A

| | Explanation | Screened range | Default |
|---|---|---|---|
| $N$ | Number of beds | - | 20 |
| $t_{LOS}$ | Length of stay for asymptomatic patients [days] | 2, 5, 7, 10, 15, 20, 50 | 7 days* |
| $r_I$ | Retention of infected patients (i.e. factor by which discharge of infected is more or less likely than for asymptomatic patients; low values indicate symptomatic infected are more likely to be removed, e.g. isolation; high values indicate symptomatic patients remain very likely in hospital) | 0.5, 1, 3, 5, 10, 20, 50 | 3** |
| $t_e$ | Half-life of pathogens in reservoir [days] | 1, 2, 5, 10, 20, 30, 50 | 20 days [73] |
| $\chi$ | Rate of environmental contamination | - | 0.1*** |

B

| | Explanation | Screened range | Default |
|---|---|---|---|
| $p_P$ | Proportion protecteds among incoming patients [%] | 0, 15, 30, 45, 60, 75, 90 | 0% |
| $p_S$ | Proportion patients that are not fully protected by microflora [%] | 0, 20, 40, 60, 80, 95, 99 | 20% |
| $f_i$ | Proportion of incoming carriers that are symptomatic [%] | 0, 5, 20, 40, 60, 80, 100 | 5% (i.e. 0.25% of admitted patients symptomatic carriers) |
| $f_{res}$ | Fraction of carriers (C +I) carrying strains resistant to either A, B or AB [%] | 0, 10, 20, 40, 60, 80, 100 | scenario i: 0%<br>scenario ii and iii: 10%<br>(i.e. 2% of admitted patients are carriers of a resistant strain)[74] |
| $p_{asym}$ | Asymmetry of A- and B-resistance among incoming patients (low values indicate all B- or AB-resistant; high values indicate all A- or AB- resistant) [%] | 0, 20, 40, 50, 60, 80, 100 | 50% (as many A- as B-resistant) |
| $f_{double}$ | Fraction double-resistance of all resistant strains (low values indicate only single-resistances; high values indicate only double-resistance) [%] | 0, 20, 40, 50, 60, 80, 100 | scenario i and ii: 0%<br>scenario iii: 40%<br>(i.e. 0.8% of admitted patients are carriers of a double resistant strain)[74] |

C

| | Explanation | Screened range | Default |
|---|---|---|---|
| $c_a$ | cost of resistance A [%] | 0, 10, 20, 30, 40, 50, 60 | 10% [75-77] |
| $c_b$ | cost of resistance B [%] | 0, 10, 20, 30, 40, 50, 60 | 10% [75-77] |
| $c_{ab}$ | cost of resistance AB [%] | 0, 10, 20, 30, 40, 50, 60 | 20% [75-77] |
| $t_{cl,P}$ | Time until protection by microflora is gone when treated with broadspectrum | - | - |
| $t_{cl}$ | Time until carrier is not infectious when appropriately treated [days] | 1, 2, 5, 7, 10, 15, 20 | 5 days [78, 79] |
| $\mu_a$ | Frequency of new A-resistance mutation per patient day | $10^{-1}$, $10^{-2}$, $10^{-3}$, $10^{-4}$, $10^{-5}$, $10^{-6}$, $10^{-7}$ | $10^{-4}$ (both A and B equally likely) |
| $\mu_a/\mu_b$ | Relative frequency of new B-resistance mutations per day | $10^{-2}$, $10^{-1}$, 1, 10, $10^2$, $10^4$, $10^6$ | 1 (both A and B equally likely) |
| $\mu_{ab}/(\mu_a*\mu_b)$ | Relative frequency of new AB-resistance mutations per day | $10^{-3}$, $10^{-2}$, $10^{-1}$, 1, 10, $10^2$, $10^3$ | 1 (both A and B mutations independent) |
| $d$ | Time to death if untreated [days] | 2, 5, 10, 20, 30, 50, 100 | 7 days |
| $t_P$ | Time to progression from colonized to infected [days] | 1, 5, 7, 10, 20, 50, never | 7 days (this corresponds to ~8% of patients acquiring an infection in the hospital, which is global average) [1] |
| $\beta_D$ | Infectious encounters between patients resulting in colonization per patient day (calculated for 20 beds) | 0.005, 0.01, 0.015, 0.02, 0.025, 0.03, 0.035 | 0.02 [22, 23] ($R_0$ of wild-type ≈ 1.5, $R_A$, the number of secondary infections in a hospital is ~0.4, because we assume that there is no superinfection and hence only a fraction of the patients is susceptible)* |
| $\beta_E/\beta_D$ | Infectious encounters with environment resulting in coloni-zation per patient day (calculated for 20 beds) relative to $\beta_D$ | 0, 0.17, 0.33, 0.50, 0.67, 0.83, 1 | Equivalent to $\beta_D/t_e\chi$ (adjusted such that for any given environmental decay rate $t_e$, $R_0$ of environmental transmission is equal to the $R_0$ for direct transmission in the same scenario) |

D

| | Explanation | Screened range | Default |
|---|---|---|---|
| $t_s$ | Rate with which inappropriate treatment of infected patients is switched from A to B or B to A. This is not the same as colonized patients progressing to symptomatic disease, in which case we always assume that treatment is switched within a day | never, 0.17, 0.33, 0.50, 0.67, 0.83, 1 | never |
| $f_p$ | fraction of asymptomatic patients receiving scheduled treatment for prophylaxis or treatment of other disease [%] | 0, 5, 10, 15, 20, 30, 40 | 20% |
| $f_{p,AB}$ | fraction of asymptomatic patients additionally receiving both drug A and B for prophylaxis or treatment of other disease [%] | 0, 1, 5, 10, 20, 50, 100 | 1% |