COVID-19 Results Briefing

The Western Pacific Region

January 21, 2022

This document contains summary information on the latest projections from the IHME model on COVID-19 in the Western Pacific Region. The model was run on January 20, 2022, with data through January 18, 2022.

The Omicron wave continues to spread across the Western Pacific region as we project that COVID-19 infections in the last week increased to 6.9 million per day on average. In this week's update, we model in the reference scenario a national Omicron outbreak in China. We forecast that the Philippines, Australia, and Japan appear to have reached a peak, but many locations in the region will likely peak in the coming weeks, including China and New Zealand. The time from the initial surge in reported cases to the peak is consistently between 20 and 25 days regardless of vaccination levels or prevalence of past infection. The likely explanation is the extremely high transmissibility of Omicron and considerable immune escape from vaccine-derived and infection-acquired immunity. Our model projects that 10% of the people in the region have been infected at least once, and 83% of the people are fully vaccinated. The unprecedented level of infection is creating heavy pressure on health systems in the region, but we estimate that this should also have largely abated by March, although data vary substantially by country.

Given what we have learned about the speed and intensity of the Omicron wave, policy interventions appear to have a very limited impact in the short run. In our scenarios, expanding mask use or third-dose vaccination speeds the decline of transmission, but compared to previous variants these effects are quite modest. Testing, tracing, and quarantine are unlikely to have an impact given the volume of infection in most countries. Acutely, the main efforts of governments should focus on supporting health systems that face pressure due to the surge in COVID-19-related admissions, the large number of admissions for other health problems that have incidental COVID-19 infections requiring infection control measures, and the shortages of health workers due to quarantine. Given the rapid wave, governments may want to keep in place existing measures and mandates and consider removing them in a few weeks after transmission drops, just to be cautious.

After the Omicron wave subsides, high levels of infection-acquired and vaccine-derived immunity should lead to low levels of transmission for many weeks or months. Further reductions in transmission potential over the summer may extend the period of low COVID-19 infections into later in the year.

COVID-19 will return, however, for two reasons. First, vaccine-derived and infection-derived immunity preventing infection will steadily wane. Waning immunity and winter seasonality later in 2022 should lead at least to a winter increase. Second, new variants are highly likely to emerge. In fact, the billions of global infections occurring in the world from the end of November to March 1 may have created the opportunity for new variants to emerge. To prepare for future COVID-19 variants, governments should maintain surveillance and monitor for the emergence of new variants, continue to promote vaccination including third doses where vaccines are available, scale-up access to effective antivirals, and provide guidance for high-risk groups to use high-quality masks and social distance if and when a new variant that is more severe than Omicron emerges. Accelerating access to antivirals in low-and middle-income countries takes on greater importance. With these measures in place, even the emergence of a new variant with increased severity as compared to Omicron should not require the return to pandemic-era mandates.

Current situation

- Daily infections in the last week increased to 6,925,100 per day on average compared to 5,029,700 the week before (Figure 1.1). Daily hospital census in the last week (through January 18) increased to 65,000 per day on average compared to 37,500 the week before.
- Daily reported cases in the last week increased to 200,500 per day on average compared to 136,700 the week before (Figure 2.1).
- Reported deaths due to COVID-19 in the last week decreased to 310 per day on average compared to 320 the week before (Figure 3.1).
- Total deaths due to COVID-19 in the last week decreased to 790 per day on average compared to 870 the week before (Figure 3.1). This makes COVID-19 the number 12 cause of death in the Western Pacific Region this week (Table 1). Estimated total daily deaths due to COVID-19 in the past week were 2.5 times larger than the reported number of deaths.
- No locations had daily reported COVID-19 death rates greater than 4 per million (Figure 4.1).
- The daily rate of total deaths due to COVID-19 is greater than 4 per million in two countries (Figure 4.2).
- We estimate that 10% of people in Western Pacific Region have been infected at least once as of January 18 (Figure 6.1). Effective R, computed using cases, hospitalizations, and deaths, is greater than 1 in 13 countries in the region (Figure 7.1).
- The infection-detection rate in the Western Pacific Region was close to 5% on January 18 (Figure 8.1).

- Based on the GISAID and various national databases, combined with our variant spread model, we estimate the current prevalence of variants of concern (Figures 9.1–9.5). We estimate that the Alpha variant is circulating in 2 countries, that the Beta variant is circulating in one country, that the Delta variant is circulating in 18 countries, that the Gamma variant is circulating in 3 countries, and that the Omicron variant is circulating in 24 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 no locations.
- As of January 18, in the COVID-19 Trends and Impact Survey, 64% of people self-report that they always wore a mask when leaving their home, the same as last week (Figure 13.1).
- There were 132 diagnostic tests per 100,000 people on January 18 (Figure 15.1).
- As of January 18, 14 countries have reached 70% or more of the population who have received at least one vaccine dose, and 10 countries have reached 70% or more of the population who are fully vaccinated (Figure 17.1). 89% of people in the Western Pacific Region have received at least one vaccine dose and 83% are fully vaccinated.
- In the Western Pacific Region, 97.7% of the population that is 12 years and older say they would accept or would probably accept a vaccine for COVID-19. Note that vaccine acceptance is calculated using survey data from the 18+ population. The proportion of the population who are open to receiving a COVID-19 vaccine ranges from 51% in Mongolia to 100% in Malaysia (Figure 19.1).
- In our current reference scenario, we expect that 1.7 billion people will be vaccinated with at least one dose by May 1 (Figure 20.1). We expect that 84% of the population will be fully vaccinated by May 1.

Projections

Infections

- Daily estimated infections in the **reference scenario**, which represents what we think is most likely to happen, will rise to 28,229,430 by February 9, 2022 (Figure 21.1).
- Daily estimated infections in the **80% mask coverage scenario** will rise to 24,179,970 by February 13, 2022 (Figure 21.1).
- Daily estimated infections in the **third dose scenario** will rise to 24,975,400 by February 11, 2022 (Figure 21.1).

Cases

- Daily cases in the **reference scenario** will rise to 1,246,390 by February 21, 2022 (Figure 21.2).

- Daily cases in the **80% mask coverage scenario** will rise to 1,059,110 by February 25, 2022 (Figure 21.2).
- Daily cases in the **third dose scenario** will rise to 1,108,990 by February 24, 2022 (Figure 21.2).

Hospitalizations

- Daily hospital census in the **reference scenario** will rise to 487,460 by February 24, 2022 (Figure 21.3).
- Daily hospital census in the **80% mask coverage scenario** will rise to 423,930 by February 28, 2022 (Figure 21.3).
- Daily hospital census in the **third dose scenario** will rise to 437,880 by February 26, 2022 (Figure 21.3).

Deaths

- In our **reference scenario**, our model projects 199,000 cumulative reported deaths due to COVID-19 on May 1. This represents 39,000 additional deaths from January 18 to May 1. Daily reported COVID-19 deaths in the **reference scenario** will rise to 920 by March 7, 2022 (Figure 21.4).
- Under our **reference scenario**, our model projects 435,000 cumulative total deaths due to COVID-19 on May 1. This represents 74,000 additional deaths from January 18 to May 1 (Figure 24.2).
- In our **80% mask coverage scenario**, our model projects 198,000 cumulative reported deaths due to COVID-19 on May 1. This represents 37,000 additional deaths from January 18 to May 1. Daily reported COVID-19 deaths in the **80% mask coverage scenario** will rise to 780 by March 11, 2022 (Figure 21.4).
- In our **third dose scenario**, our model projects 197,000 cumulative reported deaths due to COVID-19 on May 1. This represents 37,000 additional deaths from January 18 to May 1. Daily reported COVID-19 deaths in the **third dose scenario** will rise to 810 by March 9, 2022 (Figure 21.4).
- Figure 22.1 compares our reference scenario forecasts to other publicly archived models. Forecasts are widely divergent.
- At some point from January through May 1, 11 countries will have high or extreme stress on hospital beds (Figure 23.1). At some point from January through May 1, 15 countries will have high or extreme stress on intensive care unit (ICU) capacity (Figure 24.1).

Model updates

No model updates.

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

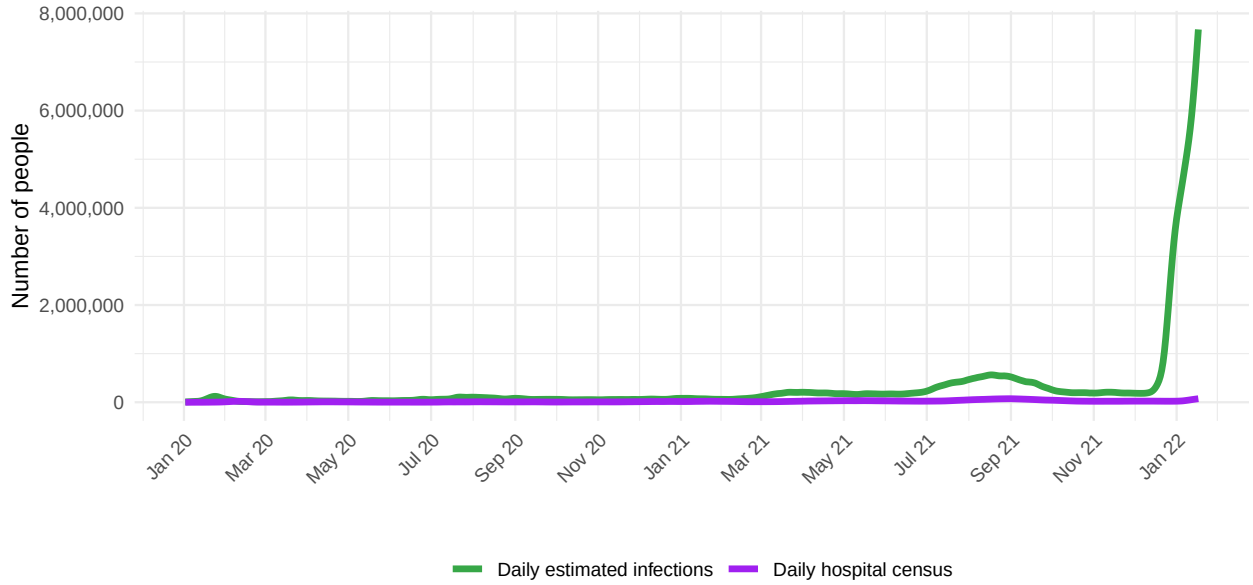


Figure 2.1. Reported daily COVID-19 cases, moving average

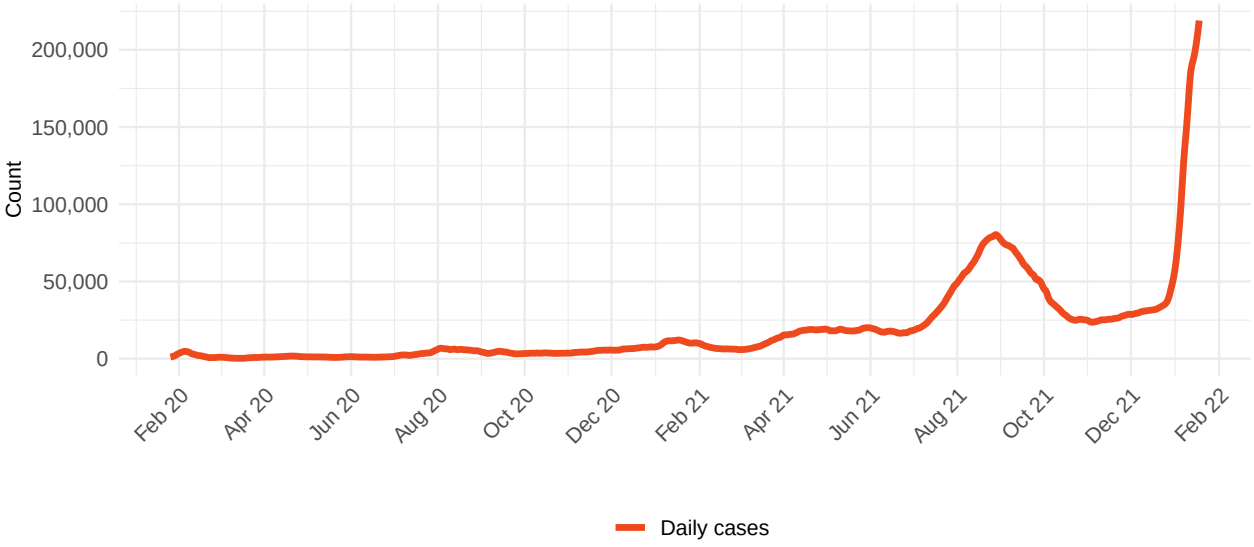
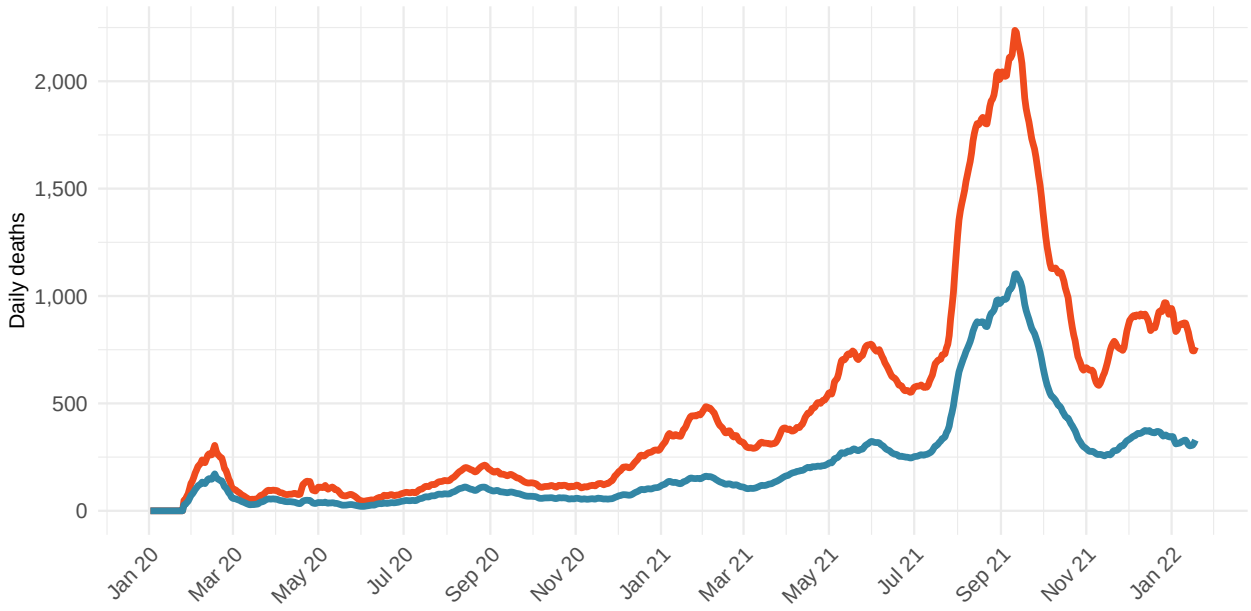


Table 1. Ranking of total deaths due to COVID-19 among the leading causes of mortality this week, assuming uniform deaths of non-COVID causes throughout the year

Cause name	Weekly deaths	Ranking
Stroke	51,115	1
Ischemic heart disease	44,778	2
Chronic obstructive pulmonary disease	22,489	3
Tracheal, bronchus, and lung cancer	18,018	4
Alzheimer's disease and other dementias	10,761	5
Stomach cancer	9,878	6
Lower respiratory infections	8,865	7
Hypertensive heart disease	7,494	8
Colon and rectum cancer	7,483	9
Chronic kidney disease	6,343	10
COVID-19	5,508	12

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 18, 2022

Figure 4.1 Daily reported COVID-19 death rate per 1 million

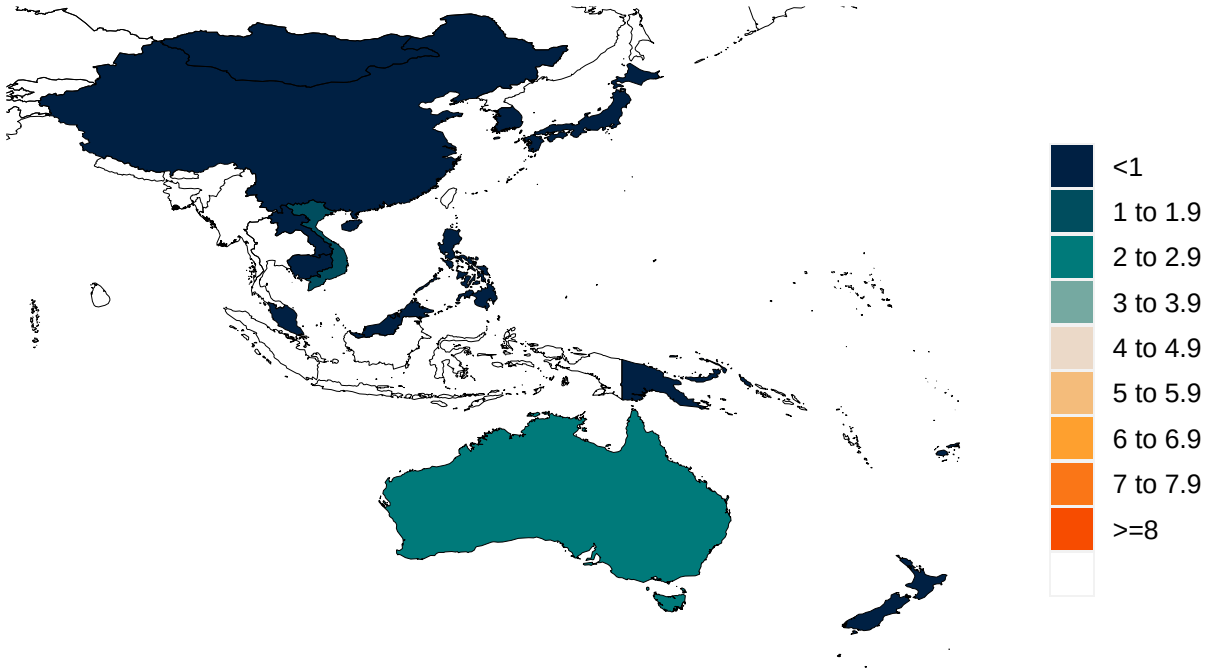
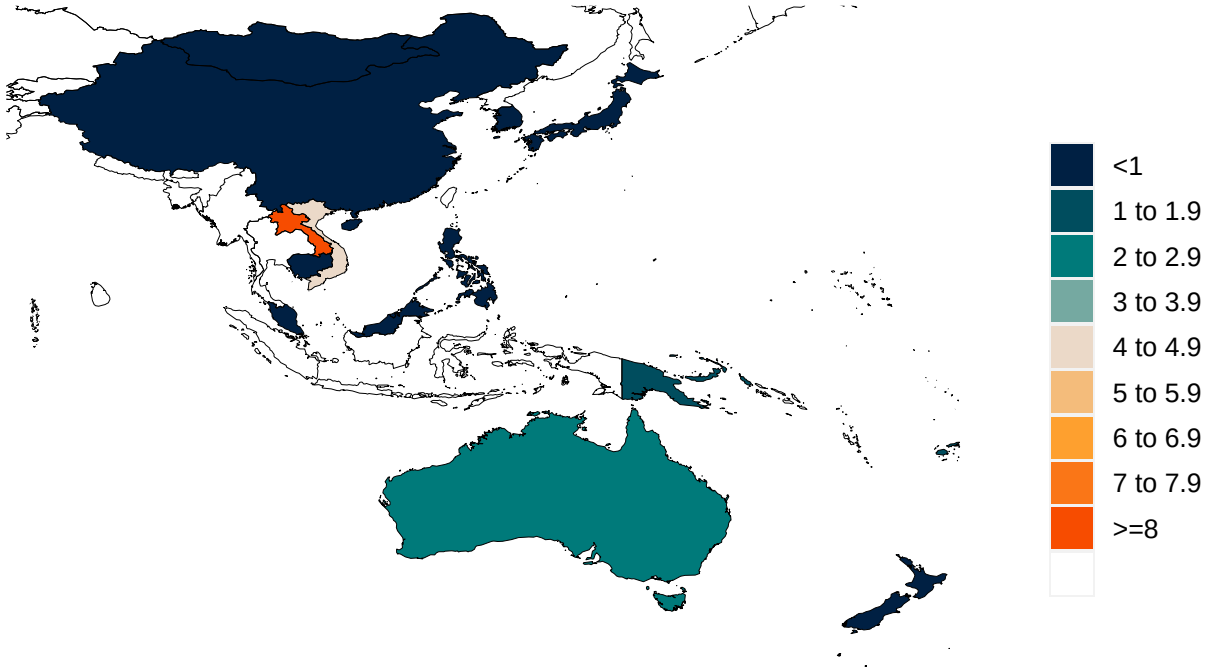


Figure 4.2 Daily total COVID-19 death rate per 1 million



Cumulative COVID-19 deaths per 100,000 on January 18, 2022

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

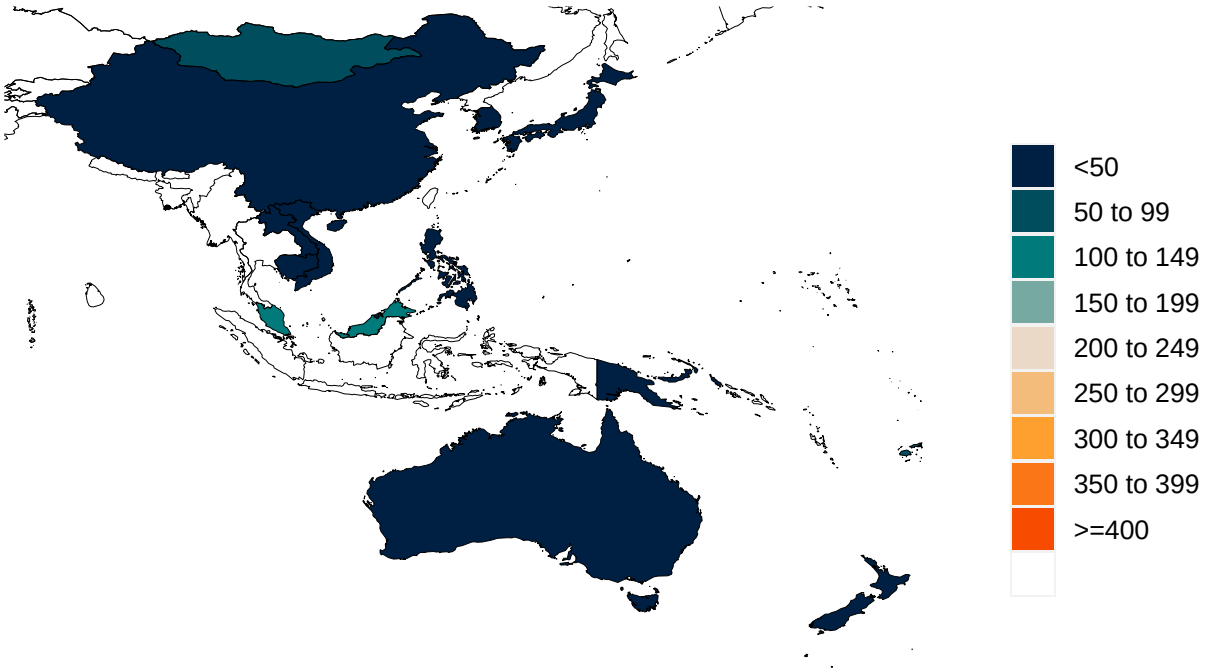


Figure 5.2 Total cumulative COVID-19 deaths per 100,000

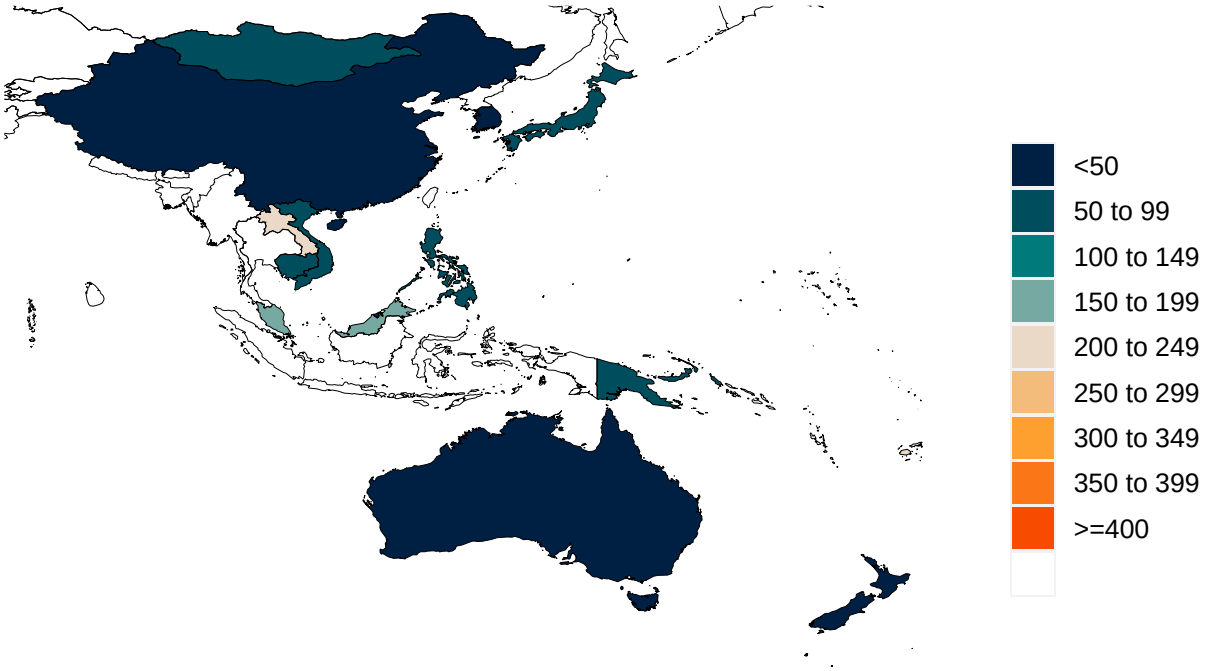


Figure 6.1. Estimated percent of the population infected with COVID-19 on January 18, 2022

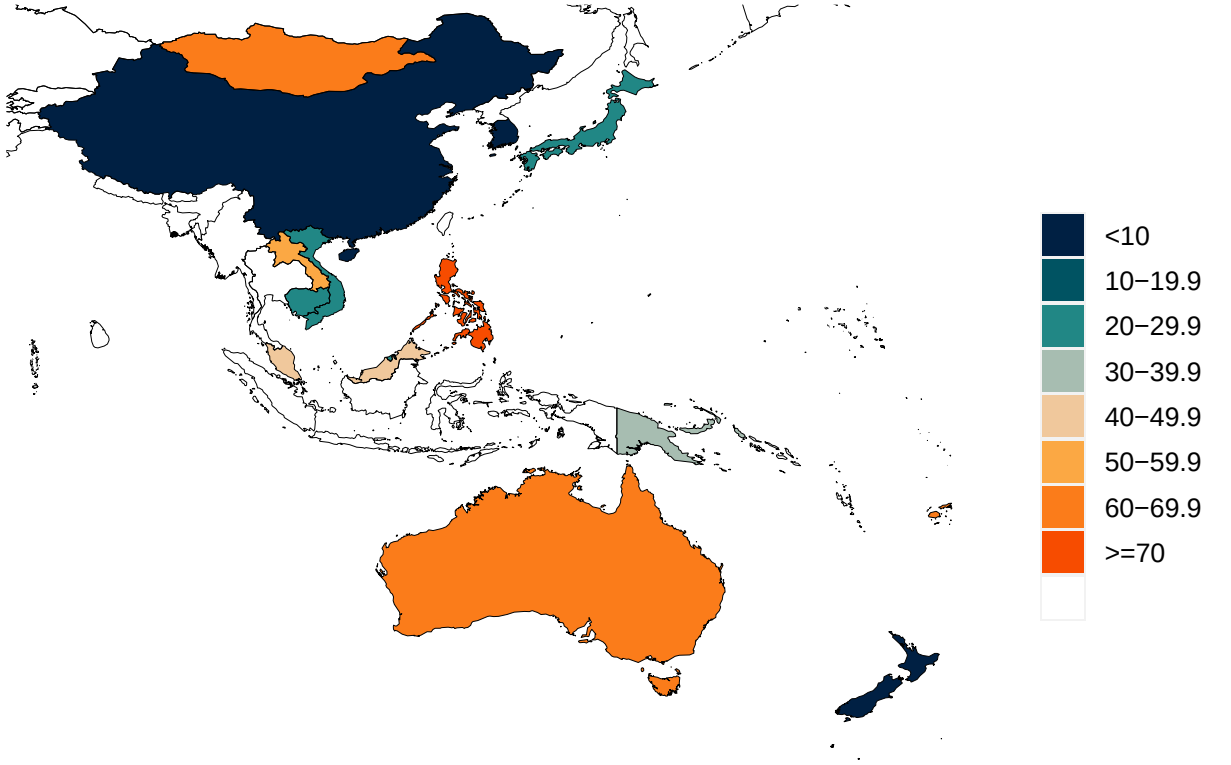


Figure 7.1. Mean effective R on January 7, 2022. Effective R less than 1 means that transmission should decline, all other things being held the same. The estimate of effective R is based on the combined analysis of deaths, case reporting, and hospitalizations where available. Current reported cases reflect infections 11-13 days prior, so estimates of effective R can only be made for the recent past.

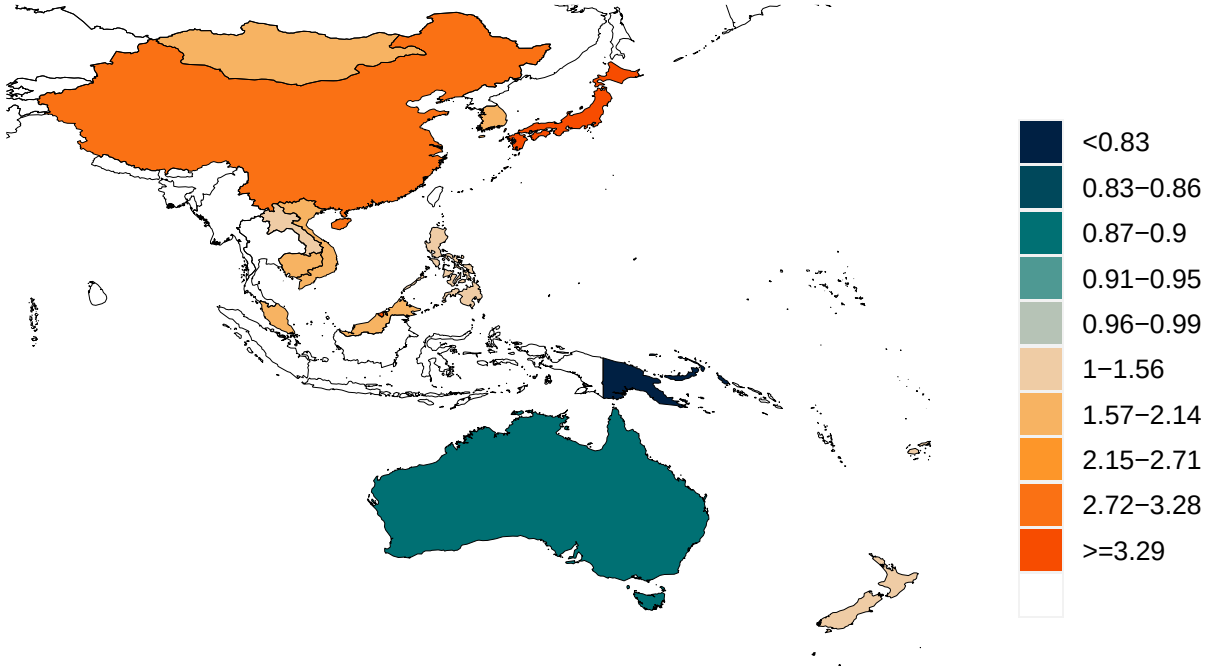
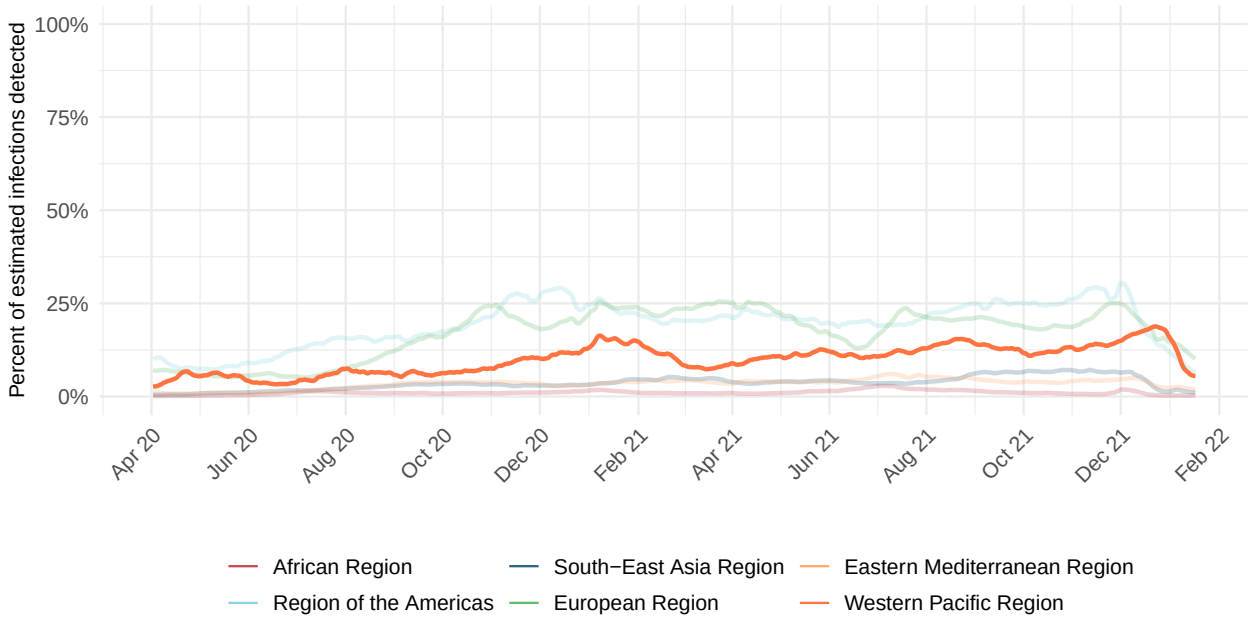


Figure 8.1. Percent of estimated COVID-19 infections detected. This is estimated as the ratio of reported daily COVID-19 cases to estimated daily COVID-19 infections based on the SEIR disease transmission model. Due to measurement errors in cases and testing rates, the infection-detection rate can exceed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



Estimated percent of circulating SARS-CoV-2 for primary variant families on January 18, 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

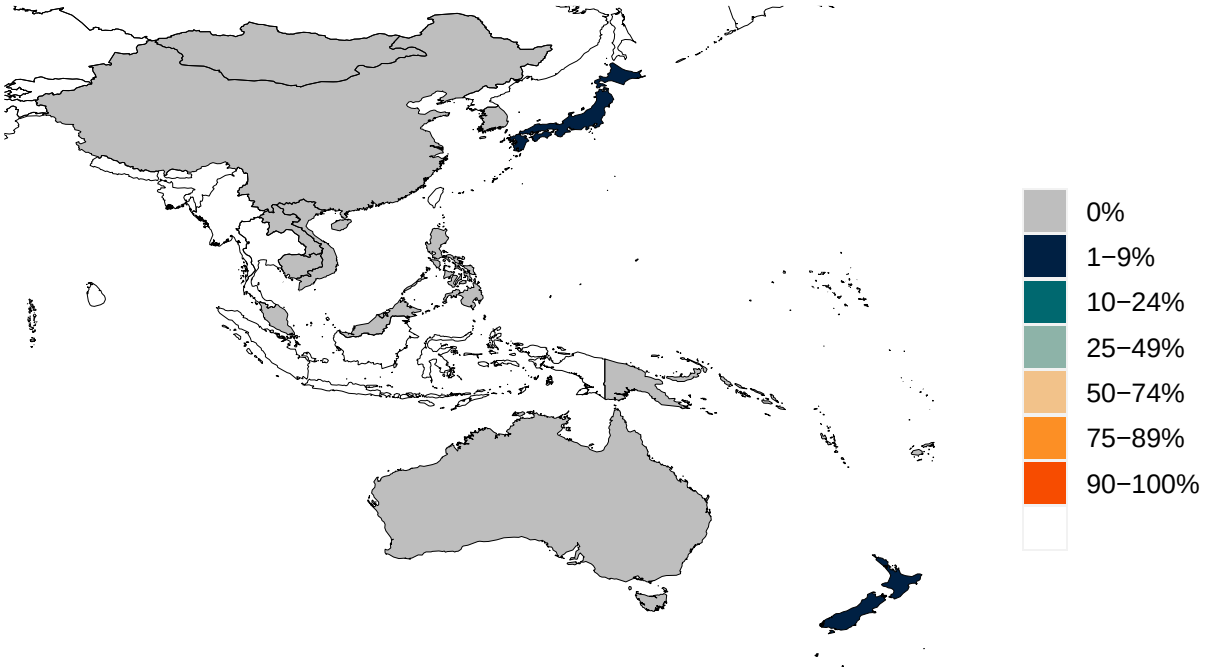


Figure 9.5 Estimated percent of new infections that are Omicron variant

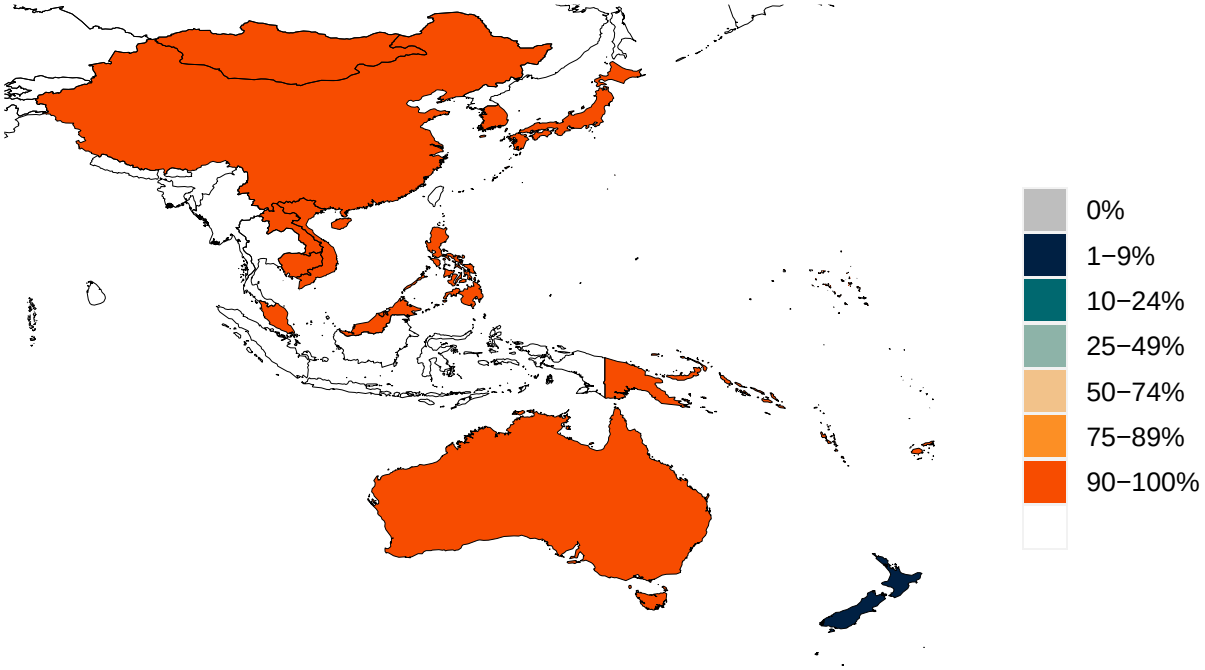
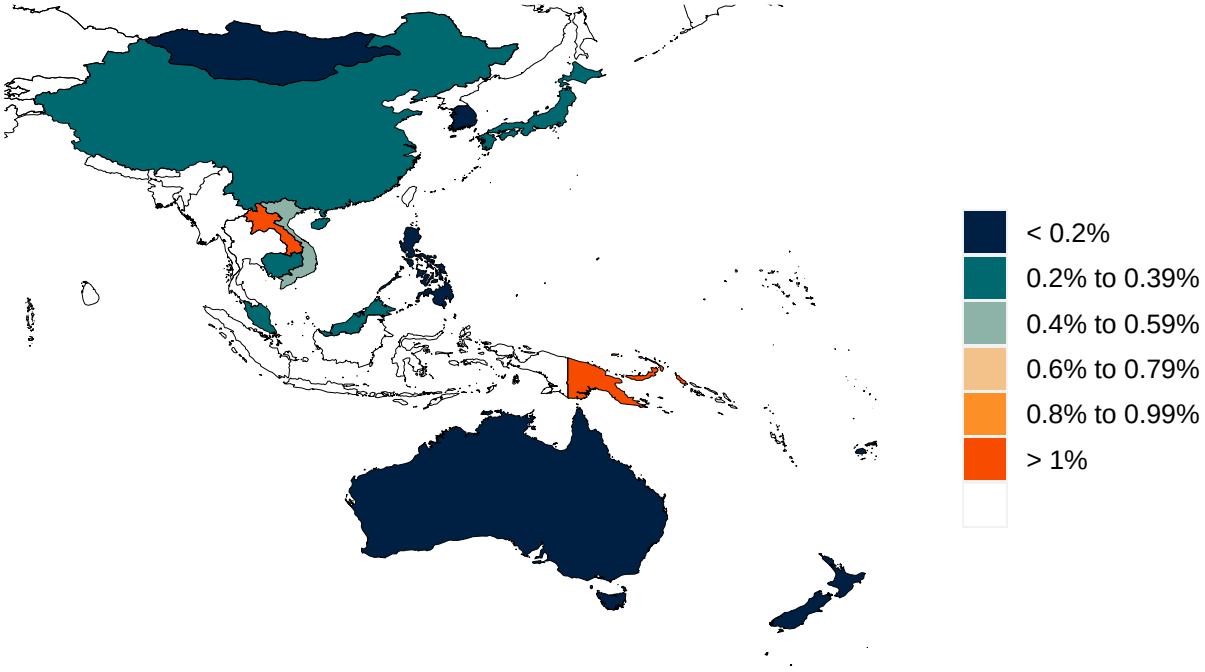


Figure 10.1. Infection-fatality rate on January 18, 2022. This is estimated as the ratio of COVID-19 deaths to estimated daily COVID-19 infections.



Critical drivers

Table 2. Current mandate implementation

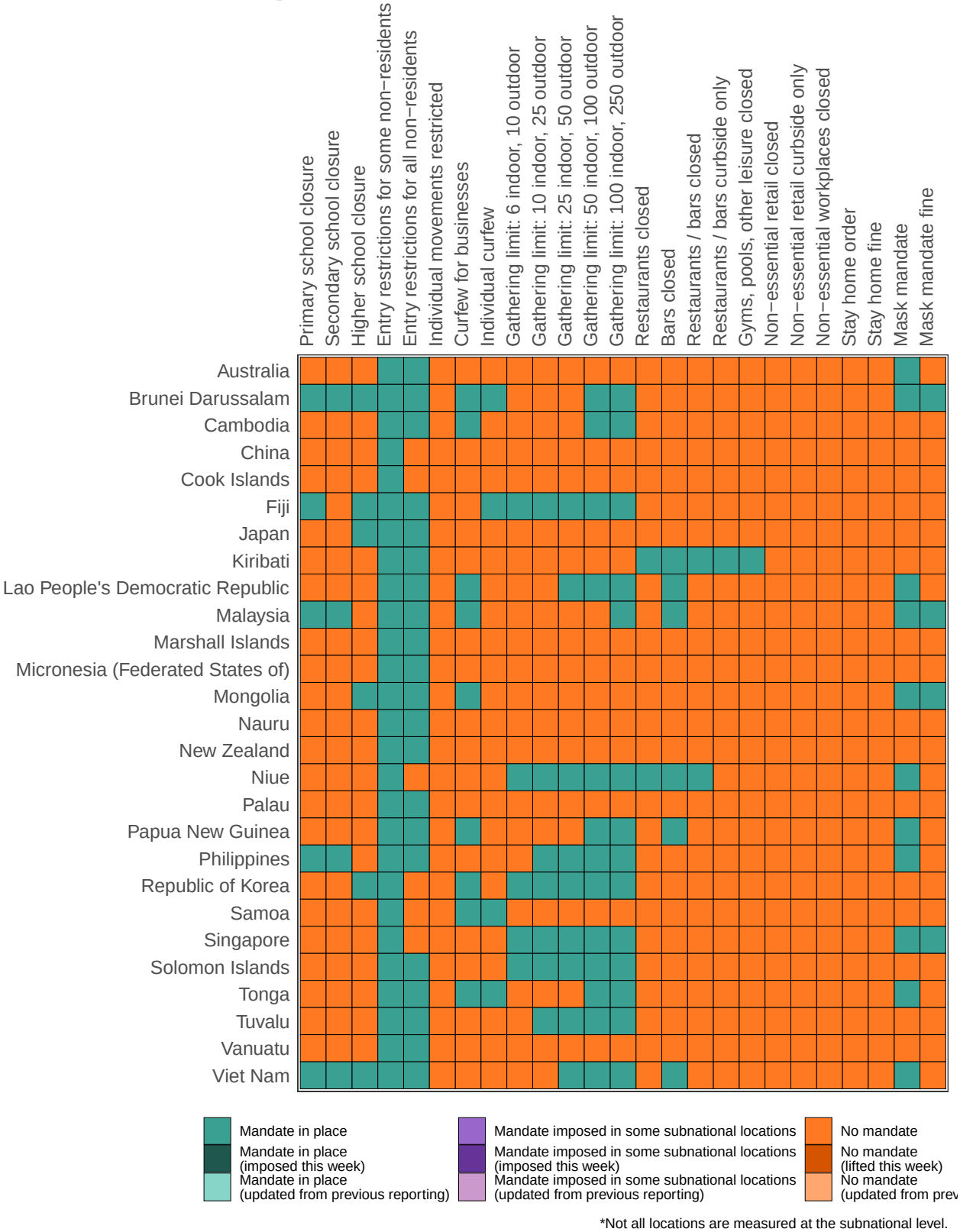


Figure 11.1. Trend in mobility as measured through smartphone app use, compared to January 2020 baseline

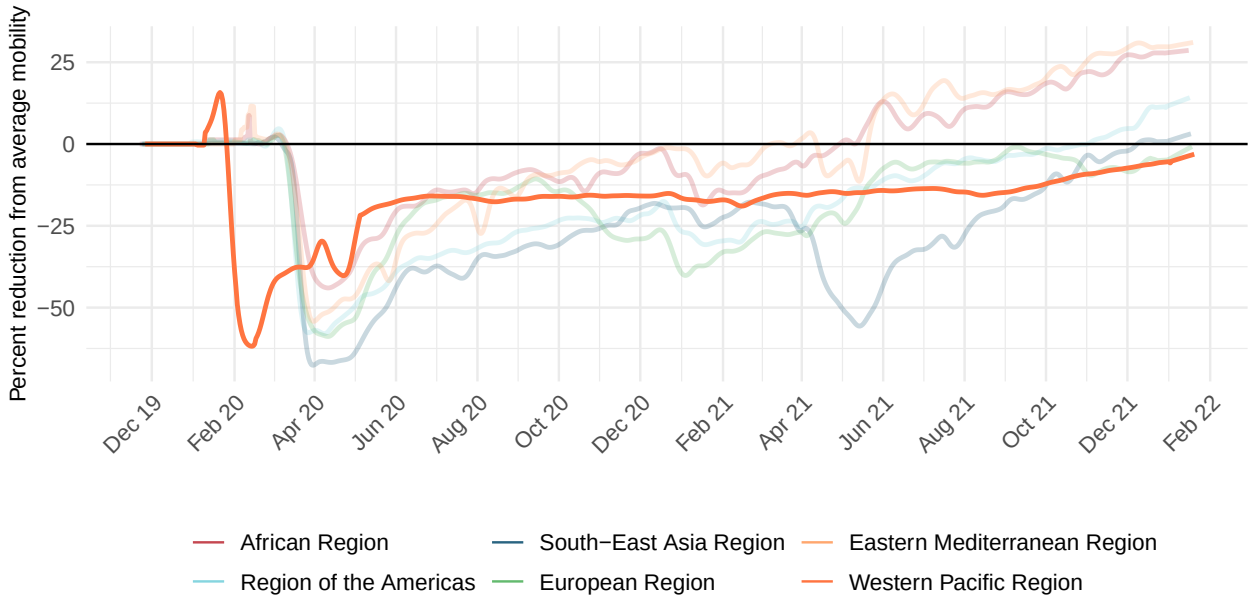


Figure 12.1. Mobility level as measured through smartphone app use, compared to January 2020 baseline (percent) on January 18, 2022

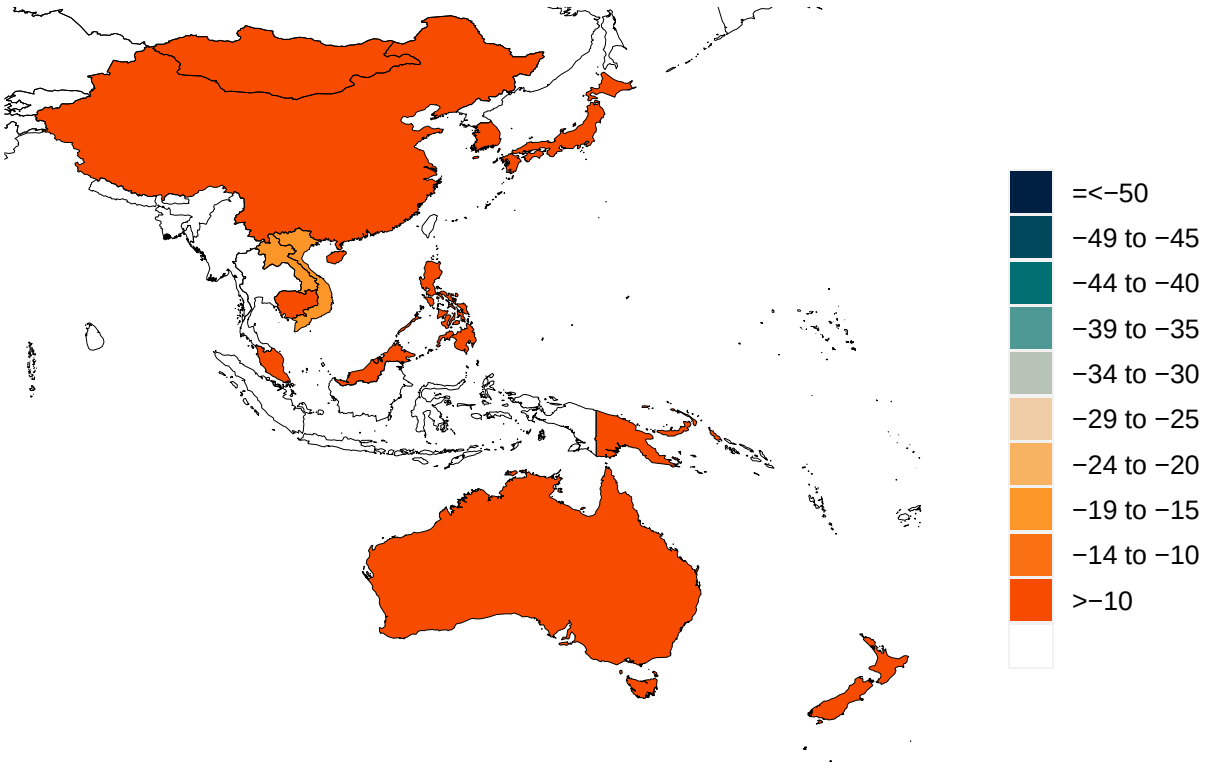


Figure 13.1. Trend in the proportion of the population reporting always wearing a mask when leaving home

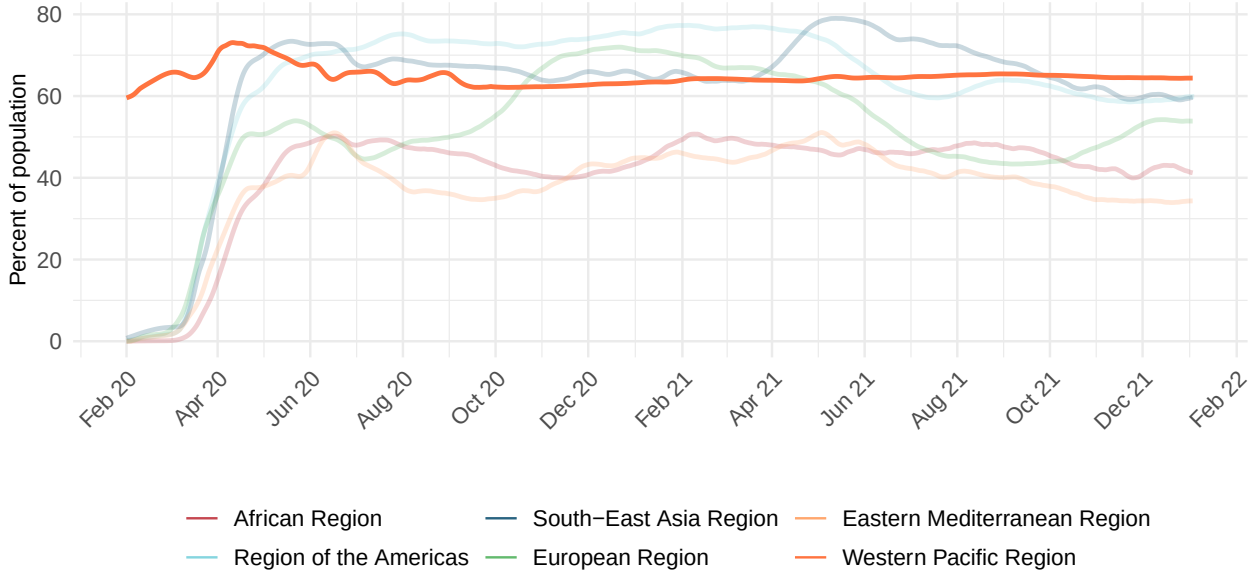


Figure 14.1. Proportion of the population reporting always wearing a mask when leaving home on January 18, 2022

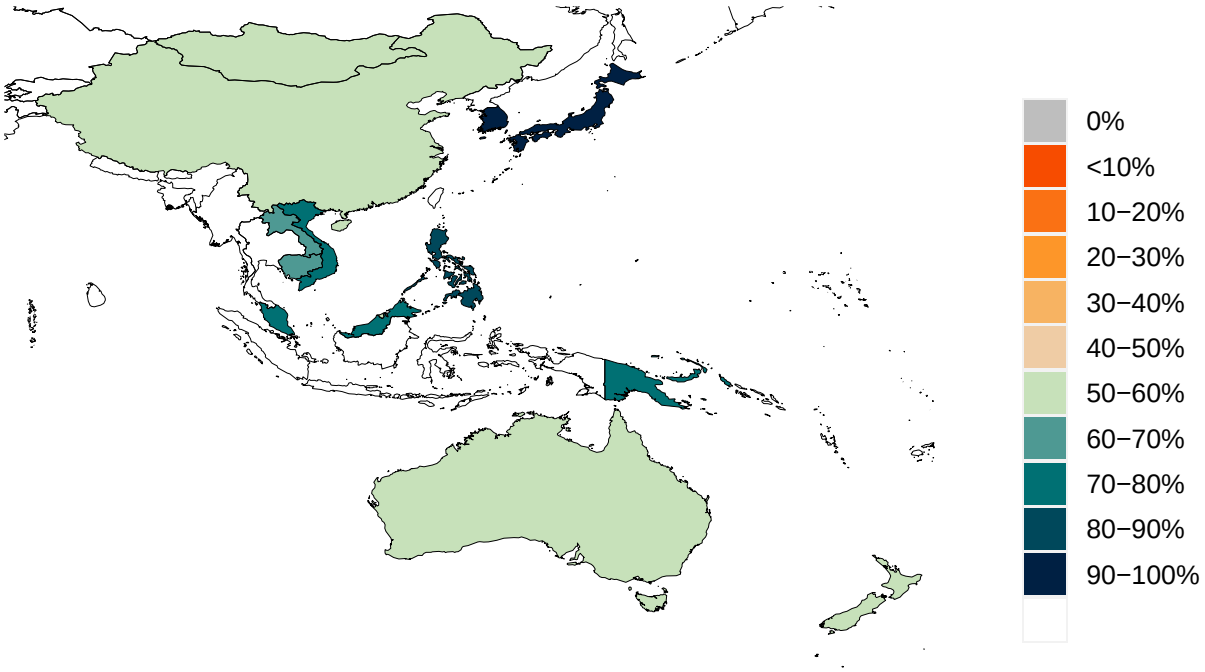


Figure 15.1. Trend in COVID-19 diagnostic tests per 100,000 people

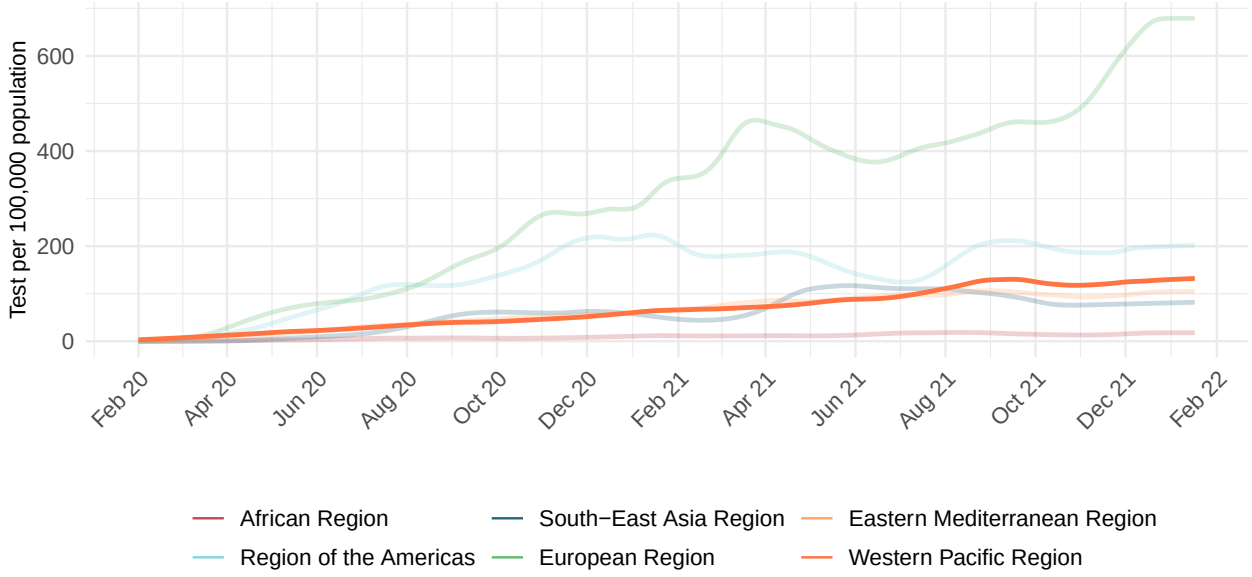


Figure 16.1. COVID-19 diagnostic tests per 100,000 people on January 18, 2022

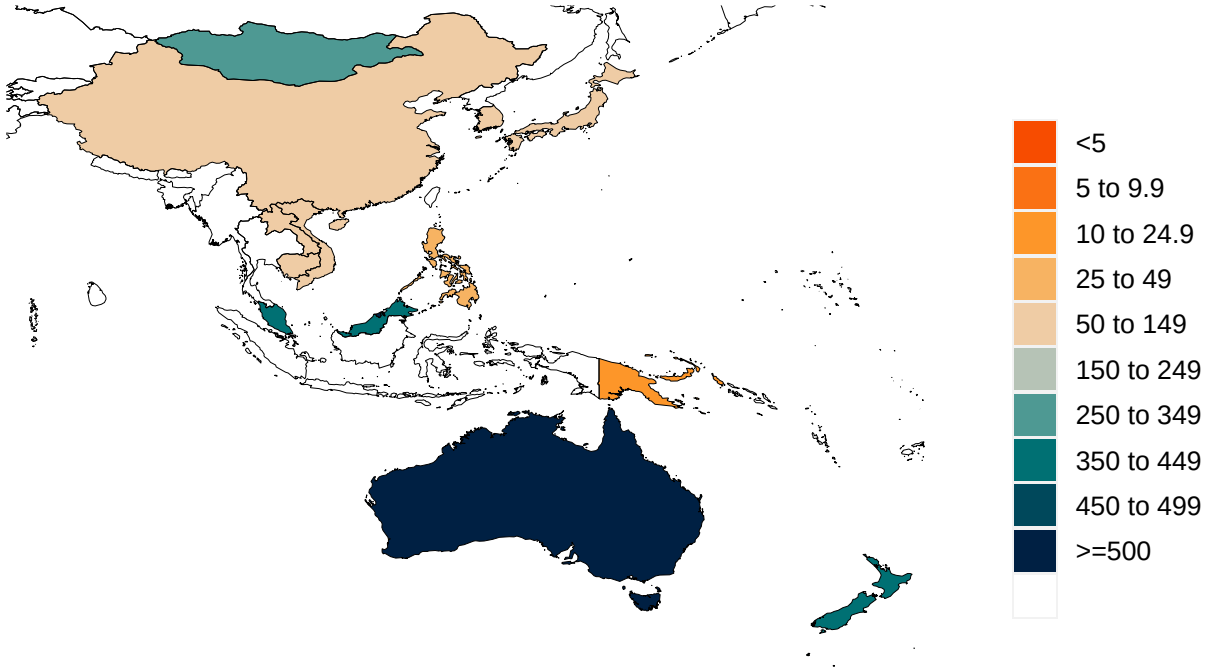


Table 3. Estimates of vaccine effectiveness for specific vaccines used in the model at preventing severe disease and infection. We use data from clinical trials directly, where available, and make estimates otherwise. More information can be found on our website.

	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 18, 2022

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

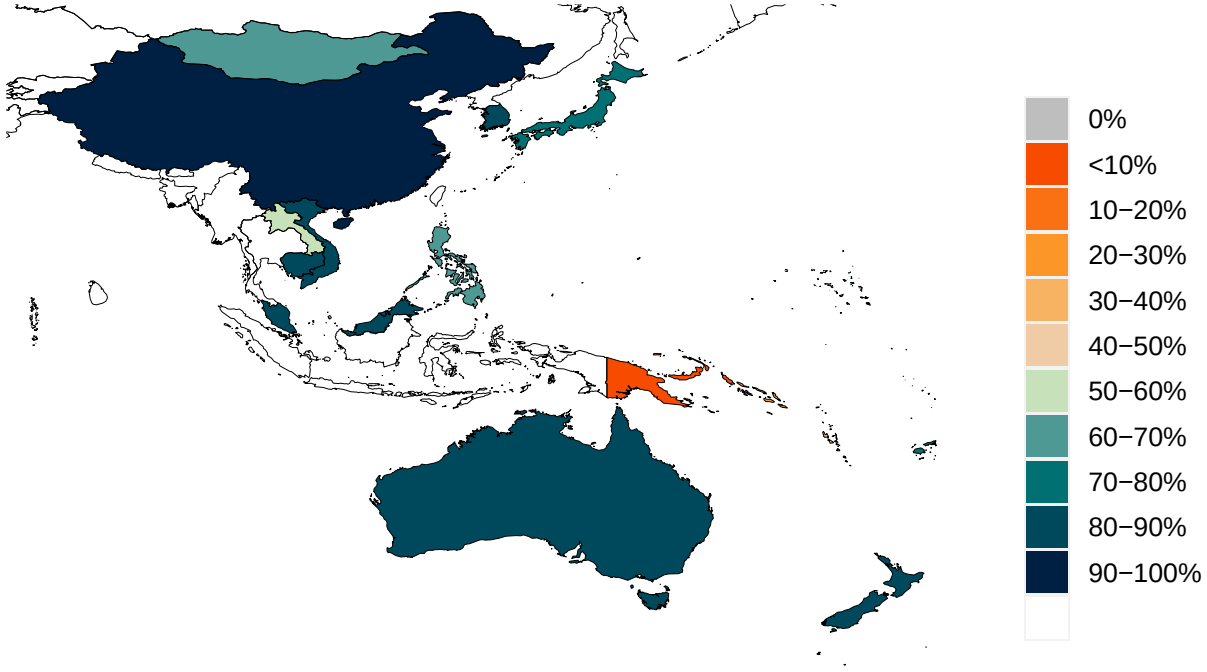


Figure 17.2 Percent of the population fully vaccinated against SARS-CoV-2

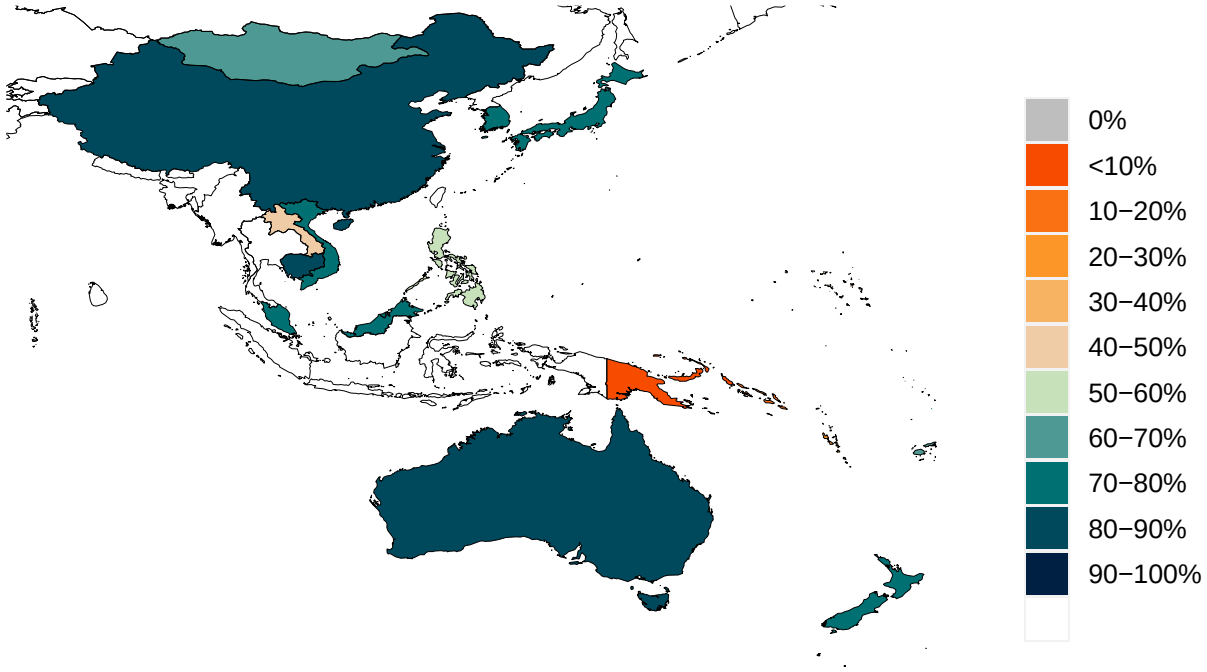


Figure 18.1. Trend in the estimated proportion of the population that is 12 years and older that has been vaccinated or would probably or definitely receive the COVID-19 vaccine if available. Note that vaccine acceptance is calculated using survey data from the 18+ population.

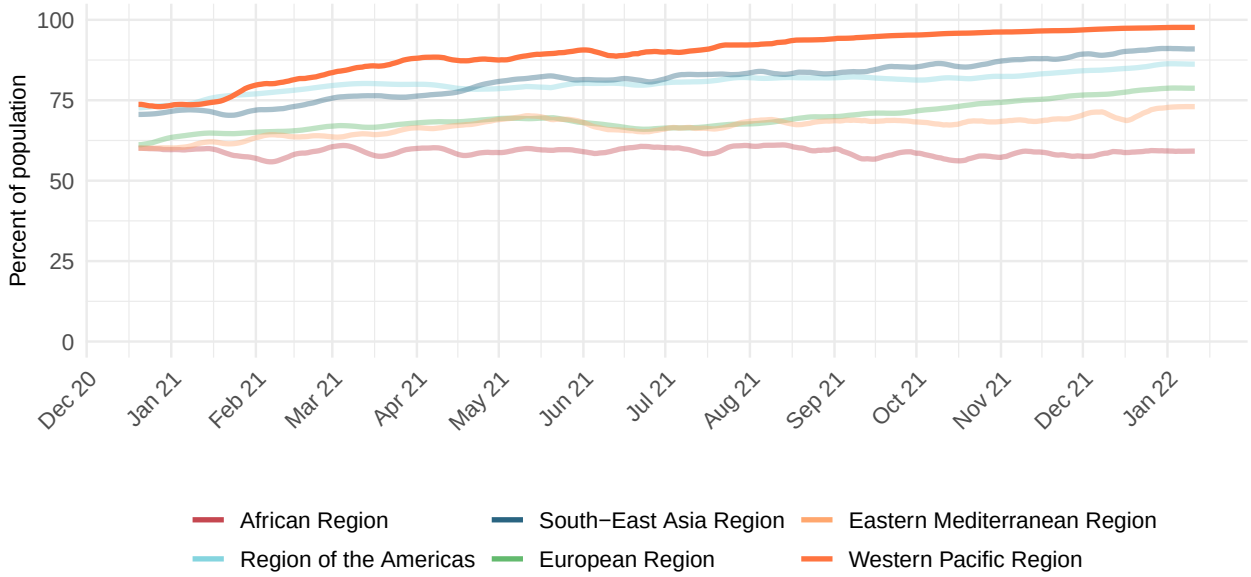


Figure 19.1. Estimated proportion of the population that is 12 years and older that has been vaccinated or would probably or definitely receive the COVID-19 vaccine if available. Note that vaccine acceptance is calculated using survey data from the 18+ population.

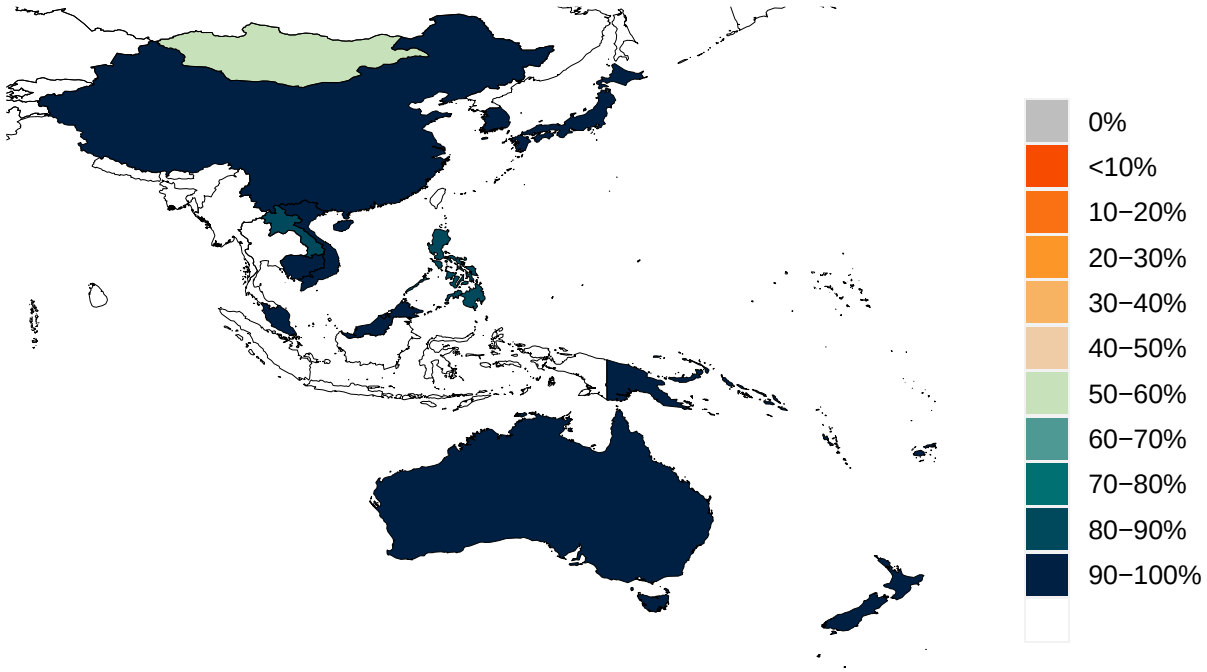
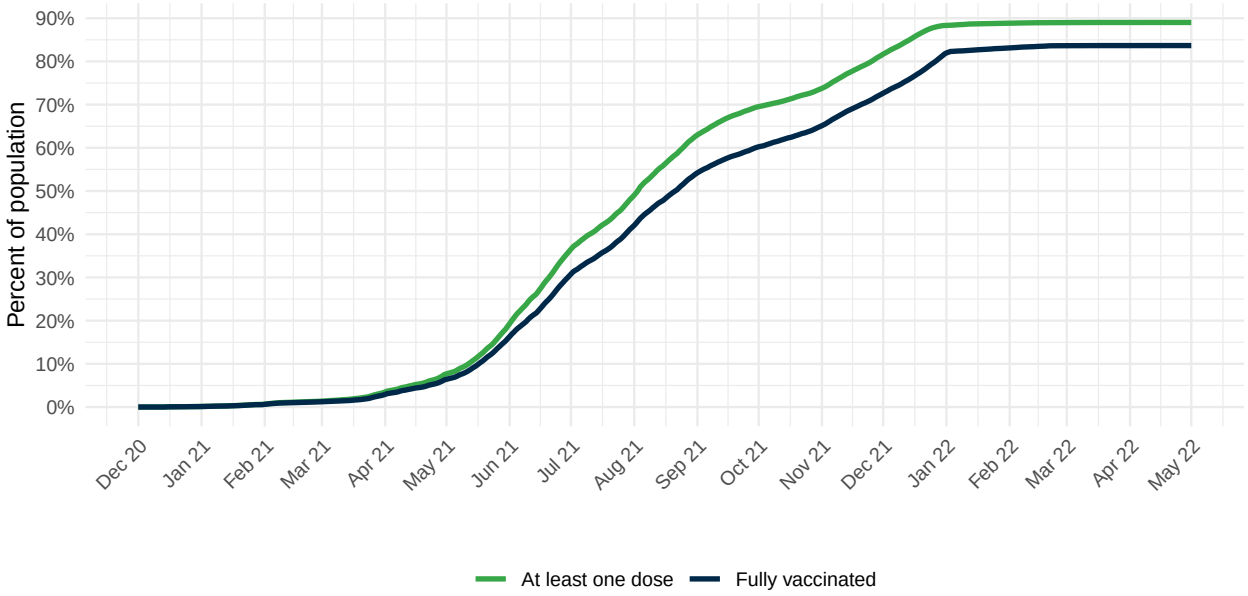


Figure 20.1. Percent of people who receive at least one dose of a COVID-19 vaccine and those who are fully vaccinated



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 May 01, 2022 for 3 scenarios

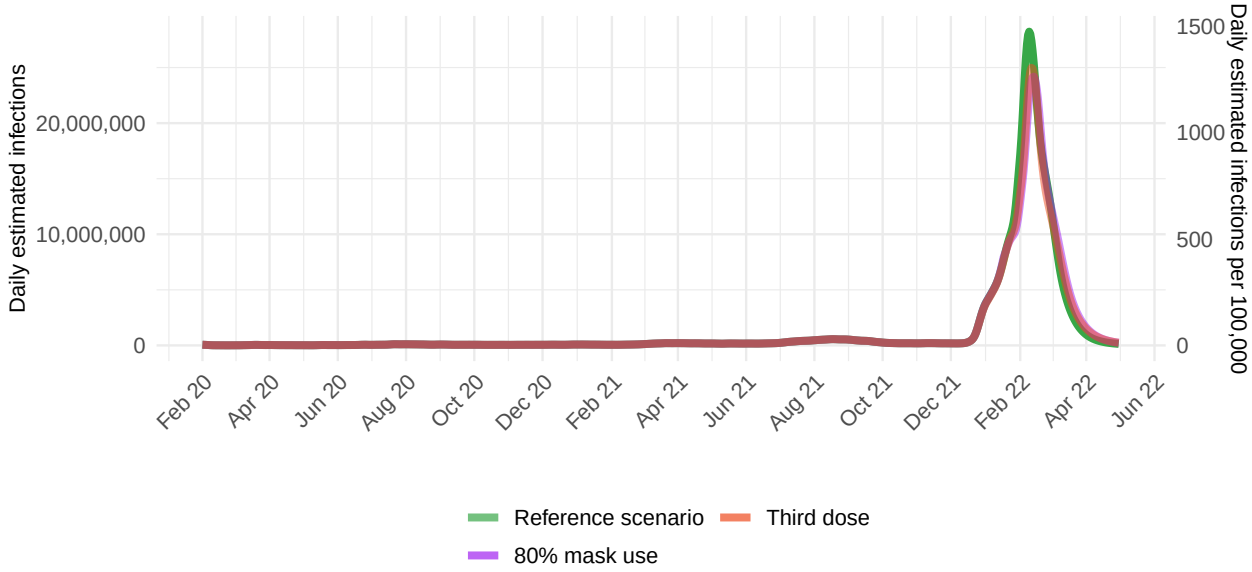


Figure 21.2. Daily COVID-19 reported cases until May 01, 2022 for 3 scenarios

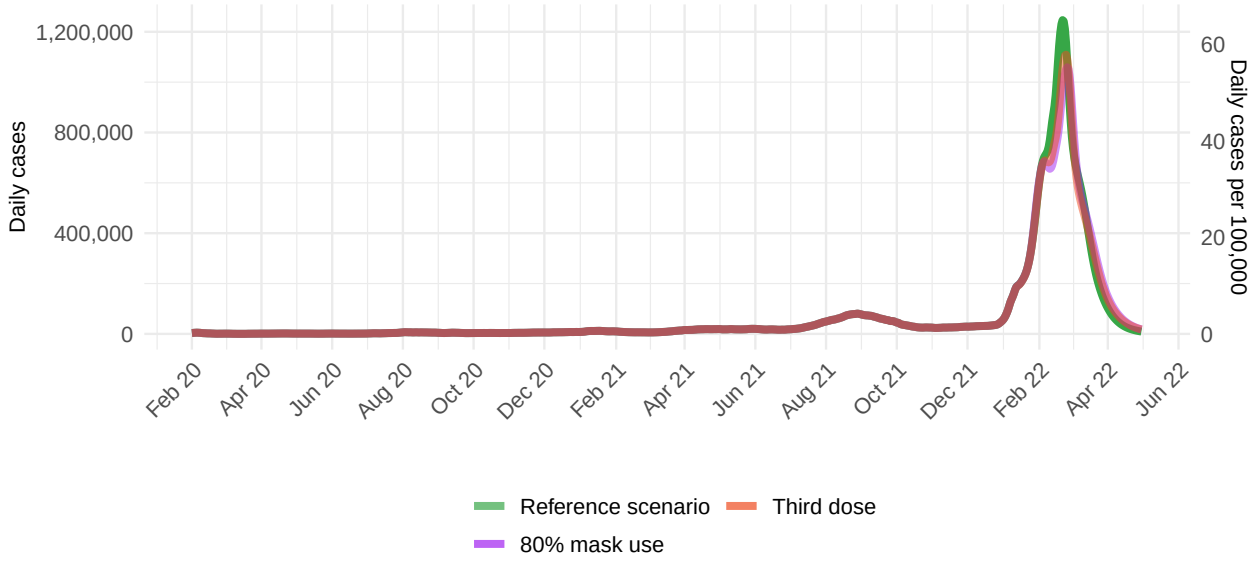


Figure 21.3. Daily COVID-19 hospital census until May 01, 2022 for 3 scenarios

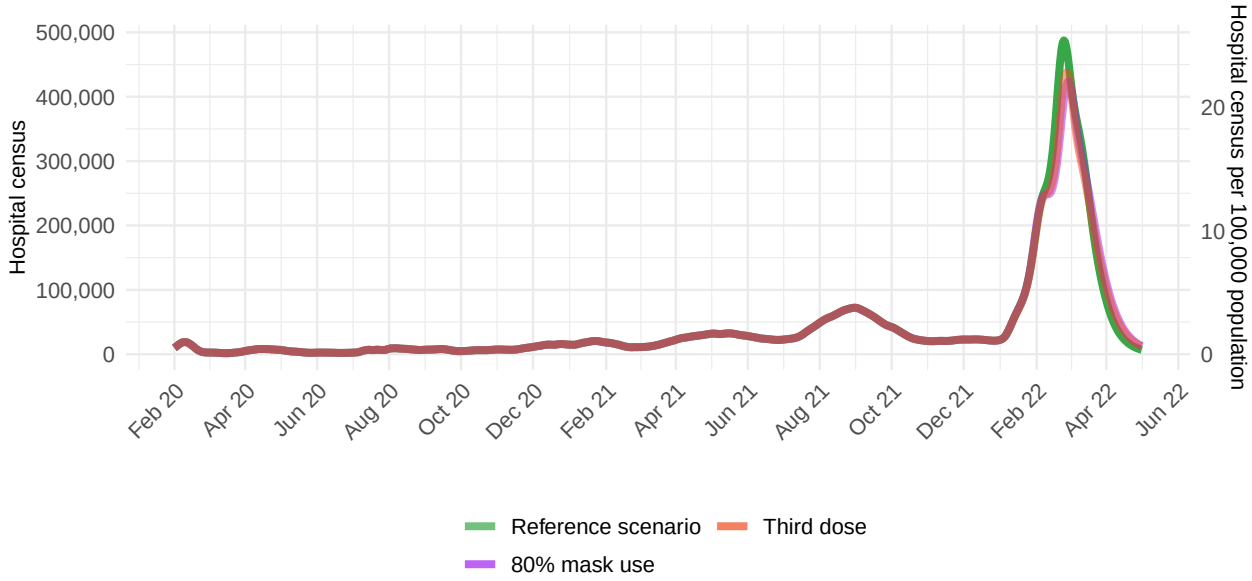


Figure 21.4 Reported daily COVID-19 deaths per 100,000

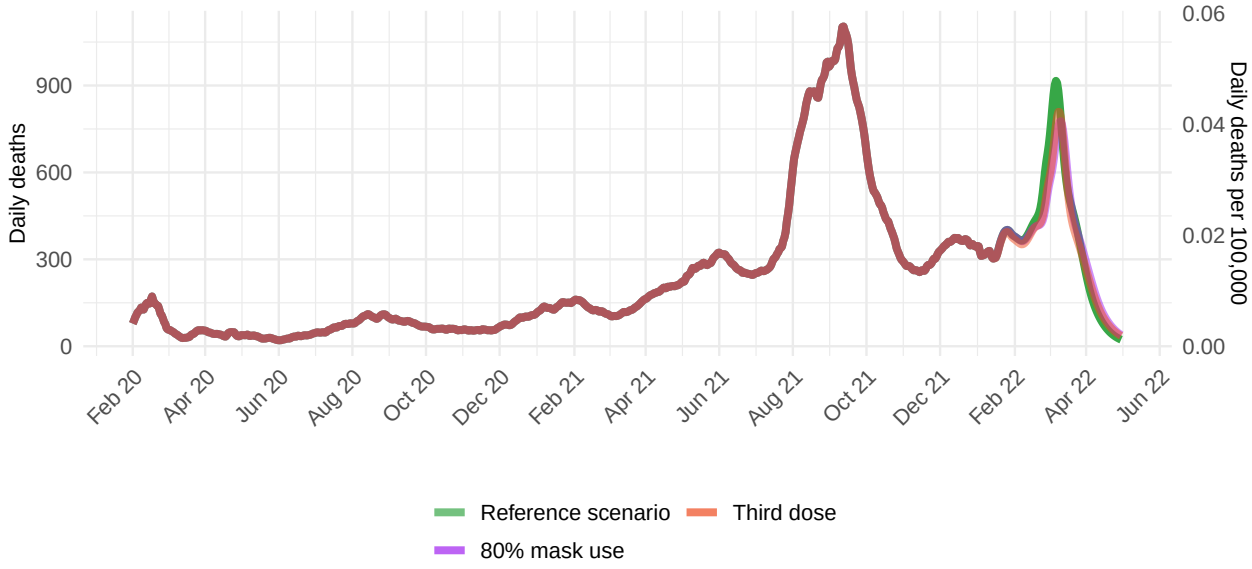


Figure 21.5 Total daily COVID-19 deaths per 100,000

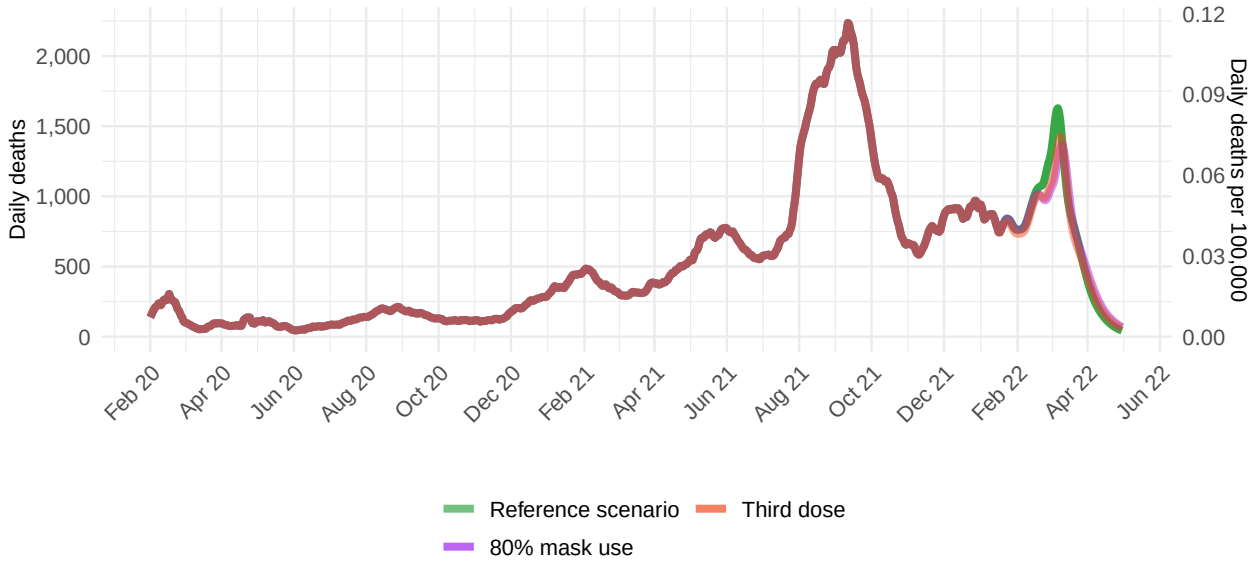


Figure 22.1. Comparison of reference model projections with other COVID modeling groups. For this comparison, we are including projections of daily COVID-19 deaths from other modeling groups when available, last model update in brackets: Delphi from the Massachusetts Institute of Technology (Delphi) [January 21, 2022], Imperial College London (Imperial) [January 2, 2022], the SI-KJalpha model from the University of Southern California (SIKJalpha) [January 20, 2022]. Daily deaths from other modeling groups are smoothed to remove inconsistencies with rounding. Regional values are aggregates from available locations in that region.

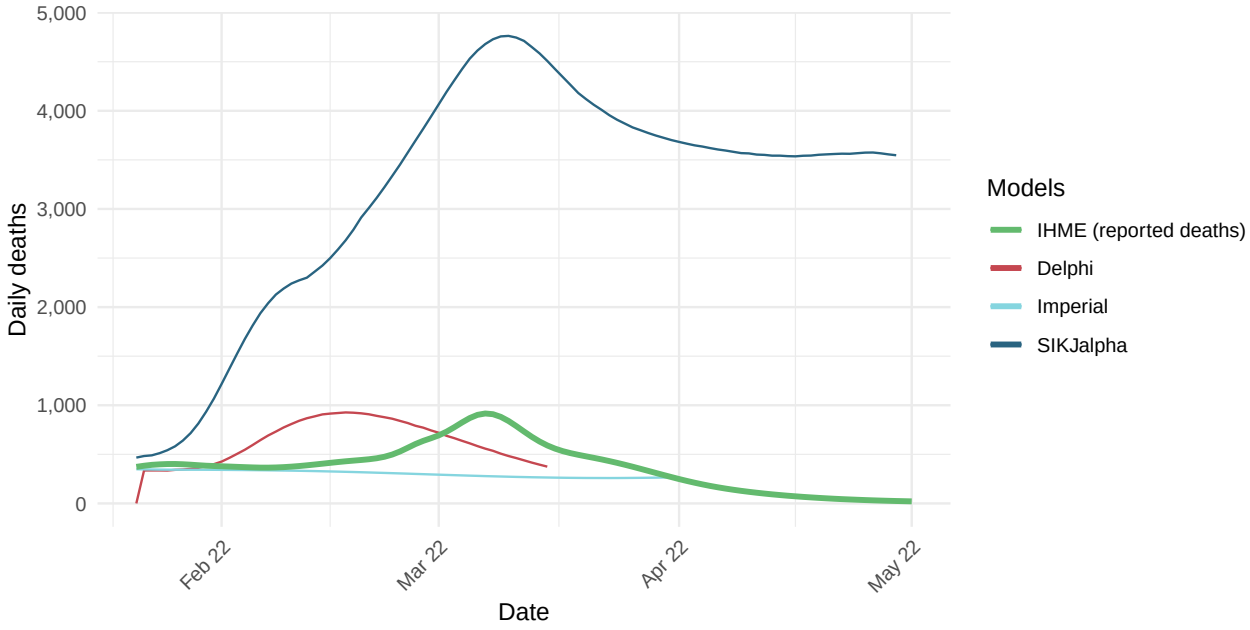


Figure 23.1. The estimated inpatient hospital usage is shown over time. The percent of hospital beds occupied by COVID-19 patients is color-coded based on observed quantiles of the maximum proportion of beds occupied by COVID-19 patients. Less than 5% is considered *low stress*, 5-9% is considered *moderate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

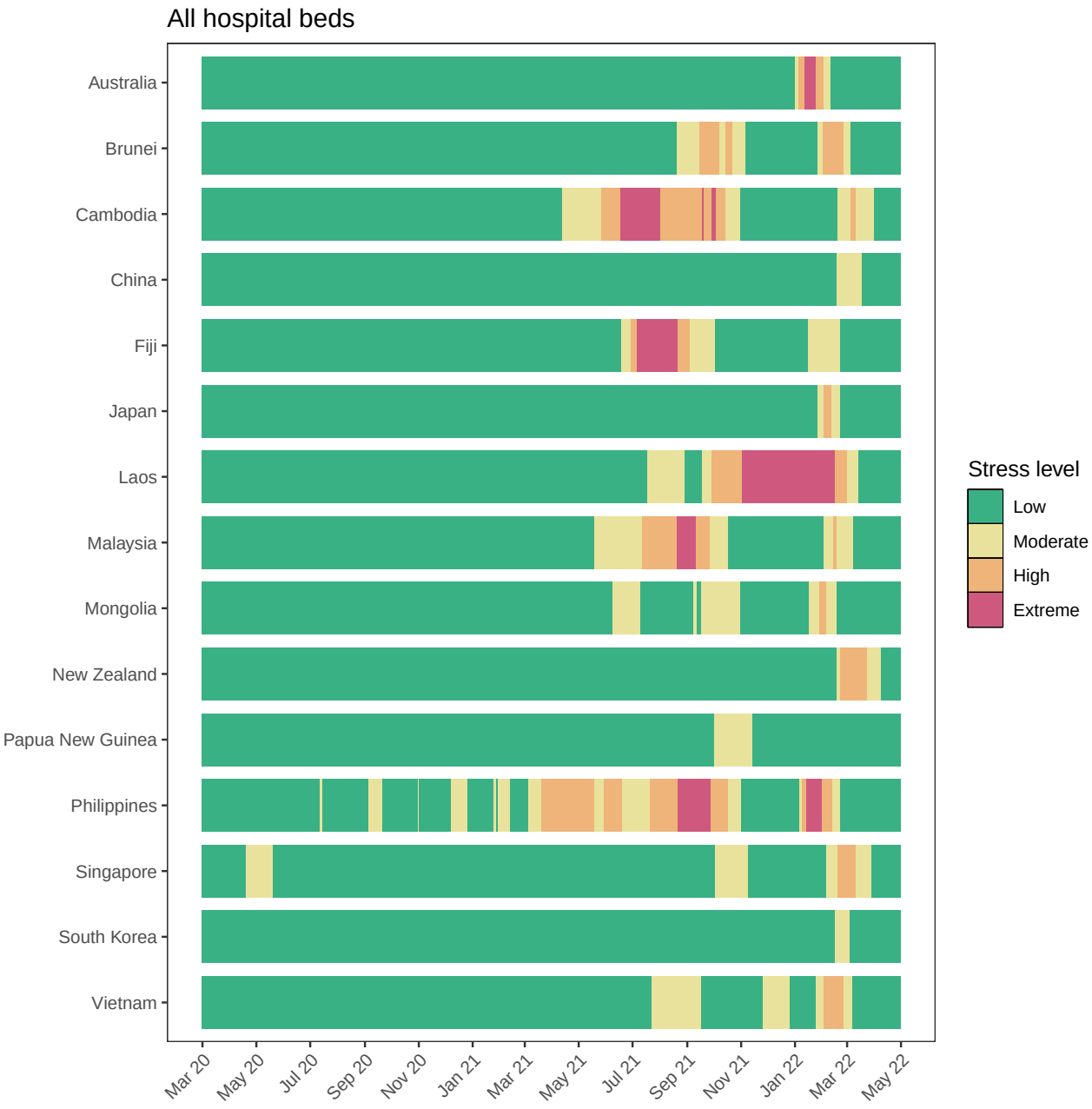
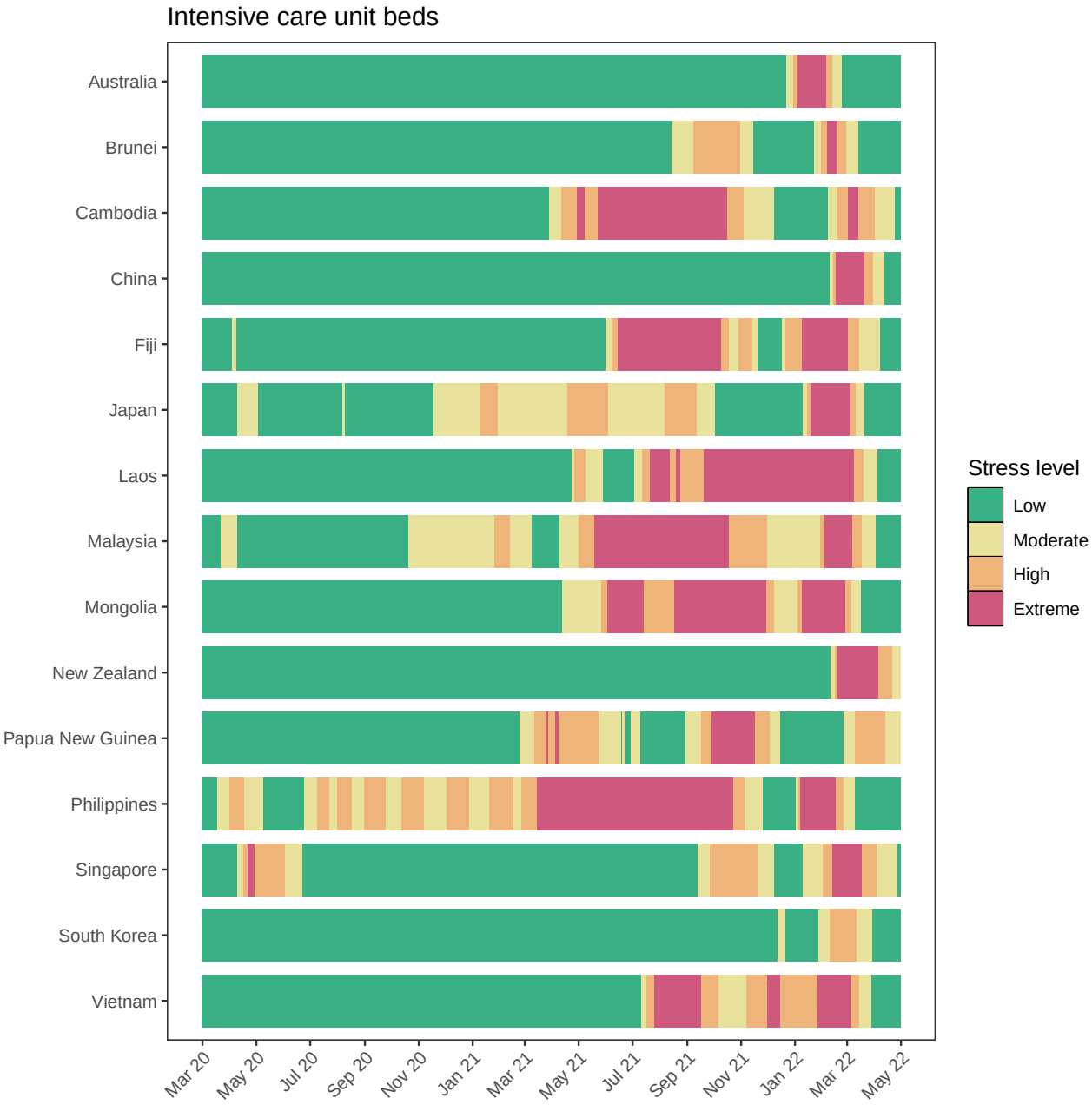


Figure 24.1. The estimated intensive care unit (ICU) usage is shown over time. The percent of ICU beds occupied by COVID-19 patients is color-coded based on observed quantiles of the maximum proportion of ICU beds occupied by COVID-19 patients. Less than 10% is considered *low stress*, 10-29% is considered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