

# Appendix B: Provincial Case Definitions for Diseases of Public Health Significance

**Disease: Pneumococcal disease, invasive**

Effective: February 2019

# Pneumococcal disease, invasive

## 1.0 Provincial Reporting

Confirmed cases of disease

## 2.0 Type of Surveillance

Case-by-case

## 3.0 Case Classification

### 3.1 Confirmed Case

Clinical evidence of invasive disease (see section 5.0) with laboratory confirmation of infection:

- Isolation of *Streptococcus pneumoniae* (*S. pneumoniae*) from a normally sterile site (e.g. blood, cerebrospinal fluid [CSF]), excluding the middle ear
- OR**
- Detection of *S. pneumoniae* deoxyribonucleic acid (DNA) by nucleic acid amplification test (NAAT) from a normally sterile site (e.g. blood, CSF), excluding the middle ear

### 3.2 Probable case

Clinical evidence of invasive disease and no other apparent cause with non-confirmatory laboratory evidence:

- Demonstration of *S. pneumoniae* antigen from a normally sterile site (e.g. blood CSF), excluding the middle ear

**Note:** Probable case definitions are provided as guidelines to assist with case finding and health management, and are not for provincial notification purposes.

## 4.0 Laboratory Evidence

### 4.1 Laboratory Confirmation

Any of the following will constitute a confirmed case of invasive pneumococcal disease:

- Positive *S. pneumoniae* culture from a normally sterile site excluding the middle ear
- Positive NAAT for *S. pneumoniae* from a normally sterile site excluding the middle ear

## 4.2 Approved/Validated Tests

- Standard culture for *S. pneumoniae*
- NAAT for *S. pneumoniae* (includes polymerase chain reaction [PCR])
- *S. pneumoniae* antigen test
- Consult with laboratory about appropriate tests and specimens

**Note:** Isolates should be sent to the Public Health Ontario Laboratories for serotype determination and further characterization. Isolates are also submitted by the Public Health Ontario Laboratories to the National Microbiology Laboratory for national surveillance.

## 4.3 Indications and Limitations

- Sputum and bronchial lavages are not considered sterile specimens
- Detection of *S. pneumoniae* antigen does not allow case confirmation or determination of serotype
- Detection from sterile site specimens by NAAT can be attempted by Public Health Ontario Laboratories when cultures at the initial testing laboratory are negative and invasive pneumococcal disease is suspected – contact Public Health Ontario Laboratories prior to submitting sample to obtain Public Health Ontario Medical/Clinical Microbiologist approval

**Note:** CSF is the only sterile site current commercial kits are verified for use on.

## 5.0 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 reportable.

## 6.0 ICD-10 Code(s)

A40.3 Septicaemia due to *S. pneumoniae*

B95.3 *S. pneumoniae* as the cause of diseases classified elsewhere, e.g.:

- I30.1 Infective pericarditis
- K65.0 Acute peritonitis
- M00.8 Arthritis and polyarthritis due to other specified bacterial agents
- O85 Puerperal sepsis
- P23.6 Congenital pneumonia due to other bacterial agents

G00.1 Meningitis due to *S. pneumoniae*

J13 Pneumonia due to *S. pneumoniae*

M00.1 Pneumococcal arthritis and polyarthritis

## 7.0 Comments

Determination of serotype from a sterile site isolate and further characterization by a reference laboratory are important in monitoring changes in disease epidemiology, including the impact of vaccination programs, potential serotype replacement, and antibiotic resistance.

## 8.0 Sources

Public Health Agency of Canada. Invasive Pneumococcal Disease. In: Case Definitions for Communicable Diseases under National Surveillance. Canada Communicable Disease Report. 2009; 35S2.

## 9.0 Document History

Table 1: History of Revisions

Revision Date	Document Section	Description of Revisions
December 2014	General	New template. Acronym for nucleic acid amplification test changed from "NAT" to "NAAT". Title of Section 8.0 changed from "References" to "Sources". Section 9.0 Document History added.
December 2014	3.1 Confirmed Case	End of sentence removed: "... (organism detected) with invasive disease (See Section 5.0)". New addition to beginning of sentence: "Clinical evidence of invasive disease (see Section 5.0) with..." DNA spelled out: "deoxyribonucleic acid".
December 2014	3.2 Probable Case	First paragraph revised. At beginning of bullet, "Detection..." removed and "Demonstration..." added. Note added: " <b>Note:</b> Probable case definitions are provided as guidelines to assist with case finding and health management, and are not for provincial notification purposes."

Revision Date	Document Section	Description of Revisions
December 2014	4.2 Approved/Validated Tests	Ending of second bullet added: “...(includes polymerase chain reaction (PCR))”.  Fourth bullet added: “Consult with laboratory about appropriate tests and specimens”.  Note added: <b>Note:</b> Isolates should be sent to the Public Health Ontario Laboratories for serotype determination and further characterization. Isolates are also submitted by the Public Health Ontario Laboratories to the National Microbiology Laboratory for national surveillance”.
December 2014	4.3 Indications and Limitations	Entire section revised.
December 2014	5.0 Clinical Evidence	New addition to beginning of sentence: “Clinical illness associated with...”  Removal of “... infection, or meningitis” replaced with “...infection and meningitis”.
December 2014	7.0 Comments	Bullet removed: “Isolates should be sent to the Public Health Laboratories of the OAHPP for serotyping or further characterization”.
December 2014	8.0 Sources	Updated.
February 2019	General	Minor updates were made to support the regulation change to Diseases of Public Health Significance.

