COVID-19 Results Briefing

The Eastern Mediterranean Region

September 15, 2021

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 September 14, 2021, with data through September 13, 2021.

Current situation

Cases, hospitalizations, and deaths continue to decline in the region. However, the situation remains fragile due to high mobility, low mask wearing, low vaccination levels, and high percentage of susceptible individuals at this time. We have extended our projections to January 1 this week. Our model now projects 342,000 cumulative reported deaths due to COVID-19, representing 63,000 additional deaths from September 13 to January 1. We project that daily cases will decline to 24,090 by October 28, 2021, and then start rising again. We expect that by the end of the year, 77% of people will be immune to non-escape variants and 68% of people will be immune to escape variants. Due to low detection rates of cases in the region, we urge caution and quick responses to a rise of cases by adopting mitigation measures. The school opening and return to in-person work may increase the chances of a surge in some countries. The strategies to contain the surge remain increasing vaccination coverage, mask wearing, and limiting gathering sizes. The potential for severe hospital stress in the coming months due to ongoing COVID-19 transmission and a potential flu epidemic call for action to prepare the medical system for adequate response by improving capacity and resources. Given the available evidence on waning immunity and lower efficacy of vaccines preventing infection as compared to hospitalization and death, strategies to reduce COVID-19 transmission to zero are unlikely to succeed. Ongoing COVID-19 transmission and burden on the health system are likely to extend past the forecast period and well into 2022 and beyond.

- Daily infections in the last week decreased to 784,500 per day on average compared to 868,000 the week before (Figure 1). Daily hospital census in the last week (through September 13) decreased to 144,200 per day on average compared to 157,700 the week before.

- Daily reported cases in the last week decreased to 45,300 per day on average compared to 51,800 the week before (Figure 2).

- Reported deaths due to COVID-19 in the last week decreased to 880 per day on average compared to 970 the week before (Figure 3).

- Excess deaths due to COVID-19 in the last week decreased to 2,500 per day on average compared to 2,700 the week before (Figure 3). This makes COVID-19 the number 1 cause of death in the Eastern Mediterranean Region this week (Table 1). Estimated excess daily deaths due to COVID-19 in the past week were 2.8 times larger than the reported number of deaths.

- The daily reported COVID-19 death rate is greater than 4 per million in Iran and Tunisia (Figure 4).

- The daily rate of excess deaths due to COVID-19 is greater than 4 per million in Iran, Lebanon, Libya, Morocco, Palestine, and Tunisia (Figure 4).

- We estimate that 63% of people in the Eastern Mediterranean Region have been infected as of September 13 (Figure 6).

- Effective R, computed using cases, hospitalizations, and deaths, is greater than 1 in eight countries (Figure 7).

- The infection-detection rate in the Eastern Mediterranean Region was close to 5% on September 13 (Figure 8).

- Based on the GISAID and various national databases, combined with our variant spread model, we estimate the current prevalence of variants of concern (Figure 9). We estimate that the Beta variant is circulating in no countries, that the Delta variant is circulating in 21 countries, and that the Gamma variant is circulating in 15 countries.

Trends in drivers of transmission

- Mobility last week was 16% higher than the pre-COVID-19 baseline (Figure 11). Mobility was near baseline (within 10%) in 21 countries. Mobility was lower than 30% of baseline in no locations.

- As of September 13, in the COVID-19 Trends and Impact Survey, 40% of people self-report that they always wore a mask when leaving their home, about the same as last week (Figure 13).

- There were 109 diagnostic tests per 100,000 people on September 13 (Figure 15).

- As of September 13, three countries have reached 70% or more of the population who have received at least one vaccine dose and three countries have reached 70% or more of the population who are fully vaccinated (Figure 17).

- In the Eastern Mediterranean Region, 65.1% of adults say they would accept or would probably accept a vaccine for COVID-19. This is up by 0.4 percentage points from last week. The proportion of the population who are open to receiving a COVID-19 vaccine ranges from 39% in Afghanistan to 98% in United Arab Emirates (Figure 19).

- In our current reference scenario, we expect that 234.2 million people will be vaccinated with at least one dose by January 1 (Figure 20).

- In our current reference scenario, we expect that by January 1, 77% of people will be immune to non-escape variants and 68% of people will be immune to escape variants (Figure 21).

Projections

- In our **reference scenario**, which represents what we think is most likely to happen, our model projects 342,000 cumulative reported deaths due to COVID-19 on January 1. This represents 63,000 additional deaths from September 13 to January 1. Daily reported deaths will decline to 490 by October 26, 2021 (Figure 22).

- Under our **reference scenario**, our model projects 1,209,000 cumulative excess deaths due to COVID-19 on January 1. This represents 283,000 additional deaths from September 13 to January 1 (Figure 22).

- If **universal mask coverage (95%)** were attained in the next week, our model projects 31,000 fewer cumulative reported deaths compared to the reference scenario on January 1.

- Under our **worse scenario**, our model projects 372,000 cumulative reported deaths on January 1, an additional 30,000 deaths compared to our reference scenario. Daily reported deaths in the **worse scenario** will rise to 1,100 by November 28, 2021 (Figure 22).

- Daily infections in the **reference scenario** will rise to 884,850 by November 4, 2021 (Figure 23). Daily infections in the **worse scenario** will rise to 1,296,320 by November 4, 2021 (Figure 23).

- Daily cases in the **reference scenario** will decline to 24,090 by October 28, 2021 (Figure 24). Daily cases in the **worse scenario** will rise to 93,510 by November 15, 2021 (Figure 24).

- Daily hospital census in the **reference scenario** will decline to 76,190 on January 1, 2022 (Figure 25). Daily hospital census in the **worse scenario** will rise to 169,380 by November 21, 2021 (Figure 25).

- Figure 26 compares our reference scenario forecasts to other publicly archived models. Forecasts are widely divergent.

- At some point from September through January 1, 14 countries will have high or extreme stress on hospital beds (Figure 27). At some point from September through January 1, 19 countries will have high or extreme stress on intensive care unit (ICU) capacity (Figure 28).

Model updates

No model updates

Figure 1. Daily COVID-19 hospital census and infections
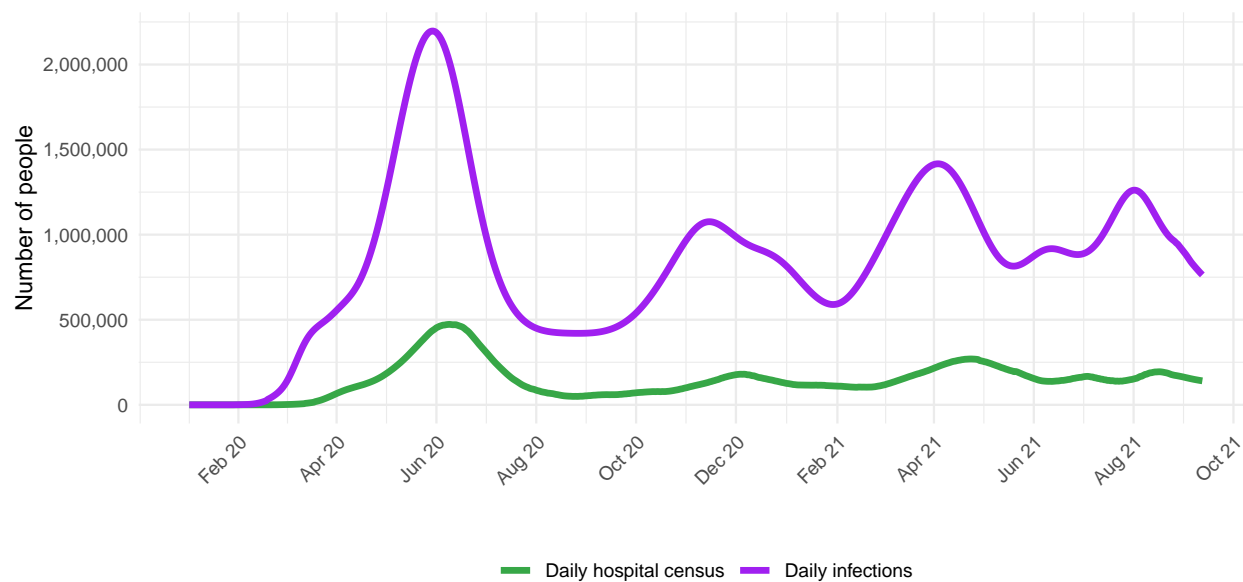

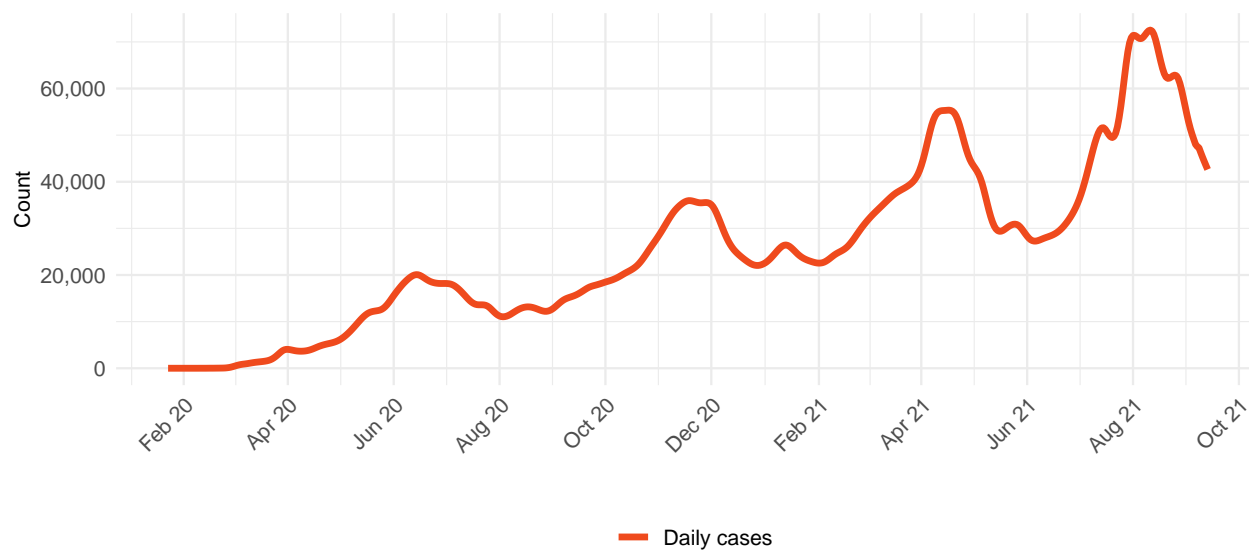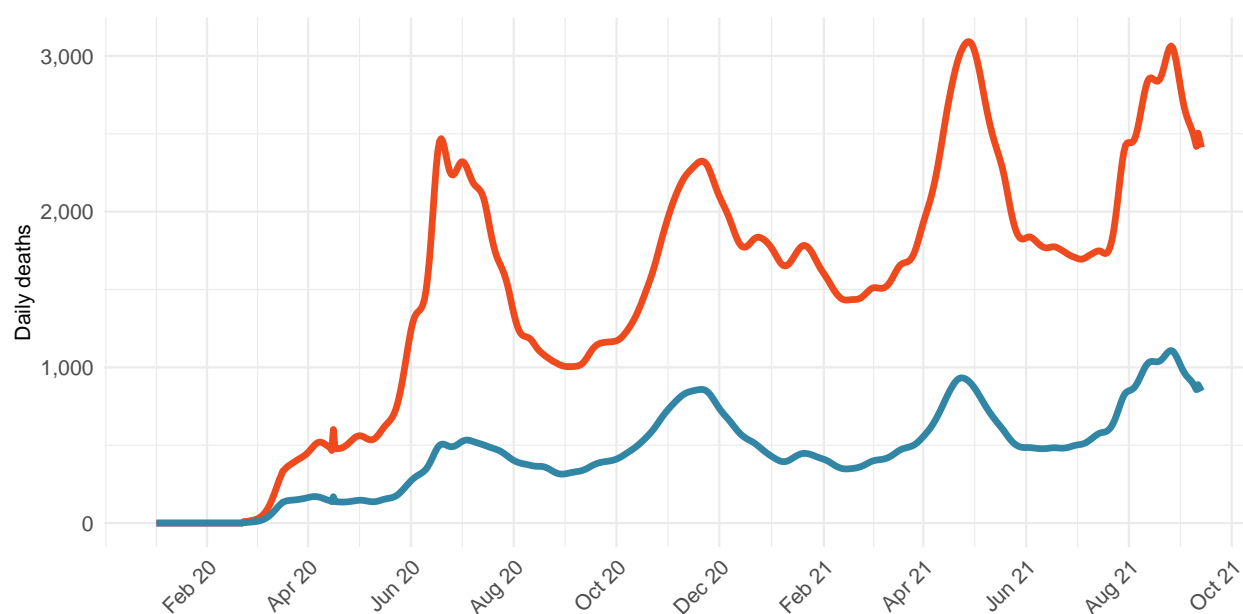**Figure 2.** Reported daily COVID-19 cases, moving average

Table 1. Ranking of excess deaths due to COVID-19 among the leading causes of mortality this week, assuming uniform deaths of non-COVID causes throughout the year

Cause name	Weekly deaths	Ranking
COVID-19	17,298	1
Ischemic heart disease	15,912	2
Neonatal disorders	7,028	3
Stroke	6,729	4
Lower respiratory infections	3,385	5
Road injuries	2,935	6
Cirrhosis and other chronic liver diseases	2,806	7
Chronic kidney disease	2,501	8
Diabetes mellitus	2,403	9
Diarrheal diseases	2,386	10

Figure 3. Smoothed trend estimate of reported daily COVID-19 deaths (blue) and excess daily deaths due to COVID-19 (orange)

Figure 4. Daily COVID-19 death rate per 1 million on September 13, 2021

A. Daily reported COVID-19 death rate per 1 million

B. Daily excess COVID-19 death rate per 1 million
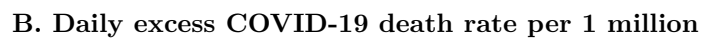
Figure 5. Cumulative COVID-19 deaths per 100,000 on September 13, 2021

A. Reported cumulative COVID-19 deaths per 100,000
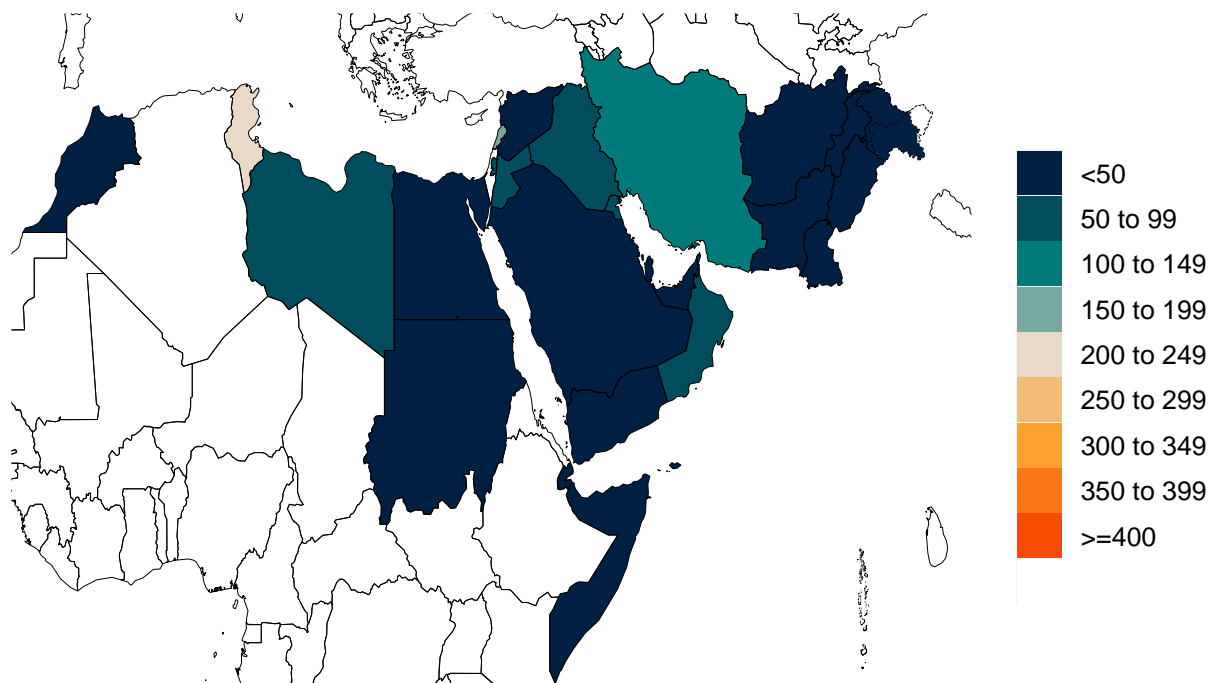
B. Excess cumulative COVID-19 deaths per 100,000
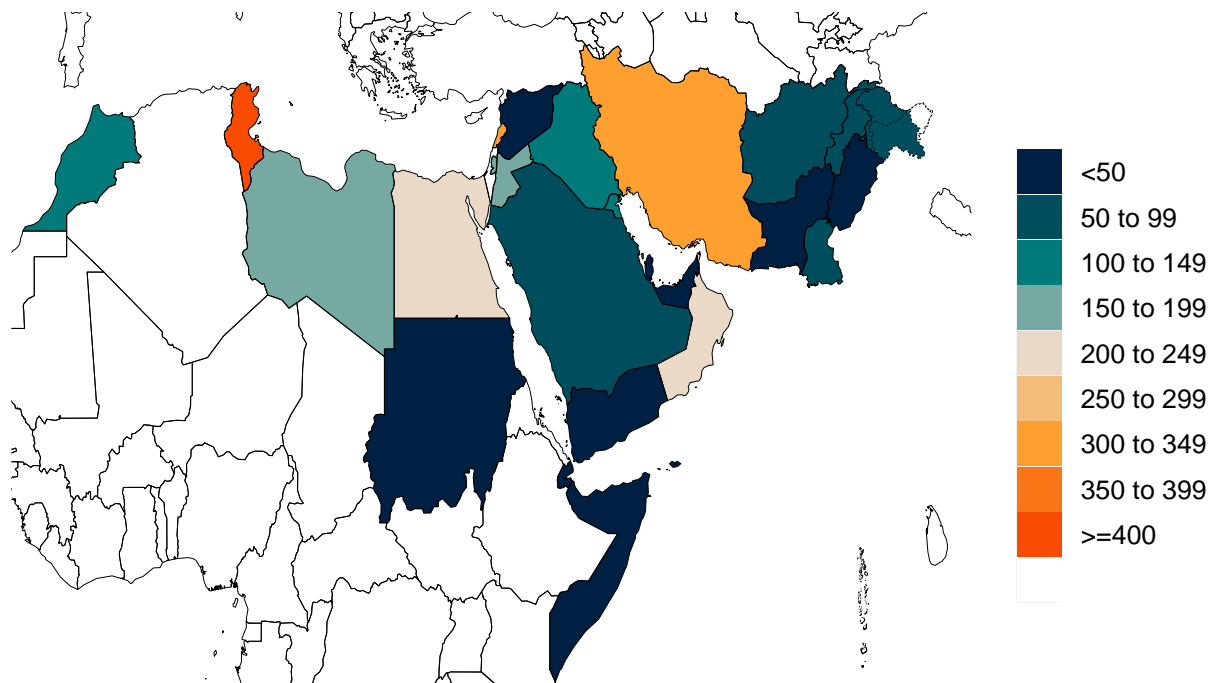
Figure 6. Estimated percent of the population infected with COVID-19 on September 13, 2021
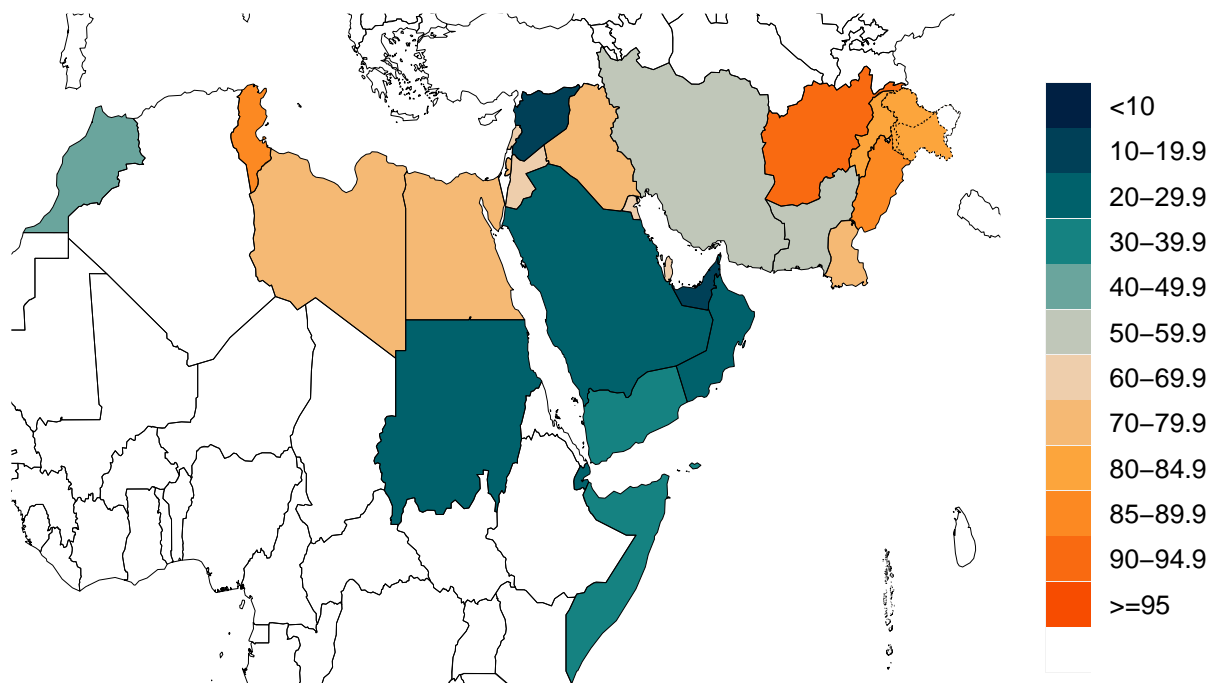
Figure 7. Mean effective R on September 2, 2021. Effective R less than 1 means that transmission should decline, all other things being held the same. The estimate of effective R is based on the combined analysis of deaths, case reporting, and hospitalizations where available. Current reported cases reflect infections 11-13 days prior, so estimates of effective R can only be made for the recent past.
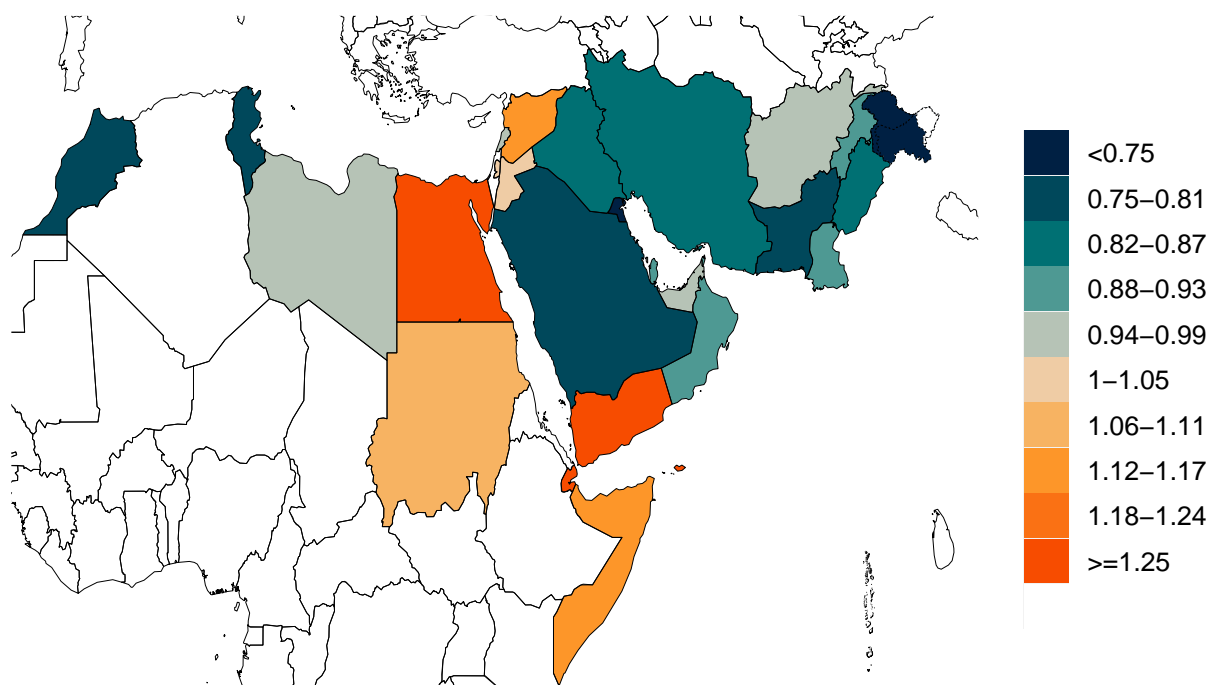
Figure 8. Percent of COVID-19 infections detected. This is estimated as the ratio of reported daily COVID-19 cases to estimated daily COVID-19 infections based on the SEIR disease transmission model. Due to measurement errors in cases and testing rates, the infection-detection rate can exceed 100% at particular points in time.
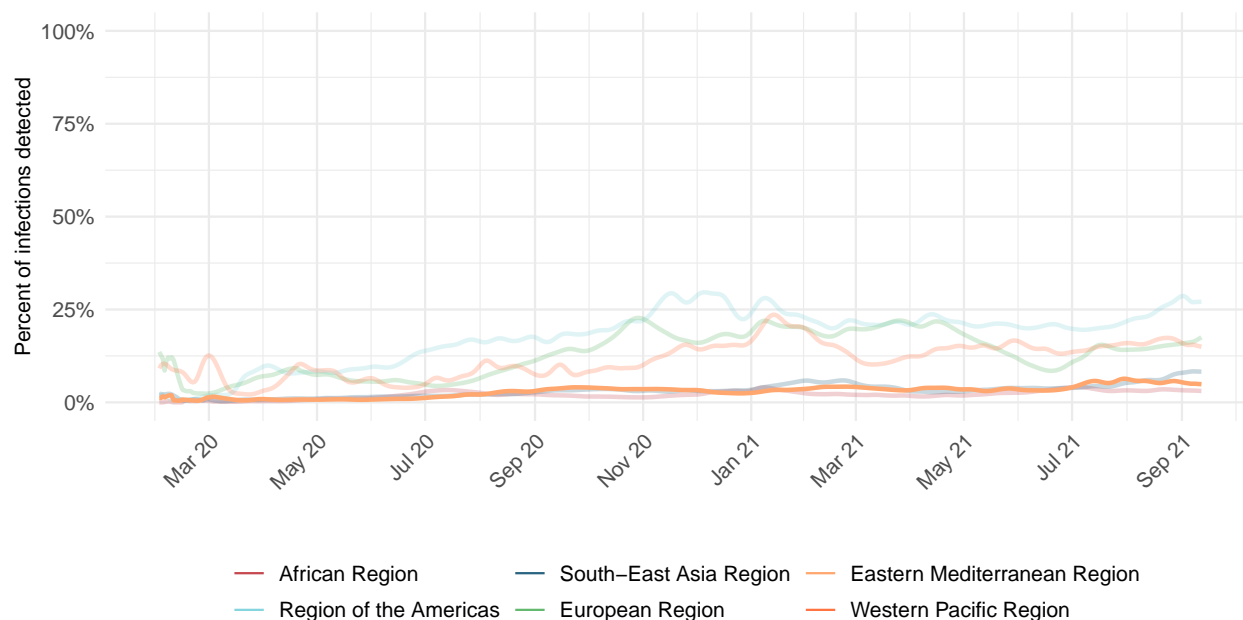
Figure 9. Estimated percent of circulating SARS-CoV-2 for primary variant families on September 13, 2021

A. Estimated percent Alpha variant

B. Estimated percent Beta variant

C. Estimated percent Delta variant

▨	0%
▨	1–9%
▨	10–24%
▨	25–49%
▨	50–74%
▨	75–89%
▨	90–100%

D. Estimated percent Gamma variant
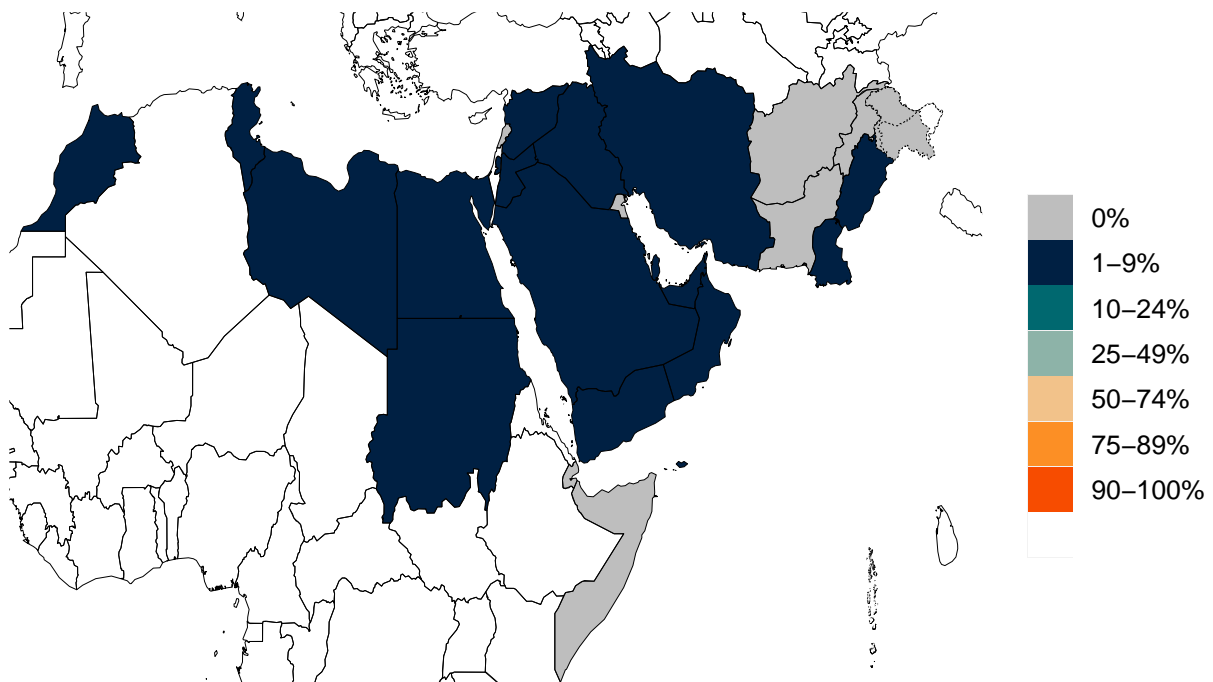
▨	0%
▨	1–9%
▨	10–24%
▨	25–49%
▨	50–74%
▨	75–89%
▨	90–100%

Figure 10. Infection-fatality rate on September 13, 2021. This is estimated as the ratio of COVID-19 deaths to estimated daily COVID-19 infections.

Critical drivers

Table 2. Current mandate implementation

Mandate in place

Mandate in place
(imposed this week)

Mandate in place
(updated from previous reporting)
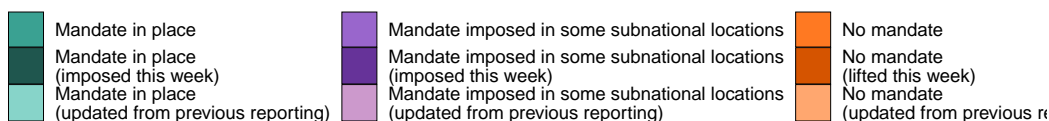
Mandate imposed in some subnational locations

Mandate imposed in some subnational locations
(imposed this week)

Mandate imposed in some subnational locations
(updated from previous reporting)

No mandate

No mandate
(lifted this week)

No mandate
(updated from previous re

*Not all locations are measured at the subnational level.

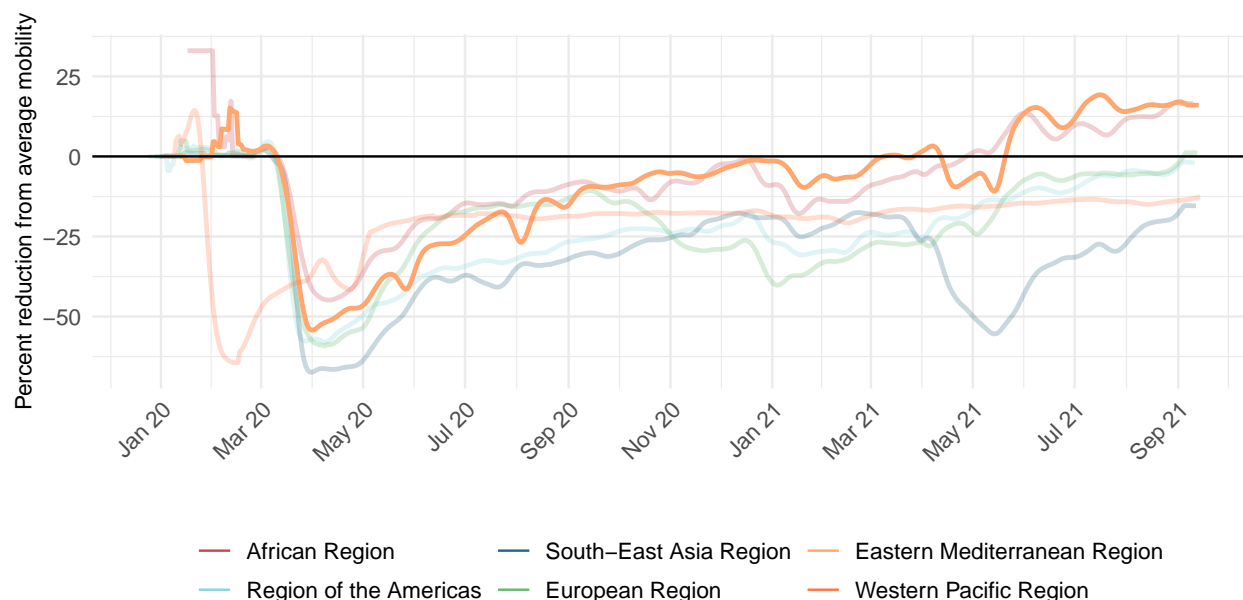**Figure 11.** Trend in mobility as measured through smartphone app use, compared to January 2020 baseline

Figure 12. Mobility level as measured through smartphone app use, compared to January 2020 baseline (percent) on September 13, 2021

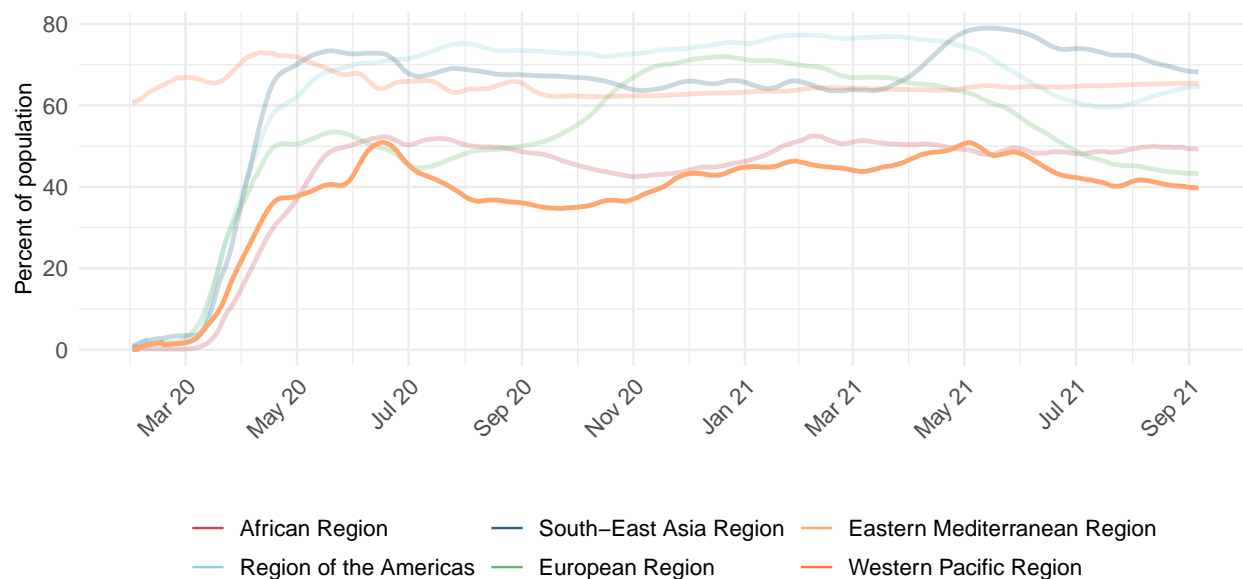**Figure 13.** Trend in the proportion of the population reporting always wearing a mask when leaving home

Figure 14. Proportion of the population reporting always wearing a mask when leaving home on September 13, 2021
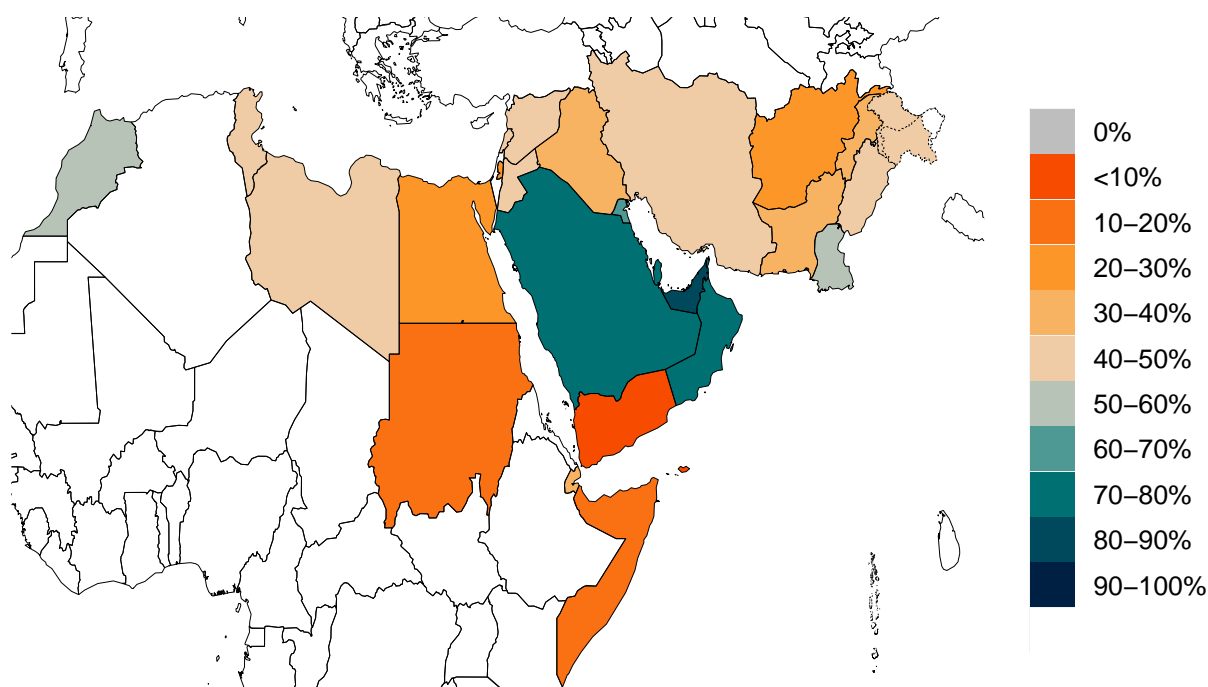
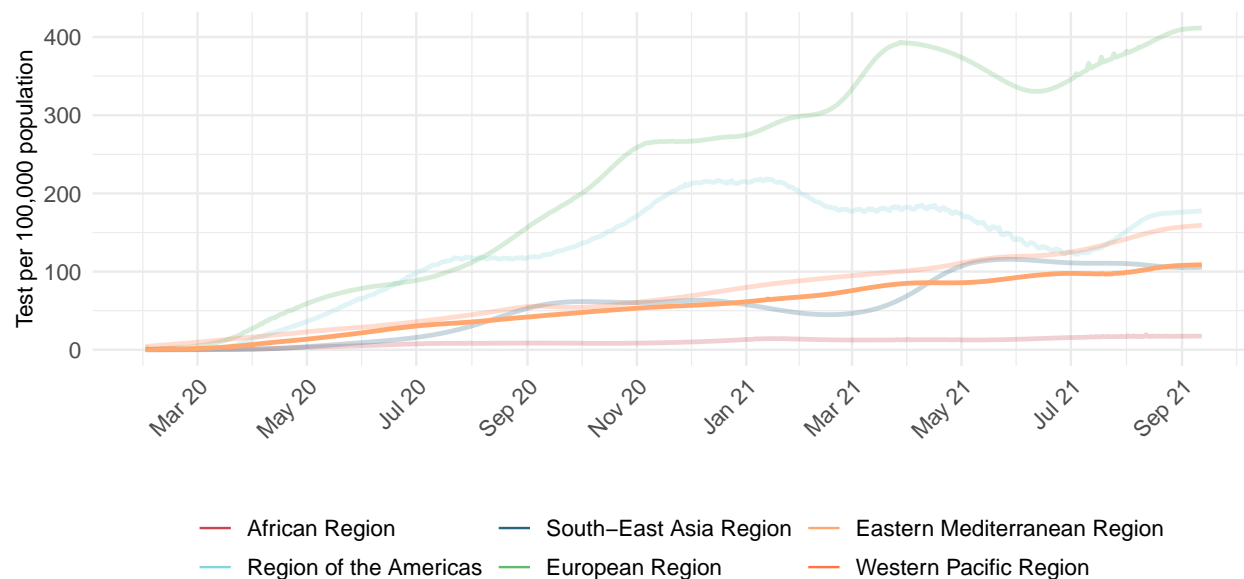**Figure 15.** Trend in COVID-19 diagnostic tests per 100,000 people

— African Region	— South–East Asia Region	— Eastern Mediterranean Region
— Region of the Americas	— European Region	— Western Pacific Region

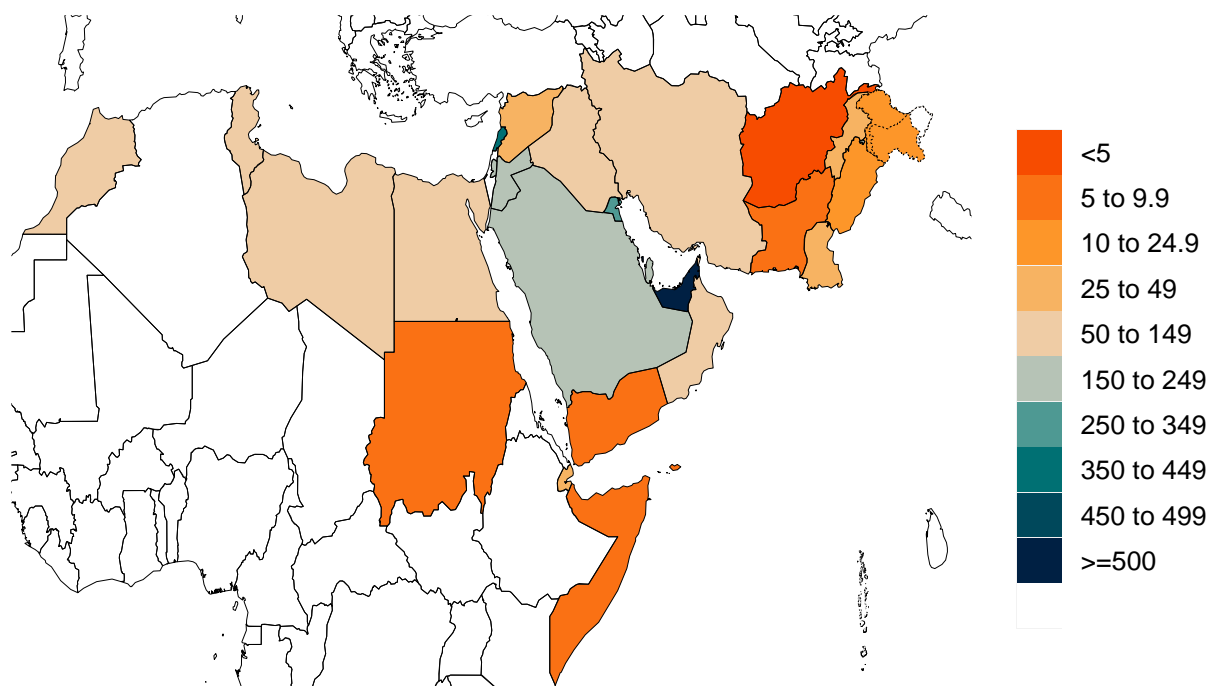**Figure 16.** COVID-19 diagnostic tests per 100,000 people on September 13, 2021

Table 3. Estimates of vaccine efficacy for specific vaccines used in the model at preventing disease and infection. The SEIR model uses variant-specific estimates of vaccine efficacy at preventing symptomatic disease and at preventing infection. We use data from clinical trials directly, where available, and make estimates otherwise. More information can be found on our website.

Vaccine	Efficacy at preventing disease: ancestral and Alpha	Efficacy at preventing infection: ancestral and Alpha	Efficacy at preventing disease: Beta, Delta, & Gamma	Efficacy at preventing infection: Beta, Delta, & Gamma
AstraZeneca	90%	52%	85%	49%
CoronaVac	50%	44%	43%	38%
Covaxin	78%	69%	68%	60%
Johnson & Johnson	86%	72%	60%	56%
Moderna	94%	89%	94%	80%
Novavax	89%	79%	79%	69%
Pfizer/BioNTech	94%	86%	85%	78%
Sinopharm	73%	65%	63%	56%
Sputnik-V	92%	81%	80%	70%
Tianjin CanSino	66%	58%	57%	50%
Other vaccines	75%	66%	65%	57%
Other vaccines (mRNA)	91%	86%	85%	78%

Figure 17. Percent of the population (A) having received at least one dose and (B) fully vaccinated against SARS-CoV-2 by September 13, 2021

A. Percent of the population having received one dose of a COVID-19 vaccine
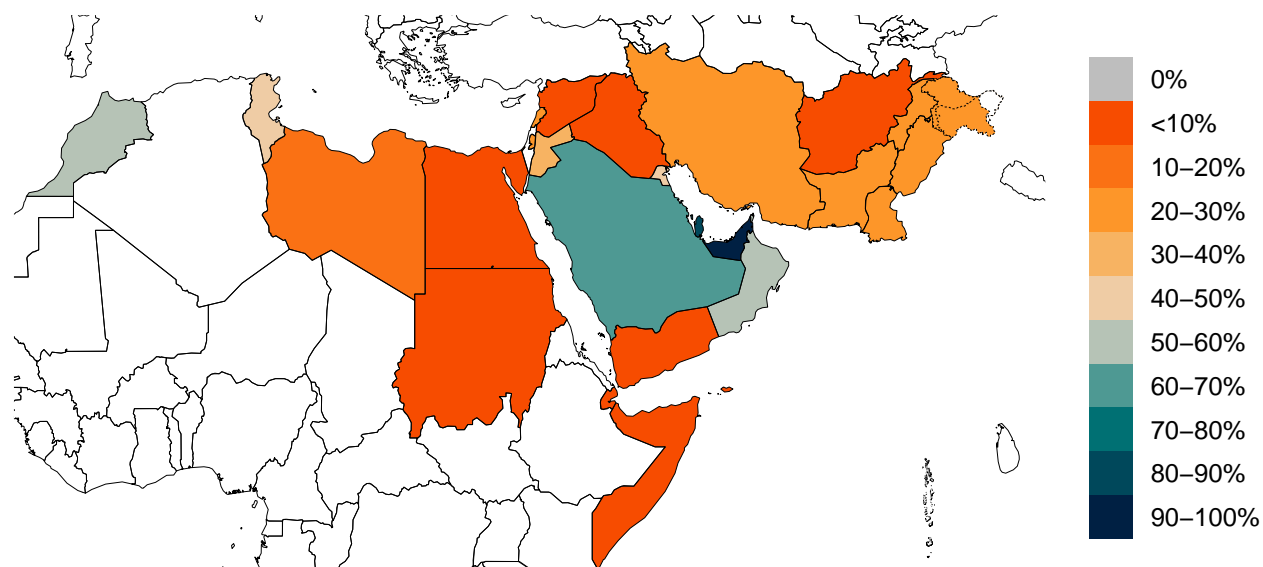
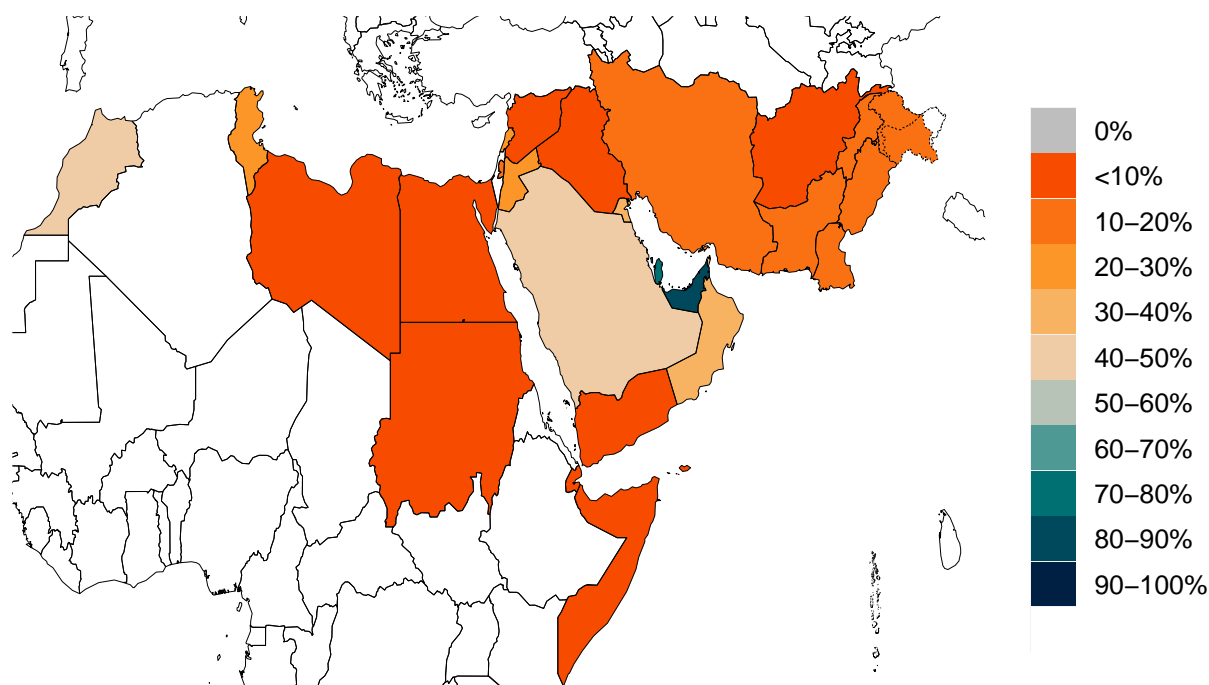**B. Percent of the population fully vaccinated against SARS-CoV-2**

Figure 18. Trend in the estimated proportion of the adult (18+) population that have been vaccinated or would probably or definitely receive the COVID-19 vaccine if available
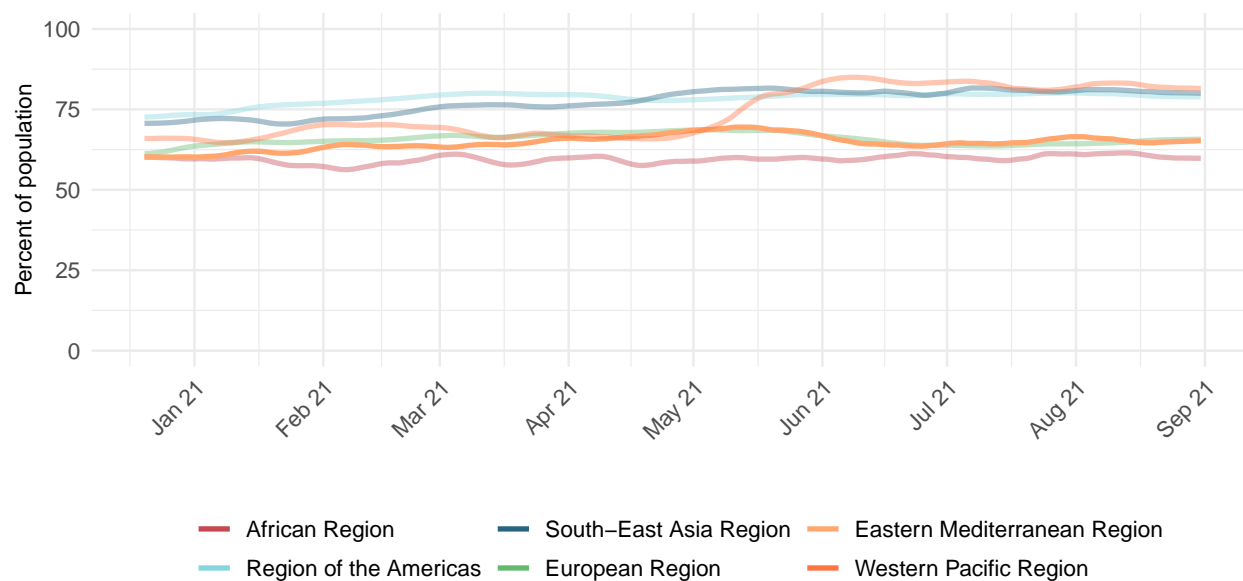

Figure 19. This figure shows the estimated proportion of the adult (18+) population that has been vaccinated or would probably or definitely receive the COVID-19 vaccine if available
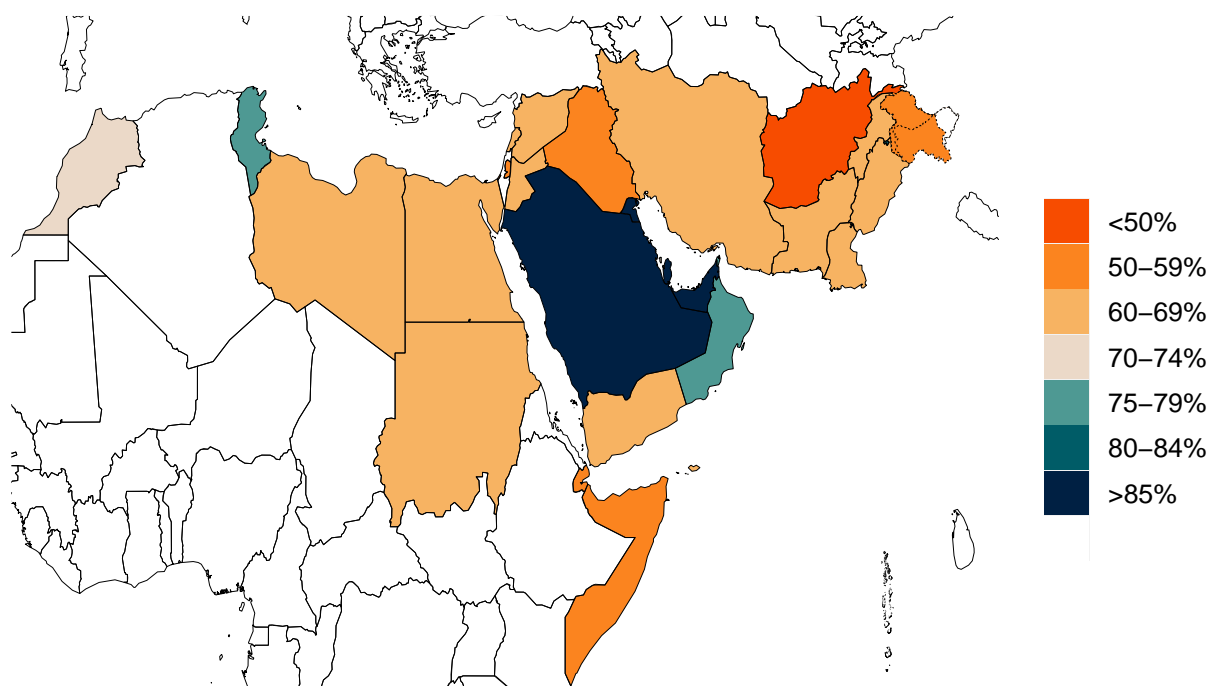
Figure 20. Percent of people who receive at least one dose of a COVID-19 vaccine and those who are fully vaccinated
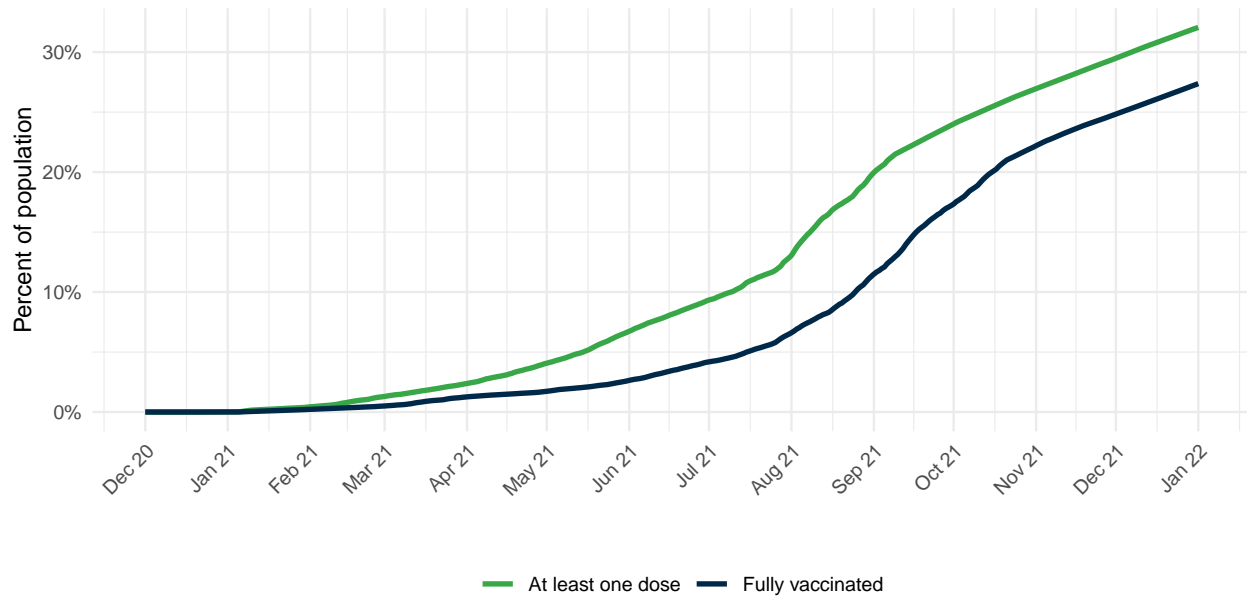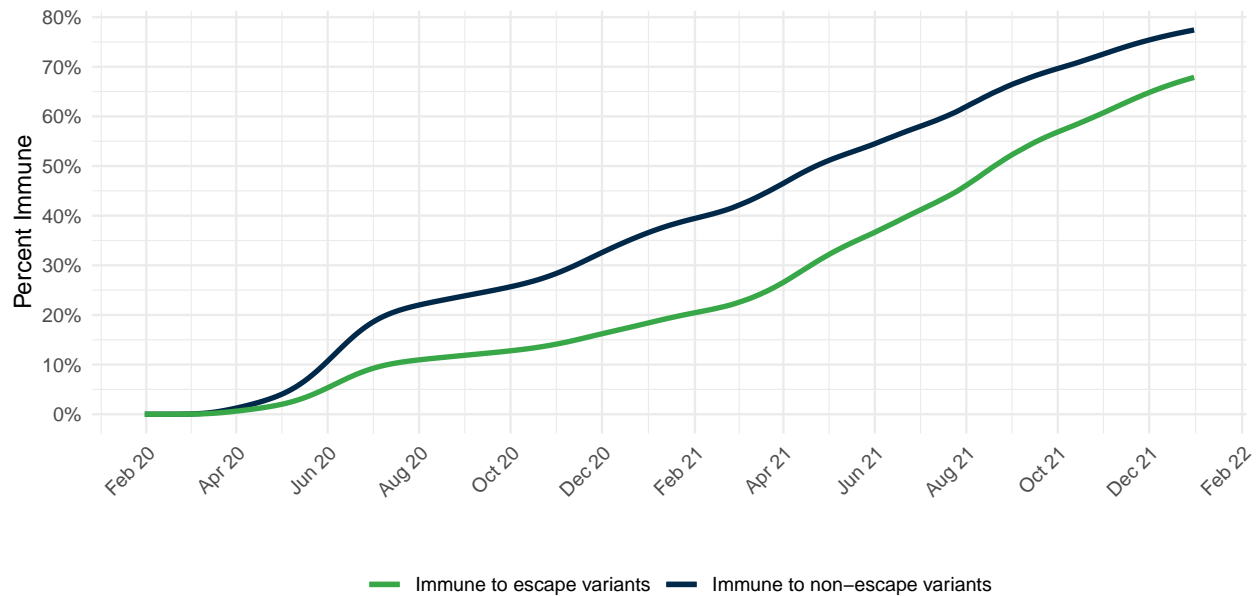

Figure 21. Percentage of people who are immune to non-escape variants and the percentage of people who are immune to escape variants

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 7 days.
- Mobility increases as vaccine coverage increases.
- Governments adapt their response by re-imposing social distancing mandates for 6 weeks whenever daily deaths reach 8 per million, unless a location has already spent at least 7 of the last 14 days with daily deaths above this rate, and not yet re-imposed social distancing mandates. In this case, the reference scenario assumes that mandates are re-imposed when daily deaths reach 15 per million.
- Variants Alpha, Beta, Gamma, and Delta continue to spread regionally and globally from locations with sufficient transmission.

The **worse scenario** modifies the reference scenario assumption in four ways:

- 100% of vaccinated individuals stop using masks.
- Mobility increases in all locations to 25% above the pre-pandemic winter baseline, irrespective of vaccine coverage.
- Governments are more reluctant to re-impose social distancing mandates, waiting until the daily death rate reaches 15 per million, unless a location has already spent at least 7 of the last 14 days with daily deaths above this rate, and not yet re-imposed social distancing mandates. In this case, the reference scenario assumes that mandates are re-imposed when daily deaths reach 38 per million. In either case, we assume social distancing mandates remain in effect for 6 weeks.
- Variants Alpha, Beta, Gamma, and Delta spread between locations twice as fast when compared with our reference scenario.

The **universal masks scenario** makes all the same assumptions as the reference scenario but assumes all locations reach 95% mask use within 7 days.

Figure 22. Daily COVID-19 deaths until January 01, 2022 for three scenarios

A. Reported daily COVID-19 deaths per 100,000

Legend: Reference scenario, Worse, Universal mask use
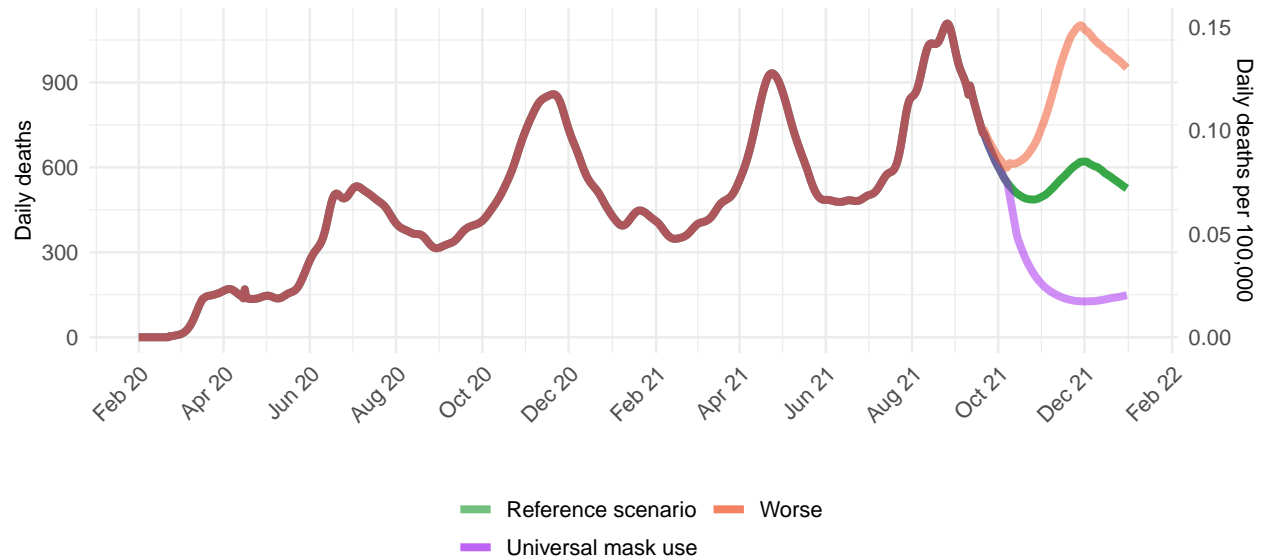
B. Excess daily COVID-19 deaths per 100,000

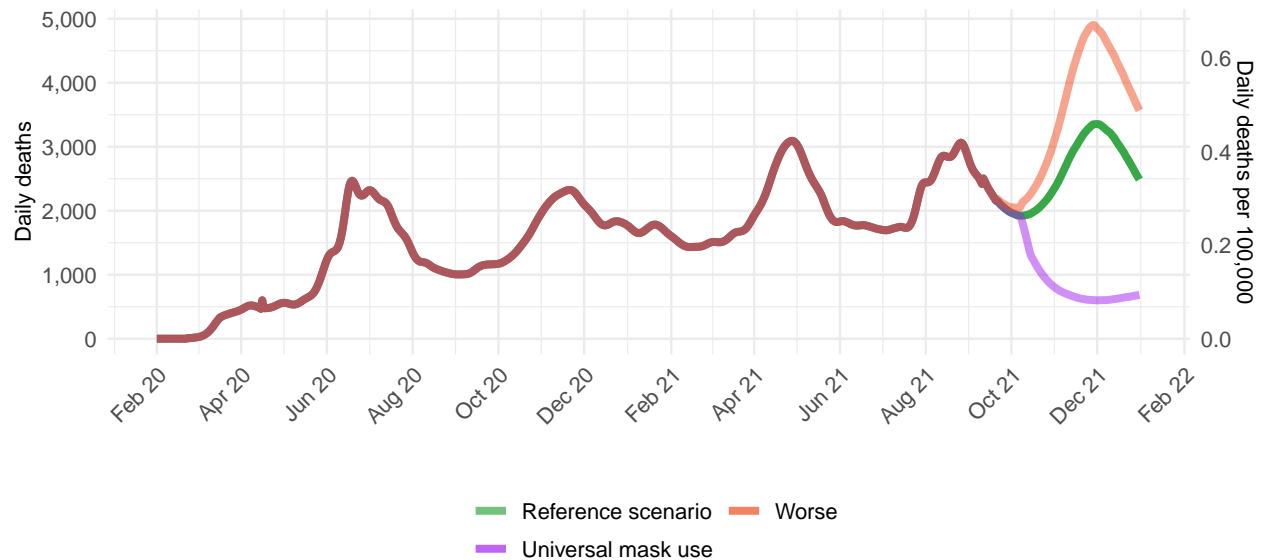Legend: Reference scenario, Worse, Universal mask use

Figure 23. Daily COVID-19 infections until January 01, 2022 for three scenarios
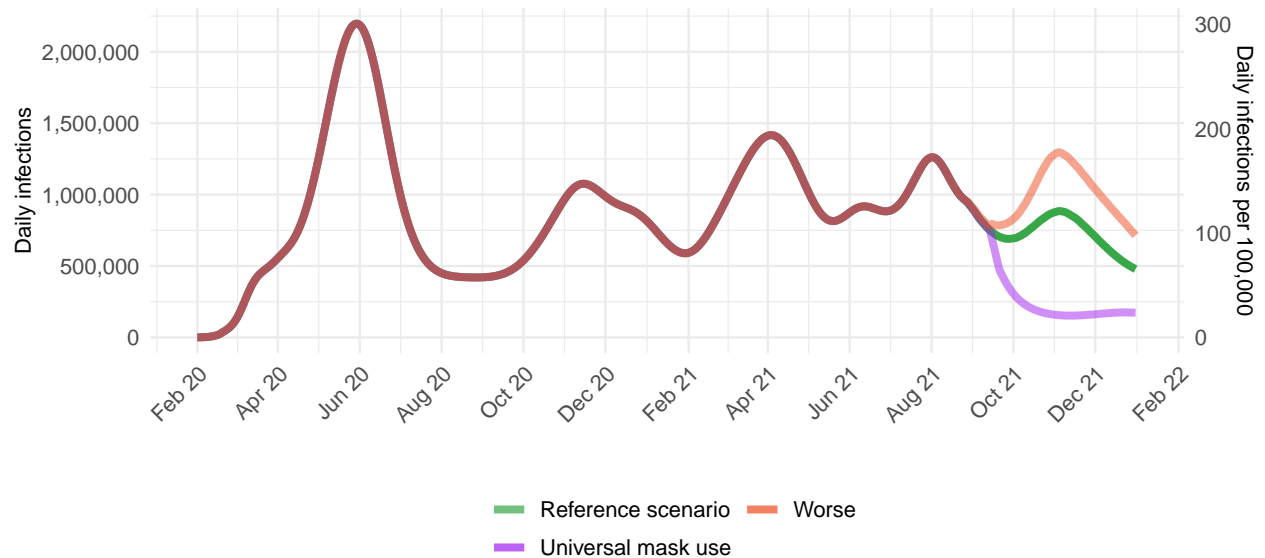

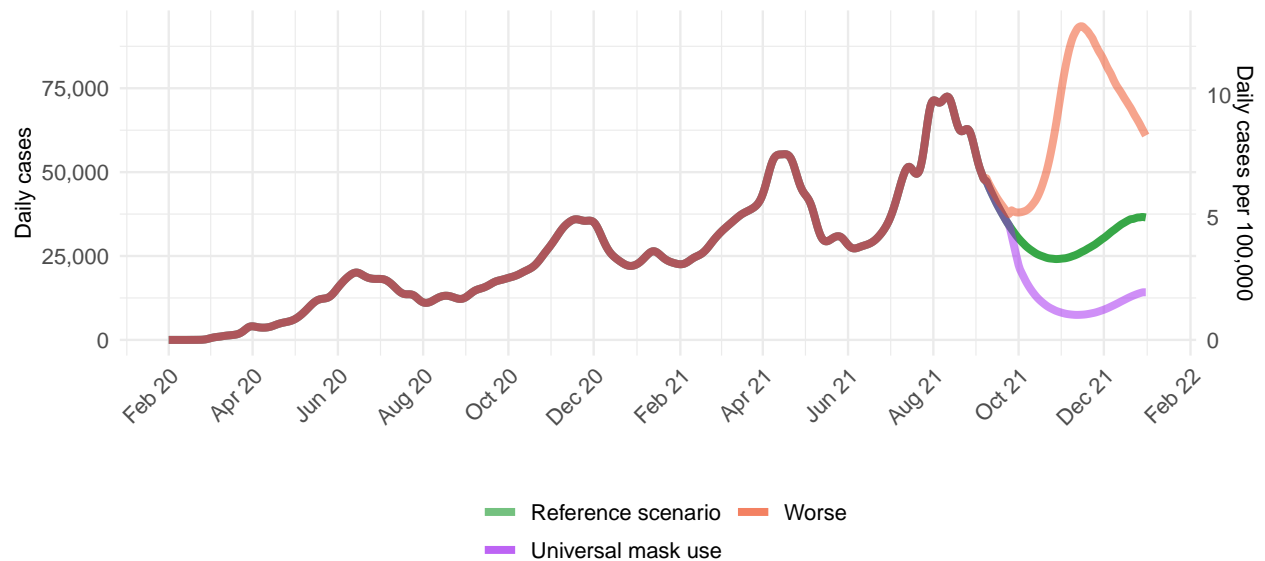**Figure 24.** Daily COVID-19 reported cases until January 01, 2022 for three scenarios

Figure 25. Daily COVID-19 hospital census until January 01, 2022 for three scenarios
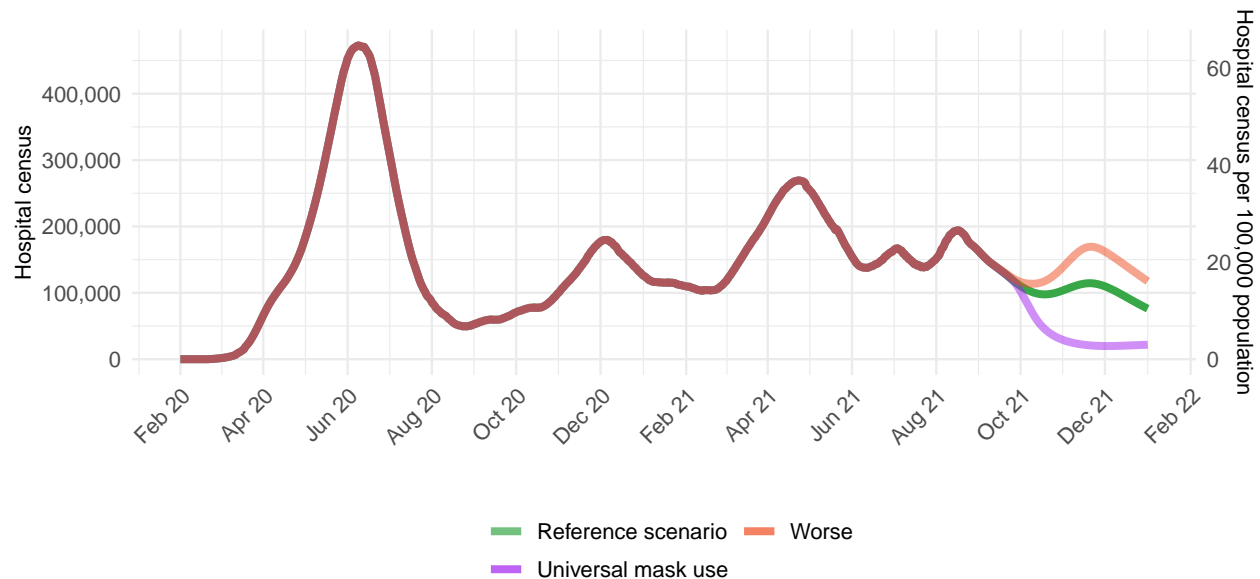

Figure 26. Comparison of reference model projections with other COVID modeling groups. For this comparison, we are including projections of daily COVID-19 deaths from other modeling groups when available: Delphi from the Massachusetts Institute of Technology (Delphi), Imperial College London (Imperial), The Los Alamos National Laboratory (LANL), and the SI-KJalpha model from the University of Southern California (SIKJalpha). Daily deaths from other modeling groups are smoothed to remove inconsistencies with rounding. Regional values are aggregates from available locations in that region.
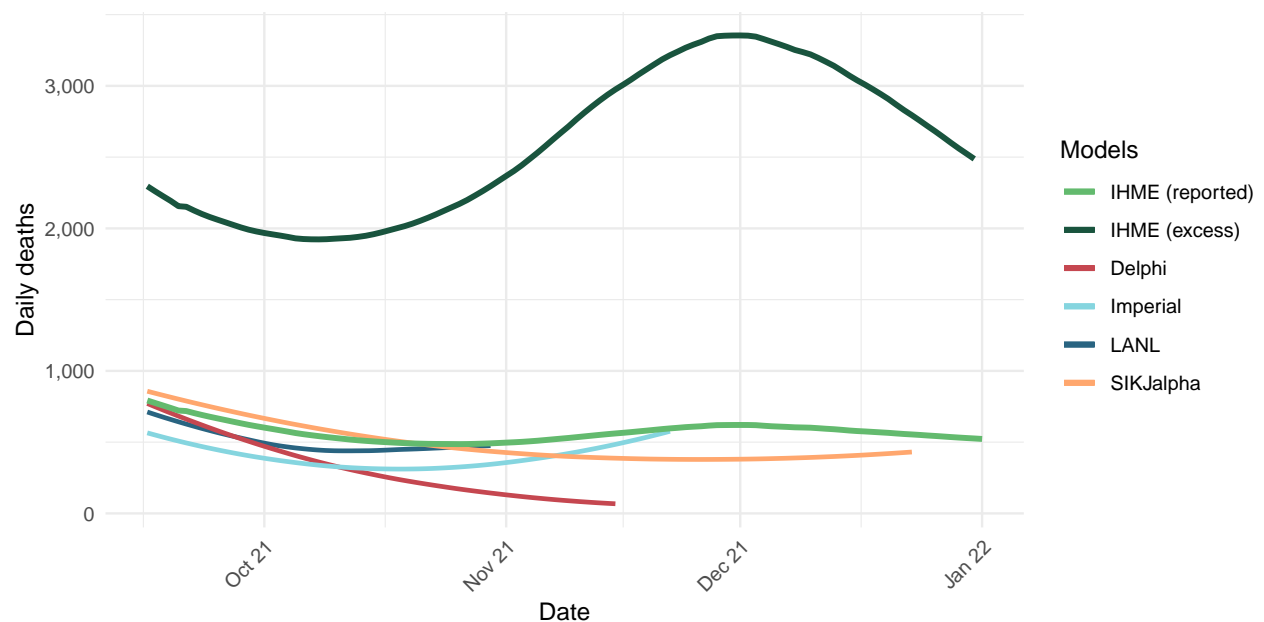
Figure 27. The estimated inpatient hospital usage is shown over time. The percent of hospital beds occupied by COVID-19 patients is color-coded based on observed quantiles of the maximum proportion of beds occupied by COVID-19 patients. Less than 5% is considered *low stress*, 5-9% is considered *moderate stress*, 10-19% is considered *high stress*, and 20% or greater is considered *extreme stress*.
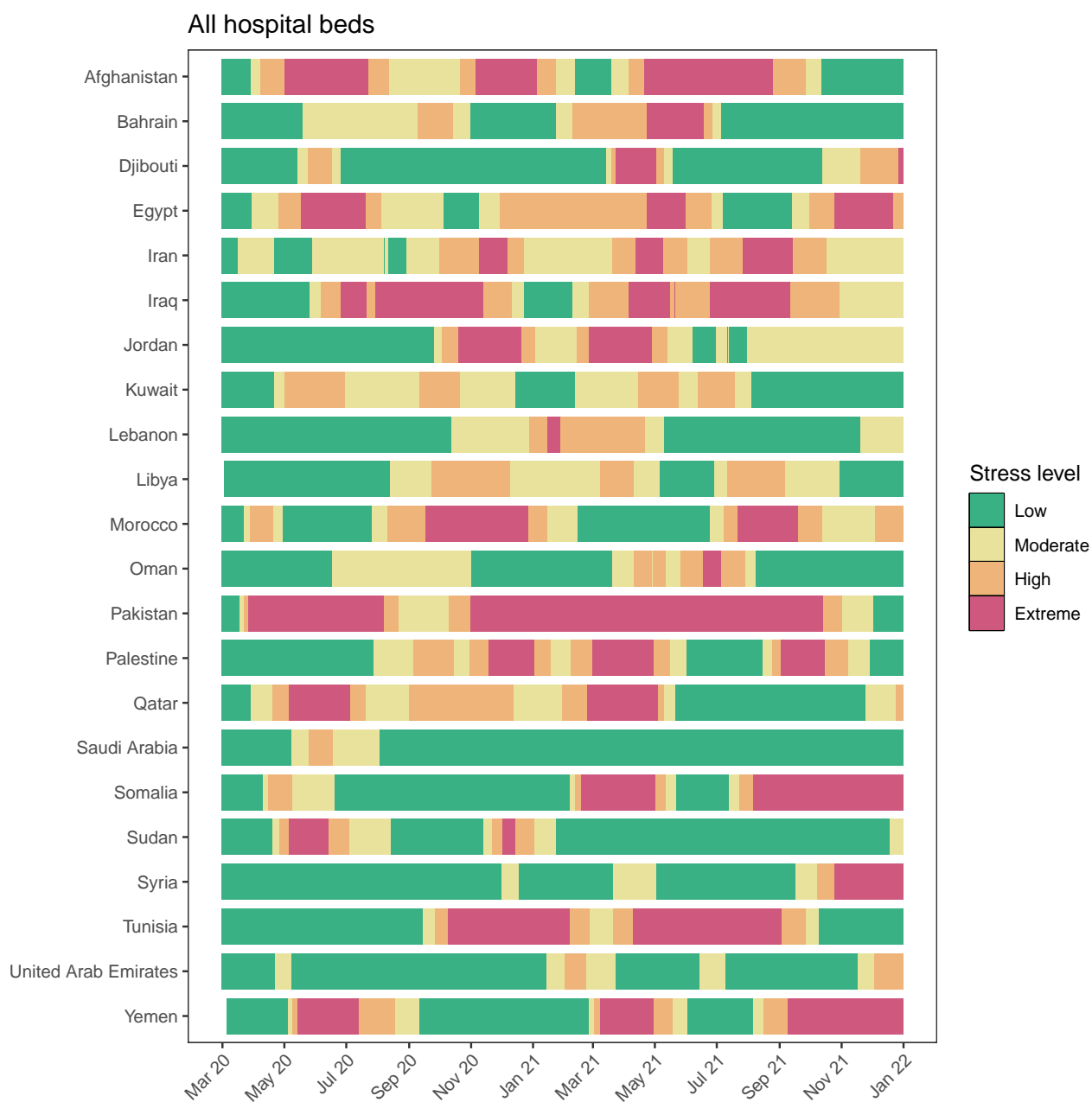
Figure 28. The estimated intensive care unit (ICU) usage is shown over time. The percent of ICU beds occupied by COVID-19 patients is color-coded based on observed quantiles of the maximum proportion of ICU beds occupied by COVID-19 patients. Less than 10% is considered *low stress*, 10-29% is considered *moderate stress*, 30-59% is considered *high stress*, and 60% or greater is considered *extreme stress*.
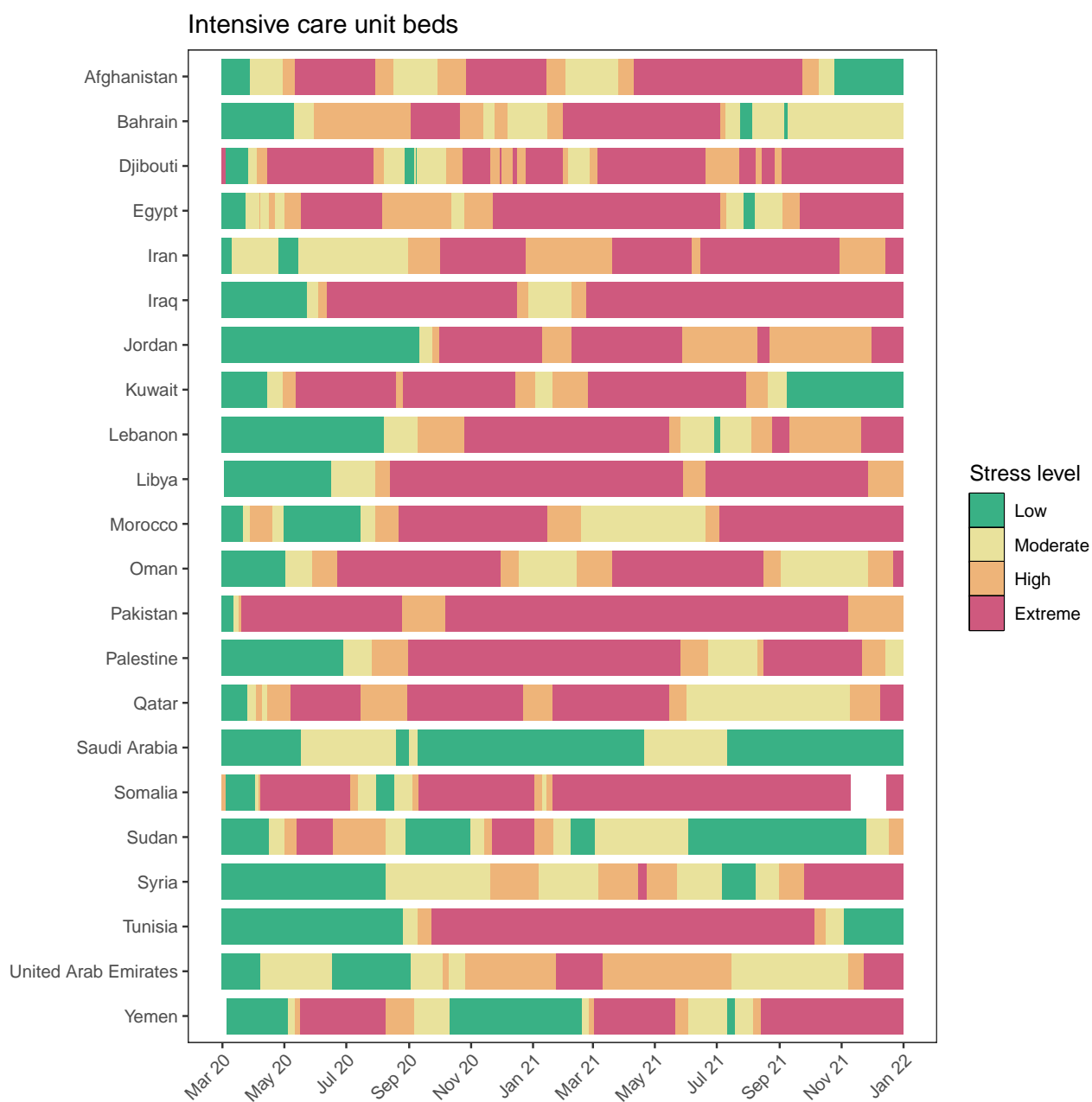
More information

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.

Questions? Requests? Feedback? Please contact us at https://www.healthdata.org/covid/contact-us.