COVID-19 Results Briefing

Indonesia

February 4, 2022

This document contains summary information on the latest projections from the IHME model on COVID-19 in Indonesia. The model was run on February 4, 2022, with data through January 31, 2022.

Current situation

The Omicron wave continues to spread across Indonesia, with infections and reported cases increasing. We have extended our projections to June 1. Our models project that infections will peak on February 9, reported cases on February 21, and reported death on March 7. However, we are projecting that the daily deaths peaks will be lower than the death peaks observed in 2021. The intense pressure on hospitals should also have largely abated by early March.

In other countries, particularly in Europe, two patterns have emerged that may have implications for the speed of the Omicron wave decline in the US. In countries such as England or Greece, the decline in cases has leveled off. The most likely explanation for this is rapid epidemics at the local level, but differential timing of epidemics in different regions of these countries. The second pattern is the spread of the Omicron sub-variant BA2 in Denmark with an associated longer epidemic wave. Given available evidence, the potential explanations of the BA2 secondary wave are enhanced transmissibility, combined with some combination of greater immune escape from infection with past variants and/or immune escape with BA1 infection. The Danish patterns have not emerged in other settings, even as BA2 continues to spread, nor has it been associated with any reported increase in severity. Further spread of BA2 could lead to a longer Omicron wave but appears unlikely to change the basic trajectory.

In this release we increased our risk of death from an Omicron infection relative to a Delta infection and the relative risk of hospitalization. We also increased our estimate of the symptomatic fraction of Omicron infections from 10–20% to 15–25%. This results in a higher infection-detection rate in the Omicron wave. These adjustments both better reflect our current understanding of the fraction of the population susceptible to an Omicron infection in the last three months and increase the coherence of our case-based, death-based, and admission-based estimates of transmission intensity.

In many countries, we are seeing a large number of admissions to hospitals of patients with COVID-19, but COVID-19 was not the reason for their visit to the hospital. These are considered "incidental admissions." Therefore, many of the reported COVID-19 deaths are also "incidentals." Few countries are reporting these metrics to be able to distinguish incidentals from non-incidentals. This pattern was present before Omicron, but the fast spread of Omicron and the large percentage of asymptomatic infections is leading to large numbers of hospitalizations and death from breakthrough infections, even when they are mild.

Looking past the Omicron wave, the strategy to manage the epidemic needs to address three issues. First, we should prepare for the emergence of new variants with enough immune escape to lead to a new surge. This includes maintaining surveillance, expanding production and access to antivirals, continuing to promote vaccination among the hesitant, exploring the development of vaccines that can block transmission (as opposed to our current vaccines that primarily reduce severe disease and death), and developing clear messaging for the vulnerable (older and those with comorbidities) to protect themselves through masking and social distancing if a severe variant emerges. Second, as the Omicron wave subsides, accelerate the transition for schools, workplaces, and communities to a more normal life. Nimble responses to future waves of the pandemic will benefit from not prolonging the transition out of the current phase. Third, there will very likely be a winter surge of Omicron or some other variant due to waning immunity and winter seasonality. Hospitals will likely face the double pressure of influenza and winter COVID-19. Planning for how hospitals will manage this increased demand in terms of staff, physical infrastructure, and financing should begin well in advance of the winter.

- Daily infections in the last week increased to 2,879,300 per day on average compared to 1,209,500 the week before (Figure 1.1). Daily hospital census in the last week (through January 31) increased to 5,000 per day on average compared to 1,600 the week before.
- Daily reported cases in the last week increased to 8,700 per day on average compared to 2,400 the week before (Figure 2.1).
- Reported deaths due to COVID-19 in the last week increased to 11 per day on average compared to seven the week before (Figure 3.1).
- Total deaths due to COVID-19 in the last week increased to 37 per day on average compared to 24 the week before (Figure 3.1). This makes COVID-19 the number 21 cause of death in Indonesia this week (Table 1). Estimated total daily deaths due to COVID-19 in the past week were 3.3 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 rates of total COVID-19 deaths greater than 4 per million (Figure 4.2).
- We estimate that 58% of people in Indonesia have been infected at least once as of January 31 (Figure 6.1). Effective R, computed using cases, hospitalizations, and deaths, is greater than 1 in seven countries and three subnational locations in the region. Effective R in Indonesia was 2.7 on January 20 (Figure 7.1).
- The infection-detection rate in Indonesia was close to 2% on January 31 (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-Figure 9.5). We estimate that the Alpha variant is circulating in five countries, that the Beta variant is circulating in two countries, that the Delta variant is circulating in eight countries, that the Gamma variant is circulating in four countries and that the Omicron variant is circulating in eight countries.

Trends in drivers of transmission

- Mobility last week was 3% lower than the pre-COVID-19 baseline (Figure 11.1). Mobility was lower than 30% of baseline in one country and no subnational locations in the region.
- As of January 31, in the COVID-19 Trends and Impact Survey, 67% of people self-report that they always wore a mask when leaving their home compared to 67% last week (Figure 13.1).
- There were 42 diagnostic tests per 100,000 people on January 31 (Figure 15.1).
- As of January 31, five countries and no subnationals have reached 70% or more of the population who have received at least one vaccine dose, and two countries and no subnationals have reached 70% or more of the population who are fully vaccinated (Figure 17.1). 71% of people in Indonesia have received at least one vaccine dose and 50% are fully vaccinated.
- In Indonesia, 86.8% 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 0.2 percentage points from last week. The proportion of the population who are open to receiving a COVID-19 vaccine ranges from 66% in Timor-Leste to 100% in Bhutan (Figure 19.1).
- In our current reference scenario, we expect that 202.8 million people will be vaccinated with at least one dose by June 1 (Figure 20.1). We expect that 71% of the population will be fully vaccinated by June 1.

Projections

Infections

- Daily estimated infections in the **reference scenario**, which represents what we think is most likely to happen, will rise to 5,444,940 by February 9, 2022 (Figure 21.1).
- Daily estimated infections in the **80% mask coverage scenario** will rise to 4,884,940 by February 8, 2022 (Figure 21.1).
- Daily estimated infections in the **third dose scenario** will rise to 5,290,810 by February 9, 2022 (Figure 21.1).

Cases

- Daily cases in the **reference scenario** will rise to 80,380 by February 20, 2022 (Figure 21.2).
- Daily cases in the **80% mask coverage scenario** will rise to 72,930 by February 19, 2022 (Figure 21.2).
- Daily cases in the **third dose scenario** will rise to 77,490 by February 20, 2022 (Figure 21.2).

Hospitalizations

- Daily hospital census in the **reference scenario** will rise to 75,540 by February 24, 2022 (Figure 21.3).
- Daily hospital census in the **80% mask coverage scenario** will rise to 68,460 by February 23, 2022 (Figure 21.3).
- Daily hospital census in the **third dose scenario** will rise to 71,420 by February 24, 2022 (Figure 21.3).

Deaths

- In our **reference scenario**, our model projects 152,000 cumulative reported deaths due to COVID-19 on June 1. This represents 7,000 additional deaths from January 31 to June 1. Daily reported COVID-19 deaths in the **reference scenario** will rise to 220 by March 7, 2022 (Figure 21.4).
- Under our **reference scenario**, our model projects 504,000 cumulative total deaths due to COVID-19 on June 1. This represents 24,000 additional deaths from January 31 to June 1 (Figure 24.2).
- In our **80% mask coverage scenario**, our model projects 151,000 cumulative reported deaths due to COVID-19 on June 1. This represents 7,000 additional deaths from January 31 to June 1. Daily reported COVID-19 deaths in the **80% mask coverage scenario** will rise to 200 by March 6, 2022 (Figure 21.4).
- In our **third dose scenario**, our model projects 151,000 cumulative reported deaths due to COVID-19 on June 1. This represents 7,000 additional deaths from January 31 to June 1. Daily reported COVID-19 deaths in the **third dose scenario** will rise to 200 by March 7, 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 June 1, eight countries will have high or extreme stress on hospital beds (Figure 23.1). At some point from January through June 1, eight countries will have high or extreme stress on intensive care unit (ICU) capacity (Figure 24.1).

Model updates

We initially estimated infection-fatality rate (IFR) and infection-hospitalization rate (IHR) of the Omicron variant as reductions relative to the Delta variant based on early evidence from South Africa.[1] In previous weeks, we said the risk of death from an Omicron infection was 0.011 U[0.006, 0.017] relative to a Delta infection, and the relative risk of hospitalization was 0.076 U[0.038, 0.114]. Now that many other locations have peaked and started to decline, we have revised these estimates up to 0.023 U[0.017, 0.028] for the relative risk of death and 0.114 U[0.086, 0.143] for the relative risk of hospitalization. Additionally, we have increased our estimate of the symptomatic fraction of Omicron infections from 10–20% to 15–25%. This results in a higher infection-detection rate (IDR) in the Omicron wave. These adjustments both better reflect our current understanding of the fraction of the population susceptible to an Omicron infection in the last three months, and increase the coherence of our case-based, death-based, and admission-based estimates of transmission intensity.

We also increased the sensitivity of our model to more recent trends in transmission in locations. The model uses deviation of observed transmission from that expected based on covariates and model parameters to calibrate forecasts − lower than expected transmission would decrease forecasted transmission, and greater than expected would increase it. We previously evaluated this over the window of 7 days in the past to 42 days, but in order to be more sensitive to the speed at which Omicron invades, we have adjusted that window to be 2 to 28 days. We also previously made the model more sensitive to underestimates of transmission intensity than to overestimates of transmission intensity. This asymmetric sensitivity matched the Delta-driven period of the pandemic well but produces unrealistic second infection waves in the current Omicron-driven phase. As a result, we have changed this sensitivity to make the model equally responsive to overestimates of transmission intensity as it is to underestimates.

[1]Garrett N, Tapley A, Andriesen J, et al. High Rate of Asymptomatic Carriage Associated with Variant Strain Omicron. medRxiv 2021.12.20.21268130; doi: https://doi.org/10.1101/2021.12.20.21268130.

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

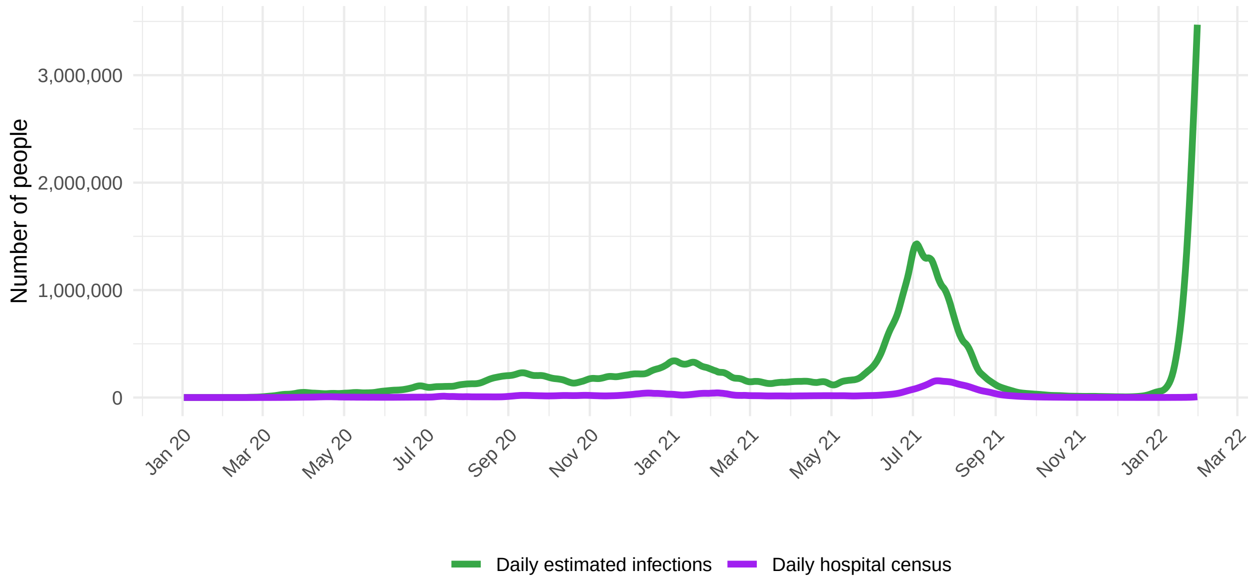


Figure 2.1. Reported daily COVID-19 cases, moving average

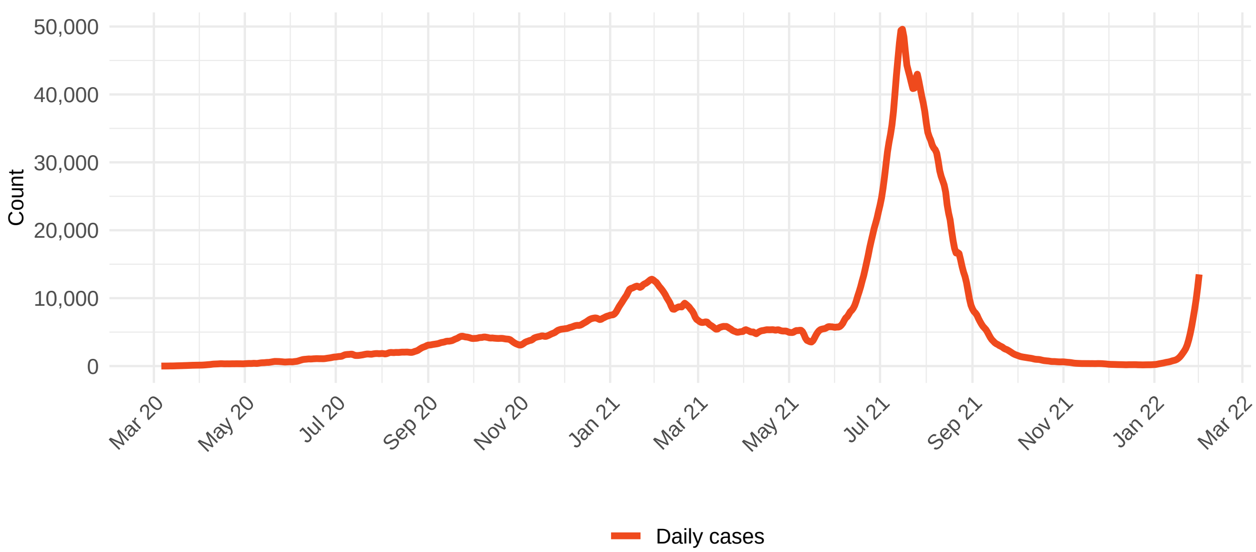
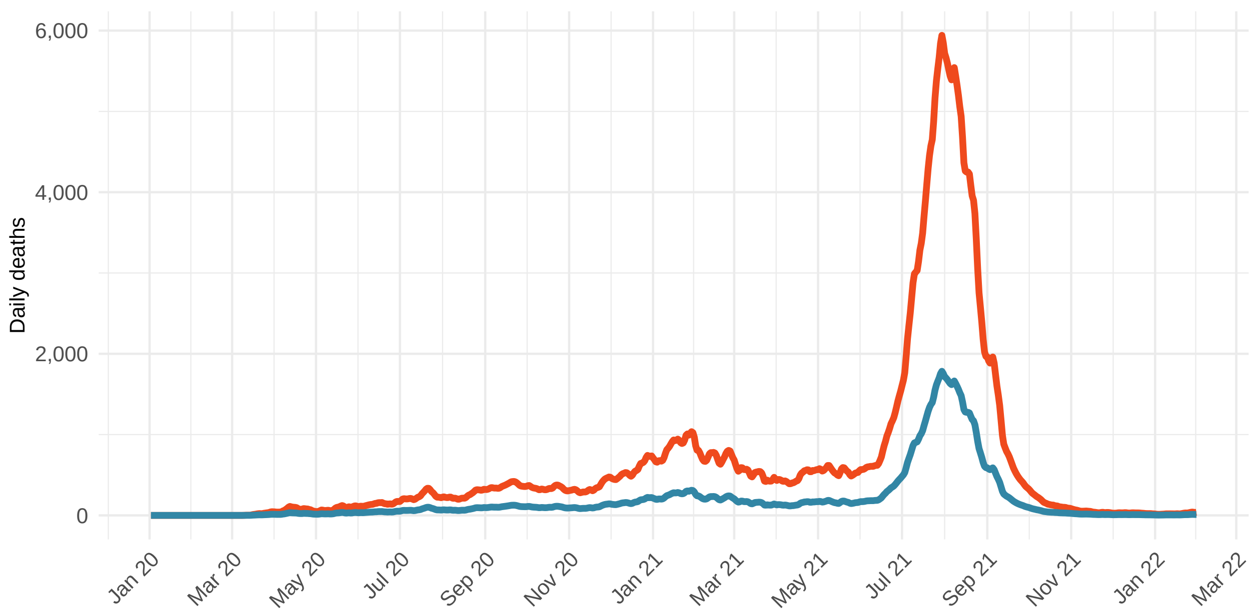


Table 1. Ranking of total deaths due to COVID-19 among the leading causes of mortality this week, assuming uniform deaths of non-COVID causes throughout the year

Cause name	Weekly deaths	Ranking
Stroke	6,372	1
Ischemic heart disease	4,718	2
Diabetes mellitus	2,045	3
Cirrhosis and other chronic liver diseases	1,705	4
Tuberculosis	1,472	5
Chronic obstructive pulmonary disease	1,379	6
Diarrheal diseases	1,146	7
Hypertensive heart disease	973	8
Tracheal, bronchus, and lung cancer	951	9
Lower respiratory infections	852	10
COVID-19	259	21

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 31, 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 31, 2022

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

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

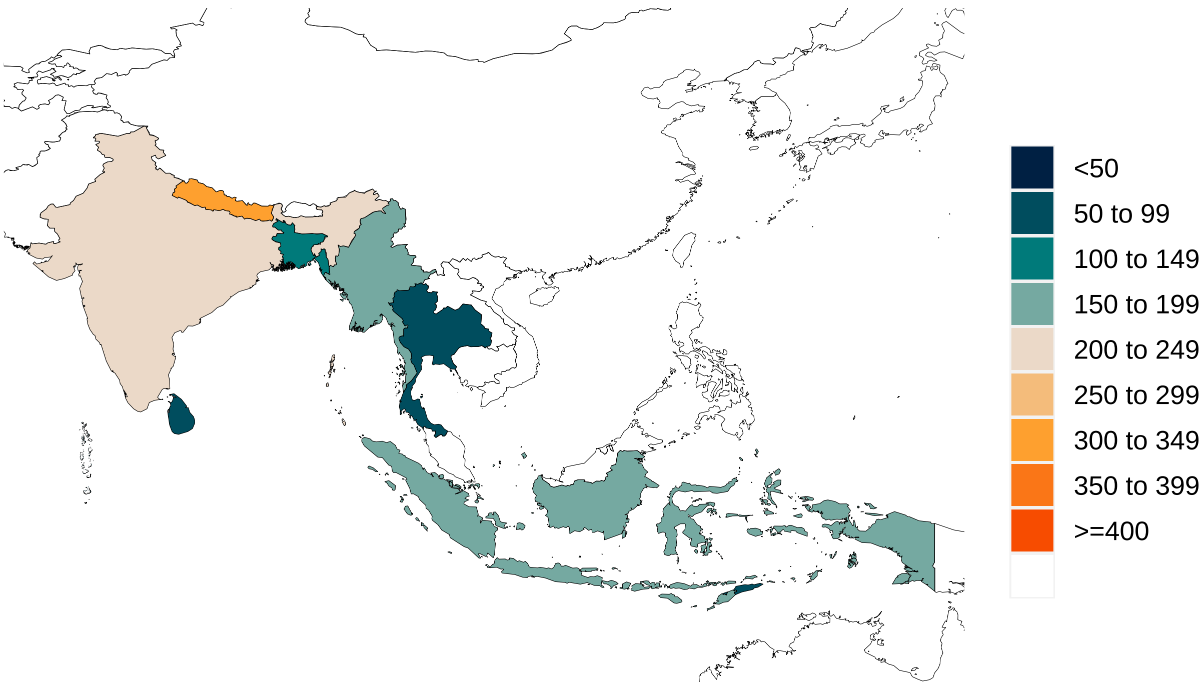


Figure 6.1. Estimated percent of the population infected with COVID-19 on January 31, 2022

Figure 7.1. Mean effective R on January 20, 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.

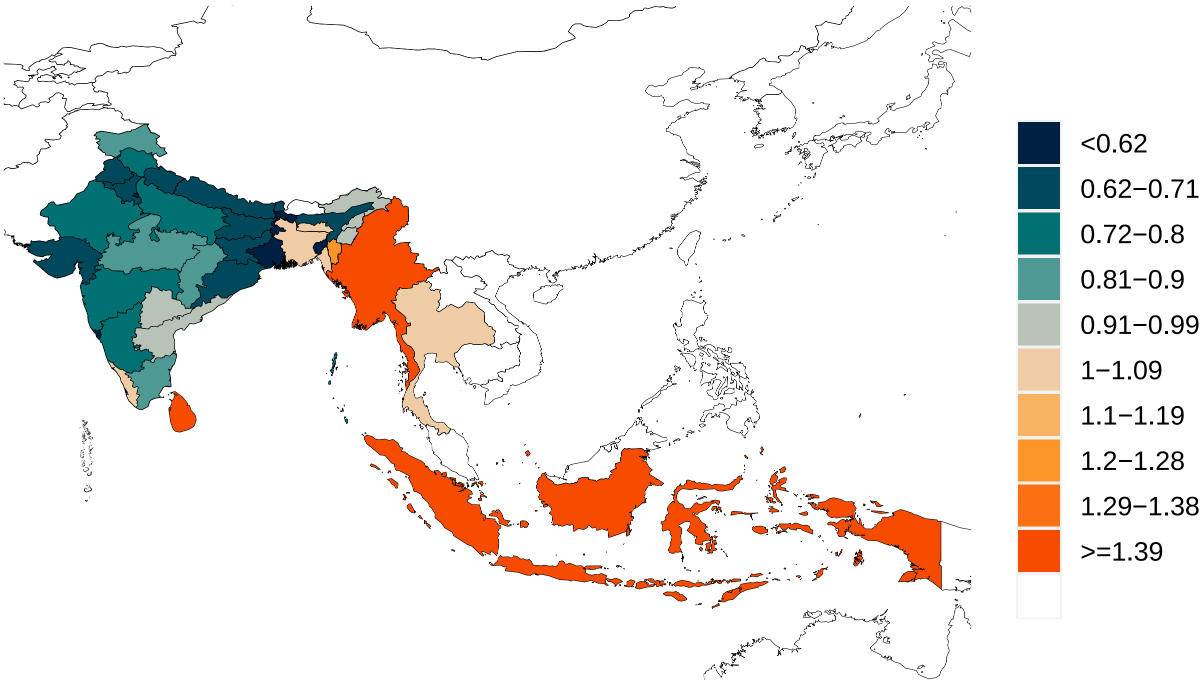
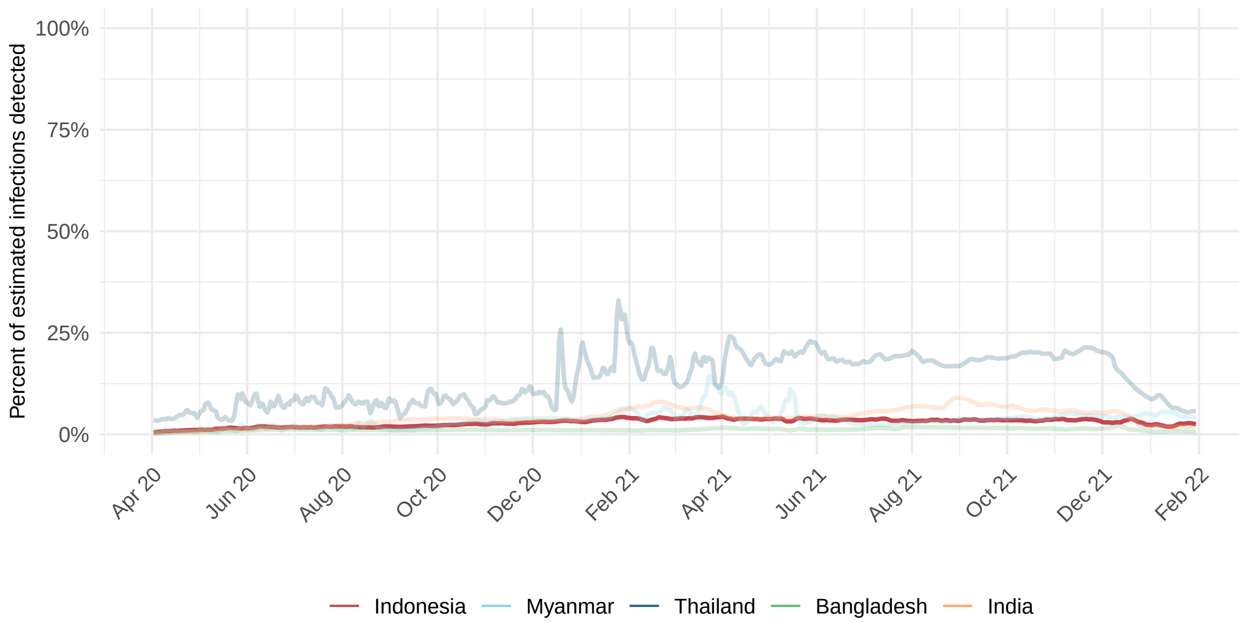


Figure 8.1. Percent of estimated COVID-19 infections detected. This is estimated as the ratio of reported daily COVID-19 cases to estimated daily COVID-19 infections based on the SEIR disease transmission model. Due to measurement errors in cases and testing rates, the infection-detection rate can exceed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



Estimated percent of circulating SARS-CoV-2 for primary variant families on January 31, 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

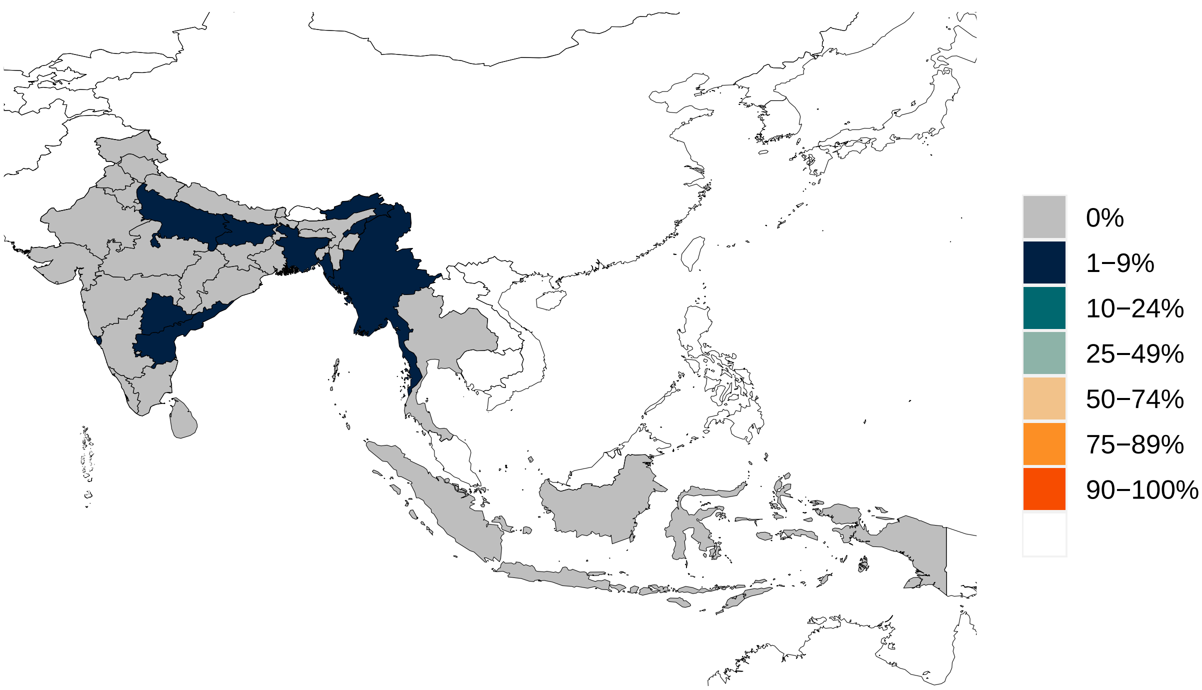


Figure 9.3 Estimated percent of new infections that are Delta variant

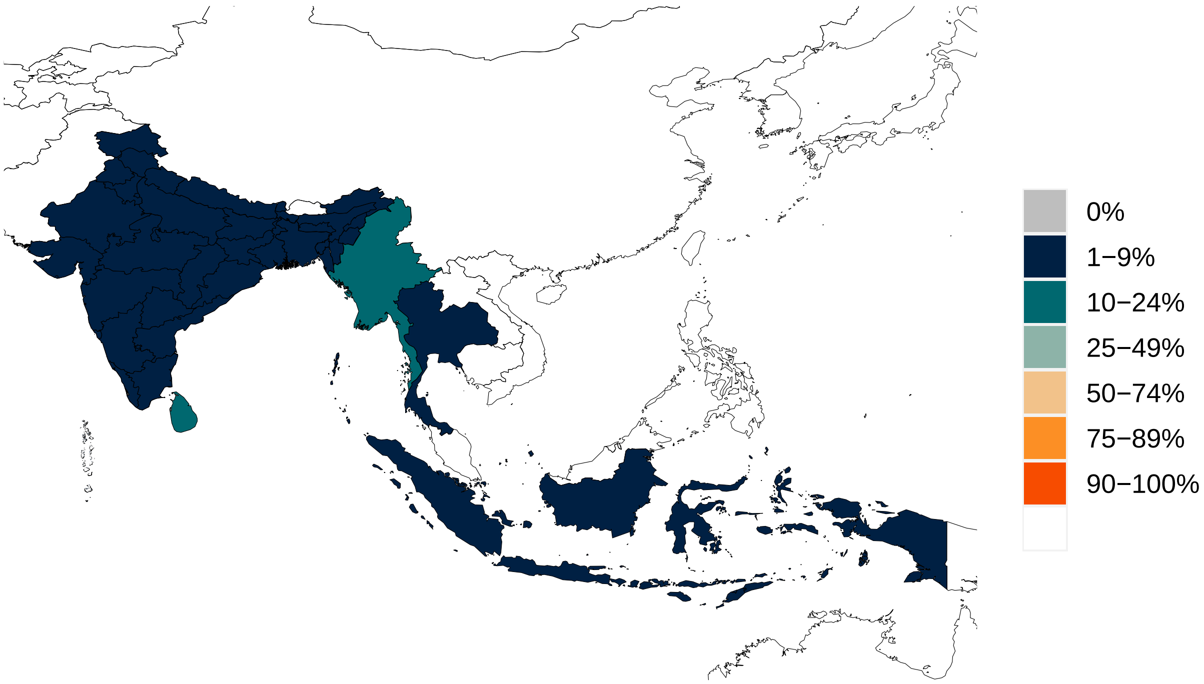


Figure 9.4 Estimated percent of new infections that are Gamma variant

Figure 9.5 Estimated percent of new infections that are Omicron variant

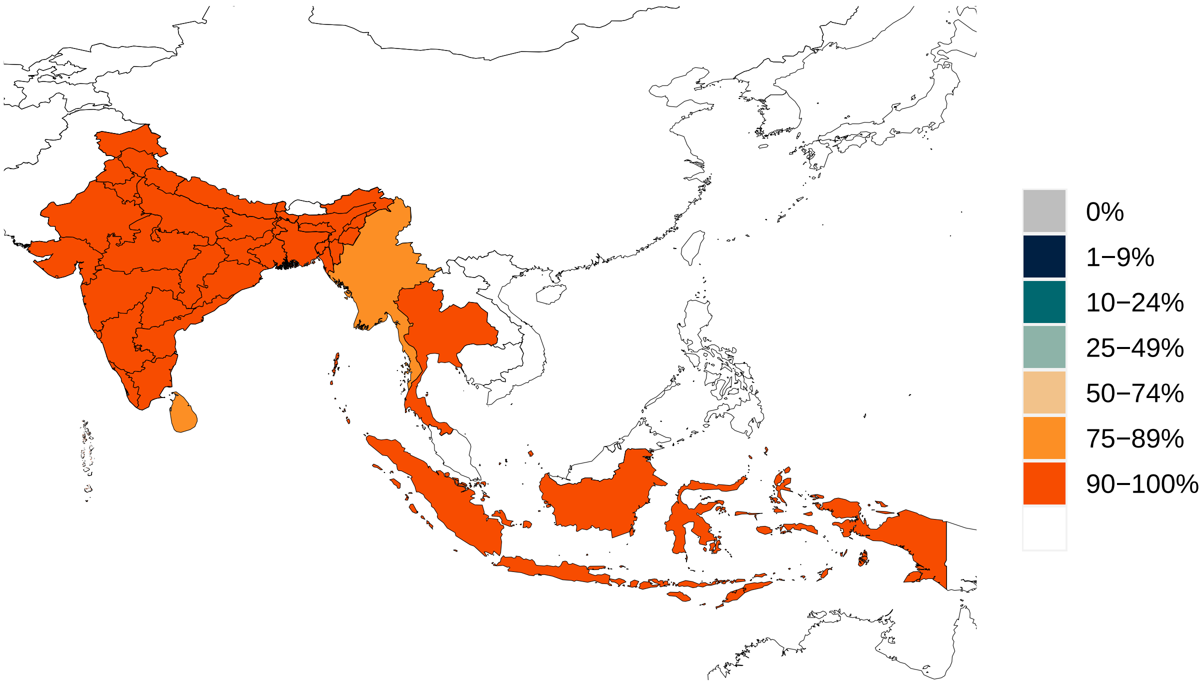
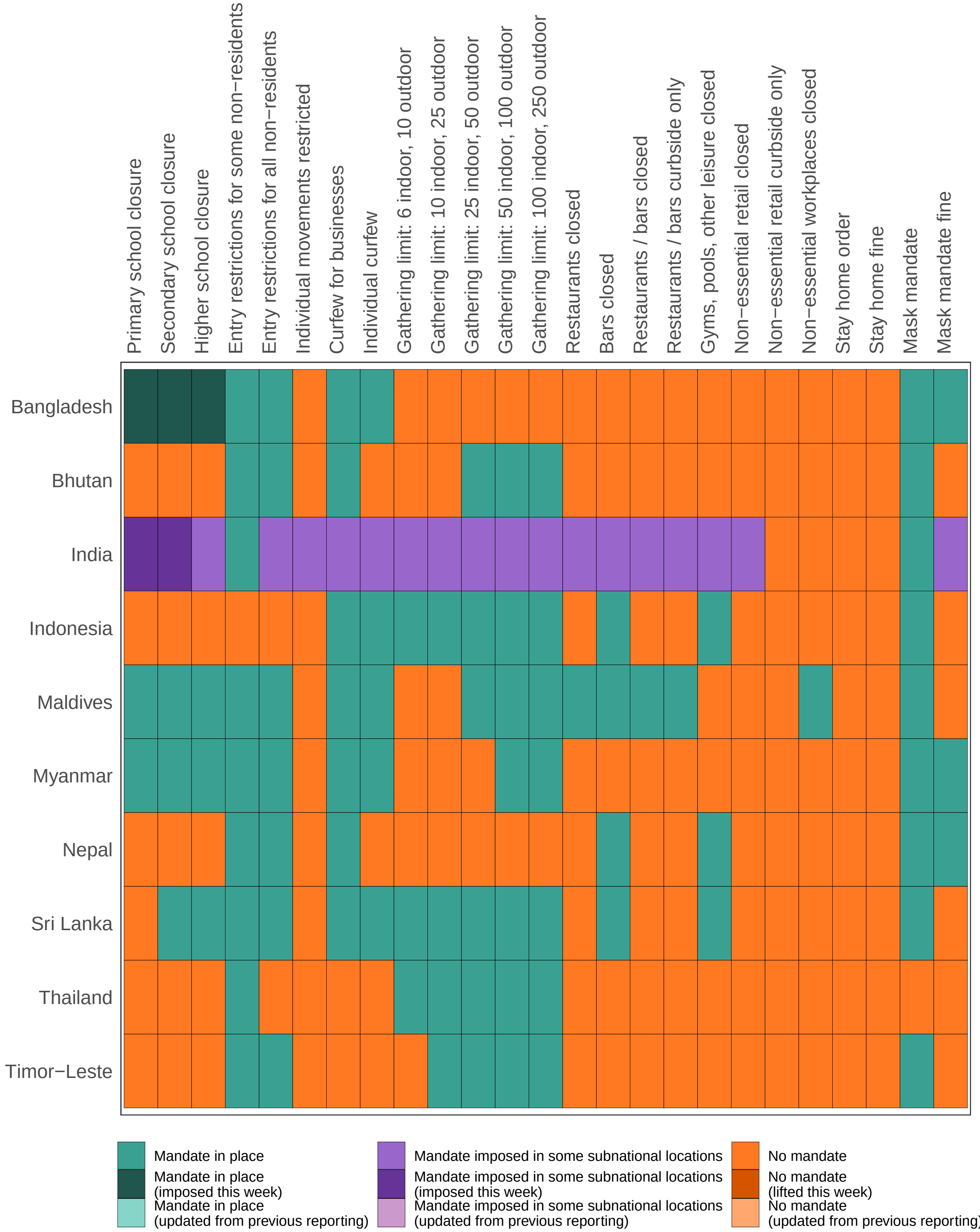


Figure 10.1. Infection-fatality rate on January 31, 2022. This is estimated as the ratio of COVID-19 deaths to estimated daily COVID-19 infections.

Critical drivers

Table 2. Current mandate implementation



*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

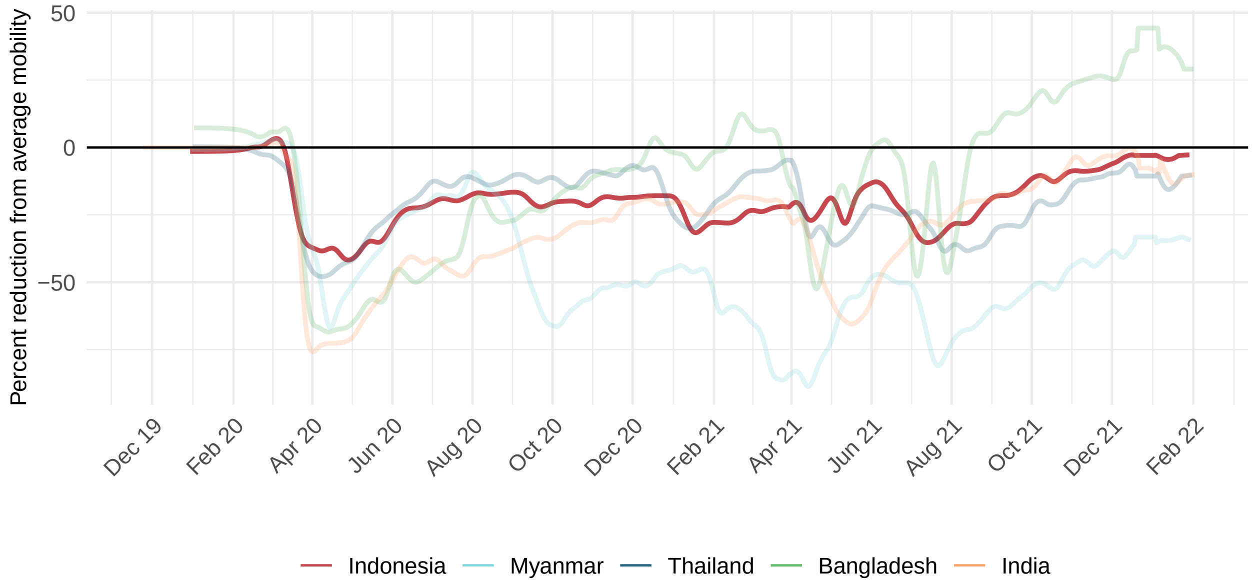


Figure 12.1. Mobility level as measured through smartphone app use, compared to January 2020 baseline (percent) on January 31, 2022

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

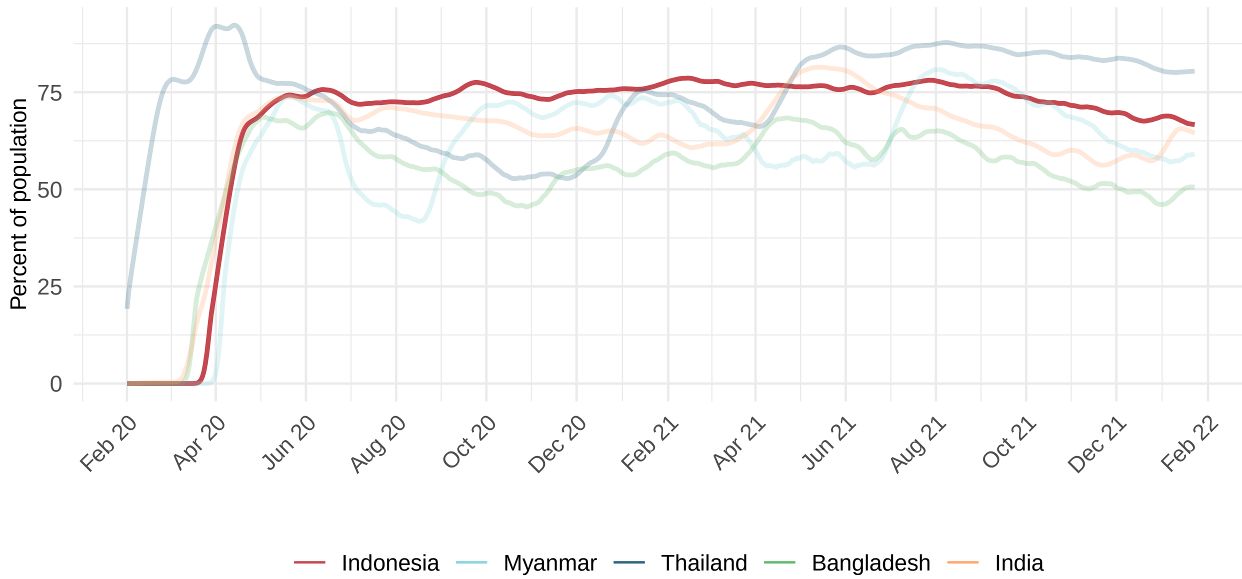


Figure 14.1. Proportion of the population reporting always wearing a mask when leaving home on January 31, 2022

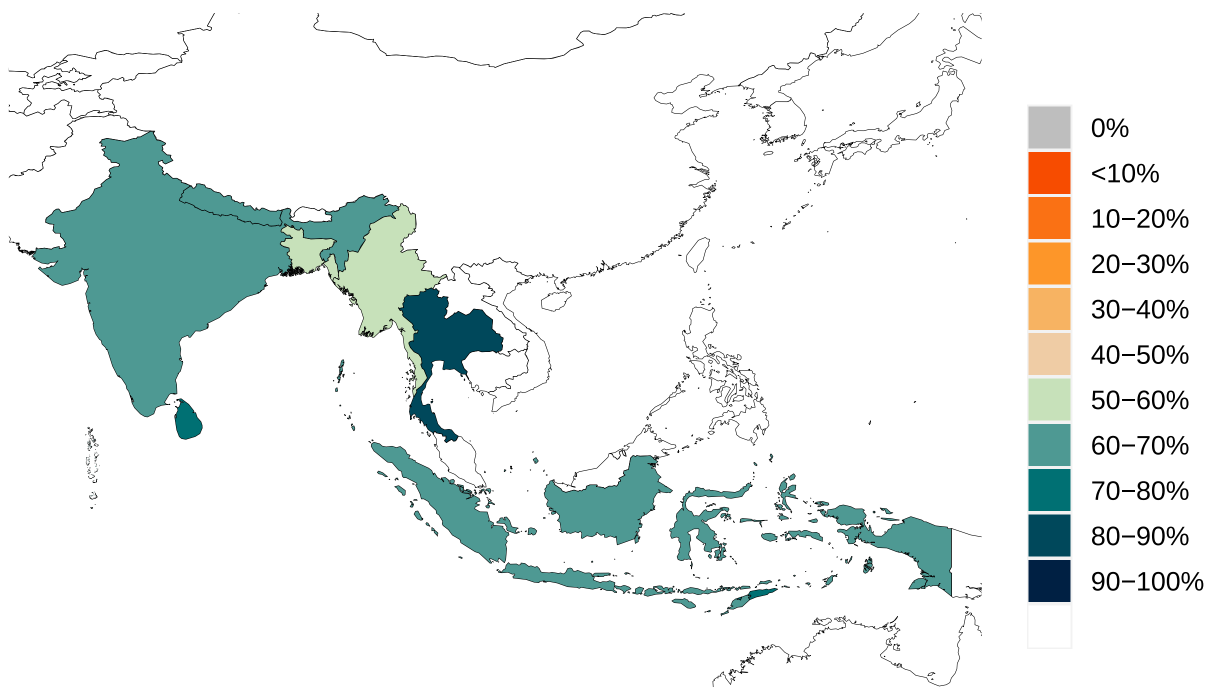


Figure 15.1. Trend in COVID-19 diagnostic tests per 100,000 people

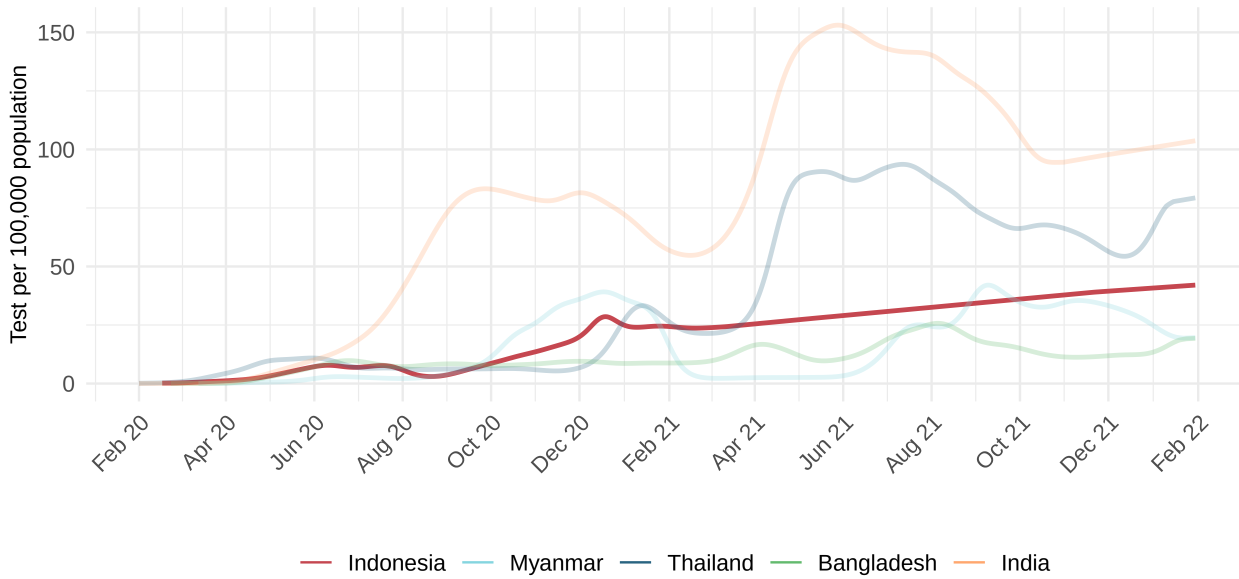


Figure 16.1. COVID-19 diagnostic tests per 100,000 people on January 31, 2022

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.

	Effectiveness at preventing											
	Ancestral		Alpha		Beta		Gamma		Delta		Omicron	
Vaccine	Severe disease	Infection	Severe disease	Infection	Severe disease	Infection	Severe disease	Infection	Severe disease	Infection	Severe disease	Infection
AstraZeneca	94%	63%	94%	63%	94%	69%	94%	69%	94%	69%	71%	36%
CanSino	66%	62%	66%	62%	64%	61%	64%	61%	64%	61%	48%	32%
CoronaVac	50%	47%	50%	47%	49%	46%	49%	46%	49%	46%	37%	24%
Covaxin	78%	73%	78%	73%	76%	72%	76%	72%	76%	72%	57%	38%
Johnson & Johnson	86%	72%	86%	72%	76%	64%	76%	64%	76%	64%	57%	33%
Moderna	97%	92%	97%	92%	97%	91%	97%	91%	97%	91%	73%	48%
Novavax	89%	83%	89%	83%	86%	82%	86%	82%	86%	82%	65%	43%
Pfizer/BioNTech	95%	86%	95%	86%	95%	84%	95%	84%	95%	84%	72%	44%
Sinopharm	73%	68%	73%	68%	71%	67%	71%	67%	71%	67%	53%	35%
Sputnik-V	92%	86%	92%	86%	89%	85%	89%	85%	89%	85%	67%	44%
Other vaccines	75%	70%	75%	70%	73%	69%	73%	69%	73%	69%	55%	36%
Other vaccines (mRNA)	91%	86%	91%	86%	88%	85%	88%	85%	88%	85%	67%	45%

Percent of the population having received at least one dose (17.1) and fully vaccinated against SARS-CoV-2 (17.2) by January 31, 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

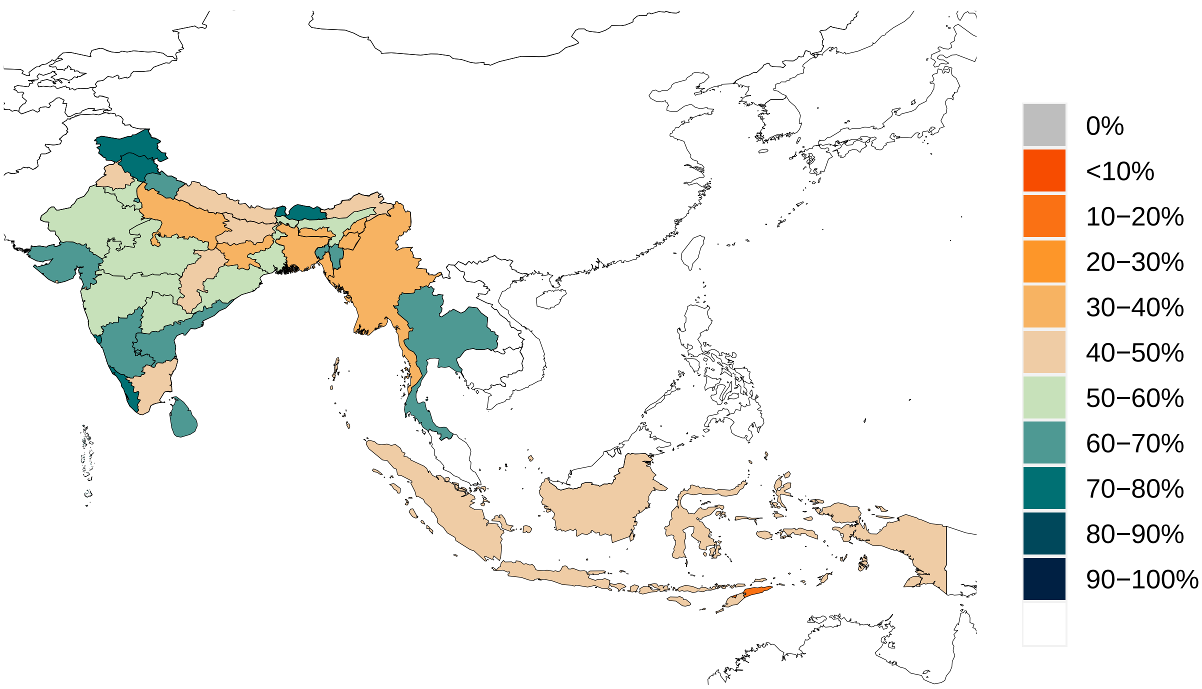


Figure 18.1. Trend in the estimated proportion of the population that is 12 years and older that has been vaccinated or would probably or definitely receive the COVID-19 vaccine if available. Note that vaccine acceptance is calculated using survey data from the 18+ population.

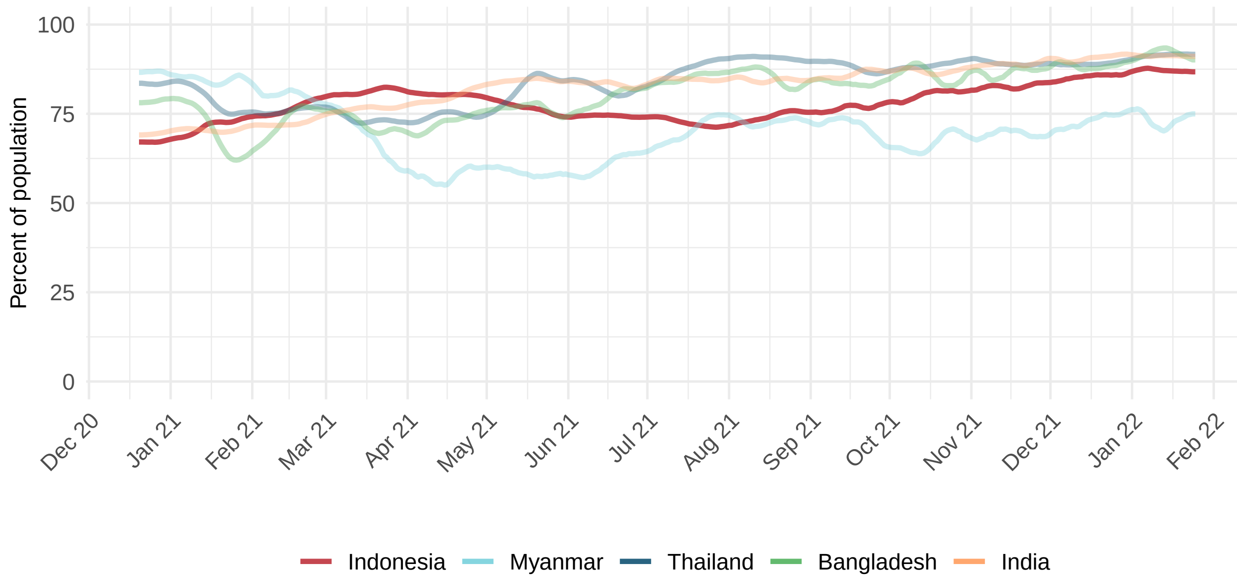


Figure 19.1. Estimated proportion of the population that is 12 years and older that has been vaccinated or would probably or definitely receive the COVID-19 vaccine if available. Note that vaccine acceptance is calculated using survey data from the 18+ population.

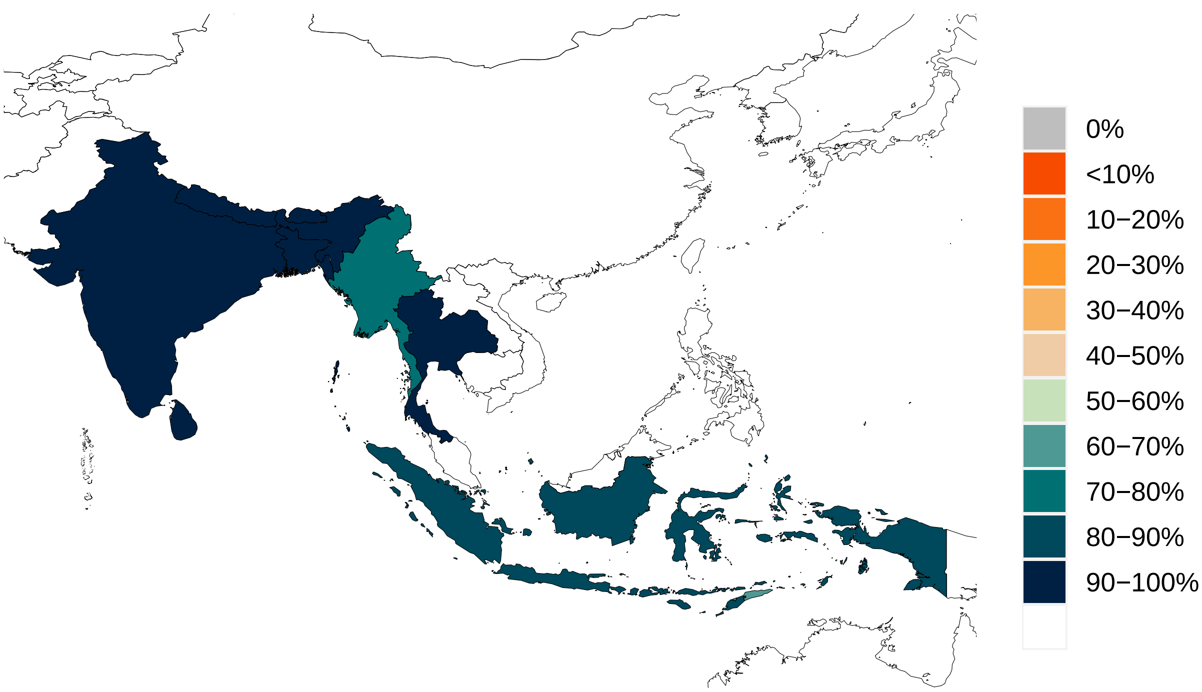
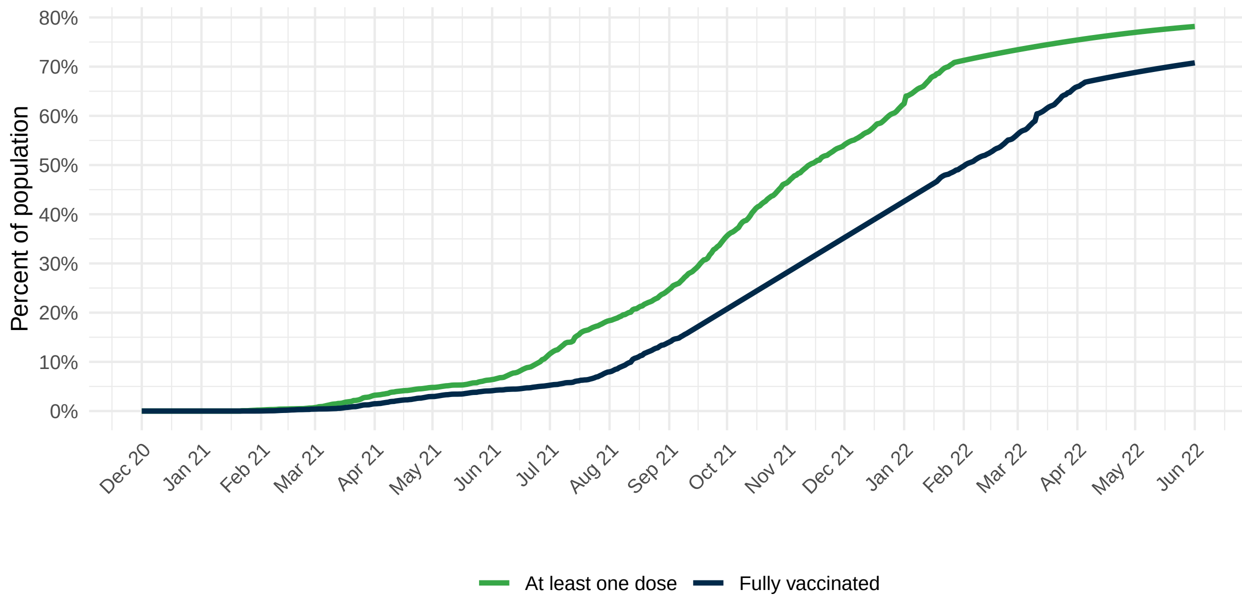


Figure 20.1. Percent of people who receive at least one dose of a COVID-19 vaccine and those who are fully vaccinated



Projections and scenarios

We produce 3 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 **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.

Figure 21.1. Daily COVID-19 infections until June 01, 2022 for 3 scenarios

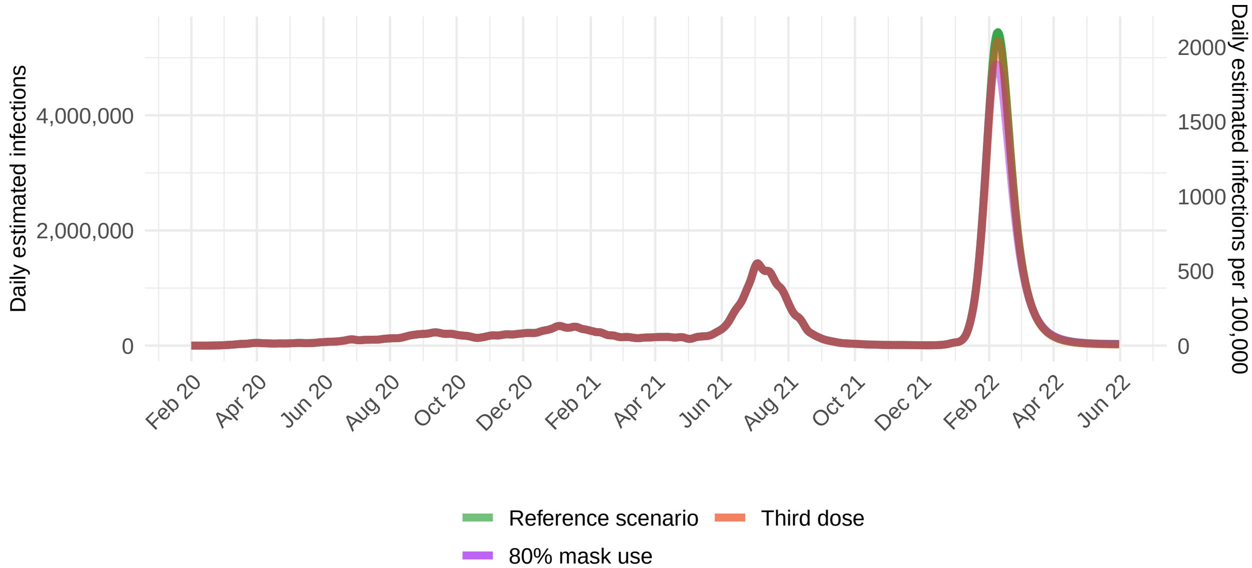


Figure 21.2. Daily COVID-19 reported cases until June 01, 2022 for 3 scenarios

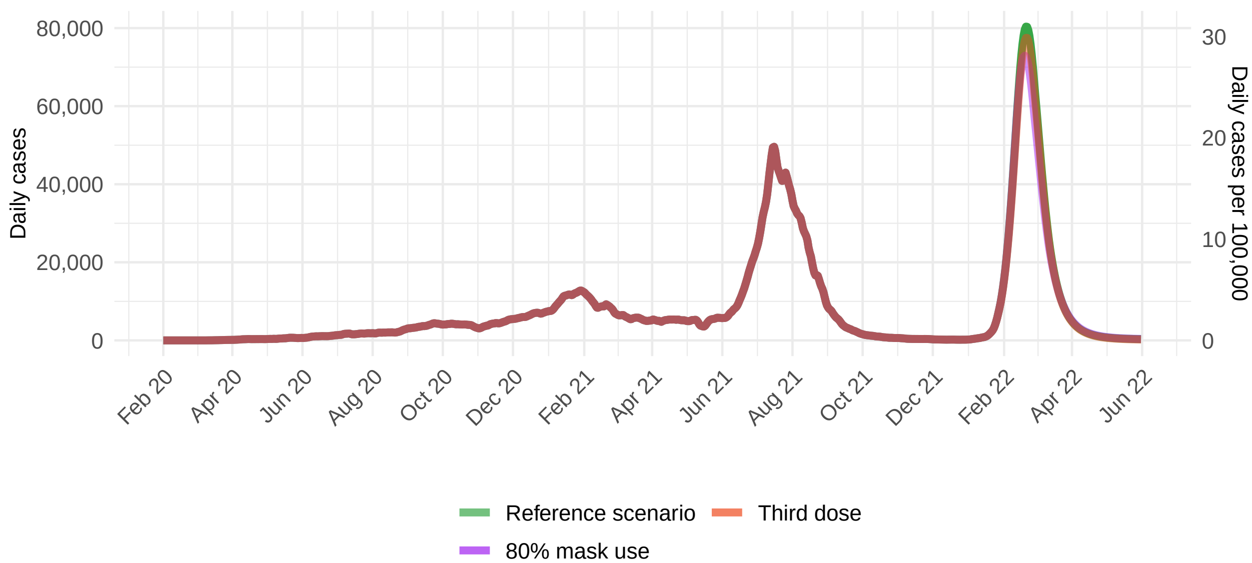


Figure 21.3. Daily COVID-19 hospital census until June 01, 2022 for 3 scenarios

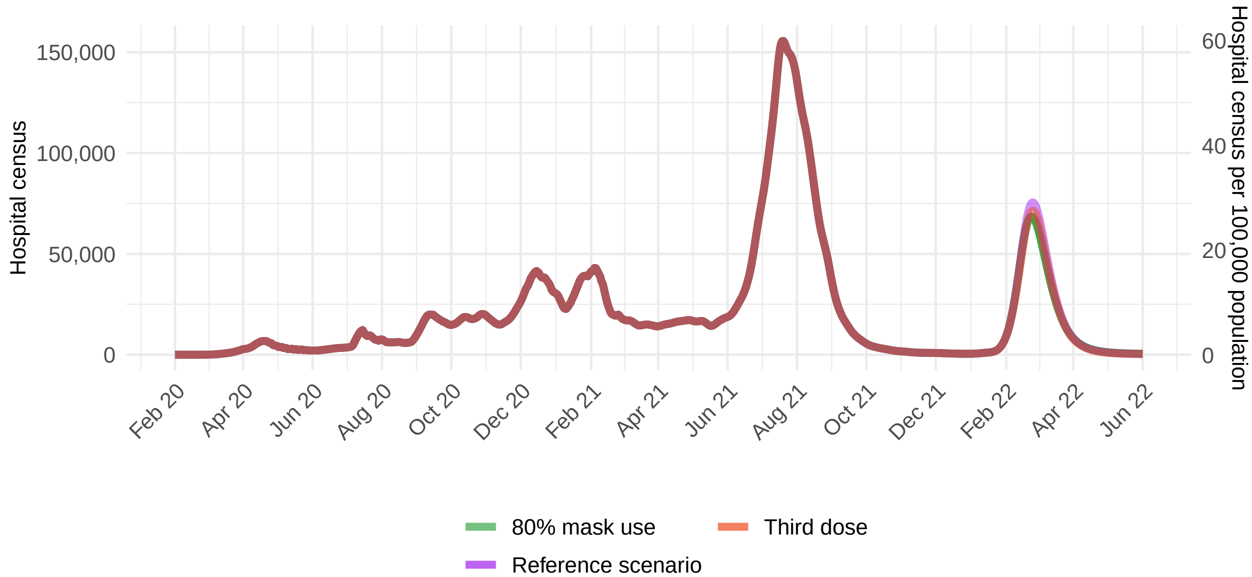


Figure 21.4 Reported daily COVID-19 deaths per 100,000

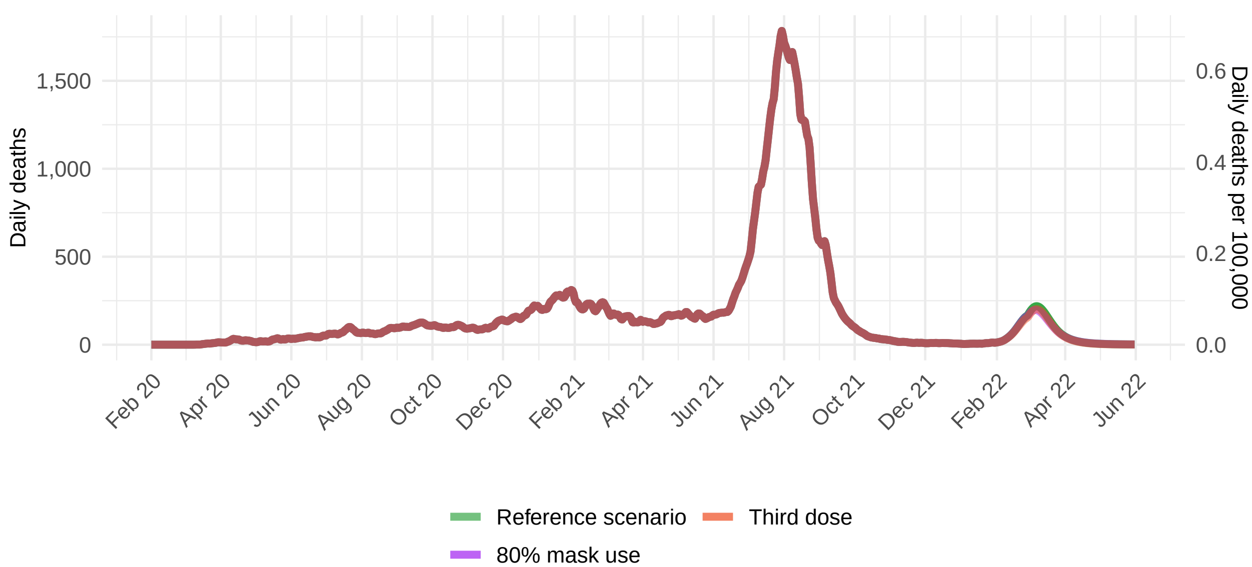


Figure 21.5 Total daily COVID-19 deaths per 100,000

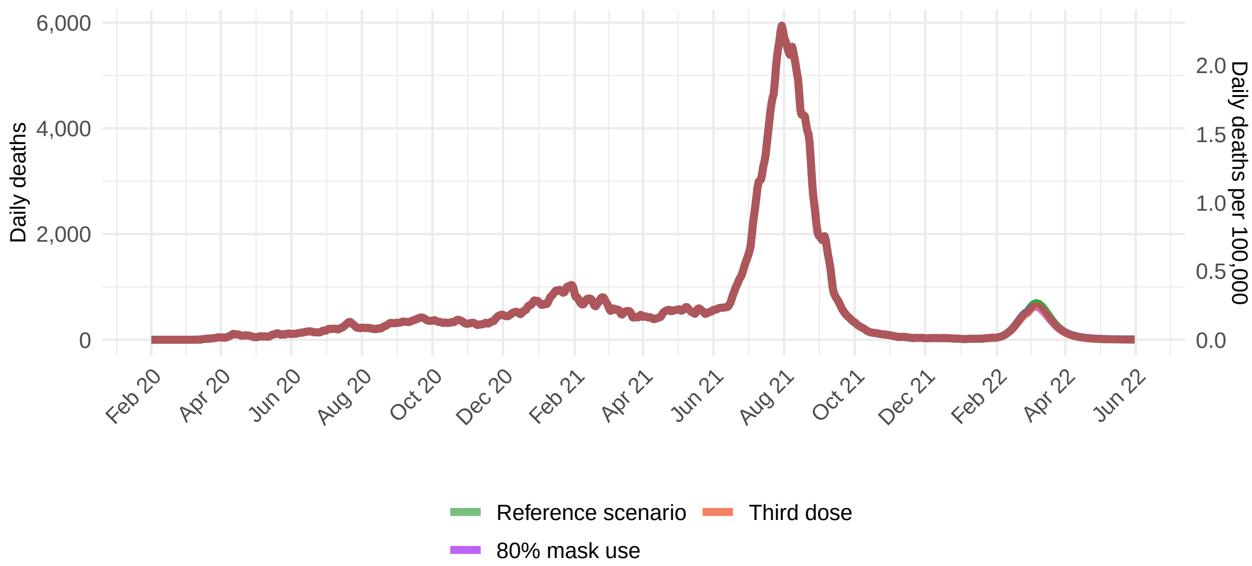


Figure 22.1. Comparison of reference model projections with other COVID modeling groups. For this comparison, we are including projections of daily COVID-19 deaths from other modeling groups when available, last model update in brackets: Delphi from the Massachusetts Institute of Technology (Delphi) [February 4, 2022], Imperial College London (Imperial) [January 2, 2022], the SI-KJalpha model from the University of Southern California (SIKJalpha) [February 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.

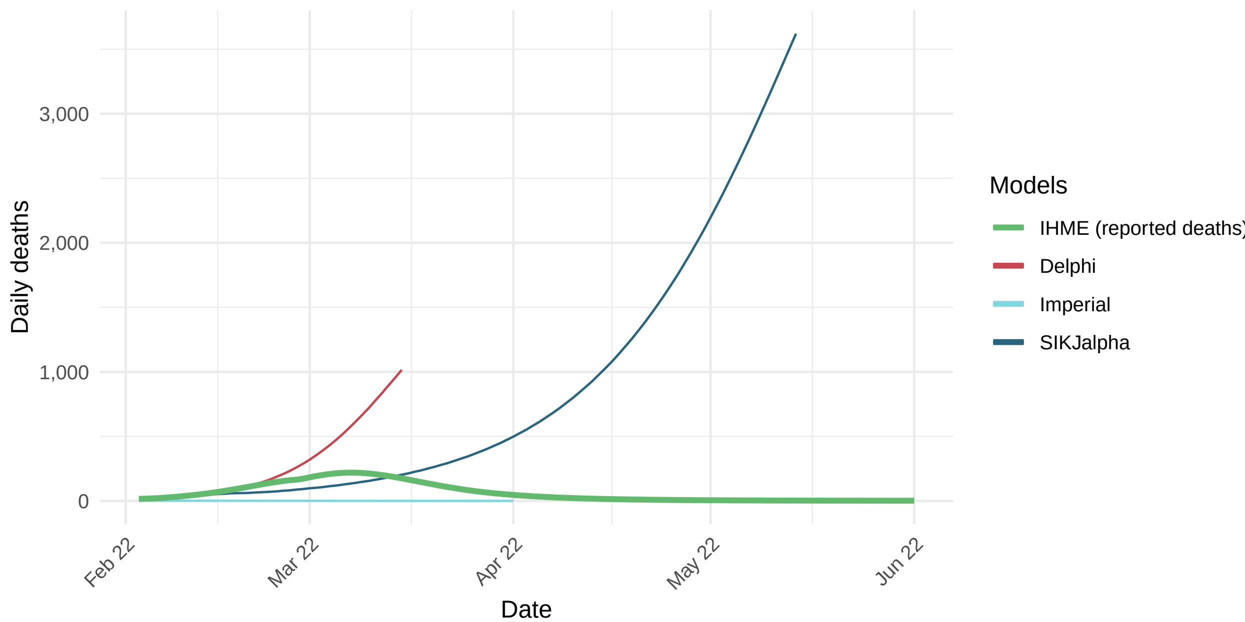


Figure 23.1. The estimated inpatient hospital usage is shown over time. The percent of hospital beds occupied by COVID-19 patients is color-coded based on observed quantiles of the maximum proportion of beds occupied by COVID-19 patients. Less than 5% is considered *low stress*, 5-9% is considered *moderate stress*, 10-19% is considered *high stress*, and 20% or greater is considered *extreme stress*.

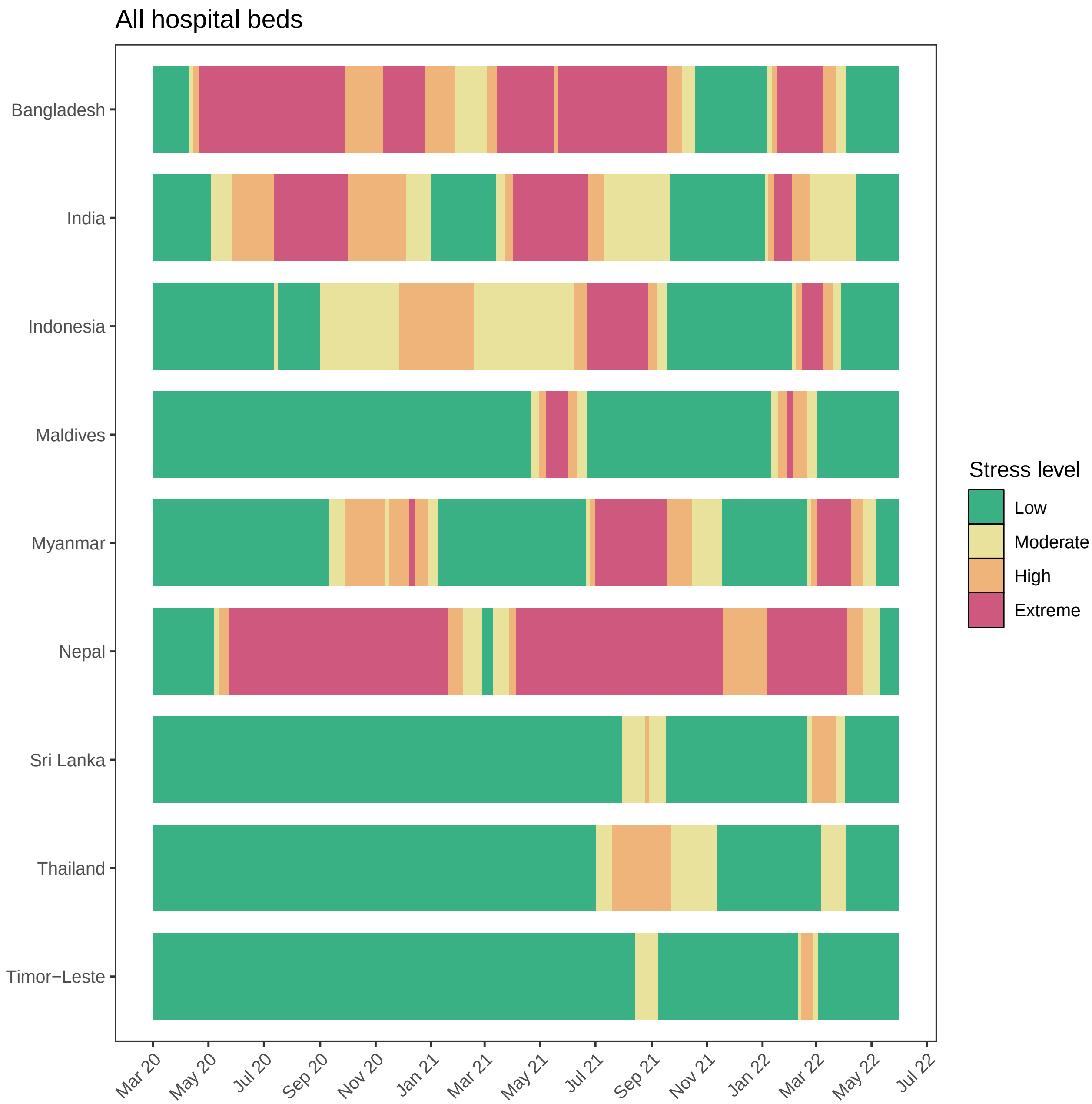
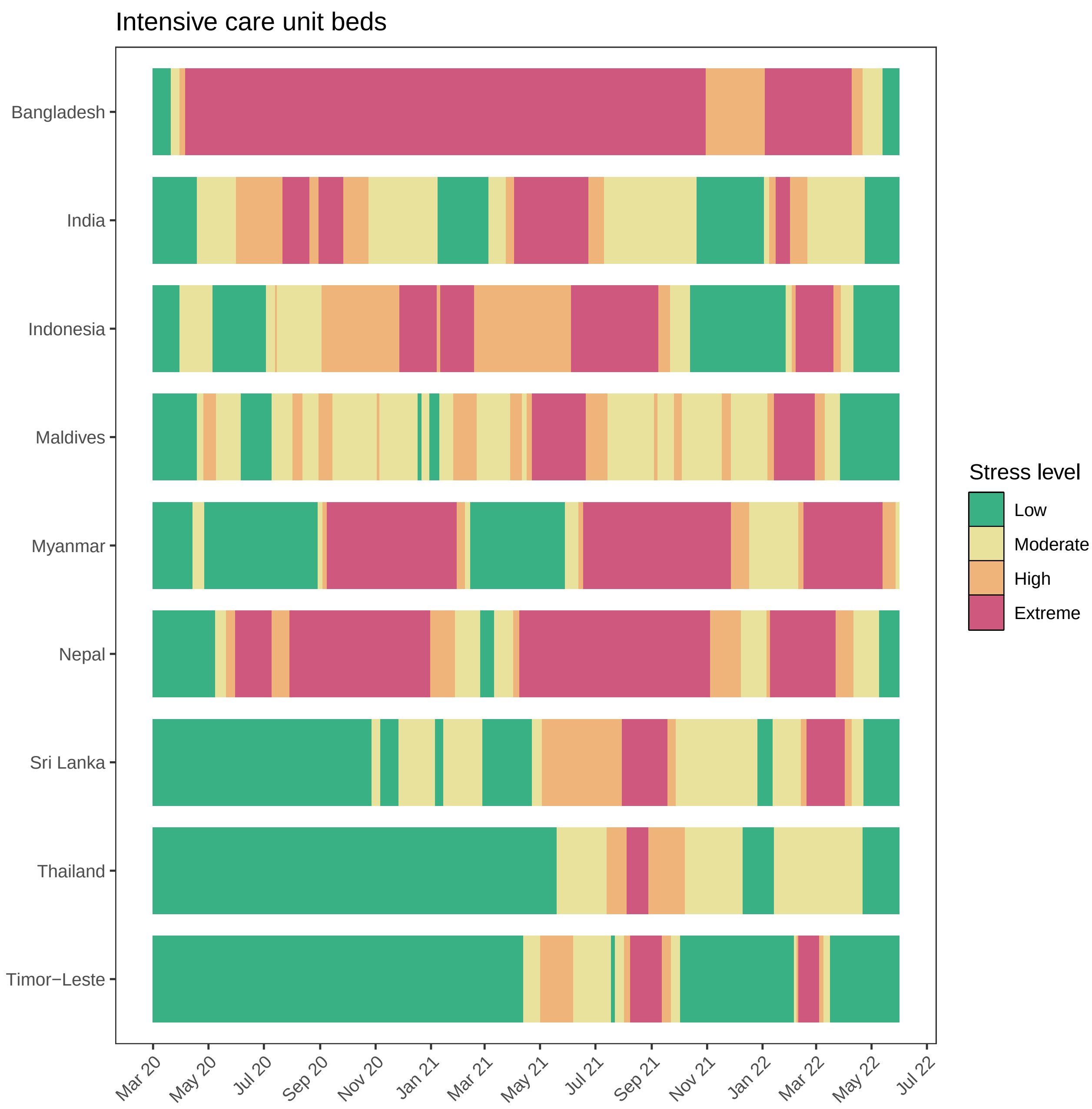


Figure 24.1. The estimated intensive care unit (ICU) usage is shown over time. The percent of ICU beds occupied by COVID-19 patients is color-coded based on observed quantiles of the maximum proportion of ICU beds occupied by COVID-19 patients. Less than 10% is considered *low stress*, 10-29% is considered *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.

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