

Clinical Infectious Disease Glossary

Adapted from:

- <http://needtoknow.nas.edu/id/glossary/>
- <https://nccid.ca/publications/glossary-terms-infectious-disease-modelling-proposal-consistent-language/>
- <https://www.vdh.virginia.gov/content/uploads/sites/3/2016/03/Glossary.pdf>

Adaptive Mutation: A mechanism through which certain cells can increase the rate in which genetic mutations occur, often in response to stress. This mechanism may help explain how bacteria develop resistance to certain antibiotics.

Airborne precautions: Actions taken to prevent or minimize the transmission of infectious agents or organisms that remain infectious when suspended in the air.

Airborne transmission: A means of spreading infection in which airborne droplet nuclei are inhaled by uninfected people.

Alcohol-based hand rub (ABHR): Sometimes called hand sanitizers. A method of hand hygiene that includes an alcohol-containing preparation designed for application to the hands for reducing the number of viable microorganisms on the hands. ABHR is not an alternative for washing with soap and water if hands are visibly soiled. These hand rubs should be ethanol or isopropyl alcohol based, and never contain methanol.

Ambulatory care settings (ACS): Facilities that provide health care to patients who do not remain overnight.

Antibiotic Resistance: The process through which microorganisms, by way of changes in their genomes, develop the ability to withstand exposure to antibiotics that had once been successful in eradicating them.

Antibiotics: A class of drugs used to kill or inhibit the growth of disease-causing microorganisms, without harming animal cells. Typically antibiotics are used to treat infections caused by bacteria, but in some cases they are also used against other microorganisms, such as fungi and protozoa.

Antibody: A protein found in the blood that is produced by immune system cells in response to foreign substances (e.g., antigens) invading the body. Antibodies protect the body from disease by binding to these organisms and destroying them.

Antigen: A foreign substance, usually protein or carbohydrate capable of stimulating an immune response, usually the production of antibodies.

Antimicrobial agents: A general term for the drugs, chemicals, or other substances that either kill or slow the growth of microbes. Among the antimicrobial agents in use today are antibacterial drugs (which kill bacteria), antiviral agents (which kill viruses), antifungal agents (which kill fungi), and anti-parasitic drugs (which kill parasites).

Antimicrobial resistance: The result of microbes changing in ways that reduce or eliminate the effectiveness of drugs, chemicals, or other agents to kill or inhibit pathogens. Examples include

multidrug resistant organisms (MDROs) such as methicillin-resistant *Staphylococcus aureus* (MRSA), and vancomycin-resistant Enterococci (VRE). Also known as drug resistance.

Antiseptic: A germicide that is used on skin or living tissue for the purpose of inhibiting or killing microorganisms. Examples include alcohols, chlorhexidine, chlorine, hexachlorophene, and iodine.

Asepsis: Prevention from contamination with microorganisms. Includes sterile conditions on tissues, on materials, and in rooms, as obtained by excluding, removing, or killing microorganisms.

Association for Professionals in Infection Control and Epidemiology (APIC): A voluntary professional organization representing individuals occupationally or professionally involved in the practice and management of infection prevention and control or the application of epidemiology, such as infection preventionists. APIC develops resources and standards, provides educational opportunities, and plays a leadership role in communicating with partners.

Asymptomatic: A disease stage in which the infected individual does not and will not exhibit symptoms.

Attack rate: The attack rate describes the proportion of individuals who experience disease over a period of time.

Autoimmune Disease: An umbrella term for a range of conditions in which the immune system mistakenly attacks healthy tissue in the body.

Bacteria: A large group of unicellular microorganisms that lack a cell nucleus, found in every environment studied in the earth. Some bacteria are pathogenic and harmful to humans, some have no effect at all on humans, and some are beneficial. Also known as prokaryotic cells.

Barrier precautions: Any method or device used to decrease contact with potentially infectious body fluids. Examples may include masks, goggles, face shields, gloves, and gowns.

Bloodborne Pathogens Standard (BBP): A standard developed, promulgated, and enforced by the Occupational Safety and Health Administration (OSHA) directing employers to protect employees from occupational exposure to blood and other potentially infectious material.

Bloodborne pathogens: Disease-producing microorganisms spread by contact with blood or other body fluids from an infected person. Examples include hepatitis B and C as well as HIV.

Bloodstream infection: A condition in which bacteria enter the blood. Sometimes called bacteremia. This may occur through a wound or infection, or through a surgical procedure or injection.

CA-MRSA: Community-associated (CA) methicillin-resistant *Staphylococcus aureus* (MRSA). Colonization or infection with this organism develops in people who have not recently been evaluated or treated at a healthcare facility therefore, it is defined as originating from the community.

Carrier: An individual who is found to be colonized at one or more body sites with a pathogenic organism, but has no signs or symptoms of active infection. This person is often responsible for spreading the disease to other, susceptible individuals.

Category A Agents: A class of biological agents that the Centers for Disease Control and Prevention views as posing the highest priority risk to U.S. national security as potential agents of bio-terrorism or bio-warfare.

Centers for Disease Control and Prevention (CDC): A federal agency under the U.S. Department of Health and Human Services that works with partners across the United States to ensure public health—through health promotion; prevention of disease, injury, and disability; and preparedness for new health threats.

Centers for Medicare and Medicaid Services (CMS): A federal agency that runs the national health insurance programs Medicare and Medicaid.

Central line: A flexible tube that is inserted near a patient's heart or into one of the large blood vessels near the heart. A central line can be used to rapidly administer fluids, antibiotics, or medical treatments.

Central line-associated bloodstream infection (CLABSI): An infection that spreads through the blood from its origin on a central line. A CLABSI rate is usually calculated per 1,000 (the total number of CLABSIs divided by the total number of central line days, multiplied by 1,000).

Chlorhexidine soap: a topical antiseptic agent used to treat or help prevent infections.

Chronic Disease: Any disease that is long lasting (3 months or more) or recurrent—as opposed to an acute disease—and cannot be prevented by a vaccine or cured by medication. Can be caused by bacteria, viruses, fungi, or multi-celled parasites.

Chronic Inflammation: A prolonged form of localized immune response to harmful agents and damaged tissue that is characterized by redness, swelling, heat, pain, and/or loss of function.

Cleaning: The removal of visible soil, organic, and inorganic contamination from a device or surface, using either the physical action of scrubbing with a surfactant or detergent and water or an energy-based process with appropriate chemical agents.

Clostridium difficile: An anaerobic, gram-positive, spore-forming bacillus that can cause diarrhea and other intestinal diseases when competing bacteria in the gut are diminished by antibiotics

Clostridium difficile-associated Disease (CDAD): An intestinal illness caused by toxins that are produced and secreted from the bacterium, *C. difficile*.

Cohorting: The practice of grouping patients infected or colonized with the same infectious agent together to confine their care to one area and prevent contact with susceptible patients.

Colonization: The growth of bacterial cells to form a large population, which can be found either in the clinic environment or on or within body sites. Often colonization in or on the body occurs without symptoms, detectable host immune response, cellular damage, or clinical expression. Colonized individuals may become a source of transmission.

Communicable disease: An infectious disease carried by microorganisms and transmitted through people, animals, insects, surfaces, food, or air.

Community-associated infections (CA): Infections that are contracted outside of a healthcare facility and are present or incubating at the time of admission or develop within a designated period of time after admission, unlike healthcare-associated infections (HAIs). Formerly known as community-acquired infections.

Contact precautions: Type of transmission-based precautions that requires barrier precautions for direct contact with resident or objects/surfaces contaminated with an infectious agent.

Contagion: A general term for any disease-causing infectious agent spread by direct or indirect contact.

Contamination: The presence of an infectious agent on a body surface or on clothes, gowns, gloves, bedding, furniture, computer keyboards, or other inanimate objects that may be capable of producing disease or infection.

Control: Relates to the strategies implemented to reduce the magnitude, spread, and progression of a disease in a population.

Cytokine: A type of protein secreted by immune system cells that serve to facilitate cell-to-cell communication and help regulate the way the immune system responds to inflammation and infection.

Decolonization therapy: Topical and/or systemic antibiotic treatment used with the intention of eliminating carriage (colonization) of a microorganism in people.

Decontamination: A process or treatment that renders a medical device, instrument, or environmental surface safe to handle because it is no longer capable of transmitting particles of infectious material. Often accomplished using a disinfectant.

Direct contact transmission: Physical transfer of microorganisms between a susceptible host and an infected or colonized person.

Disease: Any abnormal condition that affects all or part of an organism, resulting in symptoms such as pain or loss of function.

Disinfectant: A chemical agent used on inanimate (non-living) surfaces to destroy virtually all recognized pathogenic microorganisms, but not necessarily all microbial forms (e.g., bacterial spores).

Disinfection: The destruction of pathogenic and other kinds of microorganisms by physical or chemical means. Disinfection is less lethal than sterilization, because it destroys most recognized pathogenic microorganisms, but not necessarily all microbial forms, such as bacterial spores.

Droplet precautions: Actions designed to reduce and prevent the transmission of pathogens spread through the air via close respiratory or mucous membrane contact with respiratory secretions.

Droplets: Small particles of moisture that may be generated when a person coughs or sneezes or when water is converted to a fine mist by an aerator or shower head. Droplets may contain infectious microorganisms and tend to quickly settle out from the air; therefore, risk of disease transmission is generally limited to persons in close proximity to the droplet source. Droplets are generally > 0.5 microns.

Elimination: The absence of a disease in a time period or geographic region.

Encephalitis: Inflammation of the brain, often caused by a virus.

Endemic: The baseline level of disease usually present in a community.

Endotoxin: A toxin produced by certain bacteria and released from the cell. For example, *C. difficile* toxin can cause diarrhea, or lipopolysaccharide released from Gram negative bacteria.

Epidemic: An often sudden increase in the level of disease in a specific population over a given period of time. The population threshold for epidemic spread of a pathogen ranges from 100,000 to 150,000 people living in a town or city.

Epidemiologically important pathogens: Infectious agents that have one or more of the following characteristics: 1) are readily transmissible; 2) have a proclivity toward causing outbreaks; 3) may be associated with a severe outcome; or 4) are difficult to treat. Examples include *Acinetobacter*, MRSA, and *C. difficile*.

Epidemiology: The study of the distribution and determinants of disease in human populations. Epidemiologists are often sent to investigate outbreaks.

Eradication: the elimination of a disease to the point that it can no longer reappear.

Evolution: The change in heritable traits in a population of organisms over successive generations.

Exoskeleton: An external skeleton that protects and supports an organism, in contrast to an internal endoskeleton.

Exposed: The term 'exposed' is used when an individual has encountered a pathogen associated with a disease. This is necessary for infection or transmission to take place. However, it is not necessarily the case that infection or transmission occurs.

Exposure time: Period of time during a sterilization or disinfection process in which items are exposed to the sterilant or disinfectant at the parameters specified by the manufacturer, including time, concentration, temperature, pressure.

Fungi: Single-celled or multicellular organisms, possessing nuclei that can be opportunistic pathogens that cause infections in immunocompromised persons or pathogens that cause infections in healthy persons. Examples include athlete's foot, yeast infections, and ringworm. Fungi are also used for the development of antibiotics, antitoxins, and other drugs used to control various human diseases. Fungi are eukaryotic cells.

Generation Time: Generation time is a modelling term describing the time duration from the onset of infectiousness in a primary case to the onset of infectiousness in a secondary case

infected by the primary case. In microbiology “generation time” is the time it takes to grow a new “generation” of cells (also known as the doubling time).

Genetics: A branch of biology that studies heredity and variation in organisms through the study of genetic elements (e.g., DNA) in their cells.

Germ: In the context of microbiology, a microorganism that causes disease (e.g., bacteria, virus, fungi, protozoa).

Germ Theory: A theory in medicine stating that microorganisms are the causative agents of infectious, contagious diseases.

Habitat: The specific geographical area or physical environment that is inhabited by an organism or a population of organisms.

Hand hygiene: A general term that applies the following: 1) hand washing with antimicrobial/non- antimicrobial soap and water or 2) antiseptic hand rub (waterless antiseptic product, most often alcohol-based, rubbed on all surfaces of hands).

Healthcare- associated infection (HAI): An infection that develops in a patient who has been cared for in any setting where healthcare is delivered for more than 48 hours and is related to receiving health care. Formerly known as nosocomial infection.

Healthcare-associated methicillin- resistant *Staphylococcus aureus* (HA-MRSA): MRSA colonization or infection that develops in people who have had recent contact with a healthcare facility or have been in a healthcare facility for greater than 48 hours.

Healthcare epidemiologist: A person with medical training and/or masters or doctorate-level epidemiological training who has received advanced training in healthcare epidemiology. Typically these professionals direct or provide consultation to an infection prevention program in a hospital, long term care facility (LTCF), or healthcare delivery system.

Herd Immunity: The protection of some members of a community from a disease by reducing the spread of the disease in individuals who either gained immunity after recovery from the disease, or who were vaccinated against the disease. This is especially important for individuals with immunodeficiencies or other issues who cannot take a vaccine. For influenza in the US, the estimated range of immunity in the population required to obtain herd immunity is between 80% and 90%. For other diseases this number may be as high as 95%.

Host: An organism that harbors a parasite or another organism where there is a symbiotic relationship between the two organisms. In some cases, the relationship is commensal, or mutually beneficial, but in the case of a parasite or a pathogen and host, the host may be hurt by the parasite or pathogen’s presence.

Immune System: The system of biological structures, processes, and cells (leukocytes) that protects the body from foreign substances, including pathogens.

Immunity: An individual’s resistance to infection or re-infection by a causative pathogen.

Immunization: The process of strengthening the body's defense against a particular infectious agent, often accomplished by receiving a vaccine.

Immunocompromised: Those whose immune mechanisms are deficient because of congenital or acquired immunologic disorders (e.g., human immunodeficiency virus [HIV] infection), chronic diseases (e.g., diabetes mellitus, cancer, emphysema), malnutrition, or immunosuppressive therapy of another disease process.

Incidence: The number of new cases of infection or disease or colonization identified in a specific population in a given time period.

Incidence rate: The number of new cases of disease during a specific time period divided by the population at risk.

Incubation Time: The period of time between exposure to an infectious agent and the appearance of symptoms of the infection or disease it causes.

Indirect contact transmission: Spread of a disease to a susceptible host through contact with a contaminated intermediate object, usually inanimate.

Infected: An individual who has contracted a disease causative agent and infection (or transmission) has occurred.

Infection: The entry, of a person or animal by a microorganism. Infection by commensal bacteria in the intestines usually is good, providing a competing population of bacteria to help defend the person or animal from infection by a pathogen. If the infecting microorganism is pathogenic, it may result in symptoms of disease.

Infectious: Individuals who are infected and can transmit a pathogen (the cause of an infection) to other individuals.

Infectious Disease: A type of illness caused by a pathogenic agent, including viruses, bacteria, fungi, protozoa, parasites, or abnormal proteins known as prions. Often, the most infectious agents possess unique virulence factors.

Infection control and prevention program: A multidisciplinary program that includes a group of activities to ensure that recommended practices for the prevention of healthcare-associated infections are implemented and followed by healthcare workers, making the healthcare setting safe from infection for patients and healthcare personnel. This program usually includes surveillance of healthcare-associated infections (HAIs), investigation of any HAI trends or problems, implementation of prevention practices, evaluation and management of outbreaks, and reporting HAI data to designated authorities.

Infection rate: Number of infections reported in a specified period of time divided by the population at risk for the infection during the same specified period of time.

Influenza: Also known as flu. A serious and sometimes deadly respiratory infection caused by an RNA virus that can spread quickly in a community via droplets or aerosols.

Intravenous: The use of veins through which medications and solutions are administered.

Invasive procedure: A medical procedure that involves entering the body, usually by cutting or puncturing the skin or by inserting instruments into the body.

Latent Infection: An infection that is currently not producing or showing any symptoms but has the potential of being reactivated and then manifesting symptoms.

Latent Period: The period of time between the occurrence of infection and the onset of infectiousness (when the infected individual becomes infectious).

Latent tuberculosis infection (LTBI): A condition in which living tubercle bacilli (*Mycobacterium tuberculosis*) are present in the body but the disease is not clinically active.

Mask: A term that applies collectively to items used to cover the nose and mouth and includes both procedure masks and surgical masks. Masks offer variable effectiveness at stopping the spread of droplets or aerosols.

Meningeal Infection: An infection of the protective membranes that cover the brain and spinal cord, known collectively as the meninges.

Methicillin-resistant *Staphylococcus aureus* (MRSA): A type of bacteria that has become resistant to a group of powerful drugs, the β -lactam antibiotics (e.g., penicillin). Not all *S. aureus* strains are resistant to these drugs. Sensitive strains are called Methicillin-sensitive *Staphylococcus aureus* (MSSA).

Microbe: Sometimes referred to as a microorganism, a microbe is an organism that is microscopic and thus invisible to the naked eye.

Microorganisms: An organism that can be seen only with the aid of a microscope and that typically consists of only a single cell. Microorganisms include bacteria, fungi, protozoa, and viruses.

Morbidity: The relative occurrence of a disease or a condition that causes illness, making people feel "ill".

Mortality: The number of deaths in a given time or place, often due to a pathogen.

Multidrug-resistant organism (MDRO): Type of bacteria that has become resistant to many of the antibiotics that used to be effective against it.

Mutation: A change in the sequence of DNA in a cell's genome that can be caused by radiation, viruses, certain types of chemicals, errors, or environmental factors that occur during cell division and DNA replication. Most mutations are detrimental for the gene effected, often causing death. Sometimes, mutations can result in a genetic change that can become an adaptation that is selected for evolutionarily.

N-95 respirator: One of nine types of disposable particulate respirators. "95" refers to the percentage of particles filtered that are < 0.3 microns.

Nanometer: A unit of length equal to one one-billionth (1×10^{-9}) of a meter.

Norovirus: A very contagious virus transmitted from person-to-person or via contaminated food, water, or objects, causing outbreaks of vomiting and diarrhea.

Outbreak: An increase in the incidence of disease in a facility above the baseline level or a cluster of new cases that are epidemiologically linked.

Pandemic: An increase in the occurrence of a particular disease over a very large region, such as a continent or the entire globe, that is greater than what is expected over a given period of time.

Parasite: A bacterium (e.g., *Salmonella sp.*), protozoan (e.g., *Giardia sp.*), or a small multi-celled organism (e.g., a small animal, such as a helminth worm) that lives in or on and takes its nourishment from another organism and often cannot live independently. These infections are rarely fatal.

Pathogen: A biological agent that causes disease.

Personal protective equipment (PPE): A variety of barriers used alone or in combination to protect mucous membranes, skin, and clothing from contact with infectious agents. PPE includes gloves, masks, respirators, goggles, face shields, and gowns.

Pneumonia: An infection of one or both lungs caused by bacteria, viruses, fungi, or other organisms, causing collection of fluids in the lungs.

Post-exposure prophylaxis: The administration of medications following potential exposure to a disease in an attempt to prevent infection.

Pre-clinical: The period of time before a diagnostic test is able to detect the presence of disease.

Pre-symptomatic: A disease stage in which the individual exhibits no symptoms, but is infectious and can transmit the disease.

Prevalence: The total number of disease cases (new and existing) within a population at a given time.

Prevention: The term 'prevention' refers to the lack of disease occurrence despite exposure to, or transmission of a causative disease agent in a community.

Prion: A causative agent of infectious disease that is composed primarily of protein.

Prophylaxis: a strategy taken to prevent a disease.

Protein: Large molecules composed of one or more chains of amino acids in a specific order (sequence) determined by the base sequence of nucleotides in the DNA coding.

Protozoa: A taxonomic group of single-celled microorganisms that live in almost every kind of habitat and include some pathogenic parasites of humans and other animals.

Rate: An expression some event over time. For disease the rate of infection or death, is calculated in relation to a unit of population during a specified time period.

Recovered: A transitional stage from the infectious state to another non-infectious state.

Replication: The cloning (growth) of bacteria that replicate by binary fission. This process requires the production of a copy of (replication of) the cell's chromosome (DNA).

Reservoir: A host organism in which a pathogen for some other organism lives and reproduces asymptotically (without harming) the host (e.g., rodents and bubonic plague [*Yersinia pestis*]).

Respirator: A personal protective device worn by healthcare personnel to protect them from inhalation exposure to airborne infectious agents (aerosols) that are < 0.5 microns in size. In some cases respirators may also protect the person wearing it from oils or other chemicals as well.

Respiratory hygiene/ Cough etiquette: A combination of measures designed to minimize the transmission of respiratory pathogens via droplet or airborne routes. Involves coughing or sneezing into a tissue or the inside of the person's elbow.

Rheumatic Fever: An inflammatory disease that may be caused by an untreated or improperly treated case of Strep throat (caused by *Streptococcus pyogenes*).

Rhinovirus: A type of virus that is responsible for causing upper respiratory tract infections in humans. One of a number of viruses that cause the common cold.

Spore: The dormant stage some bacteria will enter when environmental conditions cause stress to the organism or no longer support its continued growth. *C. difficile* spores are highly resistant to cleaning and disinfection measures, and the spores also make it possible for the organism to survive passage through the stomach, resisting the killing effect of gastric acid.

Standard precautions: A group of infection prevention practices that apply to all patients, regardless of infection status. Standard precautions are based on the principle that all blood, body fluids, secretions, excretions except sweat, non-intact skin, and mucous membranes may contain transmissible infectious agents. Standard precautions include hand hygiene, and depending on the anticipated exposure, use of gloves, gown, mask, eye protection, or face shield. Also, equipment or items in the patient environment likely to have been contaminated with infectious fluids must be handled in a manner to prevent transmission of infectious agents. Formerly known as universal precautions.

Standardized infection ratio (SIR): A summary measure used to compare the healthcare-associated infection experience among one or more groups of patients to that of a standard population. It is calculated as the observed number of infections divided by the expected number of infections.

Staph Infection: An infection caused by any one of several harmful species or subspecies of bacteria of the genus *Staphylococcus*.

Sterilization: The process of destroying all forms of life, including infectious agents, from a surface, fluid, or biological medium with the use of heat, chemicals, irradiation, high pressure, filtration, or some combination of these methods.

Strain: A genetic variant or specific subtype of a microorganism, such as a virus or bacteria.

Surgical site infection (SSI): An infection of a surgical wound, tissue, or organ space near the site of a recent surgery.

Surveillance: The ongoing, systematic collection, analysis, interpretation, and dissemination of data regarding a health-related event for use in public health action to reduce morbidity and mortality and to improve health.

Symptom: A subjective indication of the presence of disease or a departure from the body's normal state of functioning.

Terminal cleaning: The thorough cleaning of a patient's room following discharge or transfer in order to prevent transmission of potentially infectious organisms to the next room occupant.

Tissue Culture: The process by which animal tissues are intentionally grown in a lab under controlled conditions.

Toxin: A poisonous substance, often a protein, produced by the metabolic processes of living cells or organisms that can cause disease if introduced into the body.

Transmission-based precautions: A set of practices that apply to patients with documented or suspected infection or colonization with highly transmissible or epidemiologically important pathogens for which precautions beyond the standard precautions are needed to interrupt disease transmission.

Universal Flu Vaccine: In theory, a vaccine that is effective against all forms of the influenza virus. Research to produce such a vaccine is currently underway.

Urinary catheter: A small, flexible tube that is inserted into the urethra to the bladder to allow for the drainage of urine. Also known as a Foley catheter.

Urinary tract infection (UTI): An infection that can happen anywhere along the urinary tract. A UTI that occurs in a patient with a catheter is known as a catheter-associated UTI (CAUTI).

Urogenital Disease: Disease of the organs involved in the excretion of fluids and reproduction.

Vaccine: An attenuated pathogen (or toxin) that has been inactivated, but when injected into an animal's body produces an adaptive immune response that protects the body from subsequent exposure to the live pathogen or toxin. Vaccines can be administered by injection, mouth, or aerosol.

Vaccine effectiveness: Measures the effect of a vaccine to prevent disease spread in a population.

Vaccine efficacy: Refers to the percentage reduction in the attack rate of unvaccinated and vaccinated cohorts as observed in a randomized control trial.

Vector: An organism (usually an arthropod such as a flea, mosquito, or tick) that carries an infectious agent from one host to another.

Ventilator: A device that pumps air into the lungs of patients who cannot breathe well on their own.

Ventilator-associated pneumonia (VAP): Severe lung infection that develops after a patient is placed on a ventilator.

Virus: One of the smallest of all pathogens. An infectious agent that is only capable of replication inside a specific living host cell of a bacterium, a plant, a protozoa, a fungus, or a multi-celled parasite.

White Blood Cell: A leukocyte. A special type of cell often found in the bloodstream that works as part of the immune system to defend the body against disease and infection.

Yeast: A broad group of microscopic fungi that includes harmless forms of yeast used in baking and alcoholic fermentation as well as pathogenic species that can cause disease.