

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

Disease: *Haemophilus influenzae*, invasive

Effective: February 2019

Haemophilus influenzae, invasive

1.0 Provincial Reporting

Confirmed and probable 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 *Haemophilus influenzae* (*H. influenzae*) (serotypes a, b, c, d, e, f, undifferentiated and non-typeable isolates) from a normally sterile site*
- OR**
- Isolation of *H. influenzae* (serotypes a, b, c, d, e, f, undifferentiated and non-typeable isolates) from the epiglottis in a person with epiglottitis
- OR**
- Detection of *H. influenzae* (serotypes a, b, c, d, e, f, undifferentiated and non-typeable isolates) deoxyribonucleic acid (DNA) in a normally sterile site* using a validated nucleic acid amplification test (NAAT)

3.2 Probable case

Clinical evidence of meningitis with laboratory evidence of infection:

- Demonstration of *H. influenzae* type b (Hib) antigen in cerebrospinal fluid
- OR**
- Buccal cellulitis or epiglottitis in a child < 5 years of age with no other causative organisms isolated

* Examples of normally sterile body sites include blood, cerebrospinal fluid, joint fluid, pleural fluid, or pericardial fluid.

4.0 Laboratory Evidence

4.1 Laboratory Confirmation

Any of the following will constitute a confirmed case of invasive *H. influenzae* disease:

- Positive culture for *H. influenzae* obtained from a normally sterile site*;
- Positive culture for *H. influenzae* from the epiglottis in a person with epiglottitis;
- Positive NAAT result for *H. influenzae* DNA in a normally sterile site*.

4.2 Approved/Validated Tests

- Standard culture for *H. influenzae* with serotyping from a normally sterile site, or from the epiglottis in a person with epiglottitis.
- NAAT to detect *H. influenzae* DNA.
- Antigen detection for *H. influenzae* type b by latex agglutination.

Consult with laboratory about appropriate specimens for each testing methodology.

4.3 Indications and Limitations

- Regardless of laboratory test used, all invasive *H. influenzae* isolates should be serotyped.
- NAATs and antigen detection assays may be used when culture methods are unable to isolate the organism, such as when antibiotic treatment has been initiated before a clinical specimen is obtained for culture.
- False positive and false negative reactions have been demonstrated with direct antigen detection assays. It must also be noted that *H. influenzae* antigen testing is limited to detection of serotype b, therefore other serotypes, undifferentiated and non-typeable strains cannot be detected with this method. Persons who present with meningitis in whom Hib antigen is detected in cerebrospinal fluid, and in the absence of positive culture or NAAT results, should be reported as a probable case of *H. influenzae*. Additionally, because Hib antigen detection tests can be positive in urine and serum of persons without invasive Hib disease (e.g., post-vaccination), persons should not be reported as cases if antigen is detected exclusively in urine or serum specimens.

5.0 Clinical Evidence

Clinical evidence of invasive disease caused by *H. influenzae* includes any of the following:

- Meningitis
- Bacteremia
- Epiglottitis
- Pneumonia
- Pericarditis
- Septic arthritis
- Empyema

6.0 ICD Code(s)

Note: ICD codes do not differentiate between serotypes.

6.1 ICD-10 Code(s)

A41.3 Septicaemia due to *Haemophilus influenzae*

A49.2 *H. influenzae* infection, unspecified site

B96.3 *H. influenzae* as cause of disease classified elsewhere

G00.0 Meningitis due to *Haemophilus influenzae*

J05.1 Acute epiglottitis

J14 Pneumonia due to *Haemophilus influenzae*

P23.6 Congenital pneumonia due to *Haemophilus influenzae*

7.0 Sources

Perkins MD, Mirrett S, Reller LB. Rapid bacterial antigen detection is not clinically useful. *Journal of Clinical Microbiology*. 1995;33(6):1486-91.

Public Health Agency of Canada. *Haemophilus influenzae* Serotype b, Invasive Disease. In: Case Definitions for Communicable Diseases under National Surveillance. Canada Communicable Disease Report. 2009;35S2:65.

Roush SW, Beall B, McGee L, Cassidy P, Bowen M, Icenogle J, et al. Laboratory support for the surveillance of vaccine-preventable diseases. 2017. In: Manual for the Surveillance of Vaccine-Preventable Diseases [Internet]. 6 ed. Atlanta, GA: Centers for Disease Control and Prevention. Available from:

<https://www.cdc.gov/vaccines/pubs/surv-manual/index.html>

Spinola SM, Sheaffer CI, Gilligan PH. Antigenuria after *Haemophilus influenzae* type b polysaccharide vaccination. *The Journal of Pediatrics*. 1986;108(2):247-9.

8.0 Document History

Table 1: History of Revisions

Revision Date	Document Section	Description of Revisions
January 2014	General	New template. Sections 9.0 Additional Resources and 10.0 Document History Added.
	3.1 Confirmed Case	Addition of a note to clarify that only <i>H. influenzae</i> caused by serotype b is reportable.
	3.2 Probable Case	First sentence changed from “Invasive disease with laboratory confirmation of infection (antigen detected):” to “Clinical evidence of invasive disease with laboratory evidence of infection:”
	4.2 Approved/ Validated Tests	The following was added to the second bullet point, Antigen detection for <i>H. influenzae</i> type b: “For persons treated with antimicrobial agents before specimens are obtained for culture, <i>H. influenzae</i> type b antigen detection may be used as an adjunct to culture.” Nucleic acid amplification test (NAT) for <i>H. influenzae</i> removed from list.
	4.3 Indications and Limitations	The following bullet point was removed: “Further isolate characterization is indicated for epidemiological public health and control purposes.” The last three bullet points were added.
	8.0 Sources	Updated.
May 2018	General	New template. Revisions were made to support the regulation change to Diseases of Public Health Significance, references were updated and Section 8.0 was deleted. All serotypes of <i>H. influenza</i> are now reportable.
February 2019	General	Formatting changes and Section 7.0 Comments deleted.

