

IN THIS ISSUE: PNEUMOCOCCAL DISEASE

Pneumococcal Disease

Introduction

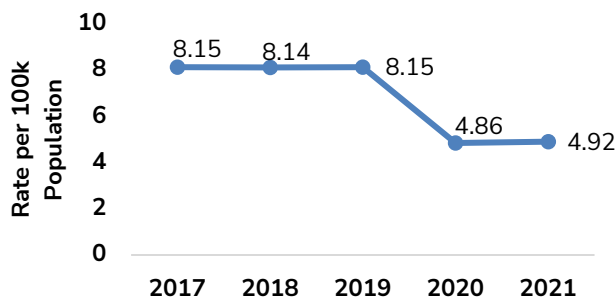
Pneumococcal disease is caused by the bacteria *Streptococcus pneumoniae* (*S. pneumoniae*).^{1,2} It can cause a range of infections from sinusitis to meningitis depending on the site infected.^{1,2} Though pneumococcal disease is considered a vaccine preventable disease, it continues to have a large impact in the United States and is estimated to be responsible for at least 150,000 hospitalizations annually contributing to 50% of bacterial meningitis cases.¹

Epidemiology

S. pneumoniae is spread person-to-person through respiratory droplets or direct contact with saliva and mucous containing pneumococcus.^{1,3} Some people can harbor the bacteria in the nose and throat without being sick and are referred to as carriers.^{1,3}

Pneumococcal infections can be classified as noninvasive or invasive. When *S. pneumoniae* is found in a sterile body site (e.g. blood, cerebral spinal fluid [CSF], synovial fluid) it is referred to as invasive.¹ Only invasive pneumococcal disease (IPD) is nationally reportable.⁴

Figure 1: Invasive pneumococcal disease rate per 100,000, United States, 2017-2021

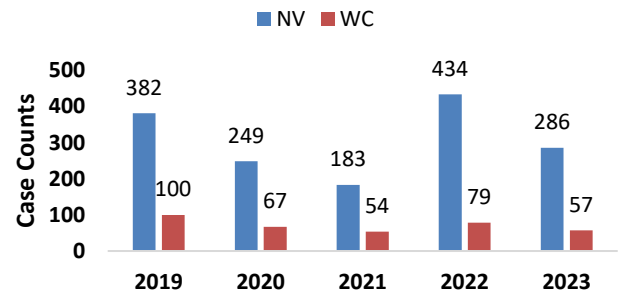


Source: https://wonder.cdc.gov/nndss/nndss_annual_tables_menu.asp

National surveillance trends show a decline in the rate of IPD disease. Between 2019 and 2020, the rate decreased from 8.15 to 4.86 during the COVID-19 pandemic [Fig. 1]. Nevada and Washoe County

surveillance showed a similar pattern between 2019 and 2021, however state and local cases spiked in 2022 before falling again in 2023[Fig. 2].

Figure 2: Invasive pneumococcal disease cases reported, Washoe County and Nevada, 2019-2023



Source: NV:

<https://app.powerbigov.us/view?r=eyJrjoiNTAyNjlmYjUtYTlk3ZC00NDh2LWFjMDktYjJjMTM1MDMxMTU5liwidCl6ImU0YTM0MGU2LWI4OWU0tNGU2OC04ZWVhLTE1NDRkMjcwMzk4MCI9> | WC:

<https://www.nnph.org/files/ephp/communicable-diseases/weekly/washoecounty.htm>

Signs & Symptoms

After becoming infected, it can take anywhere from 1-3 days for signs of a pneumococcal infection to show. Symptom presentation and severity varies by the site of infection.^{1,5}

- Pneumonia symptoms
 - Fever, cough, chest pain, shortness of breath, and chills.
- Meningitis symptoms
 - Fever, confusion, headache, neck stiffness, and light sensitivity.
- Bacteremia symptoms
 - Fever and chills.
- Ear symptoms
 - Fever, ear swelling, swollen ear drum, and fatigue.
- Sinus symptoms
 - Cough, sore throat, rhinorrhea, headache, facial discomfort, bad breath, and postnasal drip.

Diagnosis & Testing

A few testing options exist to identify a pneumococcal infection. Culture isolation of *S. pneumoniae* from a sterile site (e.g. blood, CSF) is often used to confirm pneumococcal infection.^{1,6,7} In addition to culture, nucleic acid amplification tests and polymerase chain reaction assay can be used to detect the presence of pneumococcus in blood and CSF specimens, respectively.^{6,7} A urine antigen test can be used in adults, but is not recommended in children because the likelihood of false positive results.^{1,6,7}

When possible, antibiotic susceptibility testing should be performed on isolates from sterile sites due to the potential of antibiotic resistance.⁶ Approximately 40% of IPD cases are resistant to at least one class of antibiotics.⁸

Treatment

Treatment options vary by site of infection, disease severity, and antibiotic resistance. Providers are encouraged to refer to the Red Book, the CDC's Clinical Care of Outpatient Adult and Pediatric Populations (<https://www.cdc.gov/antibiotic-use/hcp/clinical-care/index.html>), and CDC's Pneumonia Management and Prevention Guidelines (<https://www.cdc.gov/pneumonia/hcp/management-prevention-guidelines/index.html>).

Risk Factors and Prevention

Pneumococcal infections are more likely to occur among certain populations. Higher incidence of disease is found in people who are:³

- < 5 years old and ≥ 65 years old.
- African American, American Indian, and Alaska Native.
- Experiencing chronic conditions; including but not limited to, alcoholism, smoking, diabetes, heart, liver, and lung disease.
- Immunocompromised.

Vaccination is the best method to prevent pneumococcal disease.⁵ The CDC's Advisory Committee on Immunization Practices (ACIP) recommends children under the age of 5, adults 65 years and older, and those between 5 and 65 years of age with certain conditions be vaccinated.⁵ Please

visit ACIP Vaccine Recommendations and Guidelines (<https://www.cdc.gov/vaccines/hcp/acip-recs/index.html>) for the latest vaccine practices.

Reporting

The list of reportable communicable diseases and reporting forms can be found at:

<http://tinyurl.com/WashoeDiseaseReporting>

Report communicable diseases to Northern Nevada Public Health. To report a communicable disease, please call 775-328-2447 or fax your report to the NNPH at 775-328-3764.

Acknowledgement

Thank you to all health care providers, infection control practitioners, laboratory staff, as well as schools and daycares for their reporting and collaboration to make this work possible.

References

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