

COVID-19 Results Briefing

The European Region

January 21, 2022

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

The west to east wave of Omicron infection has continued. A number of countries appear to have peaked or are actually declining, including Ireland, the United Kingdom, Spain, Cyprus, Greece, and Malta. Most of the remaining countries are in the rapid expansion phase, but a few are only starting, including Armenia, Azerbaijan, Poland, Ukraine, and Slovakia. The time from the initial surge to peak remains mostly in the 20–25-day range despite differing levels of vaccination and prior infection. The increases in countries in Eastern Europe with low vaccination rates and high previous infection, such as the Russian Federation, will be important to watch to understand if the timing to peak is quite universal. We suspect the extremely rapid time from initial surge to peak is because of the high transmissibility and immune escape of Omicron leading to infection of nearly everyone who is susceptible. We estimate that more than 60% of the region will be infected with Omicron by March 1. In the reference scenario, infections have already peaked in mid-January, with reported cases following close behind.

The incredible rapid wave and widespread infection also mean that policies that have been highly effective in prior waves of the pandemic may have a significantly more limited impact. Testing, contact tracing, and quarantine may have little benefit and use considerable resources simply because such a large fraction of the population is infected. Social distancing mandates may also not have much of an impact over the very short period remaining in the Omicron wave. Hospitals in many countries will continue to experience major stress due to three factors in the next weeks: increased COVID-19 infections, admissions with incidental COVID-19 infections requiring infection control measures, and staff shortages due to quarantine.

After the Omicron wave subsides, high levels of infection-acquired and vaccine-derived immunity with declining seasonality 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 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, scale up access to effective antivirals, and provide guidance for high-risk groups to use high-quality masks and to social distance, if and when a new variant that is more severe than Omicron emerges. 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

- Estimated daily infections in the last week increased to 14.4 million per day on average compared to 14.0 million the week before (Figure 1.1).
- Daily hospital census in the last week (through January 18) increased to 679,900 per day on average compared to 529,500 the week before.
- Daily reported cases in the last week increased to 1.3 million per day on average compared to 1.2 million the week before (Figure 2.1).
- Reported deaths due to COVID-19 in the last week decreased to 3,800 per day on average compared to 3,900 the week before (Figure 3.1).
- Total deaths due to COVID-19 in the last week decreased to 5,200 per day on average compared to 5,300 the week before (Figure 3.1). **This makes COVID-19 the number 2 cause of death in the European Region 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 15 countries and 24 subnational locations (Figure 4.1).
- The daily rate of total deaths due to COVID-19 is greater than 4 per million in 28 countries and 39 subnational locations (Figure 4.2).
- We estimate that 73% of people in the European 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 the majority of the region (Figure 7.1). Many countries in the west and south of the region have already peaked and are declining, while transmission continues to increase in the north and east.
- The infection-detection rate in the European Region was close to 10% 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). Omicron is the dominant variant in all countries of the region.

Trends in drivers of transmission

- Cyprus and Poland opened schools. Mask mandates and some gathering restrictions remain in place in most countries.
- Mobility last week was 1% 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, 54% of people self-report that they always wore a mask when leaving their home (Figure 13.1). Mask use is below 50% in Sweden, Denmark, the Netherlands, Germany, many countries in the Balkans, and most of Central Asia.
- There were 679 diagnostic tests per 100,000 people on January 18 (Figure 15.1).
- As of January 18, 22 countries and 56 subnational locations have reached 70% or more of the population who have received at least one vaccine dose, and 16 countries and 46 subnational locations have reached 70% or more of the population who are fully vaccinated (Figure 17.1). 64% of people in the European Region have received at least one vaccine dose and 60% are fully vaccinated.
- In the European Region, 78.8% 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. The proportion of the population who are open to receiving a COVID-19 vaccine ranges from 45% in Bulgaria to 99% in Iceland (Figure 19.1).
- **In our current reference scenario, we expect that 604.0 million people will be vaccinated with at least one dose by May 1** (Figure 20.1). We expect that 61% of the regional 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, have peaked just below 15 million in mid-January and will decline to near 50,000 on May 1, 2022 (Figure 21.1).
- Daily estimated infections in the **80% mask coverage scenario** decline more rapidly than in the reference scenario, leading to 10% fewer Omicron cumulative infections (Figure 21.1).
- Daily estimated infections in the **third dose scenario** have peaked just below 15 million in mid-January and will decline to near 50,000 on May 1, 2022 (Figure 21.1).

Cases

- Daily cases in the **reference scenario** peak at 1.3 million mid-January and then decline to 5,000 on May 1, 2022 (Figure 21.2).
- Daily cases in the **80% mask coverage scenario** peak in mid-January but decline more rapidly than in the reference scenario (Figure 21.2).
- Daily cases in the **third dose scenario** are very similar to the reference scenario (Figure 21.2).

Hospitalizations

- Daily hospital census in the **reference scenario** will rise to 987,000 by February 2, 2022 (Figure 21.3).
- Daily hospital census in the **80% mask coverage scenario** will rise to 901,000 by January 28, 2022 (Figure 21.3).
- Daily hospital census in the **third dose scenario** will rise to 980,000 by February 2, 2022 (Figure 21.3).

Deaths

- In our **reference scenario**, our model projects 2,205,000 cumulative reported deaths due to COVID-19 on May 1. This represents 88,000 additional deaths from January 18 to May 1. Daily reported COVID-19 deaths in the **reference scenario** will decline to very low levels on May 1, 2022 (Figure 21.4).
- Under our **reference scenario**, our model projects 3,065,000 cumulative total deaths due to COVID-19 on May 1. This represents 131,000 additional deaths from January 18 to May 1 (Figure 24.2).
- In our **80% mask coverage scenario**, our model projects 2,199,000 cumulative reported deaths due to COVID-19 on May 1. This represents 82,000 additional deaths from January 18 to May 1. Daily reported COVID-19 deaths in the **80% mask coverage scenario** will decline to very low levels on May 1, 2022 (Figure 21.4).
- In our **third dose scenario**, our model projects 2,204,000 cumulative reported deaths due to COVID-19 on May 1. This represents 87,000 additional deaths from January 18 to May 1. Daily reported COVID-19 deaths in the **third dose scenario** will decline to very low levels on May 1, 2022 (Figure 21.4).
- Figure 22.1 compares our reference scenario forecasts to other publicly archived models. The USC model (SIKJalpha) forecasts a massive increase in deaths, while other models suggest more modest increases or declines.

-
- At some point from January through May 1, 31 countries in the region will have high or extreme stress on hospital beds (Figure 23.1). At some point from January through May 1, 49 countries in the region will have high or extreme stress on intensive care unit (ICU) capacity (Figure 24.1).

Model updates

No model updates.

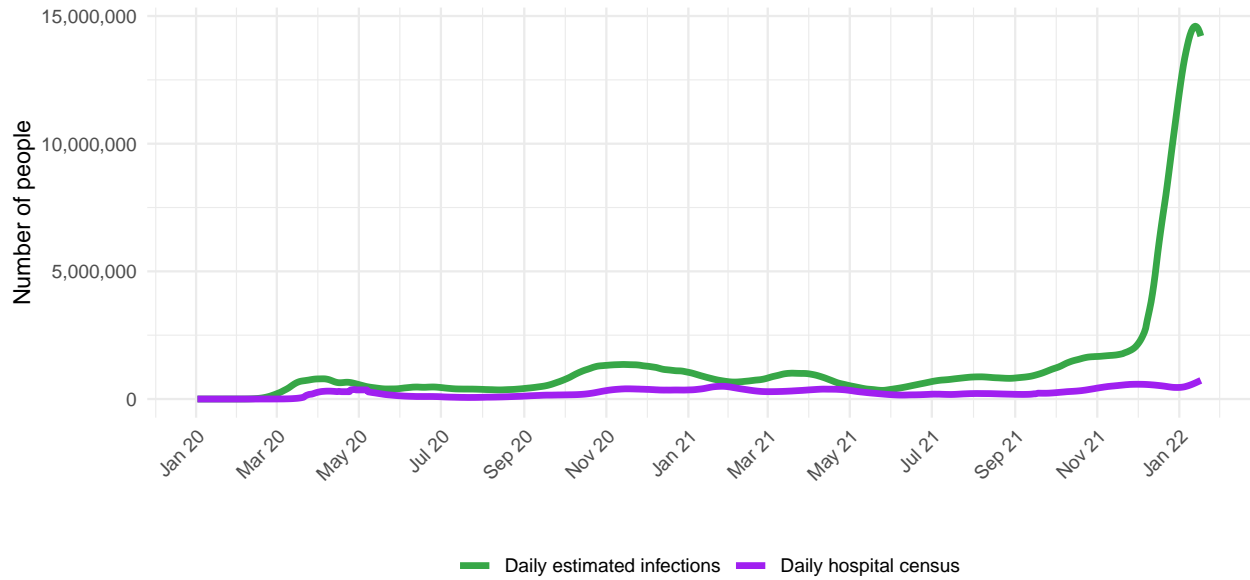
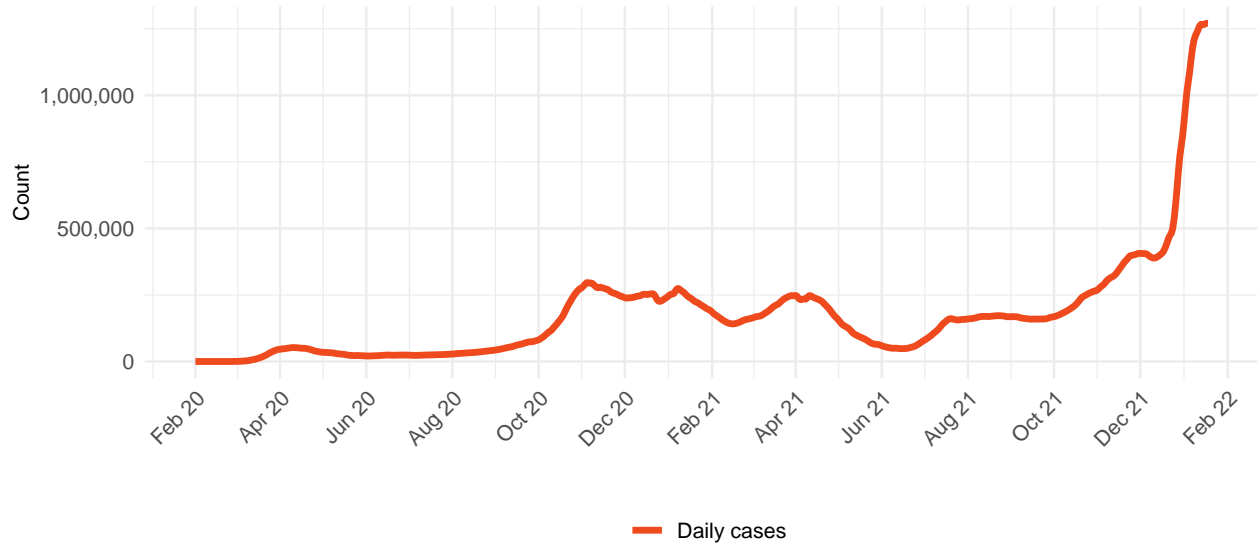
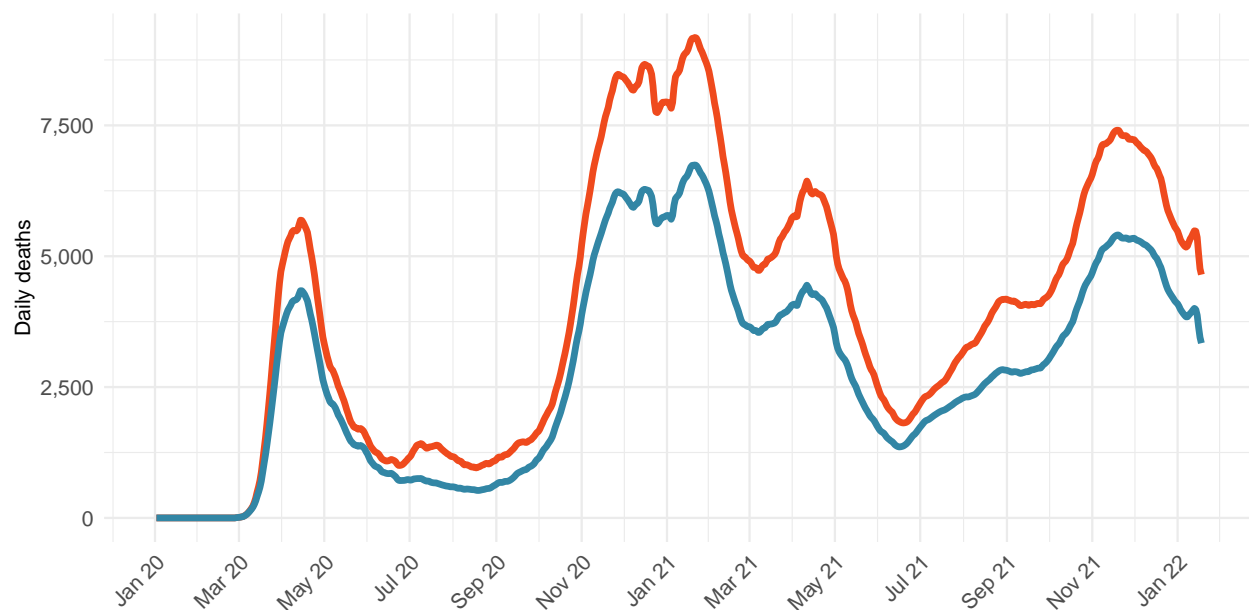
Figure 1.1. Daily COVID-19 hospital census and estimated infections

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
Ischemic heart disease	44,253	1
COVID-19	36,207	2
Stroke	22,622	3
Tracheal, bronchus, and lung cancer	8,918	4
Alzheimer's disease and other dementias	8,022	5
Chronic obstructive pulmonary disease	6,719	6
Colon and rectum cancer	5,881	7
Lower respiratory infections	5,254	8
Cirrhosis and other chronic liver diseases	4,290	9
Hypertensive heart disease	3,949	10

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

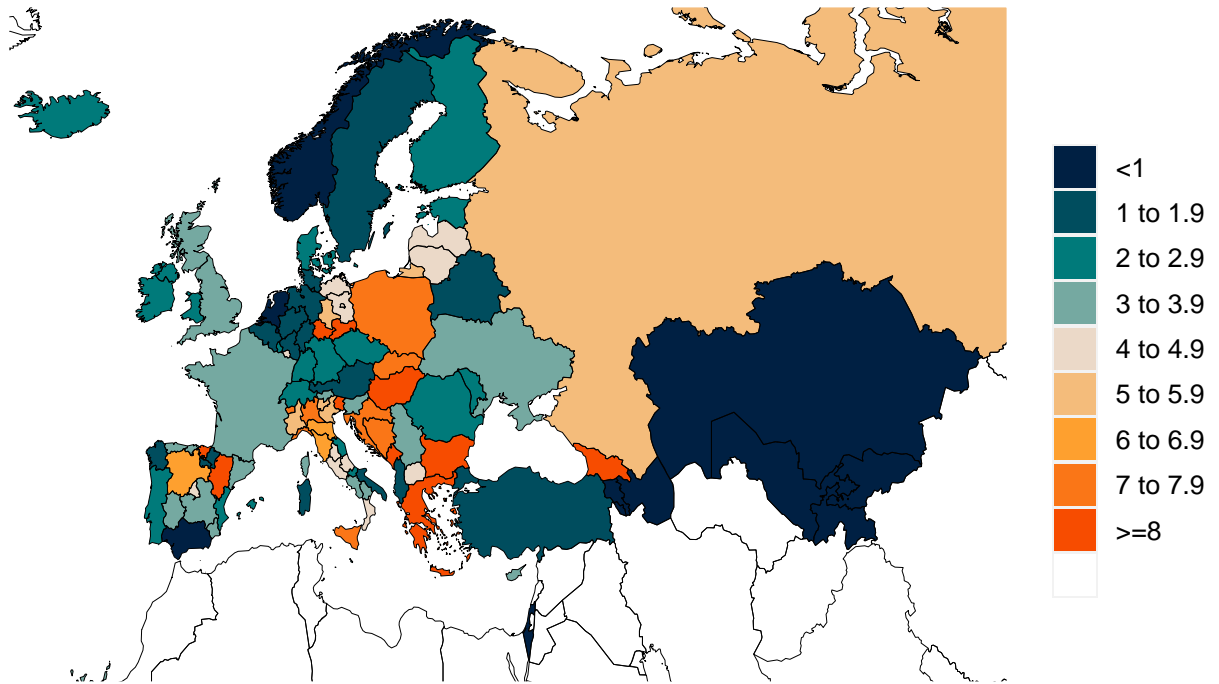
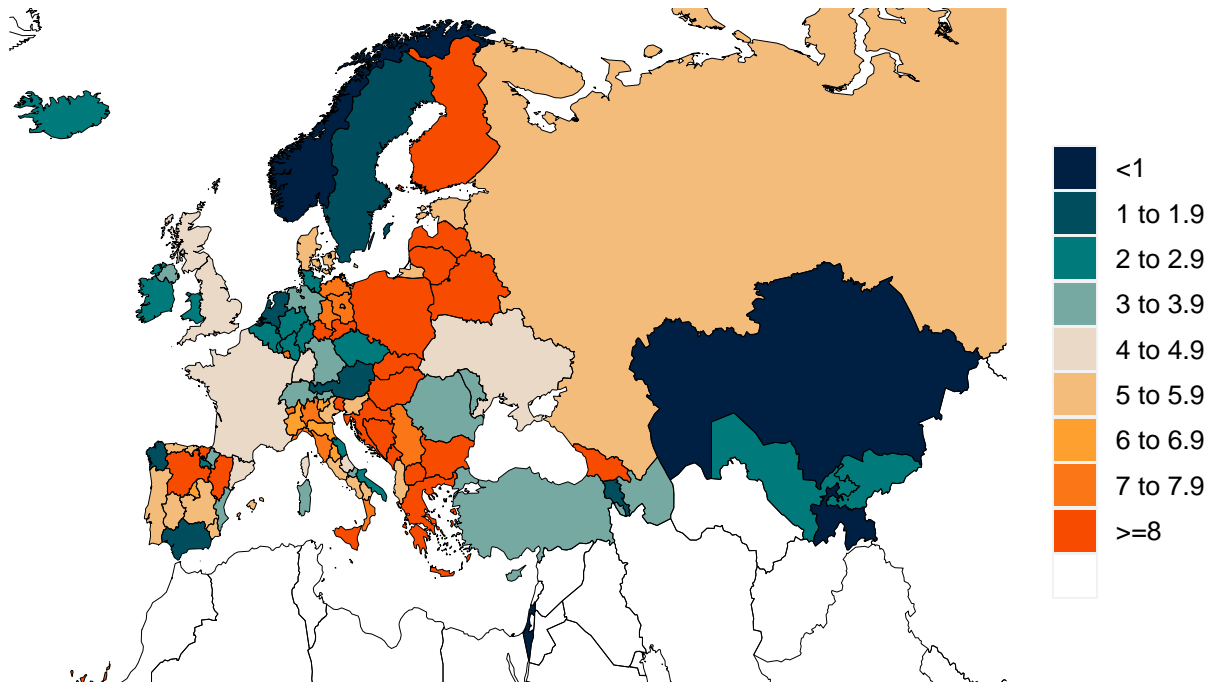


Figure 4.2 Daily total COVID-19 death rate per 1 million



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

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

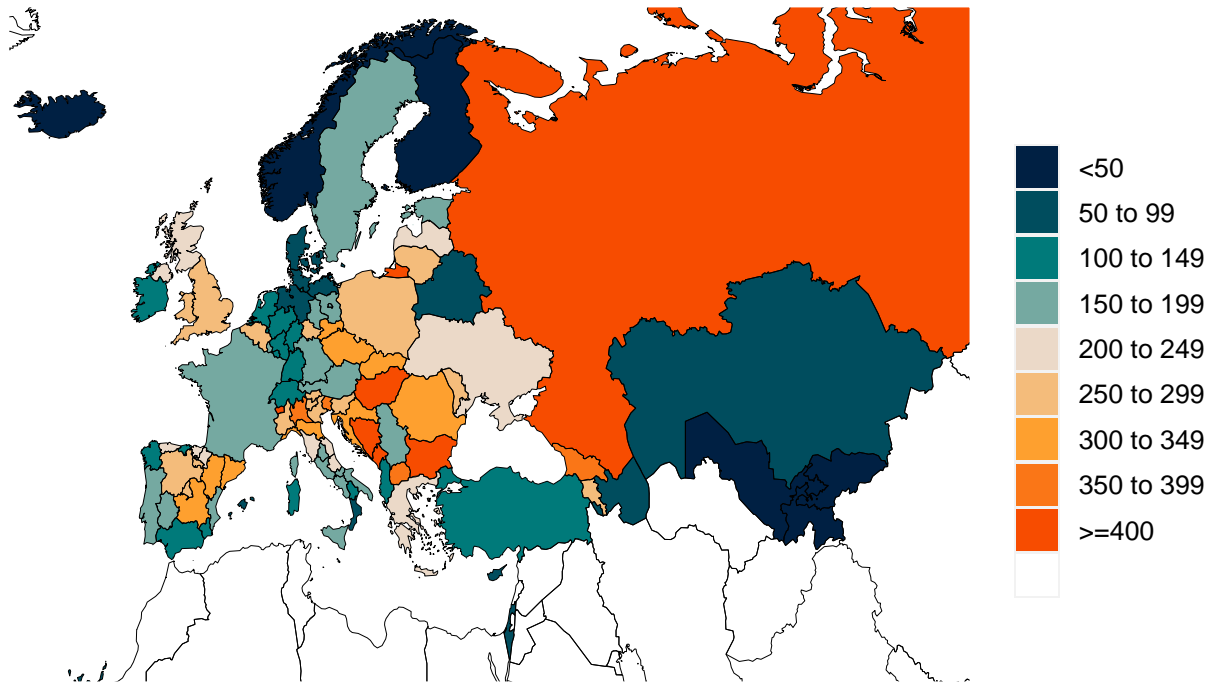


Figure 5.2 Total cumulative COVID-19 deaths per 100,000

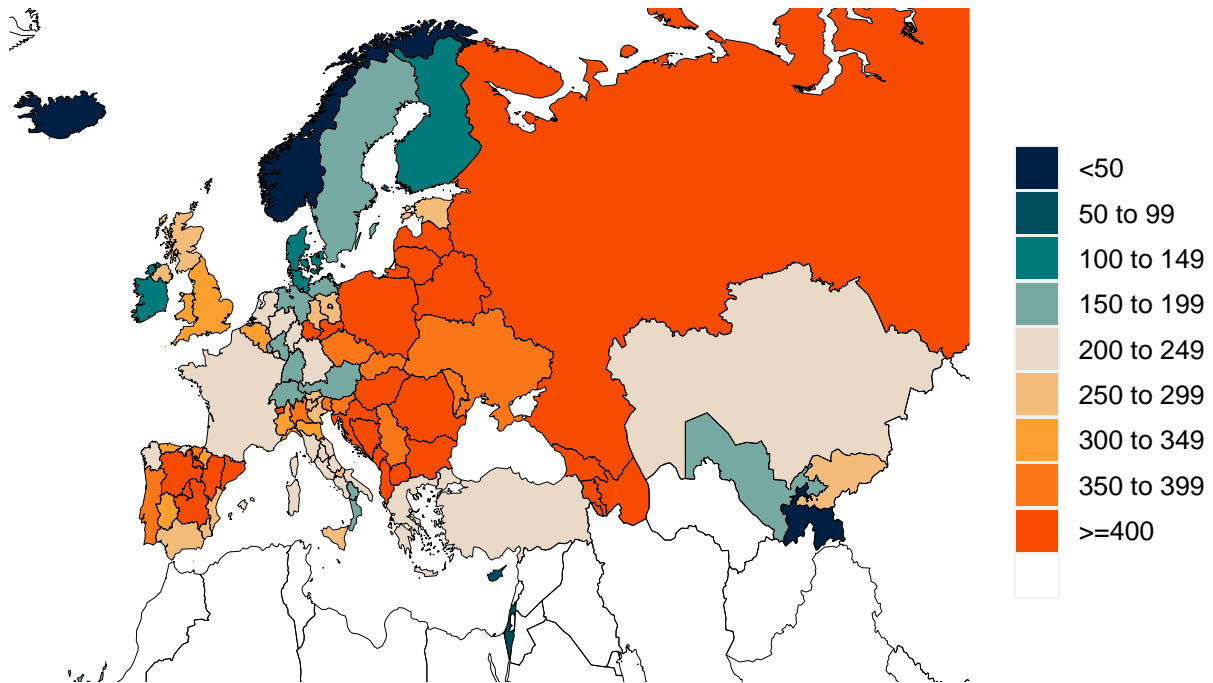


Figure 6.1. Estimated percent of the population infected with COVID-19 on January 18, 2022

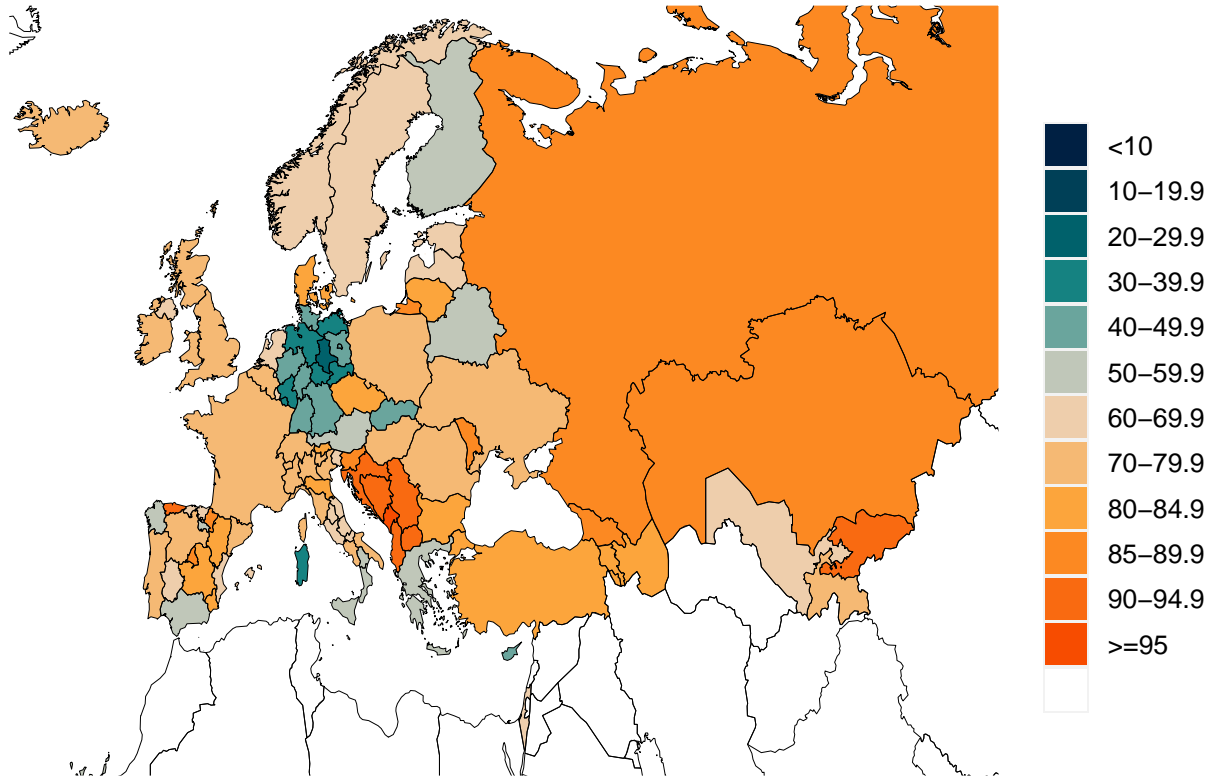


Figure 7.1. Mean effective R on January 7, 2022. Effective R less than 1 means that transmission should decline, all other things being held the same. The estimate of effective R is based on the combined analysis of deaths, case reporting, and hospitalizations where available. Current reported cases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

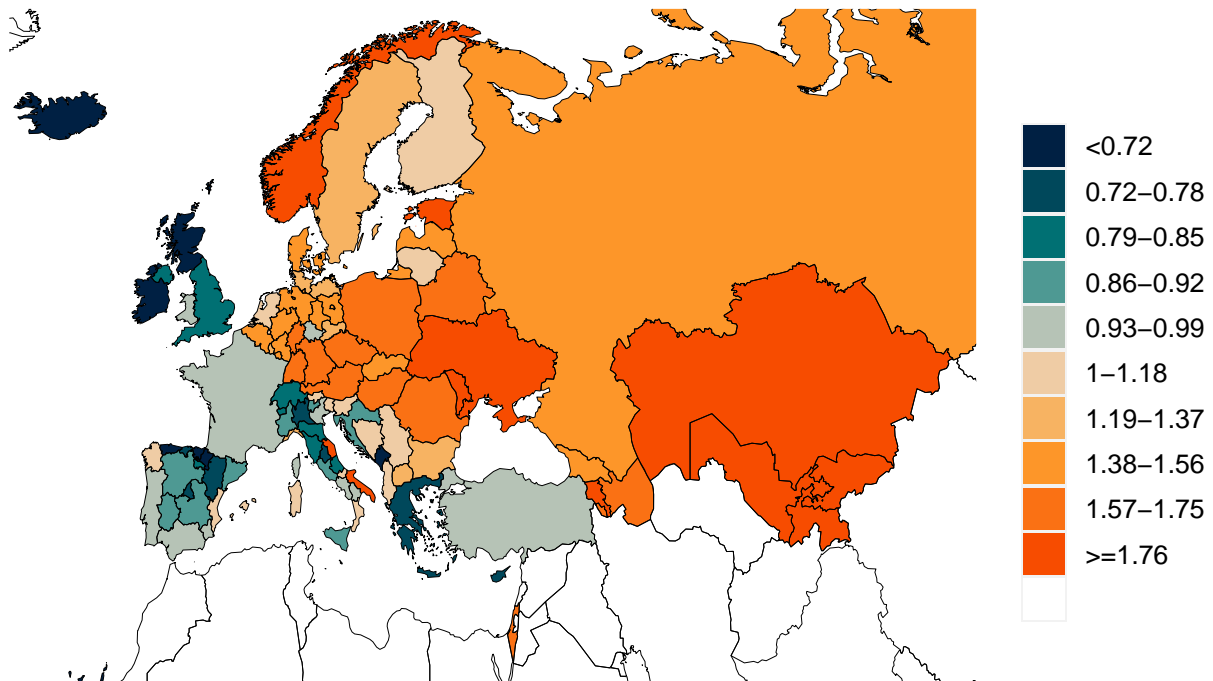
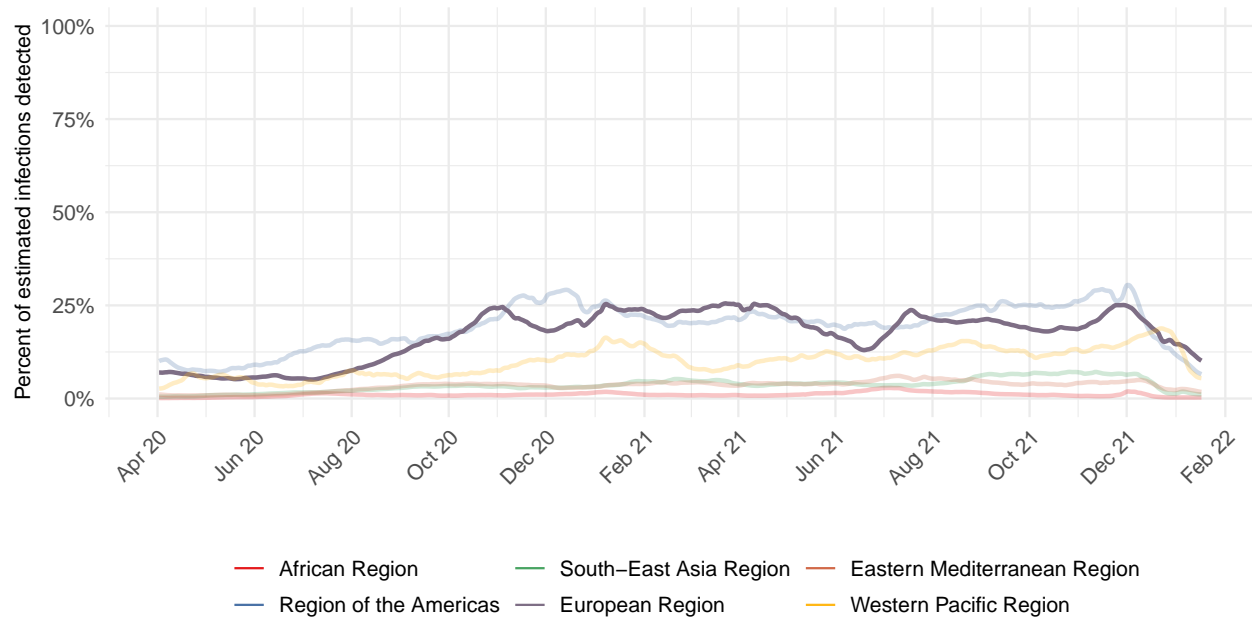


Figure 8.1. Percent of estimated COVID-19 infections detected. This is estimated as the ratio of reported daily COVID-19 cases to estimated daily COVID-19 infections based on the SEIR disease transmission model. Due to measurement errors in cases and testing rates, the infection-detection rate can exceed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

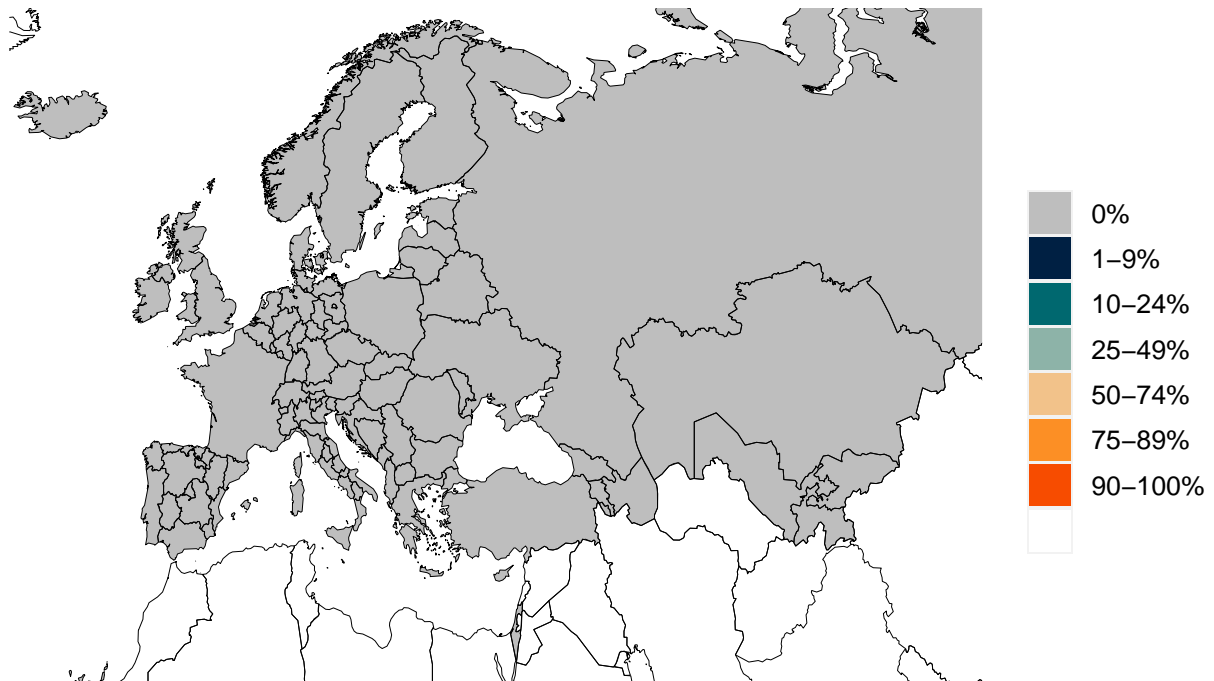


Figure 9.3 Estimated percent of new infections that are Delta variant



Figure 9.4 Estimated percent of new infections that are Gamma variant



Figure 9.5 Estimated percent of new infections that are Omicron variant

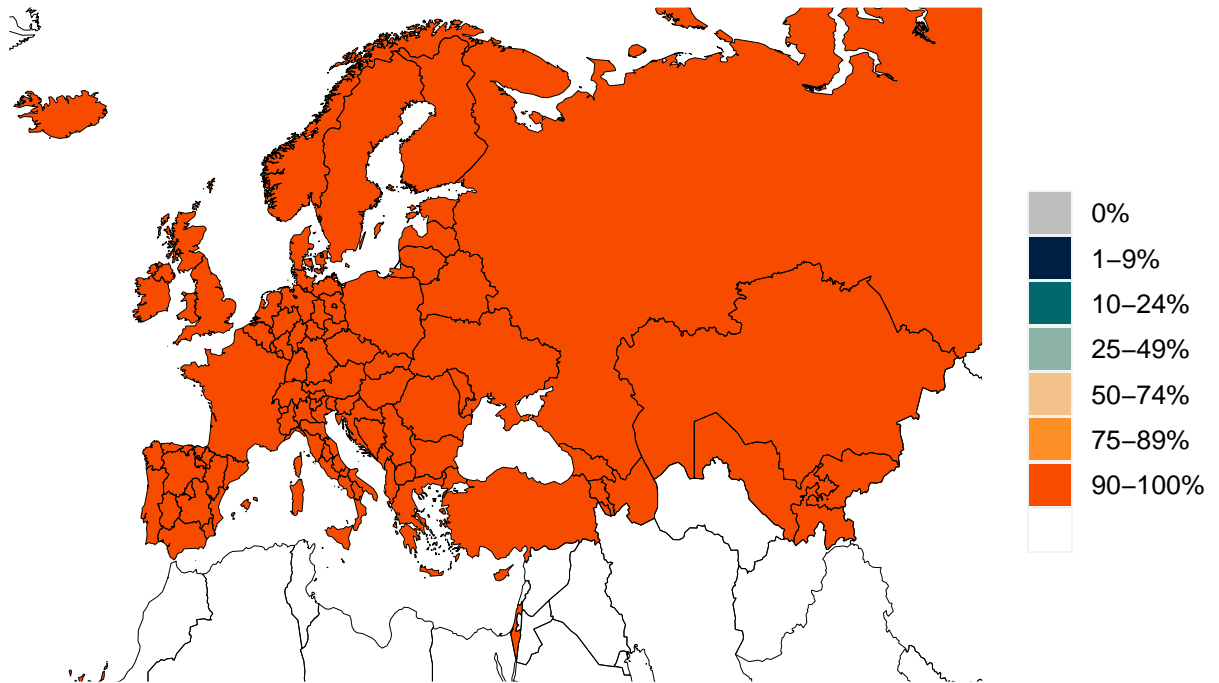
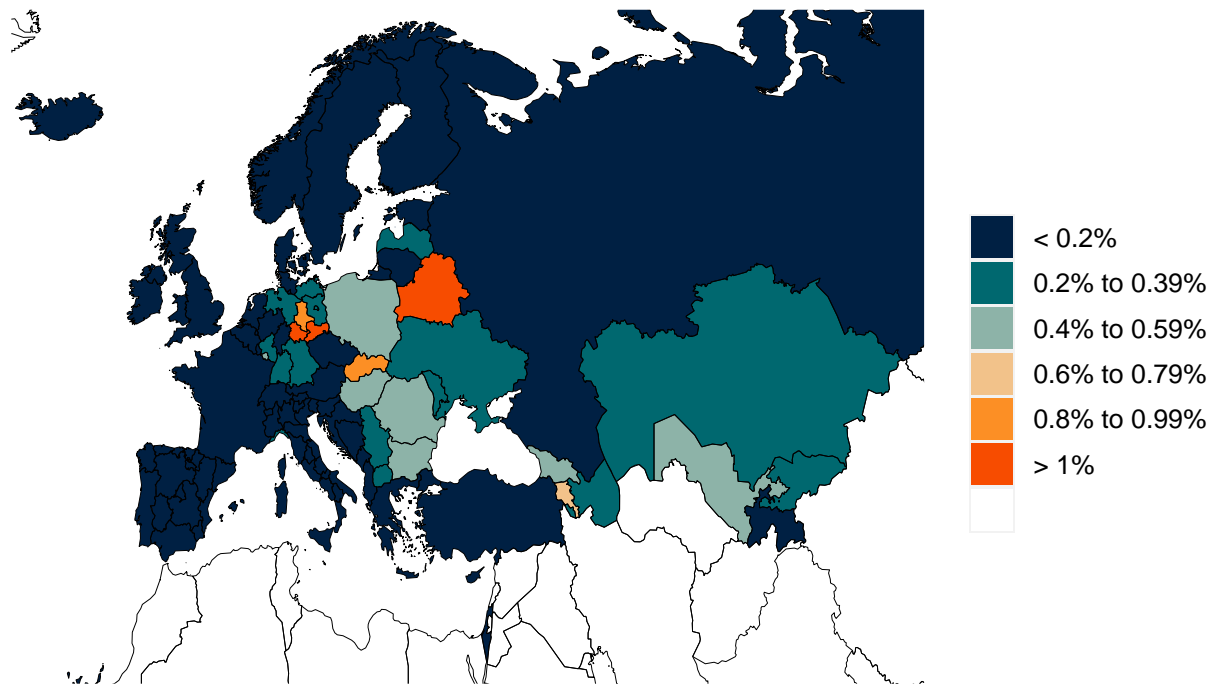
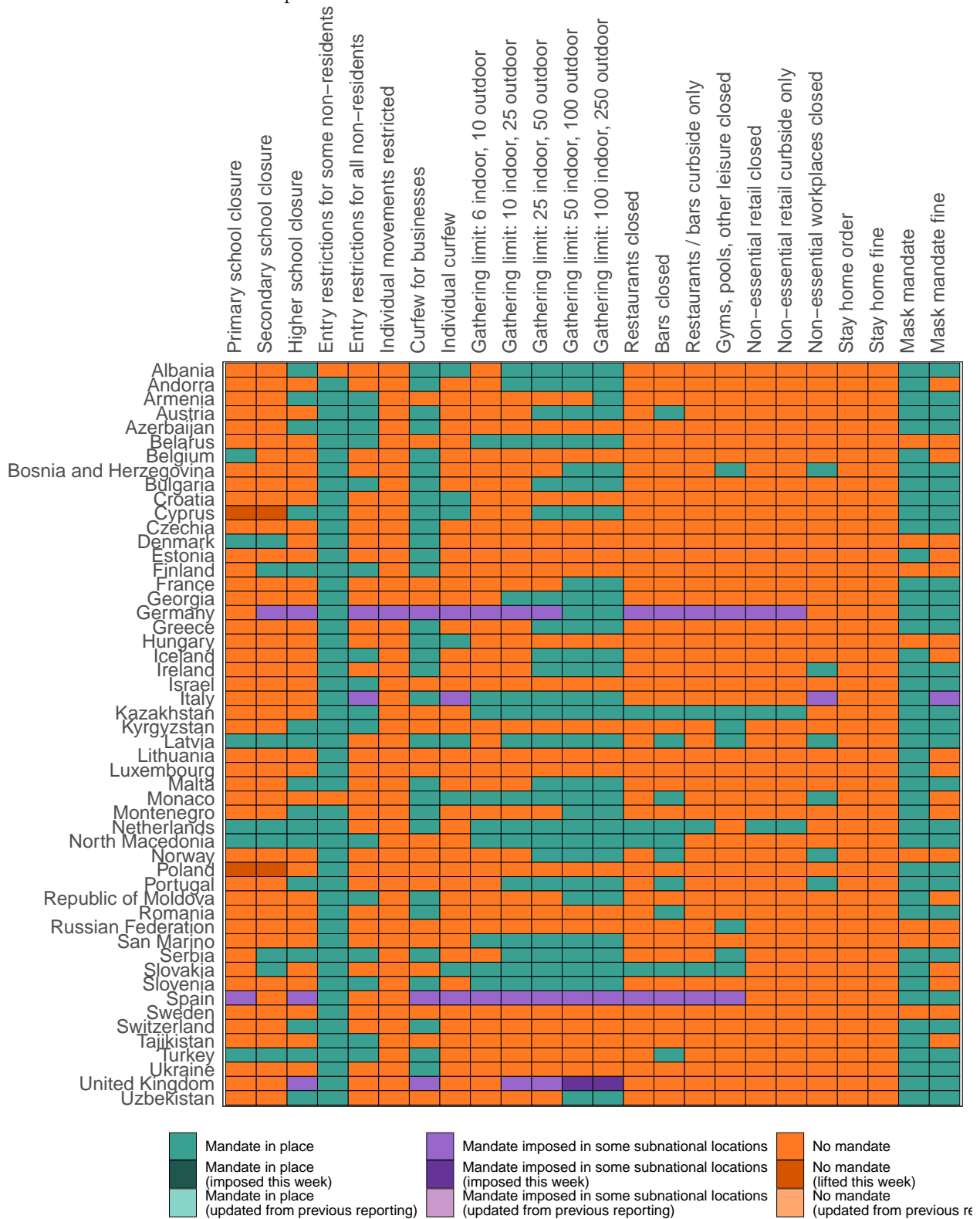


Figure 10.1. Infection-fatality rate on January 18, 2022. This is estimated as the ratio of COVID-19 deaths to estimated daily COVID-19 infections.



Critical drivers

Table 2. Current mandate implementation



*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

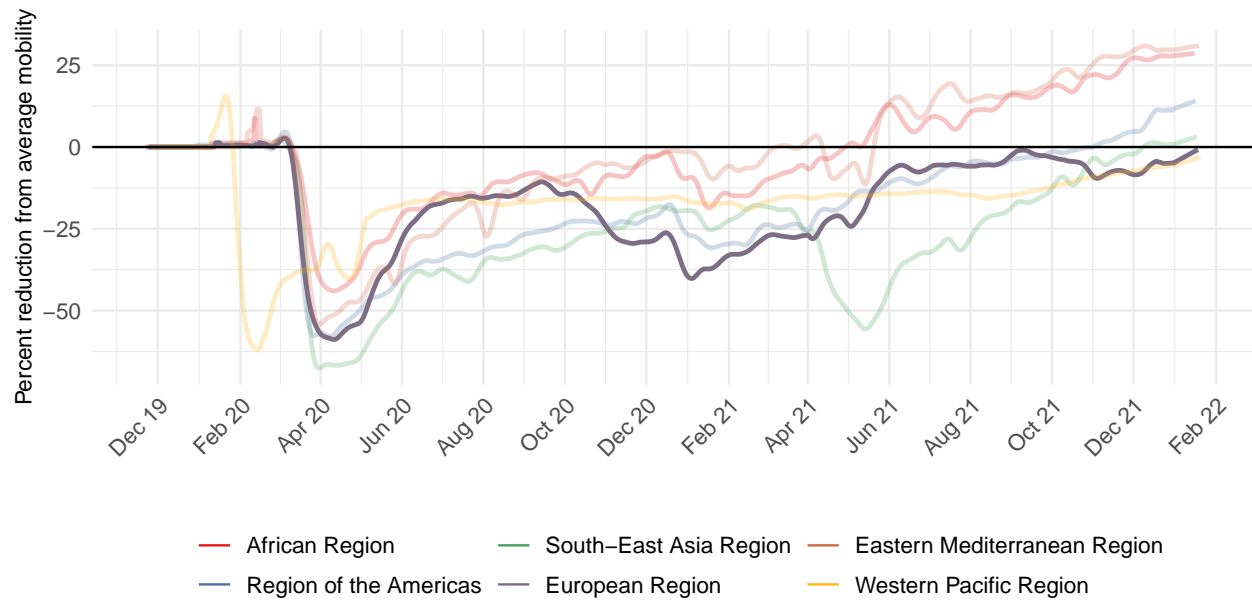


Figure 12.1. Mobility level as measured through smartphone app use, compared to January 2020 baseline (percent) on January 18, 2022

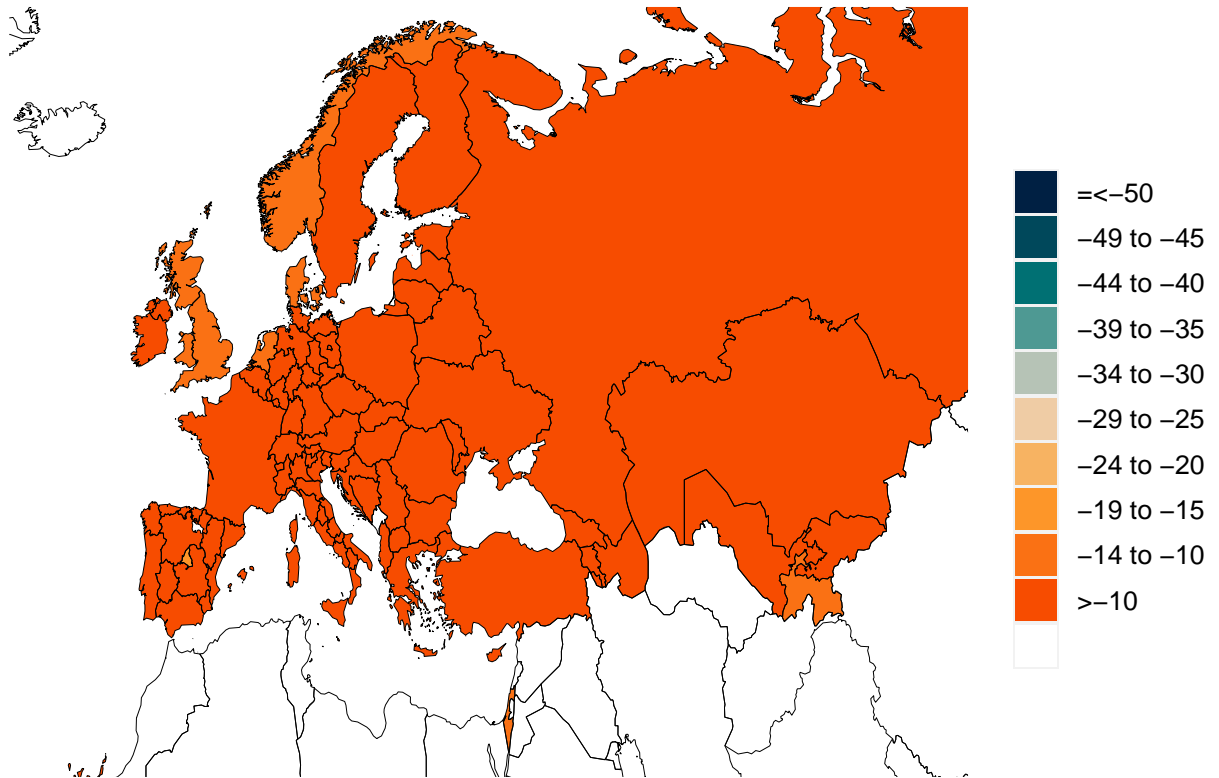


Figure 13.1. Trend in the proportion of the population reporting always wearing a mask when leaving home

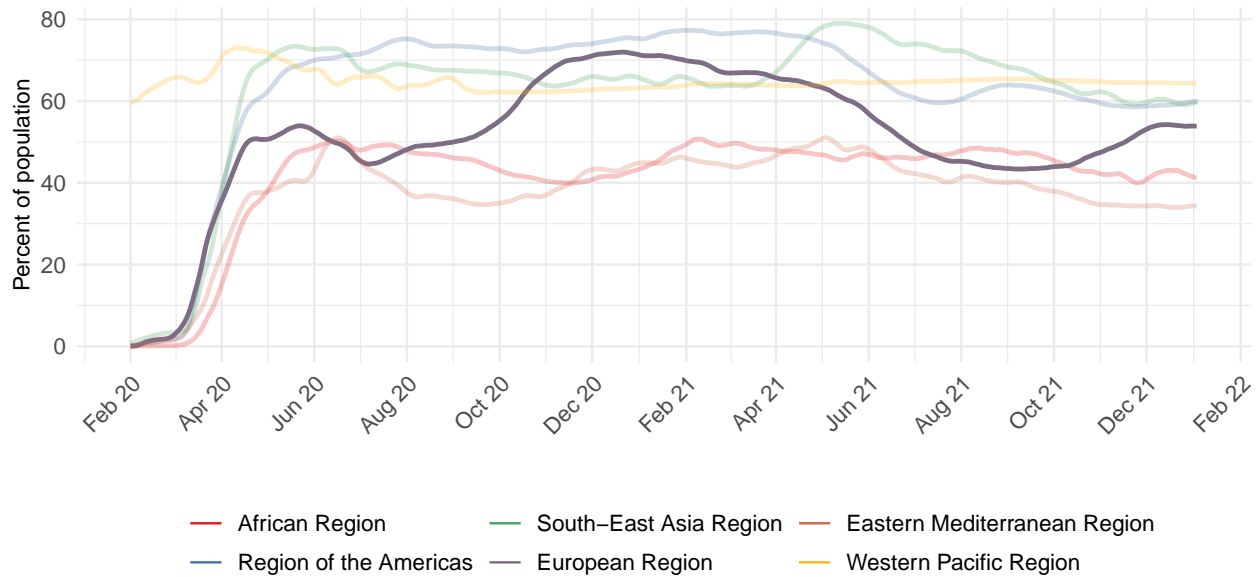


Figure 14.1. Proportion of the population reporting always wearing a mask when leaving home on January 18, 2022

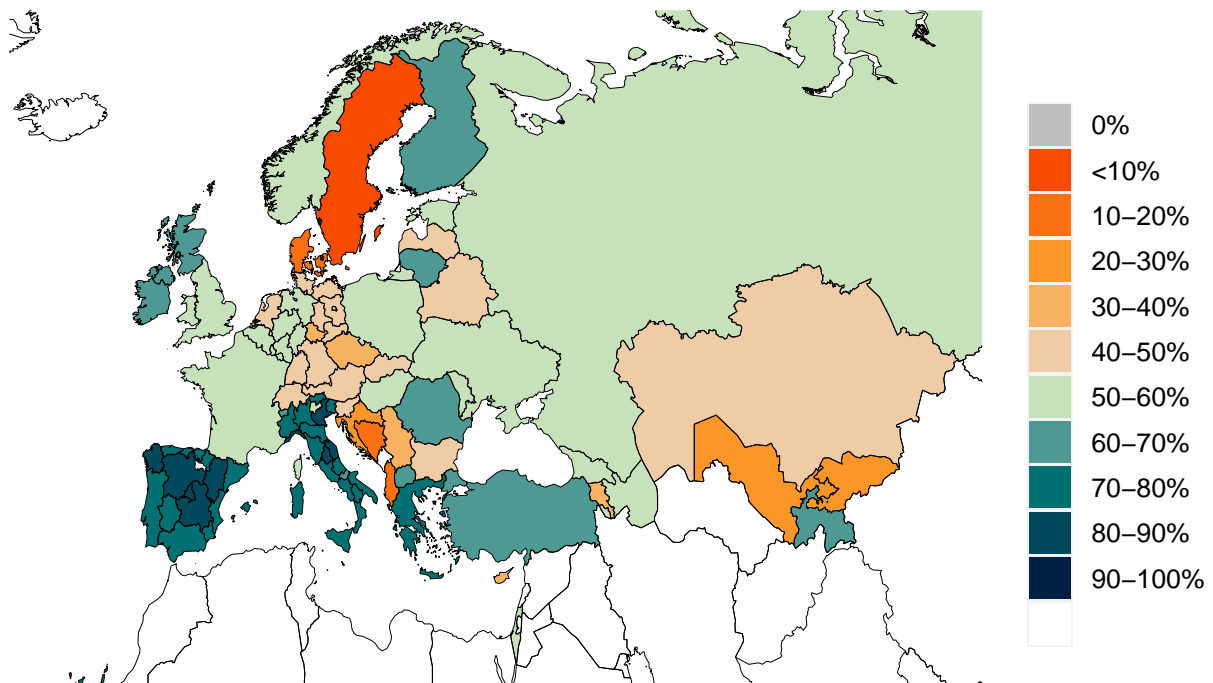


Figure 15.1. Trend in COVID-19 diagnostic tests per 100,000 people

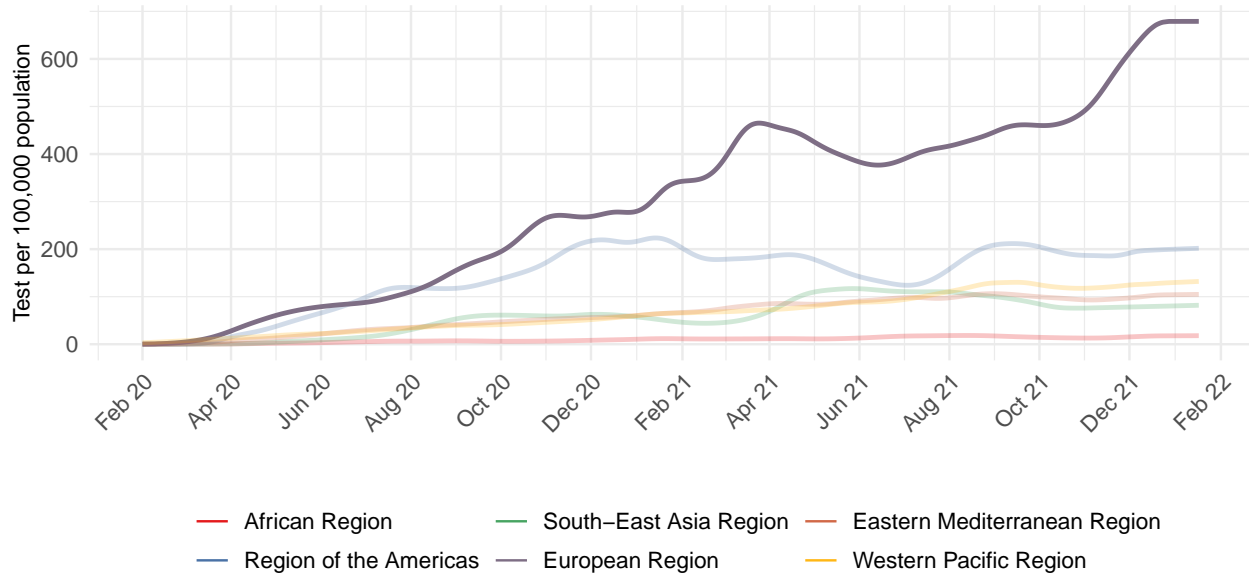


Figure 16.1. COVID-19 diagnostic tests per 100,000 people on January 18, 2022

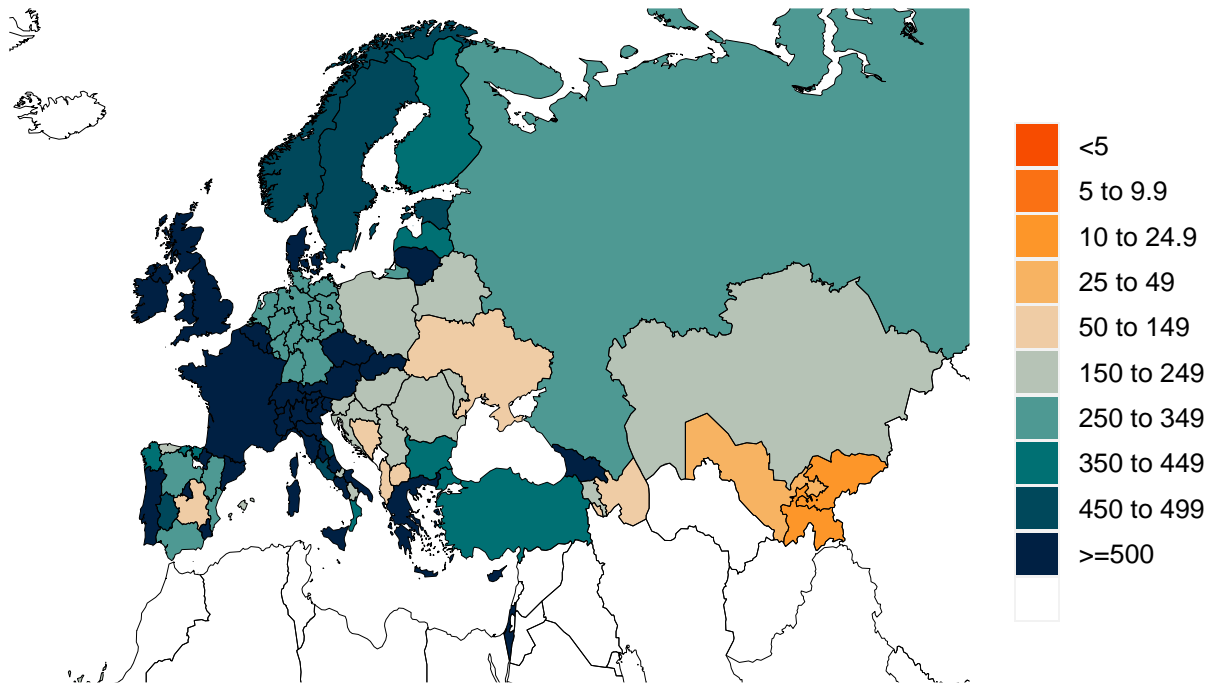


Table 3. Estimates of vaccine effectiveness for specific vaccines used in the model at preventing severe disease and infection. We use data from clinical trials directly, where available, and make estimates otherwise. More information can be found on our [website](#).

Vaccine	Effectiveness at preventing											
	Ancestral		Alpha		Beta		Gamma		Delta		Omicron	
	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

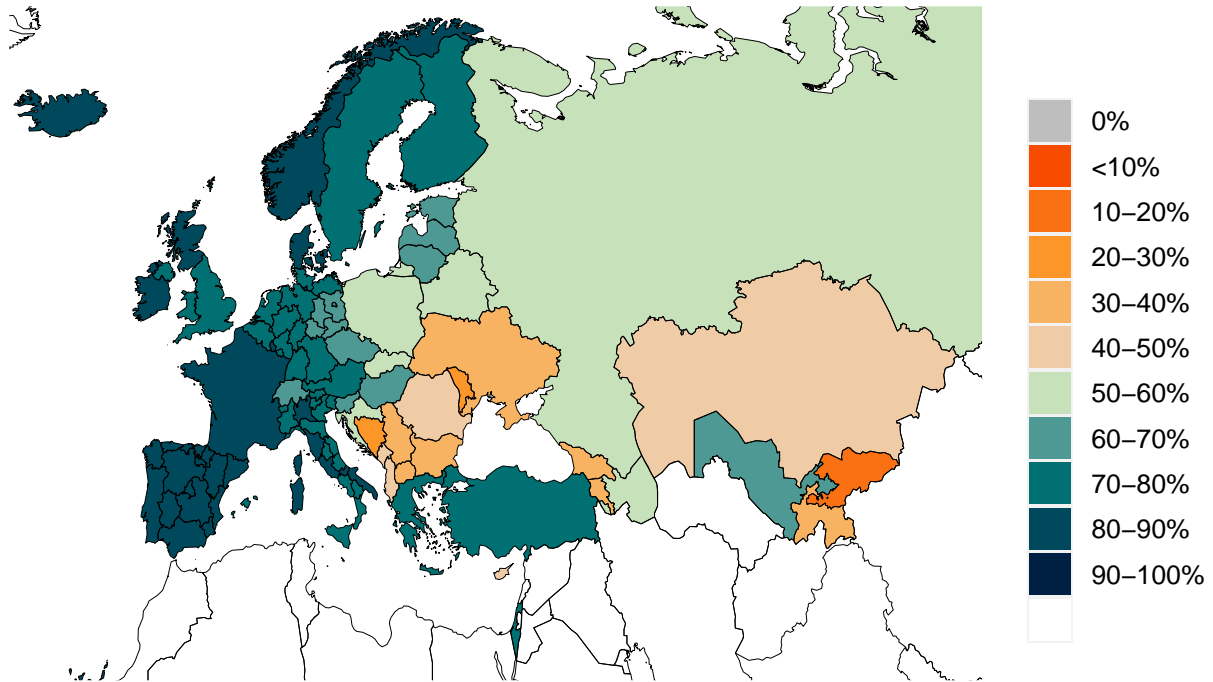


Figure 17.2 Percent of the population fully vaccinated against SARS-CoV-2

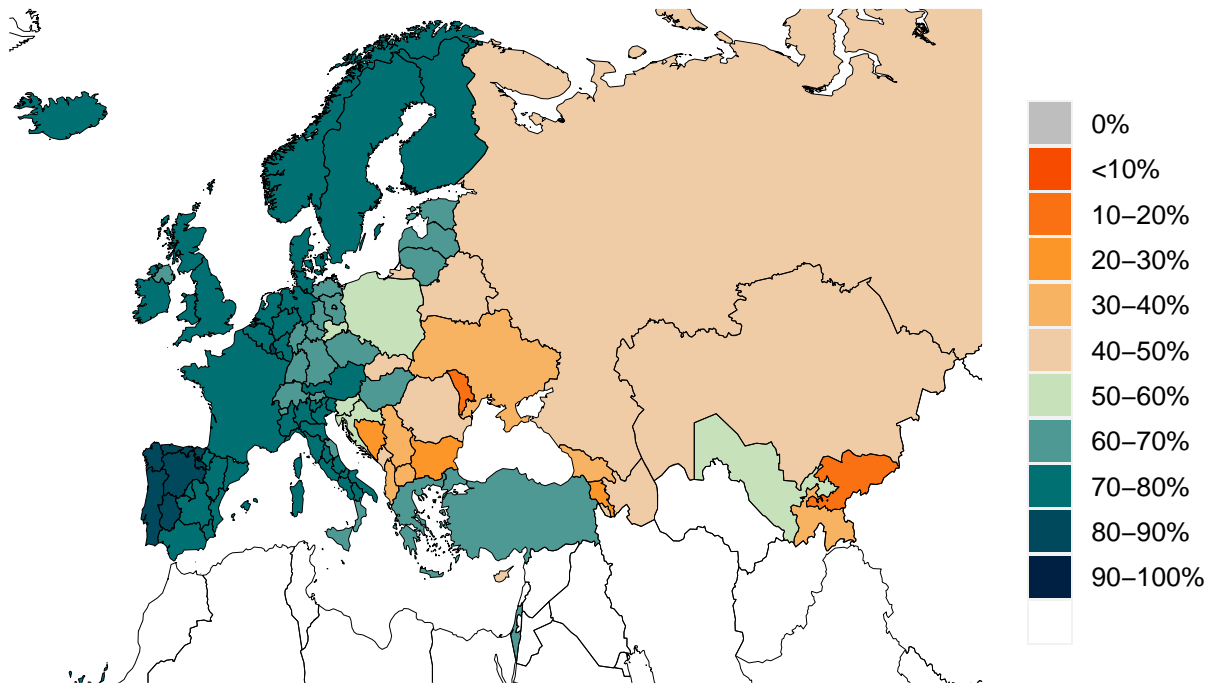


Figure 18.1. Trend in the estimated proportion of the population that is 12 years and older that has been vaccinated or would probably or definitely receive the COVID-19 vaccine if available. Note that vaccine acceptance is calculated using survey data from the 18+ population.

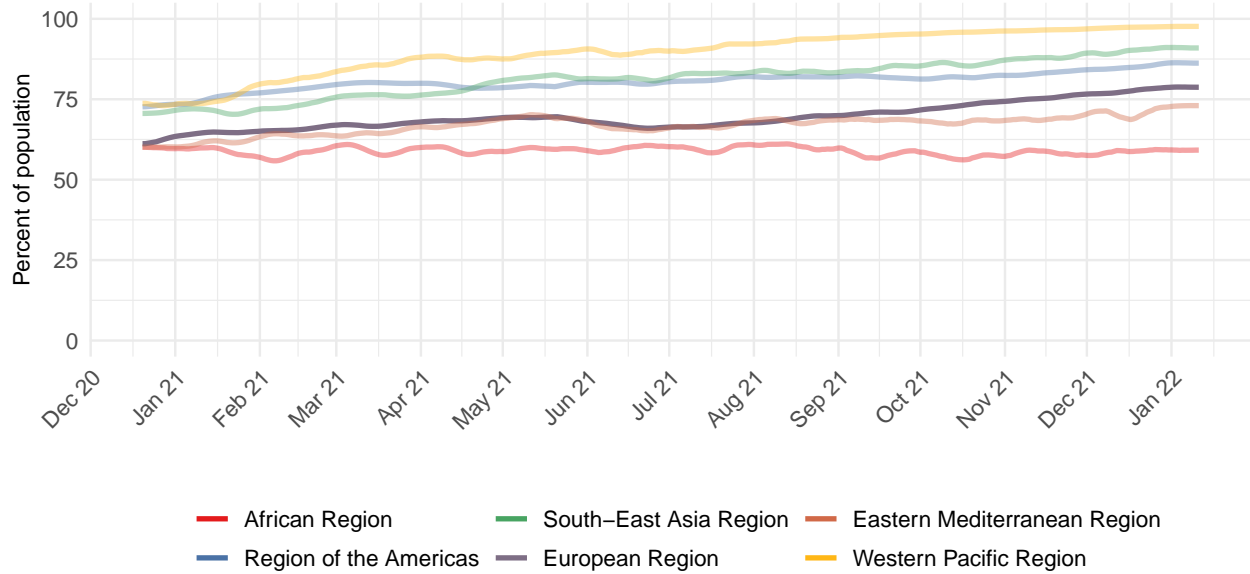


Figure 19.1. Estimated proportion of the population that is 12 years and older that has been vaccinated or would probably or definitely receive the COVID-19 vaccine if available. Note that vaccine acceptance is calculated using survey data from the 18+ population.

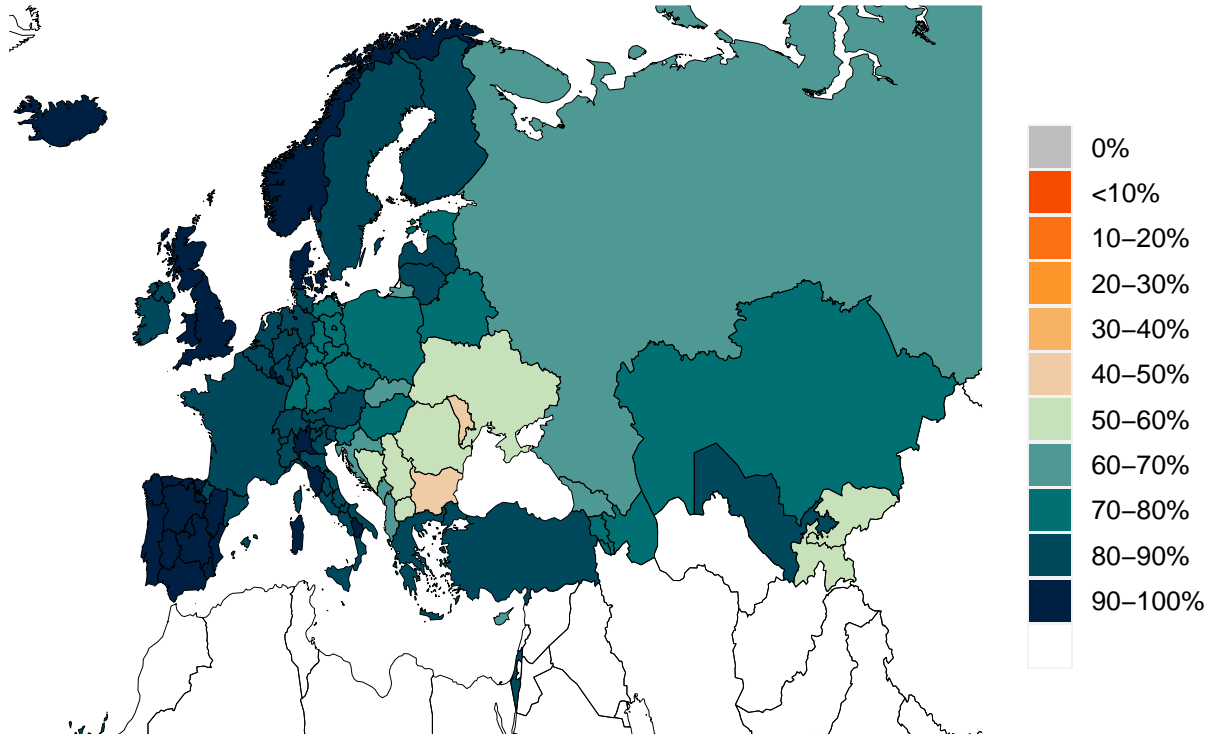
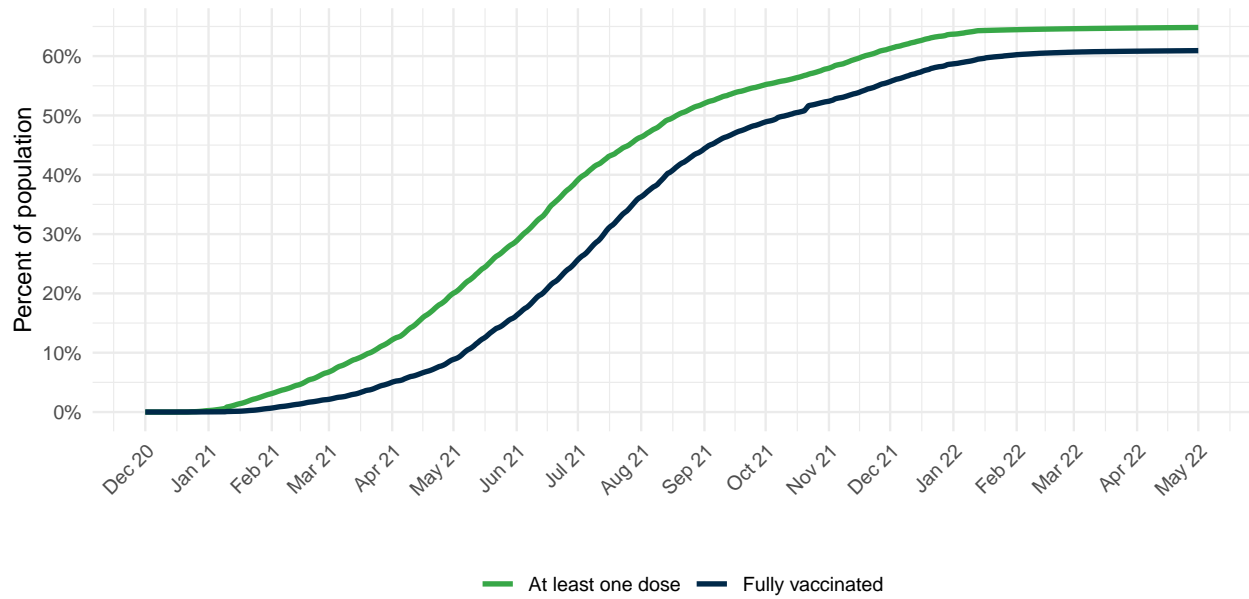


Figure 20.1. Percent of people who receive at least one dose of a COVID-19 vaccine and those who are fully vaccinated



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.

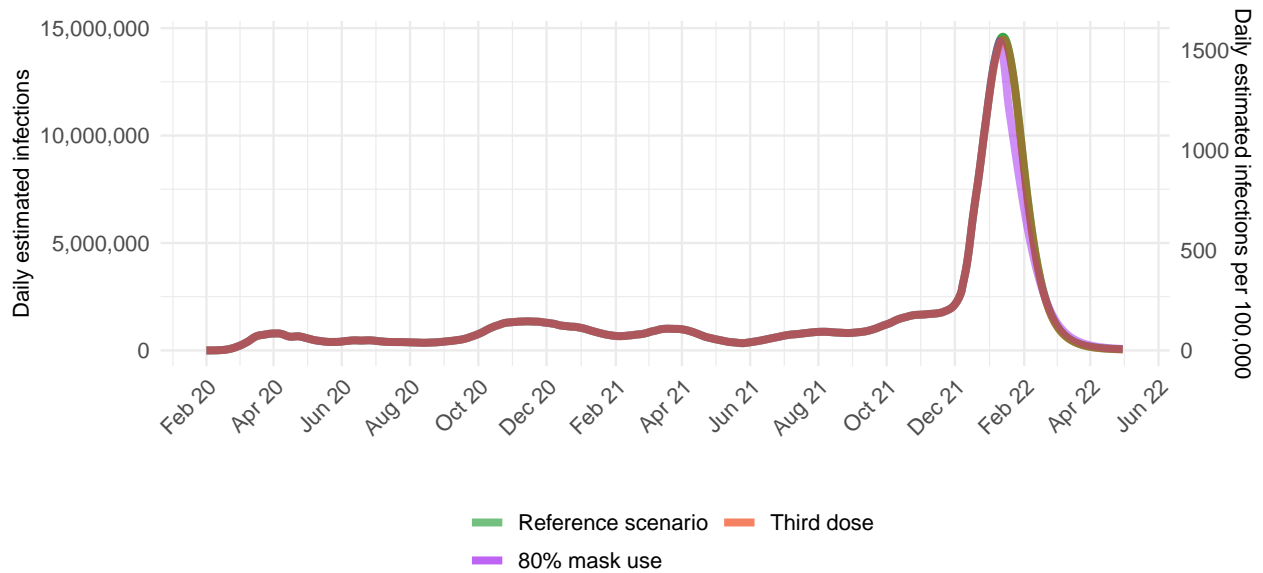
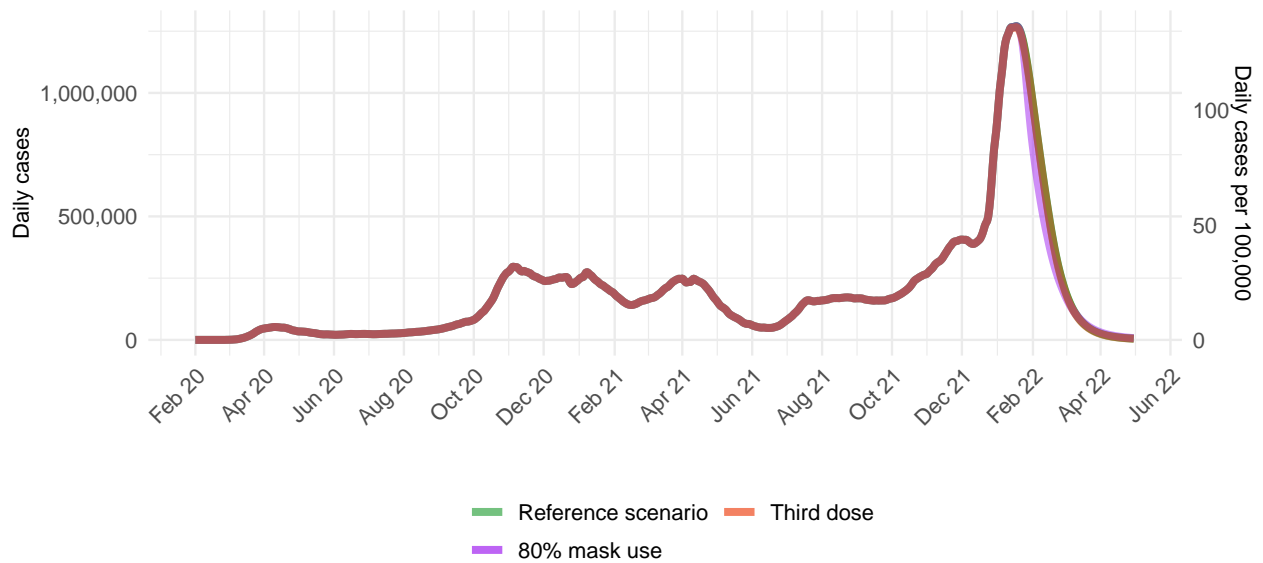
Figure 21.1. Daily COVID-19 infections until May 01, 2022 for 3 scenarios

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


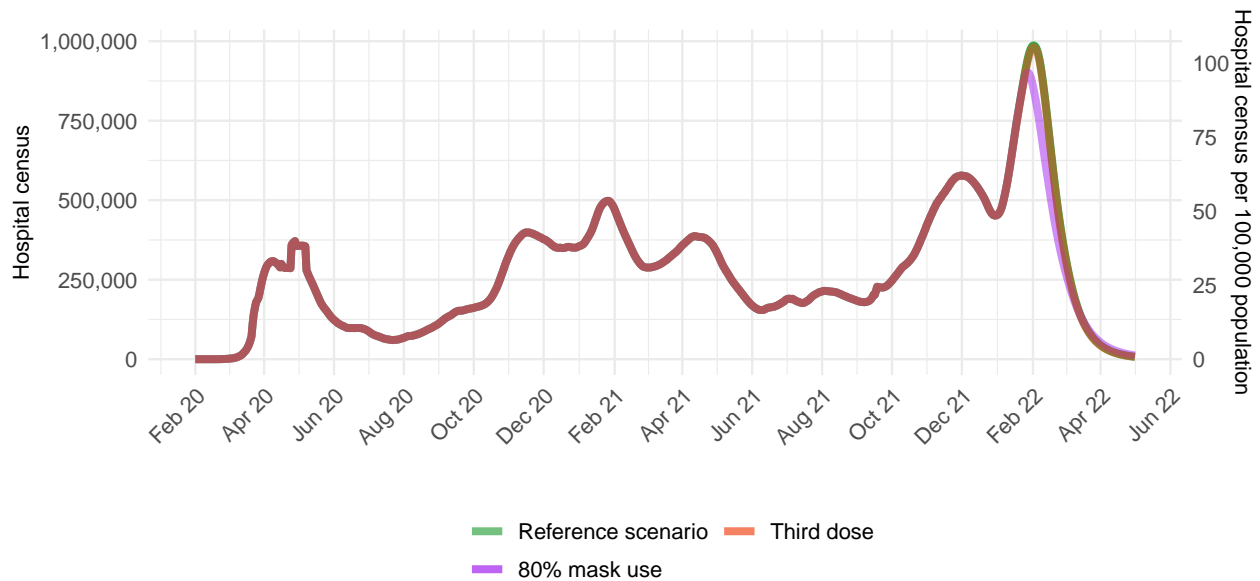
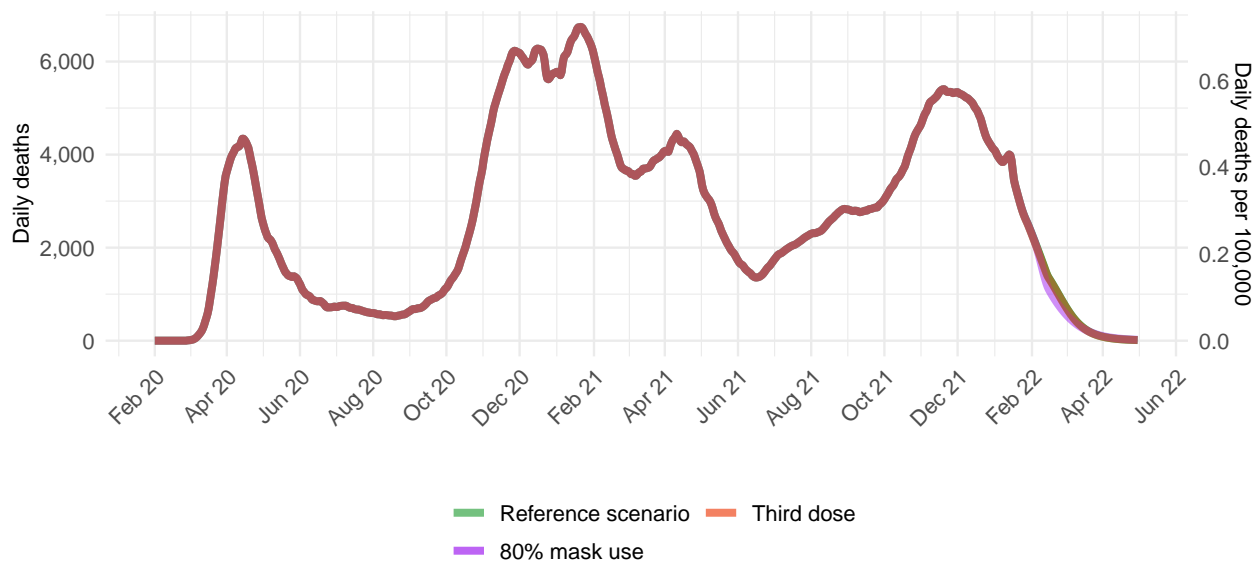
Figure 21.3. Daily COVID-19 hospital census until May 01, 2022 for 3 scenarios

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


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

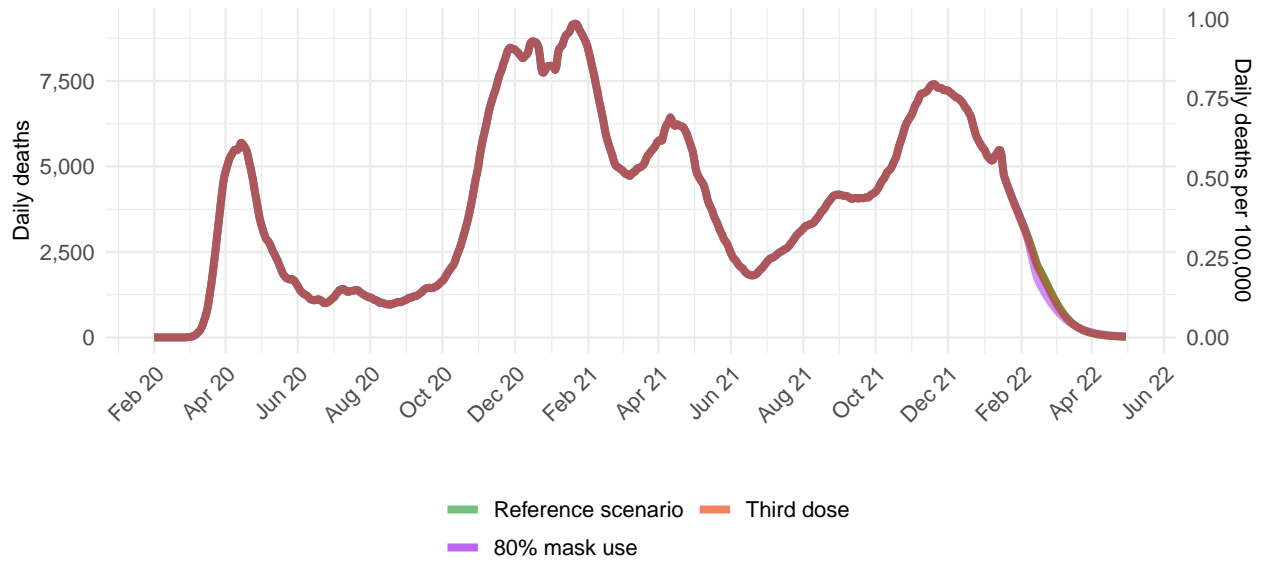


Figure 22.1. Comparison of reference model projections with other COVID modeling groups. For this comparison, we are including projections of daily COVID-19 deaths from other modeling groups when available, last model update in brackets: Delphi from the Massachusetts Institute of Technology ([Delphi](#)) [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.

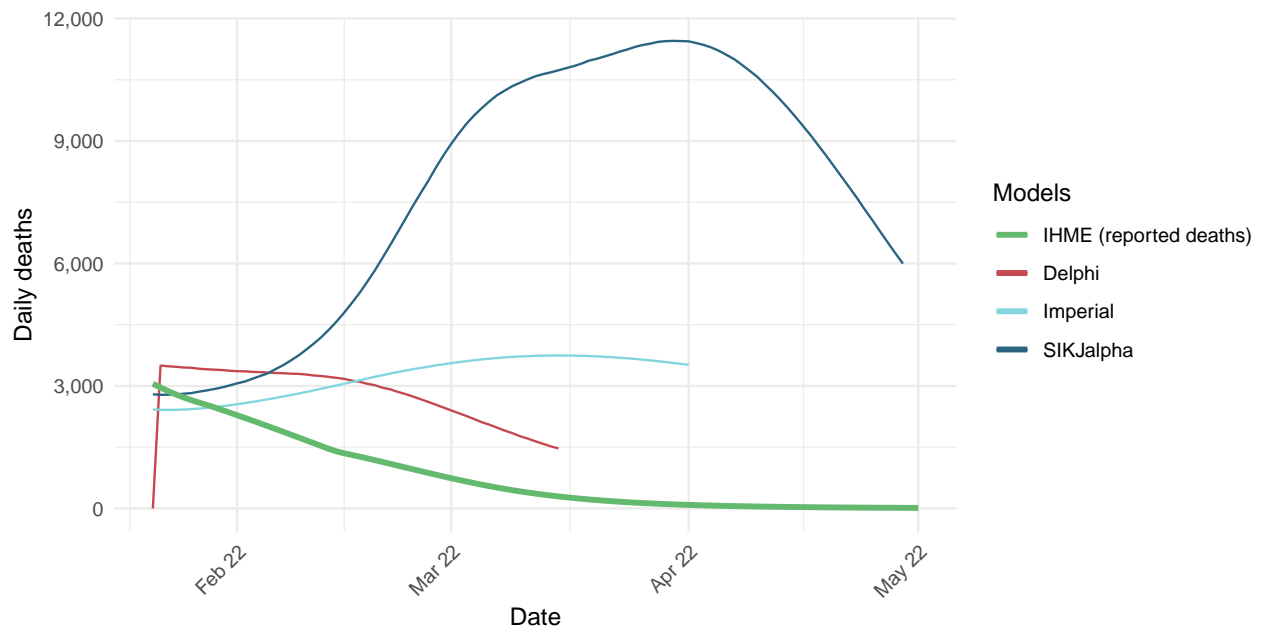
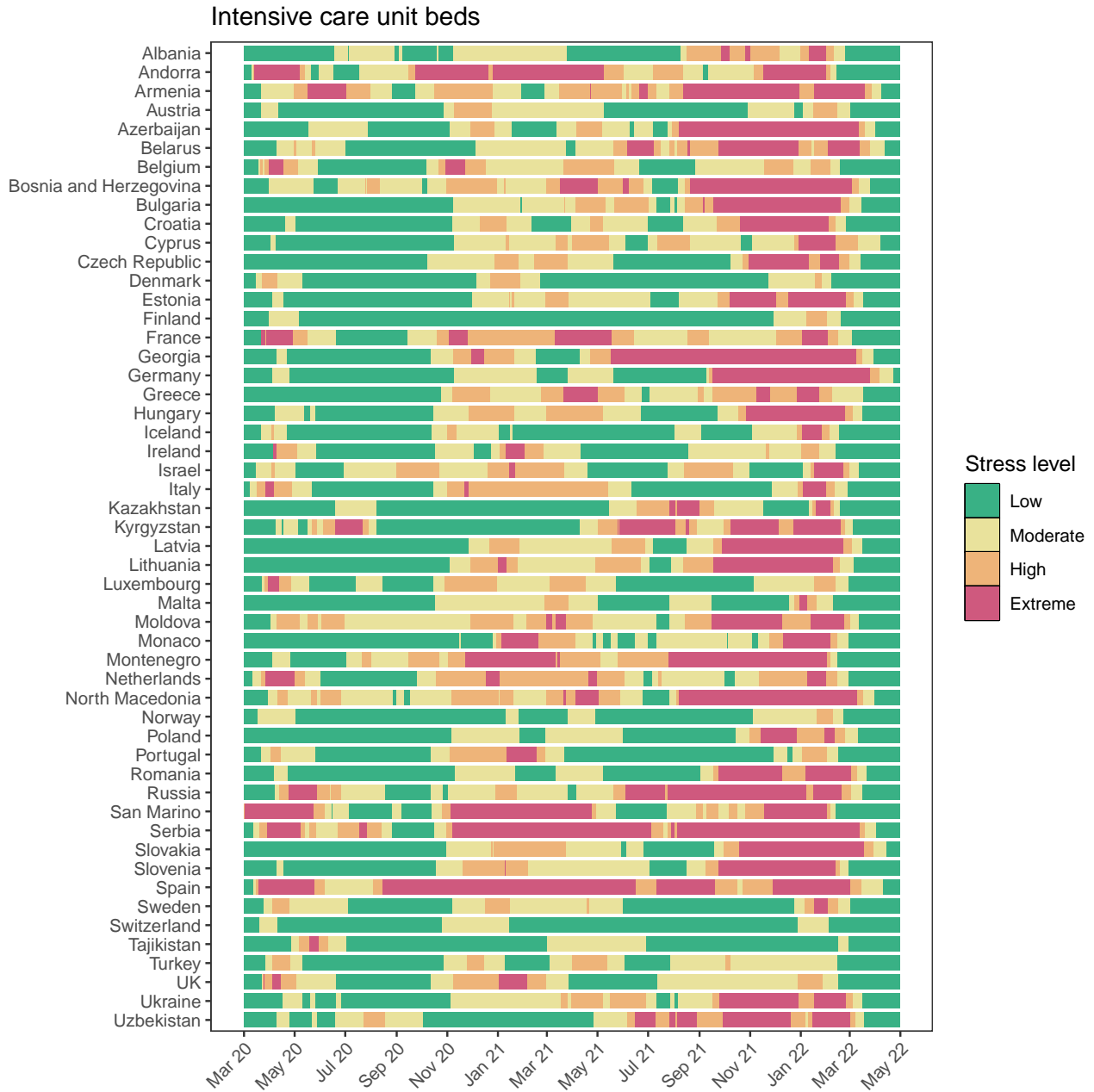


Figure 23.1. The estimated inpatient hospital usage is shown over time. The percent of hospital beds occupied by COVID-19 patients is color-coded based on observed quantiles of the maximum proportion of beds occupied by COVID-19 patients. Less than 5% is considered *low stress*, 5-9% is considered *moderate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