

Solutions

2.1

- Reservoir $\rightarrow$ exit $\rightarrow$ route $\rightarrow$ entry $\rightarrow$ susceptible host $\checkmark$.

2.2

- $36/90 = 0.4 = 40\%$ $\checkmark$.

2.3

- Carriers shed organisms without being sick – silent reservoirs (typhoid's chronic carriers) $\checkmark$.

3.1

- Overall: $92/200 = 46\%$ $\checkmark$.
- Stratified: $78/100 = 78\%$ (seafood eaters) vs $12/100 = 12\%$ (non-eaters) $\checkmark$.
- The 66-point gap names the seafood course as the vehicle.
- Removing/cooling the vehicle breaks the ROUTE (vehicle transmission) – one link, transmission ends $\checkmark$.

3.2

- $t_d \approx 2.5 \times 0.693/0.262 \approx 6.6$ days $\checkmark$.
- R_0 is intrinsic to the parasite-population pair; isolation and immunity lower the effective R actually realised $\checkmark$.
- Measles: $t_d \approx 11 \times 0.693/2.71 \approx 2.8$ days – doubling every ~ 3 days outruns isolation and tracing $\checkmark$.