**Table 1.** Model parameters and ranges

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Parameter | Value | Range | Distribution | Symbol | Source |
| Populations |  |  |  |  |  |
| Total students | 15,000 |  |  |  | Univ. admin |
| Students living on campus | 4,500 | 1575 to 4500 | Uniform |  | Univ. admin |
| Staff and faculty | 15,266 |  |  |  | Univ. admin |
| Natural history and clinical |  |  |  |  |  |
| Latent period (days) | 3 | 2 to 4 | Gamma | 1/ | (8) |
| Infectious period (days) | 7 | 6 to 8 | Gamma |  | (14) |
| Proportion severe - students | 0.0224 | 0.0133 to 0.0456 | Beta |  | (6) |
| Proportion severe - staff/faculty | 0.055 | 0.0327 to 0.1122 | Beta |  | (6) |
| Proportion fatal - students | 0.0006 | 0.0003 to 0.0014 | Uniform |  | (6) |
| Proportion fatal - staff/faculty | 0.0052 | 0.0029 to 0.0105 | Uniform |  | (6) |
| Proportion symptomatic - students | 0.35 | 0.27 to 0.43 | Beta |  | (15) |
| Proportion symptomatic - staff/faculty | 0.51 | 0.41 to 0.59 | Beta |  | (15) |
| Transmission |  |  |  |  |  |
| R0: students to students | 2 | 0.7 to 2.5 | Uniform |  |  |
| R0: on campus students to other on campus students | 1 | 0.3 to 1.4 | Uniform |  |  |
| R0: Staff/faculty to student; staff/faculty to staff/faculty | 0.5 | 0.15 to 0.7 | Uniform |  |  |
| Daily new cases in community (proportion) | 0.00005 | 0.000025 to 0.0001 | Beta | daily\_new\_case |  |
| Under-reporting factor for community infections | 10 |  |  | under\_report |  |
| Efficacy of face-coverings and social distancing | 0.7 | 0.36 to 0.86 | Beta | eff\_npi |  |
| Testing and quarantine |  |  |  |  |  |
| Time from onset of infectiousness to testing (1/days) | 2 | 7 to 1 | Uniform |  |  |
| Screening frequency (1/days) | 30 | 120 to 1 | Uniform |  |  |
| Duration of quarantine (days) | 14 |  |  | 1/δ |  |
| Number of contacts per case | 14 | 12 to 16 | Uniform | contacts | (16) |
| Proportion of contacts reached | 0.75 | 0.5 to 1 | Uniform |  |  |
| Proportion experiencing ILI symptoms per day | 0.00333 | 0.003 to 0.003667 |  |  | (10,11) |
| PCR sensitivity -- day 2 of infectiousness | 0.75 | 0.6 to 0.83 | Beta |  | (12) |
| PCR sensitivity -- day 4 of infectiousness | 0.8 | 0.7 to 0.85 | Beta |  | (12) |
| PCR sensitivity -- day 7 of infectiousness | 0.75 | 0.65 to 0.8 | Beta |  | (12) |

**Table 2.** Cumulative outcomes at end of the semester on medium size university campus (approx. 15,000 students and 15,000 staff and faculty). Values are medians and 2.5 and 97.5th percentiles of 1,000 model runs.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Base scenario | 4-day test delay | 30-day screen interval | Combined test and screen |
| Students |  |  |  |  |
| Cumulative cases (n) | 3056 (923-4840) | 467 (155-1092) | 2153 (519-3850) | 395 (140-911) |
| Peak daily cases (n) | 413 (77-956) | 23 (6-85) | 211 (32-598) | 16 (5-53) |
| Hospitalizations (n) | 166 (33-417) | 26 (5-108) | 121 (17-344) | 20 (4-85) |
| Deaths (n) | 4 (1-13) | 1 (0-3) | 3 (0-11) | 1 (0-3) |
| Isolated (n) | 0 (0-0) | 418 (132-1010) | 1475 (334-2548) | 527 (185-1253) |
| Isolated (max) | 0 (0-0) | 60 (17-198) | 309 (52-712) | 72 (24-221) |
| Isolated (days) | 0 (0-0) | 5200 (1618-13075) | 18838 (3932-34606) | 6544 (2272-16032) |
| Quarantined (n) | 0 (0-0) | 4376 (1422-9507) | 0 (0-0) | 3308 (1132-7304) |
| Quarantined (max) | 0 (0-0) | 624 (193-1877) | 0 (0-0) | 454 (147-1249) |
| Quarantined (days) | 0 (0-0) | 54448 (17435-123118) | 0 (0-0) | 40945 (13900-93794) |
| Staff and Faculty |  |  |  |  |
| Cumulative cases (n) | 1046 (413-2078) | 416 (175-825) | 737 (306-1499) | 381 (155-740) |
| Peak daily cases (n) | 102 (31-285) | 16 (6-34) | 53 (17-154) | 13 (5-27) |
| Hospitalizations (n) | 64 (12-209) | 9 (1-33) | 39 (6-132) | 7 (1-26) |
| Deaths (n) | 6 (1-22) | 1 (0-3) | 3 (1-14) | 1 (0-2) |
| Testing |  |  |  |  |
| Total performed (n) | 0 (0-0) | 14038 (11964-17059) | 116020 (116020-116020) | 129531 (127780-131865) |
| Per capita | 0 (0-0) | 0 (0-1) | 4 (4-4) | 4 (4-4) |

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