COVID-19 Results Briefing

Thailand

December 15, 2022

This document contains summary information on the latest projections from the IHME model on COVID-19 in Thailand. The model was run on December 15, 2022, with data through December 11, 2022.

Current situation

- Daily infections in the last week increased to 117,000 per day on average compared to 101,000 the week before (Figure 1.1).
- Daily reported cases in the last week remained the same at 620 per day on average compared to the week before (Figure 2.1).
- Daily hospital census in the last week (through December 11) decreased to 1,600 per day on average compared to 1,800 the week before.
- Reported deaths due to COVID-19 in the last week remained the same at 15 per day on average compared to the week before (Figure 3.1).
- Total deaths due to COVID-19 in the last week remained the same at 21 per day on average compared to the week before (Figure 3.1). This makes COVID-19 the number 15 cause of death in Thailand this week (Table 1). Estimated total daily deaths due to COVID-19 in the past week were 1.4 times larger than the reported number of deaths.
- The daily rate of reported deaths due to COVID-19 is greater than 4 per million in no countries (Figure 4.1).
- The daily rate of total deaths due to COVID-19 is greater than 4 per million in no countries (Figure 4.2).
- We estimate that 77% of people in Thailand have been infected at least once as of December 12 (Figure 6.1). Effective R, computed using cases, hospitalizations, and deaths, is greater than 1 in nine countries and 28 subnational locations. Effective R in Thailand was 1.1 on December 1 (Figure 7.1).
- The infection-detection rate in Thailand was close to 1% on December 12 (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 9.1-9.6). We estimate that the Alpha variant is circulating in two countries and no subnational locations, that the Beta variant is circulating in no countries and no subnational locations, that the Delta variant is circulating in 10 countries and 35 subnational locations, that the Gamma variant is circulating in no countries and no subnational locations, that the BA.1/BA.2 variants are circulating in 11 countries and 35 subnational locations, and that the BA.5 variant is circulating in 11 countries and 35 subnational locations.

Trends in drivers of transmission

- Based on self-reported mask use data collected in the COVID-19 Trends and Impact Survey, an estimated 33% of people are projected to always wear a mask when leaving their home. Mask use after June 24, 2022 is a statistical forecast.
- As of December 12, nine countries and 16 subnational locations have reached 70% or more of the population who have received at least one vaccine dose, and six countries and 11 subnational locations have reached 70% or more of the population who are fully vaccinated (Figures 12.1 and 12.2). 85% of people in Thailand have received at least one vaccine dose, and 77% are fully vaccinated.
- In our current reference scenario, we expect that 59.3 million people will be vaccinated with at least one dose by April 1 (Figure 14.1). We expect that 80% of the population will be fully vaccinated by April 1.

Projections and scenarios

We produce three scenarios when projecting COVID-19. The **reference scenario** is our forecast of what we think is most likely to happen:

- Vaccines are distributed at the expected pace. Brand- and variant-specific vaccine efficacy is updated using the latest available information from peer-reviewed publications and other reports.
- Future mask use will decline to 50% of the minimum level it reached between January 1, 2021, and May 1, 2022. This decline begins after the last observed data point in each location and transitions linearly to the minimum over a period of six weeks.
- Mobility increases as vaccine coverage increases.
- Mandates will be reimposed at the maximum level of mandates in the post-ancestral period once the death rate has reached an algorithmic minimum threshold of daily reported deaths for a given location.
- 80% of those who are fully vaccinated (two doses for most vaccines, or one dose for Johnson & Johnson) receive an additional dose six months after becoming fully vaccinated, and 80% of those who receive an additional dose receive a second additional dose six months later.
- Antiviral utilization for COVID-19 risk prevention has reached 80% in high-risk populations and 50% in low-risk populations between March 1, 2022, and June 1, 2022. This applies in high-income countries, but not low- and middle-income countries, and this rollout assumption follows a similar pattern to global vaccine rollouts.

The **80% mask use scenario** makes all the same assumptions as the reference scenario but assumes all locations reach 80% mask use within seven days. If a location currently has higher than 80% use, mask use remains at the current level.

The **antiviral access scenario** makes all the same assumptions as the reference scenario but assumes globally distributed antivirals and extends coverage to all low- and middle-income countries between August 15, 2022, and September 15, 2022.

Infections

- Daily estimated infections in the **reference scenario** will rise to 328,400 by January 29, 2023 (Figure 16.1).
- Daily estimated infections in the **80% mask use scenario** will rise to 159,010 by February 27, 2023 (Figure 16.1).
- Daily estimated infections in the **antiviral access scenario** will rise to 328,400 by January 29, 2023 (Figure 16.1).

Cases

- Daily estimated cases in the **reference scenario** will rise to 5,580 by February 14, 2023 (Figure 16.2).
- Daily estimated cases in the **80% mask use scenario** will rise to 2,720 by March 12, 2023 (Figure 16.2).
- Daily estimated cases in the **antiviral access scenario** will rise to 5,580 by February 14, 2023 (Figure 16.2).

Hospitalizations

- Daily hospital census in the **reference scenario** will rise to 5,660 by February 16, 2023 (Figure 16.3). At some point from December through April 1, no countries will have high or extreme stress on hospital beds (Figure 18.1). At some point from December through April 1, one country will have high or extreme stress on intensive care unit (ICU) capacity (Figure 19.1).
- Daily hospital census in the **80% mask use scenario** will rise to 2,780 by March 19, 2023 (Figure 16.3).
- Daily hospital census in the **antiviral access scenario** will rise to 4,810 by February 16, 2023 (Figure 16.3).

Deaths

- In our **reference scenario**, our model projects 37,000 cumulative reported deaths due to COVID-19 on April 1. This represents 3,500 additional deaths from December 12 to April 1. Daily reported

COVID-19 deaths in the **reference scenario** will rise to 50 by February 27, 2023 (Figure 16.4).

- Under our **reference scenario**, our model projects 52,000 cumulative total deaths due to COVID-19 on April 1. This represents 5,000 additional deaths from December 12 to April 1 (Figure 16.5).
- In our **80% mask use scenario**, our model projects 35,000 cumulative reported deaths due to COVID-19 on April 1. This represents 1,800 additional deaths from December 12 to April 1. Daily reported COVID-19 deaths in the **80% mask use scenario** will rise to 20 by March 30, 2023 (Figure 16.4).
- In our **antiviral access scenario**, our model projects 36,000 cumulative reported deaths due to COVID-19 on April 1. This represents 3,000 additional deaths from December 12 to April 1. Daily reported COVID-19 deaths in the **antiviral access scenario** will rise to 40 by February 27, 2023 (Figure 16.4).
- Figure 17.1 compares our reference scenario forecasts to other publicly archived models. Forecasts are widely divergent.

Model updates

We have updated our reference scenario to assume that mandates will be re-imposed at the maximum level of mandates in the post-ancestral period once the death rate has reached an algorithmic minimum threshold of daily reported deaths for a given location.

For the foreseeable future, we will not be updating our model or producing COVID-19 estimates. These will be the final briefing documents we produce until further notice.

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

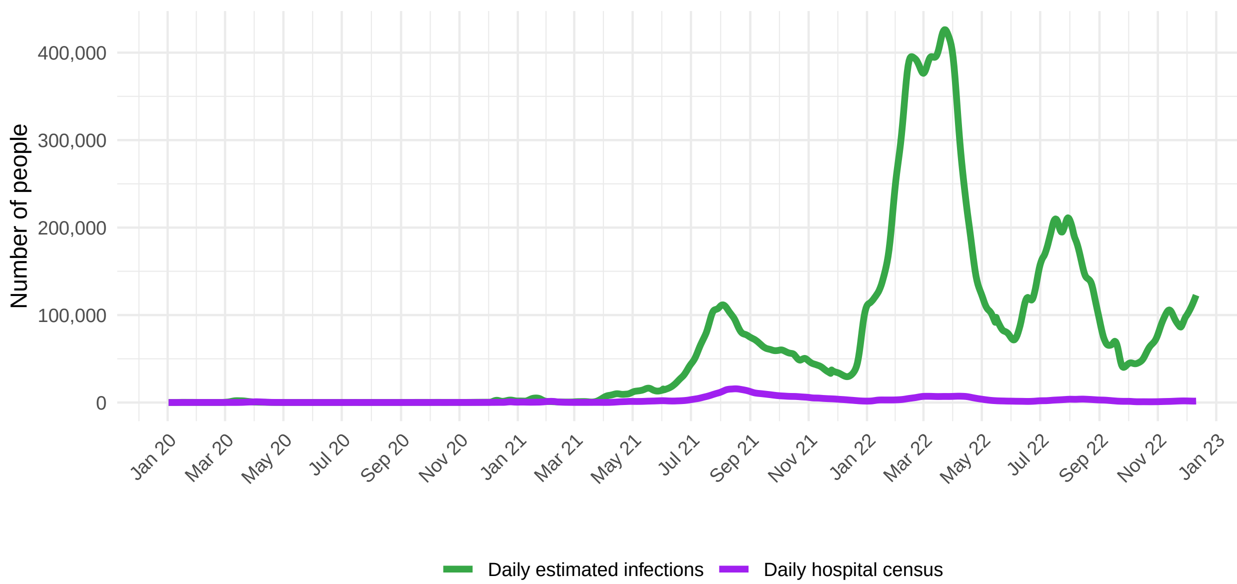


Figure 2.1: Reported daily COVID-19 cases, moving average

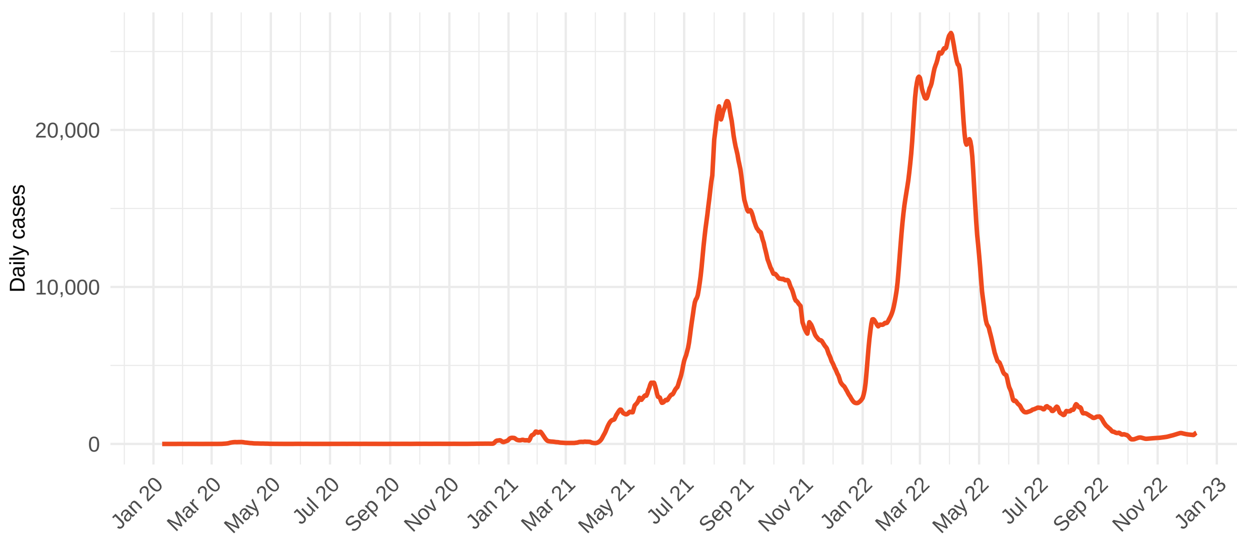
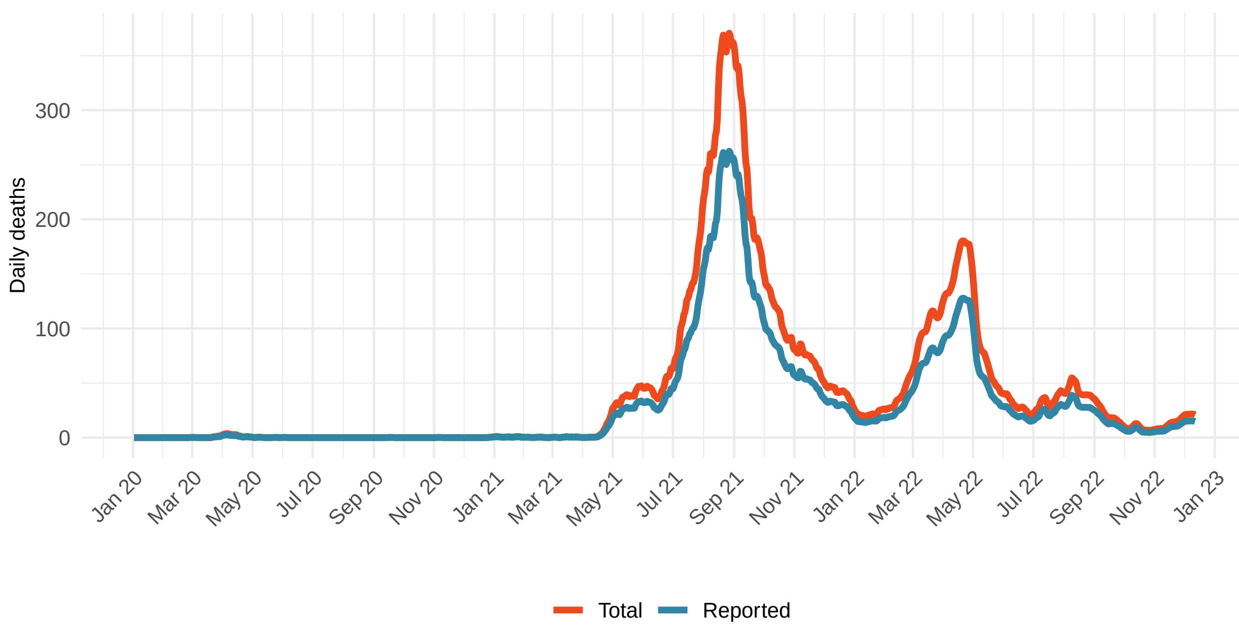


Table 1: Ranking of total deaths due to COVID-19 among the leading causes of mortality this week, assuming uniform deaths of non-COVID causes throughout the year

Cause name	Weekly deaths	Ranking
Ischemic heart disease	992	1
Stroke	981	2
Lower respiratory infections	597	3
Chronic kidney disease	528	4
Liver cancer	472	5
Tracheal, bronchus, and lung cancer	444	6
Alzheimer's disease and other dementias	414	7
Cirrhosis and other chronic liver diseases	377	8
Diabetes mellitus	376	9
Road injuries	376	10
COVID-19	150	15

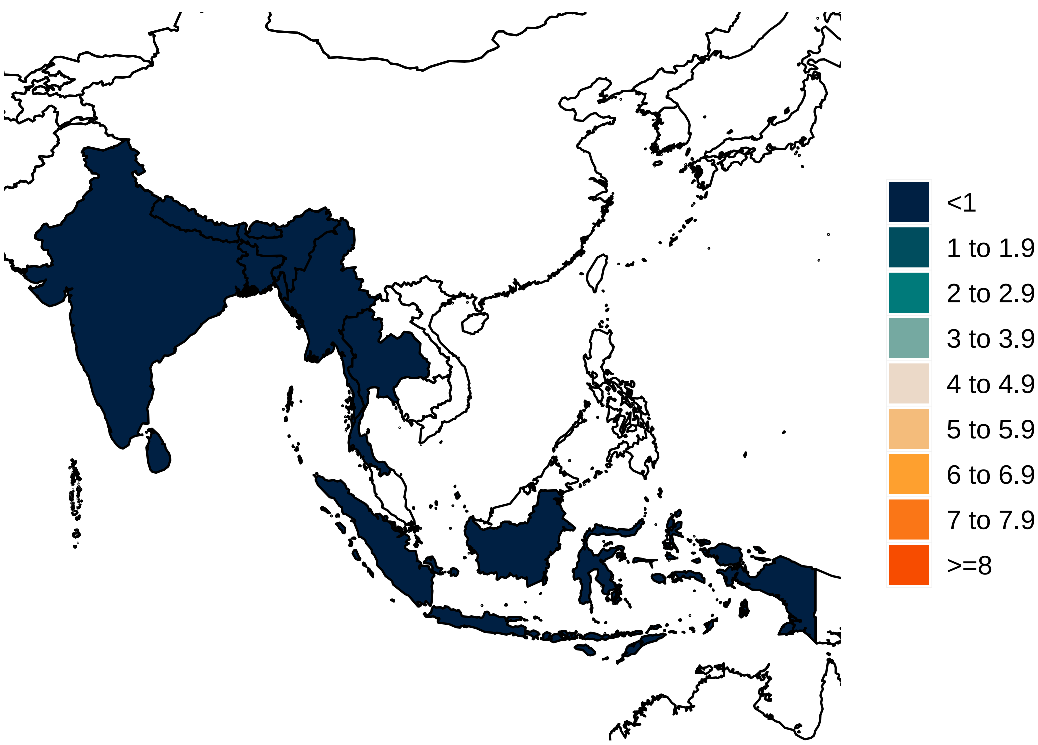
Figure 3.1: Smoothed trend estimate of daily COVID-19 deaths



Daily COVID-19 death rate per 1 million on December 12, 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 December 12, 2022

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

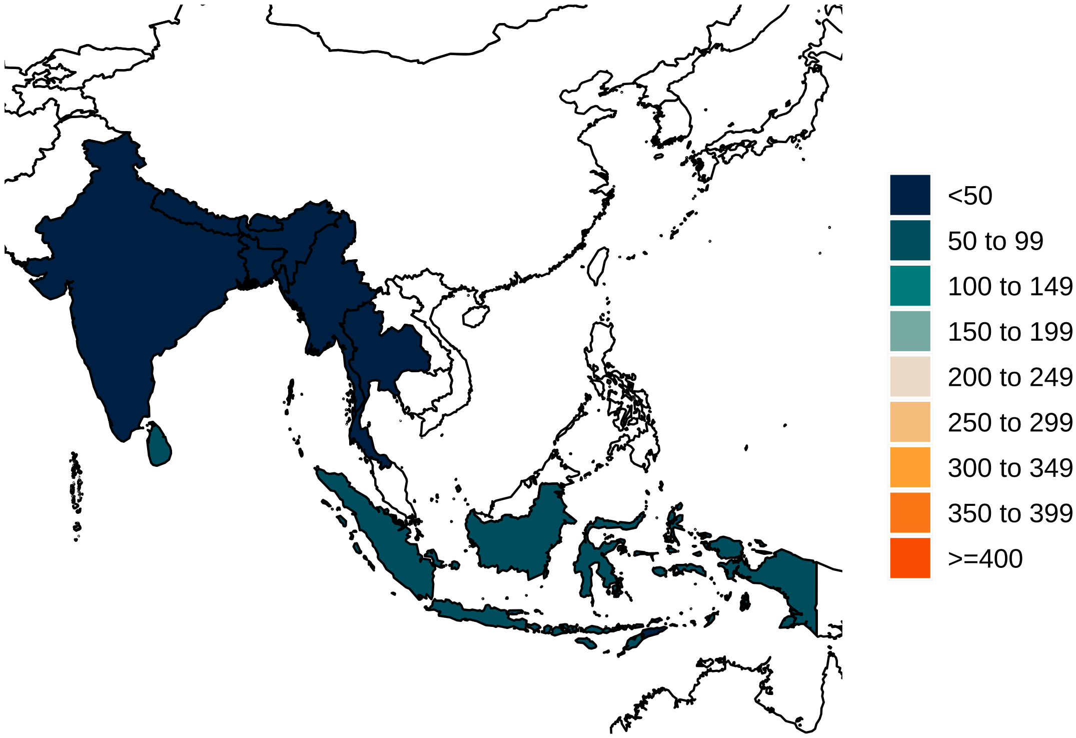


Figure 5.2: Total cumulative COVID-19 deaths per 100,000

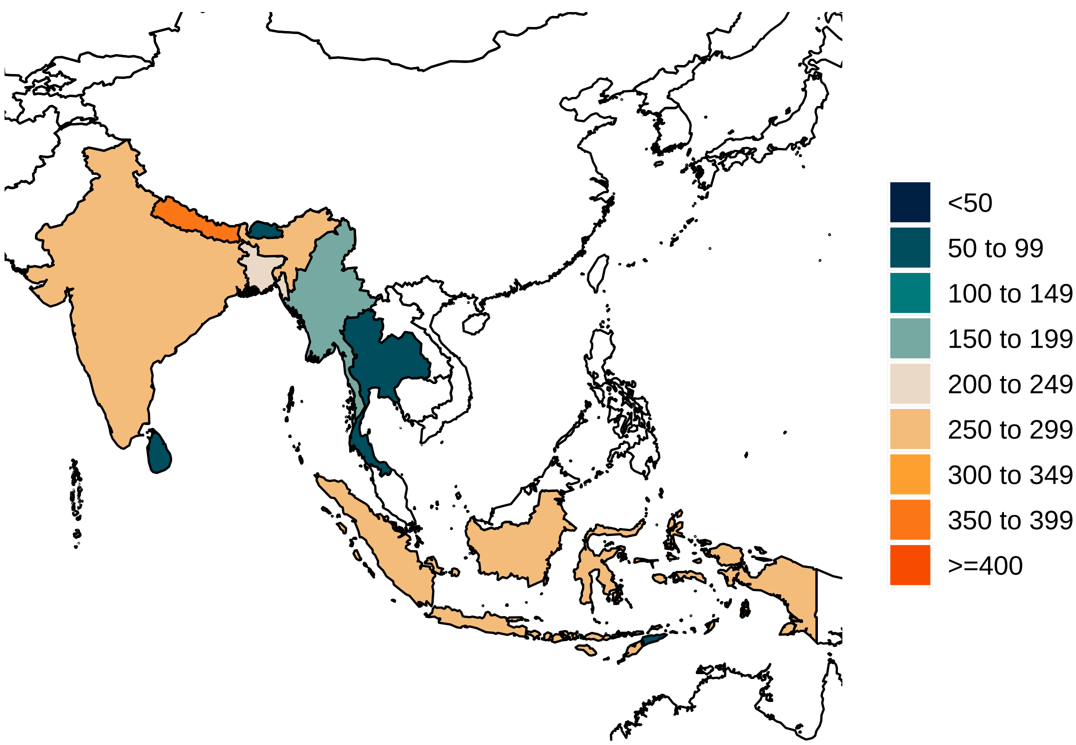


Figure 6.1: Estimated percent of the population infected with COVID-19 on December 12, 2022

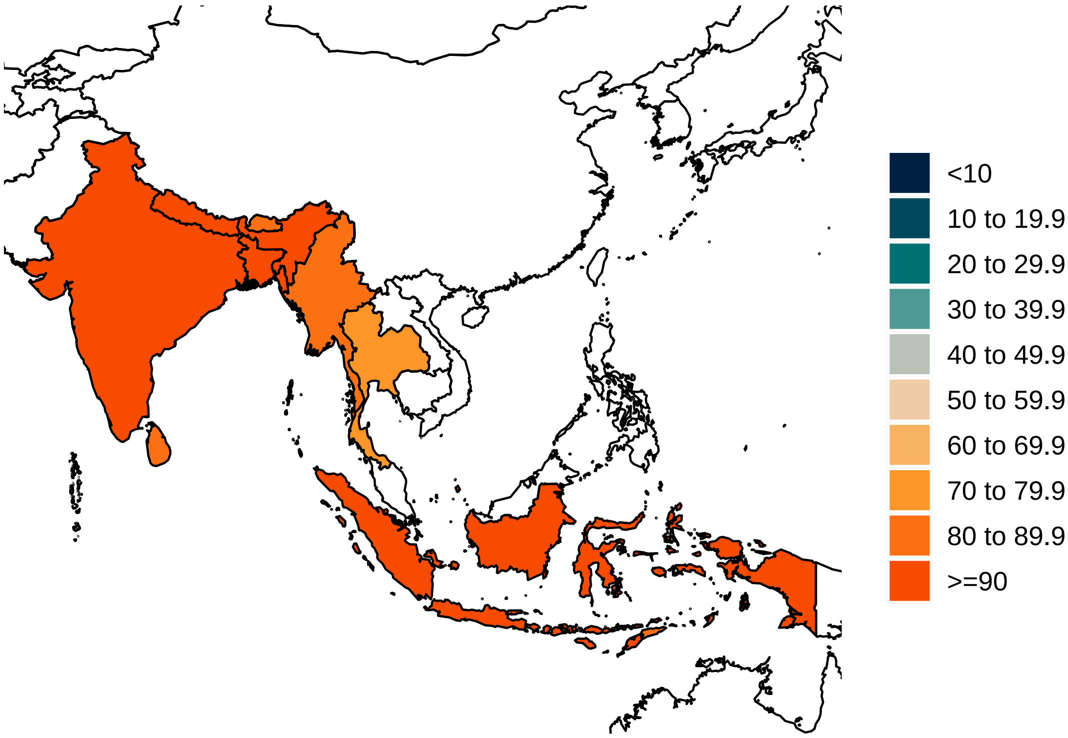


Figure 7.1: Mean effective R on December 1, 2022. Effective R less than 1 means that transmission should decline, all other things being held the same. The estimate of effective R is based on the combined analysis of deaths, case reporting, and hospitalizations where available. Current reported cases reflect infections 11-13 days prior, so estimates of effective R can only be made for the recent past.

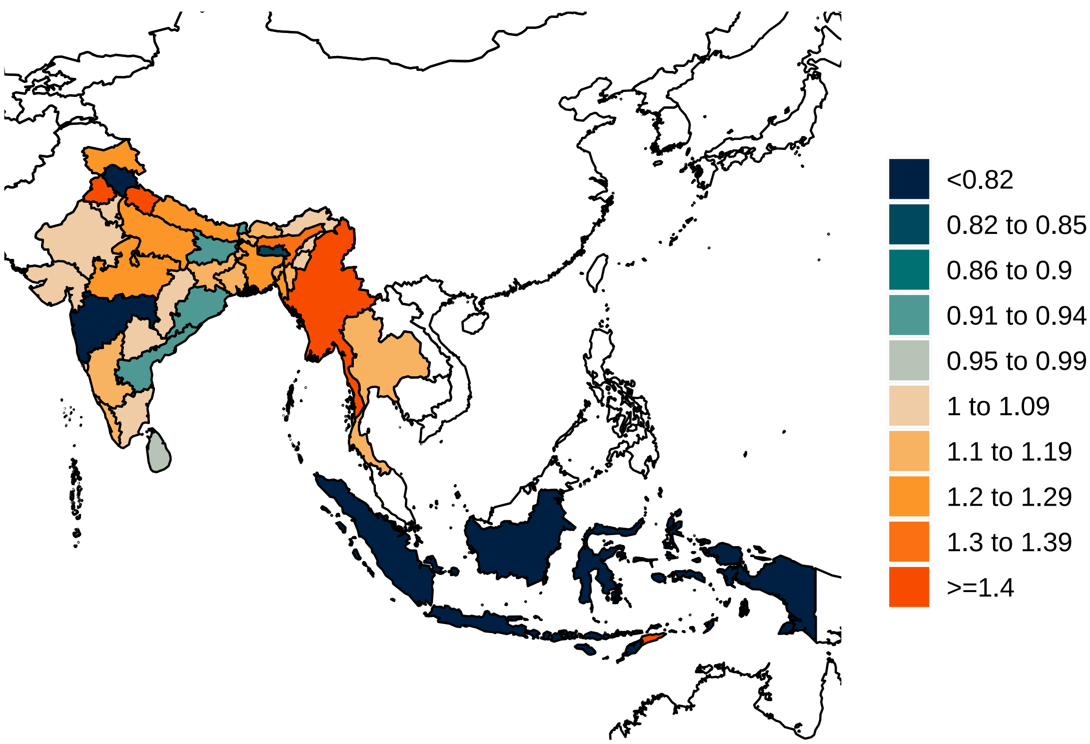
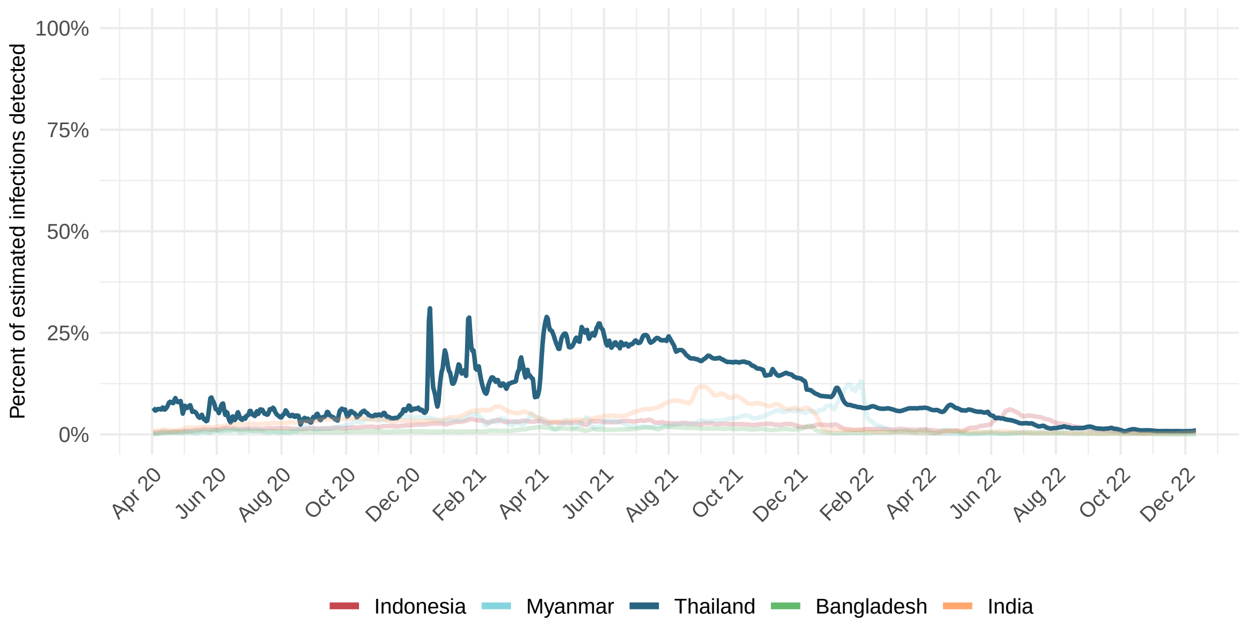


Figure 8.1: Percent of estimated COVID-19 infections detected. This is estimated as the ratio of reported daily COVID-19 cases to estimated daily COVID-19 infections based on the SEIR disease transmission model. Due to measurement errors in cases and testing rates, the infection-detection rate can exceed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



Estimated percent of circulating SARS-CoV-2 for primary variant families on December 12, 2022

Figure 9.1: Estimated percent of new infections that are Alpha variant

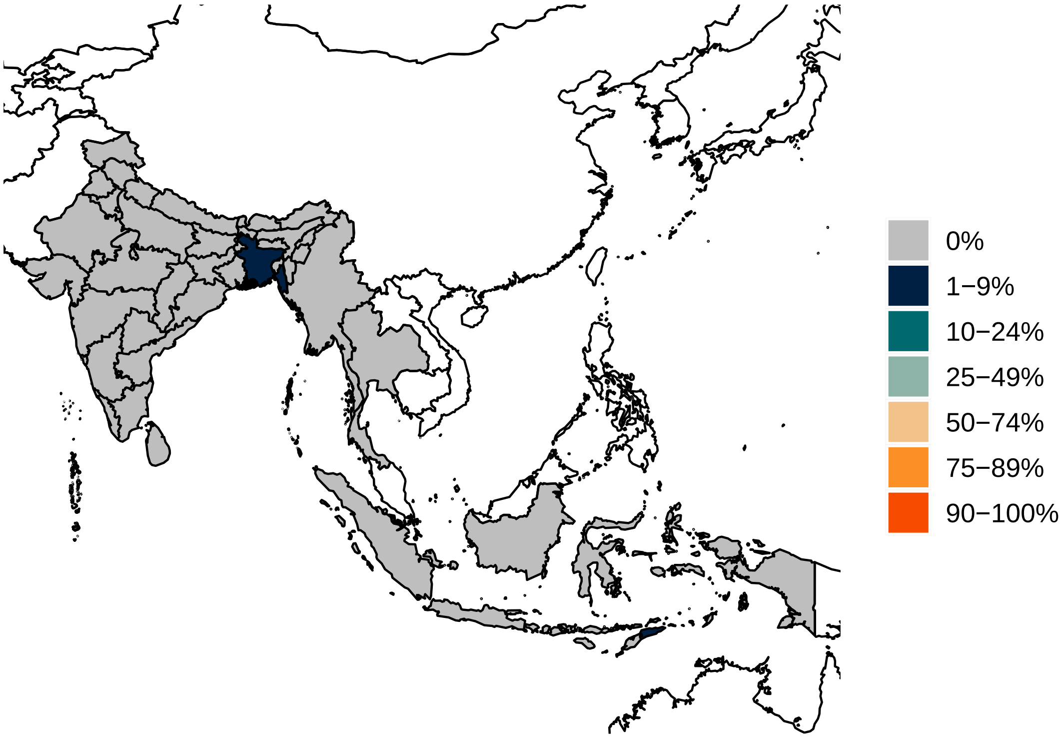


Figure 9.2: Estimated percent of new infections that are Beta variant

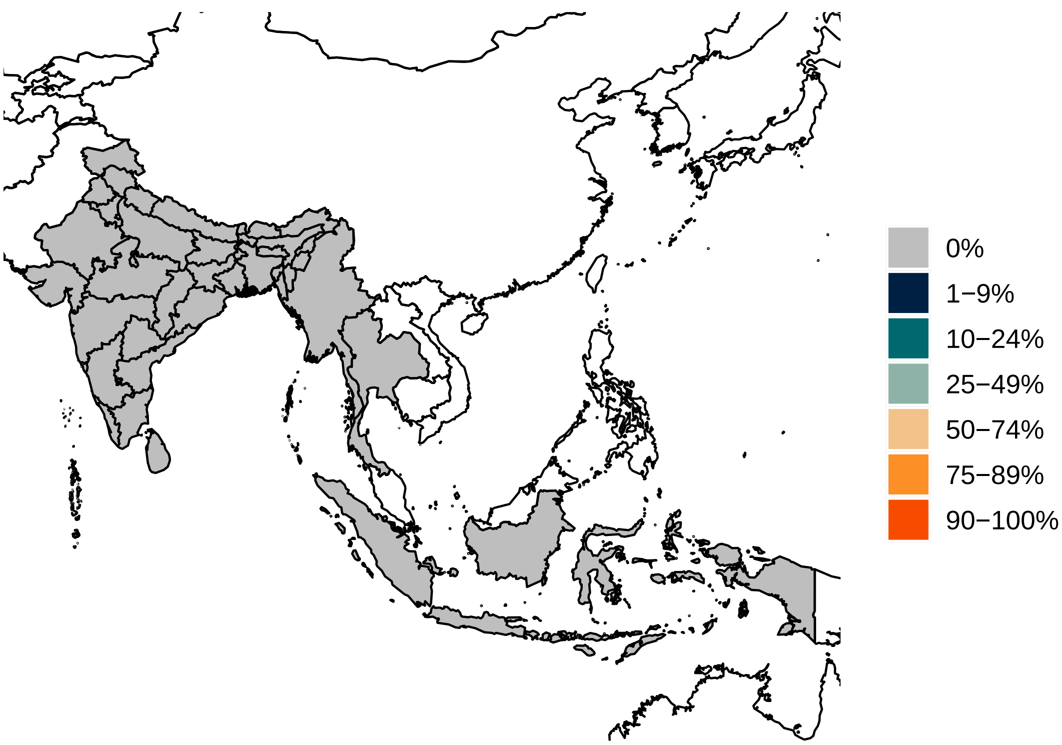


Figure 9.3: Estimated percent of new infections that are Delta variant

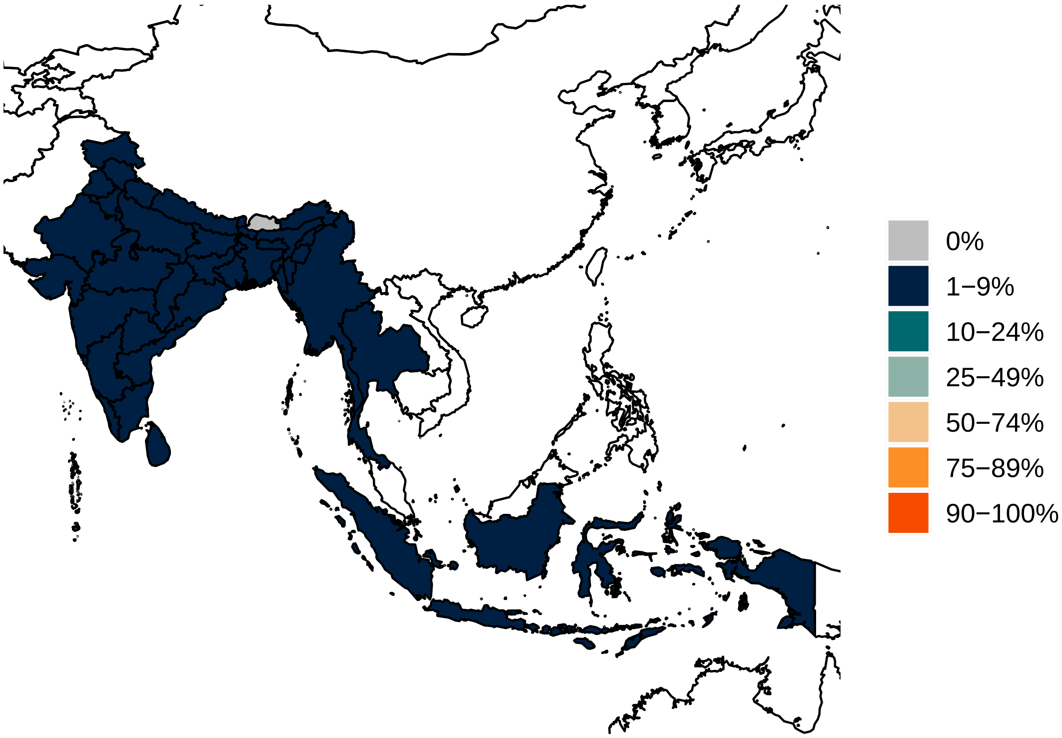


Figure 9.4: Estimated percent of new infections that are Gamma variant

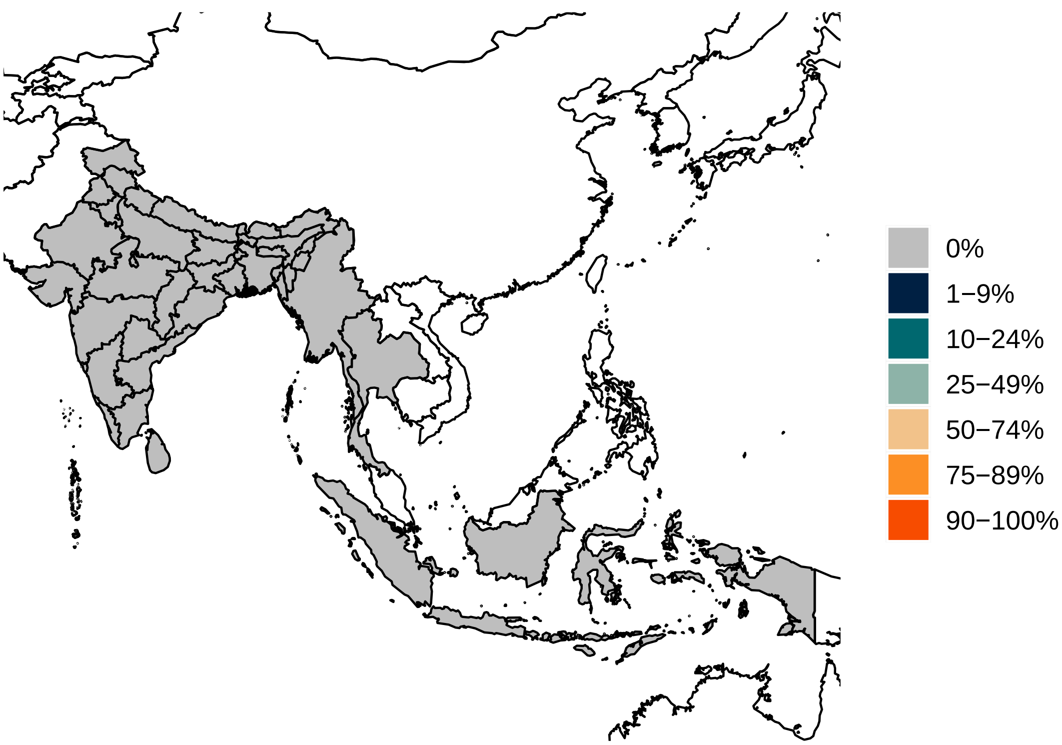


Figure 9.5: Estimated percent of new infections that are BA.1/BA.2 variant

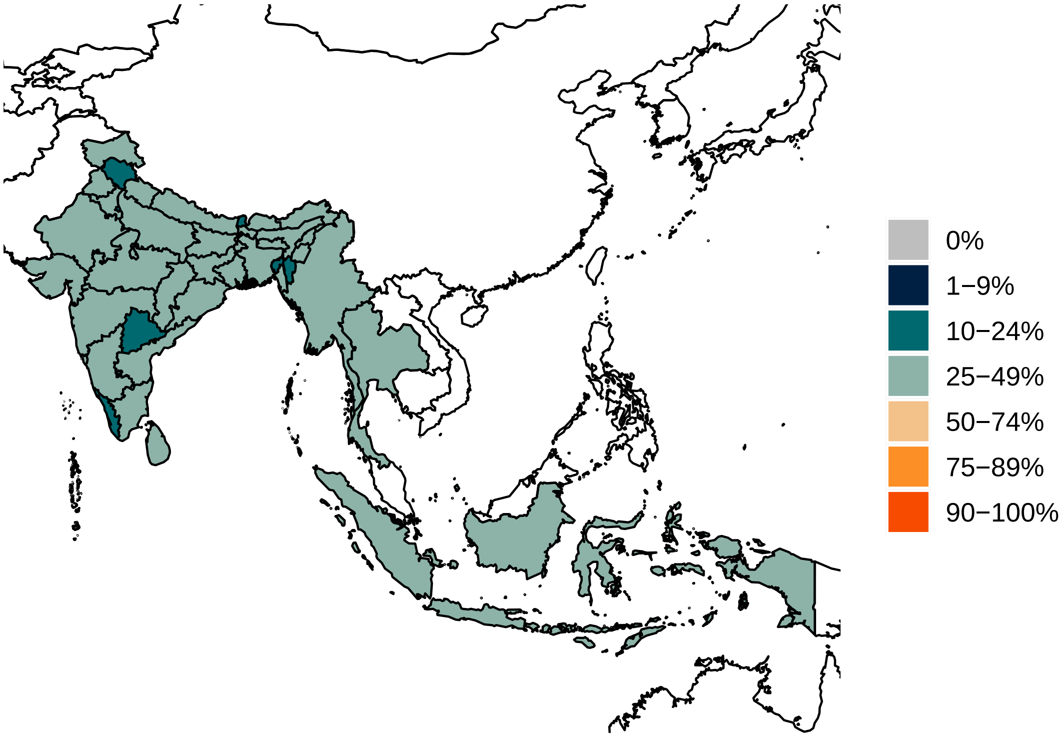


Figure 9.6: Estimated percent of new infections that are BA.5 variant

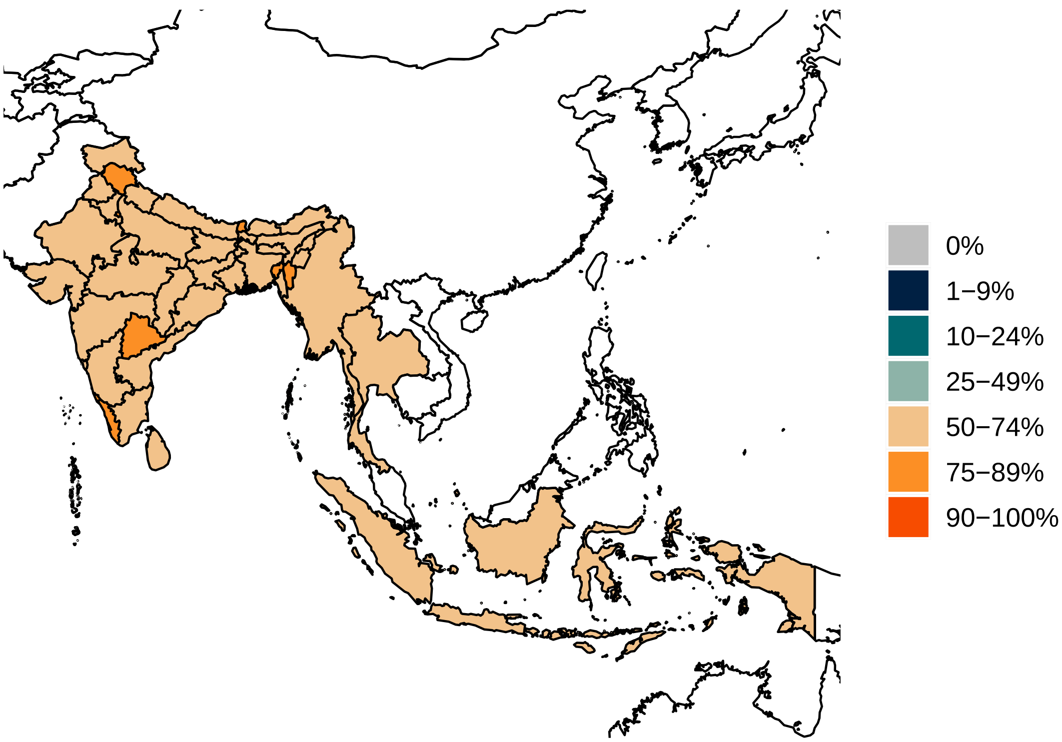
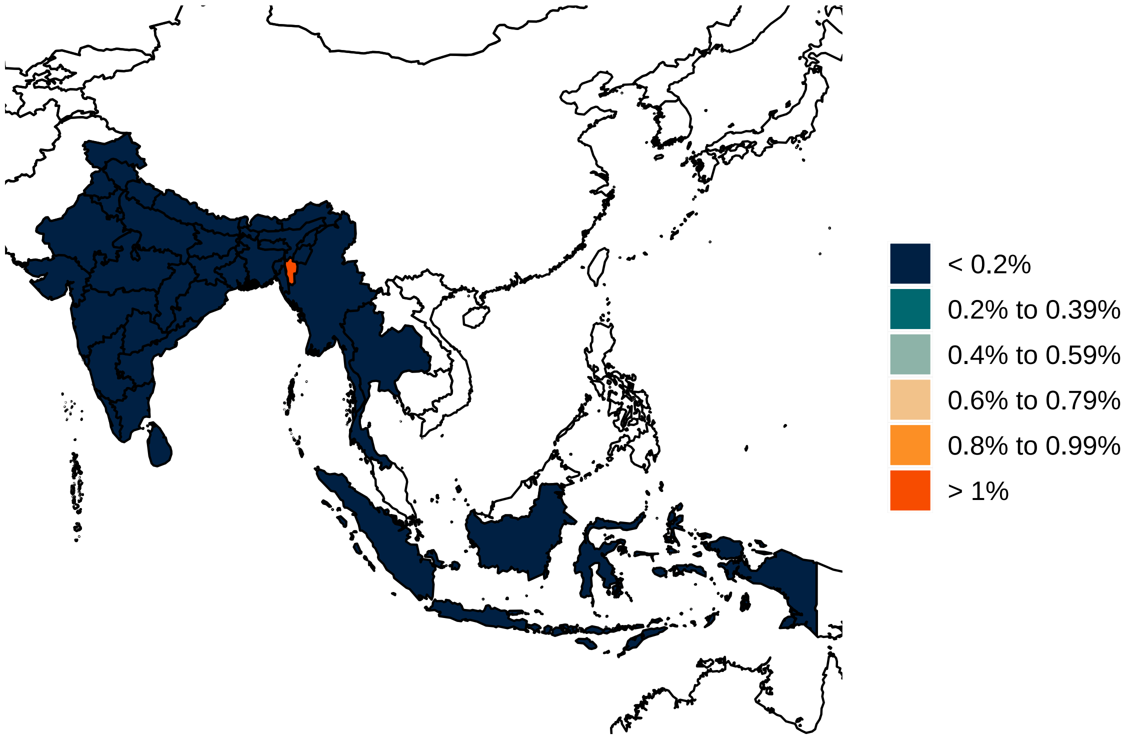


Figure 10.1: Infection-fatality rate on December 12, 2022. This is estimated as the ratio of COVID-19 deaths to estimated daily COVID-19 infections.



Critical drivers

Table 2: Current mandate implementation

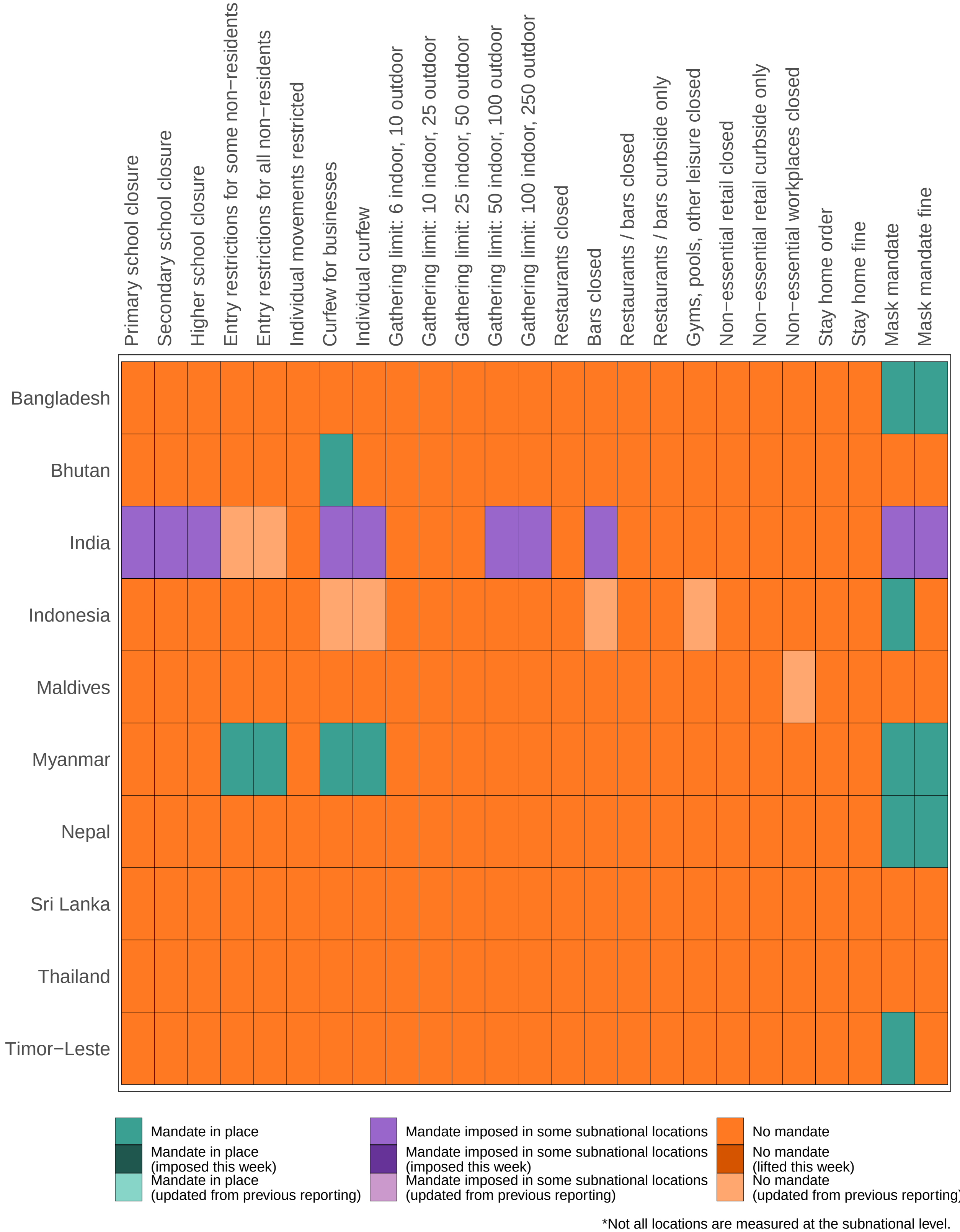


Figure 11.1: Trend in the proportion of the population reporting always wearing a mask when leaving home

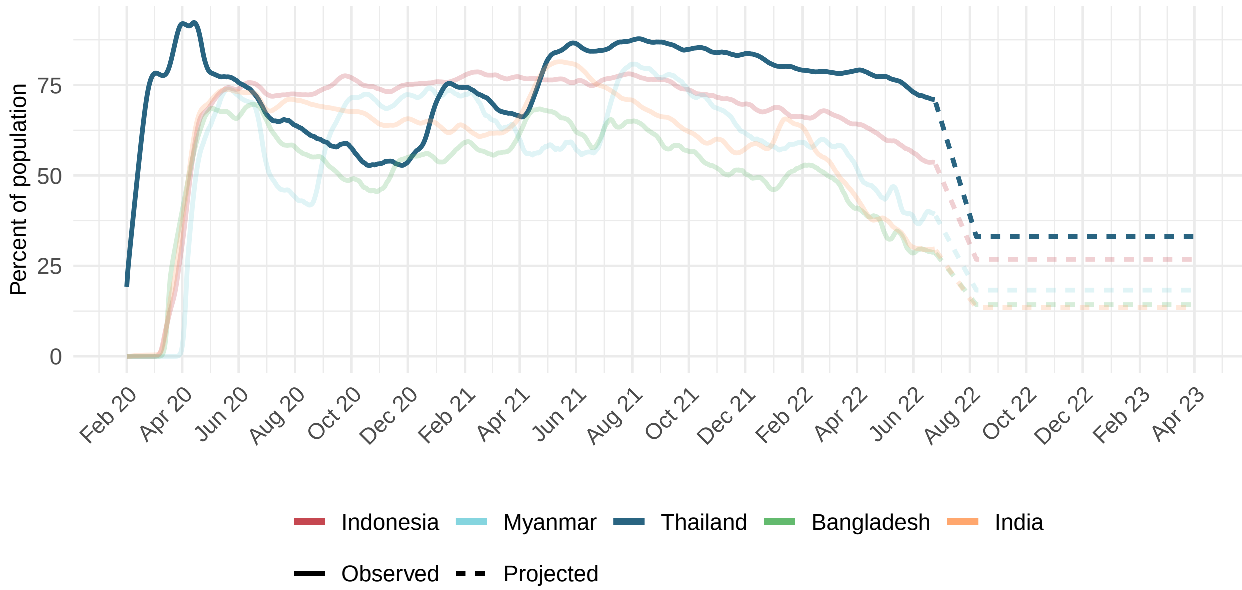


Table 3: Estimates of vaccine effectiveness for specific vaccines used in the model at preventing severe disease and infection. We use data from clinical trials directly, where available, and make estimates otherwise. More information can be found on our website.

	Effectiveness at preventing													
	Ancestral		Alpha		Beta		Gamma		Delta		BA.1/BA.2		BA.5	
Vaccine	Severe disease	Infection	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%	71%	36%
CanSino	66%	62%	66%	62%	64%	61%	64%	61%	64%	61%	48%	32%	48%	32%
CoronaVac	50%	47%	50%	47%	49%	46%	49%	46%	49%	46%	37%	24%	37%	24%
Covaxin	78%	73%	78%	73%	76%	72%	76%	72%	76%	72%	57%	38%	57%	38%
Johnson & Johnson	86%	72%	86%	72%	76%	64%	76%	64%	76%	64%	57%	33%	57%	33%
Moderna	97%	92%	97%	92%	97%	91%	97%	91%	97%	91%	73%	48%	73%	48%
Novavax	89%	83%	89%	83%	86%	82%	86%	82%	86%	82%	65%	43%	65%	43%
Pfizer/BioNTech	95%	86%	95%	86%	95%	84%	95%	84%	95%	84%	72%	44%	72%	44%
Sinopharm	73%	68%	73%	68%	71%	67%	71%	67%	71%	67%	53%	35%	53%	35%
Sputnik-V	92%	86%	92%	86%	89%	85%	89%	85%	89%	85%	67%	44%	67%	44%
Other vaccines	75%	70%	75%	70%	73%	69%	73%	69%	73%	69%	55%	36%	55%	36%
Other vaccines (mRNA)	91%	86%	91%	86%	88%	85%	88%	85%	88%	85%	67%	45%	67%	45%

Percent of the population having received at least one dose (12.1) and fully vaccinated against SARS-CoV-2 (12.2) by December 12, 2022

Figure 12.1: Percent of the population having received one dose of a COVID-19 vaccine

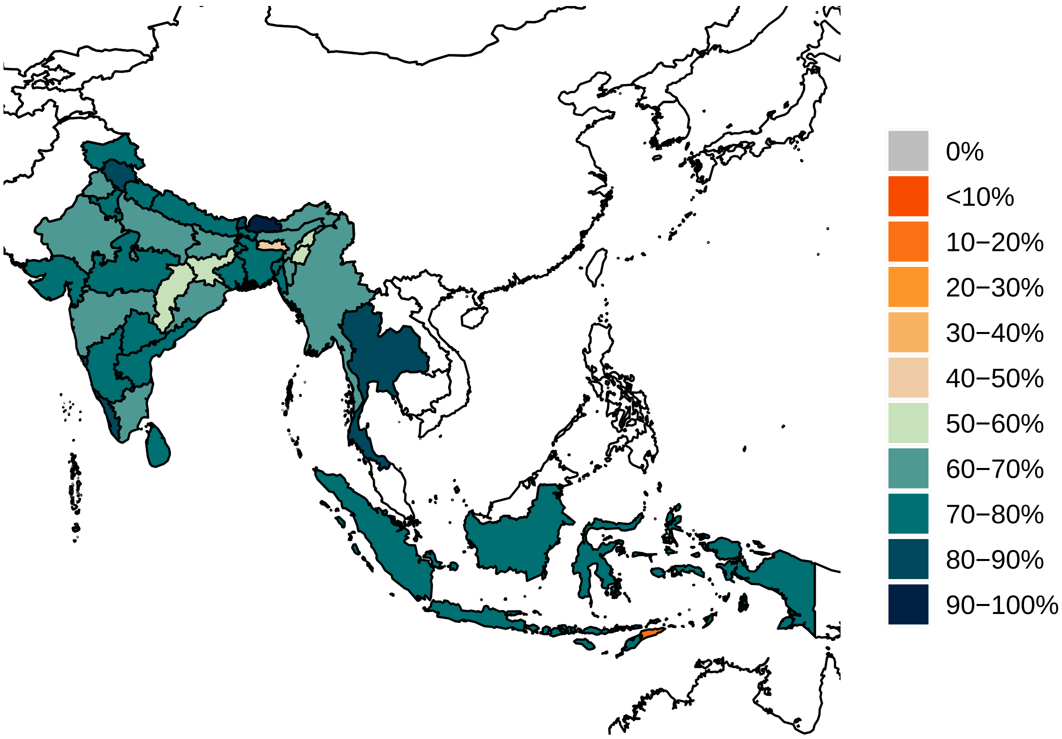


Figure 12.2: Percent of the population fully vaccinated against SARS-CoV-2

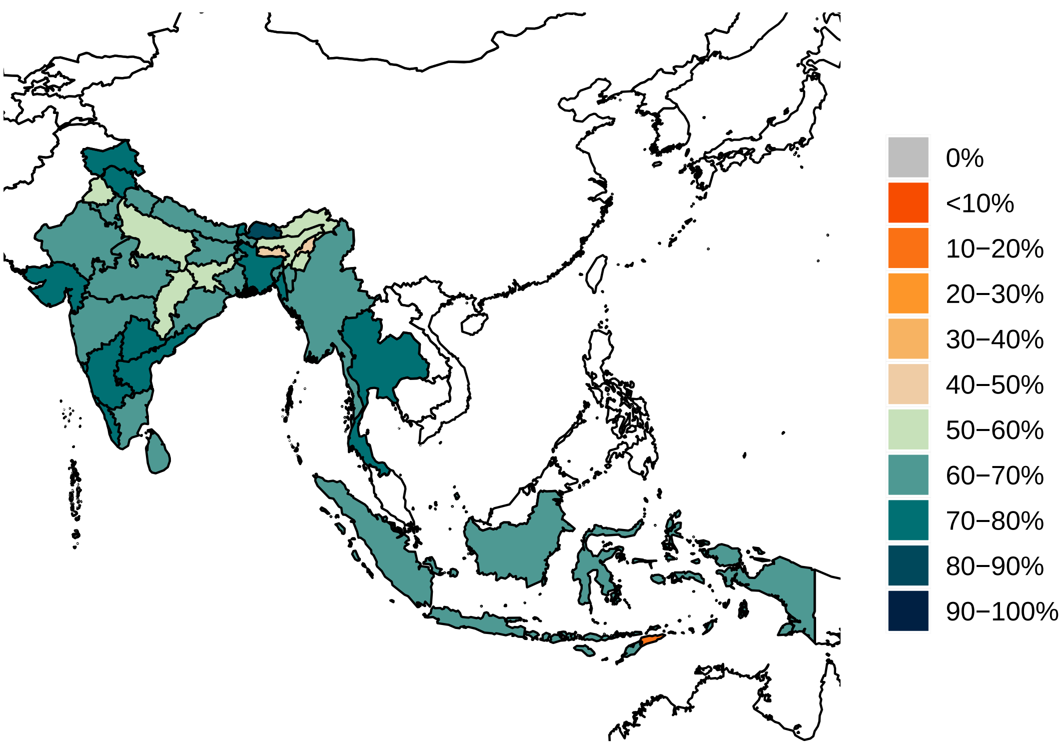


Figure 13.1: Estimated proportion of the total population that is not vaccinated but willing to be vaccinated as of June 24, 2022

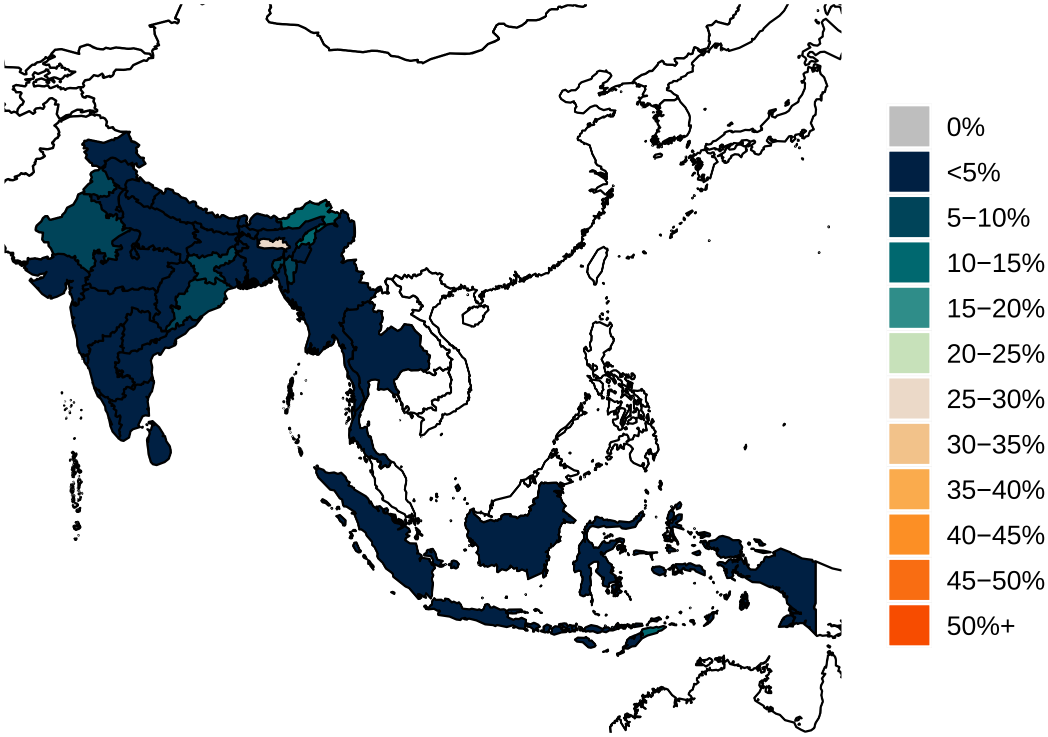


Figure 14.1: Percent of people who receive at least one dose of a COVID-19 vaccine and those who are fully vaccinated

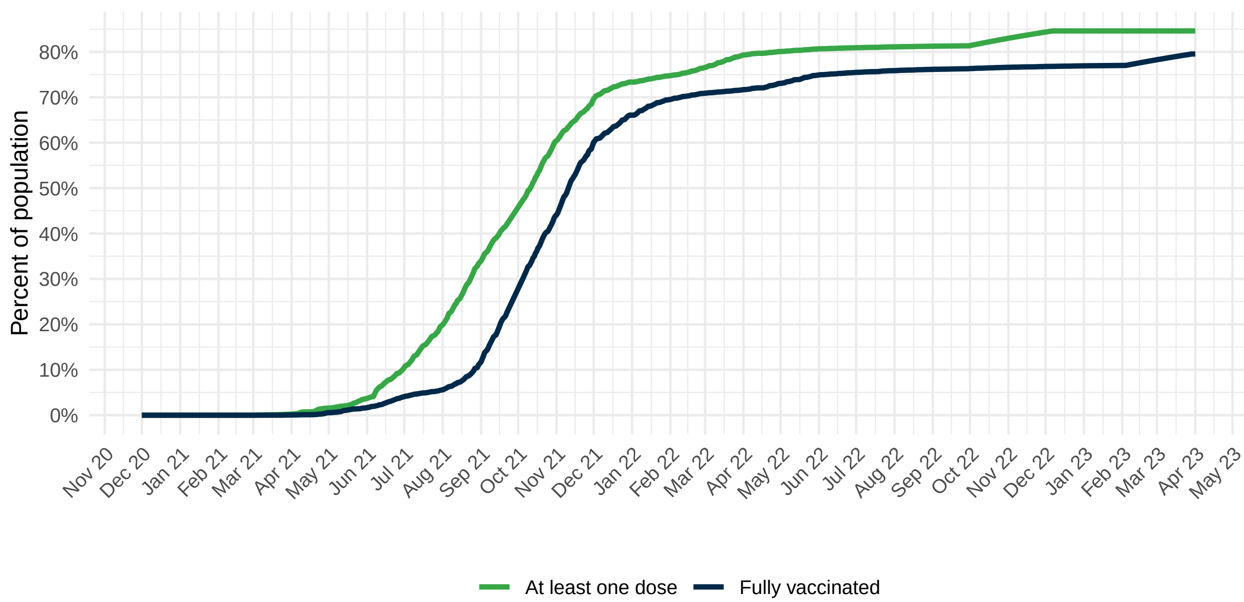
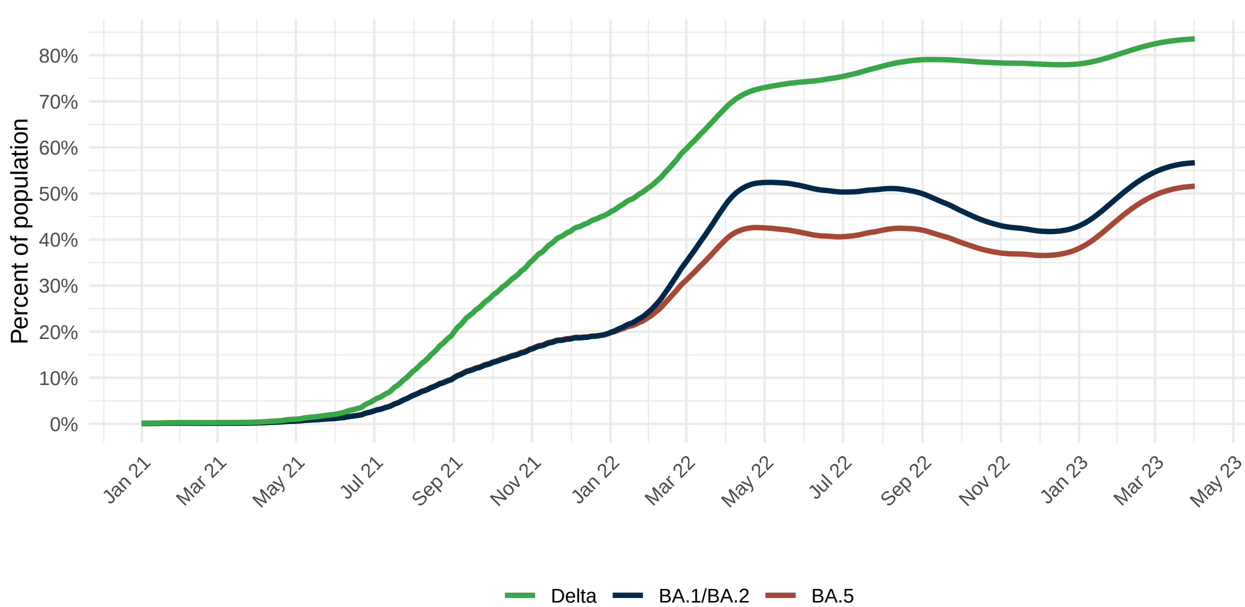


Figure 15.1: Percent of people who are immune to Delta, BA.1/BA.2 or BA.5. Immunity is based on protection due to prior vaccination and infection(s). Moreover, variant-specific immunity is also based on variant-variant specific protection.



Projections and scenarios

Figure 16.1: Daily COVID-19 infections until April 01, 2023 for three scenarios

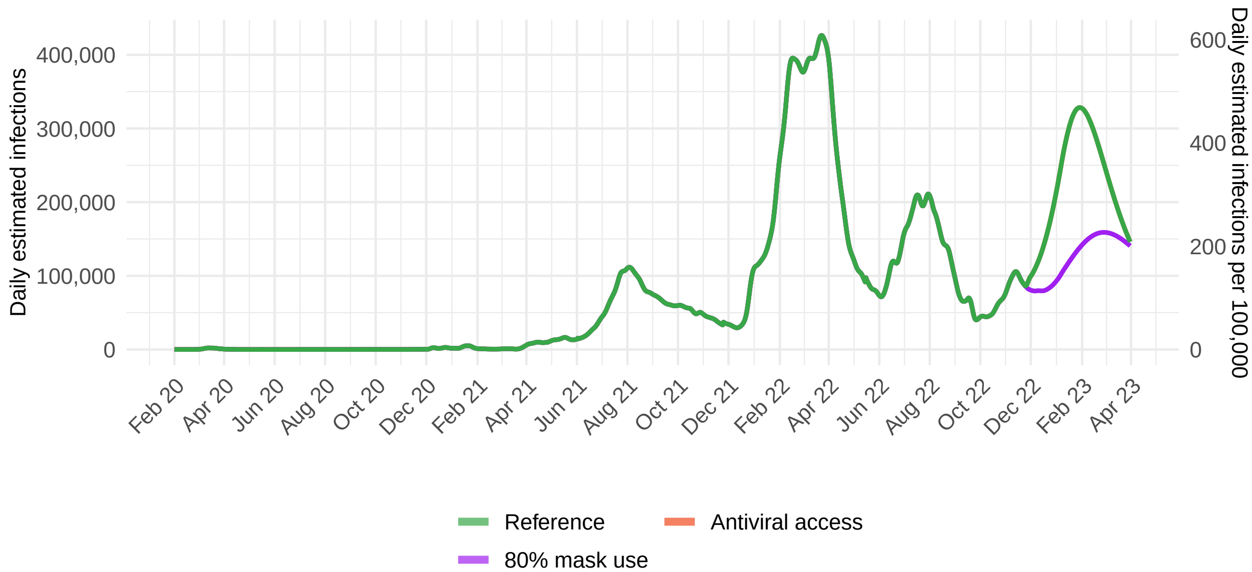


Figure 16.2: Daily COVID-19 reported cases until April 01, 2023 for three scenarios

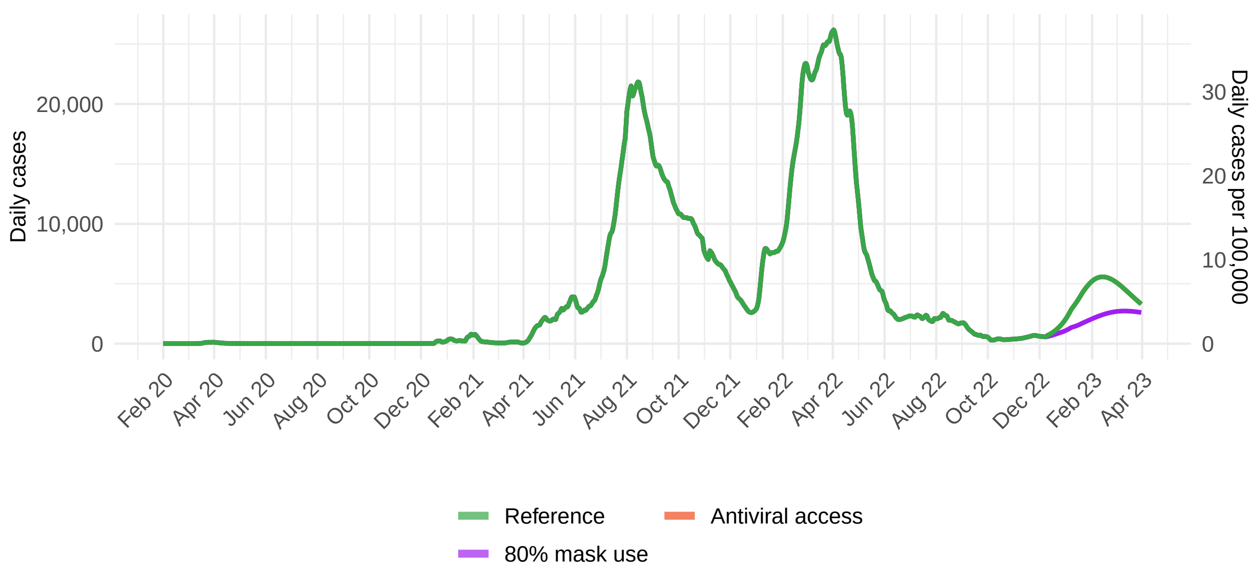


Figure 16.3: Daily COVID-19 hospital census until April 01, 2023 for three scenarios

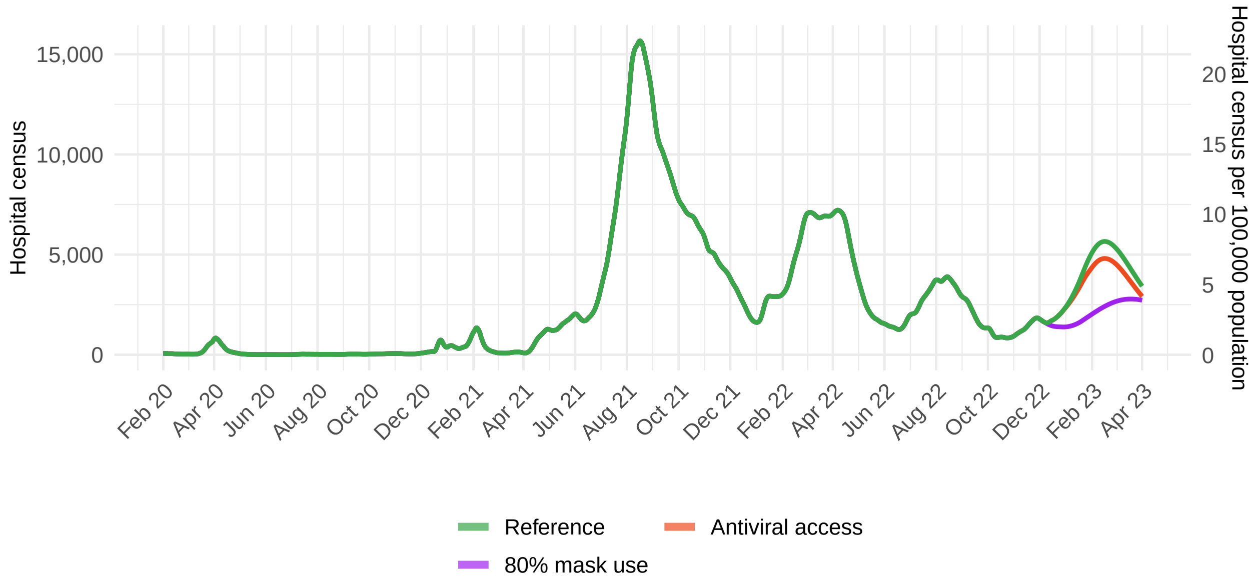


Figure 16.4: Reported daily COVID-19 deaths per 100,000

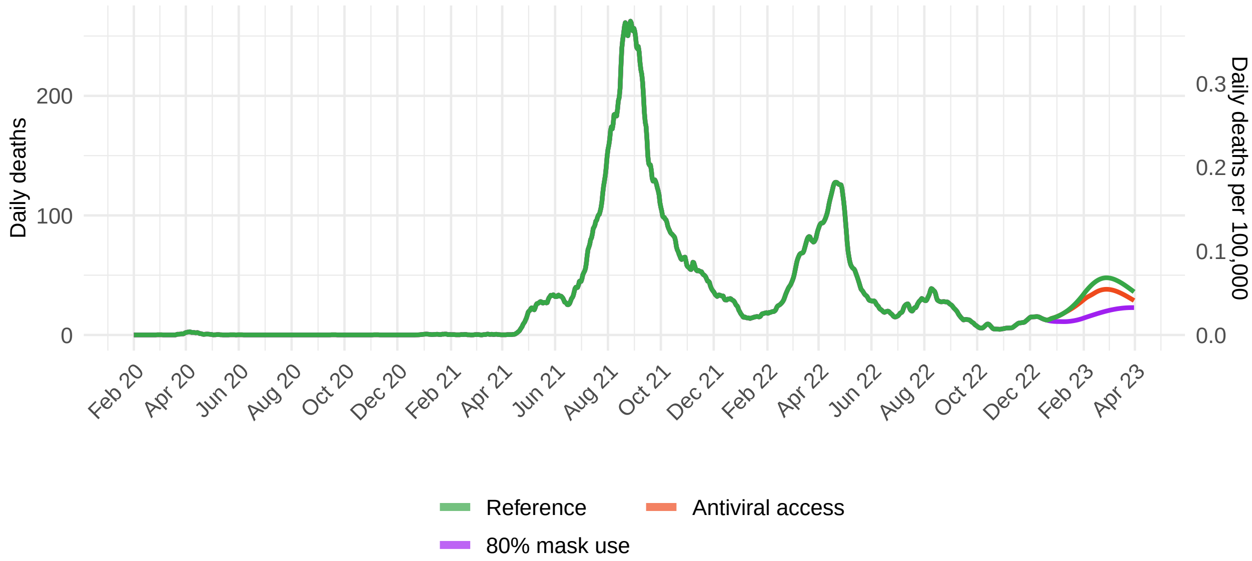


Figure 16.5: Total daily COVID-19 deaths per 100,000

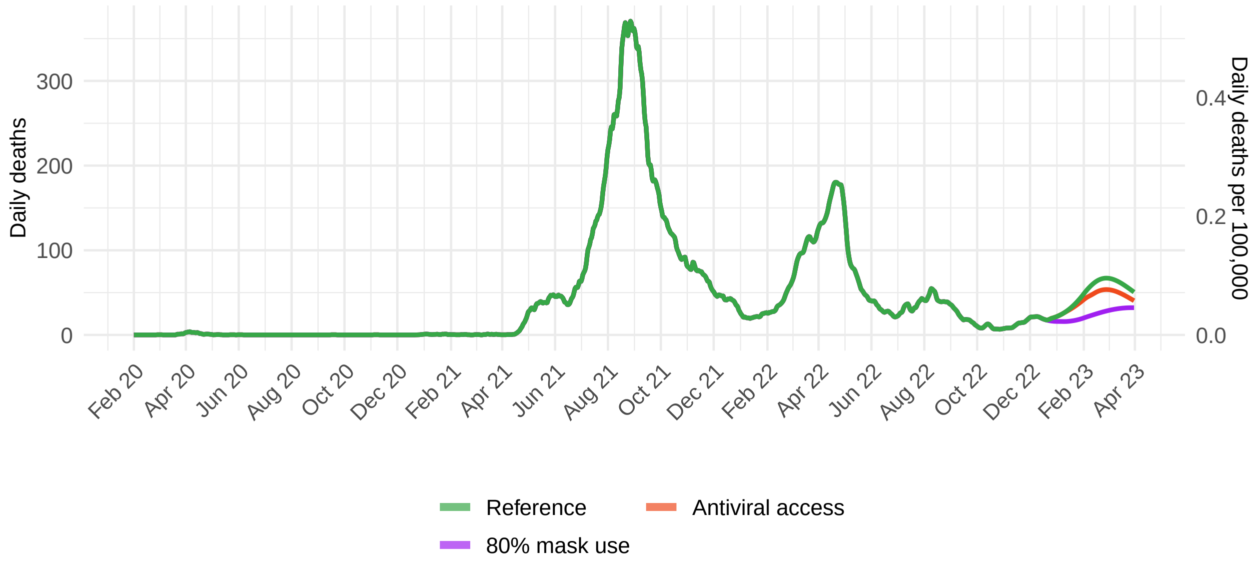


Figure 17.1: Comparison of reference model projections with other COVID modeling groups. For this comparison, we are including projections of daily COVID-19 deaths from other modeling groups when available, last model update in brackets: . Regional values are aggregates from available locations in that region.

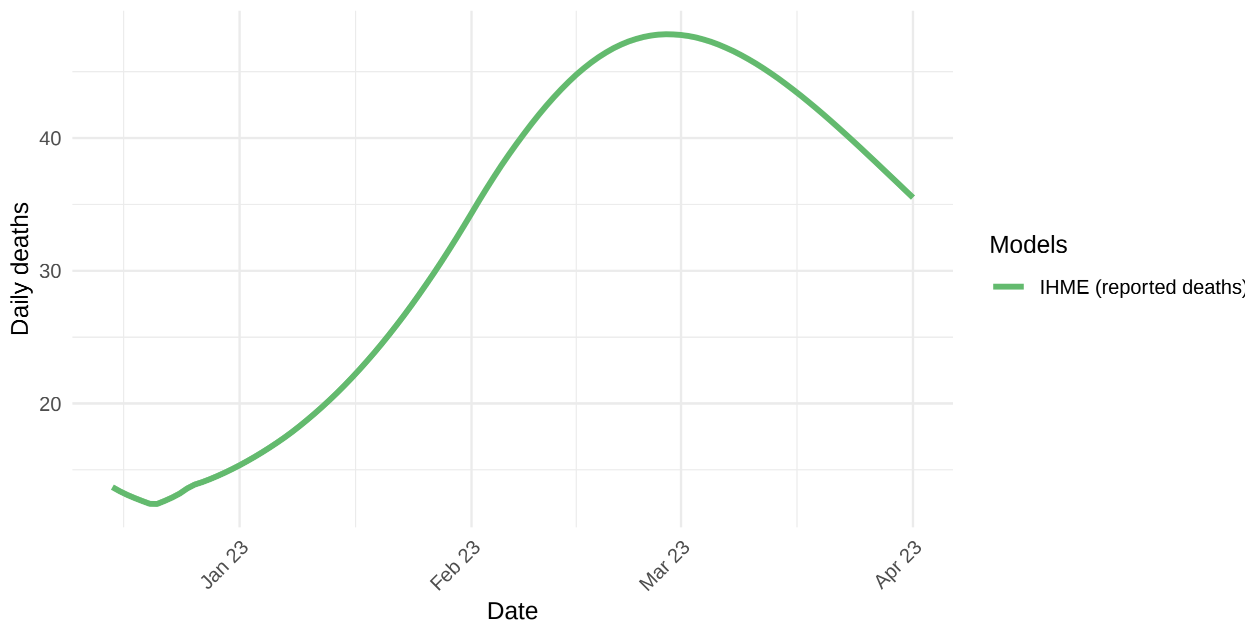


Figure 18.1: The estimated inpatient hospital usage is shown over time. The percent of hospital beds occupied by COVID-19 patients is color-coded based on observed quantiles of the maximum proportion of beds occupied by COVID-19 patients. Less than 5% is considered *low stress*, 5-9% is considered *moderate stress*, 10-19% is considered *high stress*, and 20% or greater is considered *extreme stress*.

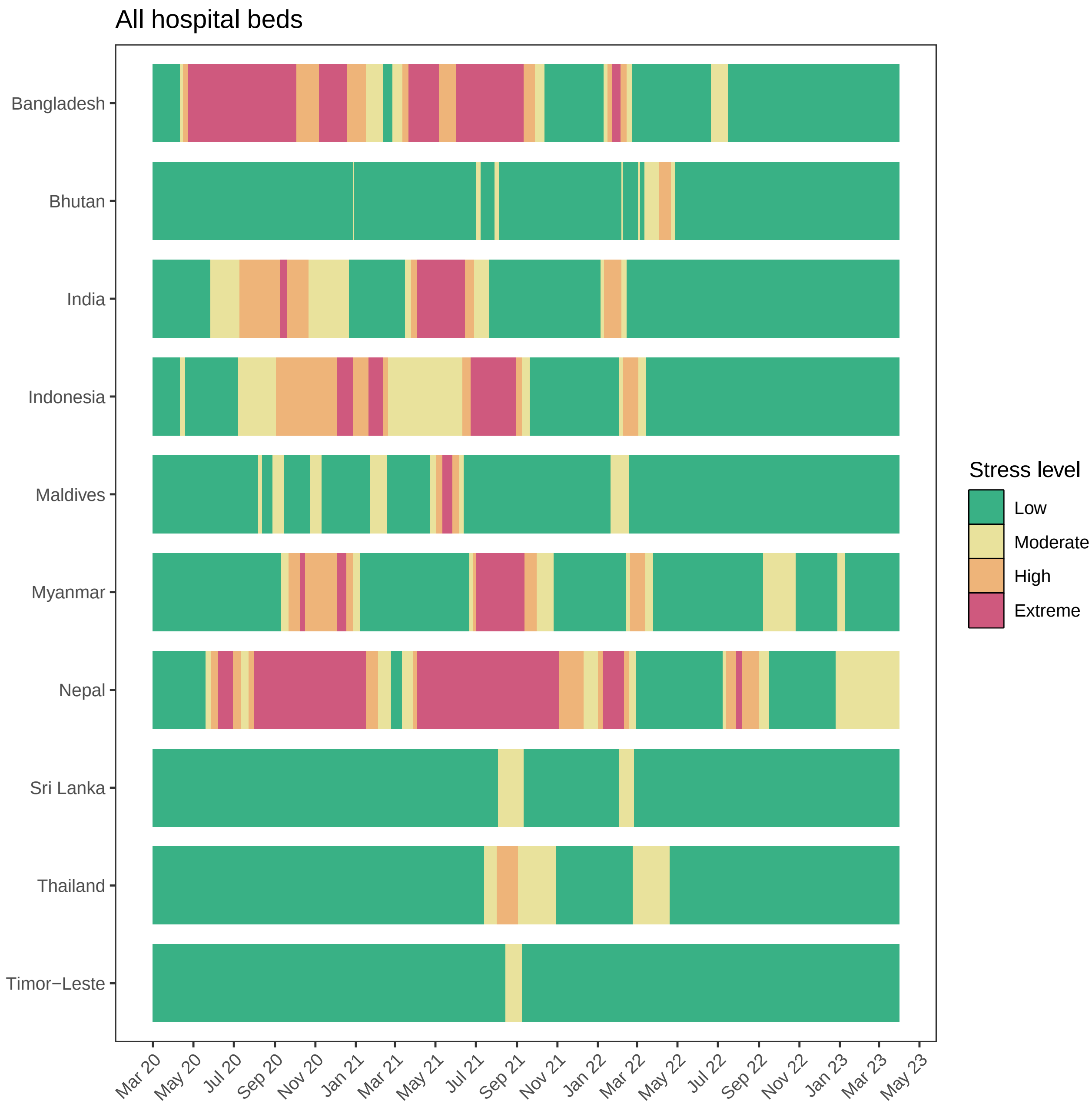
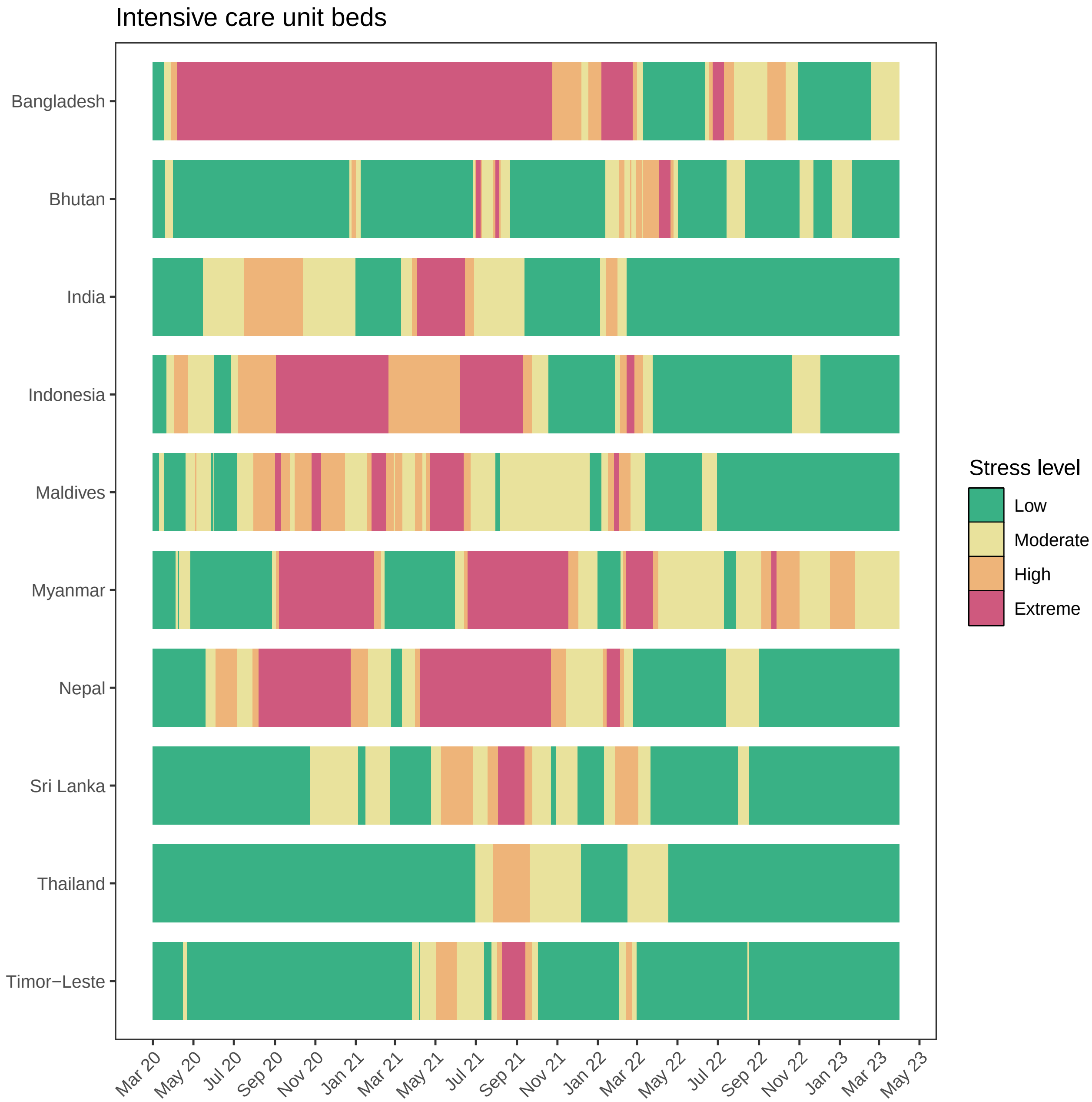


Figure 19.1: The estimated intensive care unit (ICU) usage is shown over time. The percent of ICU beds occupied by COVID-19 patients is color-coded based on observed quantiles of the maximum proportion of ICU beds occupied by COVID-19 patients. Less than 10% is considered *low stress*, 10-29% is considered *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.