COVID-19 Results Briefing

The European Region

April 7, 2022

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

EURO divides into two groups of countries: First, those that have experienced a BA.2 surge and relaxation of behavior secondary Omicron surge, including the UK, France, Germany, Italy, Austria, Cyprus, Malta, Switzerland, and the Netherlands. Many of these secondary surges have peaked and are now declining. The average duration of these BA.2 secondary surges has been 3 weeks. The second group of countries have not had a BA.2 and relaxation-related surge, including nearly all of Central and Eastern Europe. In our forecasts, we expect the current overall decline in infections, cases, hospitalizations, and deaths to continue reaching very low levels by June and should, in the absence of a new variant, remain low through until the fall. Later in the year, declining immunity and seasonality could lead to a resurgence of Omicron.

The massive global transmission of Omicron since December, with nearly 50% of the world infected to date, may already have led to the advent of new variants which may slowly emerge. While predicting the timing of new variants is nearly impossible, governments can prepare in several important ways. First, maintain adequate surveillance 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. Third, use boosters more broadly when and if a new variant emerges. Boosters for the most vulnerable now may be appropriate. Fourth, 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 1.7 million per day on average compared to 2.2 million the week before (Figure 1.1).

• Estimated daily hospital census in the last week (through April 4) decreased to 129,000 per day on average compared to 134,000 the week before.

• Daily reported cases in the last week decreased to 680,000 per day on average compared to 783,000 the week before (Figure 2.1).

• Reported deaths due to COVID-19 in the last week decreased to 1,900 per day on average compared to 2,100 the week before (Figure 3.1).
• Total deaths due to COVID-19 in the last week decreased to 2,700 per day on average compared to 3,000 the week before (Figure 3.1). This makes COVID-19 the number three cause of death in the European Region this week (Table 1). Estimated total daily deaths due to COVID-19 in the past week were 1.5 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 six countries and eight subnational locations (Figure 4.1).

• The daily rate of total deaths due to COVID-19 is greater than 4 per million in 17 countries and 25 subnational locations (Figure 4.2).

• We estimate that 75% of people in the European Region 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 eight countries and 15 subnational locations (Figure 7.1).

• The infection-detection rate in the European Region was close to 26% 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 is dominant in all countries.

Trends in drivers of transmission

• Some mandates were removed in Germany and Poland. Two countries continue to have some school closures. 16 countries have some form of gathering restrictions. The majority of countries still have mask mandates.

• Mobility last week was 3% lower than the pre-COVID-19 baseline (Figure 11.1). Mobility was lower than 15% of baseline in four countries and 11 subnational locations.

• As of April 4, in the COVID-19 Trends and Impact Survey, 32% of people self-report that they always wore a mask when leaving their home compared to 34% last week (Figure 13.1). Mask use has dropped to its lowest level since early April 2020. Mask use is over 50% in Spain, Italy, Greece, North Macedonia, and Lithuania.

• There were 465 diagnostic tests per 100,000 people on April 4 (Figure 15.1).

• As of April 4, 23 countries and 56 subnational locations have reached 70% or more of the population who have received at least one vaccine dose, and 20 countries and 53 subnational locations have reached 70% or more of the population who are fully vaccinated (Figure 17.1). Vaccination rates below 50% remain in many Balkan states, Romania, Bulgaria, Moldova, Ukraine, Armenia, Georgia, and Tajikistan. 66% of people in the European Region have received at least one vaccine dose, and 62% are fully vaccinated.
• In the European Region, 76.4% 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 38% in Republic of Moldova to 99% in Iceland (Figure 19.1).

• In our current reference scenario, we expect that 619.6 million people will be vaccinated with at least one dose by August 1 (Figure 20.1). We expect that 63% of the population will be fully vaccinated by August 1.

• Levels of immunity to Omicron peaked in early April and are expected to slowly decline (Figure 21.1).

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 106,740 by August 1, 2022 (Figure 22.1).

• Daily estimated infections in the 80% mask use scenario will decline to 19,010 by August 1, 2022 (Figure 22.1).

• Daily estimated infections in the third dose scenario will decline to 93,910 by August 1, 2022 (Figure 22.1).
Daily estimated cases in the **reference scenario** will decline to 30,110 by August 1, 2022 (Figure 22.2).

Daily estimated cases in the **80% mask use scenario** will decline to 6,180 by August 1, 2022 (Figure 22.2).

Daily estimated cases in the **third dose scenario** will decline to 27,920 by August 1, 2022 (Figure 22.2).

**Hospitalizations**

- Daily hospital census in the **reference scenario** will decline to 6,070 by August 1, 2022 (Figure 22.3).

- Daily hospital census in the **80% mask use scenario** will decline to 1,320 by August 1, 2022 (Figure 22.3).

- Daily hospital census in the **third dose scenario** will decline to 5,510 by August 1, 2022 (Figure 22.3).

**Deaths**

- In our **reference scenario**, our model projects 2,449,000 cumulative reported deaths due to COVID-19 on August 1. This represents 57,000 additional deaths from April 4 to August 1. Daily reported COVID-19 deaths in the **reference scenario** will decline to 80 by August 1, 2022 (Figure 22.4).

- Under our **reference scenario**, our model projects 3,620,000 cumulative total deaths due to COVID-19 on August 1. This represents 87,000 additional deaths from April 4 to August 1 (Figure 22.5).

- In our **80% mask use scenario**, our model projects 2,437,000 cumulative reported deaths due to COVID-19 on August 1. This represents 45,000 additional deaths from April 4 to August 1. Daily reported COVID-19 deaths in the **80% mask use scenario** will decline to 20 by August 1, 2022 (Figure 22.4).

- In our **third dose scenario**, our model projects 2,447,000 cumulative reported deaths due to COVID-19 on August 1. This represents 56,000 additional deaths from April 4 to August 1. Daily reported COVID-19 deaths in the **third dose scenario** will decline to 80 by August 1, 2022 (Figure 22.4).

- Figure 23.1 compares our reference scenario forecasts to other publicly archived models. Forecasts are widely divergent.

- At some point from April through August 1, no countries will have high or extreme stress on hospital beds (Figure 24.1). At some point from April through August 1, 12 countries will have high or extreme stress on intensive care unit (ICU) capacity (Figure 25.1).
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

![Graph showing daily COVID-19 hospital census and estimated infections across different months.]

**Legend:**
- **Green Line:** Daily estimated infections
- **Purple Line:** Daily hospital census

### Figure 2.1: Reported daily COVID-19 cases, moving average

![Graph showing reported daily COVID-19 cases with a moving average across different months.]

**Legend:**
- **Red Line:** Daily cases

*Source: covid19.healthdata.org Institute for Health Metrics and Evaluation*
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>44,253</td>
<td>1</td>
</tr>
<tr>
<td>Stroke</td>
<td>22,622</td>
<td>2</td>
</tr>
<tr>
<td>COVID-19</td>
<td>19,042</td>
<td>3</td>
</tr>
<tr>
<td>Tracheal, bronchus, and lung cancer</td>
<td>8,918</td>
<td>4</td>
</tr>
<tr>
<td>Alzheimer’s disease and other dementias</td>
<td>8,022</td>
<td>5</td>
</tr>
<tr>
<td>Chronic obstructive pulmonary disease</td>
<td>6,719</td>
<td>6</td>
</tr>
<tr>
<td>Colon and rectum cancer</td>
<td>5,881</td>
<td>7</td>
</tr>
<tr>
<td>Lower respiratory infections</td>
<td>5,254</td>
<td>8</td>
</tr>
<tr>
<td>Cirrhosis and other chronic liver diseases</td>
<td>4,290</td>
<td>9</td>
</tr>
<tr>
<td>Hypertensive heart disease</td>
<td>3,949</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
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.
Critical drivers

Table 2: Current mandate implementation

- Primary school closure
- Secondary school closure
- Higher school closure
- Curfew for businesses
- Individual curfew
- Gathering limit: 6 indoor, 10 outdoor
- Gathering limit: 10 indoor, 25 outdoor
- Gathering limit: 25 indoor, 50 outdoor
- Gathering limit: 50 indoor, 100 outdoor
- Gathering limit: 100 indoor, 250 outdoor
- Restaurants closed
- Bars closed
- Restaurants / bars curbside only
- Gyms, pools, other leisure closed
- Non-essential retail closed
- Non-essential retail curbside only
- Non-essential workplaces closed
- Stay home order
- Stay home fine
- Mask mandate
- Mask mandate fine

- No mandate
- No mandate (lifted this week)
- No mandate (updated from previous reporting)

*Not all locations are measured at the subnational level.*
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
The European Region

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](https://covid19.healthdata.org).

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Ancestral Severe disease</th>
<th>Ancestral Infection</th>
<th>Alpha Severe disease</th>
<th>Alpha Infection</th>
<th>Beta Severe disease</th>
<th>Beta Infection</th>
<th>Gamma Severe disease</th>
<th>Gamma Infection</th>
<th>Delta Severe disease</th>
<th>Delta Infection</th>
<th>Omicron Severe disease</th>
<th>Omicron Infection</th>
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<tbody>
<tr>
<td>AstraZeneca</td>
<td>94%</td>
<td>63%</td>
<td>94%</td>
<td>63%</td>
<td>94%</td>
<td>69%</td>
<td>94%</td>
<td>69%</td>
<td>94%</td>
<td>69%</td>
<td>71%</td>
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<td>CanSino</td>
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<td>62%</td>
<td>66%</td>
<td>62%</td>
<td>64%</td>
<td>61%</td>
<td>64%</td>
<td>61%</td>
<td>64%</td>
<td>61%</td>
<td>48%</td>
<td>32%</td>
</tr>
<tr>
<td>CoronaVac</td>
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<td>47%</td>
<td>50%</td>
<td>47%</td>
<td>49%</td>
<td>46%</td>
<td>49%</td>
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<td>49%</td>
<td>46%</td>
<td>37%</td>
<td>24%</td>
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<tr>
<td>Covaxin</td>
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<td>73%</td>
<td>78%</td>
<td>73%</td>
<td>76%</td>
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<td>76%</td>
<td>72%</td>
<td>57%</td>
<td>38%</td>
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<tr>
<td>Johnson &amp; Johnson</td>
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<td>72%</td>
<td>86%</td>
<td>72%</td>
<td>76%</td>
<td>64%</td>
<td>76%</td>
<td>64%</td>
<td>76%</td>
<td>64%</td>
<td>57%</td>
<td>33%</td>
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<tr>
<td>Moderna</td>
<td>97%</td>
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<td>97%</td>
<td>91%</td>
<td>73%</td>
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<tr>
<td>Novavax</td>
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<td>83%</td>
<td>89%</td>
<td>83%</td>
<td>86%</td>
<td>82%</td>
<td>86%</td>
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<td>86%</td>
<td>82%</td>
<td>65%</td>
<td>43%</td>
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<tr>
<td>Pfizer/BioNTech</td>
<td>95%</td>
<td>86%</td>
<td>95%</td>
<td>86%</td>
<td>95%</td>
<td>84%</td>
<td>95%</td>
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<td>95%</td>
<td>84%</td>
<td>72%</td>
<td>44%</td>
</tr>
<tr>
<td>Sinopharm</td>
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<td>68%</td>
<td>73%</td>
<td>68%</td>
<td>71%</td>
<td>67%</td>
<td>71%</td>
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<td>71%</td>
<td>67%</td>
<td>53%</td>
<td>35%</td>
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<tr>
<td>Sputnik-V</td>
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<td>86%</td>
<td>92%</td>
<td>86%</td>
<td>89%</td>
<td>85%</td>
<td>89%</td>
<td>85%</td>
<td>89%</td>
<td>85%</td>
<td>67%</td>
<td>44%</td>
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<td>Other vaccines</td>
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<td>70%</td>
<td>73%</td>
<td>69%</td>
<td>73%</td>
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<td>69%</td>
<td>55%</td>
<td>36%</td>
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<td>Other vaccines (mRNA)</td>
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<td>85%</td>
<td>88%</td>
<td>85%</td>
<td>67%</td>
<td>45%</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.

**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.
Figure 20.1: Percent of people who receive at least one dose of a COVID-19 vaccine and those who are fully vaccinated.

Figure 21.1: 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 22.1: Daily COVID-19 infections until August 01, 2022 for three scenarios

Figure 22.2: Daily COVID-19 reported cases until August 01, 2022 for three scenarios
Figure 22.3: Daily COVID-19 hospital census until August 01, 2022 for three scenarios
Figure 22.4: Reported daily COVID-19 deaths per 100,000
Figure 22.5: Total daily COVID-19 deaths per 100,000
Figure 23.1: Comparison of reference model projections with other COVID modeling groups. For this comparison, we are including projections of daily COVID-19 deaths from other modeling groups when available, last model update in brackets: Delphi from the Massachusetts Institute of Technology (Delphi) [April 7, 2022], the SI-KJalpha model from the University of Southern California (SIKJalpha) [April 7, 2022]. Daily deaths from other modeling groups are smoothed to remove inconsistencies with rounding. Regional values are aggregates from available locations in that region.
Figure 24.1: The estimated inpatient hospital usage is shown over time. The percent of hospital beds occupied by COVID-19 patients is color-coded based on observed quantiles of the maximum proportion of beds occupied by COVID-19 patients. Less than 5% is considered low stress, 5-9% is considered moderate stress, 10-19% is considered high stress, and 20% or greater is considered extreme stress.
**Figure 25.1:** The estimated intensive care unit (ICU) usage is shown over time. The percent of ICU beds occupied by COVID-19 patients is color-coded based on observed quantiles of the maximum proportion of ICU beds occupied by COVID-19 patients. Less than 10% is considered *low stress*, 10-29% is considered *moderate stress*, 30-59% is considered *high stress*, and 60% or greater is considered *extreme stress*. 
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.