



Case Definitions for Notifiable Diseases

2012 Version 1.8

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Introduction

The 1947 Health Act entitles the Minister for Health to specify by regulation the diseases that are infectious diseases and covered by legislation (so-called notifiable diseases). The Principal Regulations are the Infectious Diseases Regulations 1981. The regulations require that a medical practitioner and a clinical director of a diagnostic laboratory, in notifying infectious diseases, shall have regard to the case definitions for infectious diseases circulated by the Health Protection Surveillance Centre (HPSC). Case definition means the set of clinical or microbiological characteristics by which a case of infectious disease is defined. HPSC is responsible for maintaining, updating and circulating the case definitions.

This document sets out the case definitions for the notifiable diseases listed in the Schedule to the Infectious Diseases (Amendment) Regulations 2011 (S.I. No. 452 of 2011), which came into operation on 21 September 2011. The list of notifiable diseases is contained in the Appendix.

The list of notifiable diseases was amended on 23rd May 2016 (Infectious Diseases (Amendments) Regulations 2016 (S.I. No. 276) to include Zika virus infection.

The case definitions are based mainly on standardised European case definitions (Commission Decision 2008/426/EC). Where European definitions are not available, definitions from other sources are used or adapted. These other sources include Centers for Disease Control and Prevention (CDC), World Health Organization (WHO) and the European Antimicrobial Resistance Surveillance Network (EARS-Net).

It is expected that some case definitions may be amended from time to time; the up-to-date version of the case definitions and the up-to-date list of notifiable diseases may be found on the website of HPSC (www.hpsc.ie).

General principles for the application of the case definitions

Clinical criteria

Clinical criteria include common and relevant signs and symptoms of the disease which either individually or in combination constitute a clear or indicative clinical picture of the disease. The clinical criteria give the general outline of the disease and do not necessarily indicate all the features needed for individual clinical diagnosis.

Laboratory criteria

Laboratory criteria include a list of laboratory methods that are used to confirm a case. Usually only one of the listed tests will be enough to confirm the case. If a combination of methods is needed to meet the laboratory confirmation, this is specified. The type of specimen to be collected for the laboratory tests is only specified when only certain specimen types are considered relevant for the confirmation of a diagnosis. For some agreed exceptions, laboratory criteria for a probable case are included. This is a list of laboratory methods which can be used to support the diagnosis of a case but which are not confirmatory.

Epidemiological criteria

An epidemiological link, during the incubation period, is defined as one of the following six:

- Human to human transmission: Any person who has had contact with a laboratory confirmed human case in such a way as to have had the opportunity to acquire the infection
- Animal to human transmission: Any person who has had contact with an animal with a laboratory confirmed infection/colonisation in such a way as to have had the opportunity to acquire the infection
- Exposure to a common source: Any person who has been exposed to the same common source or vehicle of infection, as a confirmed human case
- Exposure to contaminated food/drinking water: Any person who has consumed food or drinking water with a laboratory confirmed contamination or a person who has consumed potentially contaminated products from an animal with a laboratory confirmed infection/colonisation
- Environmental exposure: Any person who has bathed in water or has had contact with a contaminated environmental source that has been laboratory confirmed
- Laboratory exposure: Any person working in a laboratory where there is a potential for exposure.

A person may be considered epidemiologically linked to a confirmed case if at least one case in the chain of transmission is laboratory confirmed. In case of an outbreak of faeco-oral or airborne transmitted infections, the chain of transmission does not necessarily need to be established to consider a case epidemiologically linked.

Case classification

Cases will be classified as “possible”, “probable” and “confirmed”.

A possible case is usually a case with the clinical criteria as described in the case definition without epidemiological or laboratory evidence of the disease in question. The definition of a possible case has high sensitivity and low specificity. It allows for detection of most cases but some false positives cases will be included into this category.

A probable case is usually a case with clinical criteria and an epidemiological link as described in the case definition. Laboratory tests for probable cases are specified only for some diseases.

A confirmed case should be laboratory confirmed and may fulfil the clinical criteria or not as described in the case definition. The definition of a confirmed case is highly specific and less sensitive; therefore most of the collected cases will be true cases although some will be missed.

NA means “not applicable”.

Acute anterior poliomyelitis

(Polio virus)

Clinical criteria

Any person <15 years of age with acute flaccid paralysis (AFP)

OR

Any person in whom polio is suspected by a physician

Laboratory criteria

At least one of the following three:

- Isolation of a polio virus and intratypic differentiation– Wild polio virus (WPV)
- Vaccine derived poliovirus (VDPV) (for the VDPV at least 85% similarity with vaccine virus in the nucleotide sequences in the VP1 section)
- Sabin-like poliovirus: intratypic differentiation performed by a WHO-accredited polio laboratory (for the VDPV a >1% up to 15% VP1 sequence difference compared with vaccine virus of the same serotype)

Epidemiological criteria

At least one of the following two epidemiological links:

- Human to human transmission
- A history of travel to a polio-endemic area or an area with suspected or confirmed circulation of poliovirus

Case classification

A. Possible case

Any person meeting the clinical criteria (in the absence of any alternative diagnosis)

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Ano-genital warts

(Human papilloma virus)

Clinical criteria

Any person with the following clinical picture: ano-genital warts is an infection characterised by the presence of visible, raised growths on the internal or external genitalia, perineum, or perianal region

Laboratory criteria

At least one of the following two:

- Histopathological confirmation
- Detection of human papilloma virus DNA

Epidemiological criteria

NA

Case classification

A. Possible case

NA

B. Probable case

A clinically compatible case without histopathologic diagnosis and without microscopic or serologic evidence that the growth is the result of secondary syphilis

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Anthrax

(*Bacillus anthracis*)

Clinical criteria

Any person with at least one of the following clinical forms:

Cutaneous anthrax

At least one the following two:

- Papular or vesicular lesion
- Depressed black eschar with surrounding oedema

Gastrointestinal anthrax

- Fever or feverishness

AND at least one of the following two:

- Severe abdominal pain
- Diarrhoea

Inhalational anthrax

- Fever or feverishness

AND at least one of the following two:

- Acute respiratory distress
- Radiological evidence of mediastinal widening

Meningeal/meningoencephalitic anthrax

- Fever

AND at least one of the following three:

- Convulsions
- Loss of consciousness
- Meningeal signs

Anthrax septicaemia

Laboratory criteria

- Isolation of *Bacillus anthracis* from a clinical specimen
- Detection of *Bacillus anthracis* nucleic acid in a clinical specimen

Positive nasal swab without clinical symptoms does not contribute to a confirmed diagnosis of a case.

Epidemiological criteria

At least one of the following three epidemiological links:

- Animal to human transmission (only for person meeting clinical criteria for cutaneous case)
- Exposure to a common source
- Exposure to contaminated food/drinking water

Case classification**A. Possible case**

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Bacillus cereus food-borne infection/intoxication (*Bacillus cereus*)

Clinical criteria

Any person with at least one of the following two conditions:

- sudden onset of nausea AND vomiting
- abdominal cramps AND diarrhoea

Laboratory criteria

At least one of the following two:

- Isolation of $\geq 10^5$ *B. cereus* organisms per gram or direct detection of *B. cereus* enterotoxin from epidemiologically implicated food in the setting of a person or persons with diarrhoea or vomiting
- Isolation of the organism from the stools of two or more ill persons but not from the stools of controls, in an outbreak situation

Epidemiological criteria

An epidemiological link by exposure to a common source

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Bacterial meningitis

(not otherwise specified)

Clinical criteria

Any person with the following clinical picture: bacterial meningitis manifests most commonly with fever, headache, and a stiff neck; the disease may progress rapidly to shock and death. However, other manifestations may be observed.

Laboratory criteria for a confirmed case

At least one of the following two:

- Isolation of a bacterial species from the cerebrospinal fluid (CSF)
- Detection of a bacterial species nucleic acid from CSF

Laboratory criteria for a probable case

At least one of the following two:

- Detection of bacteria in CSF by microscopy e.g. Gram stain
- CSF white cell count (WCC) differential, protein and glucose levels consistent with bacterial meningitis

Epidemiological criteria

NA

Case classification

A. Possible case

Any person meeting the clinical criteria

B. Probable case

Any person meeting the clinical criteria and the laboratory criteria for a probable case

C. Confirmed case

Any person meeting the laboratory criteria for a confirmed case

Note:

1. Exceptions: Nosocomial bacterial meningitis *directly related to invasive procedures* (e.g. craniotomy, placement of internal or external ventricular catheters, lumbar puncture, intrathecal infusions of medications, or spinal anesthesia), complicated head trauma, or in rare cases, metastatic infection in patients with hospital-acquired bacteremia is not notifiable. These cases of meningitis are caused by a different spectrum of microorganisms than cases acquired in the community setting, and illness is the result of diverse pathogenic mechanisms.
2. Notification of specified diseases causing meningitis: If a diagnosis of meningitis due to *Haemophilus influenzae*, *Neisseria meningitidis*, *Streptococcus pneumoniae*, *Streptococcus* Group B infection (invasive) or another listed bacterial pathogen has been made (even if they are considered to be a nosocomial case), please see the case definition for the particular disease/pathogen and notify under the relevant disease.

Botulism

(*Clostridium botulinum*)

Clinical criteria

Any person with at least one of the following clinical forms:

Food-borne and wound botulism

At least one of the following two:

- Bilateral cranial nerve impairment (e.g. diplopia, blurred vision, dysphagia, bulbar weakness)
- Peripheral symmetric paralysis

Infant botulism

Any infant with at least one of the following six:

- Constipation
- Lethargy
- Poor feeding
- Ptosis
- Dysphagia
- General muscle weakness

The type of botulism usually encountered in infants (< 12 months of age) can affect children also over 12 months of age and occasionally adults, with altered gastrointestinal anatomy and microflora.

Laboratory criteria

At least one of the following two:

- Isolation of *C. botulinum* or other *Clostridium* species known to be pathogenic for infant botulism (stool) or wound botulism (wound) (isolation of *C. botulinum* in stool of adults not relevant for the diagnosis of food-borne botulism)
- Detection of botulinum toxin in a clinical specimen

Epidemiological criteria

An epidemiological link by exposure to a common source

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Brucellosis

(*Brucella* species)

Clinical criteria

Any person with fever

AND at least one of following seven:

- Sweating (profuse, malodorous, specially nocturnal)
- Chills
- Arthralgia
- Weakness
- Depression
- Headache
- Anorexia

Laboratory criteria

At least one of the following two:

- Isolation of *Brucella* spp. from a clinical specimen
- *Brucella* specific antibody response (Standard Agglutination Test, Complement Fixation, ELISA)

Epidemiological criteria

At least one of the following four epidemiological links:

- Exposure to contaminated food/drinking water
- Exposure to products from a contaminated animal (milk or milk products)
- Animal to human transmission (contaminated secretions or organs e.g. vaginal discharge, placenta)
- Exposure to a common source

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Campylobacter infection

(*Campylobacter* species)

Clinical criteria

Any person with at least one of the following three:

- Diarrhoea
- Abdominal pain
- Fever

Laboratory criteria

- Isolation of *Campylobacter* spp. from stool or blood

Differentiation of *Campylobacter* spp. should be performed if possible

Epidemiological criteria

At least one of the following two:

- Human to human transmission
- Exposure to a common source

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the laboratory criteria

Carbapenem-resistant *Enterobacteriaceae* infection (invasive) (Carbapenem-resistant *Enterobacteriaceae* (blood, CSF or other normally sterile site))

Clinical criteria

Not relevant for surveillance purposes

Laboratory criteria

Isolation of a carbapenemase-producing carbapenem*-resistant *Enterobacteriaceae*† (CRE) from a normally sterile site

Any *Enterobacteriaceae* isolate with reduced or non-susceptibility to carbapenem agents should be referred for molecular confirmation of the resistance mechanism‡

Epidemiological criteria

NA

Case classification

A. Possible case

NA

B. Probable case

Any person with phenotypic laboratory evidence of a carbapenem-resistant *Enterobacteriaceae*, pending molecular confirmation by a reference laboratory

C. Confirmed case

Any person with reference laboratory confirmation of a carbapenemase-producing CRE from a normally sterile site

***Definition of carbapenems:** Meropenem, imipenem, ertapenem, doripenem

†Definition of *Enterobacteriaceae*: Gram-negative; rod shaped; non-spore forming organisms which may be found in the intestinal flora. They grow well on MacConkey agar; grow both aerobically and anaerobically; are active biochemically; ferment sugars and are oxidase negative. The following genera are included in the family *Enterobacteriaceae*: *Escherichia*, *Klebsiella*, *Citrobacter*, *Enterobacter*, *Serratia*, *Proteus*, *Morganella*, *Providencia*, *Salmonella*, *Shigella*

‡There are certain genera of *Enterobacteriaceae* which have intrinsic mechanisms of resistance to imipenem other than carbapenemase production (*Proteus*, *Morganella*) and isolated ertapenem resistance in *Enterobacter* has been described as a result of de-repression of AmpC. Such isolates are not notifiable.

Carbapenem resistance which arises as a result of extended spectrum β lactamase or Amp C expression combined with impermeability mechanism or porin loss is not notifiable.

Chancroid

(*Haemophilus ducreyi*)

Clinical criteria

Any person with the following clinical picture: chancroid is a sexually transmitted disease characterized by painful genital ulceration and inflammatory inguinal adenopathy

Laboratory criteria

Isolation of *H. ducreyi* from a clinical specimen

Epidemiological criteria

NA

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria 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

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Chickenpox – hospitalised cases

(Varicella-zoster virus)

Clinical criteria

Any person with

- Acute onset of a diffuse vesicular rash developing within 24–48 hours and forming crusts (or crusting over) within 5 days
- Complications may include pneumonia, encephalitis, bacterial infections, haemorrhagic complications

Note: Only hospitalised cases should be notified.

Laboratory criteria

At least one of the following three in the absence of recent vaccination:

- Detection of VZV DNA in clinical samples (CSF, lesion fluid, blood or respiratory secretions) by PCR
- Isolation of VZV from a clinical specimen
- Seroconversion to VZV IgG positive or significant rise in VZV IgG antibody

Epidemiological criteria

An epidemiological link by human to human transmission

Case classification

A. Possible case

Any person meeting the clinical criteria

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link to laboratory confirmed case

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Note:

Laboratory confirmation is encouraged for vaccinated cases. If positive, samples should be referred to discriminate between vaccine or wild type strain.

Chikungunya disease

(Chikungunya virus)

Clinical criteria

Any person with fever AND severe/incapacitating arthralgia not explained by other medical conditions

Laboratory criteria

At least one of the following four:

- Isolation of Chikungunya virus (CHIKV)
- Detection of CHIKV-specific RNA by RT-PCR
- Detection of CHIKV-specific IgM/IgG antibody in single serum sample
- Seroconversion to CHIKV-specific antibodies in samples collected at least one to three weeks apart

Epidemiological criteria

Residing in or having visited epidemic areas, having reported transmission within 15 days prior to the onset of symptoms

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the laboratory criteria

Chlamydia trachomatis infection (genital)

(*Chlamydia trachomatis*) Including Lymphogranuloma venereum (LGV)

Clinical criteria

Any person with at least one of the following clinical forms:

Chlamydial infection non-LGV

At least one of the following six:

- Urethritis
- Epididymitis
- Acute salpingitis
- Acute endometritis
- Cervicitis
- Proctitis

In newborn children at least one of the following two:

- Conjunctivitis
- Pneumonia

LGV

At least one of the following five:

- Urethritis
- Genital ulcer
- Inguinal lymphadenopathy
- Cervicitis
- Proctitis

Laboratory criteria

Chlamydial infection non-LGV

At least one of the following three:

- Isolation of *Chlamydia trachomatis* from a specimen taken from the ano-genital tract or, if a neonate, taken from the conjunctiva
- Demonstration of *Chlamydia trachomatis* by DFA test in a clinical specimen taken from the ano-genital tract
- Detection of *Chlamydia trachomatis* nucleic acid in a clinical specimen taken from the ano-genital tract

LGV

At least one of the following two:

- Isolation of *Chlamydia trachomatis* from a specimen taken from the ano-genital tract or, if a neonate, taken from the conjunctiva
- Detection of *Chlamydia trachomatis* nucleic acid in a clinical specimen taken from the ano-genital tract

AND

- Identification of serovar (genovar) L1, L2 or L3

***Chlamydia trachomatis* infection (genital)**

(Chlamydia trachomatis) Including Lymphogranuloma venereum (LGV)

(Continued)

Epidemiological criteria

An epidemiological link by human to human transmission (sexual contact or vertical transmission)

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the laboratory criteria

Cholera

(*Vibrio cholerae*)

Clinical criteria

Any person with at least one of the following two:

- Diarrhoea
- Vomiting

Laboratory criteria

- Isolation of *Vibrio cholerae* from a clinical specimen

AND

- Demonstration of O1 or O139 antigen in the isolate

AND

- Demonstration of cholera-enterotoxin or the cholera-enterotoxin gene in the isolate

Epidemiological criteria

At least one of the following two:

- Human to human transmission
- Exposure to a common source

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Clostridium difficile infection

(*Clostridium difficile*)

A case is a patient two years or older to whom one or more of the following criteria applies:

- Diarrhoeal stools or toxic megacolon **WITH EITHER**
 - Positive laboratory assay for *C. difficile* toxin TcdA and/or TcdB in stool
 - Toxin-producing *C. difficile* organism detected in stool via culture or other means
- Pseudomembranous colitis revealed by lower gastrointestinal endoscopy
- Colonic histopathology characteristic of *C. difficile* infection (with or without diarrhoea) on a specimen obtained during endoscopy, colectomy or autopsy

New case of *C. difficile* infection

A new case of *C. difficile* infection is defined as a patient with a first episode of *C. difficile* infection meeting the criteria outlined above.

OR

A patient with an episode of *C. difficile* infection meeting the criteria outlined above and presenting more than eight weeks after a previous positive specimen.

Recurrent *C. difficile* infection

A recurrent case is a patient with an episode of *C. difficile* infection that occurs within eight weeks following the onset of a previous episode, provided that *C. difficile* infection symptoms from the earlier episode resolved (with or without therapy).

Severe *C. difficile* infection

This is a patient with *C. difficile* infection to whom any of the following criteria apply:

- Admission to an intensive care unit for treatment of *C. difficile* infection or its complications (e.g., for shock requiring vasopressor therapy)
- Surgery (colectomy) for toxic megacolon, perforation or refractory colitis
- Death within 30 days after diagnosis, if *C. difficile* infection is either the primary or contributory cause of death

Case classification

A. Possible case

NA

B. Probable case

NA

C. Confirmed case

Any person meeting the criteria outlined above for a new or recurrent case

Notes:

1. Diarrhoea is defined as three or more loose/watery bowel movements that take up the shape of their container (which are unusual or different for the patient) in a 24 hour period
2. The current international *C. difficile* case definition excludes diarrhoea with other known aetiology (as diagnosed by the attending physician) and asymptomatic patients with a stool culture positive for toxin-producing *C. difficile* or an assay positive for *C. difficile* toxin (TcdA and /or TcdB)

Clostridium perfringens (type A) food-borne disease (*Clostridium perfringens*)

Clinical criteria

Any person with abdominal cramps and diarrhoea

Laboratory criteria

At least one of the following:

- One or more of the following in the above clinical setting:
 - Detection of $\geq 10^5$ colony-forming units of *C. perfringens* per gram of epidemiologically implicated food
 - Direct detection of *C. perfringens* enterotoxin from faeces
- Demonstration of $\geq 10^6$ *C. perfringens* spores per gram of faeces in a specimen taken within 48 hours of the onset of symptoms consistent with food-borne *C. perfringens* disease in an outbreak setting

Epidemiological criteria

An epidemiological link by exposure to a common source

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Creutzfeldt Jakob disease

Note

Confirmed cases of Creutzfeldt Jakob disease are notifiable. Notifiers are also requested to report possible and probable cases to the Medical Officer of Health.

Case classification

A. Possible case

All of the following:

- Progressive dementia; and
- EEG atypical or not known and
- Duration <two years

and

- at least 2 out of the following four clinical features: myoclonus, visual or cerebellar disturbance, pyramidal/extrapyramidal dysfunction, akinetic mutism

B. Probable case

(in the absence of an alternative diagnosis from routine investigation)

- Progressive dementia

and

- At least 2 of the following 4 clinical features: myoclonus, visual or cerebellar disturbance, pyramidal/extrapyramidal dysfunction, akinetic mutism

and

- A typical EEG, whatever the clinical duration of the disease

and/or

- A positive 14-3-3 assay for CSF and a clinical duration to death <2 years

C. Confirmed case

- Neuropathological confirmation

and/or

- Confirmation of protease-resistant prion protein (PrP) (immunocytochemistry or Western blot)

and/or

- Presence of scrapie-associated fibrils

Variant Creutzfeldt Jakob disease

Note

Confirmed cases of variant Creutzfeldt Jakob disease are notifiable. Notifiers are also requested to report possible and probable cases to the Medical Officer of Health.

Preconditions

- Any person with a progressive neuropsychiatric disorder with a duration of illness of at least six months
- Routine investigations do not suggest an alternative diagnosis
- No history of exposure to human pituitary hormones or human dura mater graft
- No evidence of a genetic form of transmissible spongiform encephalopathy

Clinical criteria

Any person with at least four of the following five:

- Early psychiatric symptoms (1)
- Persistent painful sensory symptoms (2)
- Ataxia
- Myoclonus or chorea or dystonia
- Dementia

Diagnostic criteria

Diagnostic criteria for case confirmation:

- Neuropathological confirmation: spongiform change and extensive prion protein deposition with florid plaques throughout the cerebrum and cerebellum

Diagnostic criteria for a probable or a possible case:

- EEG does not show the typical appearance (3) of sporadic CJD in the early stages of the illness
- Bilateral pulvinar high signal on MRI brain scan
- A positive tonsil biopsy (4)

Epidemiological criteria

An epidemiological link by human to human transmission (e.g. blood transfusion)

Case classification

A. Possible case

Any person fulfilling the preconditions

AND

- meeting the clinical criteria

AND

- a negative EEG for sporadic CJD (3)

B. Probable case

Any person fulfilling the preconditions

AND

- meeting the clinical criteria

AND

- a negative EEG for sporadic CJD (4)

AND

- a positive MRI brain scan

OR

Any person fulfilling the preconditions

AND

- a positive tonsil biopsy

C. Confirmed case

Any person fulfilling the preconditions

AND

- meeting the diagnostic criteria for case confirmation

(1) Depression, anxiety, apathy, withdrawal, delusions.

(2) This includes both frank pain and/or dysaesthesia.

(3) The typical appearance of the EEG in sporadic CJD consists of generalised periodic complexes at approximately one per second. These may occasionally be seen in the late stages of vCJD.

(4) Tonsil biopsy is not recommended routinely nor in cases with EEG appearances typical of sporadic CJD, but may be useful in suspect cases in which the clinical features are compatible with vCJD and MRI does not show pulvinar high signal.

Cryptosporidiosis

(*Cryptosporidium parvum*, *hominis*)

Clinical criteria

Any person with at least one of the following two:

- Diarrhoea
- Abdominal pain

Laboratory criteria

At least one of the following four:

- Demonstration of *Cryptosporidium* oocysts in stool
- Demonstration of *Cryptosporidium* in intestinal fluid or small-bowel biopsy specimens
- Detection of *Cryptosporidium* nucleic acid in stool
- Detection of *Cryptosporidium* antigen in stool

Epidemiological criteria

At least one of the following two:

- Human to human transmission
- Exposure to a common source

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Cytomegalovirus infection (congenital)

(Cytomegalovirus)

Clinical criteria

At least one of the following five:

- Stillbirth
- Intrauterine growth retardation
- Fulminant cytomegalic inclusion disease (jaundice, hepatosplenomegaly, petechiae, multiple organ involvement) in a child
- Central nervous system findings (microcephaly, motor disability, chorioretinitis, cerebral calcifications) in a child
- Lethargy, respiratory distress or seizures in the immediate post-partum period

Laboratory criteria

At least one of the following three:

- Isolation of Cytomegalovirus (CMV) from urine (recommended specimen), saliva, throat swab, tissue or other specimen in an infant within the first three weeks of life
- Detection of CMV DNA by molecular diagnostic techniques in urine, blood, tissue or other specimen in an infant within the first three weeks of life
- Histopathological evidence of CMV inclusion disease from appropriate clinical specimen

Epidemiological criteria

NA

Case classification

A. Possible case

NA

B. Probable case¹

A child meeting the clinical criteria, born to a CMV seropositive mother

C. Confirmed case

Any person meeting the laboratory criteria

1. Laboratory confirmation should always be sought in probable cases of illness

Dengue fever

(Dengue virus)

Dengue can present as Dengue fever (DF), Dengue haemorrhagic fever (DHF) or Dengue shock syndrome (DSS).

Clinical criteria

Any person with at least one of the following three forms:

Dengue fever

Fever AND at least two of the following seven:

- Retro-orbital or ocular pain
- Headache
- Rash
- Myalgia
- Arthralgia
- Leucopenia
- Haemorrhagic features or a positive tourniquet test which do not meet the case definition of DHF

Dengue haemorrhagic fever

All four of the following:

- Fever lasting from 2-7 days
- Evidence of haemorrhagic manifestation or a positive tourniquet test
- Thrombocytopenia ($\leq 100,000$ cells per mm^3)
- Evidence of plasma leakage (evidence of haemoconcentration with an increase in haematocrit $\geq 20\%$ above average for age or a decrease in haematocrit $\geq 20\%$ of baseline following fluid replacement therapy), OR pleural effusion, OR ascites OR hypoproteinaemia.

Dengue shock syndrome (DSS)

All clinical criteria of dengue haemorrhagic fever AND evidence of circulatory failure (rapid weak pulse, narrow pulse pressure [$< 20\text{mmHg}$] OR age-specific hypotension and cold, clammy skin and restlessness

Laboratory criteria

At least one of the following five:

- Isolation of dengue virus
- Detection of dengue virus by antigen assay
- Detection of specific flavivirus DNA
- Dengue virus specific antibody response (fourfold or greater rise or single high titre) demonstrated by IgG or PRNT
- Detection of dengue specific IgM in cerebrospinal fluid

Epidemiological criteria

NA

Case classification**A. Possible case**

NA

B. Probable case

NA

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Diphtheria

(*Corynebacterium diphtheriae*, *C. ulcerans*, *C. pseudotuberculosis* (toxin producing))

Clinical criteria

Any person with at least one of the following clinical forms:

Classic respiratory diphtheria:

An upper respiratory tract illness with laryngitis or nasopharyngitis or tonsillitis
AND an adherent membrane/pseudomembrane

Mild respiratory diphtheria:

An upper respiratory tract illness with laryngitis or nasopharyngitis or tonsillitis
WITHOUT an adherent membrane/pseudomembrane.

Cutaneous diphtheria: skin lesion

Diphtheria of other sites: lesion of conjunctiva or mucous membranes

Laboratory criteria

Isolation of toxin producing *C. diphtheriae*, *C. ulcerans* or *C. pseudotuberculosis* from a clinical specimen

Epidemiological criteria

An epidemiological link to a confirmed case (human or animal)

Case classification

A. Possible case

Any person meeting the clinical criteria for classical respiratory diphtheria

B. Probable case

Any person meeting the clinical criteria for diphtheria (classic respiratory diphtheria, mild respiratory diphtheria, cutaneous diphtheria, diphtheria of other sites) with an epidemiological link to a confirmed case (human or animal)

C. Confirmed case

Any person meeting the laboratory criteria and at least one of the clinical forms

Note:

Non toxigenic *C. diphtheriae*, *C. ulcerans* or *C. pseudotuberculosis* should not be notified

Echinococcosis

(*Echinococcus species*)

Clinical criteria

Not relevant for surveillance purposes

Diagnostic criteria

At least one of the following five:

- Histopathology or parasitology compatible with *Echinococcus multilocularis* or *granulosus* (e.g. direct visualisation of the protoscolex in cyst fluid)
- Detection of *Echinococcus granulosus* pathognomonic macroscopic morphology of cyst(s) in surgical specimens
- Typical organ lesions detected by imaging techniques (e.g.: computerised tomography, sonography, MRI) AND confirmed by a serological test
- *Echinococcus* spp. specific serum antibodies by high-sensitivity serological test AND confirmed by a high specificity serological test
- Detection of *Echinococcus multilocularis* or *granulosus* nucleic acid in a clinical specimen

Epidemiological criteria

NA

Case classification

A. Possible case

NA

B. Probable case

NA

C. Confirmed case

Any person meeting the diagnostic criteria

Enterococcal bacteraemia

(*Enterococcus* species (blood))

Clinical criteria

Not relevant for surveillance purposes

Laboratory criteria

Isolation of *Enterococcus* species from blood.

Susceptibility to vancomycin or teicoplanin, ampicillin and gentamicin (high level) should be determined.

Epidemiological criteria

NA

Case classification

A. Possible case

NA

B. Probable case

NA

C. Confirmed case

Any person meeting the laboratory criteria

Escherichia coli infection (invasive)

(*Escherichia coli* (blood, CSF))

Clinical criteria

Not relevant for surveillance purposes

Laboratory criteria

Isolation of *E. coli* from blood or CSF.

Susceptibility to ampicillin, third-generation cephalosporins, meropenem, gentamicin and ciprofloxacin should be determined.

Epidemiological criteria

NA

Case classification

A. Possible case

NA

B. Probable case

NA

C. Confirmed case

Any person meeting the laboratory criteria

Giardiasis

(*Giardia lamblia*)

Clinical criteria

Any person with at least one of the following four:

- Diarrhoea
- Abdominal pain
- Bloating
- Signs of malabsorption (e.g. steatorrhoea, weight loss)

Laboratory criteria

At least one of the following two:

- Demonstration of *Giardia lamblia* cysts or trophozoites in stool, duodenal fluid or small-bowel biopsy
- Demonstration of *Giardia lamblia* antigen in stool

Epidemiological criteria

At least one of the following two:

- Human to human transmission
- Exposure to a common source

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Gonorrhoea

(*Neisseria gonorrhoeae*)

Clinical criteria

Any person with at least one of the following eight:

- Urethritis
- Acute salpingitis
- Pelvic inflammatory disease
- Cervicitis
- Epididymitis
- Proctitis
- Pharyngitis
- Arthritis

OR

Any newborn child with conjunctivitis

Laboratory criteria

At least one of the following four:

- Isolation of *Neisseria gonorrhoeae* from a clinical specimen
- Detection of *Neisseria gonorrhoeae* nucleic acid in a clinical specimen
- Demonstration of *Neisseria gonorrhoeae* by a non amplified nucleic acid probe test in a clinical specimen
- Microscopic detection of intracellular gram negative diplococci in an urethral male specimen

Epidemiological criteria

An epidemiological link by human to human transmission (sexual contact or vertical transmission)

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the laboratory criteria

Granuloma inguinale

(*Klebsiella granulomatis*)

Clinical criteria

Any person with the following clinical picture: granuloma inguinale is a slowly progressive ulcerative disease of the skin and lymphatics of the genital and perianal area caused by the bacillus *Klebsiella granulomatis*. A clinically compatible case would have one or more painless or minimally painful granulomatous lesions in the anogenital area.

Laboratory criteria

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

Epidemiological criteria

NA

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Haemophilus influenzae disease (invasive)

(*Haemophilus influenzae* (blood, CSF or other normally sterile site))

Clinical criteria

Any person with clinical picture compatible with invasive disease, i.e. bacteraemia, meningitis, arthritis, epiglottitis, osteomyelitis or cellulitis

Laboratory criteria

At least one of the following two:

- Isolation of *Haemophilus influenzae* from a normally sterile site
- Detection of *Haemophilus influenzae* nucleic acid from a normally sterile site

Typing of the isolates should be performed

Epidemiological criteria

NA

Case classification

A. Possible case

A case with clinical epiglottitis without any laboratory confirmation or with identification only from a non-sterile site

B. Probable case

NA

C. Confirmed case

Any person meeting the laboratory criteria

Hepatitis A (acute) infection

(Hepatitis A virus)

Clinical criteria* (for probable case)

Any person with a discrete onset of symptoms (e.g. fatigue, abdominal pain, loss of appetite, intermittent nausea and vomiting)

AND

At least one of the following three:

- Fever
- Jaundice
- Elevated serum aminotransferase levels

Laboratory criteria

At least one of the following three:

- Detection of hepatitis A virus nucleic acid in serum or stool
- Hepatitis A virus specific IgM antibody response
- Detection of hepatitis A virus antigen in stool

Epidemiological criteria

At least one of the following four:

- Human to human transmission
- Exposure to a common source
- Exposure to contaminated food/drinking water
- Environmental exposure

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the laboratory criteria

***Note:**

Asymptomatic cases are common in young children

Hepatitis B (acute and chronic) infection

(Hepatitis B virus)

Clinical criteria

Not relevant for surveillance purposes

Laboratory criteria

Acute case

At least one of the following three:

- Detection of hepatitis B core IgM (anti-HBc IgM)
- Detection of hepatitis B surface antigen (HBsAg) AND previous negative HBV markers less than 6 months ago
- Detection of hepatitis B nucleic acid (HBV-DNA) AND previous negative HBV markers less than 6 months ago

Chronic case

At least one of the following two:

- Detection of HBsAg or HBV-DNA AND no detection of anti-HBc IgM (negative result)
- Detection of HBsAg or HBV-DNA on two occasions that are 6 months apart

Case of unknown status

Any case which cannot be classified according to the above description of acute or chronic infection and having positive results of at least one of the following tests:

- Hepatitis B surface antigen (HBsAg)
- Hepatitis B e antigen (HBeAg)
- Hepatitis B nucleic acid (HBV-DNA)

Epidemiological criteria

Not relevant for surveillance purposes

Case classification

A. Possible case

NA

B. Probable case

NA

C. Confirmed case

Any person meeting the laboratory criteria

Note:

The following combination of lab tests shall not be included or notified:

- Resolved hepatitis - Hepatitis B total core antibody (anti-HBc) positive and hepatitis B surface antigen (HBsAg) negative
- Immunity following vaccination - Hepatitis B total core antibody (anti-HBc) negative and hepatitis B surface antibody (anti-HBs) positive

Elevated levels of IgM in some chronic cases may result in misclassification which could over-estimate the number of acute cases

Hepatitis C infection

(Hepatitis C virus)

Clinical criteria

Not relevant for surveillance purposes

Laboratory Criteria

Acute case

At least one of the following two:

- Recent HCV seroconversion (prior negative test for hepatitis C in last 12 months)
- Detection of hepatitis C virus nucleic acid (HCV RNA) or hepatitis C virus core antigen (HCV-core) in serum/plasma AND no detection of hepatitis C virus antibody (negative result)

Chronic case

Detection of hepatitis C virus nucleic acid (HCV RNA) or hepatitis C core antigen (HCV-core) in serum/plasma in two samples taken at least 12 months apart

Case of unknown status

Any case which cannot be classified according to the above description of acute or chronic infection and having at least one of the following three:

- Detection of hepatitis C virus nucleic acid (HCV RNA)
- Detection of hepatitis C virus core antigen (HCV-core)
- Hepatitis C virus specific antibody (anti-HCV) response confirmed by a confirmatory (e.g. immunoblot) antibody test in persons older than 18 months without evidence of resolved infection*

Epidemiological criteria

NA

Case classification

A. Possible case

NA

B. Probable case

NA

C. Confirmed case

Any person meeting the laboratory criteria

Note:

Resolved infection should not be notified.

*Resolved infection: Detection of hepatitis C virus antibody and no detection of hepatitis C virus nucleic acid (HCV RNA negative result) or hepatitis C virus core antigen (HCV-core negative result) in serum/plasma.

Hepatitis E infection

Clinical criteria

Not relevant for surveillance purposes

Acute case

At least one of the following two:

- Hepatitis E virus IgM and IgG antibody positive
- Detection of hepatitis E virus RNA

Chronic case

Hepatitis E virus RNA persisting for at least 3 months

Epidemiological criteria:

Not relevant for surveillance purposes

Case classification

A. **Possible case:** N/A

B. **Probable:** N/A

C. **Confirmed case:** Any person meeting the laboratory criteria

Herpes simplex (genital)

(Herpes simplex virus)

Clinical criteria

Any person with the following clinical picture: herpes simplex (genital) is a condition characterised by visible, painful genital or anal lesions. Clinical presentation may be atypical.

Laboratory criteria

At least one of the following four:

- Isolation of herpes simplex virus from cervix, urethra, or anogenital lesion
- Demonstration of virus by antigen detection technique in clinical specimens from cervix, urethra, or anogenital lesion
- Demonstration of multinucleated giant cells on a Tzanck smear of scrapings from an anogenital lesion
- Serological type specific antibody to HSV type 1 or type 2 virus

Epidemiological criteria

NA

Case classification

A. Possible case

NA

B. Probable case

A clinically compatible case (in which primary and secondary syphilis have been excluded by appropriate serologic tests 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

C. Confirmed case

A clinically compatible case, including an atypical presentation, that is laboratory confirmed

Human immunodeficiency virus infection

(Human immunodeficiency virus)

Clinical criteria

Not relevant for surveillance purposes

Laboratory criteria

Adults, adolescents and children aged ≥ 18 months

At least one of the following three:

- Positive result of a HIV screening antibody test or a combined screening test (HIV antibody and HIV p24 antigen) confirmed by a more specific antibody test (e.g. Western blot)
- Positive result of 2 EIA antibody test confirmed by a positive result of a further EIA test
- Positive results on two separate specimens from at least one of the following three:
 - Detection of HIV nucleic acid (HIV-RNA, HIV-DNA)
 - Demonstration of HIV by HIV p24 antigen test, including neutralisation assay
 - Isolation of HIV

Children aged < 18 months

Positive results on two separate specimens (excluding cord blood) from at least one of the following three:

- Isolation of HIV
- Detection of HIV nucleic acid (HIV-RNA, HIV-DNA)
- Demonstration of HIV by HIV p24 antigen test, including neutralisation assay in a child ≥ 1 month of age

Epidemiological criteria

NA

Case classification

A. Possible case

NA

B. Probable case

NA

C. Confirmed case

Any person meeting the laboratory criteria for HIV infection

Influenza

(Influenza A and B virus)

Clinical criteria

Any person with the following clinical syndrome:

Influenza-like illness (ILI)

- Sudden onset of symptoms

AND

- at least one of the following four systemic symptoms:
 - Fever or feverishness
 - Malaise
 - Headache
 - Myalgia

AND

- at least one of the following three respiratory symptoms:
 - Cough
 - Sore throat
 - Shortness of breath

Laboratory criteria

At least one the following four:

- Isolation of influenza virus from a clinical specimen
- Detection of influenza virus nucleic acid in a clinical specimen
- Identification of influenza virus antigen by DFA test in a clinical specimen
- Influenza specific antibody response (four fold or greater rise)

Subtyping of the influenza isolate should be performed, if possible

Epidemiological criteria

An epidemiological link by human to human transmission

Case classification

A. Possible case

Any person meeting the clinical criteria (ILI)

B. Probable case

Any person meeting the clinical criteria (ILI) and with an epidemiological link

C. Confirmed case

Any person meeting the clinical (ILI) and the laboratory criteria

Klebsiella pneumoniae infection (invasive)

(*Klebsiella pneumoniae* (blood or CSF))

Clinical criteria

Not relevant for surveillance purposes

Laboratory criteria

Isolation of *K. pneumoniae* from blood or cerebrospinal fluid.

Susceptibility to ampicillin, third-generation cephalosporins, meropenem, gentamicin and ciprofloxacin should be determined.

Epidemiological criteria

NA

Case classification

A. Possible case

NA

B. Probable case

NA

C. Confirmed case

Any person meeting the laboratory criteria

Legionellosis

(*Legionella* species)

Clinical criteria

Legionnaires' disease

Any person with pneumonia

Pontiac fever

A self limiting influenza like illness characterised by fever, headache, myalgia and non-productive cough. Patients recover spontaneously without therapy after 2-5 days. No signs of pneumonia. Pontiac fever is frequently associated with Legionnaires' disease outbreaks.

Laboratory criteria

- Laboratory criteria for case confirmation
At least one of the following three:
 - Isolation of *Legionella* spp. from respiratory secretions or any normally sterile site
 - Detection of *Legionella pneumophila* antigen in urine
 - Significant rise in specific antibody level to *Legionella pneumophila* serogroup 1 in paired serum samples
- Laboratory criteria for a probable case
At least one of the following four:
 - Detection of *Legionella pneumophila* antigen in respiratory secretions or lung tissue e.g. by DFA staining using monoclonal-antibody derived reagents
 - Detection of *Legionella* spp. nucleic acid in respiratory secretions, lung tissue or any normally sterile site
 - Significant rise in specific antibody level to *Legionella pneumophila* other than serogroup 1, or other *Legionella* spp. in paired serum samples
 - Single high level of specific antibody to *Legionella pneumophila* serogroup 1 in serum

Epidemiological criteria

NA

Case classification

A. Possible case

NA

B. Probable case

Any person meeting either of the clinical criteria AND at least one laboratory criterion for a probable case

C. Confirmed case

Any person meeting either of the clinical criteria AND at least one laboratory criterion for a confirmed case

Leprosy

(*Mycobacterium leprae*)

Clinical criteria

Any person with the following clinical picture: leprosy is a chronic bacterial disease characterised by the involvement primarily of skin as well as peripheral nerves and the mucosa of the upper airways. Clinical forms of leprosy represent a spectrum reflecting the cellular immune response to *Mycobacterium leprae*. The clinical manifestations of the disease vary in a continuous spectrum between the two polar forms, lepromatous and tuberculoid leprosy:

- In lepromatous (multibacillary) leprosy, nodules, papules, macules and diffuse infiltrations are bilateral symmetrical and usually numerous and extensive; involvement of the nasal mucosa may lead to crusting, obstructed breathing and epistaxis; ocular involvement leads to iritis and keratitis
- In tuberculoid (paucibacillary) leprosy, skin lesions are single or few, sharply demarcated, anaesthetic or hypoaesthetic, and bilateral asymmetrical; involvement of peripheral nerves tends to be severe
- Borderline leprosy has features of both polar forms and is more labile
- Indeterminate leprosy is characterised by hypopigmented macules with ill-defined borders; if untreated, it may progress to tuberculoid, borderline or lepromatous disease

Laboratory criteria

At least one of the following two:

- Demonstration of characteristic acid-fast bacilli in skin or dermal nerve, obtained from either a punch biopsy or a slit skin biopsy of a lepromatous lesion (depending on the clinical presentation). The identity of *Mycobacterium leprae* can be confirmed by nucleic acid amplification tests.
- Histopathological report from skin or nerve biopsy compatible with leprosy (Hansen's disease) examined by a consultant pathologist experienced in leprosy diagnosis.

Epidemiological criteria

NA

Case classification

A. Possible case

NA

B. Probable case

NA

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Leptospirosis

(*Leptospira species*)

Clinical criteria

Any person with

- Fever

OR

At least two of the following eleven:

- Chills
- Headache
- Myalgia
- Conjunctival suffusion
- Haemorrhages into skin and mucous membranes
- Rash
- Jaundice
- Myocarditis
- Meningitis
- Renal impairment
- Respiratory symptoms such as haemoptysis

Laboratory criteria

At least one of the following four:

- Isolation of *Leptospira interrogans* or any other pathogenic *Leptospira* spp from a clinical specimen
- Detection of *Leptospira interrogans* or any other pathogenic *Leptospira* spp nucleic acid in a clinical specimen
- Demonstration of *Leptospira interrogans* or any other pathogenic *Leptospira* spp by immunofluorescence in a clinical specimen
- *Leptospira interrogans* or any other pathogenic *Leptospira* spp specific antibody response

Epidemiological criteria

An epidemiological link by exposure to a common source

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Listeriosis

(*Listeria monocytogenes*)

Clinical criteria

Any person with at least one of the following three:

- Listeriosis of newborns defined as Stillbirth
OR
At least one of the following five in the first month of life (where not demonstrated to have been caused by another infectious agent):
 - Granulomatosis infantiseptica
 - Meningitis or meningoencephalitis
 - Septicaemia
 - Dyspnoea
 - Lesions on skin, mucosal membranes or conjunctivae
- Listeriosis in pregnancy defined as at least one of the following two:
 - Abortion, miscarriage, stillbirth or premature birth
 - Influenza-like symptoms
- Other form of listeriosis defined as at least one of the following three (where not demonstrated to have been caused by another infectious agent):
 - Meningitis or meningoencephalitis
 - Septicaemia
 - Localised infections such as arthritis, endocarditis, and abscesses

Laboratory criteria

At least one of the following two:

- Isolation of *Listeria monocytogenes* from a normally sterile site
- Isolation of *Listeria monocytogenes* from a normally non-sterile site in a foetus, stillborn, newborn or the mother at or within 24 hours of birth

Epidemiological criteria

At least one of the following two:

- Exposure to a common source
- Human to human transmission (vertical transmission)

Additional information:

Incubation period 3-70 days, most often 21 days

Case classification**A. Possible case**

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the laboratory criteria

OR

Any mother with a laboratory confirmed listeriosis infection in her foetus, stillborn or newborn

Lyme disease (Neuroborreliosis) (*Borrelia burgdorferi*)

Clinical criteria

Disseminated disease: Neuroborreliosis (Any person with at least one of the following: radiculomyelitis, facial palsy, aseptic meningitis, encephalitis, polyradiculitis, fibromyalgia, encephalomyelitis, Bannwarth's syndrome).

Laboratory criteria

- Positive culture for *Borrelia burgdorferi sensu lato*, OR
- Positive two-tier test serology interpreted using established criteria, where:
 - Positive IgM alone is sufficient only < 42 days from symptom onset (if known)
 - Positive IgG is sufficient at any point during illness

Epidemiological criteria

NA

Case classification

A. Possible case

NA

B. Probable case

NA

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Lymphogranuloma venereum

(*Chlamydia trachomatis*)

See *Chlamydia trachomatis* infection (genital) case definition

Malaria

(*Plasmodium falciparum, vivax, knowlesi, ovale, malariae*)

Clinical criteria

Not relevant for surveillance purposes

Laboratory criteria

At least one of the following three:

- Demonstration of malaria parasites by light microscopy in blood films
- Detection of *Plasmodium* nucleic acid in blood
- Detection of *Plasmodium* antigen

Differentiation of *Plasmodium* spp. should be performed if possible

Epidemiological criteria

NA

Case classification

A. Possible case

NA

B. Probable case

NA

C. Confirmed case

Any person meeting the laboratory criteria

Measles

(Measles virus)

Clinical criteria

Any person with fever AND maculo-papular rash AND at least one of the following three:

- Cough
- Coryza
- Conjunctivitis

Laboratory criteria

At least one of the following four:

- Isolation of measles virus from a clinical specimen
- Detection of measles virus nucleic acid in a clinical specimen
- Measles virus specific antibody response characteristic for acute infection in serum or saliva
- Detection of measles virus antigen by DFA in a clinical specimen using measles specific monoclonal antibodies

Laboratory results need to be interpreted according to the vaccination status. If recently vaccinated, investigate for wild virus.

Epidemiological criteria

An epidemiological link by human to human transmission

Case classification

A. Possible case

Any person meeting the clinical criteria

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person not recently vaccinated and meeting the clinical and the laboratory criteria

Meningococcal disease

(*Neisseria meningitidis*)

Clinical criteria

Any person with symptoms compatible with meningococcal disease including:

- Meningeal signs
- Haemorrhagic rash
- Septic shock
- Other manifestations are possible

Laboratory criteria for a confirmed case

At least one of the following three:

- Isolation of *Neisseria meningitidis* from a normally sterile site or from haemorrhagic skin lesions
- Detection of *Neisseria meningitidis* nucleic acid from a normally sterile site or from haemorrhagic skin lesions
- Detection of *Neisseria meningitidis* antigen in CSF

Laboratory criteria for a probable case

At least one of the following two:

- Detection of gram-negative stained intracellular diplococci in CSF or from haemorrhagic skin lesions
- Isolation of *Neisseria meningitidis* from a non-sterile site (together with compatible purpuric rash or CSF findings compatible with bacterial meningitis)

Laboratory criteria for a possible case

- Isolation of *Neisseria meningitidis* from a non sterile site (e.g. eye, throat or nasal swab)

Serogrouping of the isolates should be performed.

Epidemiological criteria

An epidemiological link by human to human transmission

Case classification

A. Possible case

Any person meeting the clinical criteria with characteristic rash **OR**

Any person meeting clinical criteria and the laboratory criteria for possible case **OR**

Any person meeting clinical criteria who received pre-admission antibiotics but is culture negative

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link to a confirmed case

OR

Any person meeting the clinical criteria and the laboratory criteria for a probable case

C. Confirmed case

Any person meeting the laboratory criteria for a confirmed case

Mumps

(Mumps virus)

Clinical criteria

Any person with fever AND sudden onset of unilateral or bilateral tender swelling of the parotid or other salivary glands without other apparent cause. Mumps may also present as aseptic meningitis, encephalitis, hearing loss, orchitis, oophoritis, parotitis or other salivary gland swelling, mastitis or pancreatitis.

Laboratory criteria

At least one of the following three:

- Isolation of mumps virus from a clinical specimen
- Detection of mumps virus nucleic acid
- Mumps virus specific antibody response characteristic for acute infection in serum or saliva

Laboratory results need to be interpreted according to the vaccination status

Epidemiological criteria

An epidemiological link by human to human transmission

Case classification

A. Possible case

Any person meeting the clinical criteria

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person not recently vaccinated and meeting the laboratory criteria.

In the case of recent vaccination: any person with detection of wild-type mumps virus strain.

Non-specific urethritis

Clinical criteria

Any person with urethral inflammation that is not the result of infection with *Neisseria gonorrhoeae*

Laboratory criteria

No evidence of *N. gonorrhoeae* infection by culture, gram stain, or antigen or nucleic acid detection

Epidemiological criteria

NA

Case classification**A. Possible case**

NA

B. Probable case

NA

C. Confirmed case

Any male meeting the clinical criteria in whom gonorrhoea is not found, either by culture, gram stain, or antigen or nucleic acid detection

Noroviral infection

(Norovirus)

Clinical criteria

Any person with vomiting (particularly if projectile) AND/OR diarrhoea

Laboratory criteria

At least one of the following four:

- Detection of norovirus in faeces by electron microscopy
- Detection of virus-specific RNA in faeces
- Detection of virus-specific antigen in faeces
- Detection of small round structured virus in faeces by electron microscopy

Epidemiological criteria

One of the following epidemiological links:

- Human to human transmission
- Exposure to a common source

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link to a confirmed case

C. Confirmed case

Any person meeting the laboratory criteria

Paratyphoid

(*Salmonella* Paratyphi)

Clinical criteria

Any person with at least one of the following two:

- Onset of sustained fever
- At least two of the following four:
 - Headache
 - Relative bradycardia
 - Non productive cough
 - Diarrhoea, constipation, malaise or abdominal pain

Paratyphoid fever has the same symptoms as typhoid fever, however usually a milder course.

Laboratory criteria

Isolation of *Salmonella* Paratyphi from a clinical specimen

Epidemiological criteria

At least one of the following two:

- Human to human transmission
- Exposure to a common source

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Pertussis

(*Bordetella pertussis*)

Clinical criteria

Any person with a cough lasting at least two weeks

AND

at least one of the following three:

- Paroxysms of coughing
- Inspiratory “whooping”
- Post-tussive vomiting

OR

Any person diagnosed as pertussis by a physician

OR

Apnoeic episodes in infants

Laboratory criteria

At least one of the following three:

- Isolation of *Bordetella pertussis* from a clinical specimen
- Detection of *Bordetella pertussis* nucleic acid in a clinical specimen
- *Bordetella pertussis* specific antibody response

Epidemiological criteria

An epidemiological link by human to human transmission

Case classification

A. Possible case

Any person meeting the clinical criteria

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Plague

(*Yersinia pestis*)

Clinical criteria

Any person with at least one of the following clinical forms:

Bubonic plague:

- Fever

AND

- Sudden onset of painful lymphadenitis

-

Septicaemic plague:

- Fever

Pneumonic plague:

- Fever

AND

At least one of the following three:

- Cough
- Chest pain
- Haemoptysis

Laboratory criteria

At least one of the following three:

- Isolation of *Yersinia pestis* from a clinical specimen
- Detection of *Yersinia pestis* nucleic acid from a clinical specimen (F1 antigen)
- *Yersinia pestis* anti-F1 antigen specific antibody response

Epidemiological criteria

At least one of the following four epidemiological links:

- Human to human transmission
- Animal to human transmission
- Laboratory exposure (where there is a potential exposure to plague)
- Exposure to a common source

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the laboratory criteria

Pseudomonas aeruginosa infection (invasive)

(*Pseudomonas aeruginosa* (blood or CSF))

Clinical criteria

Not relevant for surveillance purposes

Laboratory criteria

Isolation of *P. aeruginosa* from blood or cerebrospinal fluid.

Susceptibility to piperacillin-tazobactam, ceftazidime, meropenem, gentamicin and ciprofloxacin should be determined.

Epidemiological criteria

NA

Case Classification

A. Possible case

NA

B. Probable case

NA

C. Confirmed case

Any person meeting the laboratory criteria

Q Fever

(*Coxiella burnetii*)

Clinical criteria

Any person with at least one of the following three:

- Fever
- Pneumonia
- Hepatitis

Laboratory criteria

At least one of the following three:

- Isolation of *Coxiella burnetii* from a clinical specimen
- Detection of *Coxiella burnetii* nucleic acid in a clinical specimen
- *Coxiella burnetii* specific antibody response (IgG or IgM phase II)

Epidemiological criteria

At least one of the following two epidemiological links:

- Exposure to a common source
- Animal to human transmission

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Rabies

(Rabies virus)

Clinical criteria

Any person with an acute encephalomyelitis
AND

At least two of the following seven:

- Sensory changes referred to the site of a preceding animal bite
- Paresis or paralysis
- Spasms of swallowing muscles
- Hydrophobia
- Delirium
- Convulsions
- Anxiety

Laboratory criteria

At least one of the following four:

- Isolation of Lyssa virus from a clinical specimen
- Detection of Lyssa virus nucleic acid in a clinical specimen (e.g. saliva or brain tissue)
- Detection of viral antigens by a DFA in a clinical specimen
- Lyssa virus specific antibody response by virus neutralisation assay in serum or CSF

Laboratory results need to be interpreted according to the vaccination or immunisation status

Epidemiological criteria

At least one of the following three epidemiological links:

- Animal to human transmission (animal with suspected or confirmed infection)
- Exposure to a common source (same animal)
- Human to human transmission (e.g. transplantation of organs)

Case classification

A. Possible case

Any person meeting the clinical criteria

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Respiratory syncytial virus infection

(Respiratory syncytial virus)

Clinical criteria

Any person presenting with a compatible clinical illness. Primary infection with respiratory syncytial virus (RSV) manifests clinically as pneumonia, bronchiolitis, tracheobronchiolitis or upper respiratory tract infection (often accompanied by fever and otitis media). The infection is rarely asymptomatic.

Laboratory criteria

At least one of the following four:

- Isolation of respiratory syncytial virus (RSV) in tissue cell culture from respiratory secretions
- Identification of RSV RNA in respiratory specimens by RT-PCR or other nucleic acid testing technique
- Identification of RSV-specific viral antigen in respiratory specimens
- 4 fold or greater rise in RSV antibody titre in paired acute and convalescent sera

Epidemiological criteria

NA

Case classification

A. Possible case

NA

B. Probable case

NA

C. Confirmed case

Any person meeting the clinical and laboratory criteria

Rotavirus infection

(Rotavirus)

Clinical criteria

Any person with fever

AND at least one of the following two:

- Diarrhoea
- Vomiting

Laboratory criteria

At least one of the following four:

- Detection of rotavirus by antigen assay
- Detection of rotavirus-specific RNA
- Detection of rotavirus by electron microscopy
- Isolation of rotavirus

Epidemiological criteria

At least one of the following two:

- Human to human transmission
- Exposure to a common source

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link to a confirmed case

C. Confirmed case

Any person meeting the laboratory criteria

Rubella

(Rubella virus)

Clinical criteria

Any person with sudden onset of generalised maculo-papular rash
AND

At least one of the following five:

- Cervical adenopathy
- Sub-occipital adenopathy
- Post-auricular adenopathy
- Arthralgia
- Arthritis

Laboratory criteria

- Laboratory criteria for case confirmation, at least one of the following three:
 - Isolation of rubella virus from a clinical specimen
 - Detection of rubella virus nucleic acid in a clinical specimen
 - Rubella virus specific antibody response (IgG) in serum or saliva
- Laboratory criteria for probable case
 - Rubella virus specific antibody response (IgM)*

Laboratory results need to be interpreted according to the vaccination status

Epidemiological criteria

An epidemiological link by human to human transmission

Case classification

A. Possible case

Any person meeting the clinical criteria

B. Probable case

Any person meeting the clinical criteria and with at least one of the following two:

- An epidemiological link
- Meeting the laboratory criteria for a probable case

C. Confirmed case

Any person not recently vaccinated and meeting the laboratory criteria for case confirmation.

In case of recent vaccination, a person with detection of wild-type rubella virus strain.

Note:

* When rubella in pregnancy is suspected, further confirmation of a positive rubella IgM results is required (e.g. a rubella specific IgG avidity test showing a low avidity). In certain situations, such as confirmed rubella outbreaks detection of rubella virus IgM can be considered confirmatory in non-pregnant cases.

Rubella (Congenital)

(Including congenital rubella syndrome)

Clinical criteria

Congenital rubella infection (CRI)

No clinical criteria can be defined for CRI

Congenital rubella syndrome (CRS)

Any infant < 1 year of age or any stillborn with:

- At least two of the conditions listed in (A) OR
- One in category (A) and one in category (B)

Category A

- Cataract(s)
- Congenital glaucoma
- Congenital heart disease
- Loss of hearing
- Pigmentary retinopathy

Category B

- Purpura
- Splenomegaly
- Microcephaly
- Developmental delay
- Meningo-encephalitis
- Radiolucent bone disease
- Jaundice that begins within 24 hours after birth

Laboratory criteria

At least one of the following four:

- Isolation of rubella virus from a clinical specimen
- Detection of Rubella virus nucleic acid
- Rubella virus specific antibody response (IgM)
- Persistence of rubella IgG between 6 and 12 months of age (at least two samples with similar concentration of rubella IgG)

Laboratory results need to be interpreted according to the vaccination status

Epidemiological criteria

Any infant or any stillborn born to a woman with a laboratory confirmed rubella infection during pregnancy by human to human transmission vertical transmission)

Rubella (Congenital)

(Including congenital rubella syndrome)

Continued

Case classification

A. Possible case

NA

B. Probable case

Any stillborn or infant either not tested OR with negative laboratory results with at least one of the following two:

- An epidemiological link AND at least one category 'A' CRS clinical criteria
- Meeting the clinical criteria for CRS

C. Confirmed case

Any stillborn meeting the laboratory criteria OR any infant meeting the laboratory criteria

AND

at least one of the following two:

- An epidemiological link
- At least one category 'A' CRS clinical criteria

An infant with positive laboratory criteria only without a history of rubella in the mother during the pregnancy and without 'A' clinical criteria will therefore not be notified as rubella case.

Salmonellosis

(*Salmonella* spp. other than *S. Typhi* and *S. Paratyphi*)

Clinical criteria

Any person with at least one of the following four:

- Diarrhoea
- Fever
- Abdominal pain
- Vomiting

Laboratory criteria

Isolation of *Salmonella* (other than *S. Typhi* and *S. Paratyphi*) from stool, urine, body site (e.g. infected wound) or any normally sterile body fluids and tissues (e.g. blood, CSF, bone, synovial fluid)

Epidemiological criteria

At least one of the following two:

- Human to human transmission
- Exposure to a common source

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Severe Acute Respiratory Syndrome (SARS)

(SARS-associated coronavirus)

Clinical criteria

Any person with fever or a history of fever

AND

At least one of the following three:

- Cough
- Difficulty in breathing
- Shortness of breath

AND

At least one of the following four:

- Radiographic evidence of pneumonia
- Radiographic evidence of acute respiratory distress syndrome
- Autopsy findings of pneumonia
- Autopsy findings of acute respiratory distress syndrome

AND

No alternative diagnosis which can fully explain the illness

Laboratory criteria

- Laboratory criteria for case confirmation

At least one of the following three:

- Isolation of virus in cell culture from any clinical specimen and identification of SARS-CoV using method such as RT-PCR
- Detection SARS-CoV nucleic acid in at least one of the following three:
 - At least two different clinical specimens (e.g. nasopharyngeal swab and stool)
 - The same clinical specimen collected on two or more occasions during the course of the illness (e.g. sequential nasopharyngeal aspirates)
 - Two different assays or repeat RT-PCR using a new RNA extract from the original clinical sample on each occasion of testing
- SARS-CoV specific antibody response by one of the following two:
 - Seroconversion by ELISA or IFA in acute and convalescent phase serum tested in parallel
 - Fourfold or greater rise in antibody titre between acute and convalescent phase sera tested in parallel

- Laboratory criteria for a probable case

At least one of the following two:

- A single positive antibody test for SARS-CoV
- A positive PCR result for SARS-CoV on a single clinical specimen and assay

Severe Acute Respiratory Syndrome (SARS)

(SARS-associated coronavirus)

Continued

Epidemiological criteria

At least one of the following three:

- Any person with at least one of the following three:
 - Employed in an occupation associated with an increased risk of SARS-CoV exposure (e.g. staff in a laboratory working with live SARS-CoV/SARS-CoV-like viruses or storing clinical specimens infected with SARS-CoV; persons with exposure to wildlife or other animals considered a reservoir of SARS-CoV, their excretions or secretions)
 - Close contact (note 1) of one or more persons with confirmed SARS or under investigation for SARS
 - History of travel to, or residence in, an area experiencing an outbreak of SARS
- Two or more health-care workers (note 2) with clinical evidence of SARS in the same health-care unit and with onset of illness in the same 10-day period
- Three or more persons (health-care workers and/or patients and/or visitors) with clinical evidence of SARS with onset of illness in the same 10-day period and epidemiologically linked to a healthcare facility

Case classification for the inter-epidemic period

Also applies during an outbreak in a non-affected country or area

A. Possible case

Any person meeting the clinical criteria and with an epidemiological link

B. Probable case

Any person meeting the clinical criteria AND with an epidemiological link AND meeting the laboratory criteria for a probable case

C. Nationally confirmed case

Any person meeting the clinical and the laboratory criteria for case confirmation where the testing has been performed at a national reference laboratory

D. Confirmed case

Any person meeting the clinical and the laboratory criteria for case confirmation where the testing has been performed at a WHO SARS verification and reference laboratory

Case classification during an outbreak

Applies during an outbreak in a country/area where at least one person has been laboratory confirmed by a WHO SARS verification and reference laboratory

A. Possible case

Any person meeting the clinical criteria

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link to a nationally confirmed or a confirmed case

Severe Acute Respiratory Syndrome (SARS)

(SARS-associated coronavirus)

Continued

C. **Nationally confirmed case**

Any person meeting the clinical and the laboratory criteria for case confirmation where the testing has been performed at a national reference laboratory

D. **Confirmed case**

One of the following three:

- Any person meeting the clinical and the laboratory criteria for case confirmation where the testing has been performed at a WHO SARS verification and reference laboratory
- Any nationally confirmed case with an epidemiological link to a chain of transmission where at least one case has been independently verified by a WHO SARS reference and verification laboratory
- Any person meeting the clinical criteria and with laboratory criteria for probable case with an epidemiological link to a chain of transmission where at least one case has been independently verified by a WHO SARS reference and verification laboratory

Note 1:

A close contact is a person who has cared for, lived with, or having had direct contact with the respiratory secretions, body fluids and/or excretions (e.g. faeces) of cases of SARS.

Note 2:

In this context the term 'health-care worker' includes all hospital staff. The definition of the health care unit in which the cluster occurs will depend on the local situation. Unit size may range from an entire health care facility if small, to a single department or ward of a large tertiary hospital.

Shigellosis

(*Shigella* species)

Clinical criteria

Any person with at least one of the following four:

- Diarrhoea
- Fever
- Vomiting
- Abdominal pain

Laboratory criteria

Isolation of *Shigella* spp. from a clinical specimen

Epidemiological criteria

At least one of the following two:

- Human to human transmission
- Exposure to a common source

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Smallpox

(Variola virus)

Clinical criteria

Any person with at least one of the following two:

- Fever

AND

Vesicles or firm pustules rash at the same stage of development with a centrifugal distribution

- Atypical presentations defined as at least one of the following four:
 - Haemorrhagic lesions
 - Flat velvety lesions not progressing to vesicles
 - Variola sine eruptione
 - Milder type

Laboratory criteria

- Laboratory criteria for case confirmation

At least one of the following two laboratory tests:

- Isolation of smallpox (variola virus) from a clinical specimen followed by sequencing (designated P4 laboratories only)
- Detection of variola virus nucleic acid in a clinical specimen followed by sequencing

Laboratory results need to be interpreted according to the vaccination status

- Laboratory criteria for a probable case
 - Identification of orthopox virus particles by EM

Epidemiological criteria

At least one of the following two epidemiological links:

- Human to human transmission
- Laboratory exposure (where there is a potential exposure to variola virus)

Case classification

A. Possible case

Any person meeting the clinical criteria

B. Probable case

Any person meeting the clinical criteria and with at least one of the following two:

- An epidemiological link to a confirmed human case by human to human transmission
- Meeting the laboratory criteria for a probable case

C. Confirmed case

Any person meeting the laboratory criteria for case confirmation.

During an outbreak: any person meeting the clinical criteria and with an epidemiological link.

Staphylococcal food poisoning

(Enterotoxigenic *Staphylococcus aureus*)

Clinical criteria

Any person with at least one of the following two conditions:

- vomiting AND nausea
- diarrhoea AND abdominal cramps

Laboratory criteria

At least one of the following three:

- Demonstration of staphylococcal enterotoxin in epidemiologically implicated food
- Isolation of *S. aureus* with the same phage type from faeces or vomitus of two or more epidemiologically linked ill persons
- Isolation of $\geq 10^5$ colony-forming units of *S. aureus* from epidemiologically implicated food

Epidemiological criteria

An epidemiological link by exposure to a common source

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Staphylococcus aureus bacteraemia

(*Staphylococcus aureus* (blood))

Clinical criteria

Not relevant for surveillance purposes

Laboratory criteria for diagnosis

Isolation of *S. aureus* from blood culture. The isolate should be identified as *S. aureus* by producing a positive coagulase test, preferably tube coagulase. Methicillin susceptibility should be determined using one or more of the following methods (or as recommended in the current edition of the European Antimicrobial Resistance Surveillance Network (EARS-Net) Microbiological Manual):

- Cefoxitin screen test
- Detection of altered penicillin binding protein (PBP2a)
- Detection of the gene encoding methicillin resistance (*mecA*)

Epidemiological criteria

NA

Case classification

A. Possible case

NA

B. Probable case

NA

C. Confirmed case

Any person meeting the laboratory criteria

Streptococcus group A infection (invasive)

(*Streptococcus pyogenes* (blood, CSF or other normally sterile site))

Clinical criteria

Streptococcus group A infection (invasive) comprises three clinical syndromes:

- a) Streptococcal Toxic Shock Syndrome (STSS), which is characterised by hypotension (fifth percentile of systolic blood pressure in children, or <90mmHg systolic pressure in adolescents and adults) and two or more of the following:
 - a. Renal impairment (creatinine greater than twice upper limit of normal for age)
 - b. Coagulopathy (platelets <100,000x10⁶/l or evidence of disseminated intravascular coagulation)
 - c. Liver dysfunction (ALT, AST or bilirubin more than twice upper limit of normal for age)
 - d. Adult respiratory distress syndrome (pulmonary infiltrates and hypoxaemia without cardiac failure or generalised oedema)
 - e. Generalised erythematous rash that may desquamate
 - f. Soft tissue necrosis (necrotising fasciitis, myositis, gangrene)
- b) Necrotising fasciitis
- c) Sepsis syndrome, or systemic inflammatory response syndrome, with or without an identifiable focus of infection (such as meningitis, pneumonia, cellulitis, peritonitis, puerperal sepsis, septic arthritis, myositis)

Laboratory criteria

– Laboratory criteria for a confirmed case

- Isolation of group A streptococcus, or detection of group A streptococcus nucleic acid, from a normally sterile site (blood, cerebrospinal fluid, pleural fluid, peritoneal fluid, pericardial fluid, joint aspirate, bone, or deep tissue or abscess at operation)

– Laboratory criteria for a probable case (STSS or necrotising fasciitis only)

- Isolation of group A streptococcus from a non-sterile site (e.g. throat, sputum, vagina)

– Laboratory criteria for a possible case (STSS or necrotising fasciitis only)

- Serological evidence of recent group A streptococcal infection
- Presence of streptococci on Gram stain of tissue or pus (necrotising fasciitis only)

***Streptococcus* group A infection (invasive)**

(*Streptococcus pyogenes* (blood, CSF or other normally sterile site))

Continued

Epidemiological criteria

NA

Case classification

A. Possible case

Any person meeting the clinical criteria for STSS, or with necrotising fasciitis, and the laboratory criteria for a possible case

B. Probable case

Any person meeting the clinical criteria for STSS, or with necrotising fasciitis, and the laboratory criteria for a probable case

C. Confirmed case

Any person meeting the laboratory criteria for a confirmed case

***Streptococcus* group B infection (invasive)**

(*Streptococcus agalactiae* (blood, CSF or other normally sterile site))

Clinical description

Only group B streptococci (invasive) in infants <90 days old or stillborn infants is notifiable.

In neonates two syndromes exist:

- Early-onset (<7 days old)
- Late-onset (7-89 days old)

Both include sepsis, pneumonia and meningitis.

Stillbirth associated with isolation/detection of *Streptococcus agalactiae* from the placenta or amniotic fluid is notifiable.

Laboratory criteria

At least one of the following four:

- Isolation of *S. agalactiae* from a normally sterile site
- Detection *S. agalactiae* nucleic acid from a normally sterile site
- Isolation of *S. agalactiae* from the placenta and/or amniotic fluid, with foetal demise
- Detection of *S. agalactiae* nucleic acid from the placenta and/or amniotic fluid, with foetal demise

Epidemiological criteria

NA

Case classification

A. Possible case

NA

B. Probable case

NA

C. Confirmed case

Any infant or stillborn infant meeting the laboratory criteria

***Streptococcus pneumoniae* infection (invasive)**

(*Streptococcus pneumoniae* (blood, CSF or other normally sterile site))

Clinical criteria

Not relevant for surveillance purposes

Laboratory criteria

At least one of the following three:

- Isolation of *Streptococcus pneumoniae* from a normally sterile site
- Detection of *Streptococcus pneumoniae* nucleic acid from a normally sterile site
- Detection of *Streptococcus pneumoniae* antigen from a normally sterile site

Epidemiological criteria:

NA

Case classification

A. Possible case

NA

B. Probable case

NA

C. Confirmed case:

Any person meeting the laboratory criteria

Syphilis

(*Treponema pallidum*)

Clinical criteria

A case may be asymptomatic or present with:

A. *Primary syphilis*

Any person with one or several (usually painless) chancres in the genital, perineal, anal area, or mouth, or pharyngeal mucosa, or elsewhere

B. *Secondary syphilis*

Any person with at least one of the following:

- Diffuse maculo-papular rash often involving palms and soles
- Generalised lymphadenopathy
- Condyloma lata
- Enanthema
- Alopecia diffusa
- Ocular manifestations of early syphilis
- Neurological manifestations of early syphilis

C. *Early latent syphilis (<1 year)*

a. Positive syphilis serology, no symptoms or signs of early syphilis and a negative reference syphilis screening test within previous 12 months.

Laboratory criteria

For new cases, at least one of the following:

- Demonstration of treponemes in lesions, exudates or tissues from clinically appropriate sites by dark-ground microscopy
- Demonstration of treponemes in lesions, exudates or tissues from clinically appropriate sites by PCR
- Detection of *Treponema pallidum* antibodies (total antibodies) using EIA **and** TPHA/ TPPA **and** additionally detection of Tp-IgM antibodies (e.g. IgM ELISA or immunoblot or 19S-IgM-FTA-abs)
- Detection of *Treponema pallidum* antibodies (total antibodies) using EIA **and** TPHA/ TPPA **and** additionally detection of cardiolipin non-Tp IgM with RPR titre of $\geq 1:16$

For re-infections, laboratories should use their own internal criteria.

Epidemiological criteria:

NA

Case classification:

Possible:

NA

Probable:

NA

Confirmed: Any person meeting the clinical criteria for early syphilis, who also meets the laboratory criteria for case confirmation

Syphilis, congenital and neonatal

(*Treponema pallidum*)

Clinical Criteria

Any infant < 2 years of age with at least one of the following ten:

- Hepatosplenomegaly
- Mucocutaneous lesions
- Condyloma lata
- Persistent rhinitis
- Jaundice
- Pseudoparalysis (due to periostitis and osteochondritis)
- Central nervous involvement
- Anaemia
- Nephrotic syndrome
- Malnutrition

Laboratory Criteria

- Laboratory criteria for case confirmation

At least one of the following three:

- Demonstration of *Treponema pallidum* by dark field microscopy in the umbilical cord, the placenta, a nasal discharge or skin lesion material
- Demonstration of *Treponema pallidum* by DFA-TP in the umbilical cord, the placenta, a nasal discharge or skin lesion material
- Detection of *Treponema pallidum* – specific IgM (FTA-abs, EIA)

AND a reactive non treponemal test (VDRL, RPR) in the child's serum

- Laboratory criteria for a probable case

At least one of the following three:

- Reactive VDRL-CSF test result
- Reactive non treponemal and treponemal serologic tests in the mother's serum
- Infant's non treponemal antibody titre is fourfold or greater than the antibody titre in the mother's serum

Epidemiological Criteria

Any infant with an epidemiological link by human to human transmission (vertical transmission)

Case classification

A. Possible case

NA

B. Probable case

Any infant or child meeting the clinical criteria and with at least one of the following two:

- An epidemiological link
- Meeting the laboratory criteria for a probable case

C. Confirmed case

Any infant meeting the laboratory criteria for case confirmation

Tetanus

(*Clostridium tetani*)

Clinical criteria

Any person with at least two of the following three:

- Painful muscular contractions primarily of the masseter and neck muscles leading to facial spasms known as trismus and “risus sardonicus”
- Painful muscular contractions of trunk muscles
- Generalized spasms, frequently position of opisthotonus

Laboratory criteria

At least one of the following three:

- Isolation of *Clostridium tetani* from an infection site
- Detection of *C. tetani* toxin gene from pure culture
- Detection of *C. tetani* neurotoxin in serum (serum must be taken before administration of anti-toxin)

Epidemiological criteria

NA

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Toxoplasmosis

(*Toxoplasma gondii*)

Clinical criteria

Any person with an acute illness with at least one of the following four:

- lymphadenopathy
- encephalitis
- chorioretinitis
- dysfunction of the central nervous system

(Congenital infections may also occur with hydrocephalus, microcephaly, intracerebral calcification, convulsions, mental retardation)

Laboratory criteria

At least one of the following three:

- Demonstration of a specific toxoplasma antibody response
- Demonstration of *T. gondii* in body tissues or fluids
- Detection of *T. gondii* nucleic acid in a clinical specimen

Epidemiological criteria

NA

Case classification

A. Possible case

NA

B. Probable case

NA

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Toxoplasmosis (congenital)

Clinical criteria

Not relevant for surveillance purposes

Laboratory criteria

At least one of the following four:

- Demonstration of *T. gondii* in body tissues or fluids
- Detection of *T. gondii* nucleic acid in a clinical specimen
- *T. gondii* specific antibody response (IgM, IgG, IgA) in a newborn
- Persistently stable IgG *T. gondii* titres in an infant (<12 months of age)

Epidemiological criteria

NA

Case classification

A. Possible case

NA

B. Probable case

NA

C. Confirmed case

Any infant meeting the laboratory criteria

Trichinosis

(*Trichinella* species)

Clinical criteria

Any person with at least three of the following six:

- Fever
- Muscle soreness and pain
- Diarrhoea
- Facial oedema
- Eosinophilia
- Subconjunctival, subungual and retinal haemorrhages

Laboratory criteria

At least one of the following two:

- Demonstration of *Trichinella* larvae in tissue obtained by muscle biopsy
- *Trichinella* specific antibody response (IFA test, ELISA or Western Blot)

Epidemiological criteria

At least one of the following two epidemiological links:

- Exposure to contaminated food (meat)
- Exposure to a common source

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the clinical criteria and the laboratory criteria

Trichomoniasis

(*Trichomonas vaginalis*)

Clinical description

Any person with the following clinical picture: trichomoniasis is a disease characterised in women by vaginitis. The disease may cause a urethritis or cystitis but is frequently asymptomatic. In men the infectious agent invades and persists in the prostate, urethra or seminal vesicles and often causes only mild symptoms.

Laboratory criteria

Demonstration of the motile parasites either by microscopic examination of discharges or by culture, which is more sensitive

Epidemiological criteria

NA

Case classification

A. Possible case

NA

B. Probable case

NA

C. Confirmed case

Any person meeting the laboratory criteria

Tuberculosis

(*Mycobacterium tuberculosis* complex)

Clinical criteria

Any person with the following two:

- Signs, symptoms and/or radiological findings consistent with active tuberculosis in any site
AND
- A clinician's decision to treat the person with a full course of anti-tuberculosis therapy

OR

A case discovered post-mortem with pathological findings consistent with active tuberculosis that would have indicated anti-tuberculosis antibiotic treatment had the patient been diagnosed before dying

Laboratory criteria

- Laboratory criteria for a confirmed case
At least one of the following two:
 - Isolation of *Mycobacterium tuberculosis* complex (excluding *Mycobacterium bovis*-BCG) from a clinical specimen
 - Detection of *Mycobacterium tuberculosis* complex nucleic acid in a clinical specimen AND positive microscopy for acid-fast bacilli or equivalent fluorescent staining bacilli on light microscopy
- Laboratory criteria for a probable case
At least one of the following three:
 - Microscopy for acid-fast bacilli or equivalent fluorescent staining bacilli on light microscopy
 - Detection of *Mycobacterium tuberculosis* complex nucleic acid in a clinical specimen
 - Histological appearance of granulomata

Epidemiological criteria

NA

Case classification

A. Possible case

Any person meeting the clinical criteria

B. Probable case

Any person meeting the clinical criteria and the laboratory criteria for a probable case

C. Confirmed case

Any person meeting the clinical and the laboratory criteria for case confirmation

Tularemia

(*Francisella tularensis*)

Clinical criteria

Any person with at least one of the following clinical forms:

- *Ulceroglandular tularemia*
 - Cutaneous ulcer
 - AND
 - Regional lymphadenopathy
- *Glandular tularemia*
 - Enlarged and painful lymph nodes without apparent ulcer
- *Oculoglandular tularemia*
 - Conjunctivitis
 - AND
 - Regional lymphadenopathy
- *Oropharyngeal tularemia*
 - Cervical lymphadenopathy
 - AND
 - at least one of the following three:
 - Stomatitis
 - Pharyngitis
 - Tonsillitis
- *Intestinal tularemia*
 - At least one of the following three:
 - Abdominal pain
 - Vomiting
 - Diarrhoea
- *Pneumonic tularemia*
 - Pneumonia
- *Typhoidal tularemia*
 - At least one of the following two:
 - Fever without early localising signs and symptoms
 - Septicaemia

Laboratory criteria

At least one of the following three:

- Isolation of *Francisella tularensis* from a clinical specimen
- Detection of *Francisella tularensis* nucleic acid in a clinical specimen
- *Francisella tularensis* specific antibody response

Tularemia

(*Francisella tularensis*)

Continued

Epidemiological criteria

At least one of the following three epidemiological links:

- Exposure to a common source
- Animal to human transmission
- Exposure to contaminated food/drinking water
-

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Typhoid

(*Salmonella Typhi*)

Clinical criteria

Any person with at least one of the following two:

- Onset of sustained fever
- At least two of the following four:
 - Headache
 - Relative bradycardia
 - Non productive cough
 - Diarrhoea, constipation, malaise or abdominal pain

Laboratory criteria

Isolation of *Salmonella Typhi* from a clinical specimen

Epidemiological criteria

At least one of the following two:

- Human to human transmission
- Exposure to a common source

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Typhus

(*Rickettsia prowazekii*)

Clinical criteria

Any person with an acute febrile illness usually associated with a rash

Laboratory criteria

- Laboratory criteria for case confirmation
 - At least one of the following four:
 - A fourfold or greater rise in rickettsial antibodies from paired sera
 - A diagnostic rickettsial antibody titre from a single serum specimen
 - Direct detection of rickettsia in a tissue sample, using immunohistochemistry or similar technique
 - Detection of rickettsia-specific nucleic acids in blood or other tissue by PCR
- Laboratory criteria for a probable case
 - Positive Weil-Felix agglutination test

Epidemiological criteria

NA

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and the laboratory criteria for a probable case

C. Confirmed case

Any person meeting the clinical and the laboratory criteria for case confirmation

Verotoxigenic *Escherichia coli* infection

(Verotoxin producing *Escherichia coli*)

Clinical criteria

VTEC

Any person with at least one of the following three:

- Diarrhoea
- Abdominal pain
- Haemolytic-uraemic syndrome (HUS)

HUS

Any person with acute renal failure AND at least one of the following two:

- Microangiopathic haemolytic anaemia
- Thrombocytopenia

Laboratory criteria

At least one of the following three:

- Isolation of an *E. coli* strain that produces verotoxin or harbours *vt1* or *vt2* gene(s)
- Direct detection of *vt1* or *vt2* gene(s) nucleic acid (without strain isolation)
- Detection of free verotoxin in faeces

Only for HUS the following can be used as laboratory criterion to confirm VTEC:

- *E. coli* serogroup-specific (LPS) antibody response

Isolation of a VTEC strain and additional characterisation by serotype, phage type, *eae* genes, and subtypes of *vt1/vt2* should be performed if possible.

Epidemiological criteria

At least one of the following two:

- Human to human transmission
- Exposure to a common source

Case classification

A. Possible case

Any person meeting the clinical criteria for HUS (see note 1)

B. Probable case

Any person meeting the clinical criteria for VTEC and with an epidemiological link OR a laboratory confirmed case not meeting the clinical criteria, e.g. asymptomatic (see note 2)

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Note 1:

A person whose presentation meets the definition of HUS above, but whose condition is demonstrated to have been caused by another infectious agent, is not notifiable as a possible case of VTEC. Where that alternative infectious disease is notifiable, notification should be made according to that case definition.

Note 2:

Where no clinical information is available, laboratory confirmed cases should be notified as confirmed cases

Viral encephalitis¹

Clinical criteria

Any person with altered mental state (altered level of consciousness, agitation, lethargy) for longer than 24 hours and displaying two or more of the following six features:

- Fever >38° or history of fever
- Seizures and/or focal neurological findings (with evidence of brain parenchyma involvement)
- Cerebrospinal fluid (CSF) pleocytosis with predominant lymphocytes and/or elevated protein with a negative Gram stain and culture
- Abnormal EEG findings indicative of encephalitis
- Abnormal neuroimaging findings compatible with encephalitis
- No alternative diagnosis (microbiological or non-infectious)

Laboratory criteria

At least **ONE** of the following three criteria:

- Detection of viral nucleic acid in CSF by PCR
- Culture of virus from CSF
- Serological evidence of acute infection with a virus known to cause viral encephalitis

Epidemiological criteria

NA

Case classification

A. Possible case

Any person meeting the clinical criteria

B. Probable case

NA

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

¹ Notification of viral encephalitis due to Tick-borne encephalitis (TBE) should be notified using the case definition below. Notification of viral encephalitis due to another listed pathogen should be notified under the relevant disease (e.g. West Nile virus, Chikungunya virus)

Tick-borne encephalitis (TBE)²

Clinical Criteria:

Any person with symptoms of inflammation of the CNS (e.g. meningitis, meningo-encephalitis, encephalomyelitis, encephalo-radculitis)

Laboratory Criteria for a Confirmed Case³

At least **ONE** of the following five criteria:

- TBE specific IgM AND IgG antibodies in blood
- TBE specific IgM antibodies in CSF
- Sero-conversion or four fold increase of TBE-specific antibodies in paired serum samples
- Detection of TBE viral nucleic acid in a clinical specimen
- Isolation of TBE virus from clinical specimen

Laboratory Criteria for a Probable Case³

- Detection of TBE-specific IgM-antibodies in a serum sample

Epidemiological Criteria

Exposure to a common source (unpasteurised dairy products)

Classification

A. Possible

NA

B. Probable

Any person meeting the clinical criteria and the laboratory criteria for a probable case

OR

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed

Any person meeting the clinical and laboratory criteria for case confirmation

² The following definition should be used for reporting of viral encephalitis caused by Tick-borne encephalitis (TBE) virus

³ Serological results should be interpreted according to the vaccination status and previous exposure to other flaviviral infections. Confirmed cases in such situations should be validated by serum neutralization assay or other equivalent assays

Viral haemorrhagic fevers

Clinical criteria

Any person with at least one of the following two:

- Fever
- Haemorrhagic manifestations in various forms that may lead to multi-organ failure

Laboratory criteria

At least one of the following two:

- Isolation of specific virus from a clinical specimen
- Detection of specific virus nucleic acid in a clinical specimen and genotyping

Epidemiological criteria

At least one of the following:

- Travel in the last 21 days to a region where VHF cases are known or believed to have occurred
- Exposure within the last 21 days to a probable or confirmed case of a viral haemorrhagic fever whose onset of illness was within the last six months

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Viral meningitis

Clinical criteria

Any person with an acute illness with meningeal symptoms AND fever

Laboratory criteria for a confirmed case

Raised cerebrospinal fluid white cell count AND one of the following three:

- Isolation of a viral pathogen from cerebrospinal fluid
- Detection of viral nucleic acid in cerebrospinal fluid
- Serological evidence of infection with a virus known to cause viral meningitis

Laboratory criteria for a probable case

Raised cerebrospinal fluid white cell count AND isolation of a viral pathogen known to cause viral meningitis from a site other than cerebrospinal fluid

Epidemiological criteria

NA

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and the laboratory criteria for a probable case but with no evidence of bacterial, fungal or parasitic meningitis

C. Confirmed case

Any person meeting the clinical and the laboratory criteria for case confirmation

Note:

Notification of viral meningitis due to a listed pathogen should be notified under the relevant disease

West Nile fever

(West Nile virus)

Clinical criteria

Any person with fever

OR

At least one of the following two:

- Encephalitis
- Meningitis

Laboratory criteria

- Laboratory test for case confirmation

At least one of the following four:

- Isolation of West Nile virus (WNV) from blood or CSF
- Detection of WNV nucleic acid in blood or CSF
- WNV specific antibody response (IgM) in CSF
- WNV IgM high titre AND detection of WNV IgG, AND confirmation by neutralisation

- Laboratory test for a probable case

WNV specific antibody response in serum

Laboratory results need to be interpreted according to flavivirus vaccination status

Epidemiological criteria

At least one of the following two:

- Animal to human transmission (residing, having visited or having been exposed to mosquito bites in an area where WNV is endemic in horses or birds)
- Human to human transmission (vertical transmission, blood transfusion, transplants)

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria AND with at least one of the following two:

- an epidemiological link
- a laboratory test for a probable case

C. Confirmed case

Any person meeting the laboratory criteria for case confirmation

Yellow fever

(Yellow fever virus)

Clinical criteria

Any person with fever

AND

At least one of the following two:

- Jaundice
- Generalised haemorrhage

Laboratory criteria

At least one of the following five:

- Isolation of yellow fever virus from a clinical specimen
- Detection of yellow fever virus nucleic acid
- Detection of yellow fever antigen
- Yellow fever specific antibody response
- Demonstration of typical lesions in post mortem liver histopathology

Laboratory results need to be interpreted according to flavivirus vaccination status

Epidemiological criteria

Travel in the last one week to a region where yellow fever cases are known or believed to have occurred

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person not recently vaccinated meeting the clinical and the laboratory criteria. In case of recent vaccination, a person with detection of wild-type yellow fever virus strain.

Yersiniosis

(*Yersinia enterocolitica*, *Yersinia pseudotuberculosis*)

Clinical criteria

Any person with at least one of the following five:

- Fever
- Diarrhoea
- Vomiting
- Abdominal pain (pseudoappendicitis)
- Tenesmus

Laboratory criteria

Isolation of human pathogenic *Yersinia enterocolitica* or *Yersinia pseudotuberculosis* from a clinical specimen

Epidemiological criteria

At least one of the following two:

- Human to human transmission
- Exposure to a common source

Case classification

A. Possible case

NA

B. Probable case

Any person meeting the clinical criteria and with an epidemiological link

C. Confirmed case

Any person meeting the clinical and the laboratory criteria

Zika virus infection

(Zika virus)

Clinical criteria

A person presenting with a rash, with or without fever **AND** at least one of the following signs and symptoms:

- Arthralgia or
- Myalgia or
- Non-purulent conjunctivitis/hyperaemia

Laboratory criteria

Laboratory criteria for a probable case

Detection of Zika specific IgM antibodies in serum

Laboratory criteria for a confirmed case

At least one of the following:

- Detection of Zika virus nucleic acid in a clinical specimen;
- Detection of Zika virus antigen in a clinical specimen;
- Isolation of Zika virus from a clinical specimen;
- Detection of Zika virus specific IgM antibodies and confirmation using suitably validated flavivirus serological assays;
- Sero-conversion or four-fold increase in the titre of Zika specific antibodies in acute and convalescent serum samples.

Epidemiological criteria

History of exposure in an area with transmission of Zika within two weeks prior to onset of symptoms **OR**

Sexual contact with a confirmed case of Zika virus infection in the past eight weeks **OR**

Sexual contact with a person who had been in an area with Zika virus transmission in the past eight weeks.

A list of Zika affected areas is kept updated on the HPSC website.

Case classification

A. **Possible case**

NA

B. **Probable case**

A person meeting the clinical criteria and the epidemiological criteria. A person meeting the laboratory criteria for a probable case.

C. **Confirmed case**

A person meeting the laboratory criteria for a confirmed case.

Outbreak

An outbreak of infection or food-borne illness may be defined as two or more linked cases of the same illness or the situation where the observed number of cases exceeds the expected number, or a single case of disease caused by a significant pathogen (e.g. diphtheria or viral haemorrhagic fever). Outbreaks may be confined to some of the members of one family or may be more widespread and involve cases either locally, nationally or internationally.

Unusual cluster or changing pattern of illness

A medical practitioner and a clinical director of a diagnostic laboratory are required to notify to the medical officer of health any unusual clusters or changing patterns of any illness, and individual cases thereof, that may be of public health concern.

An unusual cluster or changing pattern of illness means an aggregation of health events, grouped together in time or space, that is believed or perceived to be greater than could be expected by chance.

Features that should alert healthcare providers to the possibility of an unusual cluster or changing pattern of illness include:

- A rapidly increasing disease incidence in a normally healthy population
- An unusual increase in the number of people seeking care, particularly with fever, respiratory or gastrointestinal complaints
- An endemic disease rapidly emerging at an uncharacteristic time or in an unusual pattern (e.g. an increase in what appears to be chickenpox-like illness among adult patients, but which might be smallpox)
- Clusters of patients arriving from a single locale
- Large numbers of potentially fatal cases (e.g. a large number of acute flaccid paralysis with prominent bulbar palsies, suggestive of a release of botulinum toxin)
- Any one patient presenting with a disease that has bioterrorism potential (e.g. anthrax, smallpox, botulism, plague or tularemia)

Appendix

List of Notifiable Diseases and their respective causative pathogens

Acute anterior poliomyelitis	Polio virus
Ano-genital warts	Human papilloma virus
Anthrax	<i>Bacillus anthracis</i>
<i>Bacillus cereus</i> food-borne infection/intoxication	<i>Bacillus cereus</i>
Bacterial meningitis (not otherwise specified)	
Botulism	<i>Clostridium botulinum</i>
Brucellosis	<i>Brucella</i> spp.
<i>Campylobacter</i> infection	<i>Campylobacter</i> spp.
Carbapenem-resistant <i>Enterobacteriaceae</i> infection (invasive)	Carbapenem-resistant <i>Enterobacteriaceae</i> (blood, CSF or other normally sterile site)
Chancroid	<i>Haemophilus ducreyi</i>
Chickenpox – hospitalised cases	Varicella-zoster virus
Chikungunya disease	Chikungunya virus
<i>Chlamydia trachomatis</i> infection (genital)	<i>Chlamydia trachomatis</i>
Cholera	<i>Vibrio cholerae</i>
<i>Clostridium difficile</i> infection	<i>Clostridium difficile</i>
<i>Clostridium perfringens</i> (type A) food-borne disease	<i>Clostridium perfringens</i>
Creutzfeldt Jakob disease	
variant Creutzfeldt Jakob disease	
Cryptosporidiosis	<i>Cryptosporidium parvum, hominis</i>
Cytomegalovirus infection (congenital)	Cytomegalovirus
Dengue fever	Dengue virus
Diphtheria	<i>Corynebacterium diphtheriae</i> or <i>ulcerans</i> (toxin producing)
Echinococcosis	<i>Echinococcus</i> spp.
Enterococcal bacteraemia	<i>Enterococcus</i> spp. (blood)
<i>Escherichia coli</i> infection (invasive)	<i>Escherichia coli</i> (blood, CSF)
Giardiasis	<i>Giardia lamblia</i>
Gonorrhoea	<i>Neisseria gonorrhoeae</i>
Granuloma inguinale	<i>Klebsiella granulomatis</i>
<i>Haemophilus influenzae</i> disease (invasive)	<i>Haemophilus influenzae</i> (blood, CSF or other normally sterile site)
Hepatitis A (acute) infection	Hepatitis A virus
Hepatitis B (acute and chronic) infection	Hepatitis B virus
Hepatitis C infection	Hepatitis C virus
Hepatitis E infection	Hepatitis E virus
Herpes simplex (genital)	Herpes simplex virus
Human immunodeficiency virus infection	Human immunodeficiency virus
Influenza	Influenza A and B virus
<i>Klebsiella pneumoniae</i> infection (invasive)	<i>Klebsiella pneumoniae</i> (blood or CSF)
Legionellosis	<i>Legionella</i> spp.
Leprosy	<i>Mycobacterium leprae</i>
Leptospirosis	<i>Leptospira</i> spp.
Listeriosis	<i>Listeria monocytogenes</i>
Lyme disease (neuroborreliosis)	<i>Borrelia burgdorferi</i>
Lymphogranuloma venereum	<i>Chlamydia trachomatis</i>

Appendix

List of Notifiable Diseases and their respective causative pathogens

Continued

Malaria	<i>Plasmodium falciparum, vivax, knowlesi, ovale, malariae</i>
Measles	Measles virus
Meningococcal disease	<i>Neisseria meningitidis</i>
Mumps	Mumps virus
Non-specific urethritis	
Noroviral infection	Norovirus
Paratyphoid	<i>Salmonella</i> Paratyphi
Pertussis	<i>Bordetella pertussis</i>
Plague	<i>Yersinia pestis</i>
<i>Pseudomonas aeruginosa</i> infection (invasive)	<i>Pseudomonas aeruginosa</i> (blood or CSF)
Q Fever	<i>Coxiella burnetii</i>
Rabies	Rabies virus
Respiratory syncytial virus infection	Respiratory syncytial virus
Rotavirus infection	Rotavirus
Rubella	Rubella virus
Salmonellosis	<i>Salmonella</i> spp. other than <i>S. Typhi</i> and <i>S. Paratyphi</i>
Severe Acute Respiratory Syndrome (SARS)	SARS-associated coronavirus
Shigellosis	<i>Shigella</i> spp.
Smallpox	Variola virus
Staphylococcal food poisoning	Enterotoxigenic <i>Staphylococcus aureus</i>
<i>Staphylococcus aureus</i> bacteraemia	<i>Staphylococcus aureus</i> (blood)
<i>Streptococcus</i> group A infection (invasive)	<i>Streptococcus pyogenes</i> (blood, CSF or other normally sterile site)
<i>Streptococcus</i> group B infection (invasive)	<i>Streptococcus agalactiae</i> (blood, CSF or other normally sterile site)
<i>Streptococcus pneumoniae</i> infection (invasive)	<i>Streptococcus pneumoniae</i> (blood, CSF or other normally sterile site)
Syphilis	<i>Treponema pallidum</i>
Tetanus	<i>Clostridium tetani</i>
Toxoplasmosis	<i>Toxoplasma gondii</i>
Trichinosis	<i>Trichinella</i> spp.
Trichomoniasis	<i>Trichomonas vaginalis</i>
Tuberculosis	<i>Mycobacterium tuberculosis</i> complex
Tularemia	<i>Francisella tularensis</i>
Typhoid	<i>Salmonella</i> Typhi
Typhus	<i>Rickettsia prowazekii</i>
Verotoxigenic <i>Escherichia coli</i> infection	Verotoxin producing <i>Escherichia coli</i>
Viral encephalitis	
Viral haemorrhagic fevers	
Viral meningitis	
West Nile fever	West Nile virus
Yellow fever	Yellow fever virus
Yersiniosis	<i>Yersinia enterocolitica, Yersinia pseudotuberculosis</i>
Zika virus infection	Zika virus

