

Name: _____

Date: _____

Answer Key: Pathogen Protection: Prevail and Prevent for 7th Grade

Evaluate how chain of infection disruptions and community interventions like herd immunity effectively control the transmission of communicable diseases.

1. Which transition in the 'Chain of Infection' is disrupted when a person uses a high-efficiency particulate air (HEPA) filter to trap airborne fungal spores?

Answer: C) The Mode of Transmission

Air filtration acts as a barrier during the 'Mode of Transmission' phase by physically removing pathogens from the medium (air) they travel through.

2. The public health concept of _____ occurs when a large percentage of a population becomes immune to a disease, making its spread unlikely even for those who aren't vaccinated.

Answer: B) Herd Immunity

Herd immunity (or community immunity) protects vulnerable individuals because the pathogen cannot find enough susceptible hosts to maintain an outbreak.

3. A zoonotic disease is one that is specifically defined by its ability to spread from animals to humans.

Answer: A) True

Zoonotic diseases, such as Rabies or Lyme disease, originate in animals and jump to human populations through various vectors or direct contact.

4. In the 1850s, John Snow mapped cholera cases in London to a specific water pump. This study of how and why diseases distribute in a population is called:

Answer: B) Epidemiology

Epidemiology is the branch of medicine that deals with the incidence, distribution, and possible control of diseases.

5. To prevent the spread of foodborne pathogens like Listeria, the process of _____ involves heating liquids to a specific temperature to kill harmful microbes.

Answer: B) Pasteurization

Pasteurization is a heat-treatment process that destroys pathogenic microorganisms in certain foods and beverages.

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6. Antibiotics are an effective treatment for preventing the spread of the Rhinovirus, which causes the common cold.

Answer: B) False

Antibiotics only kill bacteria; they have no effect on viruses like the Rhinovirus or Influenza.

7. Which of these is considered a 'non-communicable' disease, meaning it cannot be caught through social contact or hygiene failures?

Answer: C) Asthma

Asthma is a chronic respiratory condition caused by genetics and environmental triggers, not by an infectious pathogen.

8. When a person recovers from a disease and their body produces ___ proteins to recognize and fight that specific pathogen in the future, they have developed active immunity.

Answer: A) Antibody

Antibodies are specialized Y-shaped proteins that bind to 'non-self' antigens to flag pathogens for destruction by the immune system.

9. Properly sanitizing shared equipment in a gym is a preventative measure designed to stop indirect contact transmission.

Answer: A) True

Indirect contact occurs when a person touches a contaminated surface (fomite), such as a gym bench or door handle.

10. Which biological defense mechanism acts as the first line of 'innate' immunity to prevent pathogens from even entering the bloodstream?

Answer: C) Cilia and mucus membranes

Cilia and mucus membranes are physical and chemical barriers that trap and expel pathogens before they can invade internal tissues.