Dr. Silvers noted, while adding that it often is very hard for families “to recognize the rapid deterioration that bacterial meningitis can cause.”

It is spread through respiratory droplets

“The organisms that cause bacterial meningitis are usually carried in the human nose or throat and can be spread through respiratory droplets,” said Dr. Silvers. This includes sneezing, coughing and kissing.

Additionally, “close and prolonged contact increases the risk of spread,” he said.

How bacterial meningitis spreads also depends on the type of bacteria. For example, *Listeria monocytogenes* can spread through food. Meanwhile, group B *Streptococcus* can pass to babies during birth while *H. influenzae* and *S. pneumoniae* spread by coughing or sneezing and require close contact.

Microbacterium tuberculosis is spread when there is simultaneous pulmonary infection, by coughing or sneezing, and doesn’t require close contact. *Neisseria meningitidis* spreads by sharing respiratory or throat secretions—saliva or spit—and requires close or lengthy contact, according to the CDC.

Some people are at higher risk

“Different bacteria are more likely to affect certain age groups,” Dr. Silvers said. For example, “meningococcal meningitis is most common in young children through young adults.

“Cases frequently make news when discovered in college dorms or high schools,” he added, noting that “large numbers of people need prophylaxis with antibiotics to prevent spread.”

“*Listeria* meningitis is most commonly found in the extremes of age—newborns and older adults—or in people with abnormal immune systems or in people who are pregnant,” Dr. Silvers said.

A spinal tap is needed for diagnosis

When it comes to the diagnosis of bacterial meningitis, it “requires a ‘spinal tap’—also called a lumbar puncture—to look at the spinal fluid,” Dr. Silvers said. “A CT or MRI scan of the brain may be performed before the spinal tap.”

If your physician suspects meningitis, samples of blood may also be collected. From there, laboratories will perform specific tests, depending on the type of infection suspected, [according to the CDC](#). What is important is knowing the specific cause because treatment does differ.

Get vaccinated against meningitis

“Vaccinations play a critical role in preventing bacterial meningitis,” said Dr. Silvers. For example, the availability of “vaccines have changed *Hemophilus* meningitis from a common, horrible diagnosis to a rare entity in the United States.”

“Pneumococcal meningitis is also very uncommon in people who have received all of the recommended immunizations against that organism,” he said. Also, “meningococcal vaccines are extremely helpful in lowering the risk of developing meningococcal meningitis.

“Meningococcal vaccinations are the preferred control method when a special population is identified as being at risk of disease,” Dr. Silvers added. “Examples of this include adolescents, college students and persons experiencing homelessness.”

Last fall, the CDC “reported an [outbreak](#) in an unvaccinated population. Thirty-six people developed infection, 35 of whom were unvaccinated. Almost 20% died,” he said. “Vaccinations to prevent bacterial meningitis have been around for many years and have proven to be safe and extremely effective. Boosters are sometimes required to maintain protection.”

“Three very important causes of bacterial meningitis are preventable by vaccinations,” Dr. Silvers said. “The recommendations for which vaccine to receive and the age for receipt vary,” which is why it is important to talk about it with your primary care physician. The [CDC immunizations website](#) also carries relevant information.

Antibiotics are used for treatment

“The standard treatment for bacterial meningitis is intravenous antibiotics. Many people are cured with treatment,” Dr. Silvers said. “The survival and complication rates depend on how sick the person was before initiation of the correct choice of antibiotic and the right dosage.”

Additionally, “antibiotics are sometimes prescribed to protect people who were around someone with bacterial meningitis,” he said, noting that “doctors and health departments can help make that decision.”

“The first 24 hours after treatment is started frequently can be important to help determine prognosis,” Dr. Silvers said. “Patients who improve substantially in the first 24 hours usually have a very good prognosis.”

But while treatment can be very effective, Dr. Silvers reinforced that “vaccination as a form of protection against these infections cannot be overemphasized.”

“There can be substantial long-term complications from delayed treatment of bacterial meningitis,” said Dr. Silvers. “These include seizures, hearing loss, paralysis, problems with concentration and inability to perform usual activities of daily living including eating, brushing teeth or walking unassisted.”

Don't delay medical care

"Bacterial meningitis is not common. Unfortunately, it can have serious consequences if medical care is delayed," Dr. Silvers said. "People should not be left home alone with instructions to call their doctor if they get worse."

"Remember that, as a person worsens with this infection, their ability to express themselves and say that they are getting worse may be limited," he added. "Vaccinations are available that can dramatically decrease the risk of bacterial meningitis."

Dr. Silvers recommended patients talk with their doctors to ensure that they and their loved ones "are up to date on these critical immunizations."