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STERILIZATION AND DISINFECTION

Terminology

- **Pathogens:** Microorganisms, those are capable of producing disease
- **Asymptomatic infection:** If the microorganisms fail to cause serious injunes to cells or tissues and patient is symptom free of the particular disease.
- **Disease:** The pathogens multiply and cause an alteration in normal tissues and manifest with signs and symptoms.
- **Communicable disease:** If the infectious disease can be transmitted directly from one person to another, it is known as communicable disease or contagious disease
- **Disinfection:** It is a process by which pathogenic organisms are killed by physical and chemical agents

- **Antiseptic:** It is a chemical substance which inhibits the growth of microorganisms and do not kill the organisms, e.g. Dettol
- **Detergents:** Detergent increases the cleaning power of water and leaves no film or scum. Some are used only for cleaning without any bacteriocidal action.
- **Bacteriostasis:** It is a process of inhibiting the growth of bacteria, e.g. freezing and drying.
- **Bacteriocide:** It is a substance which kills microorganisms.
- **Sepsis:** It is a term used for the presence of pathogenic organisms

- **Inflammation:** The body's cellular response to injury or infection is inflammation
- **Antigen:** Remnants of the microorganisms that trigger the immune response Antigens are usually composed of proteins.
- **Antibodies:** Antibodies are large protein molecules. Antibodies are immunoglobulins, which are synthesized and secreted by the plasma cells when an antigen enters the body, to neutralize the antigen. Types of immunoglobulin are IgA IgD, IgE, IgG and IgM. The most abundant circulating antibody is IgG
- **Sterilization:** Sterilization is defined as the process by which an article, surface or medium is free of all microorganisms, either in the vegetative or spore state

- **Chemotherapy:** It is the treatment of disease by means of chemicals which are known as chemotherapeutic agents, eg sulphonamides. Destruction or inhibition of growth of organisms depend upon the concentration of chemotherapeutic agents
- **Antibiotics:** These are drugs used to kill the organisms, e g. penicillin.
- **Local infection:** An infection that is localized within a particular part or a single organ Proper care controls its spread
- **Systemic infection:** An infection that affects the entire body. It can become fatal

INFECTION

When the living microorganisms enter and attack our bodies causing sickness, it is called infection. Most organisms live inside a man or animal or they go from one to another spreading disease. Many are so small that they may be seen only by means of microscope.

Sources of infection

Infections may be endogenous or exogenous

ENDOGENOUS INFECTIONS

Endogenous infections are contracted from the host himself from the normal flora. Many areas of the body have normal commensal flora. They have many functions. They provide barrier to the infection by competing for nutrition with pathogens. Some produce vitamins which are useful for the host. Some produce colicins to ad against pathogens. Generally they do not cause any infection. But there are exceptions.

- Streptococcus mitis is the normal flora of the mouth. It produces infection in previous damaged heart valves through blood stream after tooth extraction
- Streptococcus faecalis causes infective the endocarditis and source is the urinary tract and intestine of the host.

EXOGENOUS INFECTIONS

Exogenous infections are derived from men, animals and soil. Man gets the infections from patients suffering from diseases. Some persons may be carriers of the pathogens and they may transmit the diseases to others without getting affected.

ENDOGENOUS	EXOGENOUS
From host’s own normal flora	From outside sources (man, animals, soil)
Usually harmless but may cause disease in weak conditions	Caused by external pathogens
Example: Strep. mitis, Strep. faecalis	Example: Carriers or patients spreading disease

CAUSES OF INFECTION

Infections can occur when a person's resistance (ability fight off to pathogens) is lowered

1. **Trauma**: Injury or illness lowers the body's resistance
2. **Pre-existing disease**: Generally poor health or frequent illness. The client may have an infection or condition that has lowered body defenses.
3. **Age**: The very young and the very old have reduced defenses. Immunity that breast-fed newborns receive from their mothers does not protect them against all diseases Older adults may be poorly nourished, have fragile skin, inactive, causing impaired resistance.
4. **Inactivity**: The person who is ill usually does not exercise, which leaves the body weakened.
5. **Poor nutrition/ inadequate hydration:** The ill person may be malnourished,dehydrated (not enough fluid in tissues or circulation), or overhydration. Lack of protein hinders the immune system in tissue repair and in making antibodies. Impaired skin integrity is often present, as well as inadequate circulation. Homeless people and people with substance abuse disorders are often in this group

6. **Stress or emotional shock:** Increased stress increases the body's cortisone levels, reducing resistance to disease. Prolonged stress may result in exhaustion. Examples include physical stress caused by trauma, such as a motor vehicle accident, emotional stress such as the death of a spouse or divorce.

7. **Fatigue:** The person who is extremely tired cannot effectively fight off disease. Those who are fighting illness, injury or who had surgery are often sleep de-prived

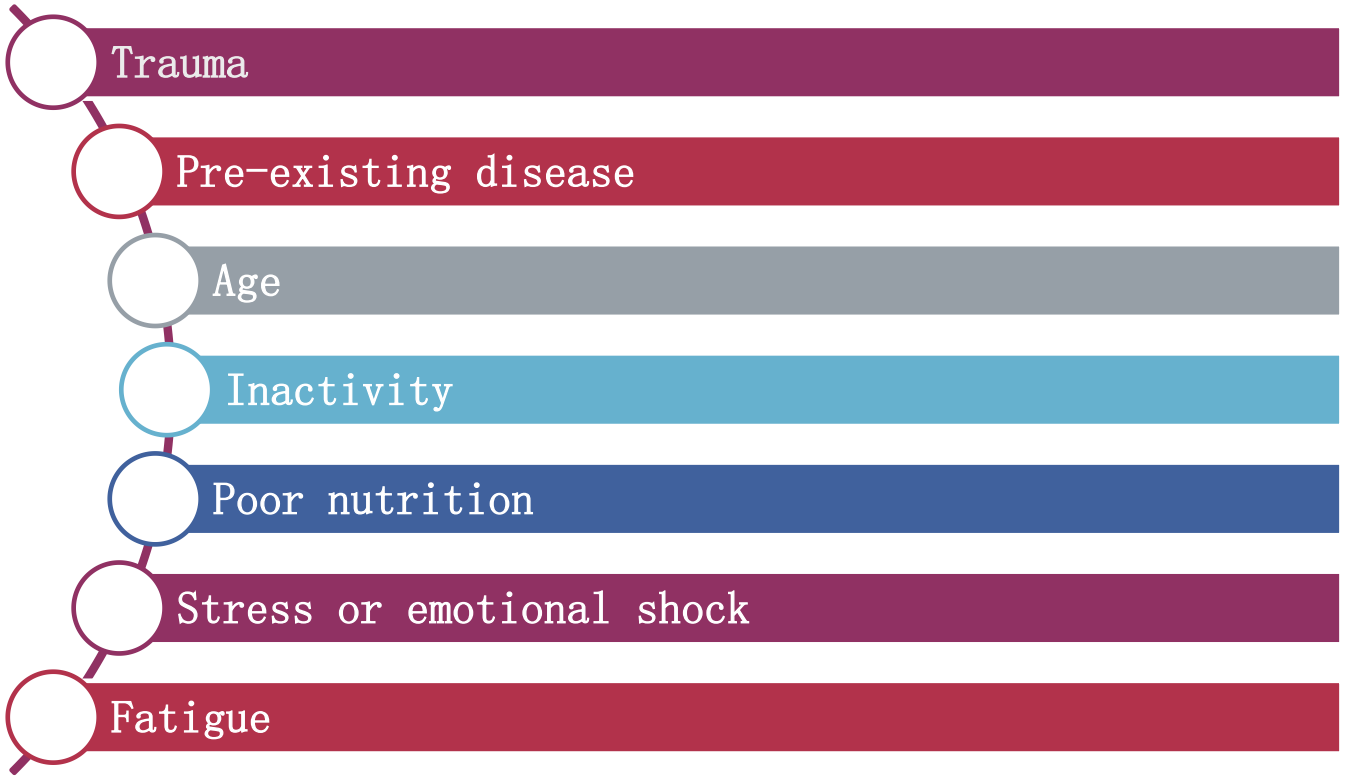
8. **Invasive therapy:** The term invasive means any therapy that enters or invades thebody (by a means other than normal), either through a skin break or incision or through an instrument that enters sterile area, Examples of invasive therapy include surgery, injections, intravenous therapy, urinary catheterization and tracheostomies (a

9. **Frequent use of broad-spectrum antibiotics:** Microorganisms that the person is harbouring may develop resistance to antibiotic therapy after repeated exposure to the same antibiotic. In this case, those antibiotics are later ineffective against the resistant pathogen.

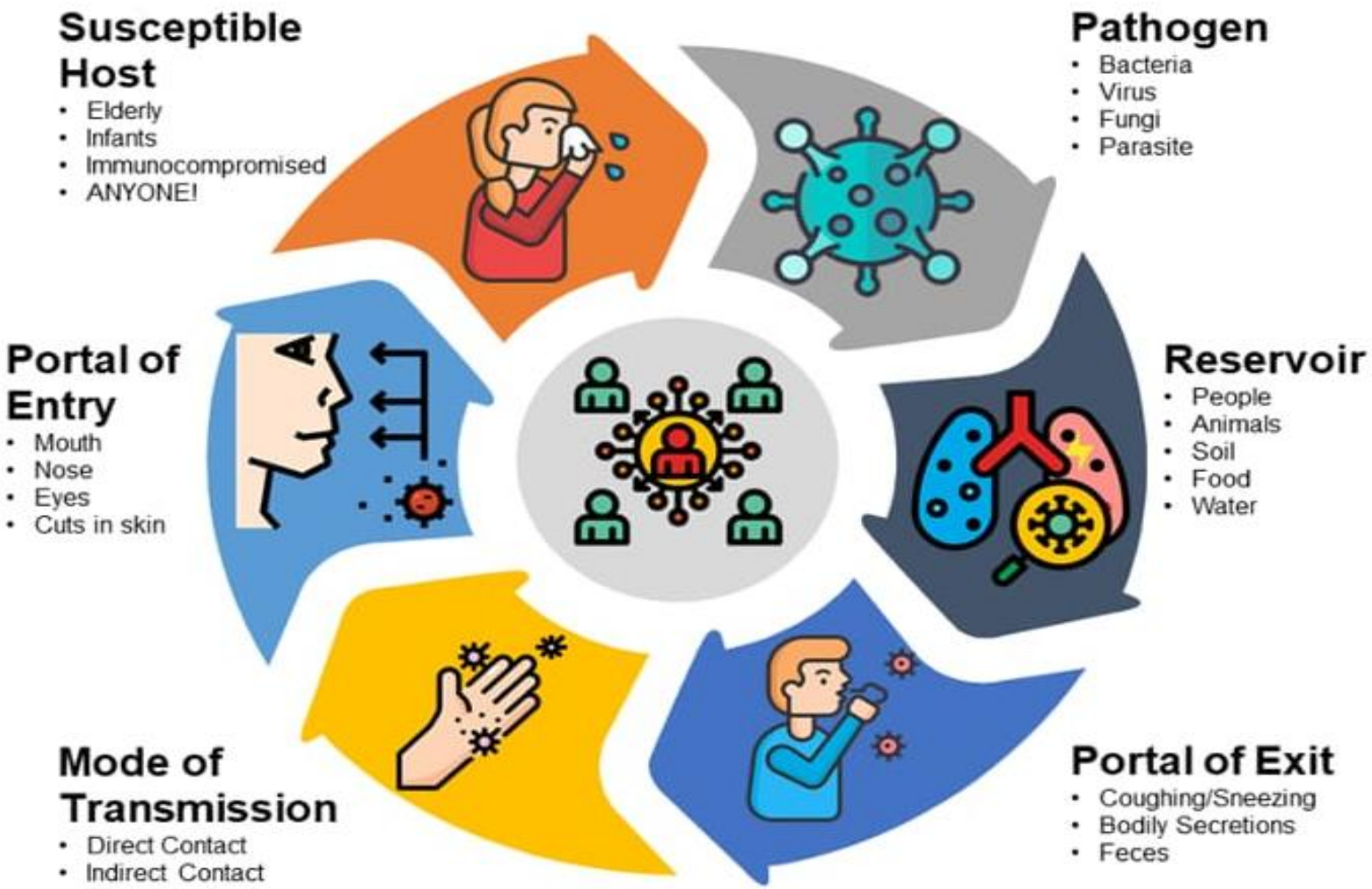
10. **Inappropriate use of antibiotics:** This leads to development of resistant strains ofpathogens. For example, the client may stop taking an antibiotic before the full course of therapy is completed or antibiotics may be prescribed and taken when they are not needed.

11. **Inadequate primary and secondary defenses:** The body's primary defenses may be-altered because of a break in the skin, low white blood cell count, an autoimmune disorder or

CAUSES OF INFECTION



CYCLE OF INFECTION




THANK YOU!