



***Haemophilus influenzae*, Invasive Disease**

Investigation Guideline

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Revision History:

Date	Replaced	Comments
05/2018	01/2015	Updated Notification sections and Isolation, Work and Daycare Restrictions sections with updated regulations. Further clarification to Investigator Responsibilities. Modified format of other sections.
01/2015	07/2011	Updated Case Definition. More details added to Investigators Responsibilities and Data Management. Reformatted Standard Case Investigation section to assist with EpiTrax system data entry. Additional guidance added on assessing immunization status in Contact investigation. Replaced BSE with BEPHI. Reformatted fact sheet.
07/2011	06/2010	Recommendations for when serotype not available. Edits to Laboratory Analysis and Case Investigation. Addition of Notification section. Removal of HiB type b Vaccine Worksheet and Bacterial Meningitis Supplemental Form.
02/2012	-	Removed references to KS-EDSS.
06/2010	03/2009	Format changes to Investigation Protocol. Edits to Case Definition that was inconsistent with CDC definition. Addition of VAERS statement under Contact Management.
04/2009	03/2009	Revised Bacterial Meningitis Supplemental Form.

Haemophilus Influenzae, Invasive Disease

Disease Management and Investigative Guidelines

CASE DEFINITION (CDC 2015)

Clinical Description for Public Health Surveillance:

- Invasive disease may be manifest as pneumonia, bacteremia, meningitis, epiglottitis, septic arthritis, cellulitis, or purulent pericarditis; less common infections include endocarditis and osteomyelitis.

Laboratory Criteria for Case Classification:

- Detection of *Haemophilus influenzae* type b antigen in cerebrospinal fluid [CSF]
- 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 *Haemophilus influenzae* from a normally sterile body site (e.g., cerebrospinal fluid [CSF], blood, joint fluid, pleural fluid, pericardial fluid).

Case Classification:

- **Confirmed:**
 - Isolation of *Haemophilus influenzae* from a normally sterile body site (e.g., CSF, blood, joint fluid, pleural fluid, 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.
- **Probable:** Meningitis WITH detection of *Haemophilus influenzae* type b antigen in cerebrospinal fluid [CSF].

Comment:

Positive antigen test results from urine or serum samples are unreliable for diagnosis of *H. influenzae* disease and should not be used for case classification.

LABORATORY ANALYSIS

- Gram stains and cultures are routinely performed by commercial laboratories.
- Specimen: Blood, CSF or, less commonly, joint, pleural or pericardial fluid.
- Timing of specimen collection: Prior to the initiation of antibiotics.
- Antigen detection from CSF is reliable but should be confirmed by culture.
- Serotyping of invasive *H. influenzae* isolates:
 - Serotyping distinguishes encapsulated strains, which include *H. influenzae* serotype B (Hib), from unencapsulated strains, which cannot be serotyped.
 - There are 6 serotyped strains (designated a-f)
 - All isolates of *H. influenzae* should be serotyped, especially isolates from those less than 15 years of age.
 - The State Public Health Laboratory (KHEL) can assist with serotyping.
 - Contact KHEL at (785)296-1620 before sending the isolate.
- Shipping of isolates to KHEL:
 - Use Miscellaneous Infectious Disease (IDS) Shipper Specimens
 - For additional information and/or questions concerning isolate submission, and laboratory kits call (785) 296-1620.

EPIDEMIOLOGY

Haemophilus influenzae occurs worldwide. Before the use of conjugate vaccine, Hib was a leading cause of bacterial meningitis in the United States among children < 5 years of age. Invasive Hib disease now occurs in unvaccinated or under-vaccinated children and adults. It is most prevalent in children 2 months to 3 years in age with a peak incidence in children 6-12 months of age. Secondary cases in households, daycare centers and other institutional settings are rare.

DISEASE OVERVIEW

A. Agent:

H. influenzae is caused by a gram-negative coccobacillus that is either encapsulated (types a -f) or unencapsulated (non-typeable).

B. Clinical Description:

Invasive Hib disease may produce various syndromes, including septicemia, pneumonia, epiglottitis, cellulitis, pericarditis, peritonitis, and septic arthritis. Onset is frequently sudden with symptoms of fever, vomiting, lethargy, and/or meningeal irritation, consisting of bulging fontanel in infants or a stiff neck and back in older children. Otitis media or sinusitis may be a precursor of illness.

C. Reservoirs:

Humans.

D. Mode(s) of Transmission:

Transmission is by droplet infection and direct/indirect contact with discharges from nose and throat during the infections.

E. Incubation Period:

Unknown; probably 1 - 4 days.

F. Period of Communicability:

As long as organisms are present. Communicability ends within 24 - 48 hours of the initiation of effective antibiotic therapy.

G. Susceptibility and Resistance:

Susceptibility is universal and immunity may be acquired transplacentally, from prior infection, or from appropriate immunization. Hib disease is not common beyond 5 years of age. In the prevaccine era, peak attack rates occurred at 6–7 months of age, declining thereafter.

H. Treatment:

Patients with life-threatening *H. influenzae* illness should receive initial therapy with chloramphenicol or an effective third-generation cephalosporin (i.e., cefotaxime or ceftriaxone). Rifampicin is received prior to discharge from hospital to ensure elimination of the organism from the nasopharynx.

NOTIFICATION TO PUBLIC HEALTH AUTHORITIES

Suspected cases of Invasive *H. influenzae* shall be reported within 24 hours, except if the reporting period ends on a weekend or state-approved holiday, the report shall be made by 5:00 p.m. on the next business day after the 24-hour period:

1. Health care providers and hospitals: report to the local public health jurisdiction or KDHE-BEPHI (see below)
2. Local public health jurisdiction: report to KDHE-BEPHI (see below)
3. Laboratories: report to KDHE-BEPHI (see below)
4. KDHE-BEPHI contacts the local public health jurisdiction by phone within one hour of receiving a bacterial meningitis report

Kansas Department of Health and Environment (KDHE)
Bureau of Epidemiology and Public Health Informatics (BEPHI)
Phone: 1-877-427-7317 Fax: 1-877-427-7318

As a nationally notifiable condition, *H. influenzae* cases require a ROUTINELY NOTIFIABLE report to the Center of Disease Control and Prevention (CDC).

1. ROUTINE reporting requires KDHE-BEPHI to file an electronic report for a all cases regardless of classification within the next reporting cycle.
 - KDHE-BEPHI will file electronic reports weekly with CDC.
2. **Local public health jurisdiction** will report information requested as soon as possible, ensuring that the electronic form is completed within 7 days of receiving a notification of a *H. influenzae* report.

INVESTIGATOR RESPONSIBILITIES

Non-invasive cases, including conjunctivitis and positive sputum culture without pneumonia or epiglottitis, do not require investigation.

Invasive cases require follow-up to determine if further action is needed.

- *H. influenzae* cases that are caused by non-encapsulated serotypes or are “not serotype b” are still reported but do not require contact investigation.
- Invasive Hib cases require immediate, thorough contact investigations.

- 1) [Report](#) all invasive cases to the KDHE. (Non-invasive cases do not require investigation.)
- 2) Contact the medical provider to collect additional information and confirm diagnosis using the current case definition within 3 days of the report.
 - Collect all information requested in [Step 1](#)) of case investigation.
- 3) Based on initial findings, conduct additional [case investigation](#).
- 4) Only if a HiB infection is identified or suspected, conduct a [contact investigation](#).
 - Initiate control and prevention measures as needed.
 - Examine if there was a failure to vaccinate or vaccine failure.
- 5) [Record](#) data, collected during the investigation, in the KS EpiTrax system under the data’s associated [tab] in the case morbidity report (CMR).
 - Complete the CDC’s [Extended Information Worksheet](#) as needed.
- 6) As appropriate, use the disease [fact sheet](#) to notify individuals or groups.

STANDARD CASE INVESTIGATION AND CONTROL METHODS

Case Investigation for Invasive Cases Only

- 1) Contact the medical provider who reported or ordered testing of the case to obtain the following from the patient's medical records.
 - **Demographic data** (birth date, county, gender, race/ethnicity) [Demographic];
 - **Anatomic sites/specimen from which organism is isolated** [Laboratory];
 - **Symptoms** (fever, headache, stiff neck, rash, nausea, vomiting, confusion, chills, malaise, or other specified) [Investigation-Symptoms];
 - **Type of infection** (bacteremia, meningitis, otitis media, pneumonia, cellulitis, epiglottitis, peritonitis, pericarditis, septic arthritis, conjunctivitis, septic abortion, amnionitis or other specified) [Investigation-Complications];
 - **Onset date of illness** [Clinical];
 - **Occupation and/or attendance at a daycare facility:** include name of facility [Epidemiological];
 - **Treatment:** type of antibiotic, when started, when completed [Clinical];
 - **Hospitalizations:** location and duration of stay [Clinical];
 - **Outcomes:** survived or date of recovery or date of death [Clinical];
 - **Information on Hib vaccine status** through a credible immunization registry or medical record: dates of vaccination, type, manufacturer, number of doses or why not vaccinated [Investigation-Vaccination History].
 - If not available from the medical records, attempt to collect the information from another credible source.
- 2) Examine the laboratory testing that was done [Laboratory], especially:
 - Specimen information: Collection date of first positive culture
 - For meningitis cases, gram stain results (usually available within 1 hour of collection for CSF specimens).
 - Culture results (may take more than 48 hours).
 - Antibiotic susceptibility to ampicillin, chloramphenicol, and rifampin.
 - Serotype results:
 - Most hospital and private laboratories will not serotype.
 - Unencapsulated strains cannot be serotyped and are not Hib.
 - Refer to [Laboratory Analysis](#) Section for further information.

For unencapsulated or non-serogroup B: STOP investigation, report any additional case information that was collected, and close the case.

For Hib or UNKNOWN serotypes: Continue with Step 3; especially in those <15 years of age.

- 3) For unknown serotypes or Hib isolates, coordinate/request further laboratory testing, as needed:
- If serotyping has not been done, coordinate sending isolates to KHEL.
 - If only Hib antigen was detected (CSF), examine possibility of culture.
 - If antibiotic susceptibility results are unknown or not reported, request and attach the results to the of Case Morbidity Record (CMR) [Notes]
 - Refer to [Laboratory Analysis](#) Section for further information.

If waiting on serotyping results – report the initial case information and if:

1. **Case is less than 5 years of age: continue steps 4-7.**
2. **Case is 5-14 years of age and is a meningitis case or is under vaccinated or a possible vaccine failure: continue steps 4-7.**
3. **Case is not one of the above and/or is over 15 years of age:**
 - **Make certain the laboratory or physician plans to serotype the isolate. If they do wait for serotyping results (BUT still report the initial case information to the state), or**
 - **If no serotyping will be done, report the initial case information noting that serotyping will not be done and close the case.**

When serotyping results are available:

1. **Unencapsulated or non-serogroup B: STOP investigation, report any additional case information requested in Step 1, and close the case.**
2. **Hib is reported: Continue to complete steps 4-7.**

- 4) Collect [extended information](#):
- Underlying causes or prior illness [Investigation-Complications]
 - Outcome of fetus if patient is pregnant/post-partum [Notes]
 - Gestational age, time of birth, and birth weight for patient <1 month of age.
 - Residence in long term care facility [Epidemiological]
 - This information is collected if the “Expanded Worksheet Option” from the CDC is used (optional; use as an investigation guide, as needed)
- 5) Interview the patient to determine risk factors and transmission settings.

It may not be possible to identify the source. Efforts are best spent on the contact investigation, but possible sources of infection do include: household contacts, association with daycare or children, recent illness in contacts, travel to endemic areas where routine vaccination with Hib vaccine is not widely available.

- Travel History:
 - If not US resident, record birth country. [Notes]
 - Record travel outside of Kansas 2 months before illness onset; specify whether travel was international (include dates and locations) [Notes]
 - Noting travel dates and locations record where the infection was most likely imported from. (Indigenous / Outside of U.S.) [Epidemiological]

- Investigate potential exposures 2 months before illness onset: [Notes]
 - Exposure to HiB case or carrier
 - Exposure to international travelers or immigrants
 - Examine potential transmission settings, include:
 - Patient’s occupation: food handler, health care worker, group living, or day care attendee / worker; specifically list patient’s occupation [Epidemiological]
 - Examining occupation, record any Place Exposure(s) (where illness could have been transmitted). [Epidemiological]
- 6) Collect information from patient or other credible sources for the [Contact Investigation](#). (See below).
- 7) Investigate epi-links among cases (clusters, household, co-workers, etc).
- If the patient had contact with person(s) who have/had an invasive type infection, especially meningitis, determine if the other “cases” were seen by a medical provider and if they were reported to the state:
 - Search the state electronic surveillance for the possible case.
 - If found, record the previously reported record number in the record of the case you are investigating [Notes].
 - Hib or invasive Haemophilus infections in persons that have not previously been reported should be investigated as a potential case and [reported](#) to KDHE-BEPHI if evidence is collected that supports the [case definition](#).
 - Enter the patient’s contact who exhibited invasive type illness on the [Contact] Tab of the CMR and save.
 - After the CMR has updated successfully, click ‘Show’ beside the contact on the listing.
 - With the [View Contact](#) open in show mode, select ‘Promote to CMR’; update, as needed.
 - For suspected [outbreaks](#) refer to Managing Special Situations section.

Contact Investigation

- 1) Review the patient’s occupation and activities collected during the [Case Investigation](#) and recorded on [Epidemiological] and [Notes] tabs:
- Examine activities from onset date to 7 days after onset. (Period can be shortened to 24 hours after the initiation of an effective antibiotic therapy.)
 - Verify patient’s household address and telephone number(s) [Demographics]
 - Collect information on living and/or sleeping accommodations;
 - Verify addresses of places of exposure, dates the patient was present, and ways to identify potential contacts at the locations. [Epidemiological]
 - Pay close attention to any associations with young children or infants in childcare or nursery school.
 - Consider the locations the patient sought medical care. [Clinical]

- 2) Contacts to consider when dealing with a Hib investigation include:
 - Household and close contacts: 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. (Source: [Red book, Table 3.9](#))
 - Close contacts (based on nonresident criteria above) may include:
 - Daycare: direct caregivers and roommates of a case.
 - School: close personal contacts, educators and classmates of case.
- 3) Create a line listing of contacts collecting information on each contact's [\[Contact\]](#):
 - Age and Hib immunization status.
 - Occupation, school or daycare attendance. (Include facility and location.)
 - Any medical conditions that would put the contact at higher risk, such as sickle cell disease, asplenia (no spleen), HIV (human immunodeficiency virus) infection, Antibody and complement deficiency syndromes, receipt of chemotherapy or radiation therapy for malignant neoplasms, receipt of hematopoietic stem cell transplant
- 4) The following information ***must be*** collected to assess how to manage household, close, daycare and school contacts:
 - If serotype is unknown, when will it be available?
 - Ages of the children considered contacts in each setting.
 - Hib immunization status of children <48 months.
 - Presence of immunocompromised children in the setting.
- 5) Assess immunization status by age, vaccine type, and dose number.
 - A child is considered completely immunized, if at the minimum:
 - <12 months of age they have 2-3 doses, 1 month apart
 - 12-15 months of age, have had at least 2 doses, 2 months apart.
 - 15-72 months of age, have had at least 1 dose of vaccine
 - Refer to the following tables for information on various vaccines
 - [Table 1](#): Hib monovalent conjugate vaccines currently available and recommended regimens for routine vaccination of children in the United States
 - [Table 2](#): Combination vaccines currently available and recommended regimens for routine vaccination of children in the United States
 - [Table 3](#): Recommended schedule for Hib conjugate vaccine administration among previously unvaccinated children
- 6) Follow-up with contacts as recommended under [Contact Management](#).

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

Licensed vaccine (Manufacturer)	Trade name	Primary Series	Booster Dose
PRP-T (Sanofi Pasteur)	ActHIB	2, 4, 6 months	12-15 months
PRP-OMP (Merck & Co., Inc)	PedvaxHIB	2, 4 months	12-15 months
PRP-T (GlaxoSmithKline)	Hiberix	Not licensed for primary series	12-15 months

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

Licensed vaccine (Manufacturer)	Trade name	Primary Series	Booster Dose
PRP-OMP + HepB (Merck & Co., Inc)	COMVAX	2, 4 months	12-15 months
PRP-T + DTaP+IPV (Sanofi Pasteur)	Pentacel	2, 4, 6 months	12-15 months

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**
12-15 months	2 doses, 2 months apart	NR
>15 - 72 months	1 dose	NR
>72 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

Isolation, Work and Daycare Restrictions

K.A.R 28-1-6 for *Haemophilus influenzae*, invasive:

Control of Cases

- For each person hospitalized with a case, droplet precautions shall be followed for 24 hours following initiation of appropriate antimicrobial therapy.

Case Management

- 1) Follow Hib patients closely to assure compliance with control measures.
 - Assure that the Hib patient received a regimen including cefotaxime or ceftriaxone before returning to a daycare or nursery school setting.
 - Hib patients treated with a regimen other than cefotaxime or ceftriaxone, should receive rifampin chemoprophylaxis prior to hospital discharge if:
 - Patient is ≤ 2 years of age, or
 - Patient resides with a susceptible household member.
- 2) Children <24 months of age who develop invasive Hib disease should repeat the Hib vaccine series because they can remain at risk of a second episode of disease; children >24 months of age who develop invasive Hib disease usually develop a protective immune response and do not need immunization.
- 3) Report on any changes in patient status. [Clinical]

Contact Management

- 1) The level of urgency for follow-up will depend on:
 - serotype or when will it be available,
 - ages of the contacts,
 - Hib immunization status of contacts <48 months, and
 - presence of immunocompromised children in the setting
- 2) Not all Hib contacts will need chemoprophylaxis (see below) but all should be:
 - Informed about their risk of disease and benefits of vaccination.
 - Educated on the incubation period and the need to seek immediate medical attention if febrile illness or other symptoms develop.
 - Under active surveillance for at least 7 days after their last contact with the case to monitor for fever and other early signs of infection.
- 3) Rifampin chemoprophylaxis use is evaluated on case-by-case basis with the assistance of the medical officer and KDHE-BEPHI. The following guidelines are presented for Hib infections:
 - For household and close contacts meeting the following criteria, rifampin is recommended for all household and close contacts:
 - Households with one or more contacts younger than 4 years of age who are unimmunized or incompletely immunized, or
 - Households with an immunocompromised person 18 year of age or less, regardless of that child's Hib immunization status.
 - For daycares or nursery schools:
 - If ≥ 2 cases of Hib invasive disease occur within 60 days: recommend rifampin prophylaxis to all children and staff in the classroom.
 - With a single case, the advisability of rifampin prophylaxis in exposed child care groups with unimmunized or incompletely immunized children is controversial and will need to be evaluated on a case-by-case basis.

- 4) Rifampin is generally not recommended in the following circumstances:
 - Settings with all persons are 48 months of age or older, or if children younger than 48 months of age are fully vaccinated according to the Hib immunization series.
 - Only 1 index case in daycare and nursery school, especially when contacts are ≥ 2 years of age.
 - For pregnant women.
- 5) Additional control strategies should be discussed with an epidemiologist from KDHE-BEPHI (1-877-427-7317).
- 6) Report the number of susceptible contacts who received the recommendation for vaccination(s) or prophylaxis [Notes].
- 7) Report any adverse event that occurs after the administration of a vaccine to Vaccine Adverse Events Reporting System at <https://vaers.hhs.gov/index.html>.

Education

- 1) Provide education that includes basic information about the disease and its complications and ways to treat and prevent transmission of illness.
- 2) Counsel to watch for fever or signs or symptoms of infection occurring within 7 days after exposure and to seek medical care promptly.
 - Exposed unimmunized or incompletely immunized children who are household, child care, or nursery contacts of patients with invasive Hib disease require careful observation.
 - Instruct parents or guardians to monitor their exposed children for early signs of infection and to seek medical care immediately if illness occurs.
 - Early signs of infection include: fever, lethargy, irritability, loss of appetite, vomiting, or other signs of illness.
- 3) Instruct cases and contacts on the necessary isolation or any other restrictions.
- 4) Provide Vaccine Information Statements (VIS) to those receiving vaccine.

MANAGING SPECIAL SITUATIONS

A. Outbreak Investigation:

- Notify KDHE immediately, 1-877-427-7317.
- Active case finding will be an important part of any investigation.

B. Nursery School or Child Care Settings:

- Coordinate activities with school nurse and/or administration.
- Each childcare situation should be evaluated on an individual basis with the assistance of the medical officer and the State Immunization Program. The following general guidelines are presented:
 - In child care centers attended by children < 2 years of age, the occurrence of a single case of Hib justifies written notification to all parents that their children are at slightly increased risk.
 - The notice should list the symptoms and recommend prompt medical attention if symptoms occur.
 - Chemoprophylaxis is usually not recommended in instances when there is only a single case.
 - When ≥ 2 cases occur within 60 days of each other, administration of rifampin prophylaxis to all attendees and staff may be recommended. If prophylaxis is recommended, it must be done promptly.
- Nasopharyngeal carriage studies should not be used as a guide for implementation of chemoprophylaxis.

DATA MANAGEMENT AND REPORTING TO THE KDHE

- A. Accept the case assigned to the LHD and record the date the LHD investigation was started on the **[Administrative]** tab.
- B. Organize and collect data.
- The [Haemophilus influenzae Disease Surveillance Worksheet \(Abbreviated Option\)](#) is provided to assist the investigator but does not have to be submitted to CDC or KDHE.
 - Investigators can collect and enter all required information directly into EpiTrax **[Investigation]**, **[Clinical]**, **[Demographics]**, and **[Epidemiological]** tabs without using the paper forms.
 - If a Hib case is identified in a child <15 years of age, the CDC [Extended Information Worksheet](#) should also be completed, scanned, and [attached](#) to the case morbidity record.
 - During outbreak investigations, refer to guidance from a KDHE epidemiologist for appropriate collection tools.
- C. Report data collected during the course of the investigation via EpiTrax.
- Verify that all data requested in [Step 1](#)) has been recorded on an appropriate EpiTrax **[tab]**, or that actions are completed for a case lost to follow-up as outlined below.
 - Some data that cannot be reported on an EpiTrax **[tab]** may need to be recorded in **[Notes]** or scanned and attached to the record.
 - Paper report forms do not need to be sent to KDHE after the information is recorded in EpiTrax. The forms should be handled as directed by local administrative practices.
- D. If a case is lost to follow-up, after the appropriate attempts:
- Indicate 'lost to follow-up' on the **[Investigation]** tab with the number of attempts to contact the case recorded.
 - Record at least the information that was collected from the medical records.
 - Record a reason for 'lost to follow-up' in **[Notes]**.
- E. Once the investigation is completed, the LHD investigator will click the "Complete" button. This will trigger an alert to the LHD Administrator, so they can review the case before sending to the state.
- The LHD Administrator will then "Approve" or "Reject" the CMR.
 - Once a case is "Approved" by the LHD Administrator, BEPHI staff will review the case to ensure completion before closing the case.

Review the [EpiTrax User Guide, Case Routing](#) for further guidance.

Notes case classification in EpiTrax:

- Cases are initially reported as "Haemophilus influenzae, invasive".
- Cases identified as "non-invasive" will later be changed to 'not a case'.
- Isolates that are serotyped as "Type b" will later be changed to "Haemophilus influenzae, invasive serotype B (HIB).
- Meningitis cases will only be counted if "meningitis" is marked on symptoms.

ADDITIONAL INFORMATION / REFERENCES

- A. **Treatment / Differential Diagnosis:** American Academy of Pediatrics. Red Book: Report of the Committee on Infectious Disease, 29th Edition. Illinois, Academy of Pediatrics, 2014.
- B. **Epidemiology, Investigation and Control:** Heymann. D., ed., Control of Communicable Diseases Manual, Washington, DC, American Public Health Association, 2010.
- C. **Case Definitions:** wwwn.cdc.gov/nndss/
- D. **Kansas Regulations/Statutes Related to Infectious Disease:** www.kdheks.gov/epi/regulations.htm
- E. **Pink Book:** Epidemiology and Prevention of Vaccine-Preventable Diseases. Available at: www.cdc.gov/vaccines/pubs/pinkbook/index.html
- F. **Manual for the Surveillance of Vaccine-Preventable Diseases:** Available at: www.cdc.gov/vaccines/pubs/surv-manual/index.html .
- G. **Additional Information (CDC):** www.cdc.gov/health/default.htm

ATTACHMENTS

To view attachments in the electronic version:

1. Go to <View>; <Navigation Pane>; <Attachments> – OR – Click on the “Paper Clip”  icon at the left.
2. Double click on the document to open.

HOSPITAL 36. Was the patient hospitalized for this illness? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> UNKNOWN 37. Hospital name: _____ 38. Hospital ID: _____ 39. Hospital ID Type: _____ 40. Admission Date: 41. Discharge Date: <input type="checkbox"/> <input type="checkbox"/> <small>MONTH DAY YEAR MONTH DAY YEAR MONTH DAY YEAR</small> 42. Total duration of stay within hospital: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> Days	43a. Hospital/lab ID where culture identified: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	43b. Hospital ID where patient treated: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
47. Types of infection caused by organism (CHECK ALL THAT APPLY) <input type="checkbox"/> Bacteremia without focus <input type="checkbox"/> Abscess (not skin) <input type="checkbox"/> Empyema <input type="checkbox"/> Meningitis <input type="checkbox"/> Peritonitis <input type="checkbox"/> Endocarditis <input type="checkbox"/> Otitis media <input type="checkbox"/> Pericarditis <input type="checkbox"/> Endometritis <input type="checkbox"/> Pneumonia <input type="checkbox"/> Septic abortion <input type="checkbox"/> STSS <input type="checkbox"/> Cellulitis <input type="checkbox"/> Chorioamnionitis <input type="checkbox"/> Necrotizing fasciitis <input type="checkbox"/> Epiglottitis <input type="checkbox"/> Septic arthritis <input type="checkbox"/> Puerperal sepsis <input type="checkbox"/> Hemolytic uremic syndrome (HUS) <input type="checkbox"/> Osteomyelitis <input type="checkbox"/> Other infection _____	44a. Was patient transferred from another hospital? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown 44b. If Yes, hospital ID <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	45. Illness Onset Date: <input type="checkbox"/> <input type="checkbox"/> <small>MONTH DAY YEAR MONTH DAY YEAR</small> 46. Illness End Date: <input type="checkbox"/> <input type="checkbox"/> <small>MONTH DAY YEAR MONTH DAY YEAR</small>
49. Sterile sites from which organism isolated: (CHECK ALL THAT APPLY) <input type="checkbox"/> Blood <input type="checkbox"/> Peritoneal fluid <input type="checkbox"/> Bone <input type="checkbox"/> CSF <input type="checkbox"/> Pericardial fluid <input type="checkbox"/> Muscle <input type="checkbox"/> Pleural fluid <input type="checkbox"/> Joint Specify <input type="checkbox"/> Internal body site _____ <input type="checkbox"/> Other normally sterile site _____	48a. Bacterial species isolated from any normally sterile site (CHECK ALL THAT APPLY) <input type="checkbox"/> <i>Neisseria meningitidis</i> <input type="checkbox"/> Abscess (not skin) <input type="checkbox"/> <i>Haemophilus influenzae</i> <input type="checkbox"/> Group A streptococcus <input type="checkbox"/> Group B streptococcus <input type="checkbox"/> <i>Streptococcus pneumoniae</i> 48b. Other bacterial species isolated from any normally sterile site _____ _____ _____	50. Date first positive culture obtained: (date specimen drawn) <input type="checkbox"/> <input type="checkbox"/> <small>MONTH DAY YEAR MONTH DAY YEAR</small> 51. Other nonsterile sites from which organism isolated: (CHECK ALL THAT APPLY) <input type="checkbox"/> Placenta <input type="checkbox"/> Middle ear <input type="checkbox"/> Amniotic fluid <input type="checkbox"/> Sinus <input type="checkbox"/> Wound <input type="checkbox"/> Other nonsterile site _____
52. Underlying causes or prior illness: (CHECK ALL THAT APPLY) <input type="checkbox"/> Current smoker <input type="checkbox"/> Hodgkin disease <input type="checkbox"/> HIV infection <input type="checkbox"/> Heart failure / CHF <input type="checkbox"/> Multiple myeloma <input type="checkbox"/> Asthma <input type="checkbox"/> AIDS or CD4 count <200 <input type="checkbox"/> Obesity <input type="checkbox"/> Sickle cell anemia <input type="checkbox"/> Emphysema / COPD <input type="checkbox"/> Cochlear implant <input type="checkbox"/> CSF leak <input type="checkbox"/> Splenectomy / asplenia <input type="checkbox"/> Systemic lupus erythematosus (SLE) <input type="checkbox"/> Deaf / profound hearing loss <input type="checkbox"/> IVDU <input type="checkbox"/> Immunoglobulin deficiency <input type="checkbox"/> Diabetes mellitus <input type="checkbox"/> Cirrhosis / Liver failure <input type="checkbox"/> Cerebral vascular accident (CVA) / Stroke <input type="checkbox"/> Immunosuppressive therapy (Steroids, Chemotherapy, Radiation) <input type="checkbox"/> Nephrotic syndrome <input type="checkbox"/> Alcohol Abuse <input type="checkbox"/> Complement deficiency <input type="checkbox"/> Leukemia <input type="checkbox"/> Renal failure/Dialysis <input type="checkbox"/> Atherosclerotic Cardiovascular Disease (ASCVD) / (CAD) Specify <input type="checkbox"/> Other malignancy _____ <input type="checkbox"/> Organ transplant _____ <input type="checkbox"/> Other prior illness _____		
53. Was patient pregnant / post partum at time of first positive culture? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown If yes, outcome of fetus <input type="checkbox"/> Survived, no apparent illness <input type="checkbox"/> Live birth / neonatal death <input type="checkbox"/> Induced abortion <input type="checkbox"/> Survived, clinical infection <input type="checkbox"/> Abortion / stillbirth <input type="checkbox"/> Unknown		
54. Is the patient <1 month of age? <input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> Unknown If yes, time of birth: _____:_____:_____ Gestational age: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> (wks) Birth weight: <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> (gms)		55. Did the patient die from this illness? <input type="checkbox"/> Yes <input type="checkbox"/> No

56. What was the serotype?

a d Not Typable

b e Not Tested or Unknown

c f Other _____

59. Type of insurance: (CHECK ALL THAT APPLY)

Medicare

Military/VA

Medicaid/state assistance program

Indian Health Service (IHS)

Private/HMO/PPO/managed care plan

No health care coverage

Unknown

Other Insurance _____

57. Was the patient <15 years of age at the time of the first positive culture Yes No Unknown

58. Birth Country: _____

60. Is there a known previous contact with Hib disease within the preceding two months? Yes No Unknown

If yes specify type of contact: _____

61. Significant past medical history: _____

If pre-term birth (<37 weeks). Specify weeks: _____

Serum availability

Is acute serum available? Yes No Unknown Is convalescent serum available? Yes No Unknown

Date: Date:

MONTH DAY YEAR MONTH DAY YEAR

62. If <15 years of age and serotype "b" or "unk", did patient receive *Haemophilus influenzae* b vaccine? Yes No Unknown

Dose	Date Given			Vaccine Name/Manufacturer	Lot Number
	MONTH	DAY	YEAR		
1	<input type="text"/>	<input type="text"/>	<input type="text"/>	_____	_____
2	<input type="text"/>	<input type="text"/>	<input type="text"/>	_____	_____
3	<input type="text"/>	<input type="text"/>	<input type="text"/>	_____	_____
4	<input type="text"/>	<input type="text"/>	<input type="text"/>	_____	_____

Epidemiologic

63. Does this patient: (CHECK ALL THAT APPLY)

Attend a day care* facility Yes No Unknown **Facility name** _____

*DAY CARE IS DEFINED AS A SUPERVISED GROUP OF 2 OR MORE UNRELATED CHILDREN FOR >4 HOURS PER WEEK.

Reside in a long term care facility? Yes No Unknown **Facility name** _____

64. Is this case part of an outbreak? Yes No Unknown **Outbreak name** _____

Where was this disease acquired? _____

Imported Country: _____ Imported City: _____

Imported State: _____ Imported County: _____

CONFIRMATION METHOD

65. Case status:

Confirmed Not a case

Probable Unknown

Suspect

66. Does this patient have recurrent disease with the same pathogen?

Yes No Unknown

If yes, previous (1st) state I.D.

67. CRF Status:

Complete Chart unavailable after 3 requests

Incomplete

Edited & Correct

General Comments: _____
