

8.7 Infection prevention and control

Name: _____ Class: _____ Date: _____

Total: **23 marks****KEY WORDS** standard precautions • sterilisation

Objective

Match precaution levels to the physics of the route.

1 Key knowledge and worked examples

■ Levels and physics

Standard precautions for every patient; add contact, droplet or airborne to match the route ✓. Droplets ($> 5 \mu\text{m}$) fall within $\sim 1\text{--}2 \text{ m}$; airborne particles ($\leq 5 \mu\text{m}$) drift for hours – only a fitted respirator plus ventilation breaks that link.

■ Worked example: the ladders

Decontamination: cleaning $\rightarrow$ disinfection (vegetative cells only) $\rightarrow$ sterilisation (steam $121\text{--}134^\circ\text{C}$ or chemical sterilants) ✓. Staff vaccination 40 % $\rightarrow$ 90 %: susceptible-staff fraction 60 % $\rightarrow$ 10 %, a six-fold drop.

2 Practice

2.1 Why does a surgical mask within 1–2 m suffice for droplet spread? [3]

2.2 Measles vs influenza: which needs airborne precautions? [3]

2.3 What survives disinfection but not sterilisation? [3]

3 Exam-style questions

3.1 A fictional clinic raises staff influenza vaccination from 40 % to 90 % uptake.

Calculate the fall in the susceptible-staff fraction (60 % $\rightarrow$ 10 %, six-fold). Explain why the ward effect exceeds the sum of individual protections (each vaccinated staff member is also a blocked link between patients). State which chain link vaccination breaks. [7]

3.2 A fictional surgical unit reports a cluster of surgical-site infections presenting on post-operative days 5–7.

Use incubation arithmetic to date the acquisition window (the theatre or the first 48 h of aftercare). Map the investigation onto the chain (reservoir: cases/environment; route: contact; entry: the wound) and name one intervention per link. [7]
