

Study Guide — PBS Unit 3: Outbreaks and Emergencies (Pretest)

Principles of Biomedical Science · Unit 3 — Outbreaks and Emergencies · Modeled on the PLTW Guided Review format

Vocabulary to know cold

Term	Definition
Pathogen	A disease-causing microorganism such as a bacterium, virus, fungus, or parasite.
Immune system	The body system (white blood cells, lymph nodes, spleen, thymus) that defends against pathogens.
Lymphatic system	The network of lymph vessels, nodes, and organs that drains fluid and houses immune cells.
Vital signs	Key measurements of body function: temperature, pulse, respiration rate, and blood pressure.
Epidemiology	The study of how diseases are distributed and spread in populations.
Vaccine	A preparation that trains the immune system to recognize a pathogen before real exposure.
Antibody	A protein made by B cells that binds a specific antigen to neutralize a pathogen.
Fever (pyrexia)	A body temperature elevated above the normal range, often a sign of infection.
-pathy	Suffix meaning disease (e.g., neuropathy = disease of the nerves).
path/o	Combining form (root) meaning disease (e.g., pathology = study of disease).
tachy-	Prefix meaning fast or rapid (e.g., tachycardia).

Worked examples (follow the reasoning)

Example 1. Break down the medical term 'pathology' into its parts and give its meaning.

- Identify the root: path/o = disease.
- Identify the suffix: -logy = study of.
- Combine the parts in meaning.
- State the full definition.

Answer: Pathology = the study (-logy) of disease (path/o).

Example 2. A nurse records these adult vital signs: temperature 37.0 C, pulse 72 bpm, respiration 16/min. Are these within normal resting ranges?

- Compare temperature: 37.0 C equals the normal ~37 C.
- Compare pulse: normal resting adult pulse is about 60-100 bpm; 72 is within range.
- Compare respiration: normal adult rate is about 12-20 breaths/min; 16 is within range.
- Conclude.

Answer: Yes, all three values fall within normal adult resting ranges.

Practice questions (with reasoning)

1. The prefix brady- means slow. Bradycardia therefore means:

- A. fast heart rate
- B. slow heart rate
- C. no heartbeat
- D. irregular breathing

Answer: B. Brady- (slow) + cardi/o (heart) + -ia (condition) = a slow heart rate.

2. Which organ filters blood and stores white blood cells as part of the lymphatic system?

- A. Spleen
- B. Stomach
- C. Bladder
- D. Trachea

Answer: A. The spleen filters blood and houses lymphocytes, a key lymphatic organ.

3. A disease that spreads from person to person is called:

- A. chronic
- B. communicable (infectious)
- C. congenital
- D. degenerative

Answer: B. A communicable (infectious) disease is transmissible between hosts.