S2 Text. Discrete-time transmission model. For the discrete-time transmission model, we assume that the number of colonized patients $I(t)$, the total number of patients $N(t)$ and the bacterial load $E(t)$ is constant during the day. It is assumed that admission and screening occur at 12:00 pm on each day T determining I_T and N_T. Given all the information (at 12:00 pm), the environmental contamination on day T is determined. The force of infection on day T is then given by

$$
\lambda(T) = \alpha + \beta \frac{I_T}{N_T} + \epsilon E(T)
$$
$$
= \alpha + \beta \frac{I_T}{N_T} + \epsilon \cdot \left[E_{T-1} e^{-\mu} + \frac{\nu}{\mu} \frac{I_{T-1}}{N_{T-1}} (1 - e^{-\mu}) \right].
$$