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Epidemiology of communicable diseases (ECDC)

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1. Respiratory tract infections

- Influenza
- Avian influenza and other animal influenzas
- Legionnaires' disease
- Severe acute respiratory syndrome (SARS)
- Tuberculosis

2. Sexually transmitted infections, including HIV and blood-borne viruses

- *Chlamydia trachomatis* infection
- Gonorrhoea
- Hepatitis B virus infection
- Hepatitis C virus infection
- HIV/AIDS
- Syphilis

3. Food- and waterborne diseases and zoonoses

- **Anthrax**
- **Botulism**
- **Brucellosis**
- **Campylobacteriosis**
- **Cholera**
- **Cryptosporidiosis**
- **Echinococcosis (hydatid disease)**
- Shiga toxin/verocytotoxin-producing ***Escherichia coli*** (STEC/VTEC) infection
- **Giardiasis**
- **Hepatitis A**
- **Leptospirosis**
- **Listeriosis**
- **Salmonellosis**
- **Shigellosis**
- **Toxoplasmosis (congenital)**
- **Trichinellosis**
- **Tularaemia**
- **Typhoid/paratyphoid fever**
- **Variant Creutzfeldt–Jakob disease (vCJD)**
- **Yersiniosis**

4. Emerging and vector-borne diseases

- Malaria
- Plague (*Yersinia pestis* infection)
- Q fever
- Smallpox
- Viral haemorrhagic fevers
- Hantavirus
- Crimean–Congo haemorrhagic fever
- Dengue fever
- Rift Valley fever
- Ebola and Marburg virus
- Lassa fever
- Chikungunya fever
- West Nile fever
- Yellow fever

5. Vaccine-preventable diseases

- ✓Diphtheria
- ✓Invasive *Haemophilus influenzae* disease
- ✓Invasive meningococcal disease
- ✓Invasive pneumococcal disease
- ✓Measles
- ✓Mumps
- ✓Pertussis
- ✓Polio
- ✓Rabies
- ✓Rubella
- ✓Tetanus

6. Antimicrobial-resistant pathogens and healthcare-associated infections

- Antimicrobial resistance
- Antimicrobial consumption
- Healthcare-associated infections

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Case definition:

- a set of standard criteria for deciding whether a person has a particular disease or health-related condition,
- by specifying *clinical, *laboratory and *epidemiological criteria and
- limitations on * time, * place and *person.

Focus of infection

Notification of the Sick and the Ones Suspected of Infection

Early and accurate diagnosis of the disease - is a fundamental prerequisite for initiating rapid and effective repressive measures.
This includes:
* proper epidemiological history ,
* clinical examination and
* laboratory tests (microbiological, serological, biochemical etc.).

As soon as the diagnosis is confirmed or when there is a suspicion of an infectious disease, the affected individuals are notified immediately.

Case definitions of communicable diseases:

✓ National and international organizations have published lists of uniform case definitions for the mandatory reporting of select diseases. Such lists provide explicit case definitions, enabling clinicians to report cases for diseases of interest to public health authorities in a standard and uniform way across geographic locations. This is particularly useful for studies that compare the prevalence of disease across regions, since they can use the same case definitions and, therefore, obtain a relatively accurate assessment of disease.

✓**Case definition**, in epidemiology, set of criteria used in making a decision as to whether an individual has a disease or health event of interest. Establishing a case definition is an imperative step in quantifying the magnitude of disease in a population.

✓Case definitions are used in ongoing public health surveillance to track the occurrence and distribution of disease within a given area, as well as during outbreak investigations in field epidemiology.

Case definitions of communicable diseases:

- ✓ Clinical criteria
- ✓ Laboratory criteria
- ✓ Epidemiological criteria and epidemiological link

Case classification –

- ❖ Possible,
- ❖ Probable,
- ❖ Confirmed case.

EXPLANATION OF THE SECTIONS USED IN THE DEFINITION AND CLASSIFICATION OF CASES:

A) Clinical criteria

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

B) Laboratory criteria

Laboratory criteria are 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. Laboratory criteria for a probable case are included for some agreed exceptional cases. Those laboratory criteria consist of a list of laboratory methods which can be used to support the diagnosis of a case but which are not confirmatory.

Epidemiological criteria are deemed to have been met when an epidemiological link can be established (1)

Epidemiological link, during the incubation period, means one of the following six:

— Human to human transmission: the fact that a person 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: the fact that a person 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: the fact that a person has been exposed to the same common source or vehicle of infection, as a confirmed human case

— Exposure to contaminated food/drinking water: the fact that a person has consumed food or drinking water with a laboratory confirmed contamination or has consumed potentially contaminated products from an animal with a laboratory confirmed infection/colonisation

— Environmental exposure: the fact that a person has bathed in water or has had contact with a contaminated environmental source that has been laboratory confirmed

— Laboratory exposure: the fact that a person has worked in a laboratory where there is a potential for exposure

Epidemiological criteria are deemed to have been met when an epidemiological link can be established (2).

Transmission may occur by one or more of the following routes:

— Airborne: by projection of aerosol from an infected person onto the mucous membranes while coughing, spitting, singing or talking, or when microbial aerosols dispersed into the atmosphere are inhaled by others

— Contact: direct contact with an infected person (faecal-oral, respiratory droplets, skin or sexual exposure) or animal (e.g. biting, touching) or

indirect contact to infected materials or objects (infected fomites, body fluids, blood)

— Vertical: from mother to child, often in utero, or as a result of the incidental exchange of body fluids usually during the perinatal period

— Vector transmission: indirect transmission by infected mosquitoes, mites, flies and other insects which transmit disease to humans through their bites

— Food or water: consumption of potentially contaminated food or drinking water.

Case classification - Cases are classified as 'possible', 'probable' and 'confirmed'.

The incubation periods for diseases are given in the additional information to facilitate the assessment of the epidemiological link.

Possible case

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

Probable case

A probable case means a case classified as probable for reporting purposes. It 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

Confirmed case

A confirmed case means a case classified as confirmed for reporting purposes.
Confirmed cases fall in one of the three subcategories listed below.
They will be assigned to one of those subcategories during the analysis of data using the variables collected within the context of the case information.

Laboratory-confirmed case with clinical criteria The case meets the laboratory criteria for case confirmation and the clinical criteria included in the case definition.

Laboratory-confirmed case with unknown clinical criteria The case meets the laboratory criteria for case confirmation but there is no information available regarding the clinical criteria (e.g. only laboratory report).

Laboratory-confirmed case without clinical criteria The case meets the laboratory criteria for case confirmation but doesn't meet the clinical criteria in the case definition or is asymptomatic.