

PNEUMOCOCCAL DISEASE-INVASIVE

Case definition

CONFIRMED CASE

Clinical evidence of invasive disease [see clinical evidence] with laboratory confirmation of infection:

- isolation of *Streptococcus pneumoniae* from a normally sterile site [excluding the middle ear and pleural cavity]

OR

- demonstration of *S. pneumoniae* DNA from a normally sterile site [excluding the middle ear and pleural cavity]

Clinical evidence

Clinical illness associated with invasive disease manifests itself mainly as pneumonia with bacteremia, bacteremia without a known site of infection, and meningitis. Pneumonia without bacteremia is not notifiable.

Causative agent

Streptococcus pneumoniae [pneumococcus]. There are over 90 known serotypes. 6 serotypes [1, 5, 6B, 14, 19F, 23F] account for majority of invasive disease worldwide.

Source

Human microbiome [or normal flora]. Pneumococci are commonly found in the upper respiratory tract of 5-90% of healthy individuals. The duration of carriage is varied and is generally longer in children than in adults.

Incubation

The incubation period is not clearly defined; may be as short as 1-3 days.

Transmission

By droplet spread or direct oral contact, or indirect contact with respiratory secretions of infected or asymptomatic carriers. Person-to-person transmission is common, but illness among casual contacts or attendants is infrequent.

Communicability

The communicability extends until respiratory discharges no longer contain bacteria in significant numbers which usually occurs within 24 hours of initiation of appropriate antibiotic treatment.

Symptoms

Sudden onset of fever, pleural pain, difficulty or rapid breathing, productive cough of rusty sputum. If pneumococcal meningitis, symptoms may include: fever, lethargy, severe headache, vomiting, irritability, seizures and stiff neck.

Diagnostic testing

Culture, nucleic acid amplification, or antigen detection from a normally sterile site, excluding the middle ear and pleural cavity. Sputum and bronchial wash/lavages are not considered sterile specimens. Typing of strains is possible using capsular typing, which can also be done using molecular methods. This is routinely done at the National Laboratory in Winnipeg for *S. pneumoniae* isolates from sterile sites.

Treatment

Appropriate antimicrobial therapy is indicated. Penicillins or cephalosporins are commonly used. Erythromycin, or for invasive disease, vancomycin, can be used. Susceptibility testing of the strain is important. Note: identification is already done to establish that the organism is a *S. pneumoniae*.

PUBLIC HEALTH MANAGEMENT & CONTROL

Case management

This disease is notifiable. No Public Health follow-up is required for individual case management.

Note: In the event of increase of cases or outbreaks in an institution, Public Health follow-up may be required. Public Health measures may be implemented in consultation with the MOH.

Exclusion

None

Immunization

Immunize individuals according to:

- [*Publicly funded vaccine/immunoglobulin eligibility policy*](#)
- [*Publicly Funded Vaccine Eligibility for Individuals at High Risk of Acquiring Vaccine Preventable Diseases*](#)

Surveillance forms

Surveillance Case Report Form

novascotia.ca/dhw/populationhealth/surveillanceguidelines/Surveillance_Forms.pdf

[General Information Sheet](#)

REFERENCES:

American Academy of Pediatrics. [2015]. Summaries of infectious diseases. In: Kimberlin, D.W., Brady, M.T., Jackson, M.A, Long , S.S. [Eds.], *Red book: 2015 Report of the Committee on Infectious Diseases* (pp626-638). Elk Grove Village, IL: American Academy of Pediatrics.

Centre for Disease Control and Prevention. [2015] Pneumococcal Disease. Retrieved from cdc.gov/pneumococcal/clinicians/index.html

Heymann, D.L. [Ed.]. [2015]. *Control of Communicable Diseases Manual*. Washington: American Public Health Association.

Public Health Agency of Canada. [2009]. Case Definitions for Communicable Diseases under National Surveillance. *CCDR* 2009; 3552, 1-123. Retrieved from phac-aspc.gc.ca/publicat/ccdr-rmtc/09pdf/35s2-eng.pdf

Public Health Agency of Canada. *Canadian Immunization Guide*. Retrieved from canada.ca/en/public-health/services/canadian-immunization-guide.html

Public Health Agency of Canada. [2016]. Invasive Pneumococcal Disease. Retrieved from phac-aspc.gc.ca/im/vpd-mev/pneumococcal-pneumococcie/professionals-professionnels-eng.php