

# Glossary

**acquired immunodeficiency syndrome**

**(AIDS):** Infectious disease syndrome that is caused by the human immunodeficiency virus (HIV). Characterized by the loss of a normal immune response and increased susceptibility to opportunistic infections and some cancers.

**acquired immunity:** Specific immunity that develops after exposure to a particular antigen or after antibodies are transferred from one individual to another.

**acyclovir:** Synthetic drug with antiviral activity against herpes simplex virus. Often used to treat genital herpes.

**aerobe:** Organism that can grow in the presence of atmospheric oxygen.

**airborne transmission:** Transmission of an infectious organism in which the organism is truly suspended in the air and travels a meter or more from the source to the host. Chicken pox, flu, measles, and polio are examples of diseases that are caused by airborne agents.

**allergen:** Substance that can induce an allergic reaction or specific susceptibility.

**amantadine:** Antiviral compound sometimes used to treat influenza type A infections.

**amebiasis:** Infection with amoebas. Usually refers to an infection by *Entamoeba histolytica*. Symptoms are highly variable, ranging from an asymptomatic infection to severe dysentery.

**amphotericin B:** Antibiotic used to treat systemic fungal infections and also used topically to treat candidiasis.

**anaerobe:** Organism that can grow in the absence of atmospheric oxygen.

**anthrax:** Infectious disease of animals caused by ingesting the spores of *Bacillus anthracis*. Can occur in humans.

**antibacterial:** Agent that kills bacteria or inhibits their growth.

**antibiotic:** Microbial product, or its derivative, that kills or inhibits the growth of susceptible microorganisms.

**antibody:** Glycoprotein produced in response to an antigen. Antibodies have the ability to combine with the antigen that stimulated their production.

**antibody-mediated immunity:** Immunity that results from the presence of antibodies in blood and lymph.

**antigen:** Foreign (nonself) substance to which lymphocytes respond.

**antimicrobial agent:** Agent that kills or inhibits the growth of microorganisms.

**antiseptic:** Chemical applied to tissue to prevent infection by killing or inhibiting the growth of pathogens.

**antitoxin:** Antibody to a microbial toxin. An antitoxin binds specifically with the toxin, neutralizing it.

**arenavirus:** Type of RNA virus. Lassa fever is caused by an arenavirus.

**autogenous infection:** Infection that results from a patient's own microflora.

**B-cell:** Type of lymphocyte derived from bone marrow stem cells that matures into an immunologically competent cell under the influence of the bone marrow. Following interaction with an antigen, a B-cell becomes a plasma cell, which synthesizes antibodies.

**bacillus:** Rod-shaped bacterium.

**bactericide:** Agent that kills bacteria.

**binary fission:** Asexual reproduction in which a cell separates into two cells.

**biologic transmission:** Disease transmission in which an infectious organism undergoes some morphologic or physiologic change during its passage through the vector.

**botulism:** Form of food poisoning caused by a neurotoxin produced by *Clostridium botulinum*. Sometimes found in improperly canned or preserved food.

**broad-spectrum drug:** Chemotherapeutic agent that is effective across a wide range of different types of pathogens.

**candidiasis:** Infection caused by a fungus of the genus *Candida*. Typically involves the skin.

**carrier:** Infected individual who is a potential source of infection for other people.

**cell-mediated immunity:** Immunity that results from T-cells contacting foreign or infected cells and destroying them.

**chemotherapeutic agent:** Compound used in the treatment of disease that kills or inhibits the growth of microorganisms and does so at concentrations low enough to avoid doing damage to the host.

**chicken pox:** Highly contagious skin disease caused by the varicella-zoster virus. Acquired by droplet inhalation into the respiratory system.

**cholera:** Infectious disease caused by *Vibrio cholerae* bacteria.

**coccus:** Bacterium that is roughly spherical in shape.

**common cold:** Acute, self-limiting, and highly contagious viral infection of the upper respiratory tract.

**communicable disease:** Disease associated with an agent that can be transmitted from one host to another.

**complement system:** Group of circulating plasma proteins that plays a major role in an animal's immune response.

**compromised host:** Host with lowered resistance to infection and disease for any reason (for example, malnutrition, illness, trauma, or immunosuppression).

**conjugation:** Form of gene transfer and recombination in bacteria that requires direct cell-to-cell contact.

**conjugative plasmid:** Plasmid that carries the genes for sex pili and can transfer copies of itself to other bacteria during conjugation.

**contact transmission:** Transmission of an infectious agent by direct contact of the source or its reservoir with the host.

**Creutzfeldt-Jakob disease:** Chronic, progressive, fatal disease of the central nervous system caused by a prion.

**diphtheria:** Acute, highly contagious childhood disease caused by *Corynebacterium diphtheriae* bacteria.

**disinfectant:** Agent that kills, inhibits, or removes microorganisms that may cause disease.

**DPT (diphtheria-pertussis-tetanus) vaccine:**

Vaccine containing three antigens that is used to immunize people against diphtheria, whooping cough, and tetanus.

**endemic disease:** Disease that is commonly or constantly present in a population, usually at a relatively constant low level.

**epidemic:** Sudden increase in occurrence of a disease above the normal level in a particular population.

**epidemiologist:** Person who specializes in epidemiology.

**epidemiology:** Study of the factors determining and influencing the frequency and distribution of disease, injury, and disability in a population.

**eukaryotic cell:** Cell that has its genetic material (DNA) enclosed by a nuclear membrane.

**facultative anaerobe:** Microorganism that does not require atmospheric oxygen but grows better in its presence.

**fungicide:** Agent that kills fungi.

**genital herpes:** Sexually transmitted disease caused by the herpes simplex type II virus.

**giardiasis:** Intestinal disease caused by the protozoan *Giardia lamblia*.

**Gram stain:** Differential staining procedure that allows categorization of bacteria into two groups (gram-positive and gram-negative) based on their ability to retain crystal violet when decolorized with an organic solvent such as ethanol.

**hantavirus:** Type of RNA virus. Hantavirus pulmonary syndrome and Korean hemorrhagic fever are caused by viruses in the genus *Hantavirus*.

**harborage transmission:** Disease transmission in which an infectious agent does not undergo morphologic or physiologic change during its time inside the vector.

**hepatitis A (infectious hepatitis):** Type of hepatitis that is transmitted by fecal-oral contamination. It affects mostly children and young adults, especially under conditions of overcrowding and poor sanitation. Caused by the hepatitis A virus.

**hepatitis B (serum hepatitis):** Type of hepatitis caused by the hepatitis B virus (HBV). Transmitted through body fluids.

**herd immunity:** Resistance of a population to the spread of an infectious organism due to the immunity of a high proportion of the population.

**host:** Body of an organism that harbors another organism. The host provides a microenvironment that supports the growth and reproduction of the parasitic organism.

**human immunodeficiency virus (HIV):** Retrovirus associated with the onset of AIDS.

**immune:** Protected against a particular disease by either nonspecific or specific biological defenses, including the presence of specific antibodies.

**immune response:** Response of the body to contact with an antigen that leads to the formation of antibodies and sensitized lymphocytes. Designed to render harmless the antigen and the pathogen producing it.

**immunity:** General ability of a host to resist developing a particular disease.

**immunology:** Science concerned with understanding the immune system and the many factors that are involved with producing both acquired and innate immunity.

**index case:** First disease case in an epidemic within a population.

**infection:** Invasion of a host by an agent, with subsequent establishment and multiplication of the agent. An infection may or may not lead to disease.

**infectious agent:** Living or quasi-living organism or particle that causes an infectious disease. Bacteria, viruses, fungi, protozoa, helminths, and prions are infectious agents.

**infectious disease:** Change from a state of health to a state in which part or all of a host's body cannot function normally because of the presence of an infectious agent or its products.

**inflammation:** Localized protective response to tissue injury or destruction. In an acute form, it is characterized by pain, heat, redness, and swelling in the injured area.

**influenza (flu):** Acute viral infection of the respiratory tract caused by one of three strains of influenza virus (A, B, and C).

**intermediate host:** Host that serves as a temporary but essential environment for the completion of a parasite's life cycle.

**Koch's postulates:** Set of rules for proving that a microorganism causes a specific disease.

**Koplik's spot:** Lesion of the oral cavity caused by the measles virus.

**Legionnaire's disease:** Pulmonary form of disease caused by infection with *Legionella pneumophila* bacteria.

**Lyme disease:** Tick-borne disease caused by the spirochete *Borrelia burgdorferi*.

**lymphocyte:** Type of white blood cell. Lymphocytes transmit chemical signals that help coordinate the immune system.

**malaria:** Infectious disease caused by the *Plasmodium* protozoa. Characterized by fever and chills that occur at regular intervals.

**measles:** Highly contagious skin disease caused by a virus in family Paramyxoviridae. The virus enters the body through the respiratory tract or the conjunctiva. Measles is endemic throughout the world.

**microbiota (microbial flora):** Microorganisms that are normally associated with a particular tissue or organ.

**morbidity rate:** Number of individuals who become ill with a particular disease within a susceptible population during a specified time period.

**mortality rate:** Ratio of the number of deaths from a particular disease to the total number of cases of the disease.

**nonspecific immunity:** General defense mechanisms that provide animals with protection from infection and disease but are not targeted at a particular pathogen.

**nosocomial infection:** Infection produced by a pathogenic agent that a patient acquires during hospitalization or treatment inside another healthcare facility.

**opportunistic organism:** Organism that is usually harmless but can be pathogenic in a compromised host.

**pandemic:** Increase in the occurrence of a disease in a large and geographically widespread population. Sometimes called a worldwide epidemic.

**parasite:** Organism that lives on or within another organism (the host). The relationship benefits the parasite and harms the host.

**pasteurization:** Process of heating milk and other liquids to destroy microorganisms that can cause spoiling or disease.

**pathogen:** Disease-producing agent.

**pathogenicity:** Ability to cause disease.

**penicillins:** Group of antibiotics that are often used to treat infections by gram-positive bacteria.

**peptidoglycan:** Large polymer that provides much of the strength and rigidity of bacterial cell walls.

**period of infectivity:** Time during which the source of an infectious agent is disseminating the agent (is infectious).

**plague:** Acute, infectious disease with a high mortality rate; caused by *Yersinia pestis* bacteria.

**plasmid:** Circular, double-stranded DNA molecule that can exist and replicate independently of the host cell chromosome or be integrated with it. Although a plasmid is stably inherited, it is not required for bacterial cell growth and reproduction.

**poliomyelitis:** Acute, contagious viral disease of the central nervous system that can lead to paralysis.

**population:** Group of organisms of the same species.

**prevalence rate:** Total number of people infected at one time in a population, regardless of when the disease began.

**prion:** Infectious particle that is responsible for certain slow-acting diseases such as scrapie in sheep and goats, and Creutzfeldt-Jakob disease in humans. Prions have a protein component, but scientists have not yet detected a nucleic acid component.

**prokaryotic cell:** Cell that lacks a membrane-delimited nucleus and other membrane-bound organelles. Bacteria are prokaryotic cells.

**rabies:** Acute infectious disease of the central nervous system caused by an RNA virus of the rhabdovirus group.

**reservoir:** Site, alternate host, or carrier that harbors pathogenic organisms and serves as a source from which other individuals can be infected.

**retrovirus:** RNA virus that carries the enzyme reverse transcriptase and forms a DNA copy of its genome during its reproductive cycle.

**schistosomiasis:** Helminth infection acquired from contact with water containing infected snails.

**smallpox:** Highly contagious, often fatal disease caused by a poxvirus. Smallpox has been eradicated throughout the world.

**source:** Location or object from which a pathogen is immediately transmitted to a host.

**specific immune response:** Collection of several immunological events in which lymphocytes recognize the presence of a particular antigen and act to eliminate it.

**spirillum:** Rigid, spiral-shaped bacterium.

**spirochete:** Flexible, spiral-shaped bacterium.

**sporadic disease:** Disease that occurs occasionally and at random intervals in a population.

**superinfection:** Bacterial or fungal infection that is resistant to the drug(s) being used to treat it.

**T-cell:** Lymphocyte derived from bone marrow stem cells that matures into an immunologically competent cell under the influence of the thymus. Involved in cell-mediated immune reactions.

**TB skin test:** Tuberculin hypersensitivity test to detect a current or past infection with *Mycobacterium tuberculosis* bacteria.

**tetanus:** Often fatal disease caused by the anaerobic, spore-forming bacterium *Clostridium tetani*. Characterized by muscle spasms and convulsions.

**toxin:** Microbial product or component that at low concentrations can injure a cell or organism.

**transduction:** Transfer of genes between bacteria by bacteriophages.

**transformation:** Mode of gene transfer in bacteria in which a piece of DNA in the environment is taken up by a bacterium and integrated into the bacterium's genome.

**transposon:** DNA segment that carries the genes required for transposition and can move from one place to another in the genome. Often carries genes unrelated to transposition as well.

**tuberculosis:** Infectious disease resulting from infection by a species of *Mycobacterium*. Infection is usually by inhalation, and the disease usually affects the lungs, although it can occur elsewhere in the body.

**vaccination:** Administration of a vaccine to stimulate an immune response.

**vaccine:** Preparation of killed microorganisms; living, weakened (attenuated) microorganisms; inactive or attenuated virus particles; inactivated bacterial toxins; or components (protein, carbohydrate, or nucleic acid) of the microorganism that are administered to stimulate an immune response. Vaccines protect an individual against the pathogenic agent or substance in the future.

**vector:** Living organism that transfers an infective agent from one host to another.

**vector-borne transmission:** Transmission of an infectious pathogen between hosts by way of a vector.

**virulence:** Degree or intensity of pathogenicity of an organism as indicated by mortality rate from the related disease and/or ability to invade tissues and cause disease.

**virus:** Infectious agent composed of a protein coat and a single type of nucleic acid. Lacks an independent metabolism and reproduces only within a host cell.

**VRSA:** Vancomycin-resistant *Staphylococcus aureus*.

**whooping cough (pertussis):** Infectious disease of the respiratory tract caused by *Bordetella pertussis*.

**zoonosis:** A disease that can be transmitted to humans from animals or from animals to humans.