

# COVID-19

GLOSSARY: OUTBREAKS AND EPIDEMICS

A resource for journalists and communicators

**PAHO**



Pan American  
Health  
Organization



World Health  
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# Key concepts

- **Emerging disease:** An unknown or newly appeared disease, usually of the infectious or communicable type.
- **Epidemiology:** The study of the frequency and distribution of health events and their determinants in human populations, and the application of this study to the prevention and control of health problems.
- **Health risk:** The probability of a population experiencing an adverse effect or harm in a given period.
- **Incidence:** The number of new cases of a disease in a population in a given period. Incidence measures the speed at which new cases occur during a given period in a specific population—for example, the number of new cases of HIV infection in gay men in a country in 2019.
- **Infodemic:** An overabundance of information on a problem that makes it hard to find trustworthy sources and reliable guidance. During a public health emergency, infodemics can spread mistaken or false information and rumors. They can also hinder an effective response and create confusion and mistrust in people concerning the solutions or advice proposed to prevent a disease. The term infodemic was coined by journalist David Rothkopf in 2003.
- **International Health Regulations or IHR (2005):** An agreement between 196 countries, including all WHO Member States, to work together for global health security. The agreement aims to help the international community prevent, protect against, and control the international spread of disease and provide a public health response that is proportionate and restricted to public health risks, while avoiding unnecessary interference with international traffic and trade.
- **Natural history of disease:** The course of a disease in a person from onset to resolution in the absence of any mediating interventions. The process starts with exposure of a susceptible host (person) to a causative agent (virus, bacterium, etc.) and ends in recovery, disability, or death.
- **Prevalence:** The total number of people who have a disease (new and existing cases) in a population or in a given place at a given time. Prevalence is an indicator of the magnitude of a disease—for example, the total number of people with tuberculosis in a country in 2019. Incidence and prevalence are essentially different ways of measuring the frequency of disease. The relationship between them varies from disease to disease.
- **Public health emergency of international concern (PHEIC):** According to the International Health Regulations (2005), a public health emergency of international concern is an extraordinary event that is determined to constitute a public health risk to other States through international spread of disease and to potentially require a coordinated international response. A PHEIC is declared by the Director-General of the World Health Organization (WHO), following an assessment and recommendation by an emergency committee.
- **Reemerging disease:** Resurgence or increase in the incidence of infectious or communicable diseases that were considered to be already under control.
- **Seasonality of disease:** Regular pattern of variation in the occurrence of some diseases (for example, the flu) during different seasons of the year.

# Terms commonly used during outbreaks and epidemics

- **Agent:** A microorganism, chemical substance, or form of radiation whose presence, excessive presence, or relative absence is essential for the occurrence of a disease. Agents may be biological (living organisms, such as viruses and bacteria) and non-biological (chemicals, such as pesticides, and physical phenomena, such as radiation).
- **Attack rate:** Number of people who contract a disease out of the entire group of people exposed to the disease. Expressed as a percentage.
- **Carrier:** A person (or animal) that harbors a specific infectious disease agent in the absence of clinical symptoms or signs of the disease and serves as a potential source of infection for humans. Carriers may be asymptomatic (or healthy) throughout the course of a subclinical infection; incubatory during the incubation period; and convalescent in the convalescent and post-convalescent phase of a clinically recognizable infection.

**Case-fatality rate:** The percentage of people affected by a disease or a particular event who die in a given period. Frequently used to describe the severity of an epidemic.

$$\text{Case fatality} = \frac{\text{number of fatal cases}}{\text{total cases of the disease}} \times 100$$

- **Case:** A person who is suspected, presumed or confirmed to have a disease or experienced an event of epidemiological concern.
- **Communicable or contagious period:** The period during which an infectious agent can be transferred, directly or indirectly, from one person to another, or from an infected animal to a human being, or from an infected person to an animal, including arthropods.
- **Contact:** A person who has been in contact with an infected person (case) such that he/she is considered to have had significant exposure and is therefore at risk of infection.
- **Contagious or infectious:** Terms that are often used interchangeably but that have subtle differences in meaning. “Contagious” is related to direct or indirect spread from person to person. The flu, for example, is very contagious, but Ebola is not. “Infectious” means that contact with a small amount of virus can cause disease. Ebola, for example, is very infectious.
- **Contamination:** Presence of live infectious agents on body surfaces or on clothing, toys, or other inanimate objects or in substances such as water, milk, or food.
- **Exposure:** Contact with an infectious agent or a risk factor that can cause a disease. Exposure has two dimensions: degree or level, and duration.
- **Host:** A person or other living animal, including birds and arthropods, that affords subsistence or lodgment to an infectious agent under natural conditions.

- **Incidence rate:** Rate of new cases in a population. The numerator is the number of new events that they occur in a given period. The denominator is the population at risk of experiencing the event of interest during this period.
- **Incubation period:** The period of time from initial exposure to an infectious agent to the onset of signs or symptoms of the disease it produces. The incubation period varies with the type of infection. In most infectious diseases there is a possibility of transmission during the incubation period, especially in the period immediately before the onset of symptoms and signs that enable a diagnosis to be made. Transmission may also continue for some time after the sick person's clinical recovery.
- **Infection:** The entry, development, or multiplication of an infectious agent in the body of a person or animal.
- **Infectious period:** Period of time during which a person can transmit a disease. This

period may precede the onset of symptoms and may last longer than the symptoms.

- **Infectivity:** Ability of an infectious agent to survive and multiply in a host. If a susceptible person is exposed to HIV as a result of a needlestick with a contaminated needle, his/her probability of infection is around 4 in 1,000; if a person is exposed in the same way to the hepatitis B virus, the probability is 1 in 7.
- **Latent period:** Time that elapses from exposure to an agent until the date that a person can transmit a disease (this is the period that immediately precedes the infectious period).
- **Mortality rate:** Percentage of people in a population who die out of the total population. May be expressed per 100, 1,000, or another number.
- **Pathogen:** A microorganism (virus, bacterium, parasite, or other) that can cause a disease.

**Pathogenicity:** The ability of an infectious agent to produce disease in an infected person. Pathogenicity depends not only on the characteristics of the agent, but also on those of the host. For example, the agents of rabies and chickenpox are highly pathogenic in that virtually every infection in a susceptible person causes illness. Rhinoviruses (which cause the common cold) cause disease in about 80% of infections. The formula is expressed as follows:

$$\text{Pathogenicity} = \frac{\text{cases of apparent disease (moderate, severe, and fatal)}}{\text{total number of infected people}} \times 100$$

- **Personal protective equipment (PPE):** Items and clothing used by health workers to protect themselves from exposure to infectious agents. The equipment used varies depending on the disease, its mode of transmission and infectiousness, and the medical procedure to be performed.
- **Reservoir:** Any person, animal, arthropod, plant, soil, or substance, or combination of these in which an infectious agent normally lives and multiplies, on which it depends for its survival, and where it reproduces itself in such a manner that it can be transmitted to a susceptible host.

- **Source of infection:** Person, animal, object, or substance from which an infectious agent is passed to a host. Humans who have acute clinical cases or are carriers can act as a source of infection.
- **Triage:** Method used by health services to classify patients on the basis of their priority for care, evacuation, or transport.

**Virulence:** The ability of an infectious agent to produce severe and fatal cases. The measure of virulence is the ratio of the number of severe and fatal cases to total overt cases. The formula is as follows:

$$\text{Virulence} = \frac{\text{severe and fatal cases}}{\text{total overt cases}} \times 100$$

## Modes of disease transmission

- **Direct transmission:** The disease is transmitted from one person to another.
  - » **Through the spread of respiratory droplets:** Transmission can occur when droplets from the nose or mouth are sprayed by sneezing, coughing, spitting, speaking, or singing.
  - » **Through direct physical or sexual contact:** Transmission can occur through touching, kissing, or having sex, or through the placenta—for example, the flu, tuberculosis, measles, or sexually transmitted infections.
- **Indirect transmission:**
  - » **By vehicles of transmission or fomites:** through contaminated objects or materials such as toys, handkerchiefs, surgical instruments, water, food, milk, or biological products, including serum and plasma. Examples: influenza, hepatitis, cholera.
  - » **By a vector,** such as an insect or any other live carrier that transports an infectious agent. Examples: malaria and dengue fever.
  - » **By air:** some infectious agents can travel long distances and remain suspended in the air for long periods; some maintain their infectivity or virulence, while others lose it. Example: measles.

## Susceptibility, resistance, and immunity

- **Immunity:** General state of resistance that a person possesses, associated with the presence of antibodies or cells having a specific action on the microorganism, causing an infectious disease or on its toxin. Immune persons have specific protective antibodies or cellular immunity as a result of previous infection or vaccination. As a result,

they may be prepared to respond effectively to the disease by producing sufficient antibodies. There are different types of immunity:

- » **active immunity**, which tends to last years, is acquired naturally as a result of infection or artificially through vaccination;
- » **passive immunity**, short-term (lasting from a few days to several months), is obtained naturally through maternal transmission (through the placenta) or artificially through inoculation of specific protective antibodies (serum from a convalescent or immune person or human immune serum globulin, among others);
- » **herd or mass immunity** occurs when the

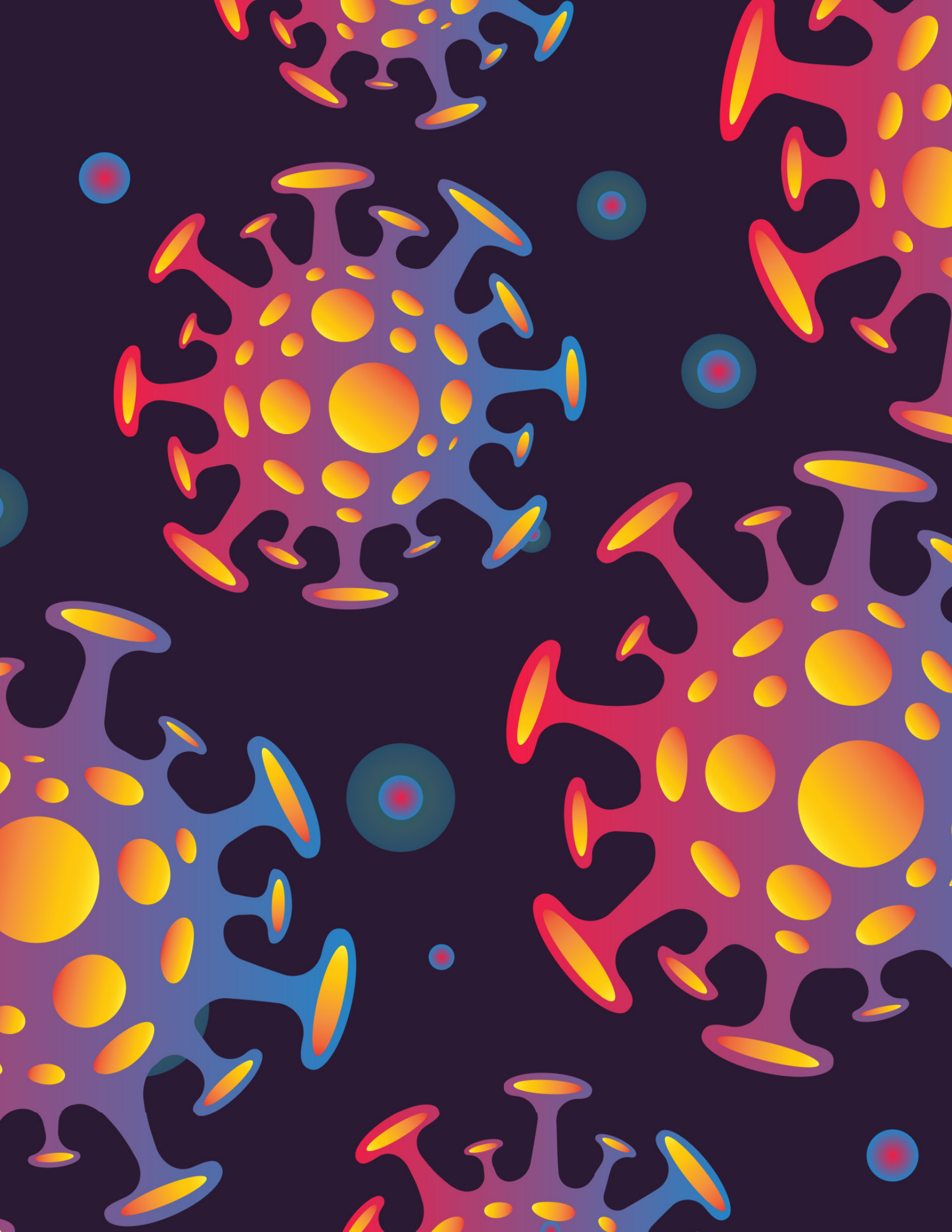
proportion of immune population is high and the agent has a lower probability of spreading.

- **Resistance:** A set of body mechanisms that serve as a defense against the invasion or multiplication of infectious agents or against the harmful effects of their toxic products.
- **Susceptibles:** Persons or animals that do not possess sufficient resistance to a particular pathogen to protect them against the disease if they come into contact with that agent. Susceptibility depends on genetic factors, general disease resistance factors, and disease-specific immune conditions.

## Cluster, outbreak, epidemic, and pandemic

- **Case definition:** A set of diagnostic criteria that must be fulfilled in order to confirm a case of a particular disease. Case definitions may be based on clinical criteria, laboratory criteria, or a combination of the two.
  - » **Suspected or suspect case:** Where someone is suspected to be infected with the disease.
  - » **Probable case:** When someone has the signs and symptoms of the infection, but the infection has not been confirmed by a laboratory test.
  - » **Confirmed case:** When someone has been confirmed to have an infection by a laboratory test.
  - » **Index case:** The first case discovered by the health system during an outbreak.
  - » **Primary case:** Person who transmits the disease to a specific population.
  - » **Secondary case:** Someone infected by the primary case.
- **Cluster:** A group of cases of a relatively rare event in a circumscribed area or period in an amount that is perceived or assumed to be greater than would be expected by chance. A cluster could be the initial expression of an outbreak.
- **Epidemic:** An unusual increase in the number of cases of a given disease in a specific population during a particular period. The terms “outbreak” and “epidemic” are often used interchangeably. In general, an epidemic can be considered to be the simultaneous consolidation of multiple outbreaks over a wide geographical area. It usually involves the occurrence of a large number of new cases in a short time—greater than the expected number.
  - » **Phases of an epidemic:**
    1. **Introduction** or emergence in a community.
    2. **Localized transmission**, where sporadic







infections with the pathogen occur.

3. **Amplification:** The outbreak amplifies into an epidemic or pandemic - the pathogen is able to transmit from human to human and causes a sustained outbreak in the community, threatening to spread beyond it.
4. **Reduced transmission,** when human-to-human transmission of the pathogen decreases, owing to acquired population immunity or effective interventions to control the disease.

- **Epidemiological link:** History of risk of infection—for example, having contact with a person with a confirmed case of infection during its communicable period or having been in an area of proven transmission.
- **Outbreak:** Two or more cases linked epidemiologically to one another. The existence of a single case under surveillance in an area where the disease did not exist is also considered an outbreak. An outbreak occurs when there is an unusual increase in the number of cases of a disease beyond what would normally occur. The spread of the disease may be localized within a specific area (e.g., a community, a village, a ship, a

closed institution) or the disease may spread to several countries. An outbreak may last a few days, several weeks, or several years.

**An outbreak may be:**

- » a single case of a rare disease;
- » many cases of a previously infrequent disease;
- » an increase in the number of cases of a common disease.

**Outbreak or epidemic period:**

- » The duration of an outbreak or epidemic depends basically on the following factors:
- » the speed of the outbreak in relation to the infectivity of the agent and the mode of transmission
- » the size of the susceptible population;
- » the intensity of exposure of the susceptible population;
- » the incubation period of the disease;
- » the effectiveness of immediate control measures.

- **Pandemic:** An epidemic extending over several countries, continents, or the entire world and usually affecting a large number of people.

## Factors that affect infectious disease spread

- **Basic reproduction number ( $R_0$ ):** The spread of a disease in a population (especially in epidemics) depends on the basic reproduction number (or  $R_0$ ) and the generation time (usually established on the basis of the serial interval).

Each disease has a basic reproduction number, which can be used to calculate the speed at which a disease may spread in a population and to understand how infectious the disease is and therefore the level of risk associated with it.

The  $R_0$  is the number of people to whom an infected person can transmit the disease or the number of secondary cases that each primary case generates on average (during the contagious period).

The epidemic spreads if and only if  $R_0$  is greater than 1 (each person with the disease infects more than one person); if  $R_0$  is equal to 1 then there is said to be epidemic (or endemic) balance, and if  $R_0$  is less than 1 the situation invariably leads to exhaustion of the epidemic. It follows, then, that in an epidemic situation the key is to reduce  $R_0$  to less than 1 and to do it as soon as possible.

To reduce  $R_0$  to under 1, it is necessary to act on its three components:

- » **Infectiousness:** Probability that a person who is susceptible will contract the disease from each single exposure to an infectious person. Depending on the disease, infectiousness can be reduced through prevention and personal protection measures, such as hand washing or the use of condoms, masks, or gloves.
- » **Duration of infectiousness:** Time during which the infected person can transmit the infection. This duration can be reduced if a treatment is available.
- » **Infectious contact rate:** Number of susceptible people that an infectious person must have contact with in order to produce a secondary case, taking into account infectiousness and its duration.

This rate can be reduced through physical distancing measures, such as isolation or quarantine, or through behavioral change interventions, among others.

- **Generation time:** the time between the onset of infection in the primary case and the onset of infection in a secondary case (i.e., a case infected by the primary case).
- **Serial interval:** In practical terms, this is the time between the onset of the disease in the primary case and the onset of the disease in the secondary case: the longer the serial interval, the more time there is to act on the problem, implement prevention and control measures, and, therefore, the better the chances of containing the epidemic. The shorter the generation time, the more difficult it is to control the outbreak.

## Epidemic curve

- In order to establish that an epidemic exists, it is necessary to know the previous frequency of the disease. One of the simplest and most useful ways of determining this is to draw an **epidemic curve**, which is a graphic representation of the daily, weekly, or monthly frequencies of the disease on a coordinate axis, with the horizontal axis representing time and the vertical axis representing frequencies. The frequencies can be expressed in absolute numbers or in rates, and the time can be expressed in days, weeks, months, or years. The epidemic curve usually shows a skewed distribution and has the following features:
  - » **A rising curve**, which represents the phase when the epidemic is increasing. The slope or steepness of the curve indicates

the speed at which the epidemic is spreading, which is related to the mode of transmission of the agent and to the size of the susceptible population.

- » **A peak or plateau**, which may be reached naturally or flattened through early intervention.
- » **A falling curve**, which represents the exhaustion phase of the epidemic; the curve's slope or downward trend indicates the speed at which the susceptible population is being exhausted, whether naturally or as a result of the effect or impact of the control measures put in place.

# Containment, control, mitigation, and suppression

- **Containment:** Effective and rapid containment of emerging diseases is as vital as early detection to prevent a large-scale epidemic. Rapid containment should begin as soon as the first case is detected. Some containment measures include early detection and isolation of cases, contact tracing and follow-up, cordons sanitaires (guarded perimeters preventing anyone from leaving an area infected by a disease), mass vaccination, insecticide spraying, or large-scale treatment with medicines, depending on the disease.
- **Control and mitigation:** Once the infectious disease threat reaches an epidemic or pandemic level, the goal of the response is to mitigate its impact and reduce its incidence, morbidity, and mortality, as well as disruptions to economic, political, and social systems. Mitigation focuses on slowing the spread of the epidemic, although not necessarily stopping it, and reducing maximum demand for medical care while protecting the people at greatest risk of having a severe form of the disease.
- **Suppression:** The goal of suppression is to reverse the rise in the epidemic, reduce the number of cases to low levels, and maintain that status indefinitely ( $R_0 < 1$ ).

# Physical/social distancing, isolation, and quarantine

- **Physical/social distancing:** To prevent the transmission of some diseases, authorities in a country may encourage people to physically distance themselves from other people, which means avoiding kissing, hugging, or other physical contact and maintaining a certain distance between people. The distance may vary, depending on the disease's mode of transmission. Physical distancing measures, such as teleworking, closing schools, and canceling or rescheduling mass events or large gatherings, can slow the spread of a virus so that health systems are able to deal with the situation. Distancing needs to be physical, but not necessarily social, as people can use technology to continue to socialize.
- **Isolation** means separating sick or infected people from others to prevent infection from spreading.
- **Quarantine** means restricting the movement of healthy people who may have been exposed to a virus but are not sick.

## Elimination and eradication

- **Elimination:** Control of a disease may lead to its elimination, which means that is sufficiently controlled to prevent an epidemic from occurring in a defined geographical area. Elimination means that the disease is no longer considered to be a major public health issue (there are no new cases of the disease). However, intervention measures (surveillance and control) should continue in order to prevent its reemergence.
- **Eradication:** Eradication of a disease is much more difficult and rarely achieved, since it means permanently eliminating the disease's incidence worldwide so that there is no longer a need for interventions measures. Three criteria must be met for a disease to be eradicated: there must be an available intervention to stop its transmission; there must be efficient diagnostic tools to detect cases that could lead to transmission; and humans must be the only reservoir. To date, the only disease that has been globally eradicated is smallpox.

## Laboratory tests

- **Antigen:** A part of a virus that triggers an immune response. When a person has been exposed to certain types of virus, antigens appear in the blood before the body produces antibodies.
- **Polymerase chain reaction (PCR):** A molecular diagnostic technique that detects virus RNA in a biological sample (usually a nasopharyngeal swab sample taken from a person with the virus). A respiratory sample of a person suspected of being infected is taken by inserting a swab into the nose or mouth. If the PCR technique does not detect genetic material from the virus, the person is most likely not infected. PCR is performed in a laboratory by trained personnel using specialized equipment. Results can be available within hours.
- **Rapid diagnostic tests:** Antigen tests detect whether a patient is harboring a virus, while antibody tests detect whether a patient is or has been infected and has built up immune defenses against the virus. These tests can be performed on blood or saliva. They work on the same principle as pregnancy tests and indicate with lines whether the sample is positive, negative, or invalid. The tests detect the presence of antigens or antibodies and the result is obtained within 10 or 15 minutes. They are simple to perform and do not require specialized equipment or laboratory personnel with special training—for example, some HIV tests.
- **Sensitivity of a test:** Indicates the ability of a test to detect even very small amounts of virus in patients with a disease.

# Vaccines

- **Vaccination:** A simple, safe, and effective way to protect people from harmful diseases before they come into contact with them. Vaccines activate the body's natural defenses, so that they learn to resist specific infections, and strengthen the immune system. Most vaccines are injected, but some are swallowed (oral) or sprayed into the nose.
- **How vaccines work:** After vaccination, the immune system produces antibodies, as it does when a person is exposed to a disease, except that vaccines contain only killed or weakened microbes (such as viruses or bacteria) and do not cause disease.
- **Vaccine safety:** Vaccination is safe. Although side effects such as arm pain or low fever may occur, they are usually very mild and temporary. While serious side effects can occur, they are extremely rare. The benefits of vaccination far outweigh the risks.

All licensed vaccines undergo rigorous testing throughout the various phases of clinical trials, and they continue to be evaluated regularly after they are introduced. Furthermore, scientists constantly monitor information from various sources for indications of adverse effects.
- **Vaccine efficacy:** The percentage reduction of disease in a vaccinated group of people compared to an unvaccinated group under the most favorable conditions. Vaccines may be used routinely even when their efficacy is not 100%, as the protection enabled by their use can still help reduce/curb new infections.
- **Vaccine effectiveness:** The ability of a vaccine to prevent outcomes of a disease in the “real world”, not just under optimal conditions.
- **Herd immunity:** Indirect protection against disease that results from a sufficient number of individuals in a community having immunity to that disease. With enough immune individuals, the transmission of a disease can be reduced, thus limiting the potential for any one individual to be exposed to it. Generally, PAHO recommends vaccination coverage of 95% or more to ensure herd immunity. Herd immunity does not apply to diseases such as tetanus that are not spread via person-to-person contact.
- **Cold chain:** The cold chain is the system used for storing and distributing vaccines and biologicals in proper conditions. It consists of a series of storage and transport links, all designed to keep vaccines within an acceptable temperature range until it reaches the user; these can include cold or freezer rooms, freezers, refrigerators, coolers, and refrigerator trucks. Vaccines are sensitive to heat and freezing and must be kept at the correct temperature from the time they are manufactured until they are used.
- **Catch-up campaigns:** The “catch-up” vaccination campaign is a one-time-only vaccination activity conducted over a short period of time – usually from one week to one month - across a wide age cohort of children. The goal is to achieve high levels of population immunity, thereby rapidly interrupting chains of disease transmission in a geographic area. Vaccinations are offered at many sites in addition to the traditional clinics, including locales such as churches, community centers, markets and shopping areas, plazas, schools, transportation centers, and other areas where people congregate.





# Types of vaccines

- **Inactivated vaccine:** Inactivated vaccines (sometimes referred to as “killed vaccines”—that is, vaccines containing killed microbes) were among the first vaccines to be developed. They generally have fewer side effects than live attenuated vaccines, but they also tend to evoke a less robust immune response. Inactivated vaccines can be made for viruses and bacteria.
- **Live attenuated vaccine:** Vaccines containing live attenuated (weakened) microbes are designed to produce an infection without symptoms (the infection is “asymptomatic”). This generates an immune response similar to a natural infection, but without causing illness (and without spreading or infecting others). Such vaccines often confer long-term immunity. Live vaccines can be made for either viruses or bacteria, but more commonly involve viruses.
- **Subunit or conjugate vaccine:** For some diseases, a specific protein or carbohydrate is isolated that induces a protective immune response when used in a vaccine. For example, flu vaccines can be produced using proteins from the surface of the flu virus. The pertussis (whooping cough) vaccine is an example of this type of vaccine.

# Development of new vaccines and drugs

- **Apheresis:** The process by which one or more blood components are selectively obtained from a donor by withdrawing whole blood, separating it by centrifugation and/or filtration into its components, and returning those not required to the donor.
- **Good manufacturing practice (GMP):** All elements in the established practice that will collectively lead to final products or services that consistently meet appropriate specifications and compliance with defined regulations.
- **Immune globulin (IG):** A concentrated solution of antibodies from human blood that provides passive immunity.
- **Plasma:** The liquid portion remaining after separation of the cellular elements from blood collected in a receptacle containing an anticoagulant, or separated by continuous filtration or centrifugation of anticoagulated blood in an apheresis procedure.
- **Plasmapheresis:** The process by which plasma is selectively obtained from a donor, by separating plasma from whole blood by centrifugation or filtration and returning the other components to the donor.
- **Convalescent blood products:** Blood products used to achieve artificially acquired passive immunity, such as: convalescent whole blood (CWB), convalescent plasma (CP), or convalescent serum (CS); pooled human immunoglobulin (Ig) for intravenous or intramuscular administration; high-titer human Ig; and polyclonal or monoclonal antibodies.
- **Substandard and falsified medical products:** “Substandard” medical products (also called “out of specification”)

are authorized by national regulatory authorities, but fail to meet either national or international quality standards or specifications – or in some cases, both. “Falsified” medical products deliberately or fraudulently misrepresent their identity, composition or source. “Unregistered or unlicensed medical products” have not been assessed or approved by the relevant national or regional regulatory authority for the market in which they are marketed, distributed or used.

- **Clinical trials:** Clinical trials are a type of research that studies new tests and treatments and evaluates their effects on human health outcomes. People volunteer to take part in clinical trials to test medical interventions including drugs, cells and other biological products, surgical procedures, radiological procedures, medical devices, behavioral treatments, and preventive care.

Clinical trials are carefully designed, reviewed, and completed, and must be approved before they can start. People of all ages can take part in clinical trials, including children.

## Clinical trials have four phases:

- » **Phase I** studies usually test a new biomedical intervention for the first time in a small group of people (e.g., 20-80) to evaluate a safe dosage range and identify side effects.
- » **Phase II** studies test the biomedical or behavioral intervention that have been found to be safe in phase I but now need a larger group of people (several hundred) to monitor for any adverse effects.
- » **Phase III** studies are conducted on larger populations (from several hundred to several thousand) by comparing the intervention to other standard or experimental interventions as well as to monitor adverse effects, and to collect information that will allow the intervention to be used safely. These studies are often the step right before a new treatment is approved.
- » **Phase IV** studies are conducted after the intervention has been introduced in a country to monitor effectiveness of the approved intervention in the general population and to collect information about any adverse effects associated with widespread use.

## Sources and resources:

MOPECE training modules in epidemiology (PAHO) [available in French, Portuguese, and Spanish only]  
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## Notes:





# COVID-19

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A resource for journalists and communicators

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