9.10: IX Glossary

**Acute, self-limiting infections:** Infections that develop rapidly and generally last only 10-14 days. Colds, ear infections, and coughs are considered acute, self-limiting infections.

**Antibodies:** Y proteins created by B cells that are specific to each pathogen and lock onto its surface and mark it for destruction by other immune cells. The five classes of antibodies are IgG, IgM, IgA, IgD, and IgE.

**Aseptic technique:** The purposeful reduction of pathogens to prevent the transfer of microorganisms from one person or object to another during a medical procedure. For example, a nurse administering parenteral medication or performing urinary catheterization uses aseptic technique. When performed properly, aseptic technique prevents contamination and transfer of pathogens to the patient from caregiver hands, surfaces, and equipment during routine care or procedures.

**B cells:** Immune cells that mature in the bone marrow. B cells make Y-shaped proteins called antibodies that are specific to each pathogen and lock onto its surface and mark it for destruction by other immune cells.

**Bacteremia:** The presence of bacteria in blood.

**Chronic infections:** Infections that may persist for months. Hepatitis and mononucleosis are examples of chronic infections.

**Cytokines:** Plasma proteins that communicate with other body organs and cells in the body to respond to and initiate inflammation.

**Cytokine storm:** A severe immune reaction in which the body releases too many cytokines into the blood too quickly. A cytokine storm can occur as a result of an infection, autoimmune condition, or other disease. Signs and symptoms
include high fever, inflammation, severe fatigue, and nausea. A cytokine storm can be severe or life-threatening and lead to multiple organ failure.\[1\]

**Disease:** Infections can lead to disease that causes signs and symptoms resulting in a deviation from the normal structure or functioning of the host.

**Disinfection:** Removal of organisms from inanimate objects and surfaces. However, disinfection does not typically destroy all spores and viruses.

**Exposure:** An encounter with a potential pathogen.

**Hand hygiene:** Cleaning the hands by either washing hands with soap and water or using hand sanitizer.

**Healthcare-Associated Infection (HAI):** An infection that is contracted in a health care facility or under medical care.

**Incubation period:** The period of a disease after the initial entry of the pathogen into the host but before symptoms develop.

**Infection:** The invasion and growth of a microorganism within the body.

**Inflammation:** A response triggered by a cascade of chemical mediators that occur when pathogens successfully breach the nonspecific physical defenses of the immune system or when an injury occurs.

**Invasion:** The spread of a pathogen throughout local tissues or the body.

**Local infection:** Infection confined to a small area of the body, typically near the portal of entry, and usually presents with signs of redness, warmth, swelling, warmth, and pain. Purulent drainage may be present and extensive tissue involvement can cause decreased function.

**Microbiome:** Every human being carries their own individual suite of microorganisms in and on their body referred to as their microbiome. A person’s microbiome is acquired at birth and evolves over their lifetime. It is different across body sites and between individuals.

**Mode of transmission:** The vehicle by which the organism is transferred such as physical contact, droplets, or airborne. The most common vehicles are a cough, sneeze, or on the hands.

**Nonspecific innate immunity:** A system of defenses in the body that targets invading pathogens in a nonspecific manner that is present from the moment we are born. Nonspecific innate immunity includes physical defenses, chemical defenses, and cellular defenses.

**Normal flora:** Microorganisms that live on our skin and in the nasopharynx and gastrointestinal tracts and don’t cause an infection unless the host becomes susceptible.

**Opportunistic pathogen:** A pathogen that only causes disease in situations that compromise the host’s defenses, such as the body’s protective barriers, immune system, or normal microbiota. Individuals susceptible to opportunistic infections include the very young, the elderly, women who are pregnant, patients undergoing chemotherapy, people with...
immunodeficiencies (such as acquired immunodeficiency syndrome [AIDS]), patients who are recovering from surgery, and those who have had a breach of protective barriers (such as a severe wound or burn).

**Pathogen:** Microorganisms that cause disease.

**Pathogenicity:** The ability of a microorganism to cause disease.

**Peristalsis:** A series of muscular contractions in the digestive tract that moves digested material and microbes through the intestine and excretes it in the feces.

**Personal Protective Equipment (PPE):** Gloves, gowns, face shields, goggles, and masks used to prevent the spread of infection to and from patients and health care providers.

**Portal of entry:** An anatomic site through which pathogens can pass into a host, such as mucous membranes, skin, respiratory, or digestive systems.

**Portal of exit:** The method by which the organism leaves the reservoir as through secretions, blood, urine, breast milk, or feces.

**Primary pathogen:** A pathogen that can cause disease in a host regardless of the host’s resident microbiota or immune system.

**Prodromal period:** The disease stage after the incubation period when the pathogen continues to multiply and the host begins to experience general signs and symptoms of illness that result from activation of the immune system, such as fever, pain, soreness, swelling, or inflammation. Usually, such signs and symptoms are too general to indicate a particular disease.

**Reservoir:** The place the organism grows such as a wound, blood, or food.

**Secondary infection:** A localized pathogen that spreads to a secondary location.

**Sepsis:** An existing infection that triggers an exaggerated inflammatory reaction called SIRS throughout the body. If left untreated, sepsis causes tissue damage and quickly spreads to multiple organs. It is a life-threatening medical emergency.

**Septicemia:** Bacteria that are both present and multiplying in the blood.

**Septic shock:** Severe sepsis that leads to a life-threatening decrease in blood pressure (systolic pressure <90 mm Hg), preventing cells and other organs from receiving enough oxygen and nutrients. It can cause multi-organ failure and death.

**Specific adaptive immunity:** The immune response that is activated when the nonspecific innate immune response is insufficient to control an infection. There are two types of adaptive responses: the cell-mediated immune response, which is carried out by T cells, and the humoral immune response, which is controlled by activated B cells and antibodies.

**Standard precautions:** The minimum infection prevention practices that apply to all patient care, regardless of
suspected or confirmed infection status of the patient, in any setting where health care is delivered.

**Sterile technique:** A process, also called surgical asepsis, used to eliminate every potential microorganism in and around a sterile field while also maintaining objects as free from microorganisms as possible. It is the standard of care for surgical procedures, invasive wound management, and central line care. Sterile technique requires a combination of meticulous hand washing, creating a sterile field, using long-lasting antimicrobial cleansing agents such as Betadine, donning sterile gloves, and using sterile devices and instruments.

**Sterilization:** A process used to destroy all pathogens from inanimate objects, including spores and viruses.

**Susceptible host:** The person whose body the organism has entered.

**Systemic infection:** An infection that becomes disseminated throughout the body.

**Systemic Inflammatory Response Syndrome (SIRS):** An exaggerated inflammatory response to a noxious stressor (including, but not limited to, infection and acute inflammation) that affects the entire body.

**T cells:** Immune cells that mature in the thymus. T cells are categorized into three classes: helper T cells, regulatory T cells, and cytotoxic T cells. Helper T cells stimulate B cells to make antibodies and help killer cells develop. Killer T cells directly kill cells that have already been infected by a pathogen. T cells also use cytokines as messenger molecules to send chemical instructions to the rest of the immune system to ramp up its response.

**Transmission-based precautions:** Precautions used for patients with documented or suspected infection, or colonization, of highly-transmissible pathogens, such as *C. difficile* (C-diff), *Methicillin-resistant Staphylococcus aureus* (MRSA), *Vancomycin-resistant enterococci* (VRE), Respiratory Syncytial Virus (RSV), measles, and tuberculosis (TB). Three categories of transmission-based precautions are contact precautions, droplet precautions, and airborne precautions.

**Virulence:** The degree to which a microorganism is likely to become a disease.