

COVID-19 Scenarios

Printable report

Generated from covid19-scenarios.org on Apr 29 2020, 03:26 PM

Important information

COVID-19 Scenarios is a tool that allows to explore the dynamics of a COVID-19 outbreak in a given community and to assess the associated burden on the healthcare system. COVID-19 Scenarios, as every other model, it has parameters whose values are not known with certainty, which might differ between places and change with time. The values of some of these of these parameters have a major effect on the results.

The results are particularly sensitive to parameters that determine how rapidly the disease spreads or how effective counter-measures are: some values will result in a small limited outbreak, others in a massive outbreak with many fatalities. Furthermore, when extrapolating the outbreak into the future, the results will critically depend on assumptions of **future** policy and the degree to which infection control measures are adhered to. It is therefore important to interpret the model output with care and to assess the plausibility of the parameter values and model assumptions.

COVID-19 Scenarios uses an age-structured generalized SEIR model. For details, please consult the documentation on covid19-scenarios.org/about. Default parameter choices are informed by the available evidence at the time, but might need adjustment for a particular community or as more information on the outbreak is available.

This tool is not a medical predictor, and should be used for informational and research purposes only. Please carefully consider the parameters you choose. Interpret and use the simulated results responsibly. Authors are not liable for any direct or indirect consequences of this usage.



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Scenario: Custom

Parameters

Population

| Parameter | Value |
|--|--------------------------|
| Case counts for | United States of America |
| Age distribution for | United States of America |
| Number of hospital beds | 950000 |
| Number of available ICU beds | 100000 |
| Cases imported into community per day | 0.1 |
| Number of cases at the start of the simulation | 8 |
| Population size | 327167434 |

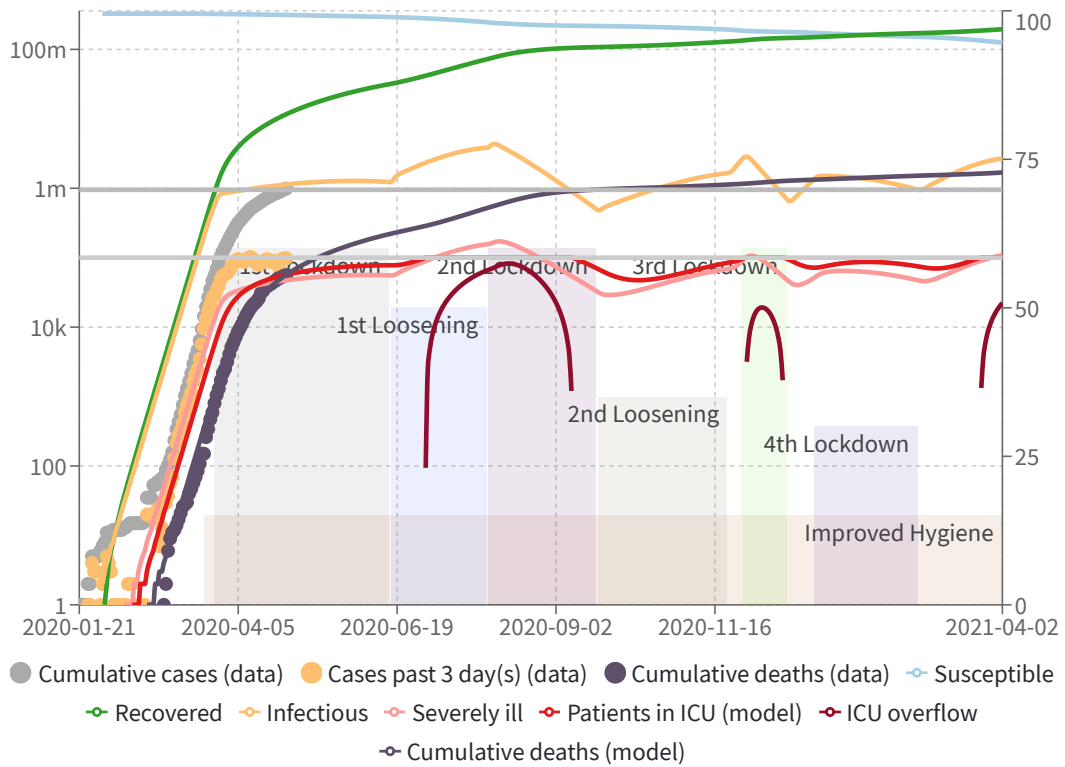
Epidemiology

| Parameter | Value |
|--|---------|
| Infectious period [days] | 3 |
| Latency [days] | 3 |
| Average time in regular ward [days] | 3 |
| Average time in ICU ward [days] | 10 |
| Increase in death rate when ICUs are overcrowded | 2 |
| Seasonal peak in transmissibility | January |
| R0 at the beginning of the outbreak | 3.2 |
| Seasonal variation in transmissibility | 0 |

Mitigation

| Intervention name | From | To | Reduction of transmission |
|-------------------|-------------|-------------|---------------------------|
| Improved Hygiene | Mar 19 2020 | Apr 01 2021 | 15% |
| 1st Lockdown | Mar 24 2020 | Jun 15 2020 | 60% |
| 1st Loosening | Jun 16 2020 | Jul 31 2020 | 50% |
| 2nd Lockdown | Aug 01 2020 | Sep 21 2020 | 60% |
| 2nd Loosening | Sep 22 2020 | Nov 22 2020 | 35% |
| 3rd Lockdown | Nov 29 2020 | Dec 20 2020 | 60% |
| 4th Lockdown | Jan 02 2021 | Feb 20 2021 | 30% |

Results



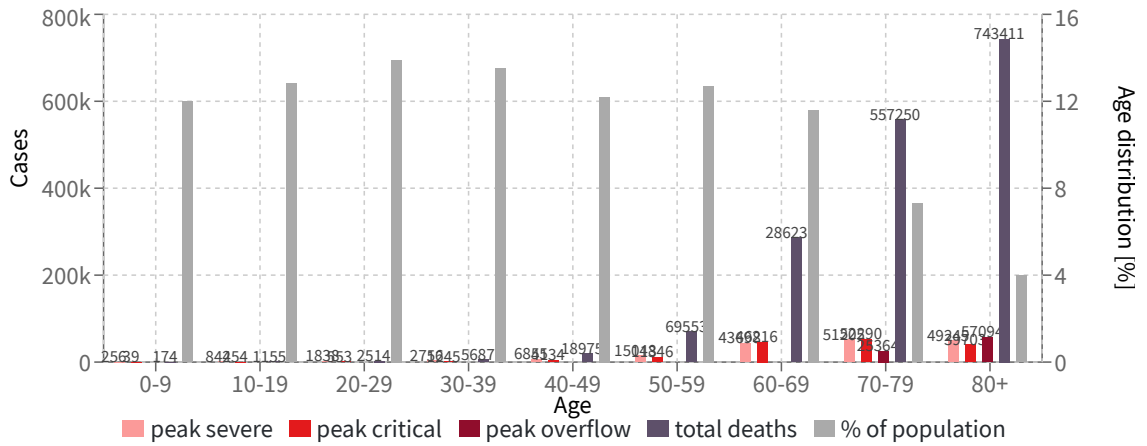
Results summary

| Date | Hospitalized | In ICU | ICU overflow | Deaths (cumulative) | Recovered (cumulative) |
|-------------|--------------|--------|--------------|---------------------|------------------------|
| Jan 31 2020 | 0 | 0 | 0 | 0 | 0 |
| Feb 07 2020 | 0 | 0 | 0 | 0 | 15 |
| Feb 14 2020 | 1 | 1 | 0 | 0 | 94 |
| Feb 21 2020 | 8 | 3 | 0 | 1 | 503 |
| Feb 28 2020 | 40 | 16 | 0 | 3 | 2611 |
| Mar 06 2020 | 206 | 85 | 0 | 17 | 13465 |
| Mar 13 2020 | 1058 | 437 | 0 | 87 | 69349 |
| Mar 20 2020 | 5440 | 2247 | 0 | 449 | 356748 |
| Mar 27 2020 | 21904 | 10440 | 0 | 2235 | 1581117 |
| Apr 03 2020 | 32698 | 25318 | 0 | 8096 | 3571441 |
| Apr 10 2020 | 37947 | 37527 | 0 | 18474 | 5735465 |
| Apr 17 2020 | 42142 | 46852 | 0 | 32356 | 8066569 |
| Apr 24 2020 | 45761 | 54231 | 0 | 48961 | 10553696 |
| May 01 2020 | 48883 | 60271 | 0 | 67759 | 13181056 |
| May 08 2020 | 51507 | 65293 | 0 | 88371 | 15927902 |
| May 15 2020 | 53596 | 69443 | 0 | 110489 | 18768855 |
| May 22 2020 | 55109 | 72767 | 0 | 133837 | 21674643 |

| Date | Hospitalized | In ICU | ICU overflow | Deaths (cumulative) | Recovered (cumulative) |
|-------------|--------------|--------|--------------|---------------------|------------------------|
| May 29 2020 | 56005 | 75258 | 0 | 158143 | 24613184 |
| Jun 05 2020 | 56262 | 76892 | 0 | 183129 | 27550952 |
| Jun 12 2020 | 55880 | 77649 | 0 | 208511 | 30454472 |
| Jun 19 2020 | 60161 | 78352 | 0 | 234035 | 33499034 |
| Jun 26 2020 | 75547 | 87201 | 0 | 260968 | 37572600 |
| Jul 03 2020 | 92091 | 100000 | 2541 | 292022 | 42590417 |
| Jul 10 2020 | 110033 | 100000 | 19381 | 332236 | 48623873 |
| Jul 17 2020 | 127832 | 100000 | 36016 | 383688 | 55668240 |
| Jul 24 2020 | 143798 | 100000 | 51860 | 446044 | 63615830 |
| Jul 31 2020 | 156022 | 100000 | 65633 | 518335 | 72243340 |
| Aug 07 2020 | 170769 | 100000 | 79825 | 599603 | 81806416 |
| Aug 14 2020 | 146144 | 100000 | 79128 | 686751 | 89804133 |
| Aug 21 2020 | 115815 | 100000 | 61243 | 766784 | 95826859 |
| Aug 28 2020 | 88887 | 100000 | 37829 | 832374 | 100254439 |
| Sep 04 2020 | 67037 | 100000 | 15277 | 882329 | 103452642 |
| Sep 11 2020 | 50165 | 96000 | 0 | 918456 | 105733940 |
| Sep 18 2020 | 37283 | 77645 | 0 | 946661 | 107346817 |
| Sep 25 2020 | 29224 | 61089 | 0 | 969191 | 108550524 |
| Oct 02 2020 | 29851 | 51004 | 0 | 987309 | 109928337 |
| Oct 09 2020 | 32888 | 47441 | 0 | 1003286 | 111574030 |
| Oct 16 2020 | 37342 | 48349 | 0 | 1018889 | 113522420 |
| Oct 23 2020 | 42799 | 52309 | 0 | 1035326 | 115802467 |
| Oct 30 2020 | 48916 | 58364 | 0 | 1053429 | 118433184 |
| Nov 06 2020 | 55334 | 65793 | 0 | 1073760 | 121418752 |
| Nov 13 2020 | 61647 | 73969 | 0 | 1096667 | 124743772 |
| Nov 20 2020 | 67410 | 82279 | 0 | 1122294 | 128369827 |
| Nov 27 2020 | 80023 | 91436 | 0 | 1150651 | 132552251 |
| Dec 04 2020 | 106300 | 100000 | 13386 | 1185357 | 138652056 |
| Dec 11 2020 | 80501 | 100000 | 17181 | 1230107 | 142989462 |
| Dec 18 2020 | 54123 | 100000 | 1717 | 1269704 | 145525214 |
| Dec 25 2020 | 40471 | 81943 | 0 | 1299783 | 147189546 |
| Jan 01 2021 | 49298 | 71920 | 0 | 1324580 | 149544035 |
| Jan 08 2021 | 62276 | 76207 | 0 | 1348609 | 152910651 |
| Jan 15 2021 | 64471 | 82689 | 0 | 1374740 | 156367554 |
| Jan 22 2021 | 63720 | 86179 | 0 | 1402526 | 159722715 |
| Jan 29 2021 | 61326 | 86759 | 0 | 1430972 | 162904894 |
| Feb 05 2021 | 57687 | 84898 | 0 | 1459200 | 165858148 |

| Date | Hospitalized | In ICU | ICU overflow | Deaths (cumulative) | Recovered (cumulative) |
|-------------|---------------------|---------------|---------------------|--------------------------------|-----------------------------------|
| Feb 12 2021 | 53155 | 81079 | 0 | 1486490 | 168544286 |
| Feb 19 2021 | 48077 | 75789 | 0 | 1512277 | 170943097 |
| Feb 26 2021 | 47225 | 70446 | 0 | 1536216 | 173245981 |
| Mar 05 2021 | 56467 | 71541 | 0 | 1559308 | 176177450 |
| Mar 12 2021 | 69455 | 80096 | 0 | 1584017 | 179911985 |
| Mar 19 2021 | 84184 | 94172 | 0 | 1612484 | 184502479 |
| Mar 26 2021 | 98608 | 100000 | 10440 | 1647286 | 189900185 |

Distribution across age groups



Proportions

Outcome Population average

Mild [%]: 93.87

Severe [%]: 3.48

Critical [%]: 1.80

Fatal [%]: 0.86

Totals/Peak

Quantity Peak/total value

Total death: 1.68m

Total severe: 6.85m

Peak severe: 171.75k

Peak critical: 182.46k