

Streptococcus pneumoniae

Streptococcus pneumoniae is a bacterium that commonly causes ear infections, sinus infections and pink eye. It is also the most common cause of community-acquired pneumonia for all age groups and bacterial meningitis in children ages two months to 11 years. When *Streptococcus pneumoniae* infects a normally sterile part of the body, this is called invasive *Streptococcus pneumoniae* disease or ISD.

Transmission

Streptococcus pneumoniae can be present on a body without causing infection. It is a common agent of secondary infections, which are bacterial infections that occur when a person is first sick with a different pathogen, such as influenza or COVID-19, and bacteria infect their vulnerable airway or bloodstream. The bacteria can be spread

- **Person to Person** asymptotically. It can also be spread more readily during some infection types, such as through respiratory droplets in people with pneumonia, or from eye discharge in people with pink eye.

Ear infections caused by *Streptococcus pneumoniae* bacteria are generally not considered transmissible. Most people who are exposed to *Streptococcus pneumoniae* bacteria will not develop infection.

Risk factors for *Streptococcus pneumoniae* infection include:

- **Age:** children younger than five and adults older than 65 are at increased risk for *Streptococcus pneumoniae* infections
- **Immune status:** people who are immunocompromised or have other infections are at increased risk for *Streptococcus pneumoniae* infections

Symptoms

Symptoms depend on the type of infection. Most types of *Streptococcus pneumoniae* will include a high **fever**, **pain**, and **fatigue** and may present with:

- **Ear infection:** ear pain, balance problems, trouble sleeping
- **Pneumonia:** productive cough (with mucus), headache, trouble breathing
- **Pinkeye:** thick discharge which causes the lids to stick together, especially after sleeping
- **Sinus infection:** nasal congestion, headache, thick nasal mucus, face and tooth pain, loss of smell, sore throat, post-nasal drip
- **Meningitis:** severe headache, nausea, stiff neck
- **Bloodstream infection:** rapid heart rate, shaking, low blood pressure, abdominal pain

Diagnosis

Diagnosis depends on the type of infection. A health care provider may collect a sample from the site of infection, such as the ear, eye, or bloodstream, and send this for laboratory testing. Less severe infections of the ear, eye, and sinuses are often treated as bacterial infections without diagnosing the specific pathogen.

Treatment

Antibiotics are used to treat *Streptococcus pneumoniae* infections. Depending on the type and severity of illness, other medications and supportive care may be used.

Prevention

- ***Streptococcus pneumoniae* is preventable by vaccination.** Vaccination is routinely recommended for young children, older adults, and people with certain medical conditions. Documentation of vaccination against *Streptococcus pneumoniae* is required for child care attendance in North Dakota.
- **To prevent *Streptococcus pneumoniae* as a secondary infection,** stay up to date on vaccinations against other respiratory pathogens, like influenza and COVID-19.

Cost should not be a barrier to vaccination. The Vaccines for Children (VFC) Program provides all recommended vaccines to children who are American Indian, uninsured or underinsured, and Medicaid-eligible. Many recommended vaccines are also available for uninsured adults. Vaccines are available at your local health care provider, public health department or pharmacy.

Exclusion Guidance

Exclusion from work, school, and child care should be appropriate for the type of infection.

- Children should be excluded until they are feeling well enough to attend and have been on antibiotics for 24 hours.

Invasive cases of *Streptococcus pneumoniae* are a mandatory reportable condition in North Dakota.

For additional information about *Streptococcus pneumoniae*, please contact the North Dakota Department of Health and Human Services', Disease Control and Forensic Pathology Section, at 701.328.2378.

Resources:

1. Centers for Disease Control and Prevention. (2022, January 27). *CDC Streptococcus pneumoniae*. Centers for Disease Control and Prevention. Retrieved June 29, 2023, from <https://www.cdc.gov/pneumococcal/clinicians/streptococcus-pneumoniae.html>.
2. Kimberlin, D. W., Barnett, E. D., Lynfield, R., Sawyer, M. H. (2021) Red Book: 2021-2024 Report of the Committee on Infectious Diseases. 32nd ed. American Academy of Pediatrics. [Management and Prevention of Infectious Diseases; Chickenpox] [pages 717-727].