COVID-19 Results Briefing

The Eastern Mediterranean Region

January 8, 2022

This document contains summary information on the latest projections from the IHME model on COVID-19 in the Eastern Mediterranean Region. The model was run on January 7, 2022, with data through January 3, 2022.

Current situation

Two weeks’ more data on Omicron since our last release confirm that Omicron has a much higher fraction of asymptomatic infections, a lower fraction of diagnosed cases requiring hospitalization, and a dramatically lower death rate among those who have been hospitalized compared to Delta. The extraordinarily rapid transmission and extremely high community prevalence of infection have also been well documented. Our models suggest that more than 50% of the global population will be infected with Omicron in the next 6 weeks. The infection-detection rate (IDR) is declining, although shortages of testing may lead to more rapid decreases in the IDR than we currently model.

The speed of the epidemic is so fast that policy interventions will have little impact. In previous waves, the control strategy has been to control infection and thus reduce hospitalization and death. Given that there is little prospect of controlling infection, strategies need to focus on reducing harm in the vulnerable and minimizing disruption. The number of people who will be admitted with COVID-19 to hospital is expected to increase substantially, but a large fraction of this increase is due to incidental COVID-19. But hospitals are clearly under stress due to health care workers who have tested positive and need to quarantine. Given the massive numbers of infections in the community, testing and quarantining asymptomatic individuals may not be helpful. There appears to be no prospect for controlling transmission and considerable prospect for disruption of schools and essential services due to screening. Countries may need to consider revisions to their testing and quarantine strategies.

Considerable uncertainty remains about the future course of the Omicron wave. First, the infection-detection rate may decline even more than we have estimated if testing capacity in states is overwhelmed. This would reduce the reported case rates below the 215,000 that have been forecasted per day. Second, hospital admission screening will substantially impact the reported COVID-19 admissions. If some hospitals run out of testing capacity and do not screen all admissions, then the incidental COVID-19 admission rate may also decline. Third, a critical factor in understanding the trajectory of Omicron is the fraction of infections that are asymptomatic. Based on data from South Africa and the UK, we currently estimate this to be 80%–90%. Increases or decreases in this fraction asymptomatic have an important impact on the trajectory and severity of the Omicron wave.

For individuals at risk of bad outcomes, particularly the unvaccinated and never infected, the strategies to reduce risk remain: vaccination, including a third dose where appropriate, high-quality mask use, and avoiding crowded indoor settings.
COVID-19 transmission is increasing in the region, most significantly in Jordan, Lebanon, Morocco, and Kuwait. Preventive measures remain very low, with vaccination rates at 41%, mask usage at 34%, and very high mobility. Our current projections report an expected number of 330,000 deaths on May 1, which is an additional 14,000 deaths from January 3. This could be reduced to an additional 10,000 deaths if 80% reported mask use is attained.

- Daily infections in the last week increased to 1,840,700 per day on average compared to 1,366,400 the week before (Figure 1.1). Daily hospital census in the last week (through January 3) increased to 14,300 per day on average compared to 13,700 the week before.

- Daily reported cases in the last week increased to 18,100 per day on average compared to 11,700 the week before (Figure 2.1).

- Reported deaths due to COVID-19 in the last week decreased to 160 per day on average compared to 180 the week before (Figure 3.1).

- Total deaths due to COVID-19 in the last week decreased to 640 per day on average compared to 760 the week before (Figure 3.1). This makes COVID-19 the number 4 cause of death in the Eastern Mediterranean Region this week (Table 1). Estimated total daily deaths due to COVID-19 in the past week were 4 times larger than the reported number of deaths.

- No locations had daily reported COVID-19 death rates greater than 4 per million (Figure 4.1).

- The daily rate of reported deaths due to COVID-19 is greater than 4 per million in two countries and no subnational locations (Figure 4.2).

- We estimate that 60% of people in the Eastern Mediterranean Region have been infected at least once as of January 3 (Figure 6.1). Effective R, computed using cases, hospitalizations, and deaths, is greater than 1 in 18 countries and 5 subnational locations in the region.

- The infection-detection rate in the Eastern Mediterranean Region was close to 3% on January 3 (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). We estimate that the Alpha variant is circulating in 0 countries and 0 subnational locations, that the Beta variant is circulating in 0 countries and 0 subnational locations, that the Delta variant is circulating in 21 countries and 7 subnational locations, that the Gamma variant is circulating in 0 countries and 0 subnational locations, and that the Omicron variant is circulating in 21 countries and 7 subnational locations.

Trends in drivers of transmission

- Mobility last week was 30% higher than the pre-COVID-19 baseline (Figure 11.1). Mobility was lower than 30% of baseline in no locations.
As of January 3, in the COVID-19 Trends and Impact Survey, 34% of people self-report that they always wore a mask when leaving their home, the same as last week (Figure 13.1).

There were 104 diagnostic tests per 100,000 people on January 3 (Figure 15.1).

As of January 3, 22 countries and no subnational locations have reached 70% or more of the population who have received at least one vaccine dose, and 22 countries and no subnational locations have reached 70% or more of the population who are fully vaccinated (Figure 17.1). 41% of people in the Eastern Mediterranean Region have received at least one vaccine dose and 33% are fully vaccinated.

In the Eastern Mediterranean Region, 67.7% of the population that is 12 years and older say they would accept or would probably accept a vaccine for COVID-19. Note that vaccine acceptance is calculated using survey data from the 18+ population. This is down by 2.6 percentage points from last week. The proportion of the population who are open to receiving a COVID-19 vaccine ranges from 37% in Iran to 100% in United Arab Emirates (Figure 19.1).

In our current reference scenario, we expect that 346.4 million people will be vaccinated with at least one dose by May 1 (Figure 20.1). We expect that 43% of the population will be fully vaccinated by May 1.

**Projections**

**Infections**

- Daily estimated infections in the **reference scenario**, which represents what we think is most likely to happen, will rise to 8,241,420 by February 5, 2022 (Figure 21.1).

- Daily estimated infections in the **high severity of Omicron scenario** will rise to 8,235,500 by February 5, 2022 (Figure 21.1).

- Daily estimated infections in the **80% mask coverage scenario** will rise to 4,619,820 by February 6, 2022 (Figure 21.1).

- Daily estimated infections in the **third dose scenario** will rise to 7,840,590 by February 6, 2022 (Figure 21.1).

- Daily estimated infections in the **reduced vaccine hesitancy scenario** will rise to 7,870,200 by February 6, 2022 (Figure 21.1).

**Cases**

- Daily cases in the **reference scenario** will rise to 215,490 by February 14, 2022 (Figure 21.2).

- Daily cases in the **high severity of Omicron scenario** will rise to 215,330 by February 14, 2022 (Figure 21.2).

- Daily cases in the **80% mask coverage scenario** will rise to 147,380 by February 11, 2022 (Figure 21.2).
• Daily cases in the **third dose scenario** will rise to 198,080 by February 16, 2022 (Figure 21.2).

• Daily cases in the **reduced vaccine hesitancy scenario** will rise to 200,490 by February 16, 2022 (Figure 21.2).

**Hospitalizations**

• Daily hospital census in the **reference scenario** will rise to 118,720 by February 24, 2022 (Figure 21.3).

• Daily hospital census in the **high severity of Omicron scenario** will rise to 230,680 by February 24, 2022 (Figure 21.3).

• Daily hospital census in the **80% mask coverage scenario** will rise to 68,350 by February 25, 2022 (Figure 21.3).

• Daily hospital census in the **third dose scenario** will rise to 106,010 by February 24, 2022 (Figure 21.3).

• Daily hospital census in the **reduced vaccine hesitancy scenario** will rise to 106,770 by February 24, 2022 (Figure 21.3).

**Deaths**

• In our **reference scenario**, our model projects 330,000 cumulative reported deaths due to COVID-19 on May 1. This represents 14,000 additional deaths from January 3 to May 1. Daily reported COVID-19 deaths in the **reference scenario** will rise to 180 by February 26, 2022 (Figure 21.4).

• Under our **reference scenario**, our model projects 1,498,000 cumulative total deaths due to COVID-19 on May 1. This represents 69,000 additional deaths from January 3 to May 1 (Figure 24.2).

• In our **high severity of Omicron scenario**, our model projects 337,000 cumulative reported deaths due to COVID-19 on May 1. This represents 21,000 additional deaths from January 3 to May 1. Daily reported COVID-19 deaths in the **high severity of Omicron scenario** will rise to 290 by March 2, 2022 (Figure 21.4).

• In our **80% mask coverage scenario**, our model projects 326,000 cumulative reported deaths due to COVID-19 on May 1. This represents 10,000 additional deaths from January 3 to May 1. Daily reported COVID-19 deaths in the **80% mask coverage scenario** will decline to 30 on May 1, 2022 (Figure 21.4).

• In our **third dose scenario**, our model projects 329,000 cumulative reported deaths due to COVID-19 on May 1. This represents 12,000 additional deaths from January 3 to May 1. Daily reported COVID-19 deaths in the **third dose scenario** will rise to 150 by February 23, 2022 (Figure 21.4).

• In our **reduced vaccine hesitancy scenario**, our model projects 329,000 cumulative reported deaths due to COVID-19 on May 1. This represents 12,000 additional deaths from January 3 to May 1. Daily reported COVID-19 deaths in the **reduced vaccine hesitancy scenario** will rise to 150 by February 24, 2022 (Figure 21.4).
• Figure 22.1 compares our reference scenario forecasts to other publicly archived models. Forecasts are widely divergent.

• At some point from January through May 1, 17 countries will have high or extreme stress on hospital beds (Figure 23.1). At some point from January through May 1, 22 countries will have high or extreme stress on intensive care unit (ICU) capacity (Figure 24.1).
Model updates

In this week’s update, we have made changes to key Omicron parameters based on data from South Africa, the United Kingdom, and the US. First, based on an analysis of the UK Office of National Statistics prevalence of infection surveys, we have revised the range of asymptomatic infection from 90% to 80%-90%. Second, the degree of transmissibility of Omicron compared to ancestral variants was increased from 1.5–2.5 to 2–3. This adjustment was based on matching the scale-up curves for Omicron from the analysis of the GISAID database. Third, the infection-hospitalization rate for Omicron relative to Delta has been increased from a mean of 0.07 to a mean of 0.125 (range 0.0625–0.1875) based on data from the UK, US, and South Africa. Fourth, the infection-hospitalization rate has been decreased from a mean of 0.02 to 0.01875 (range 0.009375–0.028125) based on published studies of the hospital-fatality rate, the case-hospitalization rate, and the fraction asymptomatic. Fifth, based on the timing of Omicron surges, we have adjusted the date of Omicron arrival for a number of countries to match the timing of increases in reported cases, taking into account the lag from introduction to the exponential rise in reported cases. Sixth, in the high-severity scenario, we have used IFR and IHR values that are double the ranges used in the reference scenario.
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>
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<tbody>
<tr>
<td>Ischemic heart disease</td>
<td>15,912</td>
<td>1</td>
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<tr>
<td>Neonatal disorders</td>
<td>7,028</td>
<td>2</td>
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<td>Stroke</td>
<td>6,729</td>
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<td>COVID-19</td>
<td>4,480</td>
<td>4</td>
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<td>Lower respiratory infections</td>
<td>3,385</td>
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<td>Road injuries</td>
<td>2,935</td>
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<td>Cirrhosis and other chronic liver diseases</td>
<td>2,806</td>
<td>7</td>
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<td>Chronic kidney disease</td>
<td>2,501</td>
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<td>Diabetes mellitus</td>
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<td>Diarrheal diseases</td>
<td>2,386</td>
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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 January 3, 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 January 3, 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 January 3, 2022
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 January 3, 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 January 3, 2022. This is estimated as the ratio of COVID-19 deaths to estimated daily COVID-19 infections.
### Critical drivers

#### Table 2. Current mandate implementation

<table>
<thead>
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<th>Country</th>
<th>Primary school closure</th>
<th>Secondary school closure</th>
<th>Higher school closure</th>
<th>Entry restrictions for some non-residents</th>
<th>Entry restrictions for all non-residents</th>
<th>Individual curfew</th>
<th>Curfew for businesses</th>
<th>Individual movements restricted</th>
<th>Curfew for individuals</th>
<th>Gathering limit: 6 indoor, 10 outdoor</th>
<th>Gathering limit: 10 indoor, 25 outdoor</th>
<th>Gathering limit: 25 indoor, 50 outdoor</th>
<th>Gathering limit: 50 indoor, 100 outdoor</th>
<th>Gathering limit: 100 indoor, 250 outdoor</th>
<th>Restaurants closed</th>
<th>Bars closed</th>
<th>Restaurants / bars closed</th>
<th>Restaurants / bars curbside only</th>
<th>Gyms, pools, other leisure closed</th>
<th>Non-essential retail closed</th>
<th>Non-essential workplaces closed</th>
<th>Stay home order</th>
<th>Stay home fine</th>
<th>Mask mandate</th>
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<td>Yemen</td>
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*Not all locations are measured at the subnational level.*

covid19.healthdata.org  Institute for Health Metrics and Evaluation
**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 January 3, 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 January 3, 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 January 3, 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>Severe disease</th>
<th>Severe disease</th>
<th>Severe disease</th>
<th>Severe disease</th>
<th>Severe disease</th>
<th>Severe disease</th>
<th>Severe disease</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Ancestral</td>
<td>Alpha</td>
<td>Beta</td>
<td>Gamma</td>
<td>Delta</td>
<td>Omicron</td>
<td></td>
</tr>
<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>
</tr>
<tr>
<td>CanSino</td>
<td>60%</td>
<td>62%</td>
<td>66%</td>
<td>62%</td>
<td>64%</td>
<td>61%</td>
<td>64%</td>
</tr>
<tr>
<td>CoronaVac</td>
<td>50%</td>
<td>47%</td>
<td>50%</td>
<td>47%</td>
<td>49%</td>
<td>46%</td>
<td>49%</td>
</tr>
<tr>
<td>Covaxin</td>
<td>78%</td>
<td>73%</td>
<td>78%</td>
<td>73%</td>
<td>76%</td>
<td>72%</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>
<td>64%</td>
<td>76%</td>
</tr>
<tr>
<td>Moderna</td>
<td>97%</td>
<td>92%</td>
<td>97%</td>
<td>92%</td>
<td>97%</td>
<td>91%</td>
<td>97%</td>
</tr>
<tr>
<td>Novavax</td>
<td>89%</td>
<td>83%</td>
<td>89%</td>
<td>83%</td>
<td>86%</td>
<td>82%</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>
<td>84%</td>
<td>95%</td>
</tr>
<tr>
<td>Sinopharm</td>
<td>73%</td>
<td>68%</td>
<td>73%</td>
<td>68%</td>
<td>71%</td>
<td>67%</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>
<td>85%</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>
<td>69%</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>
<td>85%</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 January 3, 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 probably or 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 probably or 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
Projections and scenarios

We produce five 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 7 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 6 months after their second dose.

The **high severity of Omicron scenario** modifies the reference scenario assumption in two ways:

- The infection-hospitalization ratio for Omicron is 2.3 times as high as compared to the reference scenario.
- The infection-fatality rate is 4.6 times as high as compared to the reference scenario.

The **80% mask use scenario** makes all the same assumptions as the reference scenario but assumes all locations reach 80% mask use within 7 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 6 months.

The **reduced vaccine hesitancy scenario** assumes that those in each location who respond on surveys that they probably will not receive a vaccine are persuaded or mandated to receive a vaccine.
**Figure 21.1.** Daily COVID-19 infections until May 01, 2022 for five scenarios

**Figure 21.2.** Daily COVID-19 reported cases until May 01, 2022 for five scenarios
Figure 21.3. Daily COVID-19 hospital census until May 01, 2022 for five scenarios

Figure 21.4 Reported daily COVID-19 deaths per 100,000
Eastern Mediterranean Region

Figure 21.5 Total daily COVID-19 deaths per 100,000

- Reference scenario
- 80% mask use
- Reduced vaccine hesitancy
- High severity of Omicron
- Third dose
**Figure 22.1.** 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) [January 7, 2022], Imperial College London (Imperial) [December 13, 2021], the SI-KJalpha model from the University of Southern California (SIKJalpha) [January 4, 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 23.1. 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 24.1. 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.