

HAEMOPHILUS INFLUENZAE (INVASIVE) TYPE B AND NON-B

Disease Overview

Haemophilus influenzae (*H. influenzae*) is a bacterium which can cause serious invasive disease primarily in young children. The disease is caused by a gram-negative coccobacillus. *Haemophilus influenzae* type B (Hib) is a vaccine preventable disease. Before the vaccine was developed in 1988, Hib was the most common cause of bacterial meningitis in Canada. There are no vaccines for non-b and non typeable *H. influenzae* bacteria.

Public Health objectives are to capture vaccine preventable cases (Hib); and cases of the virulent strain of non-B which are considered “unusual illness”.

Symptoms

H. influenzae (Hib, non-b, and nontypeable) can cause the following illnesses:

- pneumonia
- bacteremia
- meningitis
- epiglottitis
- septic arthritis
- cellulitis
- otitis media
- purulent pericarditis

Other less common infections are endocarditis, endophthalmitis, osteomyelitis, and peritonitis. Symptoms of the disease are dependent on the subsequent illness (pneumonia, bacteremia, and meningitis).

Reservoir

Humans

Mode of Transmission

Person to person transmission by inhalation of respiratory droplets or by direct contact with respiratory tract secretions.

Incubation period

Unknown, probably short, 2-4 days.

Period Communicability

Infected persons can transmit disease for as long as *H. influenzae* bacteria are still present, which may be for a prolonged period if not treated. *H. influenzae* is non-communicable within 24 to 48 hours of starting effective antibiotics.

Risk Factors

Children under 5 years of age (especially those with immunodeficiency illness or chronic disease) are at greatest risk for developing invasive *H. influenzae* disease and are most likely to suffer from complications of the disease.

Surveillance Case Definition

Confirmed case

Clinical evidence of invasive disease (clinical illness associated with invasive disease due to *H. influenzae* includes meningitis, bacteremia, epiglottitis, pneumonia, pericarditis, septic arthritis, and empyema) with laboratory confirmation of infection:

- Isolation of *H. influenzae* (serotypes a, b, c, d, e, f, undifferentiated and non-typeable isolates) from a normally sterile site (CSF, blood, joint, pleural fluid, and pericardial fluid).

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.

Note: Mucosal infections, such as bronchitis, sinusitis and conjunctivitis, and otitis media, can also be caused by *H. influenzae*, but they are not considered invasive disease and are not reportable. Sputum results that do not meet case definition can be colonized.

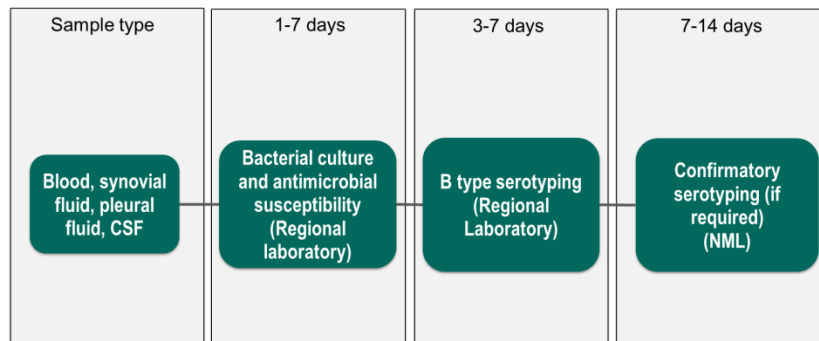
Diagnosis and Laboratory Guidelines

Isolation of *H. influenzae* is done through bacterial culture. Isolates obtained from invasive sites (blood, CSF, synovial fluid, and pleural fluid) in children 6 and under and in immunocompromised patients are serotyped automatically by Lab.

In New Brunswick, bacterial culture, antimicrobial susceptibility testing and serotyping for type B is done in regional laboratories. In some cases, confirmatory serotyping is done at the National Microbiology Laboratory in Winnipeg (NML).

Cerebrospinal fluid (CSF), blood, synovial fluid, and pleural fluid should be cultured. All *H. influenzae* isolates associated with an invasive infection should be serotyped.

Figure 1: Laboratory testing and results reporting times in New Brunswick:



Notification And Reporting

Per Policy 2.2 Disease and Event Notification to OCMOH and Disease and Event Reporting section.

- Routine Surveillance (RDSS) for all confirmed invasive cases (Hib, non-b, and nontypeable).

Case Management

For non-b cases, consult the Regional Medical Officer of Health to determine if any follow up is required.

Education

The Hib case or relevant caregiver should be informed about:

- The nature of the infection, length of the communicable period, and the mode of transmission.
- Respiratory disease precautions.
- Hand washing.

Investigation

Confirm the diagnosis and obtain appropriate information to contact the case.

Exclusion/Social Distancing

Droplet precautions are recommended for hospitalized patients for 24 hours after initiation of parenteral antimicrobial therapy.

Treatment

Dependent on the clinical illness and directed by the healthcare provider.

Immunization

Review immunization status and immunize accordingly to ensure the Hib case is up to date (as recommended per New Brunswick Routine Immunization schedule).

Contact Management

Education

The Hib case or relevant caregiver should be informed about:

- Nature of the infection, length of the communicable period, and mode of transmission.
- Hand hygiene.
- Cough and sneeze etiquette.
- The importance of immunization.

Investigation

Observation of exposed unimmunized or incompletely immunized children who are household or childcare contacts of cases with invasive Hib disease. Exposed children who develop febrile illness should receive immediate medical assessment.

Exclusion/Social Distancing

Social distancing of close contacts without illness is not warranted.

Prophylaxis

Chemoprophylaxis:

Rifampin prophylaxis is indicated for direct contacts for Hib but no other serotypes, as directed by a doctor. Pregnant women should not receive prophylactic treatment.

The indications and guidelines for chemoprophylaxis are determined according to circumstances of each household (age and immunization status of household members) or childcare setting (2 cases within 60 days and presence of children with incomplete immunization status).

Immunoprophylaxis:

As recommended per New Brunswick Routine Immunization schedule for those under 5 years and/or high-risk population as per the eligibility criteria.

Outbreak Management

Activate the local outbreak plan when an outbreak is declared.