

PNEUMOCOCCAL DISEASE



ABOUT THIS DISEASE

Pneumococcal disease is caused by the bacterium *Streptococcus pneumoniae*, also called pneumococcus. There are more than 90 serotypes (strains or types) of pneumococcal bacteria, but only a few produce the majority of pneumococcal infections.

Pneumococcal disease ranges from mild to very dangerous. Pneumococcal disease can spread from the nose and throat to ears or sinuses, causing generally mild infections, or spread to other parts of the body, leading to severe health problems such as lung infections (pneumonia), blood infections, and infection of the covering around the brain and spinal cord (meningitis). These serious illnesses can lead to disabilities like deafness, brain damage, or loss of arms or legs, and can also be life threatening.

Each year in the United States, pneumococcal disease kills thousands, including 18,000 adults aged 65 years and older. Thousands more are hospitalized because of pneumococcal disease. About 2,000 children under 5 years of age develop serious pneumococcal disease each year in the U.S. About 1 out of 15 children younger than 5 years who get pneumococcal meningitis dies.

Persons at increased risk for serious pneumococcal disease include:

- Adults 65 years or older
- Adults aged 19 through 64 years:
 - With [chronic conditions](#)
 - With weakened immune systems (HIV/AIDS, cancer, or damaged/absent spleen)
 - With cochlear implants or cerebrospinal fluid (CSF) leaks (escape of the fluid that surrounds the brain and spinal cord)
 - Who smoke cigarettes
- Children:
 - Younger than 2 years old
 - In group child care
 - Who have [certain illnesses](#)
 - With cochlear implants or CSF leaks
 - Of certain racial or ethnic groups (Alaska Natives, African American, and certain American Indian groups)

SIGNS AND SYMPTOMS

Streptococcus pneumoniae disease causes different symptoms depending on the part of the body that is infected.

Pneumococcal pneumonia (lung infection) is the most common serious form of pneumococcal disease.

Symptoms include:

- Fever and chills
- Cough
- Rapid breathing or difficulty breathing
- Chest pain

Pneumococcal meningitis is an infection of the tissue covering the brain and spinal cord. Symptoms include:

- Stiff neck
- Fever
- Headache
- Photophobia (eyes being more sensitive to light)
- Confusion

Pneumococcal bacteremia (blood infection) symptoms include:

- Fever
- Chills
- Low alertness

Pneumococcal sepsis is a complication caused by the body's overwhelming and life-threatening response to an infection, which can lead to tissue damage, organ failure, and death. Symptoms include:

- Confusion or disorientation
- Shortness of breath
- High heart rate
- Fever, shivering, or feeling very cold
- Extreme pain or discomfort
- Clammy or sweaty skin

Pneumococcus bacteria cause up to half of **middle ear infections** (otitis media). Symptoms include:

- Ear pain
- A red, swollen ear drum
- Fever
- Sleepiness

TRANSMISSION

Pneumococcal disease spreads when an infected person coughs or sneezes. Many people, especially children, have the bacteria in their nose or throat without being ill. These "carriers" can still spread pneumococcal disease.

DIAGNOSIS

Pneumococcal disease is diagnosed by laboratory tests. Samples from body fluids, such as blood or cerebrospinal fluid, are collected and sent to a laboratory for identification of *Streptococcus pneumoniae*.

TREATMENT

Streptococcus pneumoniae infections are treated with antibiotics.

IMMUNITY

Because there are more than 90 known pneumococcal serotypes that cause disease, a previous pneumococcal infection will not protect against a future infection. Therefore, pneumococcal vaccines are still recommended for children and adults who have had pneumococcal disease in the past.

RISK IN HAWAII

Summary of Reported Cases of Notifiable Diseases:

<http://health.hawaii.gov/docd/resources/reports/summary-of-reported-cases-of-notifiable-diseases/>

PREVENTION

The best way to prevent pneumococcal disease is to get the vaccine(s). Pneumococcal vaccines help protect against some of the more than 90 types of pneumococcal bacteria.

There are three types of vaccines that protect against pneumococcal disease:

- **Pneumococcal conjugate vaccines (PCV15):** helps to protect against 15 types of pneumococcal bacteria that commonly cause serious infections. PCV15 is recommended for:
 - All children at 2, 4, 6, 12 to 15 months of age
 - Children who started with an earlier PCV called PCV13 can finish with PCV15 or PCV20.
- **Pneumococcal conjugate vaccine (PCV20):** helps to protect against 20 types of pneumococcal bacteria the commonly cause serious infections. PCV20 is recommended for:
 - All children at 2, 4, 6, 12 to 15 months of age
 - Children who started with an earlier PCV called PCV13 can finish with PCV15 or PCV20.
- **Pneumococcal polysaccharide vaccine (PPSV23):** protects against 23 types of pneumococcal bacteria. PPSV23 is recommended for:
 - All adults aged 65 years and older
 - Children and adults 2 through 64 years old who are at [increased risk](#) for pneumococcal disease

Pneumococcal vaccines work well, but cannot prevent all cases. Studies show that at least 1 dose of pneumococcal conjugate vaccine protects:

- At least 8 in 10 babies from serious infections
- 75 in 100 adults 65 years or older against serious pneumococcal disease
- 45 in 100 adults 65 years or older against pneumococcal pneumonia

Studies show that 1 dose of pneumococcal polysaccharide vaccine protects:

- Between 50 to 85 in 100 healthy adults against serious infections

For more information on who should get each type of pneumococcal vaccine, talk to your healthcare provider.

ADDITIONAL RESOURCES

- CDC Website: <https://www.cdc.gov/pneumococcal/index.html>
- Vaccine Information Statement:
 - PCV15 & PCV20: <https://www.cdc.gov/vaccines/hcp/vis/vis-statements/pcv.pdf>

- PPSV23: <https://www.cdc.gov/vaccines/hcp/vis/vis-statements/ppv.pdf>
- CDC Vaccine Recommendations for Adults: <https://www.cdc.gov/pneumococcal/vaccines/adults.html>
- CDC Recommendations for Children: <https://www.cdc.gov/pneumococcal/vaccines/children.html>

INFORMATION FOR CLINICIANS

- CDC Website: <https://www.cdc.gov/pneumococcal/hcp/clinical-overview/index.html>