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Case Definitions for Public Health Surveillance

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Contents

Case Definitions for Public Health Surveillance

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INTRODUCTION

Public health officials rely on health providers, laboratories, and other public health personnel to report the occurrence of notifiable diseases to state and local health departments. Without such data, monitoring trends or evaluating the effectiveness of intervention activities would be difficult.

The Council of State and Territorial Epidemiologists (CSTE) has recommended that state health departments report cases of selected diseases (Table 1) to CDC's National Notifiable Diseases Surveillance System (NNDSS). However, the usefulness of such data has been limited by the lack of uniform case definitions for public health surveillance (*1*). Without explicit criteria for identifying cases, state health departments and individual practitioners have used various criteria for case reporting. This document, prepared in cooperation with the CSTE, provides uniform criteria for reporting purposes. States that wish to improve the specificity of reporting may find the definitions helpful. As uniform case definitions are adopted, the incidence of reported diseases in different geographic areas may be more meaningfully compared.

In the United States, requirements for reporting diseases are mandated by state laws or regulations, and the list of reportable diseases in each state varies. A summary of state requirements for notifiable diseases has recently been published (*2*). National data from the NNDSS are collated and published weekly in the *Morbidity and Mortality Weekly Report (MMWR)*. In general, cases reported by state health departments to the NNDSS are provisional. Updated final reports are published annually in the *Summary of Notifiable Diseases*.

Additionally, state health departments provide CDC information about these and other conditions of public health interest through supplementary surveillance systems that collect more detailed, condition-specific information (*3*). These conditions may or may not be included in the state laws or regulations that mandate reporting (Table 2).

The CSTE/CDC surveillance case definitions included in this document vary in their use of clinical, laboratory, and epidemiologic criteria to define cases. Some clinical

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TABLE 1. Diseases included in the National Notifiable Diseases Surveillance System (NNDSS)

Acquired immunodeficiency syndrome (AIDS)	Malaria
Amebiasis	Measles
Anthrax	Meningococcal infections
Aseptic meningitis	Mumps
Botulism, foodborne	Pertussis
Botulism, infant	Plague
Botulism, wound	Poliomyelitis, paralytic
Botulism, unspecified	Psittacosis
Brucellosis	Rabies, animal
Chancroid	Rabies, human
Cholera	Rheumatic fever
Congenital rubella syndrome	Rocky Mountain spotted fever
Diphtheria	Rubella
Encephalitis, post chickenpox	Salmonellosis
Encephalitis, post mumps	Shigellosis
Encephalitis, post other	Syphilis, all stages
Encephalitis, primary	Syphilis, primary and secondary
Gonorrhea	Syphilis, congenital
Granuloma inguinale	Tetanus
Hansen disease	Toxic shock syndrome
Hepatitis A	Trichinosis
Hepatitis B	Tuberculosis
Hepatitis, non-A, non-B	Tularemia
Hepatitis, unspecified	Typhoid fever
Legionellosis	Varicella*
Leptospirosis	Yellow fever
Lyme disease	
Lymphogranuloma venereum	

*Many states collect case reports of varicella, although it is not a nationally notifiable disease. The Council of State and Territorial Epidemiologists encourages transmission of that information annually via the NNDSS for publication in the *Summary of Notifiable Diseases*.

TABLE 2. Diseases and Conditions that are not nationally notifiable but for which CDC maintains surveillance*

Campylobacter infection	Kawasaki syndrome
Chlamydia trachomatis infection	*Listeria monocytogenes* (listeriosis)
Dengue fever	Mucopurulent cervicitis
Genital herpes simplex virus infection	Nongonococcal urethritis
Genital warts	Pelvic inflammatory disease
Giardiasis	Reye syndrome
Haemophilus influenzae, invasive disease	Spinal cord injury

*This list includes only the diseases and conditions for which case definitions are provided in this document; it is not a complete list of non-notifiable diseases for which CDC and state and territorial health departments maintain surveillance systems.

syndromes do not have confirmatory laboratory tests, but laboratory evidence may be one component of a clinical definition; toxic shock syndrome is an example. Other diseases (e.g., mumps) have such a characteristic clinical presentation that, even in the absence of confirmatory laboratory testing, a diagnosis may be based only on clinical findings. In most instances, a brief clinical description is provided. Unless the clinical description is explicitly cited in the "Case classification" section of each definition, it is included only as background information.

Some diseases require laboratory confirmation for diagnosis, regardless of clinical symptomatology, and some are diagnosed on the basis of epidemiologic data. Many of the childhood vaccine-preventable diseases include epidemiologic criteria (e.g., exposure to probable or confirmed cases of disease) in the case definitions. In some instances, the site of infection may be important; pharyngeal diphtheria is notifiable, for example, whereas cutaneous diphtheria is not.

For many diseases, substantial amounts of information, including results of laboratory tests, must be collected before a final case classification is possible. State health departments are requested to continue reporting provisional cases to the NNDSS promptly, and records should be updated when additional surveillance information becomes available.

Surveillance demands uniformity, simplicity, and brevity. These case definitions are intended to establish uniform criteria for disease reporting; they should not be used as sole criteria for establishing clinical diagnoses, determining the standard of care necessary for a particular patient, setting guidelines for quality assurance, providing standards for reimbursement, or initiating public health actions. Use of additional clinical, epidemiologic, and laboratory data may enable a physician to diagnose a disease even though the surveillance case definition may not be met. For example, an adolescent with bilateral orchitis who attends a school in which a mumps outbreak is occurring would not meet the surveillance case definition for mumps unless the mumps virus was isolated. However, clinical judgment would suggest that in this situation, viral isolation is not necessary.

As knowledge increases and diagnostic technology improves, some definitions will change to reflect those trends. For example, many cases of non-A, non-B hepatitis are due to the recently described hepatitis C virus (*4*). Therefore, revisions, additions, and deletions can be expected in the future.

DEFINITION OF TERMS USED IN CASE CLASSIFICATION

Confirmed case: a case that is classified as confirmed for reporting purposes.

Probable case: a case that is classified as probable for reporting purposes.

Laboratory-confirmed case: a case that is confirmed by one or more of the laboratory methods listed in the case definition under "Laboratory criteria for diagnosis." Although other laboratory methods may be used in clinical diagnosis, only those listed are accepted for laboratory confirmation for reporting purposes.

Clinically compatible case: a clinical syndrome generally compatible with the disease, but no specific clinical criteria need to be met unless they are noted in the case classification.

Supportive laboratory results: specified laboratory results consistent with the diagnosis but not meeting the criteria for laboratory confirmation.

Epidemiologically linked case: a case in which the patient has/has had contact with one or more persons who have/had the disease, and transmission of the agent by the usual modes of transmission is plausible. 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.

Meets the clinical case definition: meets precisely the clinical case definition. Although in clinical practice the diagnosis may be made with the use of other criteria, for reporting purposes the stated criteria must be met.

CASE DEFINITIONS

Acquired Immunodeficiency Syndrome (AIDS)

Surveillance case definitions for acquired immunodeficiency syndrome (AIDS) and human immunodeficiency virus (HIV) infection have been previously published in:

CDC. Revision of the CDC surveillance case definition for acquired immunodeficiency syndrome. *MMWR* 1987;36(no. 1S).

Case classification systems have also been published in:

CDC. Classification system for human T-lymphotropic virus type III/ lymphadenopathy-associated virus infections. *MMWR* 1986;35:334-9.

CDC. Classification system for human immunodeficiency virus (HIV) infection in children under 13 years of age. *MMWR* 1987;36:225-30,235.

Amebiasis

Clinical description

Infection of the large intestine by *Entamoeba histolytica* may result in an illness of variable severity, ranging from mild, chronic diarrhea to fulminant dysentery. Infection may also be asymptomatic.

Extraintestinal infection may also occur. The most common is hepatic abscess.

Laboratory criteria for diagnosis

Intestinal amebiasis

- Demonstration of cysts or trophozoites of *E. histolytica* in stool, or
- Demonstration of trophozoites in tissue biopsy or ulcer scrapings by culture or histopathology

Extraintestinal amebiasis

- Demonstration of *E. histolytica* trophozoites in extraintestinal tissue

Case classification

Confirmed, intestinal amebiasis: a clinically compatible illness that is laboratory confirmed

Confirmed, extraintestinal amebiasis: a parasitologically confirmed infection of extraintestinal tissue; or among symptomatic persons with clinical and/or radiographic findings consistent with extraintestinal infection, demonstration of specific antibody against *E. histolytica*, as measured by indirect hemagglutination (IHA) or other reliable immunodiagnostic test such as enzyme-linked immunosorbent assay (ELISA).

Comment

Asymptomatic intestinal carriage of *E. histolytica* should not be reported. Among asymptomatic persons, a positive serologic test does not necessarily indicate extraintestinal amebiasis.

Anthrax

Clinical description

An illness with acute onset characterized by several distinct clinical forms including:

- Cutaneous (a skin lesion evolving over 2 to 6 days from a papule, through a vesicular stage, to a depressed black eschar)
- Inhalation (a brief prodrome resembling a viral respiratory illness followed by development of hypoxia and dyspnea, with x-ray evidence of mediastinal widening)
- Intestinal (severe abdominal distress followed by fever and signs of septicemia)
- Oropharyngeal (mucosal lesion in the oral cavity or oropharynx, cervical adenopathy and edema, and fever)

Laboratory criteria for diagnosis

- Isolation of *Bacillus anthracis* from a clinical specimen, or
- Fourfold or greater rise in either the anthrax enzyme-linked immunosorbent assay (ELISA) or electrophoretic immunotransblot (EITB) titer between acute- and convalescent-phase serum specimens obtained ≥2 weeks apart, or
- Anthrax ELISA titer ≥64 or an EITB reaction to the protective antigen and/or lethal factor bands in one or more serum samples obtained after onset of symptoms, or
- Demonstration of *B. anthracis* in a clinical specimen by immunofluorescence

Case classification

Confirmed: a clinically compatible illness that is laboratory confirmed

Aseptic Meningitis

Clinical description

A syndrome characterized by acute onset of meningeal symptoms, fever, and cerebrospinal fluid pleocytosis, with bacteriologically sterile cultures. (See **Encephalitis, Arboviral**.)

Laboratory criteria for diagnosis

- No evidence of bacterial or fungal meningitis

Case classification

Confirmed: a clinically compatible illness diagnosed by a physician as aseptic meningitis, with no laboratory evidence of bacterial or fungal meningitis

Comment

Aseptic meningitis is a syndrome of multiple etiologies, but many cases are caused by a viral agent.

Botulism, Foodborne

Clinical description

Ingestion of botulinal toxin results in an illness of variable severity. Common symptoms are diplopia, blurred vision, and bulbar weakness. Symmetric paralysis may progress rapidly. (See *CDC Botulism Manual.)*

Laboratory criteria for diagnosis

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

Case classification

Confirmed: a clinically compatible illness that is laboratory confirmed or that occurs among persons who ate the same food as persons with laboratory-confirmed botulism

Comment

Botulism may be diagnosed without laboratory confirmation if the clinical and epidemiologic evidence is overwhelming.

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. (See *CDC Botulism Manual*.)

Laboratory criteria for diagnosis

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

Case classification

Confirmed: a clinically compatible, laboratory-confirmed illness occurring among children <1 year of age

Botulism, Wound

Clinical description

An illness resulting from toxin produced by *Clostridium botulinum* that has infected a wound. (See *CDC Botulism Manual*.)

Laboratory criteria for diagnosis

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

Case classification

Confirmed: a clinically compatible illness that is laboratory confirmed among patients with no suspect food exposure and with a history of a fresh, contaminated wound in the 2 weeks before onset of symptoms

Botulism, Other

Clinical description

See **Botulism, Foodborne**.

Laboratory criteria for diagnosis

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

Case classification

Confirmed: an illness clinically compatible with botulism that is laboratory confirmed among patients >11 months of age, without histories of ingestion of suspect food, and without wounds

Brucellosis

Clinical description

An illness characterized by acute or insidious onset of fever, night sweats, undue fatigue, anorexia, weight loss, headache, and arthralgia

Laboratory criteria for diagnosis

- Isolation of *Brucella* sp. from a clinical specimen, or
- Fourfold or greater rise in *Brucella* agglutination titer between acute- and convalescent-phase serum specimens obtained ≥2 weeks apart and studied at the same laboratory, or
- Demonstration of *Brucella* sp. in a clinical specimen by immunofluorescence

Case classification

Probable: a clinically compatible case that is epidemiologically linked to a confirmed case or that has supportive serology (i.e., *Brucella* agglutination titer of ≥160 in one or more serum specimens obtained after onset of symptoms)

Confirmed: a clinically compatible illness that is laboratory confirmed

Campylobacter Infection

Clinical description

Infection that may result in diarrheal illness of variable severity

Laboratory criteria for diagnosis

- Isolation of *Campylobacter* from any clinical specimen

Case classification

Probable: a clinically compatible illness that is epidemiologically linked to a confirmed case

Confirmed: a case that is laboratory confirmed

Comment

Only confirmed cases are reported to the laboratory-based surveillance system operated by the Enteric Diseases Branch, Center for Infectious Diseases, CDC. States collecting data on *Campylobacter* infection may wish to collect reports of

both probable and confirmed cases, but the data are not currently published in the *MMWR.*

Chancroid

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 one or more painful genital ulcers and both a) no evidence of *Treponema pallidum* infection by darkfield examination of ulcer exudate or by a serologic test for syphilis performed at least 7 days after onset of ulcers, and b) the clinical presentation of the ulcer(s) is not typical of disease caused by herpes simplex virus (HSV), or HSV culture is negative

Confirmed: a case that is laboratory confirmed

Chlamydia trachomatis Infection

Clinical description

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

Laboratory criteria for diagnosis

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

Case classification

Confirmed: a case that is laboratory confirmed

Cholera

Clinical description

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

Laboratory criteria for diagnosis

- Isolation of toxigenic (cholera toxin-producing) *Vibrio cholerae* 01 from stool or vomitus, or
- Significant rise in vibriocidal or antitoxic antibodies in acute- and early convalescent-phase sera, or
- Significant fall in vibriocidal antibodies in early and late convalescent-phase sera among persons not recently vaccinated

Case classification

Confirmed: a clinically compatible illness that is laboratory confirmed

Comment

When other cases are known to be occurring, a less than fourfold rise in titer between acute- and convalescent-phase serum may be considered significant. Likewise, a less than fourfold fall between early and late convalescent-phase sera may be important in these circumstances. Only confirmed cases should be reported to the NNDSS. Illnesses due to strains of *V. cholerae* other than toxigenic *V. cholerae* 01 should not be reported as cases of cholera.

Dengue Fever

Clinical description

An acute febrile illness characterized by frontal headache, retro-ocular pain, muscle and joint pain, and rash. The disease is transmitted by the *Aedes aegypti* mosquito and is confined to the tropics. Severe manifestations (dengue hemorrhagic fever and dengue shock syndrome) are rare, but may be fatal.

Laboratory criteria for diagnosis

- Isolation of dengue virus from serum and/or autopsy tissue samples, or
- Demonstration of a fourfold or greater rise or fall in reciprocal IgG or IgM antibody titers in paired serum samples to one or more dengue virus antigens, or
- Demonstration of dengue virus antigen in autopsy tissue samples by immunofluorescence or by hybridization probe

Case classification

Probable: a clinically compatible illness with supportive serology (a reciprocal IgG antibody titer of ≥1280 or a positive IgM antibody test on a single convalescent-phase serum specimen to one or more dengue virus antigens)

Confirmed: a case that is laboratory confirmed

Comment

Dengue hemorrhagic fever is defined as acute onset of fever with nonspecific symptoms. This is followed by hemorrhagic manifestations that may include a positive tourniquet test* and/or minor or major bleeding phenomena, thrombocytopenia (100,000/mm^3), and hemoconcentration (hematocrit increased by ≥20%), or other objective evidence of increasing capillary permeability; or decreasing hematocrit after severe frank hemorrhage, such as upper gastrointestinal bleeding.

The definition for dengue shock syndrome follows all of the above criteria for dengue hemorrhagic fever and also includes hypotension or narrow pulse pressure (<20 mm Hg).

Diphtheria

Clinical case definition

An upper respiratory tract illness characterized by sore throat, low-grade fever, and an adherent membrane of the tonsil(s), pharynx, and/or nose without other apparent cause (as reported by a health professional)

Laboratory criteria for diagnosis

- Isolation of *Corynebacterium diphtheriae* from a clinical specimen

Case classification

Probable: meets the clinical case definition, is not laboratory confirmed, and is not epidemiologically linked to a laboratory-confirmed case

Confirmed: meets the clinical case definition and is either laboratory confirmed or epidemiologically linked to a laboratory-confirmed case

Comment

Cutaneous diphtheria should not be reported.

Encephalitis, Arboviral

Clinical description

Arboviral infection may result in a febrile illness of variable severity associated with neurologic symptoms ranging from headache to aseptic meningitis or encephalitis. Arboviral encephalitis cannot be distinguished clinically from infection with other neurotropic viruses. Symptoms may include headache, confusion or other alterations in sensorium, nausea, or vomiting. Signs may include evidence of elevated intracranial pressure or meningeal irritation, cranial nerve palsies, paresis or paralysis, altered reflexes, or convulsions. (See **Aseptic Meningitis** and **Encephalitis, Primary**.)

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*Standard method (Wintrobe, 1967) utilizes a blood-pressure cuff to impede venous flow. A test is considered positive if there are ≥20 petechiae/$inch^2$.

Laboratory criteria for diagnosis

- Fourfold or greater rise in serum antibody titer, or
- Isolation of virus from or demonstration of viral antigen in tissue, blood, cerebrospinal fluid (CSF), or other body fluid, or
- Specific IgM antibody in CSF

Case classification

Probable: a clinically compatible illness occurring during a period when arbovirus transmission is likely to occur, and with the following supportive serology: a stable (twofold or greater change) elevated antibody titer to an arbovirus, e.g., ≥320 by hemagglutination inhibition, ≥128 by complement fixation, ≥256 by immunofluorescence, ≥160 by neutralization, or a positive serologic result by enzyme immunoassay (EIA)

Confirmed: a clinically compatible illness that is laboratory confirmed

Comment

The time of year in which arboviral transmission is likely to occur depends on the geographic location of exposure, the specific cycle of virus transmission, and local climatic conditions.

Arboviruses causing encephalitis include the following:

- St. Louis encephalitis
- Western equine encephalitis
- Eastern equine encephalitis
- California encephalitis (includes infections from the following viruses: LaCrosse, Jamestown Canyon, Snowshoe Hare, Trivittatus, and California viruses)
- Powassan encephalitis
- Other central nervous system infections transmitted by mosquitos, ticks, or midges (Venezuelan equine encephalitis, Cache Valley encephalitis)

Encephalitis, Postinfectious (or Parainfectious)

Clinical description

Encephalitis or meningoencephalitis that follows or occurs in combination with other viral illnesses that are not central nervous system illnesses, or after vaccine is administered. Symptoms may be due to hypersensitivity reaction. Primary encephalitis is excluded.

Case classification

Confirmed: a clinically compatible illness diagnosed by a physician as postinfectious (or parainfectious) encephalitis

Comment

Laboratory studies are important in clinical diagnosis but are not required for reporting purposes.

Encephalitis, Primary

Clinical description

An illness in which encephalitis is the major manifestation. Symptoms are due to direct invasion and replication of the infectious agent in the central nervous system, resulting in objective clinical evidence of cerebral or cerebellar dysfunction. Postinfectious (or parainfectious) encephalitis is excluded.

Case classification

Confirmed: a clinically compatible illness diagnosed by a physician as primary encephalitis

Comment

Laboratory studies are important in clinical diagnosis but are not required for reporting purposes.

Primary encephalitis is a category used for reporting to the NNDSS. This category includes arboviral encephalitis and primary encephalitis of unspecified cause.

Foodborne Disease Outbreak

Clinical description

Symptoms of illness depend upon etiologic agent. (See *Guidelines for Confirmation of Foodborne and Waterborne Disease Outbreaks*, in press.)

Laboratory criteria for diagnosis

Depends upon etiologic agent. (See *Guidelines for Confirmation of Foodborne and Waterborne Disease Outbreaks*, in press.)

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 constitutes an outbreak.

Genital Herpes (Herpes Simplex Virus)

Clinical description

An illness characterized by visible, painful genital or anogenital lesions

Laboratory criteria for diagnosis

- Isolation of herpes simplex virus from cervix, urethra, or anogenital lesion, or
- Demonstration of virus by antigen detection technique in clinical specimens from cervix, urethra, or anogenital lesion, or
- Demonstration of multinucleated giant cells on a Tzanck smear of scrapings from an anogenital lesion

Case classification

Probable: a clinically compatible case (in which primary and secondary syphilis have been ruled out by serology and darkfield microscopy, when available) with either a diagnosis of genital herpes based on clinical presentation (without laboratory confirmation) or a history of one or more previous episodes of similar genital lesions

Confirmed: a clinically compatible case that is laboratory confirmed

Comment

Herpes should be reported only once per patient. The first diagnosis for a patient with no previous diagnosis should be reported.

Genital Warts

Clinical description

An infection characterized by the presence of visible, exophytic (raised) growths on the internal or external genitalia, perineum, or perianal region

Laboratory criteria for diagnosis

- Histopathologic changes characteristic of human papillomavirus (HPV) infection on biopsy or exfoliative cytology

Case classification

Probable: a clinically compatible case without histopathologic diagnosis and without microscopic or serologic evidence that the growth is due to secondary syphilis

Confirmed: a clinically compatible case that is laboratory confirmed

Giardiasis

Clinical description

An illness caused by the protozoan *Giardia lamblia* and characterized by diarrhea, abdominal cramps, bloating, weight loss, or malabsorption. Infected persons may be asymptomatic.

Laboratory criteria for diagnosis

- Demonstration of *G. lamblia* cysts in stool, or
- Demonstration of *G. lamblia* trophozoites in stool, duodenal fluid, or small bowel biopsy, or
- Demonstration of *G. lamblia* antigen in stool by a specific immunodiagnostic test such as enzyme-linked immunosorbent assay (ELISA)

Case classification

Confirmed, symptomatic: a laboratory-confirmed case associated with one or more of the symptoms described above

Confirmed, asymptomatic: a laboratory-confirmed case associated with none of the above symptoms

Gonorrhea

Clinical description

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

Laboratory criteria for diagnosis

- Isolation of *Neisseria gonorrhoeae* from a clinical specimen, or
- Observation of gram-negative intracellular diplococci in a urethral smear obtained from a man

Case classification

Probable: demonstration of gram-negative intracellular diplococci in an endocervical smear obtained from a woman, or a written (morbidity) report of gonorrhea submitted by a physician

Confirmed: a case that is laboratory confirmed

Granuloma Inguinale

Clinical description

A slowly progressive ulcerative disease of the skin and lymphatics of the genital and perianal area caused by infection with *Calymmatobacterium granulomatis*. A clinically compatible case would have one or more painless or minimally painful granulomatous lesions in the anogenital area.

Laboratory criteria for diagnosis

- Demonstration of intracytoplasmic Donovan bodies in Wright or Giemsa-stained smears or biopsies of granulation tissue

Case classification

Confirmed: a clinically compatible case that is laboratory confirmed

Haemophilus influenzae (Invasive Disease)

Clinical description

Invasive disease due to *Haemophilus influenzae* may produce any of several clinical syndromes, including meningitis, bacteremia, epiglottitis, or pneumonia

Laboratory criteria for diagnosis

- Isolation of *H. influenzae* from a normally sterile site

Case classification

Probable: a clinically compatible illness with detection of *H. influenzae* type b antigen in cerebrospinal fluid

Confirmed: a clinically compatible illness that is culture confirmed

Comment

Antigen test results in urine or serum are unreliable for diagnosis of *H. influenzae* disease.

Hansen Disease

Clinical description

A chronic bacterial disease characterized by the involvement of mainly skin, peripheral nerves, and the mucosa of the upper airway. Clinical forms of Hansen disease represent a spectrum reflecting the cellular immune response to *Mycobacterium leprae*. Typical of the major forms of the disease are the following characteristics:

- 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 may also 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.

Hepatitis, Viral

Clinical case definition

An illness with a) discrete onset of symptoms and b) jaundice or elevated serum aminotransferase levels

Laboratory criteria for diagnosis

- Hepatitis A: IgM anti-HAV-positive
- Hepatitis B: IgM anti-HBc-positive (if done) or HBsAg-positive, and IgM anti-HAV-negative (if done)
- Non-A, Non-B Hepatitis:
  1. IgM anti-HAV-negative, and
  2. IgM anti-HBc-negative (if done) or HBsAg-negative, and
  3. Serum aminotransferase levels >2 1/2 times the upper limit of normal
- Delta Hepatitis: HBsAg- or IgM anti-HBc-positive and anti-HDV-positive

Case classification

Confirmed: a case that meets the clinical case definition and is laboratory confirmed

Comment

A serologic test for IgG antibody to the recently described hepatitis C virus is available, and many cases of non-A, non-B hepatitis may be demonstrated to be due to infection with the hepatitis C virus. With this assay, however, a prolonged interval between onset of disease and detection of antibody may occur. Until a more specific test for acute hepatitis C becomes available, these cases should be reported as non-A, non-B hepatitis. Chronic carriage or chronic hepatitis should not be reported.

Kawasaki Syndrome

Clinical case definition

A febrile illness of ≥5 days' duration, with at least four of the five following physical findings and no other more reasonable explanation for the observed clinical findings:

- Bilateral conjunctival injection
- Oral changes (erythema of lips or oropharynx, strawberry tongue, or fissuring of the lips)
- Peripheral extremity changes (edema, erythema, or generalized or periungual desquamation)
- Rash
- Cervical lymphadenopathy (at least one lymph node ≥1.5 cm in diameter)

Laboratory criteria for diagnosis

None

Case classification

Confirmed: a case that meets the clinical case definition

Comment

If fever disappears after intravenous gamma globulin therapy is started, fever may be of <5 days' duration, and the clinical case definition may still be met.

Legionellosis (Legionnaire's Disease)

Clinical description

An illness with acute onset, commonly characterized by fever, cough, and pneumonia that is confirmed by chest radiograph. Encephalopathy and diarrhea may also be included.

Laboratory criteria for diagnosis

- Isolation of *Legionella* from lung tissue, respiratory secretions, pleural fluid, blood, or other normally sterile sites, or
- Demonstration of a fourfold or greater rise in the reciprocal immunofluorescence (IF) antibody titer to ≥128 against *Legionella pneumophila* serogroup 1, or
- Demonstration of *L. pneumophila* serogroup 1 in lung tissue, respiratory secretions, or pleural fluid by direct fluorescence antibody testing, or
- Demonstration of *L. pneumophila* serogroup 1 antigens in urine by radioimmunoassay

Case classification

Probable: a clinically compatible illness with demonstration of a reciprocal antibody titer ≥256 from a single convalescent-phase serum specimen

Confirmed: a case that is laboratory confirmed

Leptospirosis

Clinical description

An illness characterized by fever, headache, chills, myalgia, conjunctival suffusion, and less frequently by meningitis, rash, jaundice, or renal insufficiency. Symptoms may be biphasic.

Laboratory criteria for diagnosis

- Isolation of *Leptospira* from a clinical specimen, or
- Fourfold or greater increase in *Leptospira* agglutination titer between acute- and convalescent-phase serum specimens obtained ≥2 weeks apart and studied at the same laboratory, or
- Demonstration of *Leptospira* in a clinical specimen by immunofluorescence

Case classification

Probable: A clinically compatible case with supportive serology (i.e. a *Leptospira* agglutination titer of ≥200 in one or more serum specimens)

Confirmed: a clinically compatible case that is laboratory confirmed

Listeriosis

Clinical description

Infection caused by *Listeria monocytogenes*, which may produce any of several clinical syndromes, including stillbirths, listeriosis of the newborn, meningitis, bacteremia, or localized infections

Laboratory criteria for diagnosis

- Isolation of *L. monocytogenes* from a normally sterile site

Case classification

Confirmed: a clinically compatible case that is laboratory confirmed

Lyme Disease

Clinical description

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

Clinical case definition

- Erythema migrans, or
- At least one late manifestation, as defined below, and laboratory confirmation of infection

Laboratory criteria for diagnosis

- Isolation of *Borrelia burgdorferi* from clinical specimen, or
- Demonstration of diagnostic levels of IgM and IgG antibodies to the spirochete in serum or CSF, or
- Significant change in IgM or IgG antibody response to *B. burgdorferi* in paired acute- and convalescent-phase serum samples

Case classification

Confirmed: a case that meets one of the clinical case definitions above

Comment

This surveillance case definition was developed for national reporting of Lyme disease; it is NOT appropriate for clinical diagnosis.

Definition of terms used in the clinical description and case definition:

A. Erythema migrans (EM)

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 solitary lesion must reach at least 5 cm in size. Secondary lesions may also 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, mild 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.

B. Late manifestations

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 showing antibody production against *B. burgdorferi* in the cerebrospinal fluid (CSF), demonstrated by a higher titer of antibody in CSF than in serum. Headache, fatigue, paresthesia, or mild stiff neck alone are not criteria for neurologic involvement.

- Cardiovascular system

  Acute onset, high-grade (2° or 3°) 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.

C. Exposure

Exposure is defined as having been in wooded, brushy, or grassy areas (potential tick habitats) in a county in which Lyme disease is endemic no more than 30 days before onset of EM. A history of tick bite is NOT required.

D. Disease endemic to county

A county in which Lyme disease is endemic is one in which at least two definite cases have been previously acquired or in which a known tick vector has been shown to be infected with *B. burgdorferi*

E. Laboratory confirmation

As noted above, laboratory confirmation of infection with *B. burgdorferi* is established when a laboratory isolates the spirochete from tissue or body fluid, detects diagnostic levels of IgM or IgG antibodies to the spirochete in serum or CSF, or detects a significant change in antibody levels in paired acute- and convalescent-phase serum samples. States may determine the criteria for laboratory confirmation and diagnostic levels of antibody. Syphilis and other known causes of biologic false-positive serologic test results should be excluded when laboratory confirmation has been based on serologic testing alone.

Lymphogranuloma Venereum Infection

Clinical description

Infection with L_1, L_2, or, L_3 serovars of *Chlamydia trachomatis* may result in a disease characterized by genital lesions, suppurative regional lymphadenopathy, or hemorrhagic proctitis. The infection is usually sexually transmitted.

Laboratory criteria for diagnosis

- Isolation of *C. trachomatis*, serotype L_1, L_2, or L_3, from clinical specimen, or
- Demonstration of inclusion bodies by immunofluorescence in leukocytes of an inguinal lymph node (bubo) aspirate, or
- Positive microimmunofluorescent serologic test for a lymphogranuloma venereum strain of *C. trachomatis* (in a clinically compatible case)

Case classification

Probable: a clinically compatible case with one or more tender fluctuant inguinal lymph nodes or characteristic proctogenital lesions with supportive laboratory findings of a single *C. trachomatis* complement fixation (CF) titer of >64

Confirmed: a case that is laboratory confirmed

Malaria

Clinical description

Signs and symptoms are variable, but chills followed by fever and sweating constitute the classic malaria paroxysm. The diagnosis should be considered for any person who has been exposed to infection. Complications such as cerebral malaria

may occur in *Plasmodium falciparum* infection. Asymptomatic parasitemia may occur among immune persons.

Laboratory criteria for diagnosis

- Demonstration of malaria parasites in blood films

Case classification

Confirmed: a person's first attack of laboratory-confirmed malaria that occurs in the United States, regardless of whether the person has experienced previous attacks of malaria while outside the country

Comment

A subsequent attack experienced by the same person but caused by a different *Plasmodium* species is counted as an additional case. A repeated attack experienced by the same person and caused by the same species in the United States is not considered an additional case.

Blood smears from doubtful cases should be referred to the National Malaria Repository, CDC, for confirmation of the diagnosis.

In addition, cases 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 (the United States and its territories)

Induced: malaria acquired through artificial means (e.g., blood transfusion, common syringes, or malariotherapy)

Relapsing: renewed manifestation (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 due to the normal periodicity of the paroxysms

Cryptic: an isolated case of malaria not associated with secondary cases, as determined by appropriate epidemiologic investigations

Measles

Clinical case definition

An illness characterized by all of the following clinical features:

- a generalized rash lasting ≥3 days

- a temperature ≥38.3 C (101 F)
- cough, or coryza, or conjunctivitis

Laboratory criteria for diagnosis

- Isolation of measles virus from a clinical specimen, or
- Significant rise in measles antibody level by any standard serologic assay, or
- Positive serologic test for measles IgM antibody

Case classification

Suspect: any rash illness with fever

Probable: meets the clinical case definition, has no or noncontributory serologic or virologic testing, and is not epidemiologically linked to a probable or confirmed case

Confirmed: a case that is laboratory confirmed or that meets the clinical case definition and is epidemiologically linked to a confirmed or probable case. A laboratory-confirmed case does not need to meet the clinical case definition.

Comment

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

Meningococcal Disease

Clinical description

Meningococcal disease presents most commonly as meningitis and/or meningococcemia that may progress rapidly to purpura fulminans, shock, and death. However, other manifestations may be observed.

Laboratory criteria for diagnosis

- Isolation of *Neisseria meningitidis* from a normally sterile site

Case classification

Probable: a positive antigen test in cerebrospinal fluid or clinical purpura fulminans in the absence of a positive blood culture

Confirmed: a clinically compatible case that is culture confirmed

Comment

Antigen test results in urine or serum are unreliable for diagnosing meningococcal disease.

Mucopurulent Cervicitis

Clinical description

Cervical inflammation that is not the result of infection with *Neisseria gonorrhoeae* or *Trichomonas vaginalis*. Cervical inflammation is defined by the presence of one of the following criteria:

- Mucopurulent secretion (from the endocervix) that is yellow or green when viewed on a white, cotton-tipped swab (positive swab test)
- Induced endocervical bleeding (bleeding when the first swab is placed in the endocervix)

Laboratory criteria for diagnosis

- No evidence of *N. gonorrhoeae* infection by culture or Gram stain and no evidence of *T. vaginalis* on wet mount

Case classification

Confirmed: a clinically compatible case among females for whom gonorrhea and trichomonas infection are not found

Comment

Mucopurulent cervicitis (MPC) is a clinical diagnosis of exclusion. The syndrome may result from infection with several agents (see ***Chlamydia trachomatis* Infection**). If gonorrhea, trichomoniasis, and chlamydia are excluded, a clinically compatible case should be classified as MPC. An illness among women that meets the case definition of MPC and *Chlamydia trachomatis* infection should be classified as chlamydia.

Mumps

Clinical case definition

An illness with acute onset of unilateral or bilateral tender, self-limited swelling of the parotid or other salivary gland, lasting ≥2 days, and without other apparent cause (as reported by a health professional)

Laboratory criteria for diagnosis

- Isolation of mumps virus from clinical specimen, or
- Significant rise in mumps antibody level by any standard serologic assay, or
- Positive serologic test for mumps IgM antibody

Case classification

Probable: meets the clinical case definition, has no or noncontributory serologic or virologic testing, and is not epidemiologically linked to a confirmed or probable case

Confirmed: a case that is laboratory confirmed or that meets the clinical case definition and is epidemiologically linked to a confirmed or probable case. A laboratory-confirmed case does not need to meet the clinical case definition.

Comment

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

Nongonococcal Urethritis

Clinical description

Urethral inflammation that is not the result of infection with *Neisseria gonorrhoeae*. Urethral inflammation may be diagnosed by the presence of one of the following criteria:

- A visible abnormal urethral discharge (excludes scant amounts of clear mucus)
- A positive leukocyte esterase test from men <60 years of age without a history of kidney disease or bladder infection, prostate enlargement, urogenital anatomic anomaly, or recent urinary tract instrumentation
- Microscopic evidence of urethritis (≥5 WBC per high-power field) on a Gram stain of a urethral smear

Laboratory criteria for diagnosis

- No evidence of *N. gonorrhoeae* infection by culture or Gram stain

Case classification

Confirmed: a clinically compatible case among males in whom gonorrhea is not found, either by culture or Gram stain

Comment

Nongonococcal urethritis (NGU) is a clinical diagnosis of exclusion. The syndrome may result from infection with several agents (see ***Chlamydia trachomatis* Infection)**. A clinically compatible case excluding gonorrhea and chlamydia should be classified as NGU. An illness among men that meets the case definition of NGU and *C. trachomatis* infection should be classified as chlamydia.

Pelvic Inflammatory Disease

(NOTE: *The following definition is being reviewed by CSTE and CDC, and changes are anticipated*.)

Clinical case definition

A clinical syndrome resulting from the ascending spread of microorganisms from the vagina and endocervix to the endometrium, fallopian tubes, and/or contiguous structures. All of the following clinical criteria must be present:

- Abdominal direct tenderness
- Tenderness with motion of the cervix
- Adnexal tenderness

In addition to all of the above criteria, at least one of the following findings must also be present:

- Meets the surveillance case definition of *Chlamydia trachomatis* infection or gonorrhea
- Temperature >38 C
- Leukocytosis >10,000 WBC/mm^3
- Purulent material in the peritoneal cavity obtained by culdocentesis or laparoscopy
- Pelvic abscess or inflammatory complex on bimanual examination or by sonography
- Patient is a sexual contact of a person known to have gonorrhea, chlamydia, or nongonococcal urethritis

Case classification

Confirmed: a case that meets the clinical case definition

Comment

For reporting purposes, a clinician's report of pelvic inflammatory disease should be counted as a case.

Pertussis

Clinical case definition

A cough illness lasting at least 2 weeks with one of the following: paroxysms of coughing, inspiratory "whoop," or post-tussive vomiting — and without other apparent cause (as reported by a health professional)

Laboratory criteria for diagnosis

- Isolation of *Bordetella pertussis* from clinical specimen

Case classification

Probable: meets the clinical case definition, is not laboratory confirmed, and is not epidemiologically linked to a laboratory-confirmed case

Confirmed: a clinically compatible case that is laboratory confirmed or epidemiologically linked to a laboratory-confirmed case

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). Because direct fluorescent antibody testing of nasopharyngeal secretions has been shown in some studies to have low sensitivity and variable specificity (*5,6*), it should not be relied on as a criterion for laboratory confirmation.

Both probable and confirmed cases should be reported to the NNDSS.

Plague

Clinical description

A disease characterized by fever and leukocytosis that presents 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 plague pneumonia) or inhalation of infectious droplets (primary plague pneumonia)
- Pharyngitis and cervical lymphadenitis resulting from exposure to larger infectious droplets or ingestion of infected tissues (pharyngeal plague)

Plague is transmitted to humans by fleas or by direct exposure to infected tissues or respiratory droplets.

Laboratory criteria for diagnosis

- Isolation of *Yersinia pestis* from a clinical specimen, or
- Fourfold or greater change in serum antibody to *Y. pestis*

Case classification

Probable: a clinically compatible illness with supportive laboratory results (demonstration of a single serologic test result suggestive of recent infection with no history of immunization, or demonstration of a Fraction I antigen in blood, bubo aspirate, or tissue by antigen detection—enzyme-linked immunosorbent assay (ELISA) or fluorescent assay (FA)

Confirmed: a case that is laboratory confirmed

Poliomyelitis, Paralytic

Clinical case definition

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 (as reported by a physician)

Case classification

Probable: a case that meets the clinical case definition

Confirmed: a case that meets the clinical case definition and in which the patient has a neurologic deficit 60 days after onset of initial symptoms, 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. Only confirmed cases are included in Table I in the *MMWR*. Suspected cases are enumerated in a footnote to the *MMWR* table.

Psittacosis

Clinical description

An illness characterized by fever, chills, headache, photophobia, lower or upper respiratory disease, and myalgia

Laboratory criteria for diagnosis

- Isolation of *Chlamydia psittaci* from a clinical specimen, or
- Fourfold or greater increase in psittacosis complement-fixing (CF) antibody titer (≥32) between two serum specimens obtained ≥2 weeks apart and studied at the same laboratory

Case classification

Probable: a clinically compatible illness that is epidemiologically linked to a confirmed case, or with supportive serology (i.e., a psittacosis CF titer of ≥32 in one or more serum specimens obtained after onset of symptoms)

Confirmed: a clinically compatible illness that is laboratory confirmed

Comment

The serologic findings noted above may also occur as a result of infection with *Chlamydia trachomatis* or *Chlamydia pneumoniae*.

Rabies, Animal

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

Rabies, Human

Clinical description

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

Laboratory criteria for diagnosis

- Detection by direct fluorescent antibody of viral antigens in a clinical specimen (preferably the brain or the nerves surrounding hair follicles in the nape of the neck), or
- Isolation (in cell culture or in a laboratory animal) of rabies virus from saliva, cerebrospinal fluid (CSF), or central nervous system tissue, or
- Identification of a rabies-neutralizing antibody titer ≥5 (complete neutralization) in the serum or CSF of an unvaccinated person

Case classification

Confirmed: a clinically compatible illness that is laboratory confirmed

Comment

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

Reye Syndrome

Clinical case definition

An illness that meets all of the following criteria:

- Acute, noninflammatory encephalopathy that is documented clinically by a) an alteration in consciousness and, if available, b) a record of the CSF containing ≤8 leukocytes/mm^3 or a histologic specimen demonstrating cerebral edema without perivascular or meningeal inflammation
- Hepatopathy documented by either a) a liver biopsy or an autopsy considered to be diagnostic of Reye syndrome or b) a threefold or greater increase in the levels of the serum glutamic-oxaloacetic transaminase (SGOT), serum glutamic-pyruvic transaminase (SGPT), or serum ammonia
- No more reasonable explanation for the cerebral and hepatic abnormalities

Case classification

Confirmed: a case that meets the clinical case definition

Rheumatic Fever

Clinical description

An inflammatory illness that occurs as a delayed sequel to group A streptococcal infection

Major criteria: carditis, polyarthritis, chorea, subcutaneous nodules, and erythema marginatum

Minor criteria: a) previous rheumatic fever or rheumatic heart disease, b) arthralgia, c) fever, d) elevated erythrocyte sedimentation rate, positive C-reactive protein, or leukocytosis, and e) prolonged PR interval

Laboratory criteria for diagnosis

- No specific laboratory test exists for the diagnosis of rheumatic fever.

Case classification

Confirmed: an illness characterized by a) two major criteria or one major and two minor criteria (as described above) and b) supporting evidence of preceding group A streptococcal infection (*7*)

Comment

Supporting evidence to confirm streptococcal infection includes increased antistreptolysin-O or other streptococcal antibodies, throat culture positive for group A streptococcus, or recent scarlet fever. The absence of supporting evidence of preceding streptococcal infection should make the diagnosis doubtful, except in

Sydenham chorea or low-grade carditis when rheumatic fever is first discovered after a long latent period from the antecedent infection.

Rocky Mountain Spotted Fever

Clinical description

An illness most commonly characterized by acute onset and fever, usually accompanied by myalgia, headache, and petechial rash (on the palms and soles in two-thirds of the cases)

Laboratory criteria for diagnosis

- Fourfold or greater rise in antibody titer to the spotted fever group antigen by immunofluorescent antibody (IFA), complement fixation (CF), latex agglutination (LA), microagglutination (MA), or indirect hemagglutination (IHA) test, or a single titer ≥64 by IFA or ≥16 by CF
- Demonstration of positive immunofluorescence of skin lesion (biopsy) or organ tissue (autopsy)
- Isolation of *Rickettsia rickettsii* from clinical specimen

Case classification

Probable: a clinically compatible case with supportive serology (fourfold rise in titer or a single titer ≥320 by *Proteus* OX-19 or OX-2, or a single titer ≥128 by LA, IHA, or MA test)

Confirmed: a case that is laboratory confirmed

Rubella

Clinical case definition

An illness with all of the following characteristics:

- Acute onset of generalized maculopapular rash
- Temperature >37.2 C (>99 F), if measured
- Arthralgia/arthritis, or lymphadenopathy, or conjunctivitis

Cases meeting the measles case definition are excluded. Also excluded are cases with serology compatible with recent measles virus infection.

Laboratory critera for diagnosis

- Isolation of rubella virus, or
- Significant rise in rubella antibody level by any standard serologic assay, or

- Positive serologic test for rubella IgM antibody

Case classification

Suspect: any generalized rash illness of acute onset

Probable: a case that meets the clinical case definition, has no or noncontributory serologic or virologic testing, and is not epidemiologically linked to a laboratory-confirmed case

Confirmed: a case that is laboratory confirmed or that meets the clinical case definition and is epidemiologically linked to a laboratory-confirmed case

Rubella Syndrome, Congenital

Clinical description

An illness of newborns resulting from rubella infection *in utero* and characterized by symptoms from the following categories:

(A) Cataracts/congenital glaucoma, congenital heart disease, loss of hearing, pigmentary retinopathy

Associated symptoms may be:

(B) Purpura, splenomegaly, jaundice, microcephaly, mental retardation, meningoencephalitis, radiolucent bone disease

Clinical case definition

Presence of any defects or laboratory data consistent with congenital rubella infection (as reported by a health professional)

Laboratory criteria for diagnosis

- Isolation of rubella virus, or
- Demonstration of rubella-specific IgM antibody, or
- An infant's rubella antibody level that persists above and beyond that expected from passive transfer of maternal antibody (i.e., rubella HI titer that does not drop at the expected rate of a twofold dilution per month)

Case classification

Possible: a case with some compatible clinical findings but not meeting the criteria for a compatible case

Compatible: a case that is not laboratory confirmed and that has any two complications listed in (A) above, or one complication from (A) and one from (B)

Confirmed: a clinically compatible case that is laboratory confirmed

Comment

In compatible cases, either or both of the eye-related findings (cataracts and congenital glaucoma) count as a single complication.

Salmonellosis

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

- Isolation of *Salmonella* from a clinical specimen

Case classification

Probable: a clinically compatible illness that is epidemiologically linked to a confirmed case

Confirmed: a case that is laboratory confirmed

Comment

Both probable and confirmed cases are reported to the NNDSS, but only confirmed cases are reported to the laboratory-based surveillance system operated by the Enteric Diseases Branch, Center for Infectious Diseases, CDC. Both asymptomatic infections and infections at sites other than the gastrointestinal tract, if laboratory confirmed, are considered confirmed cases.

Shigellosis

Clinical description

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

Laboratory criteria for diagnosis

- Isolation of *Shigella* from a clinical specimen

Case classification

Probable: a clinically compatible illness that is epidemiologically linked to a confirmed case

Confirmed: a case that is laboratory confirmed

Comment

Both probable and confirmed cases are reported to the NNDSS, but only confirmed cases are reported to the laboratory-based surveillance system operated by the Enteric Diseases Branch, Center for Infectious Diseases, CDC. Confirmation is based on laboratory findings, and clinical illness is not required.

Spinal Cord Injury

Clinical case definition

An acute traumatic lesion of the neural elements in the spinal canal, resulting in temporary or permanent sensory deficit, motor deficit, or bowel/bladder dysfunction

Case classification

Confirmed: a case that meets the clinical case definition

Syphilis

Syphilis is a complex, sexually transmitted disease with 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.

Primary Syphilis

Clinical description

The characteristic lesion of primary syphilis is the chancre, but atypical primary lesions may occur.

Laboratory criteria for diagnosis

- Demonstration of *Treponema pallidum* in clinical specimens by darkfield, fluorescent antibody, or equivalent microscopic methods

Case classification

Probable: a clinically compatible case with one or more ulcers (chancres) consistent with primary syphilis and a reactive serologic test

Confirmed: a clinically compatible case that is laboratory confirmed

Secondary Syphilis

Clinical description

A stage of infection due to *Treponema pallidum*, characterized by localized or diffuse mucocutaneous lesions and generalized lymphadenopathy. Constitutional

symptoms are common, and clinical manifestations are protean. The primary chancre may still be present.

Laboratory criteria for diagnosis

- Demonstration of *T. pallidum* in clinical specimens by darkfield, fluorescent antibody, or equivalent microscopic methods

Case classification

Probable: a clinically compatible case with a reactive nontreponemal (VDRL, RPR) test titer of ≥4

Confirmed: a clinically compatible case that is laboratory confirmed

Latent Syphilis

Clinical description

A stage of infection due to *Treponema 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 syphilis categories based upon the length of elapsed time from initial infection.

Case classification

Presumptive: no clinical signs or symptoms of syphilis and the presence of one of the following:

- No past diagnosis of syphilis and a reactive nontreponemal test, and a reactive treponemal (fluorescent treponemal antibody-absorbed [FTA-ABS], microhemagglutination assay for antibody to *Treponema pallidum* [MHA-TP]) test
- A past history of syphilis therapy and a current nontreponemal test titer demonstrating fourfold or greater increase from the last nontreponemal test titer

Early Latent Syphilis

Clinical description

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

Case classification

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

- A nonreactive serologic test for syphilis or a nontreponemal titer that has dropped fourfold within the past 12 months

- A history of symptoms consistent with primary or secondary syphilis without a history of subsequent treatment in the past 12 months
- A history of sexual exposure to a partner with confirmed or presumptive primary or secondary syphilis, or presumptive early latent syphilis, and no history of treatment in the past 12 months
- Reactive nontreponemal and treponemal tests from an individual whose only possible exposure occurred within the preceding 12 months

Late Latent Syphilis

Clinical description

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

Case classification

Presumptive: latent syphilis (see above) of a patient who shows no evidence of having acquired the disease within the past 12 months (see **Early Latent Syphilis**) and whose age and titer do not meet the criteria specified for unknown latent syphilis

Unknown Latent Syphilis

Clinical description

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

Case classification

Presumptive: latent syphilis (see above) that does not meet the criteria for early latent syphilis, and the patient is 13–35 years of age with a nontreponemal test serologic titer of ≥32

Neurosyphilis

Clinical description

Evidence of CNS infection with *Treponema pallidum*

Laboratory criteria for diagnosis

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

Case classification

Presumptive: syphilis of any stage, a negative VDRL in CSF, and both of 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

Congenital Syphilis

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 (<2 years) may have signs such as hepatosplenomegaly, characteristic skin rash, condyloma lata, snuffles, jaundice (non-viral hepatitis), pseudoparalysis, anemia, or edema (nephrotic syndrome and/or malnutrition). An older child may have stigmata such as 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

Presumptive: the infection of an infant whose mother had untreated or inadequately treated* syphilis at delivery, regardless of signs in the infant; or the infection of 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 long bone x-ray
- A reactive cerebrospinal fluid (CSF) VDRL
- An elevated CSF cell count or protein (without other cause)
- A reactive test for fluorescent treponemal antibody absorbed-19S-IgM antibody

*Inadequate treatment consists of any non-penicillin therapy or penicillin given <30 days before delivery.

Confirmed: a case (among infants) 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 long bone x-rays may help, since x-ray changes in the metaphysis and epiphysis are considered classic for congenitally acquired disease. The decision may ultimately be based on maternal history and clinical judgment. The possibility of sexual abuse should be considered.

For reporting purposes, congenital syphilis includes cases of congenitally acquired syphilis among infants and children, as well as syphilitic stillbirths.

Syphilitic Stillbirth

Clinical case definition

A fetal death that occurs after a 20-week gestation or in which the fetus weighs >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.

Tetanus

Clinical case definition

Acute onset of hypertonia and/or painful muscular contractions (usually of the muscles of the jaw and neck) and generalized muscle spasms without other apparent medical cause (as reported by a health professional)

Case classification

Confirmed: a case that meets the clinical case definition

Toxic Shock Syndrome

Clinical case definition

An illness with the following clinical manifestations:

- Fever — temperature ≥38.9 C (102 F)
- Rash—diffuse macular erythroderma

*Inadequate treatment consists of any non-penicillin therapy or penicillin given <30 days before delivery.

- Desquamation—1–2 weeks after onset of illness, particularly palms and soles
- Hypotension—systolic blood pressure ≤90 mm Hg for adults or less than fifth percentile by age for children <16 years of age; orthostatic drop in diastolic blood pressure ≥15 mm Hg from lying to sitting, orthostatic syncope, or orthostatic dizziness
- Multisystem involvement — three or more of the following:
  - Gastrointestinal: vomiting or diarrhea at onset of illness
  - Muscular: severe myalgia or creatine phosphokinase level at least twice the upper limit of normal for laboratory
  - 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 (≥5 leukocytes per high-power field) in the absence of urinary tract infection
  - Hepatic: total bilirubin, serum glutamic-oxaloacetic transaminase (SGOT), or serum glutamic-pyruvic transaminase (SGPT) at least twice the upper limit of normal for laboratory
  - Hematologic: platelets <100,000/mm^3
  - Central nervous system: disorientation or alterations in consciousness without focal neurologic signs when fever and hypotension are absent
- Negative results on the following tests, if obtained:
  - Blood, throat, or cerebrospinal fluid cultures (blood culture may be positive for *Staphylococcus aureus*)
  - Rise in titer to Rocky Mountain spotted fever, leptospirosis, or measles

Case classification

Probable: a case with five of the six clinical findings described above

Confirmed: a case with all six of the clinical findings described above, including desquamation, unless the patient dies before desquamation could occur

Trichinosis

Clinical description

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

Laboratory criteria for diagnosis

- Demonstration of larvae of cysts of *T. spiralis* on muscle biopsy, or
- Positive serology for *T. spiralis*

Case classification

Confirmed: a clinically compatible illness 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 serology for trichinosis or a clinically compatible illness.

Tuberculosis

Clinical description

A chronic bacterial infection due to *Mycobacterium tuberculosis*, 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 the following criteria:

- A positive tuberculin skin test
- Other signs and symptoms compatible with tuberculosis, such as an abnormal, unstable (worsening or improving) chest x-ray, or clinical evidence of current disease
- Treatment with two or more antituberculosis medications
- Completed diagnostic evaluation

Laboratory criteria for diagnosis

- Isolation of *M. tuberculosis* from a clinical specimen, or
- Demonstration of *M. tuberculosis* from a clinical specimen by DNA probe or mycolic acid pattern on high-pressure liquid chromatography, or
- Demonstration of acid-fast bacilli in clinical specimen when a culture has not been or cannot be obtained

Case classification

Confirmed: a case that is laboratory confirmed or, in the absence of laboratory confirmation, a case that meets the clinical case definition

Comment

A case should not be counted twice within any consecutive 12-month period. However, cases in which the patients had verified disease in the past should be reported again if the patients were discharged. Cases also should be reported again if they were lost to supervision for >12 months and disease can be verified again.

Mycobacterial diseases other than those caused by *M. tuberculosis* should not be counted in tuberculosis morbidity statistics unless there is concurrent tuberculosis.

Tularemia

Clinical description

An illness characterized by several distinct forms, including:

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

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.

Laboratory criteria for diagnosis

- Isolation of *F. tularensis* from a clinical specimen, or
- Demonstration of *F. tularensis* in a clinical specimen by immunofluorescence, or
- Fourfold or greater rise in agglutination titer between acute- and convalescent-phase serum specimens obtained ≥2 weeks apart, analyzed at the same time, and in the same laboratory

Case classification

Probable: a clinically compatible case with supportive serologic results (tularemia agglutination titer of ≥160 in one or more serum specimens obtained after onset of symptoms)

Confirmed: a case that is laboratory confirmed

Typhoid Fever

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 illness that is epidemiologically linked to a confirmed case in an outbreak

Confirmed: a clinically compatible illness 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 Enteric Diseases Branch, Center for Infectious Diseases, CDC, through laboratory-based surveillance. (See ***Salmonella***.)

Varicella (Chickenpox)

Clinical case definition

An illness with acute onset of diffuse (generalized) papulovesicular rash without other apparent cause (as reported by a health professional)

Laboratory criteria for diagnosis

- Isolation of varicella virus from a clinical specimen, or
- Significant rise in varicella antibody level by any standard serologic assay

Case classification

Probable: a case that meets the clinical case definition, is not laboratory confirmed, and is not epidemiologically linked to another probable or confirmed case

Confirmed: a case that is laboratory confirmed or that meets the clinical case definition and is epidemiologically linked to a confirmed or probable case

Comment

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

Waterborne Disease Outbreak

Clinical description

Symptoms of illness depend upon etiologic agent. (*See Guidelines for Confirmation of Foodborne and Waterborne Disease Outbreaks*, in press.)

Laboratory criteria for diagnosis

Depends upon etiologic agent. (*See Guidelines for Confirmation of Foodborne and Waterborne Disease Outbreaks*, in press.)

Definition

An incident in which two or more persons experience a similar illness after consumption or use of water intended for drinking, and epidemiologic evidence implicates the water as the source of the illness.

Comment

In addition, a single case of chemical poisoning constitutes an outbreak if laboratory studies indicate that the water has been contaminated by the chemical. Other outbreaks that should be reported include a) epidemiologic investigations of outbreaks of gastroenteritis (even if not waterborne) on ocean-going passenger vessels that call on U.S. ports, and b) outbreaks of illness associated with exposure to recreational water. Disease outbreaks associated with water used for recreational purposes should meet the same criteria used for waterborne outbreaks associated with drinking water. However, outbreaks associated with recreational water involve exposure to or unintentional ingestion of fresh or marine water, excluding wound infections caused by water-related organisms.

Yellow Fever

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 cases, renal failure, shock, and generalized hemorrhages

Laboratory criteria for diagnosis

- Fourfold or greater rise in yellow fever antibody titer with no history of recent yellow fever immunization, and cross-reactions to other flaviviruses ruled out, or
- Demonstration of yellow fever virus, antigen, or genome in tissue, blood, or other body fluid

Case classification

Probable: a clinically compatible illness with supportive serology (stable elevated antibody titer to yellow fever virus, e.g., ≥32 by complement fixation, ≥256 by immunofluorescence assay, ≥320 by hemagglutination inhibition, ≥160 by neutralization, or a positive serologic result by IgM-capture enzyme immunoassay. Cross-reactive serologic reactions to other flaviviruses must be ruled out, and there must be no history of yellow fever immunization.)

Confirmed: a clinically compatible illness that is laboratory confirmed

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