2012 Nationally Notifiable Diseases and Conditions
and Current Case Definitions

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Nationally Notifiable Infectious Conditions

Hemolytic uremic syndrome, post-diarrheal
Hepatitis
- Hepatitis A, acute
- Hepatitis B, acute
- Hepatitis B, chronic
- Hepatitis B virus, perinatal infection
- Hepatitis C, acute
- Hepatitis C, past or present

HIV infection *(AIDS has been reclassified as HIV stage III)*
- HIV infection, adult/ adolescent (age > = 13 years)
- HIV infection, child (age >= 18 months and < 13 years)
- HIV infection, pediatric (age < 18 months)

Influenza-associated pediatric mortality
Legionellosis
Listeriosis
Lyme disease
Malaria
Measles
Meningococcal disease
Mumps
Novel influenza A virus infections
Pertussis
Plague
Poliomyelitis, paralytic
Poliovirus infection, nonparalytic
Psittacosis
Q Fever
- Acute
- Chronic

Rabies
- Rabies, animal
- Rabies, human

Rubella (German Measles)
Rubella, congenital syndrome
Salmonellosis
Severe Acute Respiratory Syndrome-associated Coronavirus (SARS-CoV) disease
Shiga toxin-producing *Escherichia coli* (STEC)
Shigellosis
Smallpox
Spotted Fever Rickettsiosis
Streptococcal toxic-shock syndrome
Streptococcus pneumoniae, invasive disease
Syphilis

- Primary
- Secondary
- Latent
- Early latent
- Late latent
- Latent, unknown duration
- Neurosyphilis
- Late, non-neurological
- Stillbirth
- Congenital

Tetanus
Toxic-shock syndrome (other than Streptococcal)
Trichinellosis (Trichinosis)
Tuberculosis
Tularemia
Typhoid fever
Vancomycin - intermediate *Staphylococcus aureus* (VISA)
Vancomycin - resistant *Staphylococcus aureus* (VRSA)
Varicella (morbidity)
Varicella (deaths only)
Vibriosis
Viral Hemorrhagic Fevers, due to:

- Ebola virus
- Marburg virus
- Crimean-Congo Hemorrhagic Fever virus
- Lassa virus
- Lujo virus
- New world arenaviruses (Gunarito, Machupo, Junin, and Sabia viruses)

Yellow fever

Nationally Notifiable Non-Infectious Conditions

Cancer
Elevated blood lead levels

- Child (<16 years)
- Adult (≥16 Years)

Foodborne disease outbreak
Pesticide-related illness, acute
Silicosis
Waterborne disease outbreak

Conditions Under National Surveillance

CSTE has established standard reporting and case classification methods for “Conditions Under National Surveillance,” but these conditions are not considered “Nationally Notifiable.”

Campylobacteriosis
Influenza-associated hospitalizations
Free-living Amebae, Infections caused by
Melioidosis

Nationally Notifiable Infectious Conditions

Anthrax (*Bacillus anthracis*)

2010 Case Definition
CSTE Position Statement Number: 09-ID-10

Clinical Description

Cutaneous Anthrax:

An acute illness, or post-mortem examination revealing a painless skin lesion developing over 2 to 6 days from a papular through a vesicular stage into a depressed black eschar with surrounding edema. Fever, malaise and lymphadenopathy may accompany the lesion.

Inhalation Anthrax:

An acute illness, or post-mortem examination revealing a prodrome resembling a viral respiratory illness, followed by hypoxia, dyspnea or acute respiratory distress with resulting cyanosis and shock. Radiological evidence of mediastinal widening or pleural effusion is common.

Gastrointestinal Anthrax:

An acute illness, or post-mortem examination revealing severe abdominal pain and tenderness, nausea, vomiting, hematemesis, bloody diarrhea, anorexia, fever, abdominal swelling and septicemia.

Oropharyngeal Anthrax:

An acute illness, or post-mortem examination revealing a painless mucosal lesion in the oral cavity or oropharynx, with cervical adenopathy, edema, pharyngitis, fever, and possibly septicemia.

Meningeal Anthrax:

An acute illness, or post-mortem examination revealing fever, convulsions, coma, or meningeal signs. Signs of another form will likely be evident as this syndrome is usually secondary to the above syndromes.

Case Classification

Suspected

An illness suggestive of one of the known anthrax clinical forms. No definitive, presumptive, or suggestive laboratory evidence of *B. anthracis*, or epidemiologic evidence relating it to anthrax.

Probable

A clinically compatible illness that does not meet the confirmed case definition, but with one of the following:

- Epidemiological link to a documented anthrax environmental exposure;

- Evidence of *B. anthracis* DNA (for example, by LRN-validated polymerase chain reaction) in clinical specimens collected from a normally sterile site (such as blood or cerebrospinal fluid [CSF]) or lesion of other affected tissue (skin, pulmonary, reticuloendothelial, or gastrointestinal);
- Positive result on testing of clinical serum specimens using the Quick ELISA Anthrax-PA kit;
- Detection of Lethal Factor (LF) in clinical serum specimens by LF mass spectrometry
- Positive result on testing of culture from clinical specimens with the RedLine Alert test.

Confirmed

A clinically compatible illness with one of the following:

- Culture and identification of *B. anthracis* from clinical specimens by the Laboratory Response Network (LRN);
- Demonstration of *B. anthracis* antigens in tissues by immunohistochemical staining using both *B. anthracis* cell wall and capsule monoclonal antibodies;
- Evidence of a four-fold rise in antibodies to protective antigen between acute and convalescent sera or a fourfold change in antibodies to protective antigen in paired convalescent sera using Centers for Disease Control and Prevention (CDC) quantitative anti-PA IgG ELISA testing;
- Documented anthrax environmental exposure AND evidence of *B. anthracis* DNA (for example, by LRN-validated polymerase chain reaction) in clinical specimens collected from a normally sterile site (such as blood or CSF) or lesion of other affected tissue (skin, pulmonary, reticuloendothelial, or gastrointestinal).

Arboviral neuroinvasive and non-neuroinvasive diseases

2011 Case Definition
CSTE Position Statement Numbers: 10-ID-18, 10-ID-20, 10-ID-21, 10-ID-22, 10-ID-23, 10-ID-24

Subtypes

- California Serogroup Viruses, (i.e., California encephalitis, Jamestown Canyon, Keystone, La Crosse, Snowshoe hare, and Trivittatus viruses)
- Eastern Equine Encephalitis Virus
- Powassan Virus
- St. Louis Encephalitis Virus
- West Nile Virus
- Western Equine Encephalitis Virus

Background

Arthropod-borne viruses (arboviruses) are transmitted to humans primarily through the bites of infected mosquitoes, ticks, sand flies, or midges. Other modes of transmission for some arboviruses include blood transfusion, organ transplantation, perinatal transmission, consumption of unpasteurized dairy products, breast feeding, and laboratory exposures.

More than 130 arboviruses are known to cause human disease. Most arboviruses of public health importance belong to one of three virus genera: *Flavivirus, Alphavirus, and Bunyavirus*.

Clinical Description

Most arboviral infections are asymptomatic. Clinical disease ranges from mild febrile illness to severe encephalitis. For the purposes of surveillance and reporting, based on their clinical presentation, arboviral disease cases are often categorized into two primary groups: neuroinvasive disease and non-neuroinvasive disease.

Neuroinvasive disease

Many arboviruses cause neuroinvasive disease such as aseptic meningitis, encephalitis, or acute flaccid paralysis (AFP). These illnesses are usually characterized by the acute onset of fever with stiff neck, altered mental status, seizures, limb weakness, cerebrospinal fluid (CSF) pleocytosis, or abnormal neuroimaging. AFP may result from anterior ("polio") myelitis, peripheral neuritis, or post-infectious peripheral demyelinating neuropathy (i.e., Guillain-Barré syndrome). Less common neurological manifestations, such as cranial nerve palsies, also occur.

Non-neuroinvasive disease

Most arboviruses are capable of causing an acute systemic febrile illness (e.g., West Nile fever) that may include headache, myalgias, arthralgias, rash, or gastrointestinal symptoms. Rarely, myocarditis, pancreatitis, hepatitis, or ocular manifestations such as chorioretinitis and iridocyclitis can occur.

Clinical criteria for diagnosis

Arboviral Diseases, Neuroinvasive and Non-Neuroinvasive
A clinically compatible case of arboviral disease is defined as follows:

Neuroinvasive disease

- Fever (≥100.4°F or 38°C) as reported by the patient or a health-care provider, AND
- Meningitis, encephalitis, acute flaccid paralysis, or other acute signs of central or peripheral neurologic dysfunction, as documented by a physician, AND
- Absence of a more likely clinical explanation.

Non-neuroinvasive disease

- Fever (≥100.4°F or 38°C) as reported by the patient or a health-care provider, AND
- Absence of neuroinvasive disease, AND
- Absence of a more likely clinical explanation.

Laboratory Criteria for Diagnosis

- Isolation of virus from, or demonstration of specific viral antigen or nucleic acid in, tissue, blood, CSF, or other body fluid, OR
- Four-fold or greater change in virus-specific quantitative antibody titers in paired sera, OR
- Virus-specific IgM antibodies in serum with confirmatory virus-specific neutralizing antibodies in the same or a later specimen, OR
- Virus-specific IgM antibodies in CSF and a negative result for other IgM antibodies in CSF for arboviruses endemic to the region where exposure occurred, OR
- Virus-specific IgM antibodies in CSF or serum.

Case Classification

Confirmed

Neuroinvasive disease

A case that meets the above clinical criteria for neuroinvasive disease and one or more the following laboratory criteria for a confirmed case:

- Isolation of virus from, or demonstration of specific viral antigen or nucleic acid in, tissue, blood, CSF, or other body fluid, OR
- Four-fold or greater change in virus-specific quantitative antibody titers in paired sera, OR

- Virus-specific IgM antibodies in serum with confirmatory virus-specific neutralizing antibodies in the same or a later specimen, OR
- Virus-specific IgM antibodies in CSF and a negative result for other IgM antibodies in CSF for arboviruses endemic to the region where exposure occurred.

Non-neuroinvasive disease

A case that meets the above clinical criteria for non-neuroinvasive disease and one or more of the following laboratory criteria for a confirmed case:

- Isolation of virus from, or demonstration of specific viral antigen or nucleic acid in, tissue, blood, CSF, or other body fluid, OR
- Four-fold or greater change in virus-specific quantitative antibody titers in paired sera, OR
- Virus-specific IgM antibodies in serum with confirmatory virus-specific neutralizing antibodies in the same or a later specimen, OR
- Virus-specific IgM antibodies in CSF and a negative result for other IgM antibodies in CSF for arboviruses endemic to the region where exposure occurred.

Probable

Neuroinvasive disease

A case that meets the above clinical criteria for neuroinvasive disease and the following laboratory criteria:

- Virus-specific IgM antibodies in CSF or serum but with no other testing.

Non-neuroinvasive disease

A case that meets the above clinical criteria for non-neuroinvasive disease and the laboratory criteria for a probable case:

- Virus-specific IgM antibodies in CSF or serum but with no other testing.

Comment

Interpreting arboviral laboratory results

- **Serologic cross-reactivity.** In some instances, arboviruses from the same genus produce cross-reactive antibodies. In geographic areas where two or more closely-related arboviruses occur, serologic testing for more than one virus may be needed and results compared to determine the specific causative virus. For example, such testing might be needed to distinguish antibodies resulting from infections within genera, e.g., flaviviruses such as West Nile, St. Louis encephalitis, Powassan, Dengue, or Japanese encephalitis viruses.
- **Rise and fall of IgM antibodies.** For most arboviral infections, IgM antibodies are generally first detectable at 3 to 8 days after onset of illness and persist for 30 to 90 days, but longer

persistence has been documented (e.g, up to 500 days for West Nile virus). Serum collected within 8 days of illness onset may not have detectable IgM and testing should be repeated on a convalescent-phase sample to rule out arboviral infection in those with a compatible clinical syndrome.

- **Persistence of IgM antibodies**. Arboviral IgM antibodies may be detected in some patients months or years after their acute infection. Therefore, the presence of these virus-specific IgM antibodies may signify a past infection and be unrelated to the current acute illness. Finding virus-specific IgM antibodies in CSF or a fourfold or greater change in virus-specific antibody titers between acute- and convalescent-phase serum specimens provides additional laboratory evidence that the arbovirus was the likely cause of the patient's recent illness. Clinical and epidemiologic history also should be carefully considered.
- **Persistence of IgG and neutralizing antibodies.** Arboviral IgG and neutralizing antibodies can persist for many years following a symptomatic or asymptomatic infection. Therefore, the presence of these antibodies alone is only evidence of previous infection and clinically compatible cases with the presence of IgG, but not IgM, should be evaluated for other etiologic agents.
- **Arboviral serologic assays.** Assays for the detection of IgM and IgG antibodies commonly include enzyme-linked immunosorbent assay (ELISA), microsphere immunoassay (MIA), or immunofluorescence assay (IFA). These assays provide a presumptive diagnosis and should have confirmatory testing performed. Confirmatory testing involves the detection of arboviral-specific neutralizing antibodies utilizing assays such as plaque reduction neutralization test.
- **Other information to consider.** Vaccination history, detailed travel history, date of onset of symptoms, and knowledge of potentially cross-reactive arboviruses known to circulate in the geographic area should be considered when interpreting results.

Imported arboviral diseases

Human disease cases due to Dengue or Yellow fever viruses are nationally notifiable to CDC using specific case definitions. However, many other exotic arboviruses (e.g., Chikungunya, Japanese encephalitis, Tick-borne encephalitis, Venezuelan equine encephalitis, and Rift Valley fever viruses) are important public health risks for the United States as competent vectors exist that could allow for sustained transmission upon establishment of imported arboviral pathogens. Health-care providers and public health officials should maintain a high index of clinical suspicion for cases of potentially exotic or unusual arboviral etiology, particularly in international travelers. If a suspected case occurs, it should be reported to the appropriate local/state health agencies and CDC.

Babesiosis

2011 Case Definition
CSTE Position Statement Number: 10-ID-27

Clinical Presentation

Babesiosis is a parasitic disease caused by intraerythrocytic protozoa of the *Babesia* genus (*Babesia microti* and other species). *Babesia* are transmitted in nature through the bites of infected ticks but can also be acquired through contaminated blood components from asymptomatic parasitemic donors or, more rarely, transplacentally. *Babesia* infection can range from subclinical to life-threatening. Clinical manifestations, if any, can include hemolytic anemia and nonspecific influenza-like signs and symptoms (e.g., fever, chills, sweats, headache, myalgia, arthralgia, malaise, fatigue, generalized weakness). Splenomegaly, hepatomegaly, or jaundice may be evident. In addition to signs of hemolytic anemia, laboratory findings may include thrombocytopenia, proteinuria, hemoglobinuria, and elevated levels of liver enzymes, blood urea nitrogen, and creatinine. Risk factors for severe babesiosis include asplenia, advanced age, and other causes of impaired immune function (e.g., HIV, malignancy, corticosteroid therapy). Some immunosuppressive therapies or conditions may mask or modulate the clinical manifestations (e.g., the patient may be afebrile). Severe cases can be associated with marked thrombocytopenia, disseminated intravascular coagulation, hemodynamic instability, acute respiratory distress, myocardial infarction, renal failure, hepatic compromise, altered mental status, and death.

Clinical evidence

For the purposes of surveillance:

- Objective: one or more of the following: fever, anemia, or thrombocytopenia.
- Subjective: one or more of the following: chills, sweats, headache, myalgia, or arthralgia.

Epidemiologic evidence for transfusion transmission

For the purposes of surveillance, epidemiologic linkage between a transfusion recipient and a blood donor is demonstrated if all of the following criteria are met:

a) In the transfusion recipient:
   i. Received one or more red blood cell (RBC) or platelet transfusions within one year before the collection date of a specimen with laboratory evidence of *Babesia* infection; and
   ii. At least one of these transfused blood components was donated by the donor described below; and
   iii. Transfusion-associated infection is considered at least as plausible as tickborne transmission; and
b) In the blood donor:
   i. Donated at least one of the RBC or platelet components that was transfused into the above recipient; and

ii. The plausibility that this blood component was the source of infection in the recipient is considered equal to or greater than that of blood from other involved donors. (More than one plausible donor may be linked to the same recipient.)

Laboratory Criteria for Diagnosis

For the purposes of surveillance:

Laboratory confirmatory

- Identification of intraerythrocytic *Babesia* organisms by light microscopy in a Giemsa, Wright, or Wright-Giemsa–stained blood smear; or
- Detection of *Babesia microti* DNA in a whole blood specimen by polymerase chain reaction (PCR); or
- Detection of *Babesia* spp. genomic sequences in a whole blood specimen by nucleic acid amplification; or
- Isolation of *Babesia* organisms from a whole blood specimen by animal inoculation.

Laboratory supportive

- Demonstration of a *Babesia microti* Indirect Fluorescent Antibody (IFA) total immunoglobulin (Ig) or IgG antibody titer of greater than or equal to (≥) 1:256 (or ≥1:64 in epidemiologically linked blood donors or recipients); or
- Demonstration of a *Babesia microti* Immunoblot IgG positive result; or
- Demonstration of a *Babesia divergens* IFA total Ig or IgG antibody titer of greater than or equal to (≥) 1:256; or
- Demonstration of a *Babesia duncani* IFA total Ig or IgG antibody titer of greater than or equal to (≥) 1:512.

Case Classification

Confirmed

A case that has confirmatory laboratory results and meets at least one of the objective or subjective clinical evidence criteria, regardless of the mode of transmission (can include clinically manifest cases in transfusion recipients or blood donors).

Probable

a) a case that has supportive laboratory results and meets at least one of the objective clinical evidence criteria (subjective criteria alone are not sufficient); or
b) a case that is in a blood donor or recipient epidemiologically linked to a confirmed or probable babesiosis case (as defined above) and:

i. has confirmatory laboratory evidence but does not meet any objective or subjective clinical evidence criteria; or
ii. has supportive laboratory evidence and may or may not meet any subjective clinical evidence criteria but does not meet any objective clinical evidence criteria.

Suspected

A case that has confirmatory or supportive laboratory results, but insufficient clinical or epidemiologic information is available for case classification (e.g., only a laboratory report was provided).

Comment

The validity of the diagnosis of babesiosis is highly dependent on the laboratory that performs the testing. For example, differentiation between *Plasmodium* and *Babesia* organisms on peripheral blood smears can be difficult. Confirmation of the diagnosis of babesiosis by a reference laboratory is strongly encouraged, especially for patients without residence in or travel to areas known to be endemic for babesiosis.

A positive *Babesia* IFA result for immunoglobulin M (IgM) is insufficient for diagnosis and case classification of babesiosis in the absence of a positive IFA result for IgG (or total Ig). If the IgM result is positive but the IgG result is negative, a follow-up blood specimen drawn at least one week after the first should be tested. If the IgG result remains negative in the second specimen, the IgM result likely was a false positive.

When interpreting IFA IgG or total Ig results, it is helpful to consider factors that may influence the relative magnitude of *Babesia* titers (e.g., timing of specimen collection relative to exposure or illness onset, the patient's immune status, the presence of clinically manifest versus asymptomatic infection). In immunocompetent persons, active or recent *Babesia* infections that are symptomatic are generally associated with relatively high titers (although antibody levels may be below the detection threshold early in the course of infection); titers can then persist at lower levels for more than a year. In persons who are immunosuppressed or who have asymptomatic *Babesia* infections, active infections can be associated with lower titers.

Babesia microti is the most frequently identified agent of human babesiosis in the United States; most reported tick-borne cases have been acquired in parts of northeastern and north-central regions. Sporadic U.S. cases caused by other *Babesia* agents include *B. duncani* (formerly the WA1 parasite) and related organisms (CA1-type parasites) in several western states as well as parasites characterized as "*B. divergens* like" (MO1 and others) in various states. Serologic and molecular tests available for *B. microti* infection do not typically detect these other *Babesia* agents.

Blood-borne transmission of *Babesia* is not restricted by geographic region or season. The epidemiologic linkage criteria for transfusion transmission that are described here provide a low threshold for asymptomatic donor or recipient cases to be considered probable cases for surveillance purposes and are not intended to be regulatory criteria. Transfusion investigations entail laboratory testing for evidence of *Babesia* infection in recipients and donors as well as epidemiologic assessments of the plausibilities of blood- and tick-borne transmission.

Botulism (*Clostridium botulinum*)

2011 Case Definition
CSTE Position Statement Number: 10-ID-03

Subtypes

- Botulism, Foodborne
- Botulism, Infant
- Botulism, Wound
- Botulism, Other

Botulism, Foodborne

Clinical Description

Ingestion of botulinum toxin results in an illness of variable severity. Common symptoms are diplopia, blurred vision, and bulbar weakness. Symmetric paralysis may progress rapidly.

Laboratory Criteria for Diagnosis

- Detection of botulinum toxin in serum, stool, or patient's food, or
- isolation of *Clostridium botulinum* from stool

Case Classification

Probable: a clinically compatible case with an epidemiologic link (e.g., ingestion of a home-canned food within the previous 48 hours)
Confirmed: a clinically compatible case that is laboratory confirmed or that occurs among persons who ate the same food as persons who have laboratory-confirmed botulism

Botulism, Infant

Clinical Description

An illness of infants, characterized by constipation, poor feeding, and “failure to thrive”that may be followed by progressive weakness, impaired respiration, and death

Laboratory Criteria for Diagnosis

- Detection of botulinum toxin in stool or serum, or
- Isolation of *Clostridium botulinum* from stool

Case Classification

Confirmed: a clinically compatible case that is laboratory-confirmed, occurring in a child aged less than 1 year

Botulism, Wound

Clinical Description

An illness resulting from toxin produced by *Clostridium botulinum* that has infected a wound. Common symptoms are diplopia, blurred vision, and bulbar weakness. Symmetric paralysis may progress rapidly.

Laboratory Criteria for Diagnosis

- Detection of botulinum toxin in serum, or
- Isolation of *Clostridium botulinum* from wound

Case Classification

Confirmed: a clinically compatible case that is laboratory confirmed in a patient who has no suspected exposure to contaminated food and who has a history of a fresh, contaminated wound during the 2 weeks before onset of symptoms, or a history of injection drug use within the 2 weeks before onset of symptoms

Probable: a clinically compatible case in a patient who has no suspected exposure to contaminated food and who has either a history of a fresh, contaminated wound during the 2 weeks before onset of symptoms, or a history of injection drug use within the 2 weeks before onset of symptoms

Botulism, Other

Clinical Description

See Botulism, Foodborne.

Laboratory Criteria for Diagnosis

- Detection of botulinum toxin in clinical specimen, or
- Isolation of *Clostridium botulinum* from clinical specimen

Case Classification

Confirmed: a clinically compatible case that is laboratory-confirmed in a patient aged greater than or equal to 1 year who has no history of ingestion of suspect food and has no wounds

Brucellosis (*Brucella* spp.)

2010 Case Definition
CSTE Position Statement Number: 09-ID-14

Clinical Description

An illness characterized by acute or insidious onset of fever and one or more of the following: night sweats, arthralgia, headache, fatigue, anorexia, myalgia, weight loss, arthritis/spondylitis, meningitis, or focal organ involvement (endocarditis, orchitis/epididymitis, hepatomegaly, splenomegaly).

Laboratory Criteria for Diagnosis

Definitive

- Culture and identification of *Brucella* spp. from clinical specimens
- Evidence of a fourfold or greater rise in *Brucella* antibody titer between acute- and convalescent-phase serum specimens obtained greater than or equal to 2 weeks apart

Presumptive

- *Brucella* total antibody titer of greater than or equal to 160 by standard tube agglutination test (SAT) or *Brucella* microagglutination test (BMAT) in one or more serum specimens obtained after onset of symptoms
- Detection of *Brucella* DNA in a clinical specimen by PCR assay

Case Classification

Probable

A clinically compatible illness with at least one of the following:

- Epidemiologically linked to a confirmed human or animal brucellosis case
- Presumptive laboratory evidence, but without definitive laboratory evidence, of *Brucella* infection

Confirmed

A clinically compatible illness with definitive laboratory evidence of *Brucella* infection

Chancroid (*Haemophilus ducreyi*)

1996 Case Definition
CSTE Position Statement Number: 09-ID-31

Clinical Description

A sexually transmitted disease characterized by painful genital ulceration and inflammatory inguinal adenopathy. The disease is caused by infection with *Haemophilus ducreyi*.

Laboratory Criteria for Diagnosis

Isolation of *H. ducreyi* from a clinical specimen

Case Classification

Probable

A clinically compatible case with both a) no evidence of *Treponema pallidum* infection by darkfield microscopic examination of ulcer exudate or by a serologic test for syphilis performed greater than or equal to 7 days after onset of ulcers and b) either a clinical presentation of the ulcer(s) not typical of disease caused by herpes simplex virus (HSV) or a culture negative for HSV.

Confirmed

A clinically compatible case that is laboratory confirmed

Comment

The 1996 case definition appearing on this page was re-published in the 2009 CSTE position statement 09-ID-31. Thus, the 1996 and 2010 versions of the case definition are identical.

Chlamydia trachomatis infection

2010 Case Definition
CSTE Position Statement Number: 09-ID-08

Clinical Description

Infection with *Chlamydia trachomatis* may result in urethritis, epididymitis, cervicitis, acute salpingitis, or other syndromes when sexually transmitted; however, the infection is often asymptomatic in women. Perinatal infections may result in inclusion conjunctivitis and pneumonia in newborns. Other syndromes caused by *C. trachomatis* include lymphogranuloma venereum (see Lymphogranuloma Venereum) and trachoma.

Laboratory Criteria for Diagnosis

- Isolation of *C. trachomatis* by culture, or
- Demonstration of *C. trachomatis* in a clinical specimen by detection of antigen or nucleic acid

Case Classification

Confirmed

A case that is laboratory confirmed

Cholera (*Vibrio cholerae*)

1996 Case Definition
CSTE Position Statement Number: 09-ID-03

Clinical Description

An illness characterized by diarrhea and/or vomiting; severity is variable.

Laboratory Criteria for Diagnosis

- Isolation of toxigenic (i.e., cholera toxin-producing) *Vibrio cholerae* O1 or O139 from stool or vomitus, or
- Serologic evidence of recent infection

Case Classification

Confirmed

A clinically compatible illness that is laboratory confirmed

Comment

Illnesses caused by strains of *V. cholerae* other than toxigenic *V. cholerae* O1 or O139 should not be reported as cases of cholera. The etiologic agent of a case of cholera should be reported as either *V. cholerae* O1 or *V. cholerae* O139. Only confirmed cases should be reported to CDC Nationally Notifiable Disease Surveillnce System (NNDSS) by state health departments.

The 1996 case definition appearing on this page was re-published in the 2009 CSTE position statement 09-ID-03. Thus, the 1996 and 2010 versions of the case definition are identical.

Coccidioidomycosis (*Coccidioides* spp.) (Valley fever)

2011 Case Definition
CSTE Position Statement Number: 10-ID-04

Clinical Description

Infection may be asymptomatic or may produce an acute or chronic disease. Although the disease initially resembles an influenza-like or pneumonia-like febrile illness primarily involving the bronchopulmonary system, dissemination can occur to multiple organ systems. An illness is typically characterized by one or more of the following:

- Influenza-like signs and symptoms (e.g., fever, chest pain, cough, myalgia, arthralgia, and headache)
- Pneumonia or other pulmonary lesion, diagnosed by chest radiograph
- Erythema nodosum or erythema multiforme rash
- Involvement of bones, joints, or skin by dissemination
- Meningitis
- Involvement of viscera and lymph nodes

Laboratory Criteria for Diagnosis

A confirmed case must meet at least one of the following laboratory criteria for diagnosis:

- Cultural, histopathologic, or molecular evidence of presence of *Coccidioides* species, or
- Positive serologic test for coccidioidal antibodies in serum, cerebrospinal fluid, or other body fluids by:
    - Detection of coccidioidal immunoglobulin M (IgM) by immunodiffusion, enzyme immunoassay (EIA), latex agglutination, or tube precipitin, or
    - Detection of coccidioidal immunoglobulin G (IgG) by immunodiffusion, EIA, or complement fixation, or
    - Coccidioidal skin-test conversion from negative to positive after onset of clinical signs and symptoms

Case Classification

Confirmed

A case that meets the clinical case definition and is laboratory confirmed.

Cryptosporidiosis (*Cryptosporidium* spp.)

2012 Case Definition
CSTE Position Statement Number: 11-ID-14

Clinical Description

A gastrointestinal illness characterized by diarrhea and one or more of the following: diarrhea duration of 72 hours or more, abdominal cramping, vomiting, or anorexia.

Laboratory Criteria for Diagnosis

Confirmed

- Evidence of *Cryptosporidium* organisms or DNA in stool, intestinal fluid, tissue samples, biopsy specimens, or other biological sample by certain laboratory methods with a high positive predictive value (PPV), e.g.,
- Direct fluorescent antibody [DFA] test,
- Polymerase chain reaction [PCR],
- Enzyme immunoassay [EIA], or
- Light microscopy of stained specimen.

Probable

The detection of *Cryptosporidium* antigen by a screening test method, such as immunochromatographic card/rapid card test; or a laboratory test of unknown method.

Case Classification

Probable

- A case with supportive laboratory test results for *Cryptosporidia* spp. infection using a method listed in the probable laboratory criteria. When the diagnostic test method on a laboratory test result for cryptosporidiosis cannot be determined, the case can only be classified as probable, OR
- A case that meets the clinical criteria and is epidemiologically linked to a confirmed case.

Confirmed

A case that is diagnosed with *Cryptosporidium* spp. infection based on laboratory testing using a method listed in the confirmed criteria.

Comment

Persons who have a diarrheal illness and are epidemiologically linked to a probable case because that individual was only diagnosed with cryptosporidiosis by an immunocard/rapid test/ or unknown test method cannot be classified as probable cases. These epi-links can be considered suspect cases only.

Cyclosporiasis (*Cyclospora cayetanensis*)

2010 Case Definition
CSTE Position Statement Number: 09-ID-04

Clinical Description

An illness of variable severity caused by the protozoan parasite *Cyclospora cayetanensis*. The most common symptom is watery diarrhea. Other common symptoms include loss of appetite, weight loss, abdominal cramps/bloating, nausea, body aches , and fatigue. Vomiting and lowgrade fever also may be noted.

Laboratory Criteria for Diagnosis

Laboratory-confirmed cyclosporiasis shall be defined as the detection of *Cyclospora* organisms or DNA in stool, intestinal fluid/aspirate, or intestinal biopsy specimens.

Case Classification

Probable

A case that meets the clinical description and that is epidemiologically linked to a confirmed case.

Confirmed

A case that meets the clinical description and at least one of the criteria for laboratory confirmation as described above.

Dengue Fever (DF)

2010 Case Definition
CSTE Position Statement Number: 09-ID-19

Subtypes

- Dengue Hemorrhagic Fever
- Dengue Shock Syndrome

Laboratory Criteria for Diagnosis

Confirmatory

- Isolation of dengue virus from or demonstration of specific arboviral antigen or genomic sequences in tissue, blood, cerebrospinal fluid (CSF), or other body fluid by polymerase chain reaction (PCR) test, immunofluorescence or immunohistochemistry, OR
- Seroconversion from negative for dengue virus-specific serum Immunoglobulin M (IgM) antibody in an acute phase (≤ 5 days after symptom onset) specimen to positive for dengue-specific serum IgM antibodies in a convalescent-phase specimen collected ≥5 days after symptom onset, OR
- Demonstration of a ≥4-fold rise in reciprocal Immunoglobulin G (IgG) antibody titer or Hemagglutination inhibition titer to dengue virus antigens in paired acute and convalescent serum samples, OR
- Demonstration of a ≥4-fold rise in PRNT (plaque reduction neutralization test) end point titer (as expressed by the reciprocal of the last serum dilution showing a 90% reduction in plaque counts compared to the virus infected control) between dengue viruses and other flaviviruses tested in a convalescent serum sample, OR
- Virus-specific immunoglobulin M (IgM) antibodies demonstrated in CSF.

Presumptive/Probable

Dengue-specific IgM antibodies present in serum with a P/N ratio ≥2.

Exposure

- Travel to a dengue endemic country or presence at location with ongoing outbreak within previous two weeks of dengue-like illness, OR
- Association in time and place with a confirmed or probable dengue case.

Case Classification

Suspected

A clinically compatible case of DF, DHF or DSS that is epidemiologically linked to a confirmed case

Probable

A clinically compatible case of DF, DHF, or DSS with laboratory results indicative of presumptive infection

Confirmed

A clinically compatible case of DF, DHF, or DSS with confirmatory laboratory results

Dengue Fever

Clinical Description

Dengue fever (DF) is most commonly an acute febrile illness defined by the presence of fever and two or more of the following, retro-orbital or ocular pain, headache, rash, myalgia, arthralgia, leukopenia, or hemorrhagic manifestations (e.g., positive tourniquet test, petechiae; purpura/ecchymosis; epistaxis; gum bleeding; blood in vomitus, urine, or stool; or vaginal bleeding) but not meeting the case definition of dengue hemorrhagic fever. Anorexia, nausea, abdominal pain, and persistent vomiting may also occur but are not case-defining criteria for DF.

Dengue Hemorrhagic Fever (DHF)

Clinical Description

Dengue hemorrhagic fever (DHF) is characterized by all of the following:

- Fever lasting from 2-7 days
- Evidence of hemorrhagic manifestation or a positive tourniquet test
- Thrombocytopenia (≤100,000 cells per mm3)
- Evidence of plasma leakage shown by hemoconcentration (an increase in hematocrit ≥20% above average for age or a decrease in hematocrit ≥20% of baseline following fluid replacement therapy), OR pleural effusion, or ascites or hypoproteinemia.

Dengue Shock Syndrome

Clinical Description

Dengue shock syndrome (DSS) has all of criteria for DHF plus circulatory failure as evidenced by

- Rapid and weak pulse and narrow pulse pressure (<20mm Hg), OR
- Age-specific hypotension and cold, clammy skin and restlessness

Comment

Asymptomatic Blood or Tissue Donor

Dengue virus - specific viral antigen or genomic sequences demonstrated in donated blood or organs during screening and confirmatory testing in the absence of symptoms in the donor.

Dengue viruses are members of the Flaviviridae and have sufficient antigenic similarity to yellow fever virus, Japanese encephalitis virus, and West Nile virus that previous infection or vaccination may raise cross-reactive serum antibodies. After a primary infection with a heterologous flavivirus, subsequent antibody testing by ELISA may produce false positive results for a different flavivirus. PRNT can often resolve cross-reactive serum antibodies in this situation and identify the infecting virus. However, high-titered cross-reactive antibody levels produced from multiple previous flavivirus infections cannot be resolved by PRNT. This demonstrates the complexity inherent in serological diagnosis and differentiation in populations living in regions where more than one flavivirus co-circulates. However, only a small proportion of the US population has evidence of previous flavivirus infection (or vaccination) so that cross-reactive flavivirus antibodies should not be a significant limitation to dengue diagnosis among most US travelers. Among US residents, most testing for dengue is done through private clinical laboratories using IgM or IgG detection techniques.

Reference testing is available from CDC's Dengue Branch, Division of Vector-Borne Infectious Diseases, National Center for Infectious Diseases, 1324 Calle Cañada, San Juan, PR 00920-3860, telephone 787-706-2399, fax 787-706-2496

Diphtheria (*Corynebacterium diphtheriae*)

2010 Case Definition
CSTE Position Statement Number: 09-ID-05

Case Classification

Probable

In the absence of a more likely diagnosis, an upper respiratory tract illness with

- an adherent membrane of the nose, pharynx, tonsils, or larynx; and
- absence of laboratory confirmation; and
- lack of epidemiologic linkage to a laboratory-confirmed case of diphtheria.

Confirmed

An upper respiratory tract illness with an adherent membrane of the nose, pharynx, tonsils, or larynx; and any of the following:

- isolation of *Corynebacterium diphtheriae* from the nose or throat; or
- histopathologic diagnosis of diphtheria; or
- epidemiologic linkage to a laboratory-confirmed case of diphtheria.

Ehrlichiosis and Anaplasmosis

2008 Case Definition
CSTE Position Statement Number: 09-ID-15

Subtypes

- *Ehrlichia chaffeensis* infection (formerly Human Monocytic Ehrlichiosis [HME])
- *Ehrlichia ewingii* infection (formerly Ehrlichiosis [unspecified, or other agent])
- *Anaplasma phagocytophilum* infection (formerly Human Granulocytic Ehrlichiosis [HGE])
- Ehrlichiosis/Anaplasmosis, human, undetermined

Clinical Description

Clinical presentation

A tick-borne illness characterized by acute onset of fever and one or more of the following symptoms or signs: headache, myalgia, malaise, anemia, leukopenia, thrombocytopenia, or elevated hepatic transaminases. Nausea, vomiting, or rash may be present in some cases.

Clinical evidence

Any reported fever and one or more of the following: headache, myalgia, anemia, leukopenia, thrombocytopenia, or any hepatic transaminase elevation.
Ehrlichia chaffeensis infection (formerly Human Monocytic Ehrlichiosis [HME])

Laboratory Criteria for Diagnosis

Supportive

- Serological evidence of elevated IgG or IgM antibody reactive with *E. chaffeensis* antigen by IFA, enzyme-linked immunosorbent assay (ELISA), dot-ELISA, or assays in other formats (CDC uses an IFA IgG cutoff of ≥1:64 and does not use IgM test results independently as diagnostic support criteria.), OR
- Identification of morulae in the cytoplasm of monocytes or macrophages by microscopic examination

Confirmed

- Serological evidence of a fourfold change in immunoglobulin G (IgG)-specific antibody titer to *E. chaffeensis* antigen by indirect immunofluorescence assay (IFA) between paired serum samples (one taken in first week of illness and a second 2-4 weeks later), OR
- Detection of *E. chaffeensis* DNA in a clinical specimen via amplification of a specific target by polymerase chain reaction (PCR) assay, OR

- Demonstration of ehrlichial antigen in a biopsy or autopsy sample by immunohistochemical methods, OR
- Isolation of *E. chaffeensis* from a clinical specimen in cell culture

Ehrlichia ewingii infection

(formerly Ehrlichiosis [unspecified, or other agent])

Laboratory Criteria for Diagnosis

Confirmed

Because the organism has never been cultured, antigens are not available. Thus, *Ehrlichia ewingii* infections may only be diagnosed by molecular detection methods: *E. ewingii* DNA detected in a clinical specimen via amplification of a specific target by polymerase chain reaction (PCR) assay.

Anaplasma phagocytophilum infection

(formerly Human Granulocytic Ehrlichiosis [HGE])

Laboratory Criteria for Diagnosis

Supportive

- Serological evidence of elevated IgG or IgM antibody reactive with A. phagocytophilum antigen by IFA, enzyme-linked immunosorbent Assay (ELISA), dot-ELISA, or assays in other formats (CDC uses an IFA IgG cutoff of ≥1:64 and does not use IgM test results independently as diagnostic support criteria.), OR
- Identification of morulae in the cytoplasm of neutrophils or eosinophils by microscopic examination

Confirmed

- Serological evidence of a fourfold change in IgG-specific antibody titer to *A. phagocytophilum* antigen by indirect immunofluorescence assay (IFA) in paired serum samples (one taken in first week of illness and a second 2-4 weeks later), OR
- Detection of *A. phagocytophilum* DNA in a clinical specimen via amplification of a specific target by polymerase chain reaction (PCR) assay, OR
- Demonstration of anaplasmal antigen in a biopsy/autopsy sample by immunohistochemical methods, OR
- Isolation of *A. phagocytophilum* from a clinical specimen in cell culture

Ehrlichiosis/Anaplasmosis, human, undetermined

See case classification

Exposure

History of having been in potential tick habitat in the 14 days prior to the onset of illness or history of tick bite or history of tick bite.

Case Classification

Suspected

A case with laboratory evidence of past or present infection but no clinical information available (e.g. a laboratory report).

Probable

A clinically compatible case (meets clinical evidence criteria) that has supportive laboratory results. For ehrlichiosis/anaplasmosis – an undetermined case can only be classified as probable. This occurs when a case has compatible clinical criteria with laboratory evidence to support Ehrlichia/Anaplasma infection, but not with sufficient clarity to definitively place it in one of the categories previously described. This may include the identification of morulae in white cells by microscopic examination in the absence of other supportive laboratory results.

Confirmed

A clinically compatible case (meets clinical evidence criteria) that is laboratory confirmed.

Comment

There are at least three species of bacteria, all intracellular, responsible for ehrlichiosis/ anaplasmosis in the United States: *Ehrlichia chaffeensis*, found primarily in monocytes, and *Anaplasma phagocytophilum* and *Ehrlichia ewingii*, found primarily in granulocytes. The clinical signs of disease that result from infection with these agents are similar, and the range distributions of the agents overlap, so testing for one or more species may be indicated. Serologic cross-reactions may occur among tests for these etiologic agents.

Four sub-categories of confirmed or probable ehrlichiosis/anaplasmosis should be reported: 1) human ehrlichiosis caused by *Ehrlichia chaffeensis*, 2) human ehrlichiosis caused by *E. ewingii*, 3) human anaplasmosis caused by *Anaplasma phagocytophilum*, or 4) human ehrlichiosis/anaplasmosis - undetermined. Cases reported in the fourth sub-category can only be reported as “probable” because the cases are only weakly supported by ambiguous laboratory test results.

Problem cases for which sera demonstrate elevated antibody IFA responses to more than a single infectious agent are usually resolvable by comparing the levels of the antibody responses, the greater antibody response generally being that directed at the actual agent involved. Tests of

additional sera and further evaluation via the use of PCR, IHC, and isolation via cell culture may be needed for further clarification. Cases involving persons infected with more than a single etiologic agent, while possible, are extremely rare and every effort should be undertaken to resolve cases that appear as such (equivalent IFA antibody titers) via other explanations.

Current commercially available ELISA tests are not quantitative, cannot be used to evaluate changes in antibody titer, and hence are not useful for serological confirmation. Furthermore, IgM tests are not always specific and the IgM response may be persistent. Therefore, IgM tests are not strongly supported for use in serodiagnosis of acute disease.

The 2008 case definition appearing on this page was re-published in the 2009 CSTE position statement 09-ID-15. Thus, the 2008 and 2010 versions of the case definition are identical.

Giardiasis

2011 Case Definition
CSTE Position Statement Number: 10-ID-17

Clinical Description

An illness caused by the protozoan *Giardia lamblia* (aka G. *intestinalis* or G. *duodenalis*) and characterized by gastrointestinal symptoms such as diarrhea, abdominal cramps, bloating, weight loss, or malabsorption.

Laboratory Criteria for Diagnosis

Laboratory-confirmed giardiasis shall be defined as the detection of *Giardia* organisms, antigen, or DNA in stool, intestinal fluid, tissue samples, biopsy specimens or other biological sample.

Case Classification

Confirmed

A case that meets the clinical description and the criteria for laboratory confirmation as described above. When available, molecular characterization (e.g., assemblage designation) should be reported.

Probable

A case that meets the clinical description and that is epidemiologically linked to a confirmed case.

Gonorrhea (*Neisseria gonorrhoeae*)

1996 Case Definition
CSTE Position Statement Number: 09-ID-35

Clinical Description

A sexually transmitted infection commonly manifested by urethritis, cervicitis, or salpingitis. Infection may be asymptomatic.

Laboratory Criteria for Diagnosis

- Isolation of typical gram-negative, oxidase-positive diplococci (presumptive *Neisseria gonorrhoeae*) from a clinical specimen, or
- Demonstration of *N. gonorrhoeae* in a clinical specimen by detection of antigen or nucleic acid, or
- Observation of gram-negative intracellular diplococci in a urethral smear obtained from a male

Case Classification

Probable

- Demonstration of gram-negative intracellular diplococci in an endocervical smear obtained from a female or
- A written morbidity report of gonorrhea submitted by a physician

Confirmed

A case that is laboratory confirmed

Comment

The 1996 case definition appearing on this page was re-published in the 2009 CSTE position statement 09-ID-35. Thus, the 1996 and 2010 versions of the case definition are identical.

Haemophilus influenzae, invasive disease

1997 Case Definition
CSTE Position Statement Number: 09-ID-33

Clinical Description

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

Case Classification

Probable

Meningitis with detection *of Haemophilus influenzae* type b antigen in cerebrospinal fluid (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)

Comment

Positive antigen test results from urine or serum samples are unreliable for diagnosis of *H. influenzae* disease.

The 1997 case definition appearing on this page was originally published in the 1990 MMWR and re-published in the 2009 CSTE position statement 09-ID-33.1,2 Thus, the 1990, 1997, and 2010 versions of the case definition are identical.

Hansen's Disease (Leprosy) (*Mycobacterium leprae*)

1997 Case Definition
CSTE Position Statement Number: 09-ID-33

The 1997 case definition of Hansen's Disease was previously published in the 1990 MMWR Recommendations and Reports titled Case Definitions for Public Health Surveillance [MMWR 1990;39(RR13)] (available at http://www.cdc.gov/mmwr/preview/mmwrhtml/00025629.htm). Thus, the 1990 and 1997 versions of the case definition are identical.

Clinical Description

A chronic bacterial disease characterized by the involvement primarily of skin as well as peripheral nerves and the mucosa of the upper airway. Clinical forms of Hansen's disease represent a spectrum reflecting the cellular immune response to *Mycobacterium leprae*. The following characteristics are typical of the major forms of the disease:

- *Tuberculoid*: one or a few well-demarcated, hypopigmented, and anesthetic skin lesions, frequently with active, spreading edges and a clearing center; peripheral nerve swelling or thickening also may occur
- *Lepromatous*: a number of erythematous papules and nodules or an infiltration of the face, hands, and feet with lesions in a bilateral and symmetrical distribution that progress to thickening of the skin
- *Borderline (dimorphous)*: skin lesions characteristic of both the tuberculoid and lepromatous forms
- *Indeterminate*: early lesions, usually hypopigmented macules, without developed tuberculoid or lepromatous features

Laboratory Criteria for Diagnosis

Demonstration of acid-fast bacilli in skin or dermal nerve, obtained from the full-thickness skin biopsy of a lepromatous lesion

Case Classification

Confirmed

A clinically compatible case that is laboratory confirmed

Hantavirus Pulmonary Syndrome (Hantavirus Disease) (HPS)

2010 Case Definition
CSTE Position Statement Number: 09-ID-17

Clinical Description

Hantavirus pulmonary syndrome (HPS), commonly referred to as hantavirus disease, is a febrile illness characterized by bilateral interstitial pulmonary infiltrates and respiratory compromise usually requiring supplemental oxygen and clinically resembling acute respiratory disease syndrome (ARDS). The typical prodrome consists of fever, chills, myalgia, headache, and gastrointestinal symptoms. Typical clinical laboratory findings include hemoconcentration, left shift in the white blood cell count, neutrophilic leukocytosis, thrombocytopenia, and circulating immunoblasts.

Clinical case definition

An illness characterized by one or more of the following clinical features:

- A febrile illness (i.e., temperature greater than 101.0° F [greater than 38.3° C]) corroborated by bilateral diffuse interstitial edema or a clinical diagnosis of acute respiratory distress syndrome (ARDS) or radiographic evidence of noncardiogenic pulmonary edema, or unexplained respiratory illness resulting in death, and occurring in a previously healthy person
- An unexplained respiratory illness resulting in death, with an autopsy examination demonstrating noncardiogenic pulmonary edema without an identifiable cause

Laboratory Criteria for Diagnosis

- Detection of hantavirus-specific immunoglobulin M or rising titers of hantavirus-specific immunoglobulin G, or
- Detection of hantavirus-specific ribonucleic acid sequence by polymerase chain reaction in clinical specimens, or
- Detection of hantavirus antigen by immunohistochemistry

Case Classification

Confirmed

A clinically compatible case that is laboratory confirmed

Comment

Laboratory testing should be performed or confirmed at a reference laboratory. Because the clinical illness is nonspecific and ARDS is common, a screening case definition can be used to determine

which patients to test. In general, a predisposing medical condition (e.g., chronic pulmonary disease, malignancy, trauma, burn, and surgery) is a more likely cause of ARDS than HPS, and patients who have these underlying conditions and ARDS need not be tested for hantavirus. these underlying conditions and ARDS need not be tested for hantavirus.

Hemolytic Uremic Syndrome, Post-diarrheal (HUS)

1996 Case Definition
CSTE Position Statement Number: 09-ID-37

Clinical Description

Hemolytic uremic syndrome (HUS) is characterized by the acute onset of microangiopathic hemolytic anemia, renal injury, and low platelet count. Thrombotic thrombocytopenic purpura (TTP) also is characterized by these features but can include central nervous system (CNS) involvement and fever and may have a more gradual onset. Most cases of HUS (but few cases of TTP) occur after an acute gastrointestinal illness (usually diarrheal).

Laboratory Criteria for Diagnosis

The following are both present at some time during the illness:

- Anemia (acute onset) with microangiopathic changes (i.e., schistocytes, burr cells, or helmet cells) on peripheral blood smear and
- Renal injury (acute onset) evidenced by either hematuria, proteinuria, or elevated creatinine level (i.e., greater than or equal to 1.0 mg/dL in a child aged less than 13 years or greater than or equal to 1.5 mg/dL in a person aged greater than or equal to 13 years, or greater than or equal to 50% increase over baseline)

Note: A low platelet count can usually, but not always, be detected early in the illness, but it may then become normal or even high. If a platelet count obtained within 7 days after onset of the acute gastrointestinal illness is not less than 150,000/mm3, other diagnoses should be considered.

Case Classification

Probable

An acute illness diagnosed as HUS or TTP that meets the laboratory criteria in a patient who does not have a clear history of acute or bloody diarrhea in preceding 3 weeks or
An acute illness diagnosed as HUS or TTP, that a) has onset within 3 weeks after onset of an acute or bloody diarrhea and b) meets the laboratory criteria except that microangiopathic changes are not confirmed

Confirmed

An acute illness diagnosed as HUS or TTP that both meets the laboratory criteria and began within 3 weeks after onset of an episode of acute or bloody diarrhea

Comment

Some investigators consider HUS and TTP to be part of a continuum of disease. Therefore, criteria for diagnosing TTP on the basis of CNS involvement and fever are not provided because cases

diagnosed clinically as postdiarrheal TTP also should meet the criteria for HUS. These cases are reported as postdiarrheal HUS. Most diarrhea-associated HUS is caused by Shiga toxin-producing *Escherichia coli*, most commonly E. coli O157. If a patient meets the case definition for both Shiga toxin-producing *E. coli* (STEC) and HUS, the case should be reported for each of the conditions.

The 1996 case definition appearing on this page was re-published in the 2009 CSTE position statement 09-ID-37. Thus, the 1996 and 2010 versions of the case definition are identical.

Hepatitis A, Acute

2012 Case Definition
CSTE Position Statement Number: 11-ID-02

Clinical Description

An acute illness with a discrete onset of any sign or symptom consistent with acute viral hepatitis (e.g., fever, headache, malaise, anorexia, nausea, vomiting, diarrhea, and abdominal pain), and either a) jaundice, or b) elevated serum aminotransferase (alanine aminotransferase or aspartate aminotransferase) levels.

Laboratory Criteria for Diagnosis

Immunoglobulin M (IgM) antibody to hepatitis A virus (anti-HAV) positive

Case Classification

Confirmed

- A case that meets the clinical case definition and is laboratory confirmed, OR
- A case that meets the clinical case definition and occurs in a person who has an epidemiologic link with a person who has laboratory-confirmed hepatitis A (i.e., household or sexual contact with an infected person during the 15-50 days before the onset of symptoms)

Hepatitis B, Acute

2012 Case Definition
CSTE Position Statement Number: 11-ID-03

Clinical Description

An acute illness with a discrete onset of any sign or symptom* consistent with acute viral hepatitis (e.g., fever, headache, malaise, anorexia, nausea, vomiting, diarrhea, and abdominal pain), and either a) jaundice, or b) elevated serum alanine aminotransferase (ALT) levels >100 IU/L.

*A documented negative hepatitis B surface antigen (HBsAg) laboratory test result within 6 months prior to a positive test (either HBsAg, hepatitis B “e” antigen (HBeAg), or hepatitis B virus nucleic acid testing (HBV NAT) including genotype) result does not require an acute clinical presentation to meet the surveillance case definition.

Laboratory Criteria for Diagnosis

- HBsAg positive, AND
- Immunoglobulin M (IgM) antibody to hepatitis B core antigen (IgM anti-HBc) positive (if done)

Case Classification

Confirmed

A case that meets the clinical case definition is laboratory confirmed, and is not known to have chronic hepatitis B.

Hepatitis B, Chronic

2012 Case Definition
CSTE Position Statement Number: 11-ID-04

Clinical Description

No symptoms are required. Persons with chronic hepatitis B virus (HBV) infection may have no evidence of liver disease or may have a spectrum of disease ranging from chronic hepatitis to cirrhosis or liver cancer.

Laboratory Criteria for Diagnosis

- Immunoglobulin M (IgM) antibodies to hepatitis B core antigen (IgM anti-HBc) negative AND a positive result on one of the following tests: hepatitis B surface antigen (HBsAg), hepatitis B e antigen (HBeAg), or nucleic acid test for hepatitis B virus DNA (including qualitative, quantitative and genotype testing), OR
- HBsAg positive or nucleic acid test for HBV DNA positive (including qualitative, quantitative and genotype testing) or HBeAg positive two times at least 6 months apart (Any combination of these tests performed 6 months apart is acceptable)

Case Classification

Probable

A person with a single HBsAg positive or HBV DNA positive (including qualitative, quantitative and genotype testing) or HBeAg positive lab result and does not meet the case definition for acute hepatitis B.

Confirmed

A person who meets either of the above laboratory criteria for diagnosis.

Comment

Multiple laboratory tests indicative of chronic HBV infection may be performed simultaneously on the same patient specimen as part of a “hepatitis panel.” Testing performed in this manner may lead to seemingly discordant results, e.g., HBsAg-negative AND HBV DNA-positive. For the purposes of this case definition, any positive result among the three laboratory tests mentioned above is acceptable, regardless of other testing results. Negative HBeAg results and HBV DNA levels below positive cutoff level do not confirm the absence of HBV infection.

Hepatitis, Viral, Perinatal Hepatitis B Virus Infection Acquired in the United States or U.S. Territories

1995 Case Definition

The 1995 case definition appearing on this page was re-published incorrectly in the 1997 MMWR Recommendations and Reports titled Case Definitions for Infectious Conditions Under Public Health Surveillance [MMWR 1997;46(RR10)] (available at http://www.cdc.gov/mmwr/preview/mmwrhtml/00047449.htm). Thus, the 1995 and the 1997 versions of this case definition are not identical, and the 1995 version is the correct one.

Clinical case definition

Perinatal hepatitis B in the newborn may range from asymptomatic to fulminant hepatitis.

Laboratory Criteria for Diagnosis

Hepatitis B surface antigen (HBsAg) positive

Case Classification

HBsAg positivity in any infant aged >1-24 months who was born in the United States or in U.S. territories to an HBsAg-positive mother

Comment

Infants born to HBsAg-positive mothers should receive hepatitis B immune globulin (HBIG) and the first dose of hepatitis B vaccine within 12 hours of birth, followed by the second and third doses of vaccine at 1 and 6 months of age, respectively. Postvaccination testing for HBsAg and anti-HBs (antibody to HBsAg) is recommended from 3 to 6 months following completion of the vaccine series. If HBIG and the initial dose of vaccine are delayed for >1 month after birth, testing for HBsAg may determine if the infant is already infected.

Hepatitis C, Acute

2012 Case Definition
CSTE Position Statement Number: 11-ID-05

Clinical Description

An acute illness with a discrete onset of any sign or symptom* consistent with acute viral hepatitis (e.g., fever, headache, malaise, anorexia, nausea, vomiting, diarrhea, and abdominal pain), and either a) jaundice, or b) elevated serum alanine aminotransferase (ALT) levels >400IU/L.

*A documented negative HCV antibody laboratory test result followed within 6 months by a positive test (as described in the laboratory criteria for diagnosis) result does not require an acute clinical presentation to meet the surveillance case definition.

Laboratory Criteria for Diagnosis

One or more of the following three criteria:

- Antibodies to hepatitis C virus (anti-HCV) screening-test-positive with a signal to cut-off ratio predictive of a true positive as determined for the particular assay as defined by CDC. (URL for the signal to cut-off ratios: http://www.cdc.gov/hepatitis/HCV/LabTesting.htm), OR
- Hepatitis C Virus Recombinant Immunoblot Assay (HCV RIBA) positive, OR
- Nucleic Acid Test (NAT) for HCV RNA positive (including qualitative, quantitative or genotype testing)

AND, if done meets the following two criteria:

- Absence of IgM antibody to hepatitis A virus (if done) (IgM anti-HAV), AND
- Absence of IgM antibody to hepatitis B core antigen (if done) (IgM anti-HBc)

Case Classification

Confirmed

A case that meets the clinical case definition, is laboratory confirmed, and is not known to have chronic hepatitis C.

Hepatitis C, Past or Present

2012 Case Definition
CSTE Position Statement Number: 11-ID-06

Clinical Description

Most hepatitis C virus (HCV)-infected persons are asymptomatic; however, many have chronic liver disease, which can range from mild to severe.

Laboratory Criteria for Diagnosis

One or more of the following three criteria (except in persons less than 18 months of age, for whom only criteria 3 would meet the case classification criteria):

- Antibodies to hepatitis C virus (anti-HCV) screening-test-positive with a signal to cut-off ratio predictive of a true positive as determined for the particular assay as defined by CDC. (URL for the signal to cut-off ratios: http://www.cdc.gov/hepatitis/HCV/LabTesting.htm), OR
- Hepatitis C virus recombinant immunoblot assay (HCV RIBA) positive, OR
- Nucleic acid test (NAT) for HCV RNA positive (including qualitative, quantitative or genotype testing).

Case Classification

Probable

A case that does not meet the case definition for acute hepatitis C, is anti-HCV positive (repeat reactive) by EIA, and has alanine aminotransferase (ALT or SGPT) values above the upper limit of normal, but the anti-HCV EIA result has not been verified by an additional more specific assay or the signal to cut-off ratio is unknown.

Confirmed

A case that is laboratory confirmed and does not meet the case definition for acute hepatitis C.

Human Immunodeficiency Virus Infection (HIV)

2008 Case Definition
CSTE Position Statement Number: n/a,

Subtypes

- HIV Infection, Adult (≥13 years)
- HIV, Children (18 months to <13 years)
- HIV Infection, Children (< 18 months)

Clinical Description HIV Infection, Adult (≥13 years)

Laboratory Criteria for Diagnosis

- Positive result from an HIV antibody screening test (e.g., reactive enzyme immunoassay [EIA]*) confirmed by a positive result from a supplemental HIV antibody test (e.g., Western blot or indirect immunofluorescence assay test), OR
- Positive result or report of a detectable quantity (i.e., within the established limits of the laboratory test) from any of the following HIV virologic (i.e., non-antibody) tests†:
  -- HIV nucleic acid (DNA or RNA) detection test (e.g., polymerase chain reaction [PCR])
  -- HIV p24 antigen test, including neutralization assay
  -- HIV isolation (viral culture)

* Rapid tests are EIAs that do not have to be repeated but require a confirmatory test if reactive. Most conventional EIAs require a repeatedly reactive EIA that is confirmed by a positive result with a supplemental test for HIV antibody. Standard laboratory testing procedures should always be followed.
† For HIV screening, HIV virologic (non-antibody) tests should not be used in lieu of approved HIV antibody screening tests. A negative result (i.e., undetectable or nonreactive) from an HIV virologic test (e.g., viral RNA nucleic acid test) does not rule out the diagnosis of HIV infection.

Case Classification

Confirmed

Meets the laboratory criteria for diagnosis of HIV infection and one of the four HIV infection stages (stage 1, stage 2, stage 3, or stage unknown)

HIV Infection, Stage 1

No AIDS-defining condition and either CD4+ T-lymphocyte count of >500 cells/µL or CD4+ T-lymphocyte percentage of total lymphocytes of >29.

HIV Infection, Stage 2

No AIDS-defining condition and either CD4+ T-lymphocyte count of 200--499 cells/µL or CD4+ T-lymphocyte percentage of total lymphocytes of 14--28.

HIV Infection, Stage 3 (AIDS)

CD4+ T-lymphocyte count of <200 cells/µL or CD4+ T-lymphocyte percentage of total lymphocytes of <14 or documentation of an AIDS-defining condition. Documentation of an AIDS-defining condition supersedes a CD4+ T-lymphocyte count of >200 cells/µL and a CD4+ T-lymphocyte percentage of total lymphocytes of >14. Definitive diagnostic methods for these conditions are available in Appendix C of the 1993 revised HIV classification system and the expanded AIDS case definition[2]. Or Criteria for HIV infection are met and at least one of the AIDS-defining conditions has been documented (see clinical description).

AIDS-Defining Conditions

- Candidiasis of bronchi, trachea, or lungs
- Candidiasis of esophagus†
- Cervical cancer, invasive§
- Coccidioidomycosis, disseminated or extrapulmonary
- Cryptococcosis, extrapulmonary
- Cryptosporidiosis, chronic intestinal (>1 month's duration)
- Cytomegalovirus disease (other than liver, spleen, or nodes), onset at age >1 month
- Cytomegalovirus retinitis (with loss of vision)†
- Encephalopathy, HIV related
- Herpes simplex: chronic ulcers (>1 month's duration) or bronchitis, pneumonitis, or esophagitis (onset at age >1 month)
- Histoplasmosis, disseminated or extrapulmonary
- Isosporiasis, chronic intestinal (>1 month's duration)
- Kaposi sarcoma†
- Lymphoid interstitial pneumonia or pulmonary lymphoid hyperplasia complex*†
- Lymphoma, Burkitt (or equivalent term)
- Lymphoma, immunoblastic (or equivalent term)
- Lymphoma, primary, of brain
- *Mycobacterium avium* complex or *Mycobacterium kansasii*, disseminated or extrapulmonary†
- *Mycobacterium tuberculosis* of any site, pulmonary,†§ disseminated,† or extrapulmonary†
- *Mycobacterium*, other species or unidentified species, disseminated† or extrapulmonary†
- *Pneumocystis jirovecii* pneumonia†
- Pneumonia, recurrent†§
- Progressive multifocal leukoencephalopathy

- *Salmonella* septicemia, recurrent
- Toxoplasmosis of brain, onset at age >1 month†
- Wasting syndrome attributed to HIV

* Only among children aged <13 years[1]
† Condition that might be diagnosed presumptively.
§ Only among adults and adolescents aged >13 years[2]
Source: MMWR[3]

HIV Infection, Stage Unknown

No information available on CD4+ T-lymphocyte count or percentage and no information available on AIDS-defining conditions. (Every effort should be made to report CD4+ T-lymphocyte counts or percentages and the presence of AIDS-defining conditions at the time of diagnosis.)
Other Criterion (for Cases that Do Not Meet Laboratory Criteria)

- HIV infection diagnosed by a physician or qualified medical-care provider§ based on the laboratory criteria and documented in a medical record.
- Oral reports of prior laboratory test results are not acceptable.
- An original or copy of the laboratory report is preferred; however, in the rare instance the laboratory report is not available, a description of the laboratory report results by a physician or qualified medical-care provider documented in the medical record is acceptable for surveillance purposes. Every effort should be made to obtain a copy of the laboratory report for documentation in the medical record.

Comment

The 2008 HIV infection case definition for adults and adolescents (aged >13 years) replaces the HIV infection and AIDS case definitions and the HIV infection classification system (2, 4--6). The case definition is intended for public health surveillance only and not as a guide for clinical diagnosis. The definition applies to all HIV variants (e.g., HIV-1 or HIV-2) and excludes confirmation of HIV infection through diagnosis of AIDS-defining conditions alone. For surveillance purposes, a reportable case of HIV infection among adults and adolescents aged >13 years is categorized by increasing severity as stage 1, stage 2, or stage 3 (AIDS) or as stage unknown

HIV and AIDS, Children (18 months to <13 years)

Laboratory Criteria

- Positive result from a screening test for HIV antibody (e.g., reactive EIA), confirmed by a positive result from a supplemental test for HIV antibody (e.g., Western blot or indirect immunofluorescence assay), OR
- Positive result or a detectable quantity by any of the following HIV virologic (non-antibody) tests***:

  -- HIV nucleic acid (DNA or RNA) detection (e.g., PCR)

  -- HIV p24 antigen test, including neutralization assay

  -- HIV isolation (viral culture)

Case Classification

HIV infected

Confirmed

One of laboratory criteria or other criteria listed below is met:

Other Criterion

(for Cases that Do Not Meet Laboratory Criteria)
HIV infection diagnosed by a physician or qualified medical-care provider based on the laboratory criteria and documented in a medical record. Oral reports of prior laboratory test results are not acceptable.

AIDS

Confirmed

Criteria for HIV infection are met and at least one of the AIDS-defining conditions has been documented (see clinical description).

Comment

*** For HIV screening among children aged 18 months to <13 years infected through exposure other than perinatal exposure, HIV virologic (non-antibody) tests should not be used in lieu of approved HIV antibody screening tests. A negative result (i.e., undetectable or nonreactive) by an HIV virologic test (e.g., viral RNA nucleic acid test) does not rule out the diagnosis of HIV infection.
No changes have been made to the existing classification system for HIV infection among children aged 18 months to <13 years (7). To classify HIV-infected children in this age group, refer to the 1994 revised classification system for HIV infection among children aged <13 years (7).

HIV Infection, Children (< 18 months)

Laboratory Criteria for Diagnosis

HIV infection

Presumptive

Positive results on one specimen (not including cord blood) from the listed HIV virologic tests (HIV nucleic acid detection test; HIV p24 antigen test, including neutralization assay, for a child aged >1 month; or HIV isolation [viral culture] for definitively HIV infected) and no subsequent negative results from HIV virologic or HIV antibody tests.

Definitive

Positive results on two separate specimens (not including cord blood) from one or more of the following HIV virologic (non-antibody) tests:

- HIV nucleic acid (DNA or RNA) detection**
- HIV p24 antigen test, including neutralization assay, for a child aged >1 month
- HIV isolation (viral culture)
-

HIV non-infection

Presumptive

- Two negative RNA or DNA virologic tests, from separate specimens, both of which were obtained at age >2 weeks and one of which was obtained at age >4 weeks.§§ , OR
- One negative RNA or a DNA virologic test from a specimen obtained at age >8 weeks, OR
- One negative HIV antibody test from a specimen obtained at age >6 months, OR
- One positive HIV virologic test followed by at least two negative tests from separate specimens, one of which is a virologic test from a specimen obtained at age >8 weeks or an HIV antibody test from a specimen obtained at age >6 months
-

AND No other laboratory or clinical evidence of HIV infection (i.e., no subsequent positive results from virologic tests if tests were performed, and no AIDS-defining condition for which no other underlying condition indicative of immunosuppression exists).

Definitive

- At least two negative HIV DNA or RNA virologic tests from separate specimens, both of which were obtained at age >1 month and one of which was obtained at age >4 months,
- OR
- At least two negative HIV antibody tests from separate specimens obtained at age >6 months
- AND
- No other laboratory or clinical evidence of HIV infection (i.e., no positive results from virologic tests [if tests were performed] and no current or previous AIDS-defining condition)

** HIV nucleic acid (DNA or RNA) detection tests are the virologic methods of choice for the diagnosis or exclusion of infection in children aged <18 months. Although HIV culture can be used, culture is less standardized and less sensitive than nucleic acid detection tests. The use of p24 antigen testing to exclude infection in children aged <18 months is not recommended because of poor sensitivity, especially in the presence of HIV antibody. Commercial tests for RNA and DNA detection have become widely available. Quantitative RNA tests have been approved by the Food and Drug Administration (FDA) for monitoring HIV infection, and qualitative RNA tests have been approved to aid diagnosis. The quantitative and qualitative RNA tests meet FDA standards for high analytic and clinical sensitivity and specificity (14--16). All available tests detect the subtypes of group M and strains of group O. HIV-2 can be diagnosed with HIV-2 DNA PCR. HIV RNA tests sometimes do not detect HIV-2 because the viral loads in some HIV-2--infected persons are below detectable levels. Because of the possibility of mutation or recombination involving the sequences

detected by a particular test, occasionally, virus might not be detected in a specimen from an HIV-2 infected individual. If HIV-2 infection seems likely but results are negative, testing with a different assay might be advisable.
§§ If specimens for both negative RNA or DNA virologic tests are obtained at age >4 weeks, specimens should be obtained on separate days.

Exposure

A child aged <18 months born to an HIV-infected mother

Case Classification

HIV Infection

Presumptive

Meets exposure criteria and presumptive laboratory criteria or at least one of the other criteria below

Definitive

Meets exposure criteria and definitive laboratory criteria or at least one of the other criteria below

Other Criteria

(for Cases that Do Not Meet Laboratory Criteria for Definitive or Presumptive HIV Infection)

- HIV infection diagnosed by a physician or qualified medical-care provider based on the laboratory criteria and documented in a medical record. Oral reports of prior laboratory test results are not acceptable, OR
- When test results regarding HIV infection status are not available, documentation of a condition that meets the criteria in the 1987 pediatric surveillance case definition for AIDS (see clinical description).

Uninfected with HIV

Presumptive

Meets exposure criteria, does not meet criteria for definitively uninfected with HIV, and meets one of the presumptive laboratory criteria for non-infection.

Definitive

Meets exposure criteria, does not meet criteria for presumptive or definitive HIV infection, and at least one of the laboratory criteria of non-infection, or other criteria below.

Other Criteria

(for Cases that Do Not Meet Laboratory Criteria for Uninfected with HIV, Definitive or Presumptive)

- Determination of uninfected with HIV by a physician or qualified medical-care provider based on the laboratory criteria and who has noted the HIV diagnostic test results in the medical record. Oral reports of prior laboratory test results are not acceptable, AND
- No other laboratory or clinical evidence of HIV infection (i.e., no positive results from virologic tests [if tests were performed] and no AIDS-defining condition for which no other underlying condition indicative of immunosuppression exists)

Indeterminate HIV infection

A child aged <18 months born to an HIV-infected mother is categorized as having perinatal exposure with an indeterminate HIV infection status if the criteria for infected with HIV and uninfected with HIV are not met.

AIDS Case Definition (<18 months)

AIDS-Defining Conditions

- Bacterial infections, multiple or recurrent*
- Candidiasis of bronchi, trachea, or lungs
- Candidiasis of esophagus†
- Cervical cancer, invasive§
- Coccidioidomycosis, disseminated or extrapulmonary
- Cryptococcosis, extrapulmonary
- Cryptosporidiosis, chronic intestinal (>1 month's duration)
- Cytomegalovirus disease (other than liver, spleen, or nodes), onset at age >1 month
- Cytomegalovirus retinitis (with loss of vision)†
- Encephalopathy, HIV related
- Herpes simplex: chronic ulcers (>1 month's duration) or bronchitis, pneumonitis, or esophagitis (onset at age >1 month)
- Histoplasmosis, disseminated or extrapulmonary
- Isosporiasis, chronic intestinal (>1 month's duration)
- Kaposi sarcoma†
- Lymphoid interstitial pneumonia or pulmonary lymphoid hyperplasia complex*†
- Lymphoma, Burkitt (or equivalent term)
- Lymphoma, immunoblastic (or equivalent term)
- Lymphoma, primary, of brain
- *Mycobacterium avium* complex or *Mycobacterium kansasii*, disseminated or extrapulmonary†
- *Mycobacterium tuberculosis* of any site, pulmonary,†§ disseminated,† or extrapulmonary†
- *Mycobacterium*, other species or unidentified species, disseminated† or extrapulmonary†
- *Pneumocystis jirovecii* pneumonia†

- Pneumonia, recurrent†§
- Progressive multifocal leukoencephalopathy
- *Salmonella* septicemia, recurrent
- Toxoplasmosis of brain, onset at age >1 month†
- Wasting syndrome attributed to HIV

* Only among children aged <13 years[1]
† Condition that might be diagnosed presumptively.
§ Only among adults and adolescents aged >13 years[2]
Source: MMWR[3]

Comment

The 2008 definition takes into account new available testing technologies. Laboratory criteria for children aged <18 months at the time of diagnosis include revisions to one category: presumptively uninfected with HIV. No substantial changes have been made to the remaining three categories (definitively HIV infected, presumptively HIV infected, and definitively uninfected with HIV), and no changes have been made to the conditions listed under the AIDS criteria in the 1987 pediatric surveillance case definition for AIDS for children aged <18 months (4,5,8). Because diagnostic laboratory testing for HIV infection among children aged <18 months might be unreliable, children in this age group with perinatal HIV exposure whose illness meets the AIDS case definition on the basis of clinical criteria are considered presumptively HIV infected when the mother has laboratory-confirmed HIV infection. The definitive or presumptive exclusion of HIV infection for surveillance purposes does not mean that clinical HIV infection can be ruled out. For the purposes of calculating the exact timing of tests (e.g., when a specimen was obtained for laboratory testing) based on the surveillance case definition, 1 month corresponds to 30 days.

The exclusion of HIV infection (definitive or presumptive) for surveillance purposes does not mean that clinical HIV infection can be ruled out. These categories are used for surveillance classification purposes and should not be used to guide clinical practice. A child with perinatal HIV exposure should continue to be monitored clinically according to nationally accepted treatment and care guidelines (9--11) to 1) monitor for potential complications of exposure to antiretroviral medications during the perinatal period and 2) confirm the absence of HIV infection with repeat clinical and laboratory evaluations.

No changes have been made to the existing classification system for HIV infection among children aged <18 months (7). To classify HIV-infected children in this age group, use the 1994 revised classification system for HIV infection among children aged <13 years (7).

References

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Perinatal HIV Guidelines Working Group; Public Health Service Task Force. Recommendations for use of antiretroviral drugs in pregnant HIV-infected women for maternal health and interventions to reduce perinatal HIV transmission in the United States; 2008. http://aidsinfo.nih.gov/contentfiles/perinatalgl.pdf.
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Influenza-Associated Pediatric Mortality

2004 Case Definition
CSTE Position Statement Number: 09-ID-44

Case Definition

An influenza-associated death is defined for surveillance purposes as a death resulting from a clinically compatible illness that was confirmed to be influenza by an appropriate laboratory or rapid diagnostic test. There should be no period of complete recovery between the illness and death. Influenza-associated deaths in all persons aged <18 years should be reported.
A death should not be reported if:

- There is no laboratory confirmation of influenza virus infection.
- The influenza illness is followed by full recovery to baseline health status prior to death.
- The death occurs in a person 18 years or older.
- After review and consultation there is an alternative agreed upon cause of death.

Laboratory Criteria for Diagnosis

Laboratory testing for influenza virus infection may be done on pre- or post-mortem clinical specimens, and include identification of influenza A or B virus infections by a positive result by at least one of the following:

- Influenza virus isolation in tissue cell culture from respiratory specimens;
- Reverse-transcriptase polymerase chain reaction (RT-PCR) testing of respiratory specimens;
- Immunofluorescent antibody staining (direct or indirect) of respiratory specimens;
- Rapid influenza diagnostic testing of respiratory specimens;
- Immunohistochemical (IHC) staining for influenza viral antigens in respiratory tract tissue from autopsy specimens;
- Four-fold rise in influenza hemagglutination inhibition (HI) antibody titer in paired acute and convalescent sera*.

Case Classification

Confirmed

A death meeting the clinical case definition that is laboratory confirmed.
Laboratory or rapid diagnostic test confirmation is required as part of the case definition; therefore, all reported deaths will be classified as confirmed.

Comment

*Serologic testing for influenza is available in a limited number of laboratories, and should only be considered as evidence of recent infection if a four-fold rise in influenza (HI) antibody titer is demonstrated in paired sera. Single serum samples are not interpretable.
The 2004 case definition appearing on this page was re-published in the 2009 CSTE position statement 09-ID-44. Thus, the 2004 and 2010 versions of the case definition are identical.

Legionellosis (*Legionella pneumophila*) (Legionnaires' Disease)

2005 Case Definition
CSTE Position Statement Number: 09-ID-45

Clinical Description

Legionellosis is associated with two clinically and epidemiologically distinct illnesses: Legionnaires' disease, which is characterized by fever, myalgia, cough, and clinical or radiographic pneumonia; and Pontiac fever, a milder illness without pneumonia.

Laboratory Criteria for Diagnosis:

Suspected

- By seroconversion: fourfold or greater rise in antibody titer to specific species or serogroups of *Legionella* other than *L. pneumophila* serogroup 1 (e.g., *L. micdadei*, *L. pneumophila* serogroup 6).
- By seroconversion: fourfold or greater rise in antibody titer to multiple species of *Legionella* using pooled antigen and validated reagents.
- By the detection of specific *Legionella* antigen or staining of the organism in respiratory secretions, lung tissue, or pleural fluid by direct fluorescent antibody (DFA) staining, Immunohistochemistry (IHC), or other similar method, using validated reagents.
- By detection of *Legionella* species by a validated nucleic acid assay.

Confirmed

- By culture: isolation of any *Legionella* organism from respiratory secretions, lung tissue, pleural fluid, or other normally sterile fluid.
- By detection of *Legionella pneumophila* serogroup 1 antigen in urine using validated reagents.
- By seroconversion: fourfold or greater rise in specific serum antibody titer to *Legionella pneumophila* serogroup 1 using validated reagents.

Case Classification

Suspected

A clinically compatible case that meets at least one of the presumptive (suspected) laboratory criteria.

Travel-associated: a case that has a history of spending at least one night away from home, either in the same country of residence or abroad, in the ten days before onset of illness.

Confirmed

A clinically compatible case that meets at least one of the confirmatory laboratory criteria.
Travel-associated: a case that has a history of spending at least one night away from home, either in the same country of residence or abroad, in the ten days before onset of illness.

Comment

The 2005 case definition appearing on this page was re-published in the 2009 CSTE position statement 09-ID-45. Thus, the 2005 and 2010 versions of the case definition are identical.

Listeriosis (*Listeria monocytogenes*)

1999 Case Definition
CSTE Position Statement Number: 09-ID-46

Clinical description

In adults, invasive disease caused by *Listeria monocytogenes* manifests most commonly as meningitis or bacteremia; infection during pregnancy may result in fetal loss through miscarriage or stillbirth, or neonatal meningitis or bacteremia. Other manifestations can also be observed.

Laboratory Criteria for Diagnosis

Isolation of *L. monocytogenes* from a normally sterile site (e.g., blood or cerebrospinal fluid [CSF] or, less commonly, joint, pleural, or pericardial fluid)

In the setting of miscarriage or stillbirth, isolation of *L. monocytogenes* from placental or fetal tissue

Case Classification

Confirmed

A clinically compatible case that is laboratory-confirmed

Comment

The usefulness of other laboratory methods such fluorescent antibody testing or polymerase chain reaction to diagnose invasive listeriosis has not been established.
The 1999 case definition appearing on this page was re-published in the 2003 CSTE position statement 03-ID-01 and in the 2009 CSTE position statement 09-ID-46. Thus, the 1999, 2003, and 2010 versions of the case definition are identical.

Lyme Disease (*Borrelia burgdorferi*)

2011 Case Definition
CSTE Position Statement Number: 10-ID-06

This surveillance case definition was developed for national reporting of Lyme disease; it is not intended to be used in clinical diagnosis.

Clinical Description

A systemic, tick-borne disease with protean manifestations, including dermatologic, rheumatologic, neurologic, and cardiac abnormalities. The most common clinical marker for the disease is *erythema migrans* (EM), the initial skin lesion that occurs in 60%-80% of patients.

For purposes of surveillance, EM is defined as a skin lesion that typically begins as a red macule or papule and expands over a period of days to weeks to form a large round lesion, often with partial central clearing. A single primary lesion must reach greater than or equal to 5 cm in size across its largest diameter. Secondary lesions also may occur. Annular erythematous lesions occurring within several hours of a tick bite represent hypersensitivity reactions and do not qualify as EM. For most patients, the expanding EM lesion is accompanied by other acute symptoms, particularly fatigue, fever, headache, mildly stiff neck, arthralgia, or myalgia. These symptoms are typically intermittent. The diagnosis of EM must be made by a physician.

Laboratory confirmation is recommended for persons with no known exposure.

For purposes of surveillance, late manifestations include any of the following when an alternate explanation is not found:

- *Musculoskeletal system*. Recurrent, brief attacks (weeks or months) of objective joint swelling in one or a few joints, sometimes followed by chronic arthritis in one or a few joints. Manifestations not considered as criteria for diagnosis include chronic progressive arthritis not preceded by brief attacks and chronic symmetrical polyarthritis. Additionally, arthralgia, myalgia, or fibromyalgia syndromes alone are not criteria for musculoskeletal involvement.
- *Nervous system*. Any of the following, alone or in combination: lymphocytic meningitis; cranial neuritis, particularly facial palsy (may be bilateral); radiculoneuropathy; or, rarely, encephalomyelitis. Encephalomyelitis must be confirmed by demonstration of antibody production against *Borrelia burgdorferi* in the cerebrospinal fluid (CSF), evidenced by a higher titer of antibody in CSF than in serum. Headache, fatigue, paresthesia, or mildly stiff neck alone, are not criteria for neurologic involvement.
- *Cardiovascular system*. Acute onset of high-grade (2nd-degree or 3rd-degree) atrioventricular conduction defects that resolve in days to weeks and are sometimes associated with myocarditis. Palpitations, bradycardia, bundle branch block, or myocarditis alone are not criteria for cardiovascular involvement.

Laboratory Criteria for Diagnosis

For the purposes of surveillance, the definition of a qualified laboratory assay is
Positive Culture for *B. burgdorferi*, or
Two-tier testing interpreted using established criteria [1], where:
a. Positive IgM is sufficient only when ≤30 days from symptom onset
b. Positive IgG is sufficient at any point during illness
Single-tier IgG immunoblot seropositivity using established criteria [1-4].
CSF antibody positive for *B. burgdorferi* by Enzyme Immunoassay (EIA) or Immunofluorescence Assay (IFA), when the titer is higher than it was in serum

Exposure

Exposure is defined as having been (less than or equal to 30 days before onset of EM) in wooded, brushy, or grassy areas (i.e., potential tick habitats) in a county in which Lyme disease is endemic. A history of tick bite is not required.

Disease endemic to county

A county in which Lyme disease is endemic is one in which at least two confirmed cases have been acquired in the county or in which established populations of a known tick vector are infected with *B. burgdorferi*.

Case Classification

Confirmed

a) a case of EM with a known exposure (as defined above), or
b) a case of EM with laboratory evidence of infection (as defined above) and without a known exposure or
c) a case with at least one late manifestation that has laboratory evidence of infection.

Probable

Any other case of physician-diagnosed Lyme disease that has laboratory evidence of infection (as defined above).

Suspected

a) a case of EM where there is no known exposure (as defined above) and no laboratory evidence of infection (as defined above), or
b) a case with laboratory evidence of infection but no clinical information available (e.g. a laboratory report).

Comment

Lyme disease reports will not be considered cases if the medical provider specifically states this is not a case of Lyme disease, or the only symptom listed is "tick bite" or "insect bite."

References

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Malaria (*Plasmodium* spp.)

2010 Case Definition
CSTE Position Statement Number: 09-ID-47

Clinical Description

The first symptoms of malaria (most often fever, chills, sweats, headaches, muscle pains, nausea and vomiting) are often not specific and are also found in other diseases (such as influenza and other common viral infections). Likewise, the physical findings are often not specific (elevated temperature, perspiration, tiredness). In severe malaria (caused by *P. falciparum*), clinical findings (confusion, coma, neurologic focal signs, severe anemia, respiratory difficulties) are more striking and may increase the suspicion index for malaria.

Laboratory Criteria for Diagnosis

- Detection of circulating malaria-specific antigens using rapid diagnostic test (RDT), OR
- Detection of species specific parasite DNA in a sample of peripheral blood using a Polymerase Chain Reaction test*, OR
- Detection of malaria parasites in thick or thin peripheral blood films.

Case Classification

Suspected

Detection of *Plasmodium* species by rapid diagnostic antigen testing without confirmation by microscopy or nucleic acid testing in any person (symptomatic or asymptomatic) diagnosed in the United States, regardless of whether the person experienced previous episodes of malaria while outside the country.

Confirmed

- Detection and specific identification of malaria parasites by microscopy on blood films in a laboratory with appropriate expertise in any person (symptomatic or asymptomatic) diagnosed in the United States, regardless of whether the person experienced previous episodes of malaria while outside the country, OR
- Detection of *Plasmodium* species by nucleic acid test * in any person (symptomatic or asymptomatic) diagnosed in the United States, regardless of whether the person experienced previous episodes of malaria while outside the country.

Comment

* Laboratory-developed malaria PCR tests must fulfill CLIA requirements, including validation studies.

A subsequent attack experienced by the same person but caused by a different *Plasmodium* species is counted as an additional case. A subsequent attack experienced by the same person and caused by the same species in the United States may indicate a relapsing infection or treatment failure caused by drug resistance or a separate attack.

Blood smears from questionable cases should be referred to the CDC Division of Parasitic Diseases Diagnostic Laboratory for confirmation of the diagnosis.

Cases also are classified according to the following World Health Organization categories:

- *Autochthonous:*
    - *Indigenous*: malaria acquired by mosquito transmission in an area where malaria is a regular occurrence
    - *Introduced*: malaria acquired by mosquito transmission from an imported case in an area where malaria is not a regular occurrence
- *Imported*: malaria acquired outside a specific area (e.g., the United States and its territories)
- Induced: malaria acquired through artificial means (e.g., blood transfusion, common syringes, or malariotherapy)
- *Relapsing*: renewed manifestation (i.e., of clinical symptoms and/or parasitemia) of malarial infection that is separated from previous manifestations of the same infection by an interval greater than any interval resulting from the normal periodicity of the paroxysms
- *Cryptic*: an isolated case of malaria that cannot be epidemiologically linked to additional cases

Measles (Rubeola)

2010 Case Definition
CSTE Position Statement Number: 09-ID-48

Case Classification

Suspected

Any febrile illness that is accompanied by rash and that does not meet the criteria for probable or confirmed measles or any other illness

Probable

In the absence of a more likely diagnosis, an illness characterized by:

- generalized rash lasting ≥3 days; and
- temperature ≥101°F or 38.3°C; and
- cough, coryza, or conjunctivitis; and
- no epidemiologic linkage to a confirmed case of measles; and
- noncontributory or no serologic or virologic testing.

Confirmed

Laboratory confirmation by any of the following:

- positive serologic test for measles immunoglobulin M antibody;
- significant rise in measles antibody level by any standard serologic assay;
- isolation of measles virus from a clinical specimen; or
- detection of measles-virus specific nucleic acid by polymerase chain reaction

Note: A laboratory-confirmed case does not have to have generalized rash lasting ≥3 days; temperature ≥101°F or 38.3°C; cough, coryza, or conjunctivitis.
OR
An illness characterized by:

- generalized rash lasting ≥3 days; and
- temperature ≥101°F or 38.3°C; and
- cough, coryza, or conjunctivitis; and
- epidemiologic linkage to a confirmed case of measles.

Epidemiologic Classification of Internationally-Imported and U.S-Acquired

Internationally imported case

An internationally imported case is defined as a case in which measles results from exposure to measles virus outside the United States as evidenced by at least some of the exposure period (7–21 days before rash onset) occurring outside the United States and rash onset occurring within 21 days of entering the United States and there is no known exposure to measles in the U.S. during that time. All other cases are considered U.S.-acquired.

U.S.-acquired case

An U.S.-acquired case is defined as a case in which the patient had not been outside the United States during the 21 days before rash onset or was known to have been exposed to measles within the United States.

U.S.-acquired cases are subclassified into four mutually exclusive groups:

- **Import-linked case:** Any case in a chain of transmission that is epidemiologically linked to an internationally imported case.
- **Imported-virus case:** A case for which an epidemiologic link to an internationally imported case was not identified, but for which viral genetic evidence indicates an imported measles genotype, i.e., a genotype that is not occurring within the United States in a pattern indicative of endemic transmission. An endemic genotype is the genotype of any measles virus that occurs in an endemic chain of transmission (i.e., lasting ≥12 months). Any genotype that is found repeatedly in U.S.-acquired cases should be thoroughly investigated as a potential endemic genotype, especially if the cases are closely related in time or location.
- **Endemic case:** A case for which epidemiological or virological evidence indicates an endemic chain of transmission. Endemic transmission is defined as a chain of measles virus transmission that is continuous for ≥12 months within the United States.
- **Unknown source case:** A case for which an epidemiological or virological link to importation or to endemic transmission within the U.S. cannot be established after a thorough investigation.

These cases must be carefully assessed epidemiologically to assure that they do not represent a sustained U.S.-acquired chain of transmission or an endemic chain of transmission within the U.S.

Note: Internationally imported, import-linked, and imported-virus cases are considered collectively to be import-associated cases.

States may also choose to classify cases as “out-of-state-imported” when imported from another state in the United States. For national reporting, however, cases will be classified as either internationally imported or U.S.-acquired.

Meningococcal Disease (*Neisseria meningitidis*)

2010 Case Definition
CSTE Position Statement Number: 09-ID-42

Case Classification

Suspected

- Clinical purpura fulminans in the absence of a positive blood culture; or
- Gram-negative diplococci, not yet identified , isolated from a normally sterile body site (e.g., blood or CSF).

Probable

- Detection of *N. meningitidis*-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
- Detection of *N. meningitidis* antigen in formalin-fixed tissue by immunohistochemistry (IHC); or in CSF by latex agglutination.

Confirmed

Isolation of *Neisseria meningitidis* from a normally sterile body site (e.g., blood or cerebrospinal fluid, or, less commonly, synovial, pleural, or pericardial fluid), or from purpuric lesions.

Mumps

2012 Case Definition
CSTE Position Statement Number: 11-ID-18

Case Classification

Suspect

- Parotitis, acute salivary gland swelling, orchitis, or oophoritis unexplained by another more likely diagnosis, OR
- A positive lab result with no mumps clinical symptoms (with or without epidemiological-linkage to a confirmed or probable case).

Probable

Acute parotitis or other salivary gland swelling lasting at least 2 days, or orchitis or oophoritis unexplained by another more likely diagnosis, in:

- A person with a positive test for serum anti-mumps immunoglobulin M (IgM) antibody, OR
- A person with epidemiologic linkage to another probable or confirmed case or linkage to a group/community defined by public health during an outbreak of mumps.

Confirmed

A positive mumps laboratory confirmation for mumps virus with reverse transcription polymerase chain reaction (RT-PCR) or culture in a patient with an acute illness characterized by any of the following:

- Acute parotitis or other salivary gland swelling, lasting at least 2 days
- Aseptic meningitis
- Encephalitis
- Hearing loss
- Orchitis
- Oophoritis
- Mastitis
- Pancreatitis

Epidemiologic Classification

Internationally imported case

An internationally imported case is defined as a case in which mumps results from exposure to mumps virus outside the United States as evidenced by at least some of the exposure period (12–25 days before onset of parotitis or other mumps-associated complications) occurring outside the United States and the onset of parotitis or other mumps-associated complications within 25 days of entering the United States and no known exposure to mumps in the U.S. during that time. All other cases are considered U.S.-acquired cases.

U.S.-acquired case

A U.S.-acquired case is defined as a case in which the patient had not been outside the United States during the 25 days before onset of parotitis or other mumps-associated complications or was known to have been exposed to mumps within the United States.

U.S.-acquired cases are sub-classified into four mutually exclusive groups:

- **Import-linked case:** Any case in a chain of transmission that is epidemiologically linked to an internationally imported case.
- **Imported-virus case:** A case for which an epidemiologic link to an internationally imported case was not identified but for which viral genetic evidence indicates an imported mumps genotype, i.e., a genotype that is not occurring within the United States in a pattern indicative of endemic transmission. An endemic genotype is the genotype of any mumps virus that occurs in an endemic chain of transmission (i.e., lasting ≥12 months). Any genotype that is found repeatedly in U.S.-acquired cases should be thoroughly investigated as a potential endemic genotype, especially if the cases are closely related in time or location.
- **Endemic case:** A case for which epidemiological or virological evidence indicates an endemic chain of transmission. Endemic transmission is defined as a chain of mumps virus transmission continuous for ≥12 months within the United States.
- **Unknown source case**: A case for which an epidemiological or virological link to importation or to endemic transmission within the U.S. cannot be established after a thorough investigation. These cases must be carefully assessed epidemiologically to assure that they do not represent a sustained U.S.-acquired chain of transmission or an endemic chain of transmission within the U.S.

Note: Internationally imported, import-linked, and imported-virus cases are considered collectively to be import-associated cases.

Comment

With previous contact with mumps virus either through vaccination (particularly with 2 doses) or natural infection, serum mumps IgM test results may be negative; immunoglobulin G (IgG) test results may be positive at initial blood draw; and viral detection in RT-PCR or culture may have low yield if the buccal swab is collected too long after parotitis onset.

Therefore, mumps cases should not be ruled out by negative laboratory results. Serologic tests should be interpreted with caution, as false positive and false negative results are possible with IgM tests.

States may also choose to classify cases as “out-of-state-imported” when imported from another state in the United States. For national reporting, however, cases will be classified as either internationally imported or U.S-acquired.

Novel influenza A virus infections

2010 Case Definition
CSTE Position Statement Number: 09-ID-43

Clinical Description

An illness compatible with influenza virus infection (fever >100 degrees Fahrenheit with cough or sore throat).

Laboratory Criteria for Diagnosis

A human case of infection with an influenza A virus subtype that is different from currently circulating human influenza H1 and H3 viruses. Novel subtypes include, but are not limited to, H2, H5, H7, and H9 subtypes. Influenza H1 and H3 subtypes originating from a non-human species or from genetic reassortment between animal and human viruses are also novel subtypes. Novel subtypes will be detected with methods available for detection of currently circulating human influenza viruses at state public health laboratories (e.g., real-time reverse transcriptase polymerase chain reaction [RT-PCR]). Confirmation that an influenza A virus represents a novel virus will be performed by CDC's influenza laboratory

Exposure

- Criteria for epidemiologic linkage:
- The patient has had contact with one or more persons who either have or had the disease, AND
- Transmission of the agent by the usual modes of transmission is plausible
- OR
- A case may be considered epidemiologically linked to a laboratory confirmed case if at least one case in the chain of transmission is laboratory confirmed

Case Classification

Suspected

A case meeting the clinical criteria, pending laboratory confirmation. Any case of human infection with an influenza A virus that is different from currently circulating human influenza H1 and H3 viruses is classified as a suspected case until the confirmation process is complete.

Probable

A case meeting the clinical criteria and epidemiologically linked to a confirmed case, but for which no confirmatory laboratory testing for novel influenza virus infection has been performed.

Confirmed

A case of human infection with a novel influenza A virus confirmed by CDC's influenza laboratory. Once a novel virus has been identified by CDC, confirmation may be made by public health laboratories following CDC-approved protocols for that specific strain, or by laboratories using an FDA-authorized test specific for detection of that novel influenza strain.

Comment

Once a novel virus is identified by CDC, it will be nationally notifiable until CSTE in consultation with CDC determines that it is no longer necessary to report each case.

On December 13, 2006, the United States formally accepted the revision of the International Health Regulations, referred to as IHR (2005) (http://archive.hhs.gov/news/press/2006pres/20061213.html). The IHR (2005) are an international legal instrument that governs the roles of the WHO and its member countries in identifying and responding to and sharing information about public health emergencies of international concern (http://www.who.int/csr/ihr/IHRWHA58_3-en.pdf). The updated rules are designed to prevent and protect against the international spread of diseases, while minimizing interference with world travel and trade. The revised regulations add human infections with new influenza strains to the list of conditions that Member States must immediately report to WHO. An outbreak of infections with a new influenza A virus that demonstrates human-to-human transmission could signal the beginning of the next pandemic. Robust epidemiologic and laboratory surveillance systems are required for a coordinated public health response to infections with a novel influenza virus subtype. Early detection of an influenza virus with pandemic potential will permit identification of viral characteristics (e.g., genetic sequence, antiviral susceptibility, and virulence) that will affect clinical management and public health response measures. It should also facilitate development of a virus-specific vaccine and testing strategies.

All state public health laboratories have the capacity to test respiratory specimens for influenza viruses with sensitive and specific assays that can detect human and non-human influenza A viruses. They also have the capacity to subtype currently circulating human influenza A H1, H3, and avian H5 (Asian lineage) viruses. The detection or confirmation by a state public health laboratory of an influenza A virus that is unsubtypable with standard methods (e.g., real-time RT-PCR assays for human influenza A(H3) or (H1) viruses), or a non-human influenza virus (e.g., H5) from a human specimen, could be the initial identification of a virus with pandemic potential. Prompt notification of CDC by a state epidemiologist in conjunction with the public health laboratory will permit rapid confirmation of results and reporting to WHO. In addition, it will aid prompt viral characterization, and the development of virus-specific diagnostic tests.

Pertussis (*Bordetella pertussis*) (Whooping Cough)

2010 Case Definition
CSTE Position Statement Number: 09-ID-51

Case Classification

Probable

In the absence of a more likely diagnosis, a cough illness lasting ≥2 weeks, with at least one of the following symptoms:

- Paroxysms of coughing; or
- Inspiratory "whoop"; or
- Post-tussive vomiting;

AND

- Absence of laboratory confirmation; and
- No epidemiologic linkage to a laboratory-confirmed case of pertussis.

Confirmed

- Acute cough illness of any duration, with isolation of B. pertussis from a clinical specimen;

  OR
- Cough illness lasting ≥2 weeks, with at least one of the following symptoms:
  - Paroxysms of coughing; or
  - Inspiratory "whoop"; or
  - Post-tussive vomiting

    AND
  - Polymerase chain reaction (PCR) positive for pertussis;

  OR
- Illness lasting ≥2 weeks, with at least one of the following symptoms:
  - Paroxysms of coughing; or
  - Inspiratory "whoop"; or
  - Post-tussive vomiting;

  AND,
- Contact with a laboratory-confirmed case of pertussis.

Comment

The clinical case definition above is appropriate for endemic or sporadic cases. In outbreak settings, a case may be defined as a cough illness lasting at least 2 weeks (as reported by a health professional).

Plague (*Yersinia pestis*)

1996 Case Definition
CSTE Position Statement Number: 09-ID-52

Clinical Description

Plague is transmitted to humans by fleas or by direct exposure to infected tissues or respiratory droplets; the disease is characterized by fever, chills, headache, malaise, prostration, and leukocytosis that manifests in one or more of the following principal clinical forms:

- Regional lymphadenitis (bubonic plague)
- Septicemia without an evident bubo (septicemic plague)
- Plague pneumonia, resulting from hematogenous spread in bubonic or septicemic cases (secondary pneumonic plague) or inhalation of infectious droplets (primary pneumonic plague)
- Pharyngitis and cervical lymphadenitis resulting from exposure to larger infectious droplets or ingestion of infected tissues (pharyngeal plague)

Laboratory Criteria for Diagnosis

Presumptive

- Elevated serum antibody titer(s) to *Yersinia pestis* fraction 1 (F1) antigen (without documented fourfold or greater change) in a patient with no history of plague vaccination or
- Detection of F1 antigen in a clinical specimen by fluorescent assay

Confirmatory

- Isolation of *Y. pestis* from a clinical specimen or
- Fourfold or greater change in serum antibody titer to *Y. pestis* F1 antigen

Case Classification

Suspected

A clinically compatible case without presumptive or confirmatory laboratory results

Probable

A clinically compatible case with presumptive laboratory results

Confirmed

A clinically compatible case with confirmatory laboratory results

Comment

The 1996 case definition appearing on this page was re-published in the 2009 CSTE position statement 09-ID-52. Thus, the 1996 and 2010 versions of the case definition are identical.

Poliomyelitis, Paralytic

2010 Case Definition
CSTE Position Statement Number: 09-ID-53

Case Classification

Probable

Acute onset of a flaccid paralysis of one or more limbs with decreased or absent tendon reflexes in the affected limbs, without other apparent cause, and without sensory or cognitive loss.

Confirmed

Acute onset of a flaccid paralysis of one or more limbs with decreased or absent tendon reflexes in the affected limbs, without other apparent cause, and without sensory or cognitive loss; AND in which the patient

- has a neurologic deficit 60 days after onset of initial symptoms; or
- has died; or
- has unknown follow-up status.

Comment

All suspected cases of paralytic poliomyelitis are reviewed by a panel of expert consultants before final classification occurs. Confirmed cases are then further classified based on epidemiologic and laboratory criteria (1). Only confirmed cases are included in Table I in the *MMWR*. Suspected cases are enumerated in a footnote to the *MMWR* table.

References

1. Sutter RW, Brink EW, Cochi SL, et al. A new epidemiologic and laboratory classification system for paralytic poliomyelitis cases. Am J Public Health 1989;79:495-8.

Poliovirus infection, non-paralytic

2010 Case Definition
CSTE Position Statement Number: 09-ID-53

Case Classification

Confirmed

Any person without symptoms of paralytic poliomyelitis in whom a poliovirus isolate was identified in an appropriate clinical specimen, with confirmatory typing and sequencing performed by the CDC Poliovirus Laboratory, as needed.

Psittacosis (*Chlamydophila psittaci*) (Ornithosis)

2010 Case Definition
CSTE Position Statement Number: 09-ID-13

Clinical Description

Psittacosis is an illness characterized by fever, chills, headache, myalgia, and a dry cough with pneumonia often evident on chest x-ray. Severe pneumonia requiring intensive-care support, endocarditis, hepatitis, and neurologic complications occasionally occur.

Laboratory Criteria for Diagnosis

- Isolation of *Chlamydophila psittaci* from respiratory specimens (e.g., sputum, pleural fluid, or tissue), or blood, or
- Fourfold or greater increase in antibody (Immunoglobulin G [IgG]) against *C. psittaci* by complement fixation (CF) or microimmunofluorescence (MIF) between paired acute- and convalescent-phase serum specimens obtained at least 2-4 weeks apart , or
- Supportive serology (e.g. *C. psittaci* antibody titer [Immunoglobulin M (IgM)] of greater than or equal to 32 in at least one serum specimen obtained after onset of symptoms), or
- Detection of *C. psittaci* DNA in a respiratory specimen (e.g. sputum, pleural fluid or tissue) via amplification of a specific target by polymerase chain reaction (PCR) assay.

Case Classification

Probable

An illness characterized by fever, chills, headache, cough and myalgia that has either:

Supportive

Serology (e.g. *C. psittaci* antibody titer [Immunoglobulin M, IgM] of greater than or equal to 32 in at least one serum specimen obtained after onset of symptoms), OR
Detection of *C. psittaci* DNA in a respiratory specimen (e.g. sputum, pleural fluid or tissue) via amplification of a specific target by polymerase chain reaction (PCR) assay.

Confirmed

An illness characterized by fever, chills, headache, cough and myalgia, and laboratory confirmed by either:

- Isolation of *Chlamydophila psittaci* from respiratory specimens (e.g., sputum, pleural fluid, or tissue), or blood, OR

- Fourfold or greater increase in antibody (Immunoglobulin G [IgG]) against *C. psittaci* by complement fixation (CF) or microimmunofluorescence (MIF) between paired acute- and convalescent-phase serum specimens obtained at least 2-4 weeks apart.

Comment

Although MIF has shown greater specificity to *C. psittaci* than CF, positive serologic findings by both techniques may occur as a result of infection with other Chlamydia species and should be interpreted with caution. To increase the reliability of test results, acute- and convalescent-phase serum specimens should be analyzed at the same time in the same laboratory. A realtime polymerase chain reaction (rtPCR) has been developed and validated in avian specimens but has not yet been validated for use in humans (1).

References

Mitchell, S.L., Wolff, B.J., Thacker, W.L., Ciembor, P.G., Gregory, C.R., Everett, K.D., Ritchie, B.W., & Winchell, J.M. (2009). Genotyping of *Chlamydophila psittaci* by real-time PCR and high-resolution melt analysis. J Clin Microbiol, 47(1),175-181.

Q Fever (*Coxiella burnetti*)

2009 Case Definition
CSTE Position Statement Number: 09-ID-54

Subtypes

- Q Fever, Acute
- Q Fever, Chronic

Exposure

Exposure is usually via aerosol, is broadly interpreted, and may be unknown (especially for chronic infection), but often includes the presence of goats, sheep, or other livestock, especially during periods of parturition. Direct contact with animals is not required, and variable incubation periods may be dose dependent.

Q Fever, Acute

Clinical Description

Acute fever usually accompanied by rigors, myalgia, malaise, and a severe retrobulbar headache. Fatigue, night-sweats, dyspnea, confusion, nausea, diarrhea, abdominal pain, vomiting, non-productive cough, and chest pain have also been reported. Severe disease can include acute hepatitis, atypical pneumonia with abnormal radiograph, and meningoencephalitis.

Pregnant women are at risk for fetal death and abortion. Clinical laboratory findings may include elevated liver enzyme levels, leukocytosis, and thrombocytopenia. Asymptomatic infections may also occur.

Note: Serologic profiles of pregnant women infected with acute Q fever during gestation may progress frequently and rapidly to those characteristic of chronic infection.

Clinical evidence

Acute fever and one or more of the following: rigors, severe retrobulbar headache, acute hepatitis, pneumonia, or elevated liver enzyme levels.

Laboratory Criteria for Diagnosis

Laboratory confirmed

- Serological evidence of a fourfold change in immunoglobulin G (IgG)-specific antibody titer to *C. burnetii* phase II antigen by indirect immunofluorescence assay (IFA) between paired serum samples, (CDC suggests one taken during the first week of illness and a second 3-6 weeks later, antibody titers to phase I antigen may be elevated or rise as well), or

- Detection of *C. burnetii* DNA in a clinical specimen via amplification of a specific target by polymerase chain reaction (PCR) assay, or
- Demonstration of *C. burnetii* in a clinical specimen by immunohistochemical methods (IHC), or
- Isolation of *C. burnetii* from a clinical specimen by culture.

Laboratory supportive

- Has a single supportive IFA IgG titer of ≥1:128 to phase II antigen (phase I titers may be elevated as well).
- Has serologic evidence of elevated phase II IgG or IgM antibody reactive with *C. burnetii* antigen by enzyme-linked immunosorbent assay (ELISA), dot-ELISA, or latex agglutination.

Note: For acute testing, CDC uses in-house IFA IgG testing (cutoff of ≥1:128), preferring simultaneous testing of paired specimens, and does not use IgM results for routine diagnostic testing.

Case Classification

Probable acute Q fever: A clinically compatible case of acute illness (meets clinical evidence criteria for acute Q fever illness) that has laboratory supportive results for past or present acute disease (antibody to Phase II antigen) but is not laboratory confirmed.
Confirmed acute Q fever: A laboratory confirmed case that either meets clinical case criteria or is epidemiologically linked to a lab confirmed case.

Q Fever, Chronic

Clinical Description

Infection that persists for more than 6 months. Potentially fatal endocarditis may evolve months to years after acute infection, particularly in persons with underlying valvular disease. Infections of aneurysms and vascular prostheses have been reported. Immunocompromised individuals are particularly susceptible. Rare cases of chronic hepatitis without endocarditis, osteomyelitis, osteoarthritis, and pneumonitis have been described.

Clinical evidence

Newly recognized, culture-negative endocarditis, particularly in a patient with previous valvulopathy or compromised immune system, suspected infection of a vascular aneurysm or vascular prosthesis, or chronic hepatitis, osteomyelitis, osteoarthritis, or pneumonitis in the absence of other known etiology.

Laboratory Criteria for Diagnosis

Laboratory confirmed

- Serological evidence of IgG antibody to *C. burnetii* phase I antigen ≥ 1:800 by IFA (while phase II IgG titer will be elevated as well; phase I titer is higher than the phase II titer), or
- Detection of *C. burnetii* DNA in a clinical specimen via amplification of a specific target by PCR assay, or
- Demonstration of *C. burnetii* antigen in a clinical specimen by IHC, or
- Isolation of *C. burnetii* from a clinical specimen by culture.

Laboratory supportive

Has an antibody titer to *C. burnetii* phase I IgG antigen ≥1:128 and < 1:800 by IFA.

Note: Samples from suspected chronic patients should be evaluated for IgG titers to both phase I and phase II antigens. Current commercially available ELISA tests (which test only for phase 2) are not quantitative, cannot be used to evaluate changes in antibody titer, and hence are not useful for serological confirmation. IgM tests are not strongly supported for use in serodiagnosis of acute disease, as the response may not be specific for the agent (resulting in false positives) and the IgM response may be persistent. Complement fixation (CF) tests and other older test methods are neither readily available nor commonly used.
Serologic test results must be interpreted with caution, because baseline antibodies acquired as a result of historical exposure to Q fever may exist, especially in rural and farming areas.

Case Classification

Probable

A clinically compatible case of chronic illness (meets clinical evidence criteria for chronic Q fever) that has laboratory supportive results for past or present chronic infection (antibody to Phase I antigen).

Confirmed

A clinically compatible case of chronic illness (meets clinical evidence criteria for chronic Q fever) that is laboratory confirmed for chronic infection.

Comment

The 2009 case definition appearing on this page was re-published in the 2009 CSTE position statement 09-ID-54. Thus, the 2009 and 2010 versions of the case definition are identical.

Rabies, Animal

1997 Case Definition
CSTE Position Statement Number: 09-ID-12

Laboratory Criteria for Diagnosis

- A positive direct fluorescent antibody test (preferably performed on central nervous system tissue)
- Isolation of rabies virus (in cell culture or in a laboratory animal)

Case Classification

Confirmed

A case that is laboratory confirmed.

Comment

The 1997 case definition appearing on this page was originally published in the 1990 MMWR and re-published in the 2009 CSTE position statement 09-ID-12.1,2 Thus, the 1990, 1997, and 2010 versions of the case definition are identical.

Rabies, Human

2011 Case Definition
CSTE Position Statement Number: 10-ID-16

Clinical evidence

Rabies is an acute encephalomyelitis that almost always progresses to coma or death within 10 days after the first symptom.

Laboratory evidence

- detection of Lyssavirus antigens in a clinical specimen (preferably the brain or the nerves surrounding hair follicles in the nape of the neck) by direct fluorescent antibody test, or
- isolation (in cell culture or in a laboratory animal) of a Lyssavirus from saliva or central nervous system tissue, or
- identification of Lyssavirus specific antibody (i.e. by indirect fluorescent antibody (IFA) test or complete rabies virus neutralization at 1:5 dilution) in the CSF, or
- identification of Lyssavirus specific antibody (i.e. by indirect fluorescent antibody (IFA) test or complete rabies virus neutralization at 1:5 dilution) in the serum of an unvaccinated person, or
- detection of Lyssavirus viral RNA (using reverse transcriptase-polymerase chain reaction [RT-PCR]) in saliva, CSF, or tissue.

Case Classification

Confirmed

A clinically compatible case that is laboratory confirmed by testing at a state or federal public health laboratory.

Comment

Laboratory confirmation by all of the above methods is strongly recommended.

Rubella (German measles)

2010 Case Definition
CSTE Position Statement Number: 09-ID-55

Case Classification

Suspected

Any generalized rash illness of acute onset that does not meet the criteria for probable or confirmed rubella or any other illness

Probable

In the absence of a more likely diagnosis, an illness characterized by all of the following:

- acute onset of generalized maculopapular rash; and
- temperature greater than 99.0° F or 37.2° C, if measured; and
- arthralgia, arthritis, lymphadenopathy, or conjunctivitis; and
- lack of epidemiologic linkage to a laboratory-confirmed case of rubella; and
- noncontributory or no serologic or virologic testing.

Confirmed

A case with or without symptoms who has laboratory evidence of rubella infection confirmed by one or more of the following laboratory tests:

- isolation of rubella virus; or
- detection of rubella-virus specific nucleic acid by polymerase chain reaction; or
- significant rise between acute- and convalescent-phase titers in serum rubella immunoglobulin G antibody level by any standard serologic assay; or
- positive serologic test for rubella immunoglobulin M (IgM) antibody;

OR
An illness characterized by all of the following:

- acute onset of generalized maculopapular rash; and
- temperature greater than 99.0°F or 37.2°C;
- arthralgia, arthritis, lymphadenopathy, or conjunctivitis; and
- epidemiologic linkage to a laboratory-confirmed case of rubella.

Epidemiologic Classification of Internationally-Imported and U.S.-Acquired

An internationally imported case

is defined as a case in which rubella results from exposure to rubella virus outside the United States as evidenced by at least some of the exposure period (12–23 days before rash onset) occurring outside the United States and the onset of rash within 23 days of entering the United States and no known exposure to rubella in the U.S. during that time. All other cases are considered U.S.-acquired cases.

U.S.-acquired case

A U.S.-acquired case is defined as a case in which the patient had not been outside the United States during the 23 days before rash onset or was known to have been exposed to rubella within the United States.

U.S.-acquired cases are subclassified into four mutually exclusive groups:

Import-linked case

Any case in a chain of transmission that is epidemiologically linked to an internationally imported case.

Imported-virus case

A case for which an epidemiologic link to an internationally imported case was not identified but for which viral genetic evidence indicates an imported rubella genotype, i.e., a genotype that is not occurring within the United States in a pattern indicative of endemic transmission. An endemic genotype is the genotype of any rubella virus that occurs in an endemic chain of transmission (i.e., lasting ≥12 months). Any genotype that is found repeatedly in U.S.-acquired cases should be thoroughly investigated as a potential endemic genotype, especially if the cases are closely related in time or location.

Endemic case

A case for which epidemiological or virological evidence indicates an endemic chain of transmission. Endemic transmission is defined as a chain of rubella virus transmission continuous for ≥12 months within the United States.

Unknown source case

A case for which an epidemiological or virological link to importation or to endemic transmission within the U.S. cannot be established after a thorough investigation. These cases must be carefully assessed epidemiologically to assure that they do not represent a sustained U.S.-acquired chain of transmission or an endemic chain of transmission within the U.S.

Note: Internationally imported, import-linked, and imported-virus cases are considered collectively to be import-associated cases.

States may also choose to classify cases as "out-of-state-imported" when imported from another state in the United States. For national reporting, however, cases will be classified as either internationally imported or U.S.-acquired.

Comment

Serum rubella IgM test results that are false positives have been reported in persons with other viral infections (e.g., acute infection with Epstein-Barr virus [infectious mononucleosis], recent cytomegalovirus infection, and parvovirus infection) or in the presence of rheumatoid factor. Patients who have laboratory evidence of recent measles infection are excluded

Rubella, Congenital Syndrome

2010 Case Definition
CSTE Position Statement Number: 09-ID-61

Case Classification

Suspected

An infant who does not meet the criteria for a probable or confirmed case but who has one or more of the following clinical findings:

- cataracts
- congenital glaucoma,
- congenital heart disease (most commonly patent ductus arteriosus or peripheral pulmonary artery stenosis),
- hearing impairment,
- pigmentary retinopathy
- purpura,
- hepatosplenomegaly,
- jaundice,
- microcephaly,
- developmental delay,
- meningoencephalitis, or
- radiolucent bone disease.

Probable*

An infant who does not have laboratory confirmation of rubella infection but has at least 2 of the following without a more plausible etiology:

- cataracts or congenital glaucoma,*
- congenital heart disease (most commonly patent ductus arteriosus or peripheral pulmonary artery stenosis),
- hearing impairment, or
- pigmentary retinopathy;

OR

An infant who does not have laboratory confirmation of rubella infection but has at least one or more of the following without a more plausible etiology:

- cataracts or congenital glaucoma,*
- congenital heart disease (most commonly patent ductus arteriosus or peripheral pulmonary artery stenosis),
- hearing impairment, or

- pigmentary retinopathy

AND one or more of the following:

- purpura,
- hepatosplenomegaly,
- jaundice,
- microcephaly,
- developmental delay,
- meningoencephalitis, or
- radiolucent bone disease.

Confirmed

An infant with at least one symptom (listed above) that is clinically consistent with congenital rubella syndrome; and laboratory evidence of congenital rubella infection as demonstrated by:

- isolation of rubella virus, or
- detection of rubella-specific immunoglobulin M (IgM) antibody, or
- infant rubella antibody level that persists at a higher level and for a longer period than expected from passive transfer of maternal antibody (i.e., rubella titer that does not drop at the expected rate of a twofold dilution per month), or
- a specimen that is PCR positive for rubella virus.

Other Criteria

Infection only

An infant without any clinical symptoms or signs of rubella but with laboratory evidence of infection as demonstrated by

- isolation of rubella virus, or
- detection of rubella-specific immunoglobulin M (IgM) antibody, or
- infant rubella antibody level that persists at a higher level and for a longer period than expected from passive transfer of maternal antibody (i.e., rubella titer that does not drop at the expected rate of a twofold dilution per month), or
- a specimen that is PCR positive for rubella virus.

*In probable cases, either or both of the eye-related findings (cataracts and congenital glaucoma) count as a single complication. In cases classified as infection only, if any compatible signs or symptoms (e.g., hearing loss) are identified later, the case is reclassified as confirmed.

Epidemiologic Classification of Internationally-Imported and U.S.-Acquired

Congenital rubella syndrome (CRS) cases will be classified epidemiologically as internationally imported or U.S.-acquired, according to the source of infection in the mother, using the definitions below, which parallel the classifications for rubella cases.

Internationally imported case

To be classified as an internationally imported CRS case, the mother must have acquired rubella infection outside the U.S. or in the absence of documented rubella infection, the mother was outside the United States during the period when she may have had exposure to rubella that affected her pregnancy (from 21 days before conception and through the first 24 weeks of pregnancy).

U.S.-acquired case

A US-acquired case is one in which the mother acquired rubella from an exposure in the United States. U.S.-acquired cases are sub-classified into four mutually exclusive groups:

- **Import-linked case:** any case in a chain of transmission that is epidemiologically linked to an internationally imported case.
- **Import-virus case:** a case for which an epidemiologic link to an internationally imported case was not identified but for which viral genetic evidence indicates an imported rubella genotype, i.e., a genotype that is not occurring within the United States in a pattern indicative of endemic transmission. An endemic genotype is the genotype of any rubella virus that occurs in an endemic chain of transmission (i.e., lasting ≥12 months). Any genotype that is found repeatedly in U.S.-acquired cases should be thoroughly investigated as a potential endemic genotype, especially if the cases are closely related in time or location.
- **Endemic case:** a case for which epidemiological or virological evidence indicates an endemic chain of transmission. Endemic transmission is defined as a chain of rubella virus transmission continuous for ≥12 months within the United States.
- **Unknown source case:** a case for which an epidemiological or virological link to importation or to endemic transmission within the U.S. cannot be established after a thorough investigation. These cases must be carefully assessed epidemiologically to assure that they do not represent a sustained U.S.-acquired chain of transmission or an endemic chain of transmission within the U.S.

Note: Internationally imported, import-linked, and imported-virus cases are considered collectively to be import-associated cases.

States may also choose to classify cases as “out-of-state-imported” when imported from another state in the United States. For national reporting, however, cases will be classified as either internationally imported or U.S.-acquired.

Salmonellosis (*Salmonella* spp.)

2012 Case Definition
CSTE Position Statement Number: 11-ID-08

Clinical Description

An illness of variable severity commonly manifested by diarrhea, abdominal pain, nausea, and sometimes vomiting. Asymptomatic infections may occur, and the organism may cause extraintestinal infections.

Laboratory Criteria for Diagnosis

Suspect

Detection of *Salmonella* from a clinical specimen using a non-culture based method

Confirmed

Isolation of *Salmonella* from a clinical specimen

Case Classification

Suspect

A case that meets the suspect laboratory criteria for diagnosis

Probable

A clinically compatible case that is epidemiologically linked to a confirmed case, i.e., a contact of a confirmed case or member of a risk group as defined by public health authorities during an outbreak.

Confirmed

A case that meets the confirmed laboratory criteria for diagnosis. When available, O and H antigen serotype characterization should be reported.

Comment

Both asymptomatic infections and infections at sites other than the gastrointestinal tract, if laboratory confirmed, are considered confirmed cases that should be reported.

Severe Acute Respiratory Syndrome-associated Coronavirus (SARS) disease

2003 Case Definition
CSTE Position Statement Number: 09-ID-11

Case Description:

Early illness

Presence of two or more of the following features: fever (might be subjective), chills, rigors, myalgia, headache, diarrhea, sore throat, or rhinorrhea

Mild-to-moderate respiratory illness

- Temperature of >100.4° F (>38° C)*, AND
- One or more clinical findings of lower respiratory illness (e.g., cough, shortness of breath, or difficulty breathing)

Severe respiratory illness

Meets clinical criteria of mild-to-moderate respiratory illness, AND one or more of the following findings:

- Radiographic evidence of pneumonia, OR
- Acute respiratory distress syndrome, OR
- Autopsy findings consistent with pneumonia or acute respiratory distress syndrome without an identifiable cause

Laboratory Criteria for Diagnosis

Tests to detect SARS-CoV are being refined and their performance characteristics assessed¶; therefore, criteria for laboratory diagnosis of SARS-CoV are changing. The following are general criteria for laboratory confirmation of SARS-CoV:

- Detection of serum antibody to SARS-CoV by a test validated by CDC (e.g., enzyme immunoassay), OR
- Isolation in cell culture of SARS-CoV from a clinical specimen, OR
- Detection of SARS-CoV RNA by a reverse transcription polymerase chain reaction test validated by CDC and with subsequent confirmation in a reference laboratory (e.g., CDC)

Information about the current criteria for laboratory diagnosis of SARS-CoV is available at http://www.cdc.gov/ncidod/sars/labdiagnosis.htm

Exposure

Possible exposure to SARS-associated coronavirus (SARS-CoV)
One or more of the following exposures in the 10 days before onset of symptoms:

- Close contact§ with a person with confirmed SARS-CoV disease, OR
- Close contact§ with a person with mild-to-moderate or severe respiratory illness for whom a chain of transmission can be linked to a confirmed case of SARS-CoV disease in the 10 days before onset of symptoms

Case Classification

Probable

Meets the clinical criteria for severe respiratory illness and the epidemiologic criteria for likely exposure to SARS-CoV

Confirmed

Clinically compatible illness (i.e., early, mild-to-moderate, or severe) that is laboratory confirmed

Other Criteria

Exclusion Criteria

A case may be excluded as a SARS report under investigation (SARS RUI), including as a CDC-defined probable SARS-CoV case, if any of the following apply:

- An alternative diagnosis can explain the illness fully**, OR
- Antibody to SARS-CoV is undetectable in a serum specimen obtained >28 days after onset of illness††, OR
- The case was reported on the basis of contact with a person who was excluded subsequently as a case of SARS-CoV disease; then the reported case also is excluded, provided other epidemiologic or laboratory criteria are not present.

SARS Report Under Investigation

Reports in persons from areas where SARS is not known to be active

- SARS RUI-1: Cases compatible with SARS in groups likely to be first affected by SARS-CoV§§ if SARS-CoV is introduced from a person without clear epidemiologic links to known cases of SARS-CoV disease or places with known ongoing transmission of SARS-CoV

Reports in persons from areas where SARS activity is occurring

- SARS RUI-2: Cases meeting the clinical criteria for mild-to-moderate illness and the epidemiologic criteria for possible exposure (spring 2003 CDC definition for suspect cases
- SARS RUI-3: Cases meeting the clinical criteria for severe illness and the epidemiologic criteria for possible exposure (spring 2003 CDC definition for probable cases
- SARS RUI-4: Cases meeting the clinical criteria for early or mild-to-moderate illness and the epidemiologic criteria for likely exposure to SARS-CoV

Comment

* A measured documented temperature of >100.4° F (>38° C) is expected. However, clinical judgment may allow a small proportion of patients without a documented fever to meet this criterion. Factors that might be considered include patient's self-report of fever, use of antipyretics, presence of immunocompromising conditions or therapies, lack of access to health care, or inability to obtain a measured temperature. Initial case classification based on reported information might change, and reclassification might be required.
† Types of locations specified will vary (e.g., country, airport, city, building, or floor of building). The last date a location may be a criterion for exposure is 10 days (one incubation period) after removal of that location from CDC travel alert status. The patient's travel should have occurred on or before the last date the travel alert was in place. Transit through a foreign airport meets the epidemiologic criteria for possible exposure in a location for which a CDC travel advisory is in effect. Information about CDC travel alerts and advisories and assistance in determining appropriate dates are available at http://www.cdc.gov/ncidod/sars/travel.htm.

§ Close contact is defined as having cared for or lived with a person with SARS or having a high likelihood of direct contact with respiratory secretions and/or body fluids of a person with SARS (during encounters with the patient or through contact with materials contaminated by the patient) either during the period the person was clinically ill or within 10 days of resolution of symptoms. Examples of close contact include kissing or embracing, sharing eating or drinking utensils, close (i.e., <3 feet) conversation, physical examination, and any other direct physical contact between persons. Close contact does not include activities such as walking by a person or sitting across a waiting room or office for a brief time.

¶ The identification of the etiologic agent of SARS (i.e., SARS-CoV) led to the rapid development of enzyme immunoassays and immunofluorescence assays for serologic diagnosis and reverse transcription polymerase chain reaction assays for detection of SARS-CoV ribonucleic acid (RNA) in clinical samples. These assays can be very sensitive and specific for detecting antibody and RNA, respectively, in the later stages of SARS-CoV disease. However, both are less sensitive for detecting infection early in illness. The majority of patients in the early stages of SARS-CoV disease have a low titer of virus in respiratory and other secretions and require time to mount an antibody response. SARS-CoV antibody tests might be positive as early as 8–10 days after onset of illness and often by 14 days after onset of illness, but sometimes not until 28 days after onset of illness.

** Factors that may be considered in assigning alternate diagnoses include the strength of the epidemiologic exposure criteria for SARS-CoV disease, the specificity of the alternate diagnostic test, and the compatibility of the clinical presentation and course of illness with the alternative diagnosis.

†† Current data indicate that >95% of patients with SARS-CoV disease mount an antibody response to SARS-CoV. However, health officials may choose not to exclude a case on the basis of lack of a serologic response if reasonable concern exists that an antibody response could not be mounted.
§§ Consensus guidance is in development between CDC and CSTE on which groups are most likely to be affected first by SARS-CoV if it reemerges. SARS-CoV disease should be considered at a minimum in the differential diagnoses for persons requiring hospitalization for pneumonia confirmed

radiographically or acute respiratory distress syndrome without identifiable etiology and who have one of the following risk factors in the 10 days before the onset of illness:

- Travel to mainland China, Hong Kong, or Taiwan, or close contact with an ill person with a history of recent travel to one of these areas, OR
- Employment in an occupation associated with a risk for SARS-CoV exposure (e.g., health care worker with direct patient contact and worker in a laboratory that contains live SARSCoV), OR
- Part of a cluster of cases of atypical pneumonia without an alternative diagnosis.

During the 2003 SARS epidemic, CDC case definitions were the following:

Suspect case

- Meets the clinical criteria for mild-to-moderate respiratory illness and the epidemiologic criteria for possible exposure to SARS-CoV but does not meet any of the laboratory criteria and exclusion criteria; OR
- Unexplained acute respiratory illness that results in death of a person on whom an autopsy was not performed and that meets the epidemiologic criteria for possible exposure to SARS-CoV but does not meet any of the laboratory criteria and exclusion criteria

Probable case

- Meets the clinical criteria for severe respiratory illness and the epidemiologic criteria for possible exposure to SARS-CoV but does not meet any of the laboratory criteria and exclusion criteria.

The 2003 case definition appearing on this page was re-published in the 2009 CSTE position statement 09-ID-11. Thus, the 2003 and 2010 versions of the case definition are identical.

References

CDC. (2003). Revised U.S. Surveillance Case Definition for Severe Acute Respiratory Syndrome (SARS) and Update on SARS Cases – United States and Worldwide, December 2003. MMWR, 52(49), 1202-1206. http://www.cdc.gov/mmwr/preview/mmwrhtml/mm5249a2.htm

Shiga toxin-producing *Escherichia coli* (STEC)

2005 Case Definition
CSTE Position Statement Number: 09-ID-30

Clinical Description

An infection of variable severity characterized by diarrhea (often bloody) and abdominal cramps. Illness may be complicated by hemolytic uremic syndrome (HUS) or thrombotic thrombocytopenic purpura (TTP); asymptomatic infections also may occur and the organism may cause extraintestinal infections.

Laboratory Criteria for Diagnosis

Isolation of Shiga toxin-producing *Escherichia coli* from a clinical specimen. *Escherichia coli* O157:H7 isolates may be assumed to be Shiga toxin-producing. For all other *E. coli* isolates, Shiga toxin production or the presence of Shiga toxin genes must be determined to be considered STEC.

Case Classification

Suspected

A case of postdiarrheal HUS or TTP (see HUS case definition), or identification of Shiga toxin in a specimen from a clinically compatible case without the isolation of the Shiga toxin-producing E. coli.

Probable

- A case with isolation of *E. coli* O157 from a clinical specimen, without confirmation of H antigen or Shiga toxin production, OR
- A clinically compatible case that is epidemiologically linked to a confirmed or probable case, OR
- Identification of an elevated antibody titer to a known Shiga toxin-producing *E. coli* serotype from a clinically compatible case.

Confirmed

A case that meets the laboratory criteria for diagnosis. When available, O and H antigen serotype characterization should be reported.

Comment

For users of the legacy National Electronic Telecommunications System for Surveillance (NETSS), laboratory-confirmed isolates are also reported via the Public Health Laboratory Information System (PHLIS), which is managed by the Foodborne and Diarrheal Diseases Branch, Division of Bacterial and Mycotic Diseases, National Center for Infectious Diseases, CDC. The National Electronic

Disease Surveillance System (NEDSS) or NEDSS compatible systems will eventually replace PHLIS and NETSS; users of NEDSS or compatible systems which report to CDC should not report via PHLIS.

Both asymptomatic infections and infections at sites other than the gastrointestinal tract, if laboratory confirmed, are considered confirmed cases that should be reported.

The 2005 case definition appearing on this page was re-published in the 2009 CSTE position statement 09-ID-30. Thus, the 2005 and 2010 versions of the case definition are identical.

Shigellosis (*Shigella* spp.)

2012 Case Definition
CSTE Position Statement Number: 11-ID-19

Clinical Description

An illness of variable severity characterized by diarrhea, fever, nausea, cramps, and tenesmus. Asymptomatic infections may occur.

Laboratory Criteria for Diagnosis

Suspect

Detection of *Shigella* from a clinical specimen using a non-culture based method.

Confirmed

Isolation of *Shigella* from a clinical specimen.

Case Classification

Suspect

A case that meets the suspect laboratory criteria for diagnosis.

Probable

A clinically compatible case that is epidemiologically linked, i.e., is a contact of a confirmed case or a member of a risk group defined by public health authorities during an outbreak.

Confirmed

A case that meets the confirmed laboratory criteria for diagnosis. When available, O antigen serotype characterization should be reported.

Comment

Both asymptomatic infections and infections at sites other than the gastrointestinal tract, if laboratory confirmed, are considered confirmed cases that should be reported.

Smallpox (Variola)

2004 Case Definition
CSTE Position Statement Number: 09-ID-49

Clinical Case Definition

An illness with acute onset of fever ≥101º F (≥38.3º C) followed by a rash characterized by firm, deep seated vesicles or pustules in the same stage of development without other apparent cause. Clinically consistent cases are those presentations of smallpox that do not meet this classical clinical case definition: a) hemorrhagic type, b) flat type, and c) *variola sine eruptione*. (Detailed clinical description is available on the CDC web site, see URL: http://www.bt.cdc.gov/agent/smallpox/index.asp).

Laboratory Criteria for Diagnosis

- Polymerase chain reaction (PCR) identification of variola DNA in a clinical specimen, OR
- Isolation of smallpox (variola) virus from a clinical specimen (Level D laboratory only; confirmed by variola PCR).

Note: Indications for laboratory testing of patients with suspected smallpox should be followed as described in detail in Guide A of the CDC Smallpox Response Plan. Laboratory diagnostic testing for variola virus should be conducted in Level C or D laboratories only.

Case Classification*

Suspected

A case with a generalized, acute vesicular or pustular rash illness with fever preceding development of rash by 1-4 days.

Probable

A case that meets the clinical case definition, or a clinically consistent case that does not meet the clinical case definition and has an epidemiological link to a confirmed case of smallpox.

Confirmed

Case of smallpox that is laboratory confirmed, or a case that meets the clinical case definition that is epidemiologically linked to a laboratory confirmed case.

*Exclusion Criteria: A case may be excluded as a suspect or probable smallpox case if an alternative diagnosis fully explains the illness or appropriate clinical specimens are negative for laboratory criteria for smallpox.

Comment

Note: The smallpox case definition is to be used only during post-event surveillance. The case definition described in Guide A of the Smallpox Response Plan and Guidelines (Version 3) on the CDC bioterrorism preparedness website includes different criteria for a suspected case than the smallpox case definition the Council of State and Territorial

Epidemiologists approved for use in the National Notifiable Diseases Surveillance System (NNDSS). The smallpox case definition on the CDC bioterrorism web site is more sensitive and less specific than the case definition for the NNDSS, in that a "suspect" case is defined as: "a case with febrile rash illness with fever preceding the development of rash by 1-4 days."

The ‘Guide A’ triage system allows a physician to immediately assess risk [PRE-EVENT], independent of epidemiologic case classification [EVOKED only POST-EVENT]. Patients that triage as ‘high risk’ would, by definition, fall into the first category of Probable smallpox cases (i.e., they will meet the clinical case definition.) Immediate –extremely urgent notification would be indicated. In the event that a patient does not meet the clinical case definition but has a clinically consistent illness and an epidemiologic link to a confirmed case (those in the 2nd category of Probable smallpox cases), the attending physician is advised to contact the Health Department, thus an immediate-extremely urgent notification would ensue if the Health Department deems it warranted.

Patients who triage [PRE-EVENT] as low to moderate risk would not meet the case definition for Probable smallpox; no notification would take place.

It is important to keep in mind that the triage system is part of the PRE-EVENT surveillance system; the CSTE case definitions apply only POST-EVENT. However, the 2 schemes are intrinsically consistent; patients meeting the Confirmed and Probable case definitions listed above would triage as high risk pre-event and would result in immediate-extremely urgent notification.

The 2004 case definition appearing on this page was re-published in the 2009 CSTE position statement 09-ID-49. Thus, the 2004 and 2010 versions of the case definition are identical.

Spotted Fever Rickettsiosis

2010 Case Definition
CSTE Position Statement Number: 09-ID-16

Clinical Description

Spotted fever rickettsioses are a group of tickborne infections caused by some members of the genus *Rickettsia*. Rocky Mountain spotted fever (RMSF) is an illness caused by *Rickettsia rickettsii*, a bacterial pathogen transmitted to humans through contact with ticks. *Dermacentor* species of ticks are most commonly associated with infection, including *Dermacentor variabilis* (the American dog tick), *Dermacentor andersoni* (the Rocky Mountain wood tick), and more recently *Rhiphicephalus sanguineus* (the brown dog tick). Disease onset averages one week following a tick bite. Age-specific illness is highest for children and older adults. Illness is characterized by acute onset of fever, and may be accompanied by headache, malaise, myalgia, nausea/vomiting, or neurologic signs; a macular or maculopapular rash appears 4-7 days following onset in many (~80%) patients, often present on the palms and soles. RMSF may be fatal in as many as 20% of untreated cases, and severe, fulminant disease can occur. In addition to RMSF, human illness associated with other spotted fever group *Rickettsia* species, including infection with *Rickettsia parkeri* (associated with *Amblyomma maculatum* ticks), has also been reported. In these patients, clinical presentation appears similar to, but may be milder than, RMSF; the presence of an eschar at the site of tick attachment has been reported for some other spotted fever rickettsioses.

Clinical Evidence

Any reported fever and one or more of the following: rash, eschar, headache, myalgia, anemia, thrombocytopenia, or any hepatic transaminase elevation.

Laboratory Criteria for Diagnosis

The organism in the acute phase of illness is best detected by polymerase chain reaction (PCR) and immunohistochemical methods (IHC) in skin biopsy specimens, and occasionally by PCR in appropriate whole blood specimens taken during the first week of illness, prior to antibiotic treatment. Serology can also be employed for detection, however an antibody response may not be detectable in initial samples, and paired acute and convalescent samples are essential for confirmation.
For the purposes of surveillance,

Laboratory Confirmed

- Serological evidence of a fourfold change in immunoglobulin G (IgG)-specific antibody titer reactive with *Rickettsia rickettsii* or other spotted fever group antigen by indirect immunofluorescence assay (IFA) between paired serum specimens (one taken in the first week of illness and a second 2-4 weeks later), or
- Detection of *R. rickettsii* or other spotted fever group DNA in a clinical specimen via amplification of a specific target by PCR assay, or
- Demonstration of spotted fever group antigen in a biopsy or autopsy specimen by IHC, or

- Isolation of *R. rickettsii* or other spotted fever group rickettsia from a clinical specimen in cell culture.

Laboratory supportive

- Has serologic evidence of elevated IgG or IgM antibody reactive with R. rickettsii or other spotted fever group antigen by IFA, enzyme-linked immunosorbent assay (ELISA), dot-ELISA, or latex agglutination.

Note: Current commercially available ELISA tests are not quantitative, cannot be used to evaluate changes in antibody titer, and hence are not useful for serological confirmation. IgM tests are not strongly supported for use in serodiagnosis of acute disease, as the response may not be specific for the agent (resulting in false positives) and the IgM response may be persistent. Complement fixation (CF) tests and other older test methods are neither readily available nor commonly used. CDC uses in-house IFA IgG testing (cutoff of ≥1:64), preferring simultaneous testing of paired specimens, and does not use IgM results for routine diagnostic testing.

Exposure

Exposure is defined as having been in potential tick habitats within the past 14 days before onset of symptoms. Occupation should be recorded if relevant to exposure. A history of a tick bite is not required.

Case Classification

Suspected

A case with laboratory evidence of past or present infection but no clinical information available (e.g. a laboratory report).

Probable

A clinically compatible case (meets clinical evidence criteria) that has supportive laboratory results.

Confirmed

A clinically compatible case (meets clinical evidence criteria) that is laboratory confirmed.

Streptococcal Toxic-Shock Syndrome (STSS)

2010 Case Definition
CSTE Position Statement Number: 09-ID-60

Clinical Description

Streptococcal toxic-shock syndrome (STSS) is a severe illness associated with invasive or noninvasive group A streptococcal (Streptococcus pyogenes) infection. STSS may occur with infection at any site but most often occurs in association with infection of a cutaneous lesion. Signs of toxicity and a rapidly progressive clinical course are characteristic, and the case fatality rate may exceed 50%.

Clinical Case Definition

An illness with the following clinical manifestations*:

- Hypotension defined by a systolic blood pressure less than or equal to 90 mm Hg for adults or less than the fifth percentile by age for children aged less than 16 years.
- Multi-organ involvement characterized by two or more of the following:
- Renal impairment: Creatinine greater than or equal to 2 mg/dL (greater than or equal to 177 µmol/L) for adults or greater than or equal to twice the upper limit of normal for age. In patients with preexisting renal disease, a greater than twofold elevation over the baseline level.
- Coagulopathy: Platelets less than or equal to 100,000/mm^3 (less than or equal to 100 x 106/L) or disseminated intravascular coagulation, defined by prolonged clotting times, low fibrinogen level, and the presence of fibrin degradation products.
- Liver involvement: Alanine aminotransferase, aspartate aminotransferase, or total bilirubin levels greater than or equal to twice the upper limit of normal for the patient's age. In patients with preexisting liver disease, a greater than twofold increase over the baseline level.
- Acute respiratory distress syndrome: defined by acute onset of diffuse pulmonary infiltrates and hypoxemia in the absence of cardiac failure or by evidence of diffuse capillary leak manifested by acute onset of generalized edema, or pleural or peritoneal effusions with hypoalbuminemia.
- A generalized erythematous macular rash that may desquamate.
- Soft-tissue necrosis, including necrotizing fasciitis or myositis, or gangrene.

* Clinical manifestations do not need to be detected within the first 48 hours of hospitalization or illness, as specified in the 1996 case definition. The specification of the 48 hour time constraint was for purposes of assessing whether the case was considered nosocomial, not whether it was a case or not.

Laboratory Criteria for Diagnosis

Isolation of group *A Streptococcus*.

Case Classification

Probable

A case that meets the clinical case definition in the absence of another identified etiology for the illness and with isolation of group *A Streptococcus* from a non-sterile site.

Confirmed

A case that meets the clinical case definition and with isolation of group A Streptococcus from a normally sterile site (e.g., blood or cerebrospinal fluid or, less commonly, joint, pleural, or pericardial fluid).

Invasive Pneumococcal Disease (IPD, *Streptococcus pneumoniae*, invasive disease)

2010 Case Definition
CSTE Position Statement Number: 09-ID-06

Clinical Description

Streptococcus pneumoniae causes many clinical syndromes, depending on the site of infection (e.g., acute otitis media, pneumonia, bacteremia, or meningitis).

Laboratory Criteria for Diagnosis

Isolation of *S. pneumoniae* from a normally sterile body site (e.g., blood, cerebrospinal fluid, or, less commonly, joint, pleural or pericardial fluid)

Case Classification

Suspected

Any reported case lacking confirmation of isolation of *Streptococcus pneumoniae* from a normally sterile body site.

Confirmed

Isolation of *Streptococcus pneumoniae* from a normally sterile body site in a person of any age.

Comment

Notification to CDC of confirmed cases of invasive pneumococcal disease (IPD) is recommended by CSTE.

The licensure of a new 13-valent pneumococcal conjugate vaccine (PCV13) is expected in late 2009 or early 2010. Surveillance should be enhanced to provide baseline and ongoing data for the assessment of disease burden and immunization program effects.

In January 2008, the Clinical and Laboratory Standards Institute published new Minimum Inhibitory Concentration (MIC) breakpoints for defining susceptibility of *S. pneumoniae* isolates to penicillin.[1] The new breakpoints are estimated to decrease the number of isolates classified as antibiotic-resistant by approximately 5%.[2] The changes in breakpoints will likely result in a surveillance artifact in drug resistant *S. pneumoniae* reporting and further complicate interpretation of the reported data.

References

1. Clinical and Laboratory Standards Institute. Performance Standards for Antimicrobial Susceptibility Testing; Eighteenth Informational Supplement. CLSI document M100-S18

(ISBN 1-56238-653-0). Clinical and Laboratory Standards Institute, 940 West Valley Road, Suite 1400, Wayne, Pennsylvania. 19087-1898 USA, 2008.

2. Centers for Disease Control and Prevention. Effect of New Penicillin Susceptibility Breakpoints for *Streptococcus pneumoniae*—United States, 2006-2007. MMWR 2008;57:1353-5.

Syphilis (*Treponema pallidum*)

1996 Case Definition
CSTE Position Statement Number: 09-ID-62

Subtypes

Syphilis is a complex sexually transmitted disease that has a highly variable clinical course. Classification by a clinician with expertise in syphilis may take precedence over the following case definitions developed for surveillance purposes.

- Syphilis, primary
- Syphilis, secondary
- Syphilis, latent
- Syphilis, early latent
- Syphilis, late latent
- Syphilis, latent unknown duration
- Neurosyphilis
- Syphilis, late, with clinical manifestations other than neurosyphilis (late benign syphilis and cardiovascular syphilis)
- Syphilitic Stillbirth
- Syphilis, congenital

Syphilis, primary

Clinical Description

A stage of infection with *Treponema pallidum* characterized by one or more chancres (ulcers); chancres might differ considerably in clinical appearance.

Laboratory Criteria for Diagnosis

Demonstration of *T. pallidum* in clinical specimens by darkfield microscopy, direct fluorescent antibody (DFA-TP), or equivalent methods.

Case Classification

Probable

A clinically compatible case with one or more ulcers (chancres) consistent with primary syphilis and a reactive serologic test (nontreponemal: Venereal Disease Research Laboratory [VDRL] or rapid plasma reagin [RPR]; treponemal: fluorescent treponemal antibody absorbed [FTA-ABS] or microhemagglutination assay for antibody to *T. pallidum* [MHA-TP])

Confirmed

A clinically compatible case that is laboratory confirmed

Syphilis, secondary

Clinical Description

A stage of infection caused by *T. pallidum* and characterized by localized or diffuse mucocutaneous lesions, often with generalized lymphadenopathy. The primary chancre may still be present.

Laboratory Criteria for Diagnosis

Demonstration of *T. pallidum* in clinical specimens by darkfield microscopy, DFA-TP, or equivalent methods

Case Classification

Probable

A clinically compatible case with a nontreponemal (VDRL or RPR) titer greater than or equal to 4

Confirmed

A clinically compatible case that is laboratory confirmed

Syphilis, latent

Clinical Description

A stage of infection caused by *T. pallidum* in which organisms persist in the body of the infected person without causing symptoms or signs. Latent syphilis is subdivided into early, late, and unknown categories based on the duration of infection.

Case Classification

Probable

No clinical signs or symptoms of syphilis and the presence of one of the following:
No past diagnosis of syphilis, a reactive nontreponemal test (i.e., VDRL or RPR), and a reactive treponemal test (i.e., FTA-ABS or MHA-TP)
A past history of syphilis therapy and a current nontreponemal test titer demonstrating fourfold or greater increase from the last nontreponemal test titer

Syphilis, early latent

Clinical Description

A subcategory of latent syphilis.
When initial infection has occurred within the previous 12 months, latent syphilis is classified as early latent.

Case Classification

Probable

Latent syphilis (see Syphilis, latent) in a person who has evidence of having acquired the infection within the previous 12 months based on one or more of the following criteria:

- Documented seroconversion or fourfold or greater increase in titer of a nontreponemal test during the previous 12 months
- A history of symptoms consistent with primary or secondary syphilis during the previous 12 months
- A history of sexual exposure to a partner who had confirmed or probable primary or secondary syphilis or probable early latent syphilis (documented independently as duration less than 1 year)
- Reactive nontreponemal and treponemal tests from a person whose only possible exposure occurred within the preceding 12 months

Syphilis, late latent

Clinical Description

A subcategory of latent syphilis. When initial infection has occurred greater than 1 year previously, latent syphilis is classified as late latent.

Case Classification

Probable

Latent syphilis (see Syphilis, latent) in a patient who has no evidence of having acquired the disease within the preceding 12 months (see Syphilis, early latent) and whose age and titer do not meet the criteria specified for latent syphilis of unknown duration.

Syphilis, latent, of unknown duration

Clinical Description

A subcategory of latent syphilis.
When the date of initial infection cannot be established as having occurred within the previous year and the patient's age and titer meet criteria described below, latent syphilis is classified as latent syphilis of unknown duration.

Case Classification

Probable

Latent syphilis (see Syphilis, latent) that does not meet the criteria for early latent syphilis, and the patient is aged 13-35 years and has a nontreponemal titer greater than or equal to 32

Neurosyphilis

Clinical Description

Evidence of central nervous system infection with *T. pallidum*

Laboratory Criteria for Diagnosis

A reactive serologic test for syphilis and reactive VDRL in cerebrospinal fluid (CSF)

Case Classification

Probable

Syphilis of any stage, a negative VDRL in CSF, and both the following:

- Elevated CSF protein or leukocyte count in the absence of other known causes of these abnormalities
- Clinical symptoms or signs consistent with neurosyphilis without other known causes for these clinical abnormalities

Confirmed

Syphilis of any stage that meets the laboratory criteria for neurosyphilis

Syphilis, late, with clinical manifestations other than neurosyphilis

(late benign syphilis and cardiovascular syphilis)

Clinical Description

Clinical manifestations of late syphilis other than neurosyphilis may include inflammatory lesions of the cardiovascular system, skin, and bone. Rarely, other structures (e.g., the upper and lower respiratory tracts, mouth, eye, abdominal organs, reproductive organs, lymph nodes, and skeletal muscle) may be involved. Late syphilis usually becomes clinically manifest only after a period of 15-30 years of untreated infection.

Laboratory Criteria for Diagnosis

Demonstration of *T. pallidum* in late lesions by fluorescent antibody or special stains (although organisms are rarely visualized in late lesions)

Case Classification

Probable

Characteristic abnormalities or lesions of the cardiovascular system, skin, bone, or other structures with a reactive treponemal test, in the absence of other known causes of these abnormalities, and without CSF abnormalities and clinical symptoms or signs consistent with neurosyphilis

Confirmed

A clinically compatible case that is laboratory confirmed

Comment

Analysis of CSF for evidence of neurosyphilis is necessary in the evaluation of late syphilis with clinical manifestations.

Syphilitic Stillbirth

Clinical case definition

A fetal death that occurs after a 20-week gestation or in which the fetus weighs greater than 500 g and the mother had untreated or inadequately treated* syphilis at delivery

Comment

For reporting purposes, syphilitic stillbirths should be reported as cases of congenital syphilis.
*Inadequate treatment consists of any non-penicillin therapy or penicillin given less than 30 days before delivery.

Syphilis, congenital

Clinical Description

A condition caused by infection in utero with *Treponema pallidum*. A wide spectrum of severity exists, and only severe cases are clinically apparent at birth. An infant or child (aged less than 2 years) may have signs such as hepatosplenomegaly, rash, condyloma lata, snuffles, jaundice (nonviral hepatitis), pseudoparalysis, anemia, or edema (nephrotic syndrome and/or malnutrition). An older child may have stigmata (e.g., interstitial keratitis, nerve deafness, anterior bowing of shins, frontal bossing, mulberry molars, Hutchinson teeth, saddle nose, rhagades, or Clutton joints).

Laboratory Criteria for Diagnosis

Demonstration of *T. pallidum* by darkfield microscopy, fluorescent antibody, or other specific stains in specimens from lesions, placenta, umbilical cord, or autopsy material

Case Classification

Probable

A condition affecting an infant whose mother had untreated or inadequately treated* syphilis at delivery, regardless of signs in the infant, or an infant or child who has a reactive treponemal test for syphilis and any one of the following:

- Any evidence of congenital syphilis on physical examination
- Any evidence of congenital syphilis on radiographs of long bones
- A reactive cerebrospinal fluid (CSF) venereal disease research laboratory (VDRL)
- An elevated CSF cell count or protein (without other cause)
- A reactive fluorescent treponemal antibody absorbed--19S-IgM antibody test or IgM enzyme-linked immunosorbent assay
-

Confirmed
A case that is laboratory confirmed

Comment
Congenital and acquired syphilis may be difficult to distinguish when a child is seropositive after infancy. Signs of congenital syphilis may not be obvious, and stigmata may not yet have developed. Abnormal values for CSF VDRL, cell count, and protein, as well as IgM antibodies, may be found in either congenital or acquired syphilis. Findings on radiographs of long bones may help because radiographic changes in the metaphysis and epiphysis are considered classic signs of congenitally acquired syphilis. The decision may ultimately be based on maternal history and clinical judgment. In a young child, the possibility of sexual abuse should be considered as a cause of acquired rather than congenital syphilis, depending on the clinical picture. For reporting purposes, congenital syphilis includes cases of congenitally acquired syphilis among infants and children as well as syphilitic stillbirths.
*Inadequate treatment consists of any non-penicillin therapy or penicillin given less than 30 days before delivery.

Comment
The 1996 case definition appearing on this page was re-published in the 2009 CSTE position statement 09-ID-62 (available at URL). Thus, the 1996 and 2010 versions of the case definition are identical.

Tetanus (*Clostridium tetani*)

2010 Case Definition
CSTE Position Statement Number: 09-ID-63

Case Classification

Probable

In the absence of a more likely diagnosis, an acute illness with muscle spasms or hypertonia, AND

- diagnosis of tetanus by a health care provider; OR
- Death, with tetanus listed on the death certificate as the cause of death or a significant condition contributing to death

Comment

There is no definition for “confirmed” tetanus.

Toxic-Shock Syndrome (TSS)

2011 Case Definition
CSTE Position Statement Number: 10-ID-14

Clinical Criteria

- An illness with the following clinical manifestations:
- Fever: temperature greater than or equal to 102.0°F (greater than or equal to 38.9°C)
- Rash: diffuse macular erythroderma
- Desquamation: 1-2 weeks after onset of rash
- Hypotension: systolic blood pressure less than or equal to 90 mm Hg for adults or less than fifth percentile by age for children aged less than 16 years
- Multisystem involvement (three or more of the following organ systems):
    - Gastrointestinal: vomiting or diarrhea at onset of illness
    - Muscular: severe myalgia or creatine phosphokinase level at least twice the upper limit of normal
    - Mucous membrane: vaginal, oropharyngeal, or conjunctival hyperemia
    - Renal: blood urea nitrogen or creatinine at least twice the upper limit of normal for laboratory or urinary sediment with pyuria (greater than or equal to 5 leukocytes per high-power field) in the absence of urinary tract infection
    - Hepatic: total bilirubin, alanine aminotransferase enzyme, or asparate aminotransferase enzyme levels at least twice the upper limit of normal for laboratory
    - Hematologic: platelets less than 100,000/mm^3
    - Central nervous system: disorientation or alterations in consciousness without focal neurologic signs when fever and hypotension are absent

Laboratory Criteria for Diagnosis

Negative results on the following tests, if obtained:

- Blood or cerebrospinal fluid cultures (blood culture may be positive for *Staphylococcus aureus*)
- Negative serologies for Rocky Mountain spotted fever, leptospirosis, or measles

Case Classification

Probable

A case which meets the laboratory criteria and in which four of the five clinical criteria described above are present

Confirmed

A case which meets the laboratory criteria and in which all five of the clinical criteria described above are present, including desquamation, unless the patient dies before desquamation occurs

Trichinellosis (*Trichinella* spp.) (Trichinosis)

1996 Case Definition
CSTE Position Statement Number: 09-ID-64

Clinical Description

A disease caused by ingestion of *Trichinella* larvae. The disease has variable clinical manifestations. Common signs and symptoms among symptomatic persons include eosinophilia, fever, myalgia, and periorbital edema.

Laboratory Criteria for Diagnosis

Demonstration of *Trichinella* larvae in tissue obtained by muscle biopsy, or positive serologic test for *Trichinella*

Case Classification

Confirmed

A clinically compatible case that is laboratory confirmed

Comment

In an outbreak setting, at least one case must be laboratory confirmed. Associated cases should be reported as confirmed if the patient shared an epidemiologically implicated meal or ate an epidemiologically implicated meat product and has either a positive serologic test for trichinosis or a clinically compatible illness.
The 1996 case definition appearing on this page was re-published in the 2009 CSTE position statement 09-ID-64. Thus, the 1996 and 2010 versions of the case definition are identical.

Tuberculosis (*Mycobacterium tuberculosis*)

2009 Case Definition
CSTE Position Statement Number: 09-ID-65

Clinical Description

A chronic bacterial infection caused by *Mycobacterium tuberculosis*, usually characterized pathologically by the formation of granulomas. The most common site of infection is the lung, but other organs may be involved.

Clinical case definition

A case that meets all the following criteria:

1. A positive tuberculin skin test or positive interferon gamma release assay for *M. tuberculosis*
2. Other signs and symptoms compatible with tuberculosis (TB) (e.g., abnormal chest radiograph, abnormal chest computerized tomography scan or other chest imaging study, or clinical evidence of current disease)
3. Treatment with two or more anti-TB medications
4. A completed diagnostic evaluation
5. Laboratory criteria for diagnosis
6. Isolation of *M. tuberculosis* from a clinical specimen* OR
7. Demonstration of *M. tuberculosis* complex from a clinical specimen by nucleic acid amplification test,** OR
8. Demonstration of acid-fast bacilli in a clinical specimen when a culture has not been or cannot be obtained or is falsely negative or contaminated.

Case Classification

Confirmed

A case that meets the clinical case definition or is laboratory confirmed

Comment

A case should not be counted twice within any consecutive 12-month period. However, a case occurring in a patient who had previously had verified TB disease should be reported and counted again if more than 12 months have elapsed since the patient completed therapy. A case should also be reported and counted again if the patient was lost to supervision for greater than 12 months and TB disease can be verified again. Mycobacterial diseases other than those caused by *M. tuberculosis* complex should not be counted in tuberculosis morbidity statistics unless there is concurrent tuberculosis.

*Use of rapid identification techniques for *M. tuberculosis* (e.g., DNA probes and mycolic acid high-pressure liquid chromatography performed on a culture from a clinical specimen) are acceptable under this criterion.
** Nucleic acid amplification (NAA) tests must be accompanied by culture for mycobacteria species for clinical purposes. A culture isolate of *M. tuberculosis* complex is required for complete drug susceptibility testing and also genotyping. However, for surveillance purposes, CDC will accept results obtained from NAA tests approved by the Food and Drug Administration (FDA) and used according to the approved product labeling on the package insert, or a test produced and validated in accordance with applicable FDA and Clinical Laboratory Improvement Amendments (CLIA) regulations.

Tularemia (*Francisella tularensis*)

1999 Case Definition
CSTE Position Statement Number: 09-ID-66

Clinical Description

An illness characterized by several distinct forms, including the following:

- Ulceroglandular: cutaneous ulcer with regional lymphadenopathy
- Glandular: regional lymphadenopathy with no ulcer
- Oculoglandular: conjunctivitis with preauricular lymphadenopathy
- Oropharyngeal: stomatitis or pharyngitis or tonsillitis and cervical lymphadenopathy
- Intestinal: intestinal pain, vomiting, and diarrhea
- Pneumonic: primary pleuropulmonary disease
- Typhoidal: febrile illness without early localizing signs and symptoms

Laboratory Criteria for Diagnosis

Presumptive

- Elevated serum antibody titer(s) to *F. tularensis* antigen (without documented fourfold or greater change) in a patient with no history of tularemia vaccination or
- Detection of *F. tularensis* in a clinical specimen by fluorescent assay

Confirmatory

- Isolation of *F. tularensis* in a clinical specimen or
- Fourfold or greater change in serum antibody titer to *F. tularensis* antigen

Exposure

Clinical diagnosis is supported by evidence or history of a tick or deerfly bite, exposure to tissues of a mammalian host of *Francisella tularensis*, or exposure to potentially contaminated water.

Case Classification

Probable

A clinically compatible case with laboratory results indicative of presumptive infection

Confirmed

A clinically compatible case with confirmatory laboratory results

Comment

The 1996 case definition appearing on this page was re-published in the 1999 CSTE position statement 1999-ID-6 and the 2009 CSTE position statement 09-ID-66. Thus, the 1996, 1999, and 2010 versions of the case definition are identical.

Typhoid Fever (*Salmonella typhi*)

1997 Case Definition
CSTE Position Statement Number: 09-ID-67.

Clinical Description

An illness caused by *Salmonella typhi* that is often characterized by insidious onset of sustained fever, headache, malaise, anorexia, relative bradycardia, constipation or diarrhea, and nonproductive cough. However, many mild and atypical infections occur. Carriage of *S. typhi* may be prolonged.

Laboratory Criteria for Diagnosis

Isolation of *S. typhi* from blood, stool, or other clinical specimen

Case Classification

Probable

A clinically compatible case that is epidemiologically linked to a confirmed case in an outbreak

Confirmed

A clinically compatible case that is laboratory confirmed

Comment

Isolation of the organism is required for confirmation. Serologic evidence alone is not sufficient for diagnosis. Asymptomatic carriage should not be reported as typhoid fever. Isolates of *S. typhi* are reported to the Foodborne and Diarrheal Diseases Branch, Division of Bacterial and Mycotic Diseases, National Center for Infectious Diseases, CDC, through the Public Health Laboratory Information System (PHLIS).

The 1997 case definition appearing on this page was originally published in the 1990 MMWR and re-published in the 2009 CSTE position statement 09-ID-67.[1,2] Thus, the 1990, 1997, and 2010 versions of the case definition are identical.

References

1. CDC. (1990). Case Definitions for Public Health Surveillance. MMWR, 39(RR-13), 1-43. http://www.cdc.gov/mmwr/preview/mmwrhtml/00025629.htm
2. CDC. (1997). Case Definitions for Infectious Conditions Under Public Health Surveillance. MMWR, 46(RR-10), 1-55. http://www.cdc.gov/mmwr/preview/mmwrhtml/00047449.htm

Vancomycin Intermediate *Staphylococcus aureus* (VISA), and Vancomycin-resistant *Staphylococcus aureus* (VRSA)

2007 Case Definition
CSTE Position Statement Number: 09-ID-58, 09-ID-59

Clinical Description

S. aureus can produce a variety of syndromes with clinical manifestations including skin and soft tissue infections, empyema, bloodstream infection, pneumonia, osteomyelitis, septic arthritis, endocarditis, sepsis, and meningitis. *S. aureus* may also colonize individuals who remain asymptomatic. The most frequent site of *S. aureus* colonization is the nares.

Laboratory Criteria for Diagnosis

- Isolation of *S. aureus* from anybody site, AND
- Intermediate or resistance of the *S. aureus* isolate to vancomycin, detected and defined according to Clinical and Laboratory Standards Institute (CLSI, formerly NCCLS) approved standards and recommendations (Minimum Inhibitory Concentration [MIC]=4-8 µg/ml for VISA and MIC≥16 µg/ml for VRSA).

Case Classification

Confirmed

A case of vancomycin-intermediate or vancomycin-resistant *S. aureus* that is laboratory-confirmed (MIC=4-8 µg/ml for VISA and MIC≥16 µg/ml for VRSA).

Comment

The 2007 case definition appearing on this page was re-published in the 2009 CSTE position statement 09-ID-58 and 09-ID-59. Thus, the 2007 and 2010 versions of the case definition are identical.

Reference

Clinical and Laboratory Standards Institute/NCCLS. Performance Standards for Antimicrobial Susceptibility Testing. Sixteenth informational supplement. M100-S16. Wayne, PA: CLSI, 2006.

Varicella (Chickenpox)

2010 Case Definition
CSTE Position Statement Number : 09-ID-68

Clinical Description

An illness with acute onset of diffuse (generalized) maculo-papulovesicular rash without other apparent cause.

Laboratory Criteria for Diagnosis

- Isolation of varicella virus from a clinical specimen, or
- Varicella antigen detected by direct fluorescent antibody test, or
- Varicella-specific nucleic acid detected by polymerase chain reaction (PCR), or
- Significant rise in serum anti-varicella immunoglobulin G (IgG) antibody level by any standard serologic assay.

Case Classification

Probable

An acute illness with:

- Diffuse (generalized) maculopapulovesicular rash, AND
- Lack of laboratory confirmation, AND
- Lack of epidemiologic linkage to another probable or confirmed case.

Confirmed

An acute illness with diffuse (generalized) maculopapulovesicular rash, AND

- Epidemiologic linkage to another probable or confirmed case, OR
- Laboratory confirmation by any of the following:
- Isolation of varicella virus from a clinical specimen, OR
- Varicella antigen detected by direct fluorescent antibody test, OR
- Varicella-specific nucleic acid detected by polymerase chain reaction (PCR), OR
- Significant rise in serum anti-varicella immunoglobulin G (IgG) antibody level by any standard serologic assay.

Comment

Two probable cases that are epidemiologically linked would be considered confirmed, even in the absence of laboratory confirmation.

In vaccinated persons who develop varicella more than 42 days after vaccination (breakthrough disease), the disease is almost always mild with fewer than 50 skin lesions and shorter duration of illness. The rash may also be atypical in appearance (maculopapular with few or no vesicles). Laboratory confirmation of cases of varicella is not routinely recommended; laboratory confirmation is recommended for fatal cases and in other special circumstances.

Varicella (Chickenpox) (deaths only)

1998 Case Definition
Case definition and case classification

The following surveillance definitions are proposed and use existing public health surveillance definitions for varicella.

Probable

A probable case of varicella which contributes directly or indirectly to acute medical complications which result in death.

Confirmed

A confirmed case of varicella which contributes directly or indirectly to acute medical complications which result in death.

Vibriosis (Non-cholera *Vibrio. spp*.)

2012 Case Definition
CSTE Position Statement Number: 11-ID-12

Clinical Description

An infection of variable severity characterized by watery diarrhea, primary septicemia, or wound infection. Asymptomatic infections may occur, and the organism may cause extra-intestinal infection.

Laboratory Criteria for Diagnosis

Isolation of a species of the family *Vibrionaceae* (other than toxigenic *Vibrio cholerae* O1 or O139, which are reportable as cholera) from a clinical specimen.

Case Classification

Probable

A clinically compatible case that is epidemiologically linked to a confirmed case.

Confirmed

A case that meets the laboratory criteria for diagnosis. Note that species identification and, if applicable, serotype designation (i.e., *Vibrio cholerae* non-O1, non-O139 or Grimontia hollisae) should be reported.

Comment

Genera in the family *Vibrionaceae* (not all have been recognized to cause human illness) currently include:

- Aliivibrio
- Allomonas
- Catenococcus
- Enterovibrio
- Grimontia
- Listonella
- Photobacterium
- Salinivibrio
- Vibrio

In addition to reporting through the National Notifiable Diseases Surveillance System (NNDSS), CDC requests that states collect and report the information on the standard form for Cholera and Other Vibrio Illness Surveillance (COVIS), available at: http://www.cdc.gov/nationalsurveillance/cholera_vibrio_surveillance.html. CDC intends to integrate the COVIS form into the National Electronic Diseases Surveillance System (NEDSS) in the future.

Reporting sites should use the COVIS reporting form until the integration is successfully implemented.

CDC requests that all Vibrio isolates be forwarded to the Enteric Diseases Laboratory Branch (EDLB) for characterization. EDLB (specifically the Epidemic Investigations Laboratory) requests that state public health labs immediately forward all suspect *V. cholerae* isolates for serogrouping and cholera toxin testing as well as biotype and antimicrobial susceptibility testing.

Viral Hemorrhagic Fever (VHF)

2011 Case Definition
CSTE Position Statement Number: 10-ID-19

Viral Hemorrhagic Fever, due to:

- Ebola virus
- Marburg virus
- Crimean-Congo hemorrhagic fever viruses
- Lassa virus
- Lujo virus
- New world arenaviruses (Guanarito, Machupo, Junin, Sabia viruses)

Clinical Presentation Criteria

An illness with acute onset with ALL of the following clinical findings:

- A fever > 40°C
- One or more of the following clinical findings:
- Severe headache
- Muscle pain
- Erythematous maculopapular rash on the trunk with fine desquamation 3–4 days after rash onset
- Vomiting
- Diarrhea
- Pharyngitis (arenavirus only)
- Abdominal pain
- Bleeding not related to injury
- Retrosternal chest pain (arenavirus only)
- Proteinuria (arenavirus only)
- thrombocytopenia

Laboratory Criteria for Diagnosis

One or more of the following laboratory findings:

- Detection of VHF viral antigens in blood by enzyme-linked Immunosorbent Assay (ELISA) antigen detection
- VHF viral isolation in cell culture for blood or tissues
- Detection of VHF-specific genetic sequence by Reverse Transcription-Polymerase Chain Reaction (RT-PCR) from blood or tissues

- Detection of VHF viral antigens in tissues by immunohistochemistry

Criteria for Epidemiologic Linkage

- One or more of the following exposures within the 3 weeks before onset of symptoms:
- Contact with blood or other body fluids of a patient with VHF
- Residence in—or travel to—a VHF endemic area
- Work in a laboratory that handles VHF specimens
- Work in a laboratory that handles bats, rodents, or primates from endemic areas
- Exposure to semen from a confirmed acute or convalescent case of VHF within the 10 weeks of that person's onset of symptoms

Case Classification

Suspected

Case meets the clinical and epidemiologic linkage criteria.

Confirmed

Case meets the clinical and laboratory criteria.

Comment

VHF refers to viral hemorrhagic fever caused by either Ebola, Lassa, Lujo, or Marburg virus, a new world arenavirus, or Crimean-Congo hemorrhagic fever.

Yellow Fever

1997 Case Definition
CSTE Position Statement Number: 09-ID-09

Clinical Description

A mosquito-borne viral illness characterized by acute onset and constitutional symptoms followed by a brief remission and a recurrence of fever, hepatitis, albuminuria, and symptoms and, in some instances, renal failure, shock, and generalized hemorrhages

Laboratory Criteria for Diagnosis

Fourfold or greater rise in yellow fever antibody titer in a patient who has no history of recent yellow fever vaccination and cross-reactions to other flaviviruses have been excluded or
Demonstration of yellow fever virus, antigen, or genome in tissue, blood, or other body fluid.

Case Classification

Confirmed

A clinically compatible case that is laboratory confirmed

Probable

A clinically compatible case with supportive serology (stable elevated antibody titer to yellow fever virus [e.g., greater than or equal to 32 by complement fixation, greater than or equal to 256 by immunofluorescence assay, greater than or equal to 320 by hemagglutination inhibition, greater than or equal to 160 by neutralization, or a positive serologic result by immunoglobulin M-capture enzyme immunoassay]. Cross-reactive serologic reactions to other flaviviruses must be excluded, and the patient must not have a history of yellow fever vaccination.)

Comment

The 1997 case definition appearing on this page was originally published in the 1990 MMWR and re-published in the 2009 CSTE position statement 09-ID-09.[1,2] Thus, the 1990, 1997, and 2010 versions of the case definition are identical.

References

1. CDC. (1990). Case Definitions for Public Health Surveillance. MMWR, 39(RR-13), 1-43. http://www.cdc.gov/mmwr/preview/mmwrhtml/00025629.htm
2. CDC. (1997). Case Definitions for Infectious Conditions Under Public Health Surveillance. MMWR, 46(RR-10), 1-55. http://www.cdc.gov/mmwr/preview/mmwrhtml/00047449.htm

Nationally Notifiable Non-Infectious Conditions

Cancer

2010 Case Definition
CSTE Position Statement Number: 09-CD-01

Clinical Description

Cancer cases under national public health surveillance include:

- incident invasive cancers at all sites with the exception of basal cell and squamous cell carcinoma of the skin;
- incident *in situ* cancers at all sites with the exception of carcinoma *in situ* of the cervix uteri, or any intraepithelial neoplasia (cervical intraepithelial neoplasia [CIN], prostate intraepithelial neoplasia [PIN], etc.);
- incident benign and borderline central nervous system tumors

Laboratory Criteria for Diagnosis

Pathological or cytological diagnosis

Case Classification

Confirmed

- A diagnosis of cancer (*in situ* or invasive) or central nervous system tumor (benign or borderline) by a recognized medical practitioner that includes the use of specific terms synonymous with cancer, including but not limited to: “cancer,” “malignant,” “carcinoma,” “sarcoma,” “leukemia,” and “lymphoma,” OR
- Laboratory-confirmed cases are those that have a positive histology or cytology, or other positive microscopic confirmation*.

Comment

*Although more than 90 percent of cancer cases are confirmed microscopically, microscopic confirmation is not required for a confirmed or definite case.

Incident cancer cases are classified according to primary anatomic site (topography) and cellular characteristics (morphology including histology, behavior, and grade) using the International Classification of Diseases for Oncology, Third Edition (ICD-O-3).

Elevated Blood Lead Levels

2010 Case Definition
CSTE Position Statement Number 09-OH-02

Subtypes:

- Elevated Blood Lead Levels, Children (<16 Years)
- Elevated Blood Lead Levels, Adult (≥16 Years)

Elevated Blood Lead Levels, Children (<16 Years)

Laboratory Criteria for Diagnosis

Blood lead concentration, as determined by a CLIA-certified facility, ≥10 µg/dL (0.48 µmol/L) in a child (person < 16 years of age)

Case Classification

Suspected

A single capillary blood specimen with elevated lead concentration

Probable

Two capillary blood specimens, drawn greater than 12 weeks apart, both with elevated lead concentration

Confirmed

One venous blood specimen with elevated lead concentration, or two capillary blood specimens, drawn within 12 weeks of each other, both with elevated lead concentration

Elevated Blood Lead Levels, Adult (≥16 Years)

Laboratory Criteria for Diagnosis

An adult blood lead level that should be maintained under surveillance by the NPHSS is defined as an adult (≥16 years) with a venous (or comparable) blood lead concentration ≥10 µg/dL (0.48 µmol/L) of whole blood

Case Classification

Confirmed

One venous (or comparable) blood specimen with elevated lead concentration

Elevated blood lead levels, as defined above, should be used for the purposes of surveillance only to apply standard criteria for case classification and may not correspond to action levels determined by individual programs or providers.

Foodborne Disease Outbreak

2011 Case Definition
CSTE Position Statement Number: 10-ID-13

Clinical Description

Symptoms of illness depend upon etiologic agent. Please see the "Guidelines for Confirmation of Foodborne-Disease Outbreaks" (http://www.cdc.gov/outbreaknet/references_resources/guide_confirming_diagnosis.html).

Laboratory Criteria for Diagnosis

Diagnostic laboratory criteria depend upon the etiologic agent. Please see the "Guidelines for Confirmation of Foodborne-Disease Outbreaks". (http://www.cdc.gov/outbreaknet/references_resources/guide_confirming_diagnosis.html).

Definition

An incident in which two or more persons experience a similar illness after ingestion of a common food, and epidemiologic analysis implicates the food as the source of the illness.

Comment

There are two exceptions: one case of botulism or chemical poisoning linked to a food item constitutes a notifiable outbreak.

Data sharing

Notification to CDC of confirmed cases of foodborne disease outbreaks (preferably using the CDC National Outbreak Reporting System) is recommended (for more information, go to http://www.cdc.gov/outbreaknet/nors/).

Pesticide-related Illness and Injury, Acute

2010 Case Definition
CSTE Position Statement Number: 09-OH-3

Clinical Description

This surveillance case definition refers to any acute adverse health effect resulting from exposure to a pesticide product (defined under the Federal Insecticide Fungicide and Rodenticide Act [FIFRA]3) including health effects due to an unpleasant odor, injury from explosion of a product, inhalation of smoke from a burning product, and allergic reaction. Because public health agencies seek to limit all adverse effects from regulated pesticides, notification is needed even when the responsible ingredient is not the active ingredient.

A case is characterized by an acute onset of symptoms that are dependent on the formulation of the pesticide product and involve one or more of the following:

- Systemic signs or symptoms (including respiratory, gastrointestinal, allergic and neurological signs/symptoms)
- Dermatologic lesions
- Ocular lesions

Evidence Supporting a Causal Relationship Between Pesticide Exposure and Health Effects

Where the findings documented under the clinical description and lab criteria are:

- Characteristic for the pesticide as provided in NIOSH Appendix 2, and the temporal relationship between exposure and health effects is plausible, AND/OR
- Consistent with an exposure-health effect relationship based upon the known toxicology (i.e. exposure dose, symptoms and temporal relationship) of the putative agent (i.e. the agent classified under criteria A) from commonly available toxicology texts, government publications, information supplied by the manufacturer, or two or more case series or positive epidemiologic studies published in the peer-reviewed literature

Laboratory Criteria for Diagnosis

If available, the following laboratory data can confirm exposure to a pesticide:

- Biological tests for the presence of, or toxic response to, the pesticide and/or its metabolite (in blood, urine, etc.);
- Measurement of the pesticide and/or its metabolite(s) in the biological specimen
- Measurement of a biochemical response to the pesticide in a biological specimen (e.g., cholinesterase levels)
- Environmental tests for the pesticide (e.g., foliage residue, analysis of suspect liquid);

- Pesticide detection on clothing or equipment used by the case subject.

Exposure

- Laboratory, clinical, or environmental evidence to corroborate exposure
    - Analytical results from foliage residue, clothing residue, air, soil, water or biologic samples;
    - Observation of residue and/or contamination (including damage to plant material from herbicides) by a trained professional [Note: a trained professional may be a plant pathologist, agricultural inspector, agricultural extension agent, industrial hygienist or any other licensed or academically trained specialist with expertise in plant pathology and/or environmental effects of pesticides. A licensed pesticide applicator not directly involved with the application may also be considered a trained professional.];
    - Biologic evidence of exposure (e.g., response to administration of an antidote such as 2-PAM, Vitamin K1, or repeated doses of atropine);
    - Documentation by a licensed health care professional of a characteristic eye injury or dermatologic effects at the site of direct exposure to a pesticide product known to produce such effects;
    - Clinical description by a licensed health care professional of two or more postexposure health effects (at least one of which is a sign) characteristic for the pesticide as provided in NIOSH Appendix 2.
- Evidence of exposure based solely upon written or verbal report
    - Report by case;
    - Report by witness;
    - Written records of application;
    - Observation of residue and/or contamination (including damage to plant material from herbicides) by other than a trained professional;
    - Other evidence suggesting that an exposure occurred.

Case Classification

Suspected

- Insufficient toxicologic information is available to determine causal relationship between exposure and health effects
- Case meets one of the exposure criteria:
    - At least one laboratory, clinical, or environmental evidence found to corroborate exposure, OR
    - There is evidence of exposure based solely upon written or verbal report

  AND
- Case meets one or more criteria
    - Two or more new post-exposure abnormal symptoms; OR
    - Two or more new post-exposure abnormal signs; OR
    - Two or more laboratory findings reported by a licensed health care professional; OR
    - One or more new post-exposure abnormal symptoms or signs AND one or more laboratory findings reported by a licensed health care professional.

Possible

- There is evidence to support a causal relationship between pesticide exposure and health effects, AND
- There is evidence of exposure based solely upon written or verbal report, AND
- Case meets one or both criteria:

    - Two or more new post-exposure abnormal symptoms; OR
    - Any new illness or exacerbation of pre-existing illness diagnosed by a licensed physician

Probable

- There is evidence to support a causal relationship between pesticide exposure and health effects, AND
- At least one laboratory, clinical, or environmental evidence found to corroborate exposure, AND
- Case meets one or both criteria:
    - Two or more new post-exposure abnormal symptoms; OR
    - Any new illness or exacerbation of pre-existing illness diagnosed by a licensed physician

  OR
- There is evidence to support a causal relationship between pesticide exposure and health effects, AND
- There is evidence of exposure based solely upon written or verbal report, AND
- Case meets one or both criteria:
    - Two or more new post-exposure abnormal signs; OR
    - Two or more laboratory findings reported by a licensed health care professional; OR
    - One or more new post-exposure abnormal signs AND one or more laboratory findings reported by a licensed health care professional

Confirmed/Definite

- There is evidence to support a causal relationship between pesticide exposure and health effects, AND
- At least one laboratory, clinical, or environmental evidence found to corroborate exposure, AND
- Case meets one or both criteria:
    - Two or more new post-exposure abnormal signs; AND/OR
    - Two or more laboratory findings reported by a licensed health care professional; OR
    - One or more new post-exposure abnormal symptoms or signs AND one or more laboratory findings reported by a licensed health care professional

Silicosis

2010 Case Definition
CSTE Position Statement Number: 09-OH-01

Clinical Description

Silicosis is an occupational lung disease caused by the inhalation of respirable dust containing crystalline silica. There are two forms of the disease: nodular silicosis and silicoproteinosis (acute silicosis). Nodular silicosis (chronic and accelerated) is slowly progressing and manifests as scarring of the lung tissue. It is typically evident on chest x-ray only after 10 or more years of exposure (chronic silicosis), but may be seen after as little as five years (accelerated silicosis). Nodular silicosis may present without symptoms; shortness of breath and cough typically accompany advanced disease. Silicoproteinosis (acute silicosis), a less common form of silicosis, is an alveolar filling process which becomes evident within weeks to months after a very intense initial exposure; death usually occurs within a few years of onset. Except in acute silicosis, lung biopsy is rarely needed for diagnosis, as the radiologic picture is often sufficiently distinct to permit diagnosis of silicosis in persons with a clear history of exposure. Individuals with silicosis are at increased risk of tuberculosis and lung cancer. Silica exposure and/or silicosis has also been associated with autoimmune diseases such as lupus erythematosus, rheumatoid arthritis, scleroderma, and with glomerulonephritis. Silicosis is a progressive, incurable, and potentially fatal disease that can be effectively prevented by limiting exposure to respirable crystalline silica dust.

Case Classification

Probable

- Death certificate record listing silicosis or pneumoconiosis due to dust containing silica (as underlying or contributing cause of death); OR
- Hospital discharge record listing silicosis or pneumoconiosis due to dust containing silica (as primary, secondary, or other diagnosis); OR
- Workers' compensation claim with a diagnosis of silicosis or pneumoconiosis due to dust containing silica; OR
- Health care professional's report of an individual diagnosed with silicosis or pneumoconiosis due to dust containing silica.

Confirmed

- History of occupational exposure to airborne silica dust and either or both:
    - Chest radiograph (or other radiographic image, such as computed tomography) showing abnormalities interpreted as consistent with silicosis; OR
    - Lung histopathology consistent with silicosis.

Waterborne Disease Outbreak

2010 Case Definition
CSTE Position Statement Number: 09-ID-02

Waterborne Disease Outbreak

A waterborne disease outbreak is an incident in which two or more epidemiologically-linked persons experience a similar illness after exposure to the same water source and epidemiologic evidence implicates the water as the likely source of the illness.

Clinical Description

Symptoms of illness depend upon etiologic agent.

Laboratory Criteria for Diagnosis

Depends upon etiologic agent.

Case Classification

Confirmed

Any outbreak of an infectious disease, chemical poisoning or toxin-mediated illness where water is indicated as the source by an epidemiological investigation

Comment

The implicated water in these waterborne disease outbreaks may be drinking water, recreational water, water not intended for drinking (e.g., water used for agricultural purposes or in a cooling tower) or water of unknown intent. The route of exposure may be ingestion, inhalation, intranasal, or contact. The agent associated with the waterborne disease outbreak may be a microbe, chemical, or toxin. Water testing to demonstrate contamination or identify the etiologic agent is preferred, but not required for inclusion. Chemicals (including disinfection byproducts) in drinking water or in recreational water that cause health effects either through water exposure or by volatilization leading to poor air quality are included. Reports of waterborne disease outbreaks received through the National Outbreak Reporting System (NORS) are captured in the Waterborne Disease and Outbreak Surveillance System (WBDOSS).

Although not reported through NORS, the WBDOSS also accepts single cases of chemical exposure, wound infection and other illnesses, (e.g., Naegleria infections) that are epidemiologically linked to water exposure as well as aquatic facility-related health events (e.g., chemical mixing accidents or air quality problems). However, these single cases or aquatic facility-related health events are not reported or analyzed as waterborne disease outbreaks.

Conditions Under National Surveillance

Campylobacteriosis (*Campylobacter* spp.)

2012 Case Definition
CSTE Position Statement Number: 11-ID-10

Clinical Description

A diarrheal illness of variable severity.

Laboratory Criteria for Diagnosis

Suspected

Detection of *Campylobacter* spp. in a clinical specimen using non-culture based laboratory methods.

Confirmed

Isolation of *Campylobacter* spp. in a clinical specimen.

Case Classification

Suspected

A case that meets the suspect laboratory criteria for diagnosis.

Probable

A clinically compatible case that is epidemiologically linked to a confirmed case of campylobacteriosis.

Confirmed

A case that meets the confirmed laboratory criteria for diagnosis.

Comment

The use of culture independent methods as standalone tests for the direct detection of *Campylobacter* in stool appears to be increasing. Data available about the performance characteristics of these assays indicates there is variability in the sensitivity, specificity and positive predictive value of these assays depending on the test (enzyme immunoassay (EIA) test format - lateral flow or –microplate) and manufacturer. It is therefore useful to collect information on which type of EIA test and manufacturer are used to diagnose a case. Culture confirmation of culture independent (e.g., EIA) test positive specimens is ideal.

Free-living Amebae, Infections caused by

2012 Case Definition
CSTE Position Statement Number: 11-ID-15

Subtypes

- *Naegleria fowleri* causing Primary Amebic Meningoencephalitis (PAM)
- Balamuthia madrillaris Disease
- *Acanthamoeba* Disease (excluding keratitis)
- Acanthamoeba Keratitis

Naegleria fowleri causing Primary Amebic Meningoencephalitis (PAM)

Clinical Description

N. fowleri is a free-living ameboflagellate that invades the brain and meninges via the nasal mucosa and olfactory nerve to cause acute, fulminant hemorrhagic meningoencephalitis (primary amebic meningoencephalitis – PAM), primarily in healthy children and young adults with a recent history of exposure to warm fresh water. Initial signs and symptoms of PAM begin 1 to 14 days after infection and include sudden onset of headache, fever, nausea, vomiting, and stiff neck accompanied by positive Kernig's and Brudzinski's signs. In some cases, abnormalities in taste or smell, nasal obstruction and nasal discharge might be seen. Other symptoms might include photophobia, mental-state abnormalities, lethargy, dizziness, loss of balance, other visual disturbances, hallucinations, delirium, seizures, and coma. After the onset of symptoms, the disease progresses rapidly and usually results in death within 3 to 7 days. Although a variety of treatments have been shown to be active against amebae *in vitro* and have been used to treat infected persons, most infections have still been fatal.

Laboratory Criteria for Diagnosis

Laboratory-confirmed *N. fowleri* infection is defined as the detection of *N. fowleri*

- Organisms in CSF, biopsy, or tissue specimens, OR
- Nucleic acid (e.g,. polymerase chain reaction) in CSF, biopsy, or tissue specimens, OR
- Antigen (e.g., direct fluorescent antibody) in CSF, biopsy, or tissue specimens.

Case Classification

Confirmed

A clinically compatible illness that is laboratory confirmed.*

* When available, molecular characterization should be documented (e.g., genotype).

Comment

N. fowleri might cause clinically similar illness to bacterial meningitis, particularly in its early stages. Definitive diagnosis by a reference laboratory might be required. Unlike *Balamuthia mandrillaris* and *Acanthamoeba* spp., *Naegleria fowleri* is commonly found in CSF.

Balamuthia madrillaris Disease

Clinical Description

B. mandrillaris is an opportunistic free-living ameba that can invade the brain through the blood, probably from a primary infection in the skin (from ulcers or dermatitis), sinuses, or via organ transplantation. The incubation period is not well-characterized but has been observed to range from 2 weeks to months or possibly years. Once in the brain, the amebae can cause meningoencephalitis and/or granulomatous amebic encephalitis (GAE). *B. mandrillaris* GAE often has a slow, insidious onset and develops into a subacute or chronic disease lasting several weeks to months; however, *B. mandrillaris* infections associated with organ transplantation have an especially rapid clinical course. *B. mandrillaris* GAE affects both immunocompetent persons and persons who are immunosuppressed from a variety of causes (e.g., HIV/AIDS, organ transplantation). Initial symptoms of *B. mandrillaris* GAE might include headache, photophobia, and stiff neck accompanied by positive Kernig's and Brudzinski's signs. Other symptoms might include nausea, vomiting, low-grade fever, muscle aches, weight loss, mental-state abnormalities, lethargy, dizziness, loss of balance, cranial nerve palsies, other visual disturbances, hemiparesis, seizures, and coma. Painless skin lesions appearing as plaques a few millimeters thick and one to several centimeters wide have been observed in some patients, especially patients outside the U.S., preceding the onset of neurologic symptoms by 1 month to approximately 2 years. Once the disease progresses to neurologic infection, it is generally fatal within weeks or months; however, a few patients have survived this infection.

Laboratory Criteria for Diagnosis

Laboratory-confirmed *B. mandrillaris* infection is defined as the detection of *B. mandrillaris*

- Organisms in CSF, biopsy, or tissue specimens, OR
- Nucleic acid (e.g,. polymerase chain reaction) in CSF, biopsy, or tissue specimens, OR
- Antigen (e.g., direct fluorescent antibody) in CSF, biopsy, or tissue specimens.

Case Classification

Confirmed

A clinically compatible illness that is laboratory confirmed.*

* When available, molecular characterization should be documented (e.g., genotype).

Comment

B. mandrillaris and *Acanthamoeba spp*. can cause clinically similar illnesses and might be difficult to differentiate using commonly available laboratory procedures. Definitive diagnosis by a reference laboratory might be required. A negative test on CSF does not rule out *B. mandrillaris* infection because the organism is not commonly present in the CSF.

Acanthamoeba Disease (excluding keratitis)

Clinical Description

The genus *Acanthamoeba* includes several species of opportunistic free-living amebae that might invade the brain through the blood, probably from a primary infection in the skin (from ulcers or dermatitis) or sinuses. Once in the brain, the amebae cause granulomatous amebic encephalitis (GAE). *Acanthamoeba* GAE has a slow and insidious onset and develops into a subacute or chronic disease lasting several weeks to months. *Acanthamoeba* GAE affects both immunocompetent persons and persons who are immunosuppressed from a variety of causes (e.g., HIV/AIDS, organ transplantation). Initial symptoms of *Acanthamoeba* GAE might include headache, photophobia, and stiff neck accompanied by positive Kernig's and Brudzinski's signs. Other symptoms might include nausea, vomiting, low-grade fever, muscle aches, weight loss, mental-state abnormalities, lethargy, dizziness, loss of balance, cranial nerve palsies, other visual disturbances, hemiparesis, seizures, and coma. Once the disease progresses to neurologic infection, it is generally fatal within weeks or months. However, a few patients have survived this infection.

Laboratory Criteria for Diagnosis

Laboratory-confirmed *Acanthamoeba spp*. infections (excluding keratitis) are defined as the detection of *Acanthamoeba spp*.

- Organisms in CSF, biopsy, or tissue specimens, OR
- Nucleic acid (e.g., polymerase chain reaction) in CSF, biopsy, or tissue specimens, OR
- Antigen (e.g., direct fluorescent antibody) in CSF, biopsy, or tissue specimens.

Case Classification

Confirmed

A clinically compatible illness that is laboratory confirmed.*

*When available, species designation and molecular characterization (e.g., genotype) should be documented.

Comment

Acanthamoeba and *B. mandrillaris* can cause clinically similar illnesses and might be difficult to differentiate using commonly available laboratory procedures. Definitive diagnosis by a reference laboratory might be required. Several species of *Acanthamoeba* are associated with infection (i.e., *A. castellanii, A. culbertsoni, A. hatchetti, A. healyi, A. polyphaga, A. rhysodes, A. astonyxis, A.*

lenticulata and *A. divionensis*). A negative test on CSF does not rule out *Acanthamoeba* infection because the organism is not commonly present in the CSF.

Acanthamoeba Keratitis

Clinical Description

Acanthamoeba keratitis is a local infection of the cornea (outer layer of the visual pathway of the eye) caused by a microscopic, free-living ameba belonging to the genus *Acanthamoeba*. Symptoms include foreign body sensation, photophobia, decreased visual acuity, tearing, pain, and redness of the eye. It occurs most typically among healthy, contact lens users, but can occur in anyone. Although treatable with topical medications, affected individuals are at risk for permanent visual impairment or blindness. *Acanthamoeba* organisms are ubiquitous in nature and can be found in bodies of water (e.g., lakes and oceans), soil, and air.

Laboratory Criteria for Diagnosis

Laboratory-confirmed *Acanthamoeba spp*. keratitis infections are defined as the detection of *Acanthamoeba spp*.

- Organisms in corneal scraping, or biopsy specimens, OR
- Nucleic acid (e.g., polymerase chain reaction) in corneal scraping, or biopsy specimens, OR
- Antigen (e.g., direct fluorescent antibody) in corneal scraping, or biopsy specimens.

Case Classification

Probable

A clinically compatible illness with positive identification of *Acanthamoeba* trophozoites or cysts using confocal microscopy.

Confirmed

A clinically compatible illness that is laboratory confirmed.*

*When available, species designation and molecular characterization (e.g., genotype) should be documented.

Influenza-Associated Hospitalizations

2012 Case Definition
CSTE Position Statement Number: 11-ID-07

Clinical Criteria

- Hospital admission date 14 days or less after a positive influenza test, OR
- Hospital admission date 3 days or less before a positive influenza test

Laboratory Criteria for Diagnosis

Evidence of a positive influenza test by at least one of the following methods:

- Positive viral culture for influenza
- Positive immunofluorescence antibody staining (Direct [DFA] or indirect [IFA]) for influenza
- Reverse transcriptase polymerase chain reaction (RT-PCR) positive for influenza
- Serologic testing positive for influenza
- A positive, unspecified influenza test noted in the medical chart (e.g., a written note in the admission H&P or discharge summary)
- A positive commercially available rapid diagnostic test for influenza

Case Classification

Confirmed

A case that meets the clinical and laboratory evidence criteria.

Melioidosis (*Burkholderia pseudomallei*)

2012 Case Definition
CSTE Position Statement Number: 11-ID-16

Clinical Description

Clinical presentation of the disease varies on a case by case basis. The following characteristics are typical of melioidosis.

- An acute or chronic localized infection which may or may not include symptoms of fever and muscle aches. Such infection often results in ulcer, nodule, or skin abscess.
- An acute pulmonary infection with symptoms of high fever, headache, chest pain, anorexia, and general muscle soreness.
- A bloodstream infection with symptoms of fever, headache, respiratory distress, abdominal discomfort, joint pain, muscle tenderness, and/or disorientation.
- A disseminated infection with symptoms of fever, weight loss, stomach or chest pain, muscle or joint pain, and/or headache or seizure. Abscesses in the liver, lung, spleen, and prostate are often observed in patients diagnosed with disseminated infections; less frequently, brain abscesses may be seen.

Laboratory Criteria for Diagnosis

Confirmed

- Isolation of *B. pseudomallei* from a clinical specimen of a case of severe febrile illness: Culture of the organism may be done by blood, sputum, urine, pus, throat swab, or swabs from organ abscesses or wounds.

Probable

- Evidence of a fourfold or greater rise in *B. pseudomallei* antibody titer by IHA between acute- and convalescent-phase serum specimens obtained greater than or equal to 2 weeks apart.
- Evidence of *B. pseudomallei* DNA (for example, by LRN-validated polymerase chain reaction) in a clinical specimens collected from a normally sterile site (blood) or lesion of other affected tissue (abscesses, wound).

Case Classification

Probable

A case that meets the clinical case definition, one or more of the probable lab criteria, and one of the following epidemiologic findings:

- History of travel to a melioidosis-endemic region, OR
- Known exposure to *B. pseudomallei* as a result of intentional release or occupational risk (lab exposure).

Confirmed

A case that is laboratory confirmed, with or without clinical evidence.

Comment

States and territories should also notify the CDC's Bacterial Special Pathogens Branch of such cases by calling 404-639-1711 or emailing: bspb@cdc.gov.