# COVID-19 Results Briefing

## The South-East Asia Region

## November 18, 2021

This document contains summary information on the latest projections from the IHME model on COVID-19 in the South-East Asia Region. The model was run on November 16, 2021, with data through November 15, 2021.

Across the South-East Asia Region, reported cases and deaths continued to decline over the last week. However, with low testing rates across the region, the regional infection-detection rate was approximately 6% this week. With masking rates returning to pre-Delta-surge levels (62%), and mobility nearing pre-COVID levels (8% below baseline), opportunities are being created for increasing transmission. Effective R has risen above 1 in 19 locations across the region, including 12 states and union territories within India. While 60% of the regional population has previously been infected with COVID-19, and with over 50% of the region having now received at least one dose of vaccine, the evidence emerging on waning immunity derived from vaccinations or natural infection suggests continued adherence to protective behaviors during moments of high community transmission is extremely important. Winter seasonality and increasing social mixing during festival and holiday seasons are expected to increase transmission levels through the start of next year. Our reference scenario indicates that the region will reach 687,000 reported deaths by March 1, 2022, representing an additional 26,000 deaths between now and then. However, our model does not yet take into account the effect of waning immunity; as our research teams expect to incorporate specific model updates for vaccine-specific waning immunity and waning natural immunity in early December, early tests suggest that countries in the Northern Hemisphere may see even larger winter surges. Nevertheless, our current model indicates if universal mask use could be achieved, 8,900 lives could be saved. Opportunities for policymakers to address the winter surge amid festival and holiday seasons are: (1) increasing mask use through mandates and mask use promotion, as any increase above current levels will have an immediate impact on reducing transmission; (2) increasing vaccinations by addressing supply constraints, promoting international vaccine equity through donations or favorable purchase agreements, and countering vaccine hesitancy by addressing misinformation and expressed concerns; and (3) addressing waning immunity by communicating the importance of continued adherence to health-protective behaviors and crafting booster vaccination strategies to reach high-risk populations first when vaccine supplies become available. As COVID-19 will remain a health threat for the foreseeable future, a combined policy focus on vaccines and masking will be essential to avoid the need for future gathering restrictions or lockdowns.

## Current situation

- Daily estimated infections in the last week increased to 274,200 per day on average compared to 268,100 the week before (Figure 1.1). Daily hospital census in the last week (through November 15) decreased to 51,000 per day on average compared to 54,500 the week before.

- Daily reported cases in the last week decreased to 14,100 per day on average compared to 14,300 the week before (Figure 2.1).
- Reported deaths due to COVID-19 in the last week decreased to 190 per day on average compared to 200 the week before (Figure 3.1).
- Total deaths due to COVID-19 in the last week decreased to 820 per day on average compared to 860 the week before (Figure 3.1). This makes COVID-19 the number 11 cause of death in the South-East Asia Region this week (Table 1). Estimated total daily deaths due to COVID-19 in the past week were 4.3 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).
- No locations had daily total COVID-19 death rates greater than 4 per million (Figure 4.2).
- We estimate that 60% of people in the South-East Asia Region have been infected as of November 15 (Figure 6.1).
- Effective R, computed using cases, hospitalizations, and deaths, is greater than 1 in 19 locations (Figure 7.1).
- The infection-detection rate in the South-East Asia Region was close to 6% on November 15 (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 (Figure 9.1). We estimate that the Beta variant is circulating in two countries, that the Delta variant is circulating in 10 countries, and that the Gamma variant is circulating in one country in the region.

## Trends in drivers of transmission

- Mobility last week was 8% lower than the pre-COVID-19 baseline (Figure 11.1). Mobility was above baseline in Bangladesh and Nepal and near baseline (within 10%) in Bhutan, North Korea, Indonesia, and Thailand. Mobility was lower than 30% of baseline in Myanmar and Sri Lanka.
- As of November 15, in the COVID-19 Trends and Impact Survey, 62% of people self-report that they always wore a mask when leaving their home, which remained consistent from last week (Figure 13.1).
- There were 74 diagnostic tests per 100,000 people on November 15 (Figure 15.1).
- As of November 15, three countries have reached 70% or more of the population who have received at least one vaccine dose and two countries have reached 70% or more of the population who are fully vaccinated (Figure 17.1).

- In our current reference scenario, we expect that 1.2 billion people will be vaccinated with at least one dose by March 1 (Figure 20.1). We expect that 51% of the population will be fully vaccinated by March 1.
- Based on the estimate of the population that have been infected with COVID-19 and vaccinated to date, combined with assumptions on protection against infection with the Delta variant provided by either natural infection, vaccination, or both, we estimate that 62% of the region is immune to the Delta variant. In our current reference scenario, we expect that by March 1, 67% of people will be immune to the Delta variant (Figure 21.1). These two calculations do not take into account waning of natural or vaccine-derived immunity.

## Projections

- In our **reference scenario**, which represents what we think is most likely to happen, our model projects 687,000 cumulative reported deaths due to COVID-19 on March 1. This represents 26,000 additional deaths from November 15 to March 1. Daily reported deaths will decline to 200 by November 20, 2021 (Figure 22.1).
- Under our **reference scenario**, our model projects 3,829,000 cumulative total deaths due to COVID-19 on March 1. This represents 122,000 additional deaths from November 15 to March 1 (Figure 22.1).
- If **universal mask coverage (95%)** were attained in the next week, our model projects 8,900 fewer cumulative reported deaths compared to the reference scenario on March 1.
- Under our **worse scenario**, our model projects 771,000 cumulative reported deaths on March 1, an additional 84,000 deaths compared to our reference scenario. Daily reported deaths in the **worse scenario** will rise to 2,030 by February 1, 2022 (Figure 22.1).
- Daily infections in the **reference scenario** will rise to 506,530 by February 6, 2022 (Figure 22.3). Daily infections in the **worse scenario** will rise to 2,579,110 by January 21, 2022 (Figure 22.3).
- Daily cases in the **reference scenario** will rise to 22,130 by February 19, 2022 (Figure 22.4). Daily cases in the **worse scenario** will rise to 152,250 by January 22, 2022 (Figure 22.4).
- Daily hospital census in the **reference scenario** will rise to 84,500 by February 25, 2022 (Figure 22.5). Daily hospital census in the **worse scenario** will rise to 436,210 by February 8, 2022 (Figure 22.5).
- Figure 23.1 compares our reference scenario forecasts to other publicly archived models. Forecasts are widely divergent.
- At some point from November through March 1, two countries will have high or extreme stress on hospital beds (Figure 24.1). At some point from November through March 1, five countries will have high or extreme stress on intensive care unit (ICU) capacity (Figure 25.1).

## Model updates

No model updates.

**Figure 1.1.** Daily COVID-19 hospital census and infections

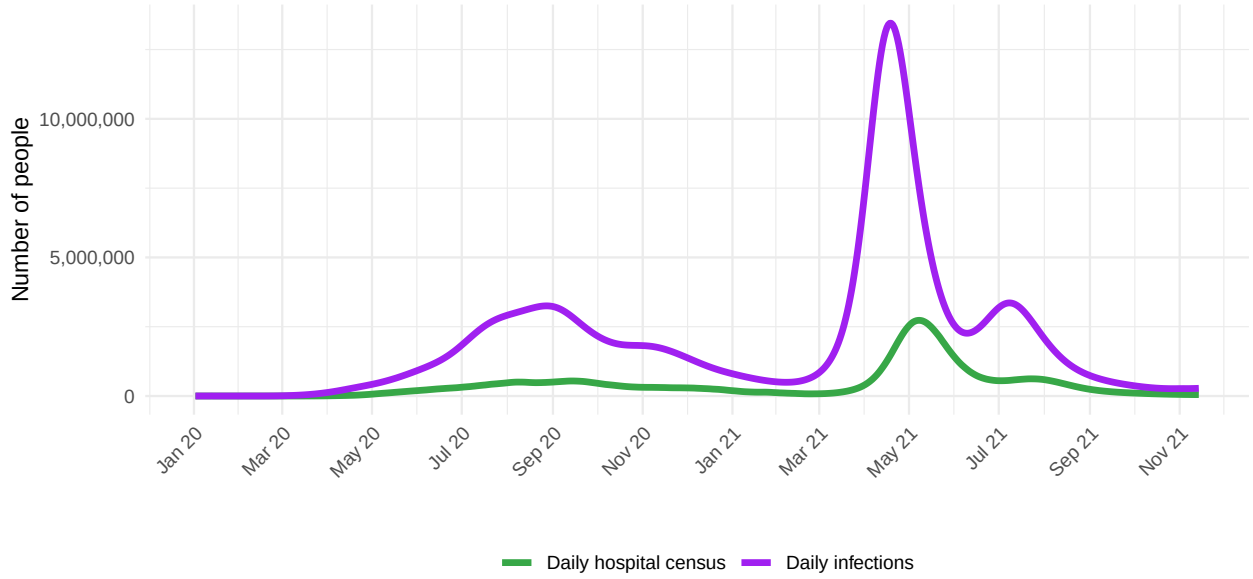



**Figure 2.1.** Reported daily COVID-19 cases, moving average

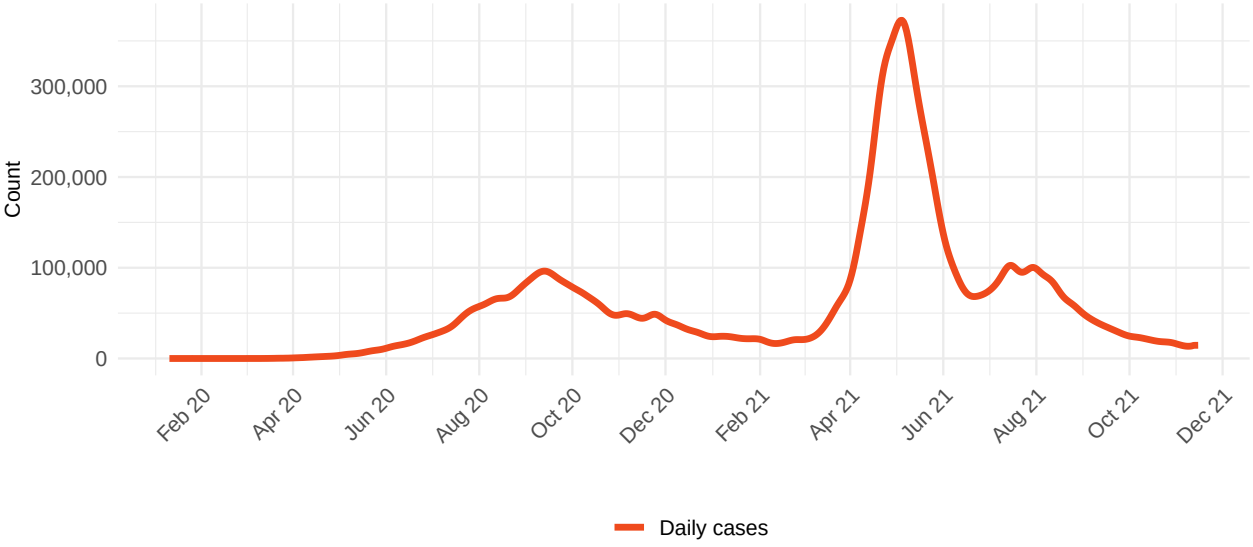
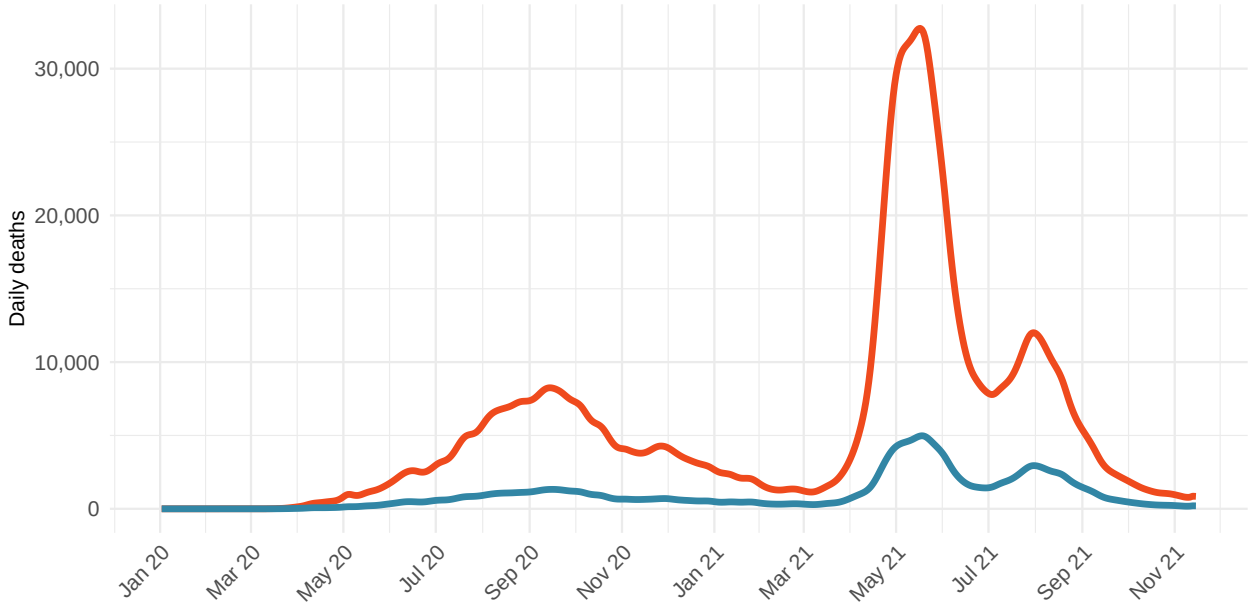


**Table 1.** Ranking of total deaths due to COVID-19 among the leading causes of mortality this week, assuming uniform deaths of non-COVID causes throughout the year

| Cause name | Weekly deaths | Ranking |
|---|---|---|
| Ischemic heart disease | 39,868 | 1 |
| Stroke | 27,102 | 2 |
| Chronic obstructive pulmonary disease | 21,984 | 3 |
| Diarrheal diseases | 14,328 | 4 |
| Lower respiratory infections | 11,327 | 5 |
| Tuberculosis | 10,815 | 6 |
| Neonatal disorders | 10,504 | 7 |
| Diabetes mellitus | 9,152 | 8 |
| Cirrhosis and other chronic liver diseases | 8,514 | 9 |
| Chronic kidney disease | 6,390 | 10 |
| COVID-19 | 5,747 | 11 |

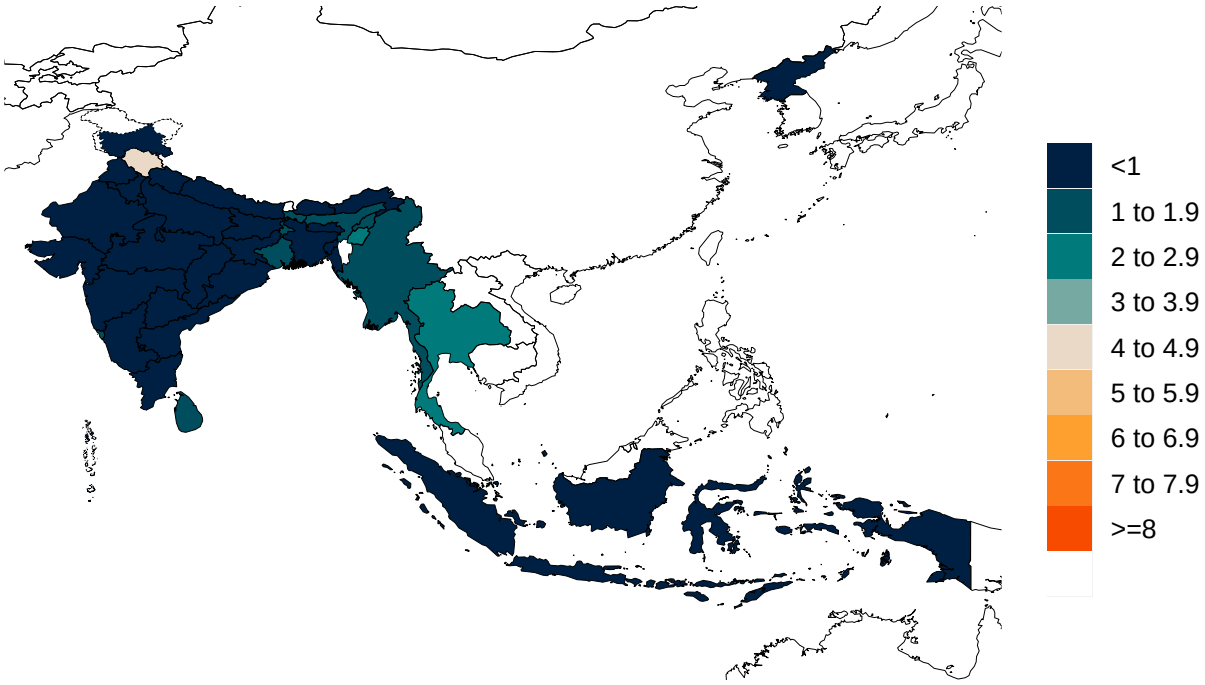
**Figure 3.1.** Smoothed trend estimate of reported daily COVID-19 deaths (blue) and total daily deaths due to COVID-19 (orange)



Daily COVID-19 death rate per 1 million on November 15, 2021

**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 November 15, 2021

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


**Figure 5.2 Total cumulative COVID-19 deaths per 100,000**

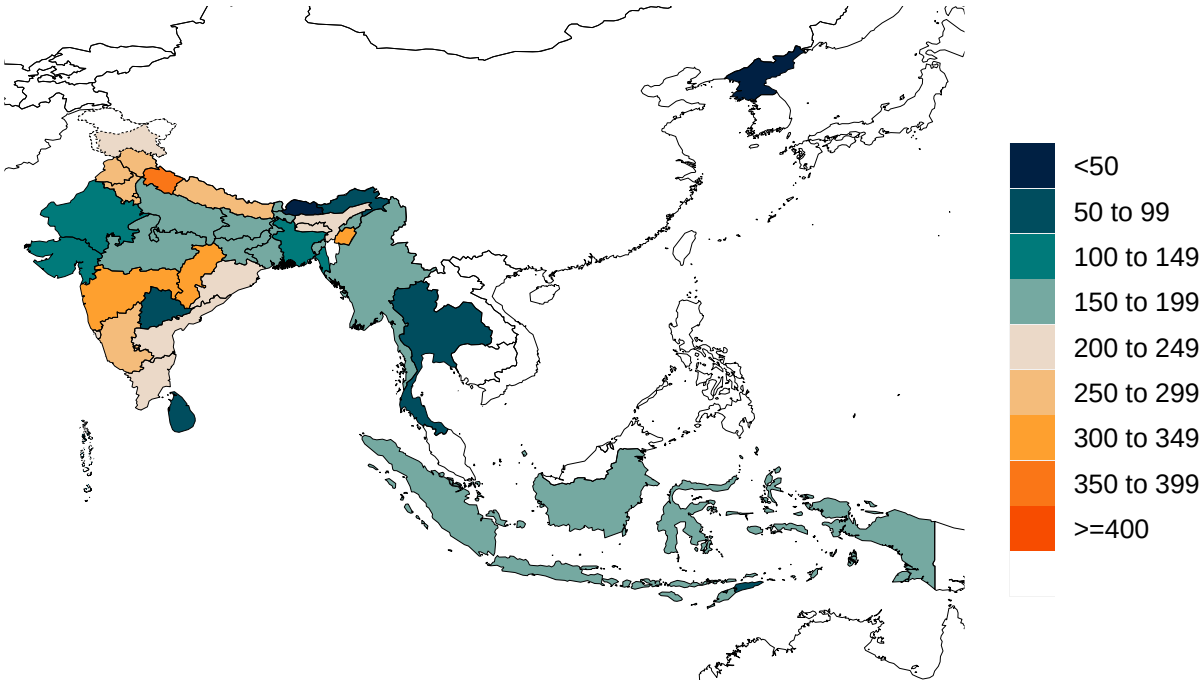


**Figure 6.1.** Estimated percent of the population infected with COVID-19 on November 15, 2021

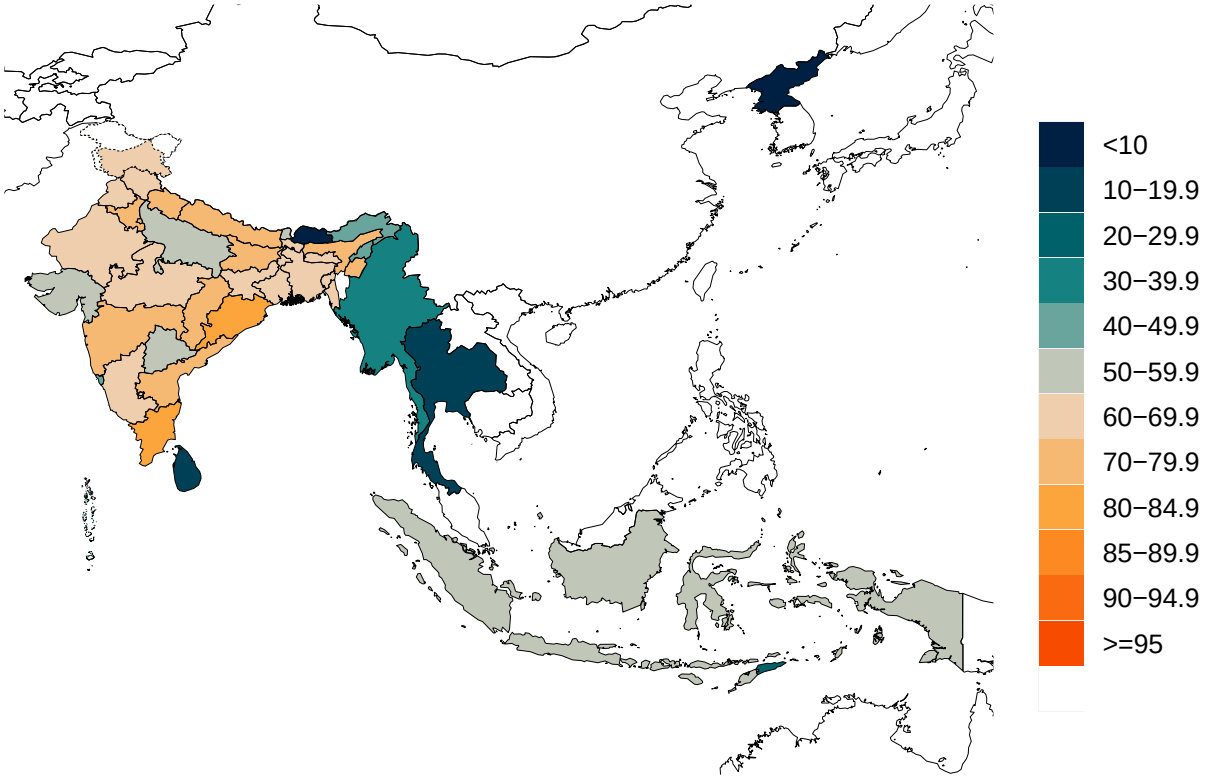



**Figure 7.1.** Mean effective R on November 4, 2021. Effective R less than 1 means that transmission should decline, all other things being held the same. The estimate of effective R is based on the combined analysis of deaths, case reporting, and hospitalizations where available. Current reported cases reflect infections 11-13 days prior, so estimates of effective R can only be made for the recent past.

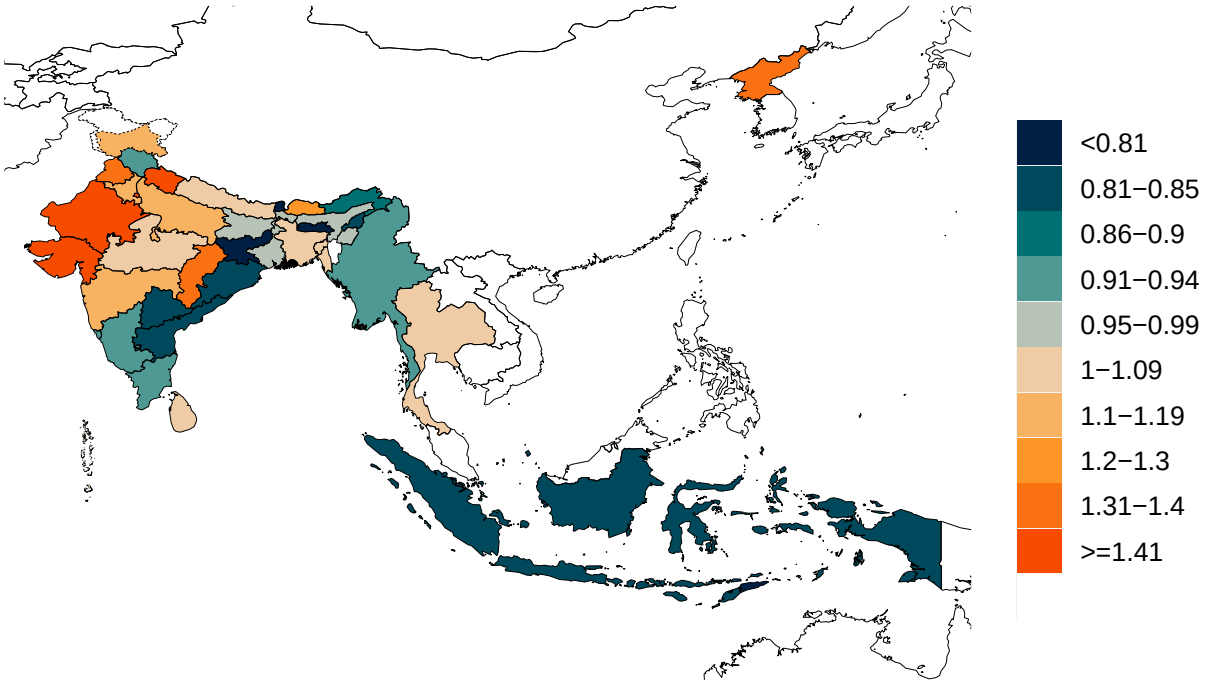
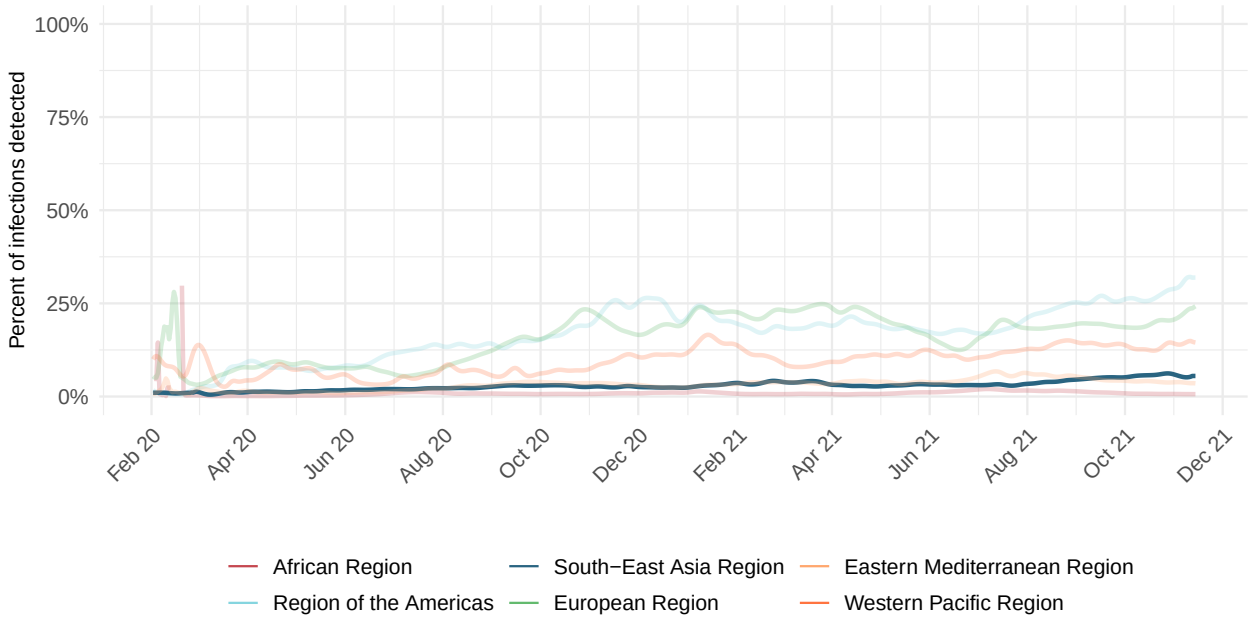


**Figure 8.1.** Percent of COVID-19 infections detected. This is estimated as the ratio of reported daily COVID-19 cases to estimated daily COVID-19 infections based on the SEIR disease transmission model. Due to measurement errors in cases and testing rates, the infection-detection rate can exceed 100% at particular points in time.



Estimated percent of circulating SARS-CoV-2 for primary variant families on November 15, 2021

**Figure 9.1 Estimated percent Alpha variant**

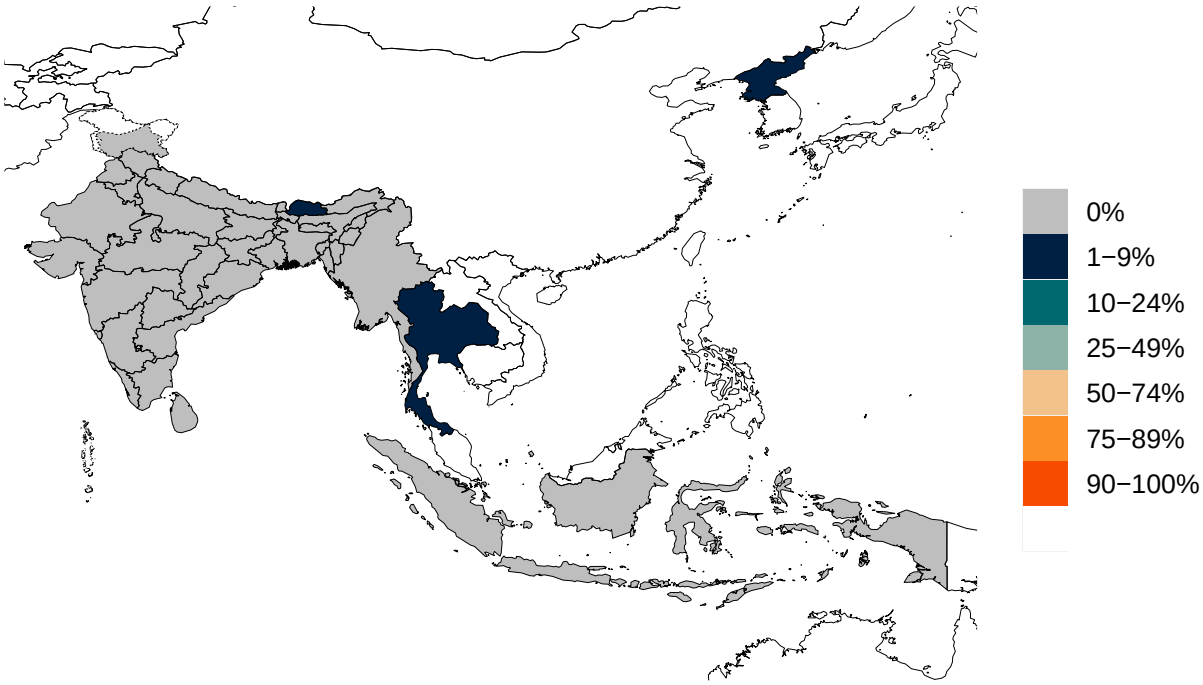



**Figure 9.2 Estimated percent Beta variant**

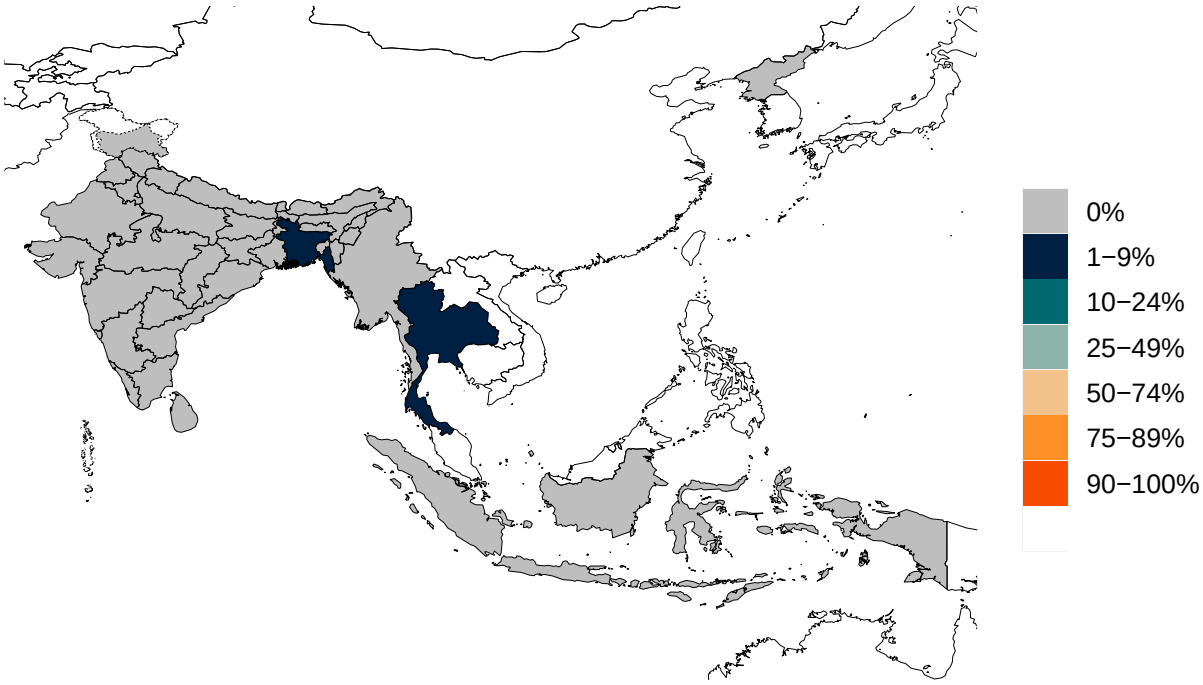


**Figure 9.3 Estimated percent Delta variant**

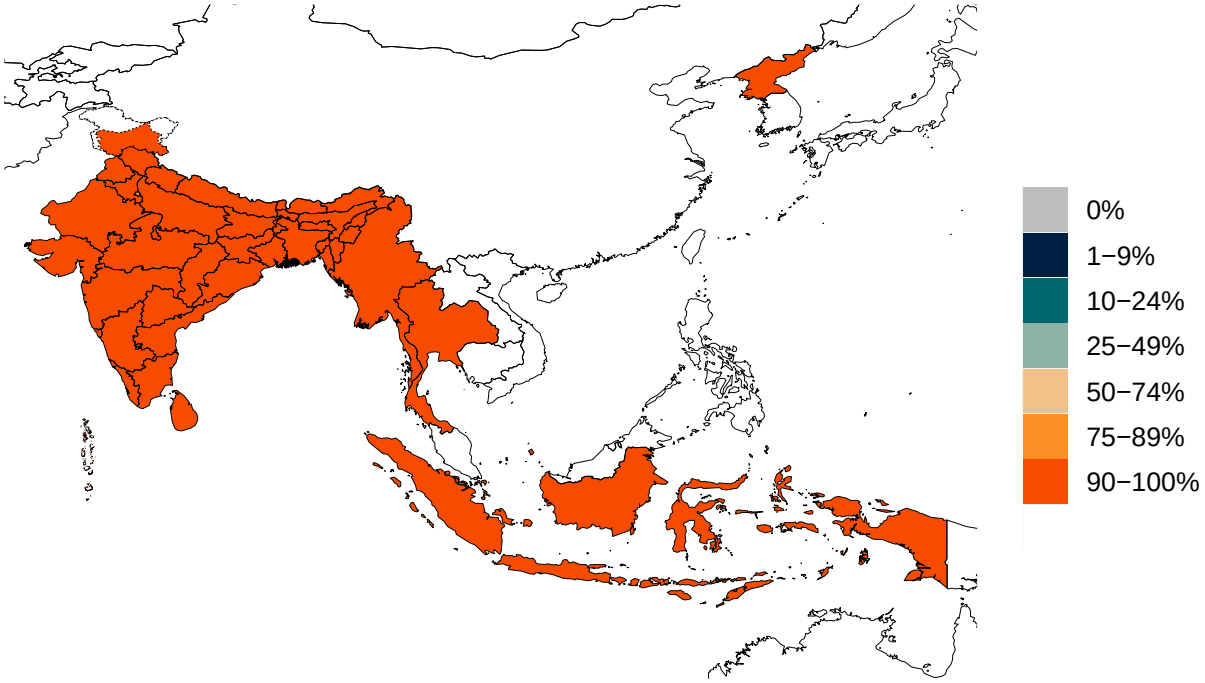



**Figure 9.4 Estimated percent Gamma variant**

**Figure 10.1.** Infection-fatality rate on November 15, 2021. This is estimated as the ratio of COVID-19 deaths to estimated daily COVID-19 infections.

## Critical drivers

**Table 2.** Current mandate implementation

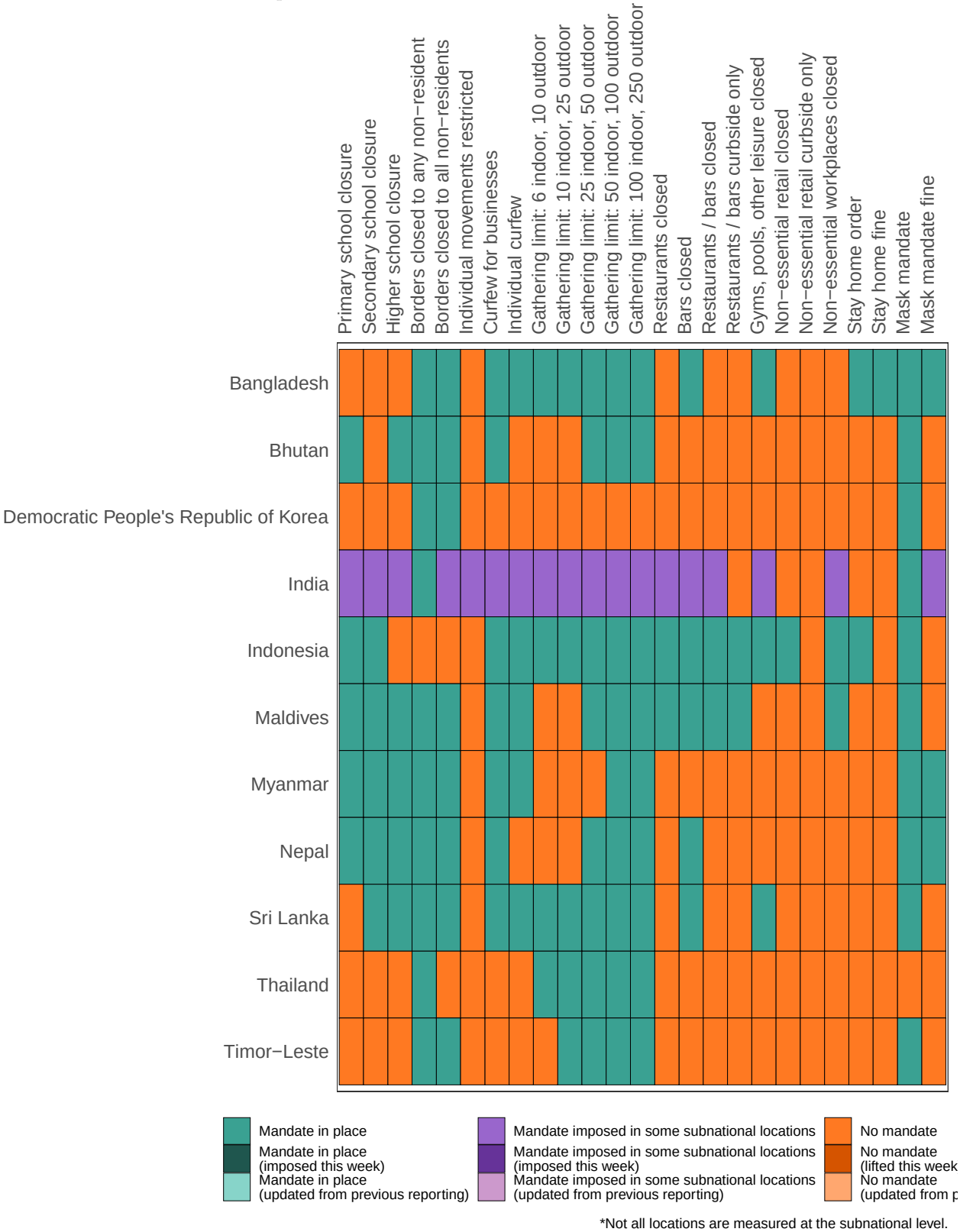


**Figure 11.1.** Trend in mobility as measured through smartphone app use, compared to January 2020 baseline

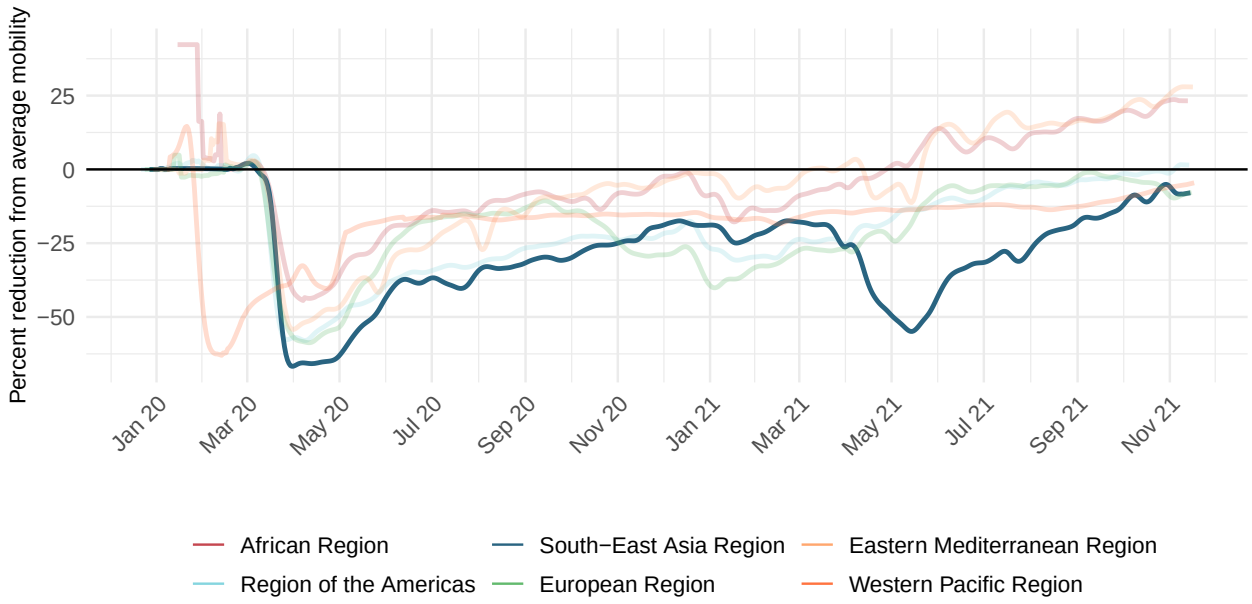


**Figure 12.1.** Mobility level as measured through smartphone app use, compared to January 2020 baseline (percent) on November 15, 2021

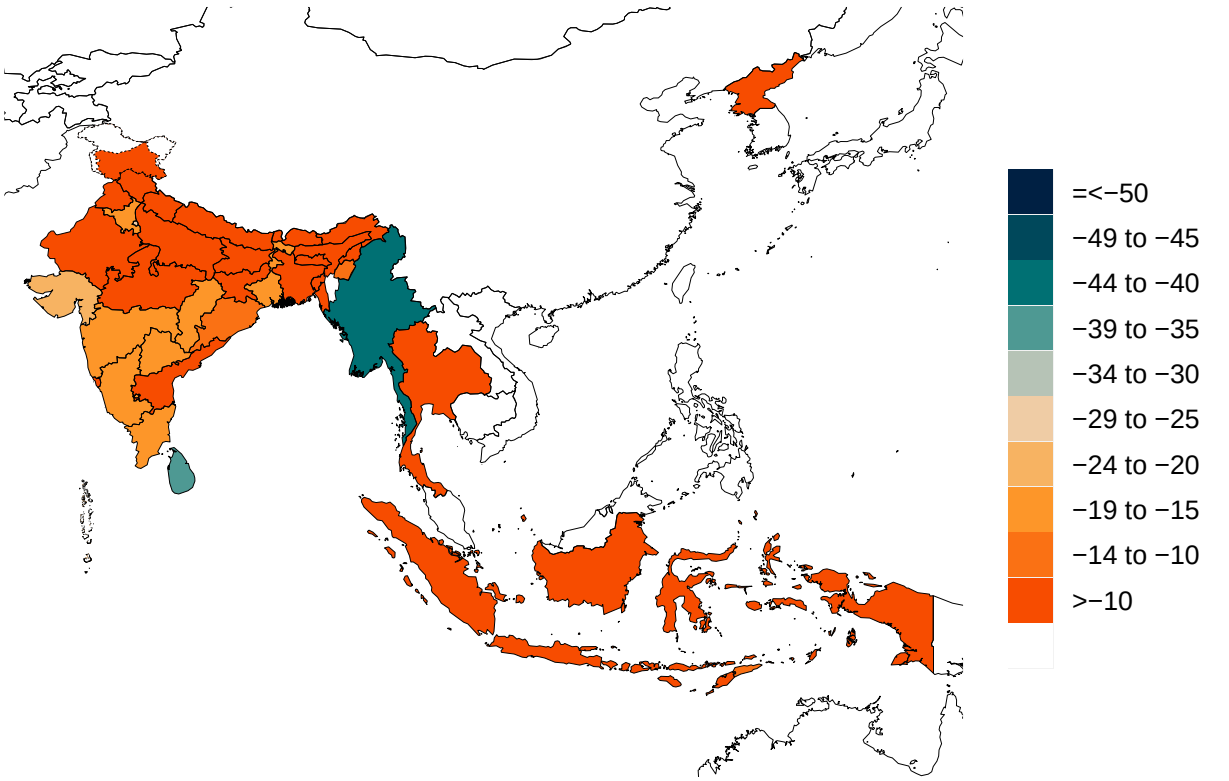


**Figure 13.1.** Trend in the proportion of the population reporting always wearing a mask when leaving home

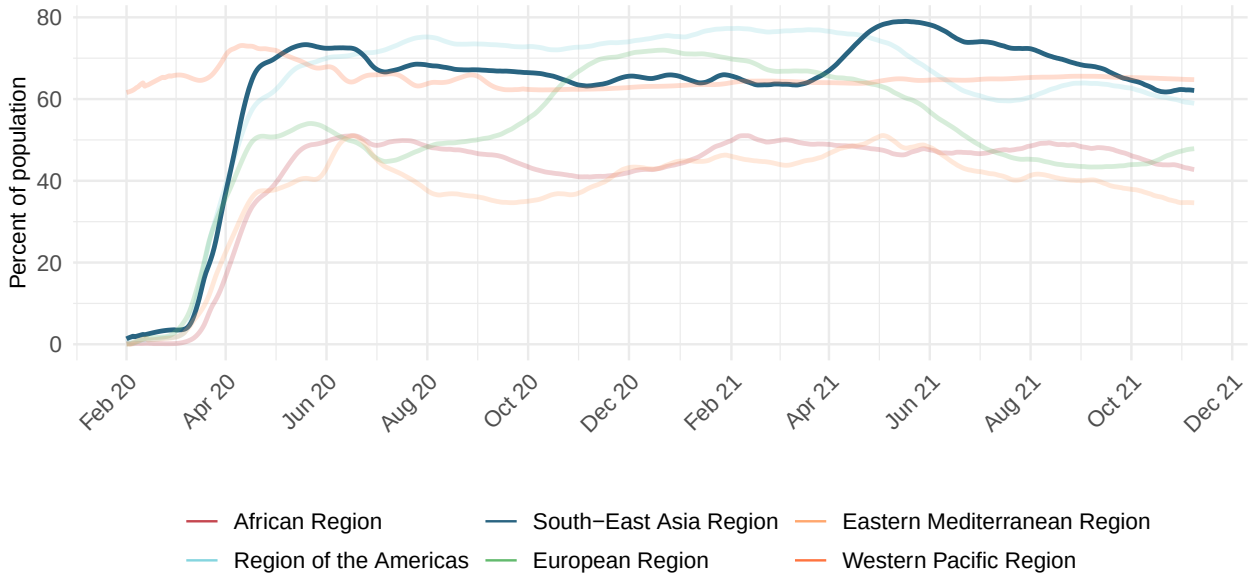



**Figure 14.1.** Proportion of the population reporting always wearing a mask when leaving home on November 15, 2021

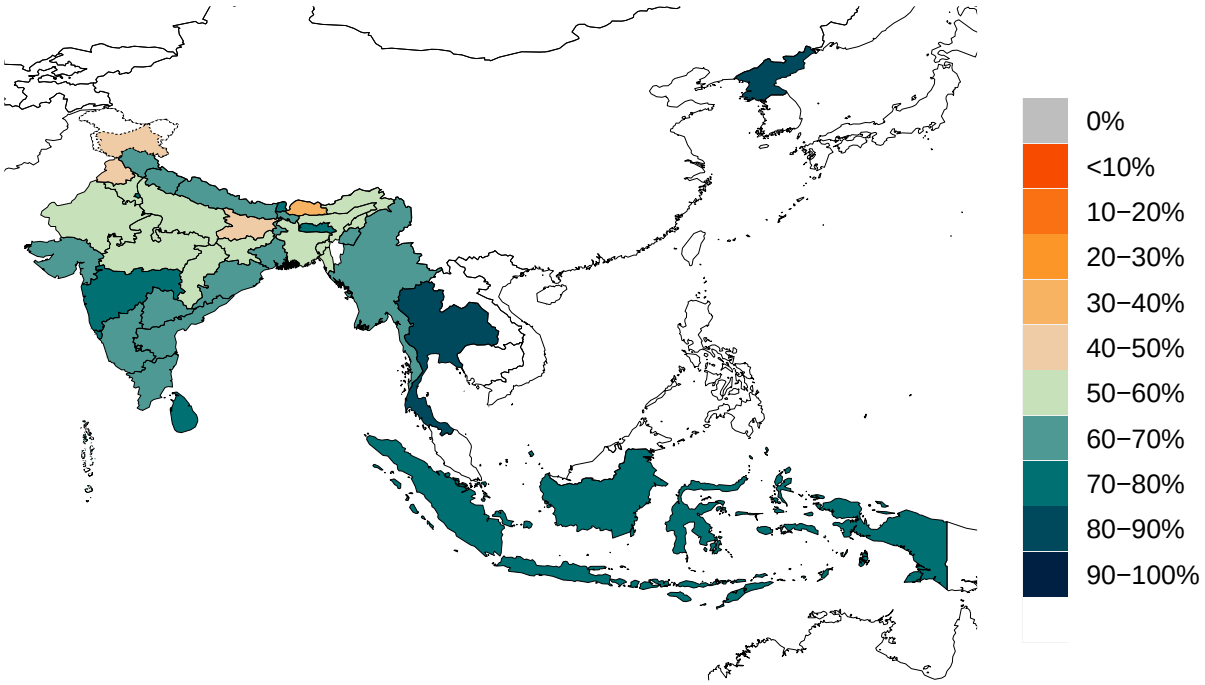


**Figure 15.1.** Trend in COVID-19 diagnostic tests per 100,000 people

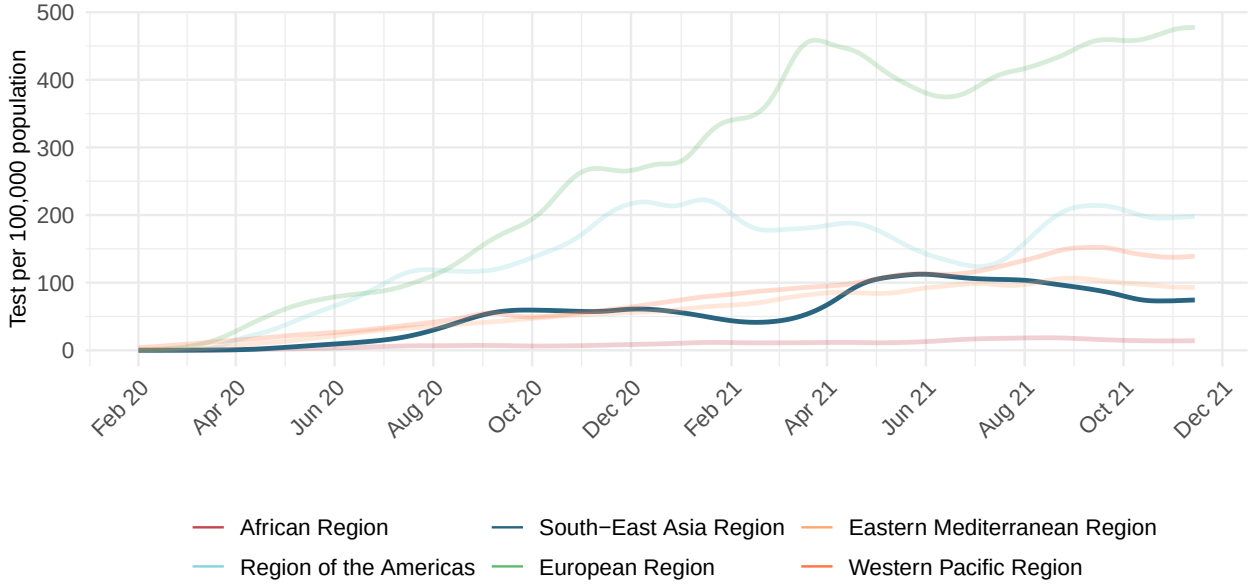



**Figure 16.1.** COVID-19 diagnostic tests per 100,000 people on November 15, 2021

**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% |

Percent of the population having received at least one dose (17.1) and fully vaccinated against SARS-CoV-2 (17.2) by November 15, 2021

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

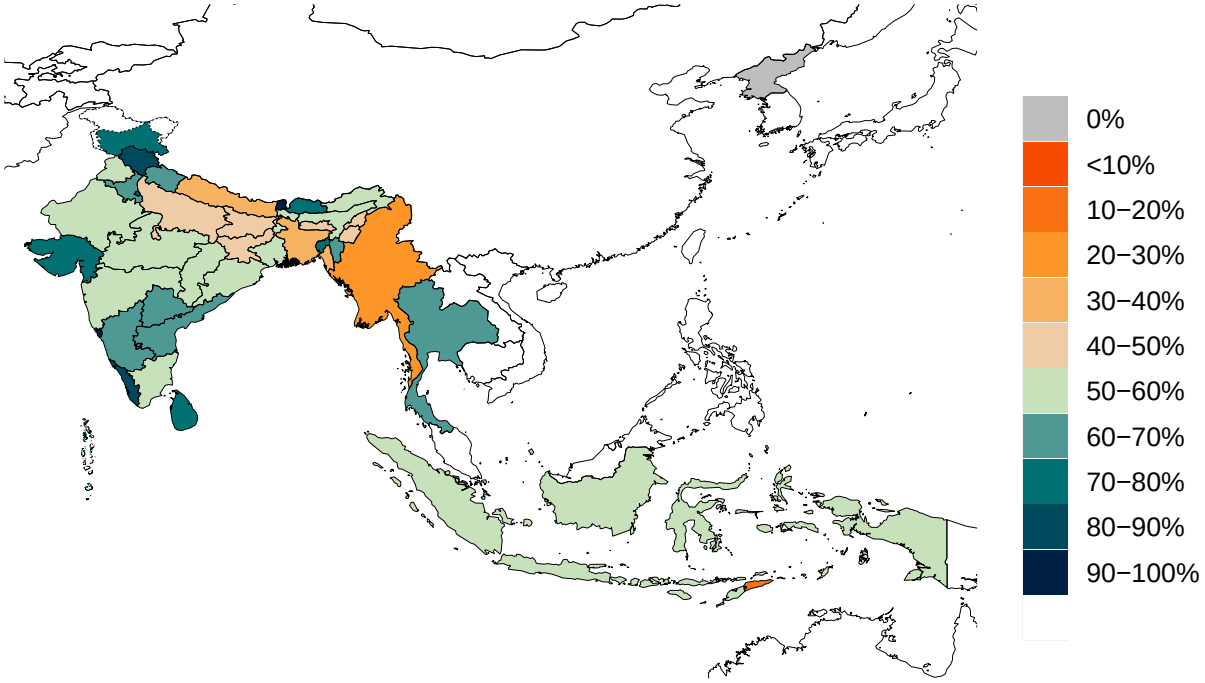



**Figure 17.2 Percent of the population fully vaccinated against SARS-CoV-2**

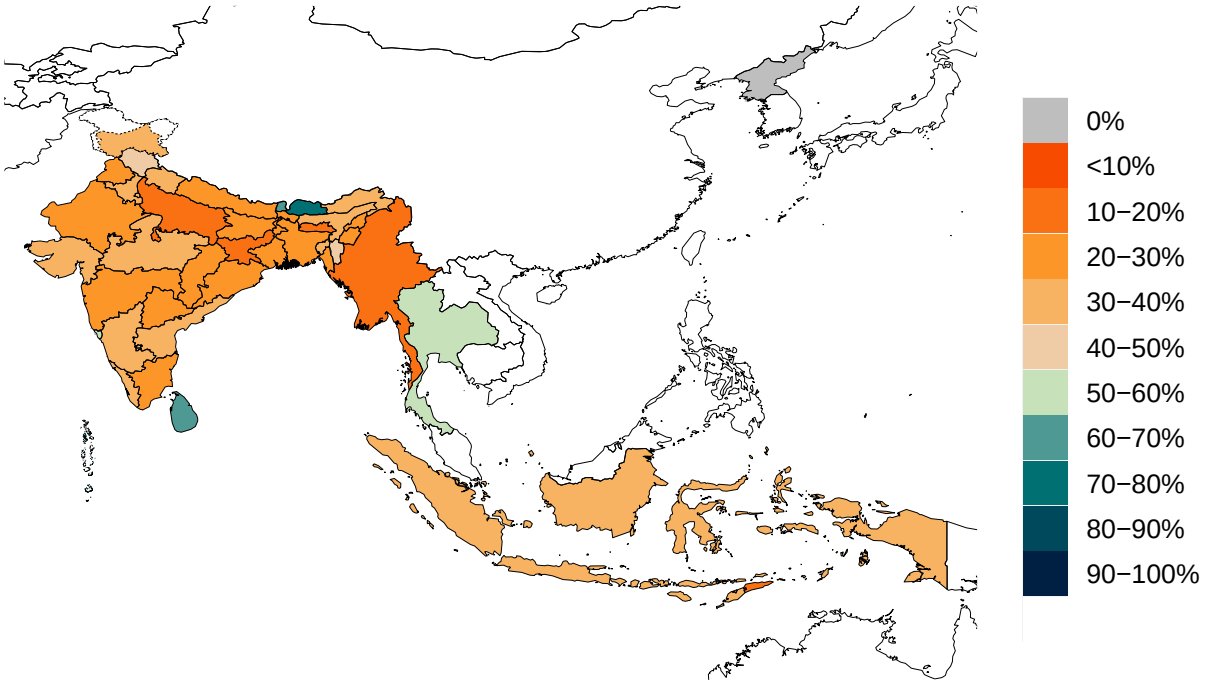


**Figure 20.1.** Percent of people who receive at least one dose of a COVID-19 vaccine and those who are fully vaccinated

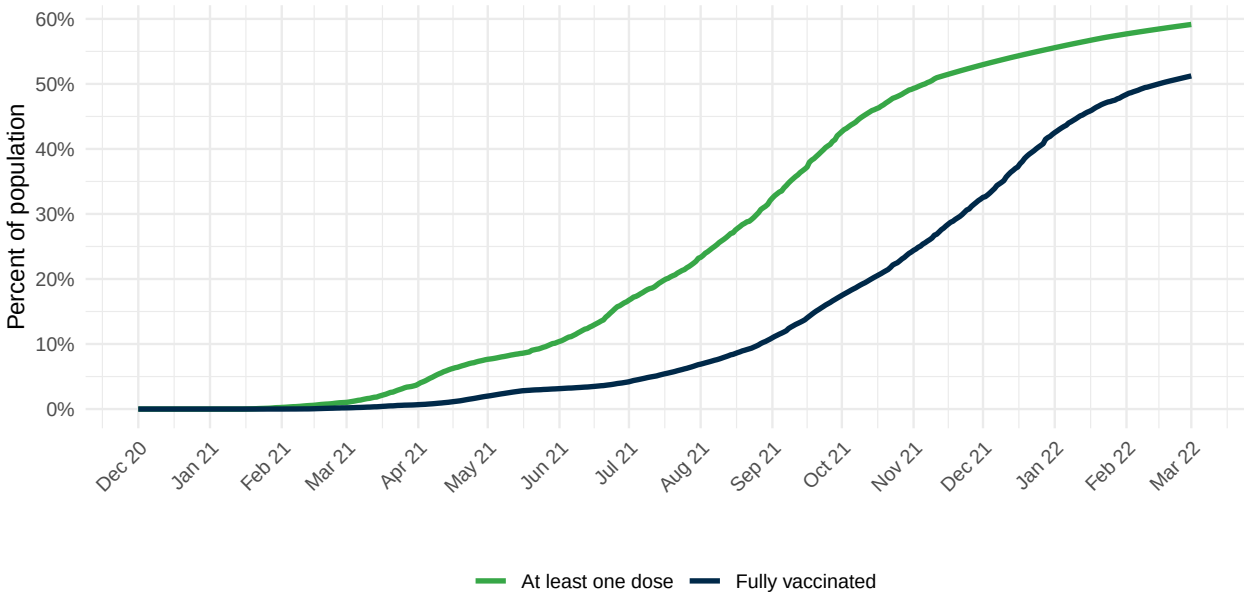
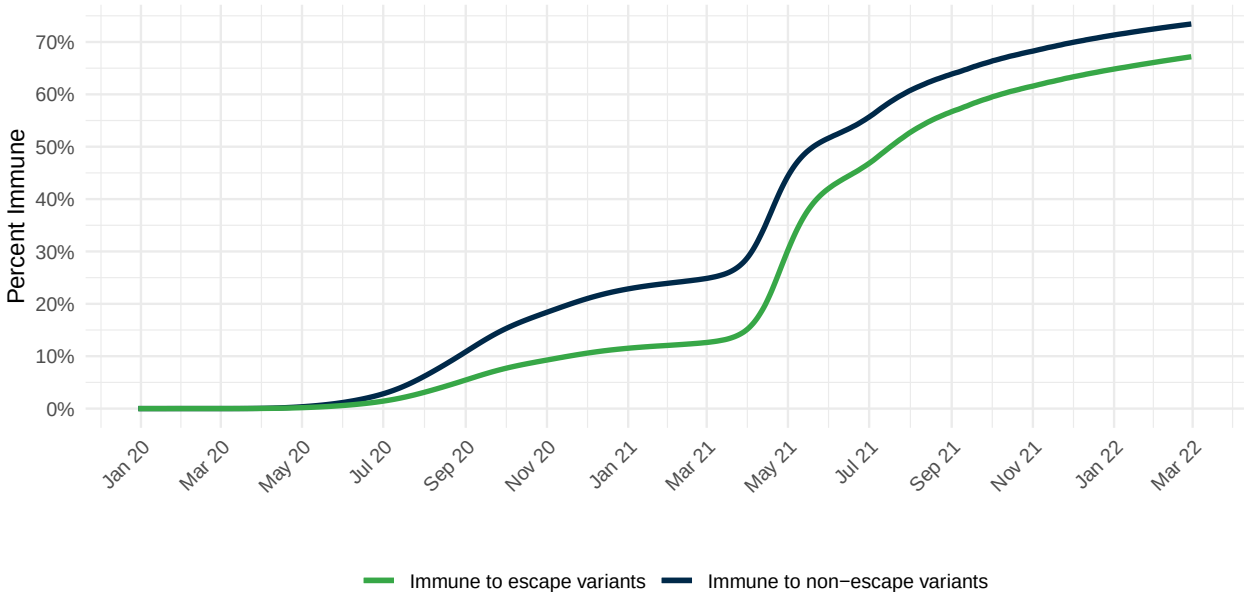



**Figure 21.1.** Percentage of people who are immune to non-escape variants and the percentage of people who are immune to escape variants



## 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.

Daily COVID-19 deaths until March 01, 2022 for three scenarios

**Figure 22.1 Reported daily COVID-19 deaths per 100,000**

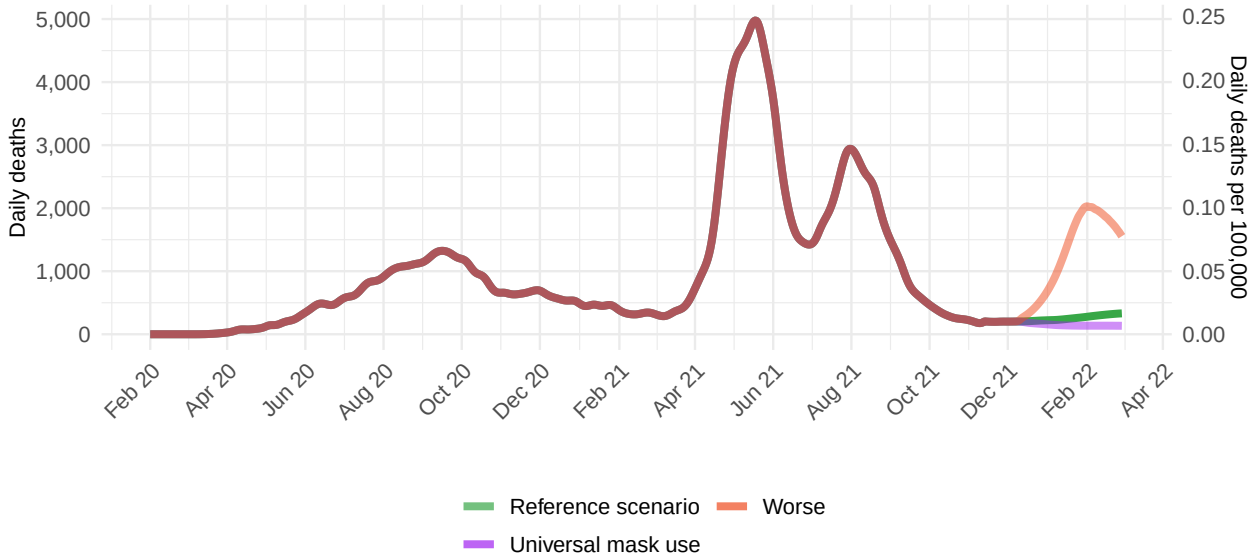



**Figure 22.2 Total daily COVID-19 deaths per 100,000**

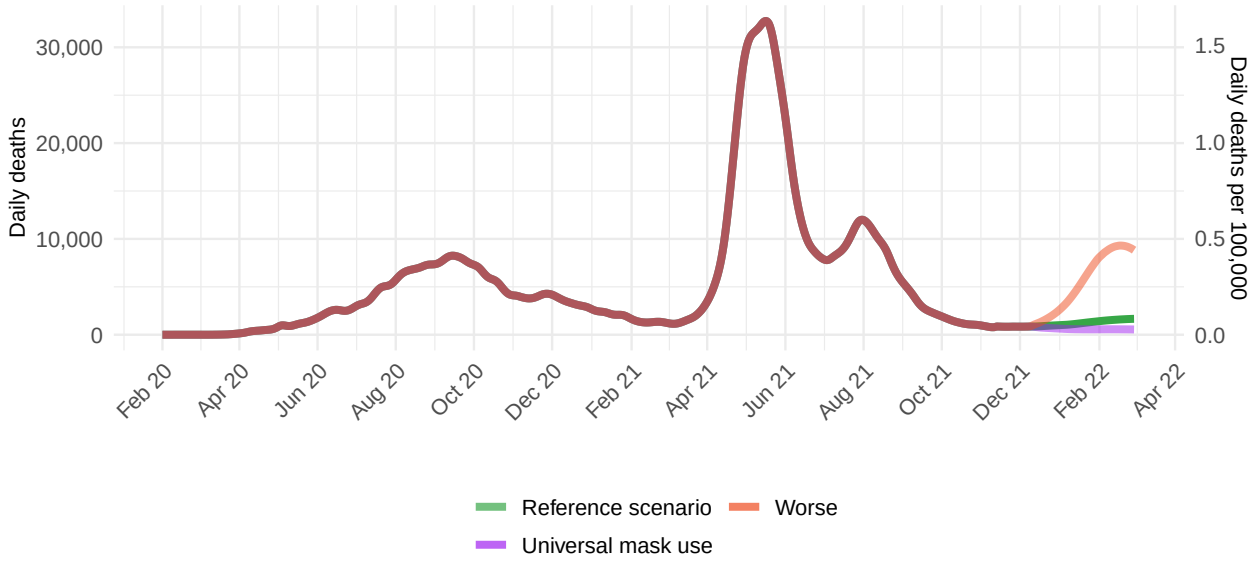


**Figure 22.3.** Daily COVID-19 infections until March 01, 2022 for three scenarios

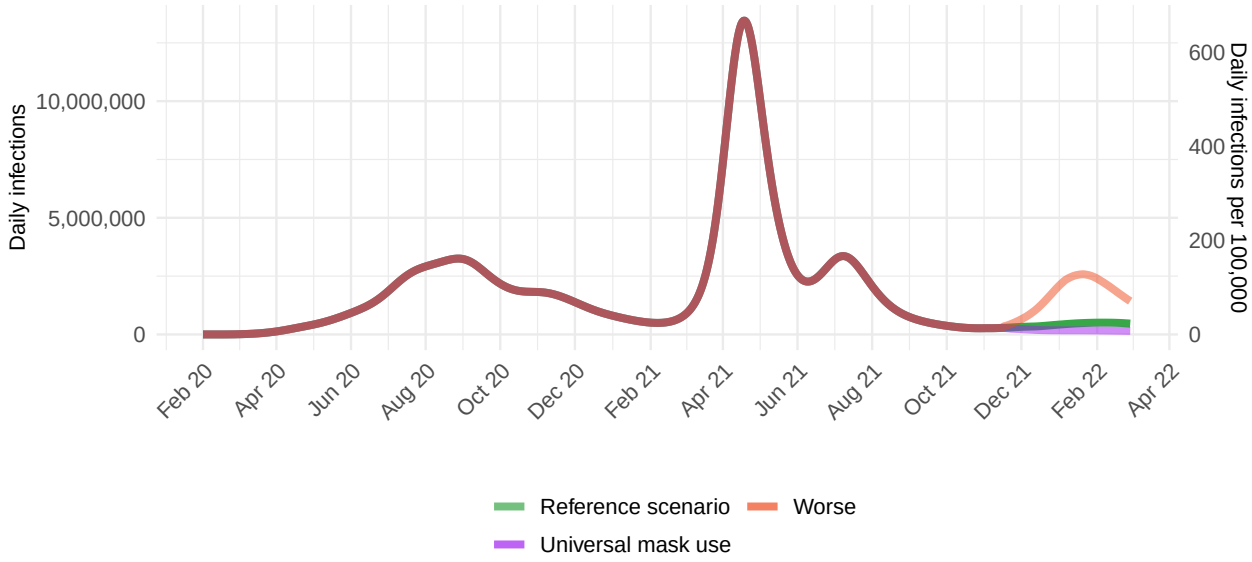



**Figure 22.4.** Daily COVID-19 reported cases until March 01, 2022 for three scenarios

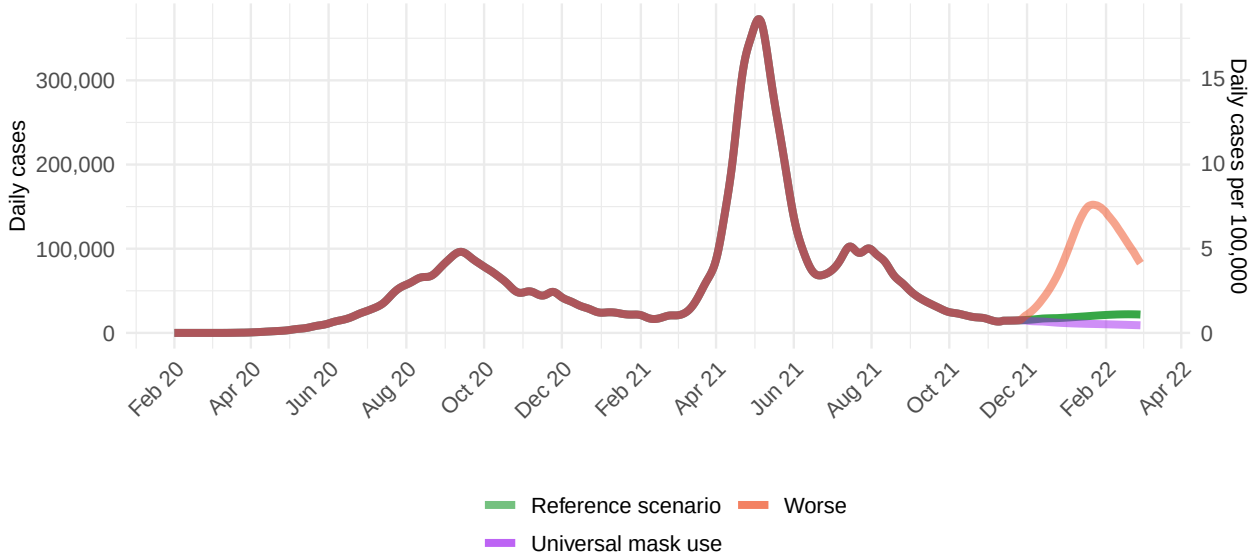


**Figure 22.5.** Daily COVID-19 hospital census until March 01, 2022 for three scenarios

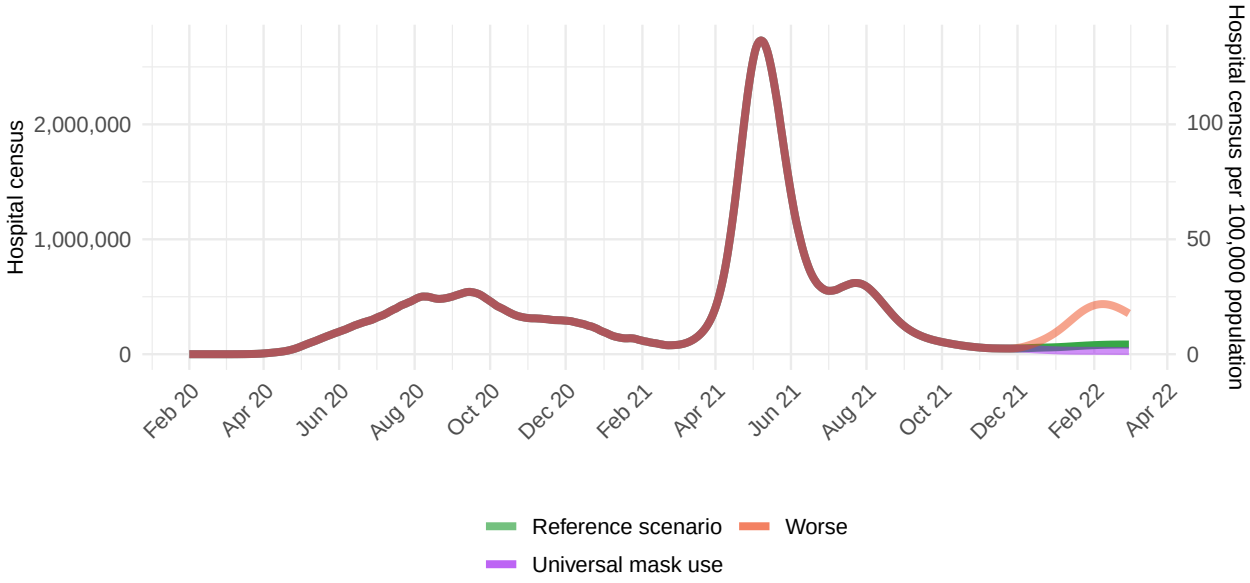


**Figure 23.1.** Comparison of reference model projections with other COVID modeling groups. For this comparison, we are including projections of daily COVID-19 deaths from other modeling groups when available, last model update in brackets: Delphi from the Massachusetts Institute of Technology (Delphi) [November 17, 2021], Imperial College London (Imperial) [November 3, 2021], the SI-KJalpha model from the University of Southern California (SIKJalpha) [November 17, 2021]. Daily deaths from other modeling groups are smoothed to remove inconsistencies with rounding. Regional values are aggregates from available locations in that region.

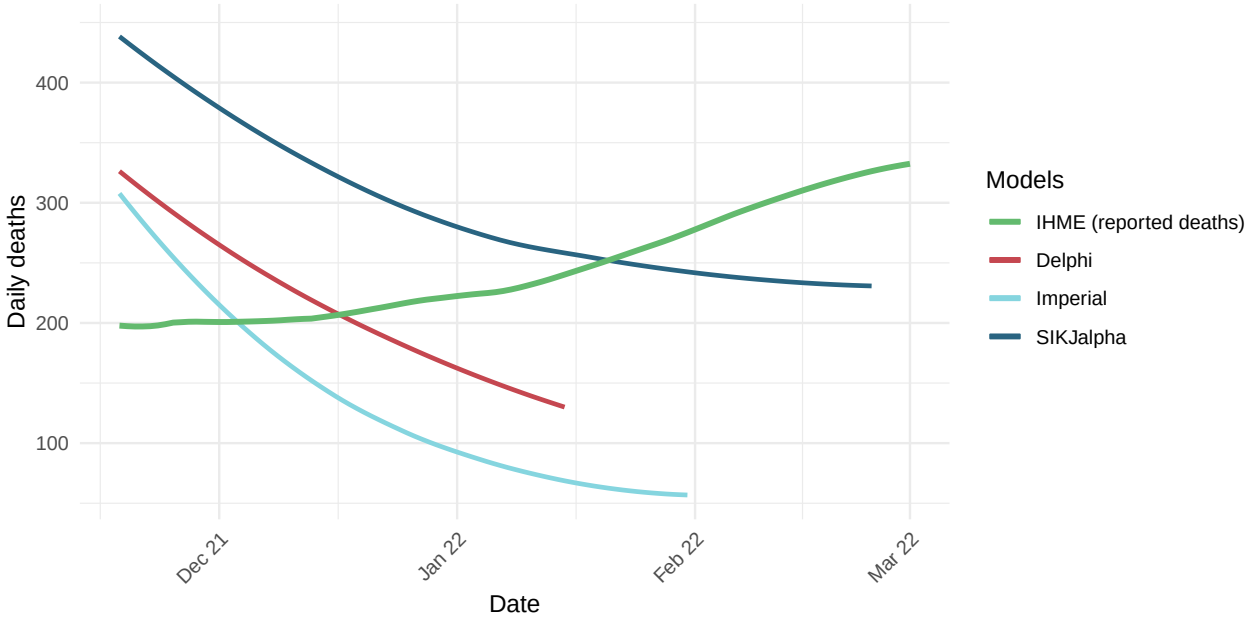


**Figure 24.1.** The estimated inpatient hospital usage is shown over time. The percent of hospital beds occupied by COVID-19 patients is color-coded based on observed quantiles of the maximum proportion of beds occupied by COVID-19 patients. Less than 5% is considered *low stress*, 5-9% is considered *moderate stress*, 10-19% is considered *high stress*, and 20% or greater is considered *extreme stress*.

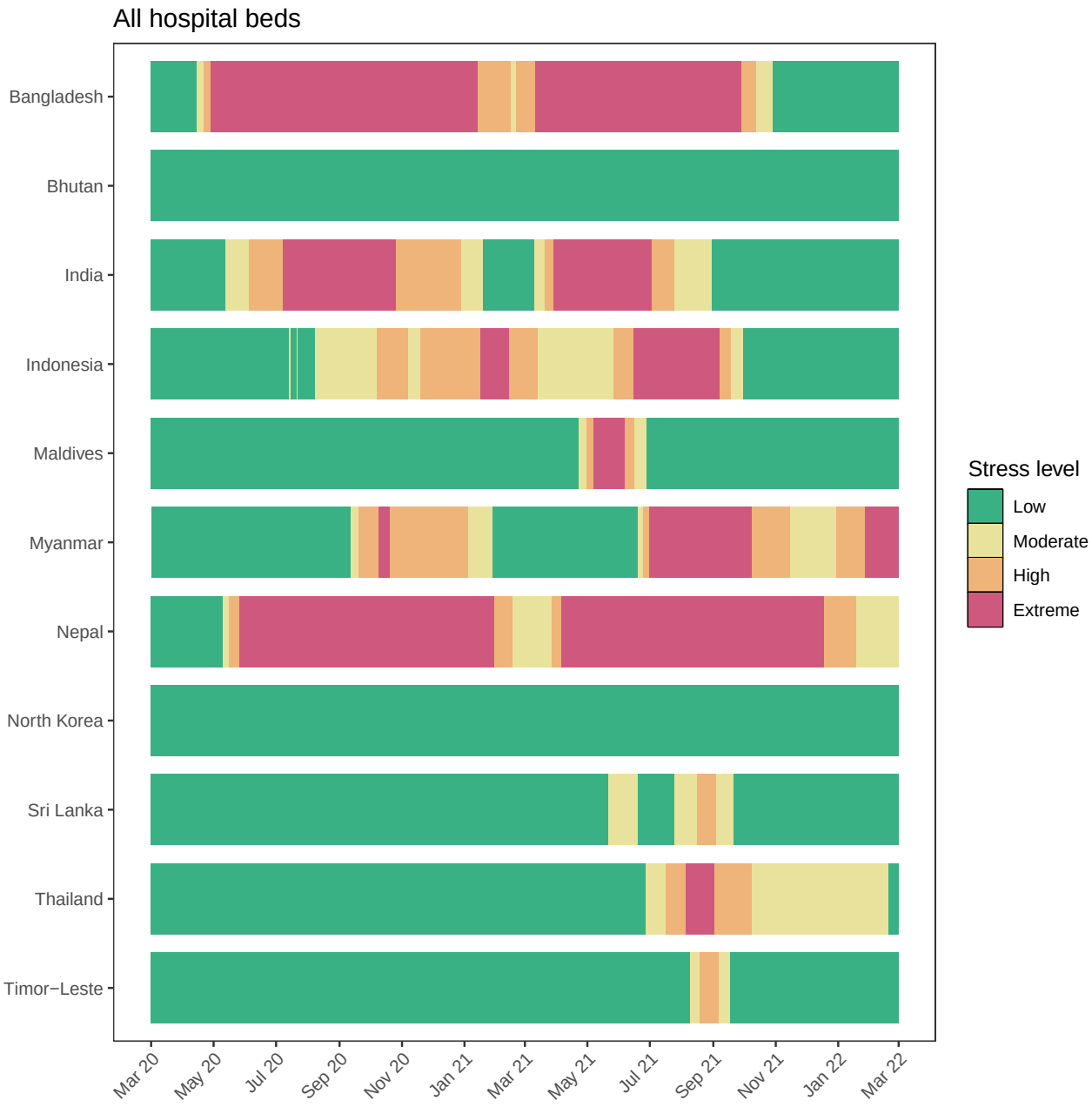
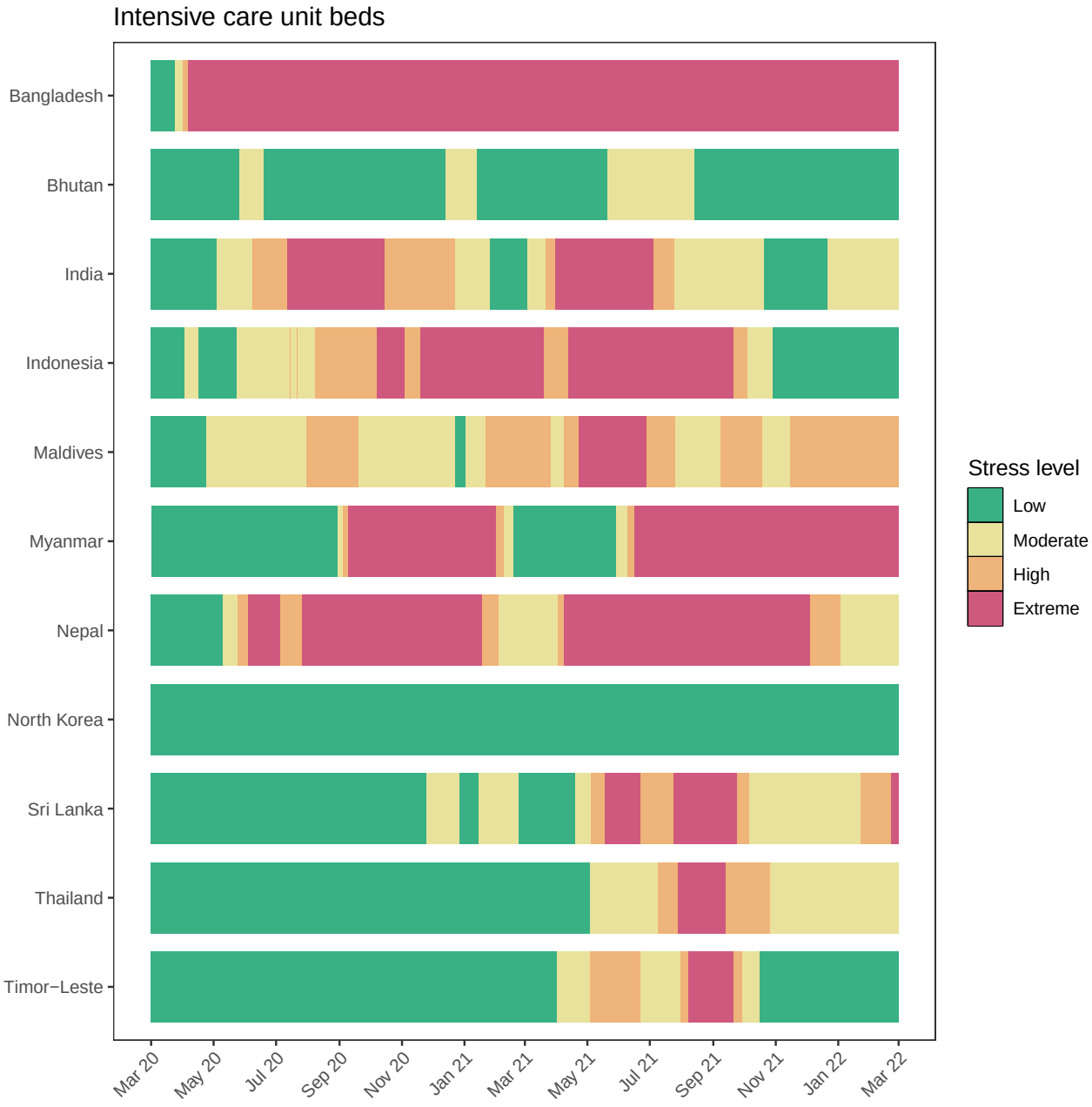


**Figure 25.1.** The estimated intensive care unit (ICU) usage is shown over time. The percent of ICU beds occupied by COVID-19 patients is color-coded based on observed quantiles of the maximum proportion of ICU beds occupied by COVID-19 patients. Less than 10% is considered *low stress*, 10-29% is 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.

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