COVID-19 Results Briefing

Global

April 7, 2022

This document contains summary information on the latest projections from the IHME model on COVID-19 globally. The model was run on April 7, 2022, with data through April 4, 2022.

The current global situation for COVID-19 is dominated by two factors. First, due to declining mask use and increasing mobility, combined with the spread of the BA.2 Omicron sub-variant, a number of countries in Europe have experienced a secondary Omicron wave. With the exception of Malta and Hungary, these BA.2 waves have peaked and/or are declining. The duration of the BA.2 wave appears to be about 3 weeks in countries where it occurs. Many countries have widely circulating BA.2 without a secondary wave. Variation in the degree to which BA.2 leads to a secondary wave may be a function of mask use, social distancing behavior, and past levels of exposure to Omicron and other variants. Second, the most important driver of global forecasts is how the Omicron wave will play out in China. The lockdown in Shanghai demonstrates China’s strong commitment to a zero-COVID strategy. In this release of our forecasts, we have used the Shanghai reduction in mobility to capture how outbreaks in other provinces are likely to be managed. This may defer until much later in the year the broader spread of Omicron throughout China; nevertheless, even smaller outbreaks with aggressive lockdowns may lead to considerable deaths given comparatively low vaccination rates in the population over 80 years old in China.

Even taking into account the BA.2 subvariant, the forecasts and the currently observed trends suggest that infections, cases, hospitalizations, and deaths will continue to decline in nearly all regions of the world (except in China) over the next months. This forecast, however, can be substantially affected by the emergence of new variants that may be more severe than Omicron and infectious enough or with sufficient immune escape to replace Omicron. Managing COVID-19 in the coming months, when policy attention may wane as numbers decline, will require attention to several factors. First, governments need to maintain adequate surveillance systems and monitor transmission globally because earlier detection of a new variant will provide more time to put a range of measures in place. Second, scale up access to antivirals and effective delivery mechanisms so that those at risk can receive antivirals at the appropriate time. Insufficient policy attention has been paid to antiviral access and delivery compared to vaccination. Global focus on getting vaccination rates to 70% in all countries, while a laudable goal from a fairness perspective, will not provide much protection against the emergence of a new variant with considerable immune escape. In contrast, global access to antivirals can have a profound effect on the death rate from new variants. Third, boosters should be deployed in those willing to be vaccinated more broadly when and if a new variant emerges. Boosters for the most vulnerable now may be appropriate. Fourth, governments should encourage individuals at risk to use masks and to socially distance if and when transmission starts to increase substantially.
Current situation

- Estimated daily infections in the last week decreased to 6.1 million per day on average compared to 6.8 million the week before (Figure 1.1).

- Estimated daily hospital census in the last week (through April 4) decreased to 245,000 per day on average compared to 265,000 the week before.

- Daily reported cases in the last week decreased to 1,187,000 per day on average compared to 1,492,000 the week before (Figure 2.1).

- Reported deaths due to COVID-19 in the last week decreased to 4,100 per day on average compared to 4,700 the week before (Figure 3.1).

- Total deaths due to COVID-19 in the last week decreased to 6,500 per day on average compared to 7,500 the week before (Figure 3.1). This makes COVID-19 the number five cause of death globally this week (Table 1). Estimated total daily deaths due to COVID-19 in the past week were 1.6 times larger than the reported number of deaths.

- The daily rate of reported deaths due to COVID-19 is greater than 4 per million in 11 locations and 14 subnational locations (Figure 4.1).

- The daily rate of total deaths due to COVID-19 is greater than 4 per million in 25 locations and 37 subnational locations (Figure 4.2).

- We estimate that 58% of people globally have been infected at least once as of April 4 (Figure 6.1). Effective R, computed using cases, hospitalizations, and deaths, is greater than 1 in 52 locations and 56 subnational locations (Figure 7.1).

- The infection-detection rate globally was close to 15% on April 4 (Figure 8.1).

- Based on the GISAID and various national databases, combined with our variant spread model, we estimate the current prevalence of variants of concern (Figures 9.1–9.5). Omicron remains the dominant variant throughout the world.

Trends in drivers of transmission

- Mobility last week was 13% higher than the pre-COVID-19 baseline (Figure 11.1). Mobility was lower than 15% of baseline in 14 locations and 22 subnational locations.

- As of April 4, in the COVID-19 Trends and Impact Survey, 47% of people self-report that they always wore a mask when leaving their home (Figure 13.1). Mask use remains highest in Latin America, southern Africa, and Southeast Asia.

- There were 563 diagnostic tests per 100,000 people on April 4 (Figure 15.1).

- As of April 4, 82 locations and 136 subnational locations have reached 70% or more of the population who have received at least one vaccine dose, and 63 locations and 105 subnational locations have reached 70% or more of the population who are fully vaccinated (Figure 17.1). 66% of people globally have received at least one vaccine dose, and 59% are fully vaccinated.
• Globally, 81.4% of the population that is 12 years and older say they would accept a vaccine for COVID-19. Note that vaccine acceptance is calculated using survey data from the 18+ population. The proportion of the population who are open to receiving a COVID-19 vaccine ranges from 12% in Turkmenistan to 100% in Tripura, India (Figure 19.1).

• As of March 27, 2022, 3.2% of the world population say they would accept a vaccine for COVID-19 but have not yet been vaccinated. In sub-Saharan Africa, the percentage of the population willing to be vaccinated who are not yet vaccinated is as high as 30% in some countries.

• In our current reference scenario, we expect that 5.2 billion people will be vaccinated with at least one dose by August 1 (Figure 21.1). We expect that 62% of the population will be fully vaccinated by August 1.

Projections and scenarios

We produce three scenarios when projecting COVID-19. The reference scenario is our forecast of what we think is most likely to happen:

• Vaccines are distributed at the expected pace. Brand- and variant-specific vaccine efficacy is updated using the latest available information from peer-reviewed publications and other reports.

• Future mask use is the mean of mask use over the last seven days.

• Mobility increases as vaccine coverage increases.

• Omicron variant spreads according to our flight and local spread model.

• 80% of those who have had two doses of vaccine (or one dose for Johnson & Johnson) receive a third dose at six months after their second dose.

The 80% mask use scenario makes all the same assumptions as the reference scenario but assumes all locations reach 80% mask use within seven days. If a location currently has higher than 80% use, mask use remains at the current level.

The third dose scenario is the same as the reference scenario but assumes that 100% of those who have received two doses of vaccine will get a third dose at six months.

Projections

Infections

• Daily estimated infections in the reference scenario will decline to 2,892,910 by August 1, 2022 (Figure 23.1).

• Daily estimated infections in the 80% mask use scenario will decline to 1,259,520 by June 16, 2022 (Figure 23.1).

• Daily estimated infections in the third dose scenario will decline to 2,453,740 by August 1, 2022 (Figure 23.1).
Cases

- Daily estimated cases in the **reference scenario** will decline to 144,200 by August 1, 2022 (Figure 23.2).

- Daily estimated cases in the **80% mask use scenario** will decline to 57,370 by July 8, 2022 (Figure 23.2).

- Daily estimated cases in the **third dose scenario** will decline to 119,000 by August 1, 2022 (Figure 23.2).

Deaths

- In our **reference scenario**, our model projects 7,019,000 cumulative reported deaths due to COVID-19 on August 1. This represents 278,000 additional deaths from April 4 to August 1. Daily reported COVID-19 deaths in the **reference scenario** will decline to 1,410 by August 1, 2022 (Figure 23.4).

- Under our **reference scenario**, our model projects 17,425,000 cumulative total deaths due to COVID-19 on August 1. This represents 421,000 additional deaths from April 4 to August 1 (Figure 23.5).

- In our **80% mask use scenario**, our model projects 6,931,000 cumulative reported deaths due to COVID-19 on August 1. This represents 191,000 additional deaths from April 4 to August 1. Daily reported COVID-19 deaths in the **80% mask use scenario** will decline to 550 by August 1, 2022 (Figure 23.4).

- In our **third dose scenario**, our model projects 7,008,000 cumulative reported deaths due to COVID-19 on August 1. This represents 270,000 additional deaths from April 4 to August 1. Daily reported COVID-19 deaths in the **third dose scenario** will decline to 1,270 by August 1, 2022 (Figure 23.4).
Model updates

Vaccine confidence data are from The Delphi Group at Carnegie Mellon University and University of Maryland COVID-19 Trends and Impact Surveys, in partnership with Facebook. In our previous estimates of the proportion of the population that is 12 years and older who would receive the COVID-19 vaccine if available, we included survey responses of “yes, probably” and “yes, definitely” when asked “If a vaccine to prevent COVID-19 were offered to you today, would you choose to get vaccinated?” In our analysis of vaccine uptake, we have seen that vaccination rates have largely plateaued at the level implied by the “yes, definitely” response level. Therefore, we have updated our estimates of willingness to accept the vaccine to include only survey responses of “yes, definitely.”
Figure 1.1: Daily COVID-19 hospital census and estimated infections

Figure 2.1: Reported daily COVID-19 cases, moving average
Table 1: Ranking of total deaths due to COVID-19 among the leading causes of mortality this week, assuming uniform deaths of non-COVID causes throughout the year

<table>
<thead>
<tr>
<th>Cause name</th>
<th>Weekly deaths</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ischemic heart disease</td>
<td>175,727</td>
<td>1</td>
</tr>
<tr>
<td>Stroke</td>
<td>126,014</td>
<td>2</td>
</tr>
<tr>
<td>Chronic obstructive pulmonary disease</td>
<td>63,089</td>
<td>3</td>
</tr>
<tr>
<td>Lower respiratory infections</td>
<td>47,946</td>
<td>4</td>
</tr>
<tr>
<td>COVID-19</td>
<td>45,462</td>
<td>5</td>
</tr>
<tr>
<td>Tracheal, bronchus, and lung cancer</td>
<td>39,282</td>
<td>6</td>
</tr>
<tr>
<td>Neonatal disorders</td>
<td>36,201</td>
<td>7</td>
</tr>
<tr>
<td>Alzheimer’s disease and other dementias</td>
<td>31,217</td>
<td>8</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>29,830</td>
<td>9</td>
</tr>
<tr>
<td>Diarrheal diseases</td>
<td>29,509</td>
<td>10</td>
</tr>
</tbody>
</table>

Figure 3.1: Smoothed trend estimate of reported daily COVID-19 deaths (blue) and total daily deaths due to COVID-19 (orange)
Daily COVID-19 death rate per 1 million on April 4, 2022

Figure 4.1: Daily reported COVID-19 death rate per 1 million

Figure 4.2: Daily total COVID-19 death rate per 1 million

covid19.healthdata.org Institute for Health Metrics and Evaluation
Cumulative COVID-19 deaths per 100,000 on April 4, 2022

**Figure 5.1: Reported cumulative COVID-19 deaths per 100,000**

**Figure 5.2: Total cumulative COVID-19 deaths per 100,000**
Figure 6.1: Estimated percent of the population infected with COVID-19 on April 4, 2022

Figure 7.1: Mean effective R on March 24, 2022. Effective R less than 1 means that transmission should decline, all other things being held the same. The estimate of effective R is based on the combined analysis of deaths, case reporting, and hospitalizations where available. Current reported cases reflect infections 11-13 days prior, so estimates of effective R can only be made for the recent past.
Figure 8.1: Percent of estimated COVID-19 infections detected. This is estimated as the ratio of reported daily COVID-19 cases to estimated daily COVID-19 infections based on the SEIR disease transmission model. Due to measurement errors in cases and testing rates, the infection-detection rate can exceed 100% at particular points in time.
Estimated percent of circulating SARS-CoV-2 for primary variant families on April 4, 2022

Figure 9.1: Estimated percent of new infections that are Alpha variant

Figure 9.2: Estimated percent of new infections that are Beta variant
Figure 9.3: Estimated percent of new infections that are Delta variant

Figure 9.4: Estimated percent of new infections that are Gamma variant
Figure 9.5: Estimated percent of new infections that are Omicron variant
Figure 10.1: Infection-fatality rate on April 4, 2022. This is estimated as the ratio of COVID-19 deaths to estimated daily COVID-19 infections.
Figure 11.1: Trend in mobility as measured through smartphone app use, compared to January 2020 baseline
Figure 12.1: Mobility level as measured through smartphone app use, compared to January 2020 baseline (percent) on April 4, 2022
Figure 13.1: Trend in the proportion of the population reporting always wearing a mask when leaving home

Figure 14.1: Proportion of the population reporting always wearing a mask when leaving home on April 4, 2022
Figure 15.1: Trend in COVID-19 diagnostic tests per 100,000 people

Figure 16.1: COVID-19 diagnostic tests per 100,000 people on April 4, 2022
Table 3: Estimates of vaccine effectiveness for specific vaccines used in the model at preventing severe disease and infection. We use data from clinical trials directly, where available, and make estimates otherwise. More information can be found on our website.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Ancestral Severe disease</th>
<th>Beta Severe disease</th>
<th>Gamma Severe disease</th>
<th>Delta Severe disease</th>
<th>Omicron Severe disease</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Infection</td>
<td>Infection</td>
<td>Infection</td>
<td>Infection</td>
<td>Infection</td>
</tr>
<tr>
<td>AstraZeneca</td>
<td>94%</td>
<td>63%</td>
<td>94%</td>
<td>69%</td>
<td>94%</td>
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<tr>
<td>CanSino</td>
<td>60%</td>
<td>62%</td>
<td>66%</td>
<td>62%</td>
<td>64%</td>
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<td>CoronaVac</td>
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<td>47%</td>
<td>49%</td>
<td>46%</td>
<td>49%</td>
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<tr>
<td>Covaxin</td>
<td>78%</td>
<td>73%</td>
<td>78%</td>
<td>73%</td>
<td>76%</td>
</tr>
<tr>
<td>Johnson &amp; Johnson</td>
<td>86%</td>
<td>72%</td>
<td>86%</td>
<td>72%</td>
<td>76%</td>
</tr>
<tr>
<td>Moderna</td>
<td>97%</td>
<td>92%</td>
<td>97%</td>
<td>92%</td>
<td>97%</td>
</tr>
<tr>
<td>Novavax</td>
<td>89%</td>
<td>83%</td>
<td>89%</td>
<td>83%</td>
<td>86%</td>
</tr>
<tr>
<td>Pfizer/BioNTech</td>
<td>95%</td>
<td>86%</td>
<td>95%</td>
<td>86%</td>
<td>95%</td>
</tr>
<tr>
<td>Sinopharm</td>
<td>73%</td>
<td>68%</td>
<td>73%</td>
<td>68%</td>
<td>71%</td>
</tr>
<tr>
<td>Sputnik-V</td>
<td>92%</td>
<td>86%</td>
<td>92%</td>
<td>86%</td>
<td>89%</td>
</tr>
<tr>
<td>Other vaccines</td>
<td>75%</td>
<td>70%</td>
<td>75%</td>
<td>70%</td>
<td>73%</td>
</tr>
<tr>
<td>Other vaccines (mRNA)</td>
<td>91%</td>
<td>86%</td>
<td>91%</td>
<td>86%</td>
<td>88%</td>
</tr>
</tbody>
</table>
Percent of the population having received at least one dose (17.1) and fully vaccinated against SARS-CoV-2 (17.2) by April 4, 2022

**Figure 17.1: Percent of the population having received one dose of a COVID-19 vaccine**

**Figure 17.2: Percent of the population fully vaccinated against SARS-CoV-2**
Figure 18.1: Trend in the estimated proportion of the population that is 12 years and older that has been vaccinated or would definitely receive the COVID-19 vaccine if available. Note that vaccine acceptance is calculated using survey data from the 18+ population.

![Trend in vaccine acceptance](image)

Figure 19.1: Estimated proportion of the population that is 12 years and older that has been vaccinated or would definitely receive the COVID-19 vaccine if available. Note that vaccine acceptance is calculated using survey data from the 18+ population.

![Map of vaccine acceptance](image)
Figure 20.1: Estimated proportion of the total population that is not vaccinated but willing to be vaccinated as of March 27, 2022
Figure 21.1: Percent of people who receive at least one dose of a COVID-19 vaccine and those who are fully vaccinated

Figure 22.1: Percent of people who are immune to Delta or Omicron. Immunity is based on protection due to prior vaccination and infection(s). Moreover, variant-specific immunity is also based on variant-variant specific protection.
Projections and scenarios

Figure 23.1: Daily COVID-19 infections until August 01, 2022 for three scenarios

Figure 23.2: Daily COVID-19 reported cases until August 01, 2022 for three scenarios
Figure 23.3: Daily COVID-19 hospital census until August 01, 2022 for three scenarios
Figure 23.4: Reported daily COVID-19 deaths per 100,000
Figure 23.5: Total daily COVID-19 deaths per 100,000
More information

Data sources:
Mask use and vaccine confidence data are from the The Delphi Group at Carnegie Mellon University and University of Maryland COVID-19 Trends and Impact Surveys, in partnership with Facebook. Mask use data are also from Premise, the Kaiser Family Foundation, and the YouGov COVID-19 Behaviour Tracker survey.

Genetic sequence and metadata are primarily from the GISAID Initiative. Further details available on the COVID-19 model FAQ page.

A note of thanks:
We wish to warmly acknowledge the support of these and others who have made our COVID-19 estimation efforts possible.

More information:
For all COVID-19 resources at IHME, visit http://www.healthdata.org/covid.

To download our most recent results, visit our Data downloads page.