

Name: _____ Date: _____

Zoonotic Checkmate: 12th Grade Epidemiology & Hygiene Quiz

Evaluate non-pharmaceutical interventions and the socio-biological mechanisms of vector-borne illnesses and antimicrobial resistance in complex modern environments.

1. Which biological mechanism explains why overuse of triclosan in household hygiene products is a significant public health concern for graduating seniors entering communal living?

- A. It induces immediate cellular apoptosis in human dermal layers.
- B. It creates selective pressure favoring the survival of resistant bacterial strains.
- C. It neutralizes the efficacy of viral protein synthesis inhibitors.
- D. It prevents the natural acidification of the stomach lining.

2. In the context of the 'Hygiene Hypothesis,' a lack of early childhood exposure to diverse _____ is theorized to lead to an increase in autoimmune disorders and allergies later in life.

- A. Synthetic antibiotics
- B. Symbiotic microorganisms
- C. Purified water sources
- D. Atmospheric nitrogen

3. True or False: Herd immunity can be effectively achieved for a population solely through natural infection cycles without the intervention of hygienic protocols or vaccination programs.

- A. True
- B. False

4. When analyzing the transmission of Toxoplasmosis, which hygiene protocol is most critical for preventing infection from an intermediate host to a human?

- A. Wearing a surgical mask in crowded urban transit areas.
- B. Rigorous handwashing and soil removal after gardening or handling feline waste.
- C. Using high-efficiency particulate air (HEPA) filters in residences.
- D. Increasing intake of fat-soluble vitamins like A and K.

5. The process of _____ involves heating liquids like milk to a specific temperature to eliminate pathogens like *Coxiella burnetii* without significantly altering the nutritional profile.

- A. Lyophilization
- B. Carbonization
- C. Pasteurization
- D. Hydrogenation

6. True or False: Prions, the agents responsible for Creutzfeldt-Jakob Disease, are easily deactivated by standard alcohol-based hand sanitizers used in school settings.

- A. True

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B. False

7. Which of the following describes the most scientifically accurate reason for the seasonal 'peak' of nosocomial (hospital-acquired) infections in temperate climates?

- A. Increased humidity causing lower respiratory droplet suspension.
- B. Behavioral shifts to indoor environments with poor ventilation.
- C. The natural biological dormancy of T-cells during winter months.
- D. The degradation of soap molecules at lower temperatures.

8. A key component of 'precision hygiene' involves monitoring the _____, the collection of all microbes living on the body, which acts as a biological shield against invaders.

- A. Human Genome
- B. Blood-brain barrier
- C. Microbiome
- D. Endocrine system

9. True or False: Vector-borne diseases like Lyme disease can be largely prevented through personal hygiene practices such as 'tick checks' and the use of permethrin on clothing.

- A. True
- B. False

10. Which epidemiological concept explains why certain hygiene-related interventions are more effective when applied at the 'source' rather than the 'host' level?

- A. The Ring of Fire effect
- B. Active immunity duration
- C. The Chain of Infection
- D. Genetic drift and shift