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| --- | --- | --- | --- | --- |
| **Condition** | **Alert Level** | | | |
| **1** | **2** | **3** | **4** |
| % of working age adults classified as essential workers (with no restrictions on movements during work hours) *[no uncertainty, as part of scenario definition]* | 100% | 90% | 45% | 20% |
| Restrictions on non-essential workers, and essential workers when not working: |  |  |  |  |
| % of people with restricted movement | 0% | 25% | 90% | 95% |
| % restriction in movement among the above restricted people | 0% | 25% | 90% | 95% |
| Complacency: Minimal value that restrictions above reduce to as a result of fatigue € | 0% | 20% | 72% | 86% |
| Radius of movement in spatial units for non-essential workers, and essential workers when not working † | 30 | 30 | 5 | 5 |
| Quarantine compliance ₵ *– beta distribution* | 93% | 93% | 93% | 93% |
| Super-spreader potential (generated by allowing a percentage of agents to randomly move to a new location at any time-step) | 10% | 10% | 3% | 2% |
| Limitations on gathering restrictions over time – opportunities per week to gather in locations (average of once per week) and the potential area in spatial units within which people may be drawn from. The larger the area, the greater the number of potential contacts. |  |  |  |  |
| School closures, all children < 18 years ‡ *[no uncertainty, as part of scenario definition]* | 0% | 0% | 85% | 100% |
| Mask utilisation outside of home in busy indoor environments, selected outside environments (e.g., sporting venues) and public transport where physical distancing is not possible. | 50% | 90% | 90% | 90% |
| Mask effectiveness in reducing transmission ₤*[Beta distribution 24.3, 8.08]* | 75% | 75% | 75% | 75% |
| QR codes being used – ramped up with higher stages | 5% | 10% | 20% | 40% |
| % Reduction in contact tracing time due to QR codes being used |  |  |  |  |

Set contact tracing to: 80% contacts found in 48 hours

Set contact tracing capacity to 150 cases per day

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| **Domain** | **Condition** | **Alert Lv 1** | **Alert Lv 2** | **Alert Lv 3** | **Alert Lv 4** |
| Stay at home | Number of reasons to leave home† | - | - | 4 | 4 |
| Limit on range of movement | - | - | Move around in local area | Move around in local area |
| Time away from home | - | - | - | - |
| Limit on the number of times you can go out per day | - | - | - | - |
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| Work from home | Return to work | Return to work – Working from home is encouraged | Must work from home unless not possible – Businesses open are only essential or non-contact operations | Stay at home, unless defined essential worker |
| Home visitors (non-household members) | Maximum number (N) of visitors | No limit | 100 | 0 | 0 |
| Outdoor gatherings | Maximum N of persons (including for physical activity / exercise) | No limit | 10 | 5 | 2 |
| Industries, education, hospitality facilities (% closed unless otherwise stated) | Major construction sites | 0% | 0% | 0% | 75% |
| Small scale construction, e.g., residential (max number of people on site) | - | - | - | - |
| Meat industry | 0% | 0% | 0% | 33% |
| Poultry industry | 0% | 0% | 0% | 20% |
| Seafood industry | 0% | 0% | 0% | 33% |
| Manufacturing | 0% | 0% | Open for staff who cannot work from home | Only to supply essential services |
| Warehousing & distribution centres | 0% | 0% | 0% | 0% |
| Technical and further education, & University studies | Open | Open | Only remote – 20 person bubble allowed for necessary in person learning | Only remote learning |
| Schools | Open | Open | Open only to those without supervision at home | Closed (except to vulnerable children and children of permitted workers |
| Childcare & pre-school care | Open | Open | Open only to those without supervision at home | Closed (except to vulnerable children and children of permitted workers |
| Hardware stores | 0% | 0% | 100% - unless contactless | Closed – exception to tradespeople |
| Department stores | 0% | 0% | 100% - unless contactless | 100% |
| Hairdressers & barbershops | 0% | 0% | 100% | 100% |
| Beauty parlours & massage therapy | 0% | 0% | 100% | 100% |
| Real estate auction – max N | No limit | 100 | 0 | 0 |
| Accommodation services – Closed | No | No | Yes | Yes |
| Café & restaurants – m2 per person | - | - | - | - |
| Café & restaurant – max N | No limit | 100 | 0 | 0 |
| Café & restaurant – closed | No | No | Takeaway/contactless available | Yes |
| Food courts – Closed | No limit | 100 | Yes | Yes |
| Pubs, clubs, casinos & nightclubs – Closed | No limit | 100 | Yes | Yes |
| Cinemas & entertainment services | No limit | 100 | 0 | 0 |
| Places of worship | Closed | No | No | Yes | Yes |
| Maximum N allowed | No limit | 100 | 0 | 0 |
| M2per person | - | - | - | - |
| Weddings – maximum N allowed | No limit | 100 | 10 | 0 |
| Indoor funerals – max N allowed | No limit | 100 | 10 | 0 |
| Outdoor funerals – max N allowed | No limit | 100 | 10 | 0 |
| Face covering ‡ |  | In public transport | In public transport | In public transport | In public transport |
| Sporting activities | Indoor sports – m2per person | - | - | - | - |
| Indoor sporting centres – max N | No limit | 100 | 0 | 0 |
| Gym – max N | No limit | 100 | 0 | 0 |
| Play centres - % closed | 0% | 0% | 100% | 100% |
| Playgrounds - % closed | 0% | 0% | 100% | 100% |
| Recreation activities (fishing, golf, boating, tennis, surfing, drive range shooting) - % closed | 0% | 0% | Anyone in bubble – Say 50%? | 100% |
| Aged care restrictions | Max N visitors at one time | No limit | 2 | 0 | 0 |
| Max N of visits per day per resident | No limit | 2 | 0 | 0 |
| Max total duration of visits (in hours) | No limit | 0.5 | 0 | 0 |
| Face masks required of visitors | If asked | Mandatory | - | - |
| Workers working at multiple facilities | Allowed | Allowed | Allowed | Allowed |
| Facemask required of workers | No | Mandatory | Mandatory | Mandatory |

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| **Physical distancing (% of people limiting movement and maintaining a distance of 2m in public, normal distribution)** | Normal distribution: mean = 85%, SD = 3% |
| **Physical distancing - time (% of time that people successfully maintain a distance of 1.5m, normal distribution)** | Normal distribution: mean = 85%, sd = 3% |
| **Mean incubation period (days, log-normal)** | Normal distribution: mean = 4.4, SD = 1.9  Drawn once per iteration of ABM, and applied to all agents. |
| **Mean illness period**(days, log-normal)**3** | Normal distribution: mean = 20.8, SD = 2  Drawn once per iteration of ABM, and applied to all agents. |
| **Mean adherence with isolation of infected cases**(beta distribution)¥ | m = 93.3%  (beta 28, 2; median = 94.3%,SD = 4.5%) † |
| **Number of days after initial infection that new cases are reported¥**\* | Uniform draw from day 6, 7 or 8 |
| **Date of case simulation initialisation**(Day 0) | Janurary 1st, 2021 |
| **Asymptomatic cases**(% of cases, normal distribution)**3,4** | Normal distribution: mean = 30~~3~~%, sd = 3%  Drawn once per iteration of ABM, and applied to all agents.  Twice that for kids |
| **Infectiousness of asymptomatic cases vs symptomatic cases (per contact,**normal distribution**) 5** | Normal distribution: mean = 75%, sd = 3%  Drawn once per iteration of ABM, and applied to all agents. |
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| **Ratio transmission risk from mask wearing** | Beta 40,60.  Thus for one person in the contact wearing a mask the risk is 40% of that for both people unmasked, and for both people masked is 69% (0.4^2) that for both people unmasked. |
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| **Seeded cases** | No cases were initially seeded in the model |
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| **Mean household size (approx.)** | 3.0 (drawn from 1 to 5 integer Beta 2.2, 2.2; scaled to 1 to 5 |
| **Proportion of adult population in workforce** | 67% from NZSTATS |
| **Delay in days after infection until start of infectiousness** | 2 days |
| **Delay from presentation (i.e. test positive) to case notification** | 1day |
|  |  |
| **Ratio of transmissibility for asymptomatic versus symptomatic cases** | 0.75 [Source: <https://www.cdc.gov/coronavirus/2019-ncov/hcp/planning-scenarios.html>] (Applied to global transmissibility parameter.) |
| **Susceptibility of children (compared to adults) to infection** | 0.56 (95% UI 0.37 to 0.85) (Viner, Mytton et al. 2021) |
| **Chance of an untracked case being tracked on any given day** | (0.88 ^ ln((daily cases) ^ 2)) / 4 (daily cases is the proportion of confirmed cases that inform policy)   (0.88 ^ ln(((infectionsinperiod7) / 35) ^ 2)) |
| **Proportion of symptomatic cases who (in the absence of contact tracing) would self-present** |  |
|  | 0.5 |
| **Multiplier in transmission of person who is complying with their isolation** | 0.33 |
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