

Solutions

2.1 B After vaccination, memory cells can support a faster secondary response. Antibiotic resistance arises through heritable variation and selection; an individual bacterium does not choose to become resistant because it needs to survive.

2.2 rate per 1,000 = $12/600 \times 1,000 = 20$.

2.3 False. Antibiotics do not act on viruses in the same way they act on bacteria. A vaccine is not an immediate cure for an established infection.

2.4 pathogen. pathogen means An agent that causes disease.

3.1 Rates 20 and 40 per 1,000. Compare time windows, definitions, sampling and confounders. These proportions do not establish causation or an individual diagnosis.