Haemophilus influenzae Invasive Disease (under age 5 years)

Signs and Symptoms	• Meningitis, bacteremia, cellulitis, epiglottitis, septic arthritis, osteomyelitis, pericarditis, and pneumonia are manifestations of invasive disease. • Only invasive disease in children younger than 5 years old is reportable. • Asymptomatic colonization with *H. influenzae* is common and is not reportable.	
Incubation	Unknown, due to potential for asymptomatic colonization, but probably less than a week.	
Case classification	**Clinical criteria:** Invasive disease may manifest as pneumonia, bacteremia, meningitis, epiglottitis, septic arthritis, cellulitis, or purulent pericarditis; less common infections include endocarditis and osteomyelitis.	
	Confirmed case: Isolation of *H. influenzae* from a normally sterile body site (e.g., cerebrospinal fluid, blood, joint fluid, pleural fluid, pericardial fluid) **OR** detection of *H. influenzae*-specific nucleic acid in a specimen obtained from a normally sterile site using a validated PCR assay	**Probable case:** Meningitis with detection of *H. influenzae* type b antigen in cerebrospinal fluid (CSF)
Differential diagnosis	E.g., invasive meningococcal, pneumococcal, or streptococcal disease. Differential diagnosis depends on which clinical manifestation is present.	
Treatment	For invasive disease, initial treatment with cefotaxime or ceftriaxone. If susceptible, IV ampicillin can be considered. Amoxicillin is recommended for some cases of acute otitis media. Standard precautions plus droplet precautions are recommended until 24 hours after initiation of effective antimicrobial therapy.	
Exposure	Person-to-person, contact with respiratory tract secretions. Asymptomatic carriage is likely common among children, so exposure source can be difficult to determine.	
Laboratory	Tests to identify *H. influenzae* through culture (isolation) and molecular (e.g., PCR) methods are commercially available. *H. influenzae* may also be included in PCR panels. To determine if a positive result for *H. influenzae* is notifiable: • Confirm the patient is a child less than 5 years old, **and** • Determine specimen source. Only specimens from normally sterile sites (such as blood, cerebrospinal fluid (CSF), joint fluid (a.k.a. synovial fluid), pericardial fluid, and pleural fluid) are notifiable and indicative of invasive disease. If the result is notifiable, **the isolate must be submitted to the Washington State Public Health Laboratories**. If no isolate is available, submit the specimen associated with a positive result. Outcome of serotyping determines public health action. See specimen collection and submission instructions. Keep isolates at **ambient** temperature, ship according to PHL requirements: https://doh.wa.gov/public-health-provider-resources/public-health-laboratories/lab-test-menu.	
Public Health investigation	• Confirm that case meets reporting criteria based on age and specimen source and forward isolates to PHL for serotyping • Ensure that case is receiving appropriate antibiotic treatment. • Determine whether case's household has un- or under vaccinated children <4 years of age or an immunocompromised child regardless of his/her immunization status (see chemoprophylaxis section 6.B.1. and Appendix A). • When indicated, prophylaxis of contacts should be initiated as soon as possible given that most secondary cases in households occur during the first week after hospitalization of the index case. It is reasonable to initiate prophylaxis for at-risk contacts of an invasive *H. influenzae* case while serotyping is in process. • Vaccinate children who are not up-to-date for Hib. • Identify exposed un- or under vaccinated household, childcare, or preschool contacts of Hib cases who may have symptoms consistent with invasive Hib disease. Exposed children in whom a febrile illness occurs should receive prompt medical evaluation.	

Haemophilus influenzae

Invasive Disease (under age 5 years)

1. DISEASE REPORTING

A. Purpose of Reporting and Surveillance

1. To correctly identify the serotype of invasive *Haemophilus influenzae* (Hi) organisms in children under 5 years old.
2. To monitor the effectiveness of immunization programs and vaccines and to assess progress toward elimination of pediatric *H. influenzae* serotype B (Hib) invasive disease.
3. To identify children exposed to Hib cases and closely observe them for signs of illness.
4. To recommend antibiotic prophylaxis and/or immunization to appropriate contacts of Hib cases.
5. To identify additional cases and establish risk factors for cases of non-Hib invasive *H. influenzae* disease.

B. Legal Reporting Requirements

1. Health care providers and health care facilities: ***immediately* notifiable to local health jurisdiction; only invasive cases under 5 years old are reportable.**
2. Laboratories: ***immediately* notifiable to local health jurisdiction; only invasive cases under 5 years old** are reportable; **submission required – isolate or if no isolate available, specimen associated with positive result**, within 2 business days (see Section 1C2).
3. Local health jurisdictions: notifiable to the Washington State Department of Health (DOH) Office of Communicable Disease Epidemiology (CDE) within 7 days of case investigation completion or summary information required within 21 days.

C. Local Health Jurisdiction Investigation Responsibilities

1. Begin investigation on the same day as notification.
2. Contact laboratories as soon as possible after a case is reported to assure that **all** *H. influenzae* isolates (or positive specimens, if no isolate is available) are submitted to Washington State Public Health Laboratories for serotyping.

   Note: The need to correctly identify the serotype of *H. influenzae* isolates from children under 5 years old with invasive disease has increased because Hib has become a rare disease.
3. Identify close contacts of patients with Hib and recommend antibiotic prophylaxis as appropriate within 24 hours.

4. Report all *confirmed* and *probable* cases to CDE. Complete the *Haemophilus influenzae* case report form (http://www.doh.wa.gov/Portals/1/Documents/5100/210-027-ReportForm-Hflu.pdf) and enter the data into the Washington Disease Reporting System (WDRS). Note that ***all*** cases of invasive *H. influenzae* disease in children under 5 years old are reportable **regardless of serotype**.

2. THE DISEASE AND ITS EPIDEMIOLOGY

Prior to the introduction of effective conjugate vaccines in 1988 and the recommendation for routine vaccination, *H. influenzae* serotype b (Hib) was the most common cause of bacterial meningitis and was a major cause of other invasive bacterial disease (including epiglottitis) in young American children. One child in 200 developed invasive Hib disease by the age of 5 years. Invasive disease is markedly age dependent, with peak rates at age 6–18 months.

Since 1989 there has been a 99% reduction in invasive Hib disease among children younger than 5 years of age. However, overall *H. influenzae* invasive disease case counts and rates have increased since 1997, when the count was 3,400 (1.23 per 100,000 in active surveillance areas); in 2023, there were 8,070 reported cases (2.4 per 100,000 in active surveillance areas). Despite the overall increase in invasive *H. influenzae* infections, the rate of vaccine-preventable Hib infections decreased in active surveillance areas from 0.30 per 100,000 population in 1997 to 0.03 per 100,000 population in 2023.

H influenzae type a (Hia) is now the most common typeable *H. influenzae* serotype causing invasive disease. In some Indigenous populations, the rate of invasive Hia infection has been increasing, and secondary cases have occurred. Although Hia incidence is low among the general population of US children, there has been nearly a 300% increase in incidence since 2010 among children under 1 year of age.

In 2023, data from Active Bacterial Core Surveillance sites across the United States, report the rate of invasive disease due to nontypeable and non-b typeable *H. influenzae* (non-Hib invasive *H. influenzae* disease) to be 1.70 cases per 100,000 in children under 5 years of age. This rate can be used as a surveillance indicator for monitoring the completeness of invasive *H. influenzae* case reporting.

A. Etiologic Agent

Haemophilus influenzae is a small, gram-negative coccobacillus bacterium. There are at least six serotypes of *H. influenzae* (designated types a–f) distinguished by their capsular antigens, as well as unencapsulated (non-typeable) strains. *H. influenzae* serotype b (Hib) was responsible for 95% of invasive *H. influenzae* infections among children younger than 5 years of age in the pre-vaccine era. Meningitis occurred in approximately two thirds of children with invasive Hib disease resulting in hearing impairment or severe permanent neurologic sequelae in 15–30% of survivors. Approximately 4% of all invasive Hib cases were fatal.

B. Description of Illness

Invasive disease caused by *H. influenzae* can affect many organ systems. Meningitis is the most common clinical manifestation. Bacteremia, periorbital or other cellulitis, epiglottitis (which may cause life-threatening airway obstruction), septic arthritis, osteomyelitis, pericarditis, and pneumonia are other manifestations of invasive *H. influenzae* disease. Onset of symptoms is usually abrupt, and may include fever, headache, lethargy, anorexia, nausea, vomiting, irritability, or laryngeal stridor, depending on the system involved. Progressive stupor or coma is common with meningitis.

Infections disseminate via the bloodstream after penetration of the mucous membranes of the nasopharynx. The exact mechanism allowing the penetration is unknown, but a history of recent upper respiratory tract infection may facilitate invasion. Having had a recent cochlear implant procedure also has been identified as a possible risk factor for invasive disease.

In the pre-vaccine era, Hib could be isolated from the nasopharynx of 0.5%-3% of infants and children but was not commonly found in adults. *H. influenzae* organisms can colonize the nasopharynx and may either be transient or remain for months in the absence of symptoms (asymptomatic carriage). Thus, isolates from sputum or other non-sterile sites are *not* indicative of invasive disease.

Non-invasive upper respiratory tract diseases, including otitis media, sinusitis, and bronchitis, are often caused by nontypeable strains of *H. influenzae*. Asymptomatic carriage of *H. influenzae* organisms, especially the nontypeable strains, can be common; the organism can be recovered from the nasopharynx of 40 to 80% of children. Non-invasive infections are not reportable illnesses in Washington, and positive laboratory results from non-sterile sites (e.g., sputum, eye swab, nasal swab) are also not reportable. Public health investigation is **not required for non-invasive infections**, and associated non-sterile-site specimens and isolates do not need to be submitted to PHL. Non-sterile-site specimens, or specimens from persons 5 years of age or older, will not be tested if submitted to PHL unless an exception is made in consultation with CDE.

C. *Haemophilus influenzae* in Washington State

In 2000, due to the dramatic reduction in the rate of invasive Hib disease that followed the implementation of routine childhood immunization in 1989, Washington State mandated reporting of invasive *H. influenzae* disease due to any serotype. Annually, from 2014 through 2023 DOH received 5 to 17 reports of invasive *H.influenzae* disease due to all serotypes in children under 5 years of age with two deaths across the ten years, as compared to 1986 when there were 319 reports of invasive disease due to serotype b only, most in young children, with 11 deaths in that year alone.

From 2014-2023, a total of 98 cases of invasive *H.influenzae* disease were reported to DOH. Of these, 13 cases were due to Hib. Isolates from one case were not tested for serotype and so must be considered as possible Hib cases. Of the remaining 85 reported cases of *H.influenzae* disease, 35 were due to other identified serotypes, and 50 of the isolates were non-typeable (unencapsulated). For most up-to-date surveillance data, please see the OCDE Annual Communicable Disease Report.

D. Reservoir

Humans (cases and carriers)

E. Modes of Transmission

H. influenzae organisms are transmitted person to person by inhalation of respiratory droplets or by direct contact with respiratory tract secretions. Unimmunized children less than 4 years old are considered to be at an increased risk of invasive Hib disease, especially if they have had prolonged close contact with another child with invasive Hib disease. Other predisposing factors are conditions which lead to compromise of the immune system, such as sickle cell anemia and HIV infection. The risk of secondary cases, defined as illness occurring 1 to 60 days following contact with an ill person, occur but are rare. Secondary cases are higher among household contacts and is age-dependent, being higher among household contacts younger than 48 months of age (2.1%), and especially in those younger than age 12 months (6%) and younger than age 24 months (3%). The overall risk of secondary disease in the childcare setting seems to be less than that seen in households.

F. Incubation Period

Because persons who acquire *H. influenzae* infections are often asymptomatically colonized, the incubation period is unknown but probably short, possibly 2–4 days. Most secondary cases in households occur during the first week after hospitalization of the index case although some secondary cases do occur later.

G. Period of Communicability

The exact period of communicability is unknown. A person is communicable as long as the organism is present in discharge from the nose or throat. This may be a prolonged period, even without active nasal discharge. Communicability ends within 24–48 hours after initiation of appropriate chemoprophylaxis.

Note, however, that treatment of invasive disease does not necessarily eradicate the organism from the nasopharynx. Chemoprophylaxis for the purpose of eliminating nasopharyngeal carriage should also be given to the index case with invasive Hib disease just before discharge from the hospital if younger than two years of age or if the case lives in a household with a susceptible contact and has been treated for invasive disease with a regimen other than cefotaxime or ceftriaxone.

H. Treatment

Initial therapy for children with meningitis potentially caused by Hib includes cefotaxime or ceftriaxone, or IV ampicillin if isolate is susceptible. Alternative therapies are meropenem or the combination of ampicillin and chloramphenicol administered intravenously. Beta-lactamase-negative isolates may still be resistant to ampicillin and other antibiotics. For antimicrobial treatment of epiglottitis, arthritis, and other clinical syndromes due to invasive *H. influenzae* infections, including infections caused by strains other than serotype b, recommendations are similar. Duration of therapy is usually a minimum of 7 days; longer duration of therapy may be indicated in complicated cases.

3. CASE DEFINITIONS

A. Clinical Description

Invasive disease caused by *Haemophilus influenzae* may produce any of several clinical syndromes, including meningitis, bacteremia, epiglottitis, or pneumonia.

B. Laboratory Criteria for Diagnosis

- Detection of *Haemophilus influenzae* type b antigen in cerebrospinal fluid [CSF]; or
- Detection of *Haemophilus influenzae*-specific nucleic acid in a specimen obtained from a normally sterile body site (e.g., blood or CSF), using a validated polymerase chain reaction (PCR) assay; or
- Isolation of *H. influenzae* from a normally sterile site (e.g., blood or cerebrospinal fluid [CSF] or, less commonly, joint, pleural, or pericardial fluid)

C. Case Definition (2015)

Probable:

- Meningitis with detection of *H. influenzae* serotype b (Hib) antigen in CSF

Confirmed:

- Isolation of *Haemophilus influenzae* from a normally sterile body site (e.g., blood or CSF, or, less commonly, joint, pleural, or pericardial fluid), or
- Detection of *Haemophilus influenzae*-specific nucleic acid in a specimen obtained from a normally sterile body site (e.g., cerebrospinal fluid [CSF], blood, joint fluid, pleural fluid, pericardial fluid), using a validated polymerase chain reaction (PCR) assay.

D. Comments

In Washington, only cases under 5 years of age must be reported.

Positive antigen test results from urine or serum samples are unreliable for diagnosis of *H. influenzae* disease. Because antigen detections tests can be positive in urine and serum of persons without invasive Hib disease, a case that is identified exclusively by positive antigen tests in urine or serum should not be reported as a true case, but can be considered a suspect case if clinical symptoms are compatible with invasive bacterial disease.

4. DIAGNOSIS AND LABORATORY SERVICES

A. Diagnosis

Confirming the diagnosis of invasive *H. influenzae* disease requires culturing *H. influenzae* or detecting *Haemophilus influenzae*-specific nucleic acid in a specimen obtained from a body site which is normally sterile (e.g., CSF, blood, joint fluid, pleural effusion, pericardial effusion, peritoneal fluid, subcutaneous tissue fluid, placenta, and amniotic fluid). **All** *H.*

influenzae isolates from normally sterile sites in children under 5 years old are required to be submitted to PHL for serotyping and antimicrobial susceptibility testing.

B. Tests Available at Washington State Public Health Laboratories (PHL)

PHL provide isolate confirmation and serotyping for *H. influenzae*. Clinical laboratories should be contacted promptly for each reported case to assure that all pediatric *H. influenzae* isolates are forwarded to PHL.

Note that PHL require all clinical specimens have two patient identifiers, a name **and** a second identifier (e.g., date of birth) both on the specimen label and on the submission form. Due to laboratory accreditation standards, specimens will be rejected for testing if not properly identified. Also include specimen source and collection date.

C. Specimen Collection

Isolates should be submitted to PHL on media that support growth. Keep isolates at **ambient** temperature, ship according to PHL requirements: https://doh.wa.gov/public-health-provider-resources/public-health-laboratories/lab-test-menu. In the event of an outbreak, contact Communicable Disease Epidemiology (877-539-4344 or 206-418-5500) for assistance in determining which additional specimens should be collected for laboratory study.

5. ROUTINE CASE INVESTIGATION

A. Evaluate the Diagnosis

Review the clinical presentation, risk factors for exposure, and immunization status of the patient. Assure that laboratories submit all *H. influenzae* isolates obtained from a sterile site in children under 5 years old to Washington State Public Health Laboratories for confirmation and serotyping.

B. Identify Source of Infection

Usually, identification of the source of infection is not possible because asymptomatic persons can carry the organism in their nose and throat. It is important to verify whether any household or child care contacts have had any illness suggestive of *H. influenzae*-caused invasive disease within the previous 60 days.

C. Identify Potentially Exposed Persons

While awaiting the serotype result:

1. Identify children younger than 4 years of age who are household or childcare contacts of patients and assess their immunization status. This will help identify persons who should receive antimicrobial prophylaxis if *H. influenzae* serotype b (Hib) disease is confirmed, or who should be immunized. See recommendation for contact management in Section 6 if the serotype is determined to be type b.
2. Determine whether the case had prolonged contact with other children under 2 years of age in a child care setting in the week prior to onset of illness. Secondary transmission in child care centers is rare if all the contacts of the case are older than 2 years of age.

If the serotype is determined to be type b, see recommendation for contact management in Section 6. If the serotype b case attends a child care also refer to Section 7.

If the serotype is determine to be type a, chemoprophylaxis can be considered using similar criteria (see section 6.D).

D. Environmental Evaluation — None

6. CONTROLLING FURTHER SPREAD

The following recommendations to control further spread pertain only to cases of *H. influenzae* invasive disease due to serotype B (Hib). Public health follow-up to control transmission is typically not indicated for cases of invasive disease due to non-b serotypes, or non-typeable *H. influenzae* – with the exception of some potential considerations for type a invasive disease (see below).

A. Infection Control Recommendations / Case Management

1. Children with known or suspected *H. influenzae* serotype b (Hib) disease should be cared for using droplet precautions until 24 hours after initiation of appropriate antibiotic therapy.
2. Children with Hib disease who are younger than 2 years or who have a susceptible household contact should receive appropriate treatment to eliminate respiratory carriage for at least 24 hours before resuming contact with any susceptible persons. Treatment of Hib invasive disease with ceftriaxone or cefotaxime will also eradicate nasal carriage. Index patients who are treated with an antibiotic other than cefotaxime or ceftriaxone and are aged <2 years should receive rifampin prior to hospital discharge.
3. Children developing Hib invasive disease before the age of 2 years may remain at risk of recurrent Hib disease. Any earlier doses of Hib vaccine received by such children should be disregarded. They should be immunized according to the age-appropriate schedule for unimmunized children beginning one month after onset, or as soon as possible thereafter.

B. Contact Management

1. **Chemoprophylaxis**

   Indications and guidelines for chemoprophylaxis in different circumstances are described in the AAP Red Book and summarized in **Appendix A.**

   When indicated, prophylaxis should be initiated as soon as possible. Because some secondary cases occur later, initiation of prophylaxis ≥7 days after hospitalization of the index patient may still be of some benefit.

   Serotyping may not be available quickly enough to allow for prompt decision-making regarding chemoprophylaxis. Chemoprophylaxis should be considered for high-risk contacts when the serotype is unable to be determined or cannot be determined

promptly.

Household Contacts: Chemoprophylaxis with rifampin is recommended for members of the immediate household of Hib cases when the household includes any members that meet either of the following:

- A child under age 4 years who is not fully immunized [See tables in section 8A for immunization recommendations.]
- An immunocompromised member under 18 years regardless of Hib vaccination status.

Child Care Contacts: In general, chemoprophylaxis is not recommended for contacts of a single case of Hib in a childcare center. However, when two or more cases have occurred within 60 days and unimmunized or incompletely immunized children are in attendance at a childcare facility, rifampin prophylaxis should be considered. When prophylaxis is indicated, it should be prescribed for all attendees, regardless of age or vaccine status, and for all childcare providers. In addition, unimmunized or incompletely immunized children should receive a dose of vaccine and be scheduled to complete an age-specific catch-up schedule.

Chemoprophylaxis Not Recommended

- For occupants of households with no children younger than 4 years of age other than the case.
- For occupants of households when all household contacts are immunocompetent **AND** all 12 through 48 months of age have completed their Hib immunization series **AND** when household contacts younger than 12 months of age have completed their primary Hib immunization series.
- For preschool and childcare contacts of 1 case.
- For index patients over age 2 years or treated with a full course of cefotaxime or ceftriaxone for H influenzae type b invasive disease.
- For pregnant people.

Chemoprophylaxis is **not** recommended for contacts of patients with invasive disease caused by non-type b strains of *H. influenzae*. However, recommendations have been revised to allow for chemoprophylaxis to be considered around a case of type a invasive *H. influenzae* disease (Hia), see section D below.

2. Education

If children under 4 years old are potentially exposed to a patient with invasive Hib disease, their parents or guardians should be instructed to monitor their children for signs of illness (e.g., fever, lethargy, irritability, loss of appetite, vomiting), and to seek medical care immediately should any illness occur. Most secondary cases in households occur during the first week after hospitalization of the index case although some secondary cases have occurred later.

3. **Active Immunization**

   Because of the length of time necessary to develop antibodies, vaccination does not play a major role in the management of contacts. However, unvaccinated or incompletely vaccinated children who are contacts of persons with Hib should receive a dose of Hib vaccine as soon as possible and be scheduled to complete the series.

C. Environmental Measures — None

D. Prophylaxis considerations for invasive *H. influenzae* serotype a (Hia)

Clinicians should consider chemoprophylaxis of household contacts of index cases of invasive Hia disease in households with a child younger than 4 years or with an immunocompromised child. Chemoprophylaxis can also be considered for preschool and childcare contacts. In these situations, if chemoprophylaxis is desired, use the same criteria for initiating prophylaxis as used for Hib. However, there is no vaccine for Hia, so vaccine status is not a factor in prophylaxis.

7. MANAGING SPECIAL SITUATIONS

A. Case Attends Child Care (*H. influenzae* invasive disease due to serotype b [Hib] only, or can be considered with serotype a [Hia])

Ascertain if the case was in any childcare setting during the week prior to onset.

(The overall risk of secondary disease in childcare settings seems to be less than that in households, and is rare when all childcare contacts are older than 2 years.)

1. The operator of the facility should be asked about other cases of meningitis or other suspect invasive disease occurring among other children during the past 2 months.
2. The parents of children in the same classroom as the case should be notified (preferably in writing) of the occurrence of Hib disease in the facility. The notice should advise parents to:
   - monitor their children carefully for signs of illness such as fever, irritability, lethargy, and loss of appetite; and
   - seek medical care immediately should such symptoms occur.
3. Instruct the childcare operator to notify the local health jurisdiction immediately if another child becomes ill with similar symptoms. When 2 or more cases of Hib have occurred within 60 days and unimmunized or under-immunized children attend the childcare facility, rifampin prophylaxis for workers and attendees is generally recommended (see Appendix A.).
4. Chemoprophylaxis is **not** routinely recommended for contacts of cases of invasive *H. influenzae* disease due to serotypes other than b. However, chemoprophylaxis may be considered for Hia with two or more cases within 60 days.

8. ROUTINE PREVENTION

A. Immunization Recommendations

Haemophilus influenzae serotype b (Hib) vaccine is recommended for all children. The primary series consists of either 3 doses given at 2, 4 and 6 months or 2 doses given at 2 and 4 months depending on the type of vaccine. A booster dose is recommended at 12–15 months of age.

Table 1. Hib monovalent conjugate vaccines currently available and recommended regimens for routine vaccination of children in the United States.

Licensed vaccine	Trade name	Primary Series	Booster Dose
PRP-T	ActHIB	2, 4, 6 months	12-15 months
PRP-OMP*	PedvaxHIB	2, 4 months	12-15 months
PRP-T	Hiberix	2, 4, 6 months	12-15 months

*Preferred product for American Indian/Alaska Native children

Table 2. Combination vaccinees currently available and recommended regimens for routine vaccination of children in the United States.

Licensed vaccine	Trade name	Primary Series	Booster Dose
Hib + DTaP + IPV + HepB	Vaxelis	2, 4, 6 months	Use another Hib-containing vaccine ≥6 months after last dose
PRP-T + DTaP+IPV	Pentacel	2, 4, 6 months	12-15 months

An additional combination vaccine, Hib-MenCY-TT, was previously available for children aged 2-23 months who were at increased risk of meningococcal disease, but this vaccine was discontinued in 2017.

Table 3. Recommended schedule for Hib conjugate vaccine administration among previously unvaccinated children.

Age at first dose	Primary Doses	Booster Dose
<12 months	2-3* doses, 1 month apart	At 12-15 months**
12-14 months	1 dose	8 weeks later
>15 - 59 months	1 dose	NR
>59 months	NR	NR

***Note: 2-3 doses depending on whether PRP-T or PRP-OMP vaccine was used**

****Only necessary if 3 primary doses received before age 12 months**

Tables reproduced from: Centers for Disease Control and Prevention. Epidemiology and Prevention of Vaccine-Preventable Diseases Chapter 8*: Haemophilus influenzae* , Oliver, S, Moro, P, Blain, A., 2021; and American Academy of Pediatrics. Haemophilus influenzae Infections. In: Kimberlin DW, Barnett ED, Lynfield R, Sawyer MH, eds. Red Book: 2021 Report of the Committee on Infectious Diseases. Itasca, IL: American Academy of Pediatrics: 2021

For more information regarding the types of Hib vaccines and recommended schedules for different Hib vaccines, see: https://www.cdc.gov/vaccines/vpd/hib/hcp/about-vaccine.html

B. Prevention Recommendations

Vaccination is the best way to protect against invasive disease caused by *Haemophilus influenzae* serotype b. Droplet precautions in addition to standard precautions should be used in healthcare settings until 24 hours after initiation of effective antibiotic therapy. No vaccine exists for serotypes other than type b so public health monitoring and droplet precautions are essential in preventing type a and non-typable stains.

Appendix A:

Rifampin* chemoprophylaxis for contacts of index cases of invasive Hib disease

Chemoprophylaxis recommended in these limited situations

- For **ALL** household contacts[a] in any of the following circumstances:
  - Household with at least 1 child younger than 4 years of age who is unimmunized or incompletely immunized[b] **OR**
  - Household with a child younger than 12 months of age who has not completed the primary Hib series **OR**
  - Household with an immunocompromised child, regardless of that child's Hib immunization status or age
- For preschool and childcare center contacts when 2 or more cases of Hib invasive disease have occurred within 60 days, administer chemoprophylaxis to all contacts irrespective of age and vaccination status.
- For index patient, if younger than 2 years of age or member of a household with a susceptible contact and treated with a regimen other than cefotaxime or ceftriaxone, chemoprophylaxis usually is provided at the end of therapy for invasive infection.

Chemoprophylaxis Not Recommended

- For occupants of households with no children younger than 4 years of age other than the index patient.
- For occupants of households when all household contacts are immunocompetent **AND** all 12 through 48 months of age have completed their Hib immunization series **AND** when household contacts younger than 12 months of age have completed their primary Hib immunization series.
- For preschool and childcare contacts of 1 index case.
- For index patients over age 2 years or treated with a full course of cefotaxime or ceftriaxone for *H influenzae* type b invasive disease.
- For pregnant people.

*Rifampin should be given orally, once a day for 4 days (20 mg/kg; maximum dose, 600 mg). The dose for infants <1 month of age is not established; some experts recommend lowering the dose to 10 mg/kg. For adults, each dose is 600 mg.

[a]Defined as people residing with the index patient or nonresidents who spent 4 or more hours with the index patient for at least 5 of the 7 days preceding the day of hospital admission of the index case.

[b]Complete immunization is defined as having had at least 1 dose of conjugate vaccine at 15 months of age or older; 2 doses between 12 and 14 months of age; or the 2- or 3-dose primary series (depending on vaccine used) when younger than 12 months with a booster dose at 12 months of age or older.

From 2024 AAP Red Book

ACKNOWLEDGEMENTS

This document is a revision of the Washington State Guidelines for Notifiable Condition Reporting and Surveillance published in 2002 which were originally based on the Control of Communicable Diseases Manual (CCDM), 17th Edition; James Chin, Ed. APHA 2000. We would like to acknowledge the Oregon Department of Human Services for developing the format and select content of this document.

UPDATES

January 2011:

- The Legal Reporting Requirements section has been revised to reflect the 2011 Notifiable Conditions Rule revision.
- In particular, labs are now required to immediately notify local health jurisdictions of *Haemophilus influenzae* in children under five years old and submit sterile site culture to PHL for serotyping.
- Section 3C: Case classification changed; criteria for probable cases were updated to include language from the 2010 case definition.

January 2015:

- Sections 3 and 4A updated to reflect new 2015 CSTE case definition which includes PCR as a confirmatory laboratory test.
- Section 5.A. Updated language about rifampin use in index cases.
- Section 5.B. Updated language about chemoprophylaxis of contacts.
- Section 8.A. Updated vaccine recommendation section to include information about combination vaccines now available including Hib-MenCY-TT.

January 2023:

- For WAC revision combined provider and facility reporting requirement, updated laboratory submission (Section 1B and 1C)

May 2023:

- Added cover sheet.
- Sections 2, 2B, 2C, and 2H were updated to include recent data and trends.
- Section 6 was updated to clarify that chemoprophylaxis can be considered for contacts of type a invasive disease.
- Section 6D was added to include new recommendation to consider chemoprophylaxis of contacts of invasive H. influenzae type a (Hia) cases in some situations.
- Section 8 was updated to reflect licensure and recommendation of Vaxelis, and discontinuation of COMVAX and Hib-MenCY-TT vaccines. Schedules were reviewed for accuracy.

December 2023:

- For 2024 WAC revision updated laboratory submission

June 2025:

- Page 1 Signs and Symptoms Section. Removed: “Noninvasive disease may include otitis media, sinusitis, or bronchitis” since Guidelines are for Invasive disease only.
- Page 1 Laboratory Section. Clarified submission of isolate instructions.
- Page 1 Public Health Investigation Section. Updated with more sequential steps.
- Section 2 The Disease and It’s Epidemiology, Introduction. Updated national surveillance data.
- Section 2 The Disease and It’s Epidemiology, 2C Section. Updated state data and added link to OCDE Annual Communicable Disease Report.
- Section 2E Modes of Transmission. Clarified language and inserted additional details.

- Section B.1 Controlling Further Spread. Clarified Chemoprophylaxis Guidelines .
- Section 8.A. Immunization Recommendations. Updated Table 1. Hiberix now licensed for primary series per CDC.
- Appendix A. Added chemoprophylaxis Guidance for contacts of index cases of invasive Hib disease.