

Chapter 14 – Infection, Infectious Diseases, and Epidemiology

Symbiotic Relationships

1. Distinguish among the types of symbiosis.

- **Mutualism** is when both members benefit from their interactions.
- **Commensalism** is when one member benefits with no significant effect to the other.
- **Parasitism** is when one member receives benefits at the cost of the other's harm.

2. Describe the relationships among the terms parasite, host, and pathogen.

- Any parasite that causes disease to a host is considered a pathogen.
- In severe cases, a parasite kills its host and destroys its own home. Or it can contribute to coevolution.

3. Describe the normal microbiota, including resident and transient members.

- **Resident microbiota** remain a part of the normal microbiota of a person throughout life. Most commensal.
- **Transient microbiota** remain in the body only for a few hours, days, or months.

4. Describe the conditions that create opportunities for normal microbiota to cause disease.

- If a member of normal microbiota of a certain location were to be introduced to a foreign site in the body.
- Disease, malnutrition, stress, aging, chemotherapy and other forms of immune suppression.
- If microbial antagonism is disturbed, and reduce the abundance of normal microbiota.

5. Describe three types of reservoirs of infection in humans.

- **Animal Reservoirs:** direct contact with animals or their waste, eating animals, or via blood-sucking mosquitoes.
- **Human carriers:** Human can be infective before and after obvious symptoms appear.
- **Nonliving Reservoirs:** Soil, water, and food can be nonliving reservoirs (such as Flint's water crisis).

6. Describe the relationship between contamination and infection.

- **Contamination** simply refers to the presence of microbes in or on the body.
- Whenever a pathogen overcomes the body's defenses and establishes itself, this is called an **infection**.

7. Identify the portals through which pathogens invade. Know Table 14.4: *T. gondii*, *T. pallidum*, cytomegalovirus, and HIV.

- **Skin:** through hair follicles, sweat glands, cuts, or surgeries.
- **Mucous Membranes:** body cavities that are open to the outside world (mouth, eyes, pen-is)
- **Placenta (developing organ in embryo)**
 - In 2% of pregnancies, pathogens cross over and cause sudden problems. Consider table below.

TABLE 14.4 Some Pathogens That Cross the Placenta			
	Pathogen	Condition in the Adult	Effect on Embryo or Fetus
Protozoan	<i>Toxoplasma gondii</i>	Toxoplasmosis	Abortion, epilepsy, encephalitis, microcephaly, mental retardation, blindness, anemia, jaundice, rash, pneumonia, diarrhea, hypothermia, deafness
Bacteria	<i>Treponema pallidum</i>	Syphilis	Abortion, multiorgan birth defects, syphilis
DNA viruses	Cytomegalovirus	Usually asymptomatic	Deafness, microcephaly, mental retardation
RNA viruses	Lentivirus (HIV)	AIDS	Immunosuppression (AIDS)