



***Streptococcus pneumoniae*, Invasive Disease Investigation Guideline**

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Revision History:

Date	Replaced	Comments
05/2018	12/2014	Updated Invasive Pneumococcal Disease case definition. Notification Section modified with requirements of revised regulations.
12/2014	11/2010	Reformatted Standard Case Investigation and Data Management section to assist with EpiTrax system data entry. Added a Notification section. Updated web links, including link to the most current CDC recommendation for the use of pneumococcal vaccine. Reformatted fact sheet.
11/2010	01/2010	Removal of clinically compatible from the listed case definition to bring it into agreement with CDC guidance. (In 02/2012, removed references to KS-EDSS.)
05/2021	11/2010	Laboratory Analysis and Standard Case Investigation: clarified that current surveillance objectives require isolates to be sent to KHEL for cases in those under the age of 5 years. Statement added on reporting adverse vaccine events to Education. Attached CDC Strep pneumo Worksheet 2019 Version.

***Streptococcus pneumoniae*, Invasive Disease Disease Management and Investigative Guidelines**

CASE DEFINITION (CDC 2017) – Invasive Pneumococcal Disease (IPD) (*Streptococcus pneumoniae*)

Clinical Description for Public Health Surveillance:

Invasive Pneumococcal (*Streptococcus pneumoniae*) Disease or IPD causes many clinical syndromes, depending on the site of infection (e.g., bacteremia, meningitis.)

Laboratory Criteria for Case Classification:

- Supportive: Identification of *S. pneumoniae* from a normally sterile body site by a Cultural Independent Diagnostic Test (CIDT) without isolation of the bacteria.
- Confirmatory: Isolation of *S. pneumoniae* from a normally sterile body site.

Criteria to Distinguish a New Case from Existing Case: A single case should be defined as a health event with a specimen collection date that occurs more than 30 days from the last known specimen with a positive lab finding.

Case Classification:

- **Confirmed:** A case that meets the confirmatory laboratory evidence.
- **Probable:** A case that meets the supportive laboratory evidence (cultural independent)

Comments: The use of CIDTs as stand-alone tests for the direct detection of *S. pneumoniae* from clinical specimens is increasing. Data regarding their performance indicate variability in the sensitivity, specificity, and positive predictive value of these assays depending on the manufacturer and validation methods used. It is therefore useful to collect information on the laboratory conducting the testing, and the type and manufacturer of the CIDT used to diagnose each IPD case. Culture confirmation of CIDT-positive specimens is still the ideal method of confirming a case of IPD.

CASE DEFINITION (CDC 2007) – *Streptococcus pneumoniae*, Drug-Resistant Invasive Disease (DRSP)

Clinical Description for Public Health Surveillance

Same as above for invasive *Streptococcus pneumoniae*.

Laboratory Criteria for Case Classification:

- Isolation of *S. pneumoniae* from a normally sterile site (e.g., blood, cerebrospinal fluid, or, less commonly, joint, pleural, or pericardial fluid) and
- "Non-susceptible" isolate (i.e., intermediate- or high-level resistance* of the *S. pneumoniae* isolate to at least one antimicrobial agent currently approved for use in treating pneumococcal infection.)

* Resistance defined by National Committee for Clinical Laboratory Standards (NCCLS)-approved methods and NCCLS-approved interpretive minimum inhibitory concentration (MIC) standards ($\mu\text{g/ml}$) for *S. pneumoniae*.

Case Classification:

- **Confirmed:** Case that is laboratory-confirmed.
- **Probable:** Case caused by laboratory-confirmed culture of *S. pneumoniae* identified as "non-susceptible" (i.e., an oxacillin zone size of less than 20 mm) when oxacillin screening is the only method of antimicrobial susceptibility testing performed.

LABORATORY ANALYSIS

- Gram stains and cultures are performed routinely by commercial laboratories.
- Submission of all **invasive** *S. pneumoniae* isolates to the Kansas Health and Environmental Laboratory (KHEL) is required. (K.A.R. 28-1-18)
 - Current surveillance objectives in Kansas require the monitoring of invasive cases in persons under the age of 5 years.
 - To support these objectives, KDHE requests all isolates of organisms isolated from a normally sterile site in persons under the age of 5 years be forwarded to KHEL for further studies.
- Shipping of isolates: Use Miscellaneous Infectious Disease (IDS) Shipper.
- For additional information and/or questions concerning isolate submission call (785) 296-1620.

EPIDEMIOLOGY

S. pneumoniae is a leading cause worldwide of illness and death for young children, persons with underlying medical conditions, and the elderly. It is the most commonly identified cause of bacterial pneumonia; and, since the widespread use of vaccines against *Haemophilus influenzae* type b, it has become the most common cause of bacterial meningitis in the United States. Rates of invasive disease are highest among persons younger than 2 years of age and those 65 years of age or older. Pneumococci are in the upper respiratory tract of 15% of well adults; in child care settings, up to 65% of children are colonized. Although pneumococcal carriage can lead to invasive disease, acute otitis media (AOM) is the most common clinical manifestation among children and the most common outpatient diagnosis resulting in antibiotic prescriptions in that group. Approximately 12% of all patients with invasive pneumococcal disease die of their illness, but case-fatality rates are higher for the elderly and patients with certain underlying illnesses.

Before 1990, *S. pneumoniae* was almost uniformly susceptible to penicillin, allowing most physicians to treat persons with severe infections with penicillin alone. However, during the 1990s, resistance to penicillin and to multiple classes of antimicrobial agents spread rapidly in the United States, with an increasing trend of invasive pneumococci resistant to three or more drug classes. In 1998, 24% of invasive pneumococcal isolates were non-susceptible to penicillin, and 78% of these strains belonged to five of the seven serotypes included in PCV7, a 7-valent pneumococcal polysaccharide–protein conjugate vaccine. Following the introduction of PCV7 into the routine childhood immunization program in 2000, the incidence of antibiotic-resistant invasive disease declined substantially. In 2004, the rate of penicillin- non-susceptible invasive disease caused by serotypes included in PCV7 had declined by 98% among children younger than 2 years of age and by 79% among adults 65 years or older. In contrast, there was an increase in penicillin-resistant disease caused by serotypes not included in PCV7, but the magnitude of this effect remains small.

DISEASE OVERVIEW

A. Agent:

S. pneumoniae, Gram positive diplococcus. Nearly all strains causing invasive disease are encapsulated; there are 90 known capsular serotypes

B. Clinical Description:

Several invasive clinical syndromes, including pneumonia, bacteremia and meningitis. *S. pneumoniae* is also a cause of AOM and mastoiditis.

C. Reservoirs:

Humans.

D. Mode(s) of Transmission:

S. pneumoniae are transmitted person-to-person by large droplet spread and/or by contact with respiratory secretions. Casual contact can result in nasopharyngeal carriage of the organism without illness developing. Individuals with acute respiratory tract infections (particularly nasal) can transmit noninvasive infection (i.e. upper respiratory infections). Invasive disease is not transmitted person-to-person as it only occurs after the bacteria get past the immune defenses of a person who is infected or colonized.

E. Incubation Period:

Unknown, probably short, 1-4 days.

F. Period of Communicability:

When organism is present in respiratory secretions; a person is regarded as noninfectious 24-48 hours after appropriate antibiotic treatment begins.

G. Susceptibility and Resistance:

Immunity associated with circulating bactericidal and /or anticapsular antibody, acquired transplacentally or from prior infection or immunization.

H. Treatment:

Penicillin, ceftriaxone, or cefotaxime are drugs of choice. When resistance is widespread, treatment will usually include a broad-spectrum cephalosporin, and often vancomycin, until results of antibiotic sensitivity testing are available.

NOTIFICATION TO PUBLIC HEALTH AUTHORITIES

Suspected cases of invasive *Strep. pneumoniae* 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 local health jurisdiction
2. Laboratories: report to KDHE - BEPHI
3. Local health jurisdiction: report to KDHE - BEPHI

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

Further responsibilities of state and local health departments to the CDC:

As a nationally notifiable condition, Streptococcus pneumoniae, invasive disease (IPD) 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 within the next reporting cycle.
 - KDHE-BEPHI will file electronic reports weekly with CDC.
2. **Local public health jurisdiction** will report information requested in the Kansas electronic surveillance system, as soon as possible, ensuring that the electronic form is completed within 7 days of receiving a notification of a report.

INVESTIGATOR RESPONSIBILITIES

- 1) [Report](#) all confirmed and probable cases to the KDHE.
- 2) Begin the public health investigation within 3 days of receiving a report; completing the investigation within 7 days.
 - The goal of the [case investigation](#) is to collect epidemiological data as required by current surveillance objectives, but routine contact investigation and/or an investigation for a source is of no practical value for *S. pneumoniae* cases.
 - Contact the medical provider to collect additional information and confirm diagnosis using the current case definition.
 - Collect all information requested in [Step 1](#)) of case investigation.
 - Most data can be collected from the medical provider, and the patient will not need to be contacted.
- 3) Ensure invasive [S. pneumoniae isolates](#) for those persons under the age of 5 years were sent to the state laboratory.
- 4) [Record](#) data, collected during the investigation, in the KS EpiTrax system under the data's associated [\[tab\]](#) in the case morbidity report (CMR).
- 5) As appropriate, use the disease [fact sheet](#) to notify individuals or groups.

STANDARD CASE INVESTIGATION AND CONTROL METHODS

Case Investigation

- 1) Contact the medical provider who reported or ordered testing of the case to obtain the following from the patient's medical records.

For all cases, the following data is ESSENTIAL:

- **Demographic data (birth date, county, sex, race/ethnicity)**
- **Anatomic site from which organism is isolated**
- **Type of infection**
- **Antibiotic susceptibility** – scanned and attach to CMR

Additional information to collect for cases includes:

- Onset date of illness;
 - Attendance at a daycare facility: include name of facility;
 - Hospitalizations: location and duration of stay;
 - Outcomes: survived and date of recovery or date of death;
 - Underlying medical conditions prior to illness;
 - Date first positive culture obtained; and
 - Through a credible immunization registry or medical record information on pneumococcal vaccination(s), including date(s) of vaccination, vaccine name, manufacturer, lot number.
- 2) For confirmed cases in children under the age of 5 years, if there is no indication that the isolate has been sent to KHEL, call or send a reminder to the laboratory that an isolate should be sent to KHEL.
 - 3) Investigate any epi-links among cases (cluster, household, co-workers, etc) if identified. For suspected [outbreaks](#) refer to [Managing Special Situations](#).

Contact Investigation

Contact investigation is of no practical value for routine situations.

Isolation, Work and Daycare Restrictions

Hospitalized patients: Standard precautions are recommended, including patients with infections caused by drug-resistant *S. pneumoniae*.

Case Management

Report on any changes in patient status (i.e. date of death).

Contact Management

None required.

Environmental Measures

In day care settings, the regularly cleaning of toys with an approved disinfectant is recommended. For more information on *S. pneumoniae* in daycares, refer to [Managing Special Situations](#).

Education

If contacts or household members inquire about their risk of acquiring the disease:

- Use the *S. pneumoniae* fact sheet to answer inquiries.
- Stress the following:
 - Invasive disease is not spread person-to-person;
 - Antibiotic treatment is not an effective way of protecting contacts exposed to a meningitis caused by bacteria, other than *N. meningitidis* or *H. influenzae* type B; but
 - Medical attention should be sought immediately if they do begin to exhibit signs and symptoms of severe illness.
- Instruct household members or close contacts to:
 - Practice basic hygiene emphasizing proper hand washing technique.
 - Avoid sharing food, beverages, cigarettes or eating utensils.
- Those at high risk or presumed high risk of acquiring invasive pneumococcal infection (i.e., immunocompromised, sickle cell disease, or functional or anatomic asplenia) should be directed to discuss current health status (including immunization history) with their primary care physician and/or routine immunization provider.
 - The local health department should strive to make sure those in the groups recommended for immunization have access the vaccine.
 - Current recommendations for pneumococcal vaccine usage can be found at www.cdc.gov/vaccines/vpd-vac/pneumo/default.htm
 - Report any adverse event that occurs after the administration of a vaccine to Vaccine Adverse Events Reporting System at <http://vaers.hhs.gov/index>

MANAGING SPECIAL SITUATIONS

A. Outbreak Investigation:

1. Consider further investigation of any invasive cases clustered in time and place among groups that share common space (i.e. daycare, institutions)
2. Notify KDHE immediately, 1-877-427-7317.

B. Daycares and *Streptococcus pneumoniae*

- Out-of-home day care increases the risk for invasive pneumococcal disease and AOM among children. Day care attendance is also a risk factor for other acute upper respiratory tract infections among children aged <5 years. (Source: www.cdc.gov/mmwr/preview/mmwrhtml/rr4909a1.htm)
- Children aged 24--59 months who attend group daycares (defined by any setting outside a home where a child regularly spends >4 hours/week with >2 unrelated children under adult supervision) were considered part of a priority group that the ACIP recommends receive PCV7 vaccination.
- Reference K.A.R. 28-1-20 for current immunization requirements for daycares;

on-line at: www.kdheks.gov/immunize/schoolInfo.htm

- Report any adverse event that occurs after the administration of a vaccine to Vaccine Adverse Events Reporting System at <http://vaers.hhs.gov/index>

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 [Streptococcus pneumoniae Surveillance Worksheet](#) 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.
 - During outbreak investigations, refer to guidance from a KDHE epidemiologist for appropriate collection tools.
- C. Report data collected during 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 [\[Administration\]](#) 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. After the requirements listed under [Case Investigation](#) have been completed, record the “Date LHD investigation completed” field located on the [\[Administrative\]](#) tab.
 - Record the date even if the local investigator’s [Case](#) or [Contact Management](#) for the contact is not “Complete”.
- F. Once the entire investigation is completed, the LHD investigator will click the “Complete” button on the [\[Administrative\]](#) tab. 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.
- G. Review the [EpiTrax User Guide, Case Routing](#) for further guidance.

Reporting to CDC for Children, < 5years

Since 2007, a [case definition](#) and a separate event code is available for reporting of pneumococcal disease (non-drug resistant) for children <5 years.

- Isolates causing IPD from children less than five years of age for which antibacterial susceptibilities are available and determined to be [DRSP](#) should be reported only as DRSP (event code 11720).
- Isolates causing [IPD](#) from children less than five years of age which are susceptible, or for which susceptibilities are not available should be reported ONLY as IPD in children less than five years of age (event code 11717).

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. **Preventing Pneumococcal Disease Among Infants and Young Children; Recommendations of the Advisory Committee on Immunization Practices (ACIP).** MMWR December 9, 2005 / 54(RR14); 1-16. Available at: www.cdc.gov/mmwr/preview/mmwrhtml/rr4909a1.htm
- H. **Additional Information (CDC):** www.cdc.gov/vaccines/pubs/surv-manual/index.html

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.

Streptococcus pneumoniae Surveillance Worksheet

NAME _____	ADDRESS (Street and No.) _____	Phone _____	Hospital Record No. _____	
(last)	(first)	This information will not be sent to CDC		
REPORTING SOURCE TYPE <input type="checkbox"/> physician <input type="checkbox"/> PH clinic <input type="checkbox"/> nurse <input type="checkbox"/> laboratory <input type="checkbox"/> hospital <input type="checkbox"/> other clinic <input type="checkbox"/> other source type _____		NAME _____ ADDRESS _____ ZIP CODE _____ PHONE (____) _____		
		SUBJECT ADDRESS CITY _____ SUBJECT ADDRESS STATE _____ SUBJECT ADDRESS COUNTY _____ SUBJECT ADDRESS ZIP CODE _____ LOCAL SUBJECT ID _____		
CASE INFORMATION				
Date of Birth _____ <small>month day year</small>	Country of Birth _____	Other Birth Place _____	Country of Usual Residence _____	
Ethnic Group H=Hispanic/Latino N=Not Hispanic/Latino O=Other _____ U=Unknown			Sex M=male F=female U=unknown <input type="checkbox"/>	
Race <input type="checkbox"/> American Indian/Alaskan Native <input type="checkbox"/> Asian <input type="checkbox"/> Black/African American <input type="checkbox"/> Native Hawaiian/Pacific Islander <input type="checkbox"/> White <input type="checkbox"/> Not asked <input type="checkbox"/> Refused to answer <input type="checkbox"/> Other _____ <input type="checkbox"/> Unknown				
Age at Case Investigation _____	Age Unit* _____	Reporting County _____	Reporting State _____	
Date Reported _____ <small>month day year</small>	Date First Reported to PHD _____ <small>month day year</small>	National Reporting Jurisdiction _____		
Earliest Date Reported to County _____ (mm/dd/yyyy)		Earliest Date Reported to State _____ (mm/dd/yyyy)		
Case Class Status <input type="checkbox"/> Suspected <input type="checkbox"/> Probable <input type="checkbox"/> Confirmed <input type="checkbox"/> Unknown <input type="checkbox"/> Not a case		Case Investigation Start Date _____ <small>month day year</small>		
CASE INVESTIGATION STATUS CODE	<input type="checkbox"/> approved <input type="checkbox"/> closed <input type="checkbox"/> deleted <input type="checkbox"/> in progress <input type="checkbox"/> notified <input type="checkbox"/> rejected <input type="checkbox"/> other _____ <input type="checkbox"/> ready for review <input type="checkbox"/> reviewed <input type="checkbox"/> suspended <input type="checkbox"/> unknown			
ABCs State ID _____	Epi-linked to confirmed or probable case? Y=yes N=no U=unknown <input type="checkbox"/>			
CLINICAL INFORMATION				
Illness Onset Date _____ <small>month day year</small>	Illness End Date _____ <small>month day year</small>	Illness Duration _____	Duration Units* _____	
Illness Onset Age <input type="text"/> <input type="text"/> <input type="text"/>	Illness Onset Age Units* <input type="text"/> <input type="text"/> <input type="text"/>	Date of Diagnosis _____ <small>month day year</small>	Pregnancy Status <input type="checkbox"/> Y=yes N=no U=unknown	
Hospitalized? Y=yes N=no U=unknown <input type="checkbox"/>	Hospital Admission Date _____ <small>month day year</small>	Hospital Discharge Date _____ <small>month day year</small>		
Duration of Hospital Stay 0-998 <input type="text"/> <input type="text"/> <input type="text"/> 999=unknown (days)	During any part of the hospitalization, did the subject stay in an Intensive Care Unit (ICU) or a Critical Care Unit (CCU)? Y=yes N=no U=unknown <input type="checkbox"/>			
Does this patient attend a day care facility? <input type="checkbox"/> Y=yes N=no U=unknown Facility Name _____				
Does this patient reside in a long-term care facility? <input type="checkbox"/> Y=yes N=no U=unknown Facility Name _____				
*UNITS a=year d=day h=hour min=minute mo=month s=second wk=week UNK=unknown				
TYPES OF INFECTION CAUSED BY ORGANISM	<input type="checkbox"/> Abortion with sepsis	<input type="checkbox"/> Empyema	<input type="checkbox"/> Necrotizing fasciitis	<input type="checkbox"/> Pneumonia
	<input type="checkbox"/> Abscess	<input type="checkbox"/> Endocarditis	<input type="checkbox"/> Osteomyelitis	<input type="checkbox"/> Puerperal septicemia
	<input type="checkbox"/> Asymptomatic bacteremia	<input type="checkbox"/> Endometritis	<input type="checkbox"/> Otitis media	<input type="checkbox"/> Septic shock
	<input type="checkbox"/> Bacteremia without focus	<input type="checkbox"/> Epiglottitis	<input type="checkbox"/> Pericarditis	<input type="checkbox"/> Unknown
	<input type="checkbox"/> Bacterial septicemia	<input type="checkbox"/> Hemolytic Uremic Syndrome	<input type="checkbox"/> Peritonitis	
	<input type="checkbox"/> Cellulitis	<input type="checkbox"/> Infective arthritis	<input type="checkbox"/> Other (specify) _____	
	<input type="checkbox"/> Chorioamnionitis	<input type="checkbox"/> Meningitis	<input type="checkbox"/> Staphylococcal Toxic Shock syndrome	
Recurrent disease with the same pathogen? Y=yes N=no U=unknown <input type="checkbox"/>		State ID of 1st occurrence for this pathogen _____		
Did patient have any underlying causes or prior illnesses? Y=yes N=no U=unknown <input type="checkbox"/>		If "yes" select below:		

Underlying Causes or Prior Illnesses

[Y=yes; N=no; U=unknown]

	Y	N	U		Y	N	U		Y	N	U				
AIDS (CD4 <200)				Congestive heart failure				Intravenous drug user				Peripheral neuropathy			
Alcohol abuse				Connective tissue disorder				Kidney disease				Peripheral vascular disease			
Asthma				Coronary arteriosclerosis				Leukemia				Premature birth			
Blood cancer				Corticosteroids				Missing spleen				Renal failure/dialysis			
Bone marrow transplant				Current chronic dialysis				Multiple myeloma				Seizure disorder			
Broken skin				Current smoker				Multiple sclerosis				Sickle cell trait			
Cancer				Deaf/profound hearing loss				Myocardial infarction				Solid organ malignancy			
Cancer treatment				Dementia				Nephrotic syndrome				Solid organ transplant			
CSF leak				Diabetes mellitus				Neuromuscular disorder				Splenectomy/asplenia			
Cerebrovascular accident				Emphysema/COPD				None				Systemic lupus erythematosus			
Chronic hepatitis C				Former smoker				Obesity				Trouble swallowing			
Chronic respiratory disease				HIV infection				Other (specify)				Unknown			
Cirrhosis/liver failure				Hodgkin's disease (clinical)				Paralysis							
Cochlear prosthesis				Immunoglobulin deficiency				Parkinson's disease							
Complement deficiency				Immunosuppressive therapy				Peptic ulcer							

RESIDENCE LOCATION AT TIME OF INITIAL CULTURE

- Home Non-medical ward College dorm
 Homeless Incarcerated Long-term Care
 Long-term acute care Other (specify) Unknown

Subject died? Y=yes N=no U=unknown

Date of Death _____ (mm/dd/yyyy)

Pregnancy status at time of first positive culture Not pregnant nor postpartum Currently Pregnant Postpartum Unknown

If pregnant or postpartum, what was the outcome of the fetus? (select below)

Abortion/still birth		Live birth/neonatal death		Survived, clinical infection		Unknown	
Induced abortion		Still pregnant		Survived, no apparent illness			

If patient <1 month of age: Gestational age (weeks) Birth weight Birth Weight Units Gram Kilogram Ounce Pound

Premature at birth [for children <2 years of age]? Y=yes N=no U=unknown

TYPE OF INSURANCE

- Incarcerated Indian Health Service Managed Care Managed Care (unspecified) MEDICAID
 MEDICARE Military/VA Private Health Other (specify) _____ Uninsured Unknown

LABORATORY INFORMATION

VPD Lab Message Reference Laboratory _____ VPD Lab Message Patient Identifier _____ VPD Lab Message Specimen Identifier _____

Bacterial species isolated: _____ **Was laboratory testing done to confirm diagnosis?** Y=Yes N=No U=Unknown

Was case laboratory Confirmed? Y=yes N=no U=unknown **Was a specimen sent to CDC for testing?** Y=yes N=no U=unknown

Test Type	Test Result	Date Specimen Collected <small>mm dd yyyy</small>	Test Result Quantitative	Result Units	Test Method	Test Manufacturer	Date Specimen Sent to CDC <small>mm dd yyyy</small>	Specimen Type	Serotype	Serotype Method	Lab Accession No.	Performing Laboratory Name	Performing Lab Type

LAB TEST TYPE

- 1=antigen
- 2=susceptibility
- 3=culture
- 4=genotyping
- 5=Gram stain
- 6=immunohistochemistry
- 7=latex agglutination
- 8=other (specify)
- 9=unknown
- 11=serotyping
- 12=species confirmation
- 13=genome sequencing

SPECIMEN TYPE

- 1=amniotic fluid
- 2=BAL
- 3=blood
- 4=bone
- 5=brain
- 6=CSF
- 7=heart
- 8=other (specify)
- 9=unknown
- 10=internal body site
- 11=joint
- 12=kidney
- 13=liver
- 14=lung
- 15=lymph node
- 16=middle ear
- 17=muscle/fascia/tendon
- 18=NP swab
- 19=oropharyngeal swab
- 20=ovary
- 21=pancreas
- 22=pericardial fluid
- 23=peritoneal fluid
- 24=placenta
- 25=pleural fluid
- 26=purpuric lesions
- 27=respiratory secretion
- 28=serum
- 29=sinus
- 30=spleen vascular tissue
- 31=sputum
- 32=stool
- 33=tracheal aspirate
- 34=urine
- 35=vascular
- 36=vitreous
- 37=wound

SEROTYPE METHOD

- 1=other
- 2=PCR
- 3=Quellung
- 4=whole genome sequencing
- 5=unknown

SEROTYPE

- 1=1
- 2=2
- 3=3
- 4=4
- 5=5
- 6=6A
- 7=6B
- 8=7F
- 9=8
- 10=9N
- 11=9V
- 12=10A
- 13=11A
- 14=12F
- 15=14
- 16=15B
- 17=17F
- 18=18C
- 19=19A
- 20=19F
- 21=20
- 22=22F
- 23=23F
- 24=33F
- 25=non-typeable
- 26=other
- 27=unknown
- 28=not tested

PERFORMING LABORATORY TYPE

- 1=CDC lab
- 2=commercial lab
- 3=hospital lab
- 4=other
- 5=other clinical lab
- 6=public health lab
- 7=unknown
- 8=VPD testing lab

LAB TEST METHOD

- A=Antigen Card
- B=BD Directigen
- BC=BCID blood culture panel
- BCT=Blood culture
- MA=MALDI Biotyper
- O=Other (specify)
- ME=meningitis/encephalitis panel
- W=Wellcogen Rapid Antigen
- U=Unknown

LABORATORY SUSCEPTIBILITY TESTING

Any susceptibility data available? Y=yes N=no U=unknown Oxacillin Zone Size Oxacillin Interpretation _____

SUSCEPTIBILITY METHOD CODES	SUSCEPTIBILITY RESULT CODES	SIGN CODES	MIC VALUES
A=AGAR Agar dilution method B=BROTH Broth dilution method C=DISK DISK dilution (Kirby Bauer)	S=STRIP Gradient strip (E-test) I=Automated testing instrument G=whole genome sequencing	Indicate whether the MIC is <, >, ≤, ≥, = the numerical MIC value MIC = minimum inhibitory concentration	Valid range for data values: 0.000 – 999.999

Antimicrobial Susceptibility Test Type	Test Method	Susceptibility Interpretation	MIC Sgn	Test Result Quantitative	Performing Laboratory Type

VACCINATION HISTORY INFORMATION

Vaccinated (has the case-patient ever received a vaccine against this disease)? Y=yes N=no U=unknown

Number of doses against this disease received prior to illness onset? 0–6 99=unknown (doses)

Date of last vaccine dose against this disease prior to illness onset? _____ (mm/dd/yyyy)

Was the case-patient vaccinated as recommended by the ACIP? Y=yes N=no U=unknown

Vaccine Type	Vaccination Date <small>month day year</small>	Vaccine Manuf	Vaccine Lot No.	National Drug Code	Vaccine Expiration Date <small>month day year</small>	Vaccination Record Identifier	Age†	Age Units‡	Vaccine Dose Number

Vaccine Type Codes	Vaccine Manufacturer	†Age at vaccination Age Units
133=Pneumococcal Conjugate PCV 13 (Prevnar 13, PCV 13) 100=Pneumococcal Conjugate PCV 7 (Prevnar 7, PCV 7) 152=Pneumococcal Conjugate unspecified formulation 033=Pneumococcal Polysaccharide PPV 23 (Pneumovax 23)	109=Pneumococcal unspecified formulation OTH=Other (specify) 999=Unknown PHC1650=vaccine type not specified	d=day wk=week mo=month a=year OTH=other UNK=unknown

Reason Not Vaccinated Per ACIP

1= religious exemption	5= MD diagnosis of previous disease	9= unknown	13= parent/patient unaware of recommendation
2= medical contraindication	6= too young	10= parent/patient forgot to vaccinate	14= missed opportunity
3= philosophical objection	7= parent/patient refusal	11= vaccine record incomplete/unavailable	15= foreign visitor
4= lab evidence of previous disease	8= other _____	12= parent/patient report of previous disease	16= immigrant

Vaccine History Comments

IMPORTATION AND EXPOSURE INFORMATION						
Imported Code	Indigenous	In state, out of jurisdiction	Imported, unable to determine source		Transmission Mode _____	
	International	Out of state	Unknown			
Imported Country _____		Imported State _____	Imported County _____		Imported City _____	
Country of Exposure _____		State/Province of Exposure _____	County of Exposure _____		City of Exposure _____	
OUTBREAK ASSOCIATED Y=yes N=no U=unknown <input type="checkbox"/>			OUTBREAK NAME _____			
CASE NOTIFICATION						
CONDITION CODE	11723	Immediate National Notifiable Condition Y=yes N=no U=unknown <input type="checkbox"/>			Legacy Case ID _____	
State Case ID _____		Local Record ID _____	Jurisdiction Code _____	Binational Reporting Criteria _____		
Date First Verbal Notification to CDC _____ month day year			Date First Electronically Submitted _____ month day year			
Date of Electronic Case Notification to CDC _____ month day year				MMWR Week _____	MMWR Year _____	
Notification Result Status <input type="checkbox"/> Final results <input type="checkbox"/> Record coming as correction <input type="checkbox"/> Results cannot be obtained						
Person Reporting to CDC Name _____ (first) _____ (last)			Person Reporting to CDC Email _____ @ _____ Person Reporting to CDC Phone Number (____) _____			
Current Occupation _____			Current Occupation Standardized _____			
Current Industry _____			Current Industry Standardized _____			
Comments						

CLINICAL CASE DEFINITION ⁵
Probable
A case that meets the supportive [¶] laboratory evidence.
Confirmed
A case that meets the confirmatory [#] laboratory evidence.
¶ Identification of <i>S. pneumoniae</i> from a normally sterile body site by a CIDT (culture independent diagnostic test) without isolation of the bacteria.
Isolation of <i>S. pneumoniae</i> from a normally sterile body site.

⁵<https://www.cdc.gov/nndss/conditions/invasive-pneumococcal-disease/>