

## COVID-19 Results Briefing

### United Kingdom

**June 9, 2022**

This document contains summary information on the latest projections from the IHME model on COVID-19 in United Kingdom. The model was run on June 8, 2022, with data through June 6, 2022.

### Current situation

- Daily infections in the last week decreased to 77,000 per day on average compared to 79,000 the week before (Figure 1.1). Daily hospital census in the last week (through June 6) decreased to 4,400 per day on average compared to 5,100 the week before.
- Daily reported cases in the last week decreased to 7,200 per day on average compared to 7,300 the week before (Figure 2.1).
- Reported deaths due to COVID-19 in the last week decreased to 50 per day on average compared to 65 the week before (Figure 3.1).
- Total deaths due to COVID-19 in the last week decreased to 50 per day on average compared to 65 the week before (Figure 3.1). This makes COVID-19 the number eight cause of death in United Kingdom this week (Table 1). Estimated total daily deaths due to COVID-19 in the past week were 1.0 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 71% of people in United Kingdom have been infected at least once as of June 6 (Figure 6.1). Effective R, computed using cases, hospitalizations, and deaths, is greater than 1 in two countries. (Figure 7.1).
- The infection-detection rate in United Kingdom was close to 12% on June 6 (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 four countries, that the Beta variant is circulating in no countries, that the Delta variant is circulating in four countries, that the Gamma variant is circulating in no countries, and that the Omicron variant is circulating in four countries.

### Trends in drivers of transmission

- Mobility last week was 5% lower than the pre-COVID-19 baseline (Figure 11.1). Mobility was lower than 15% of baseline in no countries (Figure 12.1).
- As of May 29, in the COVID-19 Trends and Impact Survey, 8% of people self-reported that they always wore a mask when leaving their home compared to 8% the previous week (Figure 13.1).
- There were 288 diagnostic tests per 100,000 people on June 6 (Figure 15.1).
- As of June 6, four countries have reached 70% or more of the population who have received at least one vaccine dose, and three countries have reached 70% or more of the population who are fully vaccinated (Figures 17.1 and 17.2). 80% of people in United Kingdom have received at least one vaccine dose, and 75% are fully vaccinated.
- In United Kingdom, 93.8% of the population that is 12 years and older say they would accept a vaccine for COVID-19 (Figure 18.1). This is the same as the previous week. The proportion of the population who are open to receiving a COVID-19 vaccine ranges from 90% in Northern Ireland to 94% in Scotland (Figure 19.1). Note that vaccine acceptance is calculated using survey data from the 18+ population.
- As of May 30, 2022, zero percent of the population in United Kingdom say they would accept a vaccine for COVID-19 but have not yet been vaccinated.

- In our current reference scenario, we expect that 53.5 million people will be vaccinated with at least one dose by October 1 (Figure 21.1). We expect that 75% of the population will be fully vaccinated by October 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.
- 80% of those who have had two doses of vaccine (or one dose for Johnson & Johnson) receive a third dose at six months after their second dose.
- Antiviral utilization for COVID-19 risk prevention in high-risk populations will reach 80% between June 15, 2022, and July 31, 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 30, 2022.

## Infections

- Daily estimated infections in the **reference scenario** will decline to 18,860 by August 24, 2022 (Figure 23.1).
- Daily estimated infections in the **80% mask use scenario** will decline to 750 by September 12, 2022 (Figure 23.1).
- Daily estimated infections in the **antiviral access scenario** will decline to 18,860 by August 24, 2022 (Figure 23.1).

## Cases

- Daily estimated cases in the **reference scenario** will rise to 19,230 by July 3, 2022 (Figure 23.2).
- Daily estimated cases in the **80% mask use scenario** will rise to 14,080 by June 16, 2022 (Figure 23.2).
- Daily estimated cases in the **antiviral access scenario** will rise to 19,230 by July 3, 2022 (Figure 23.2).

## Hospitalizations

- Daily hospital census in the **reference scenario** will decline to 430 by September 6, 2022 (Figure 23.3). At some point from June through October 1, no countries will have high or extreme stress on hospital beds (Figure 25.1). At some point from June through October 1, no countries will have high or extreme stress on intensive care unit (ICU) capacity (Figure 26.1).
- Daily hospital census in the **80% mask use scenario** will decline to 20 by September 28, 2022 (Figure 23.3).
- Daily hospital census in the **antiviral access scenario** will decline to 430 by September 6, 2022 (Figure 23.3).

## Deaths

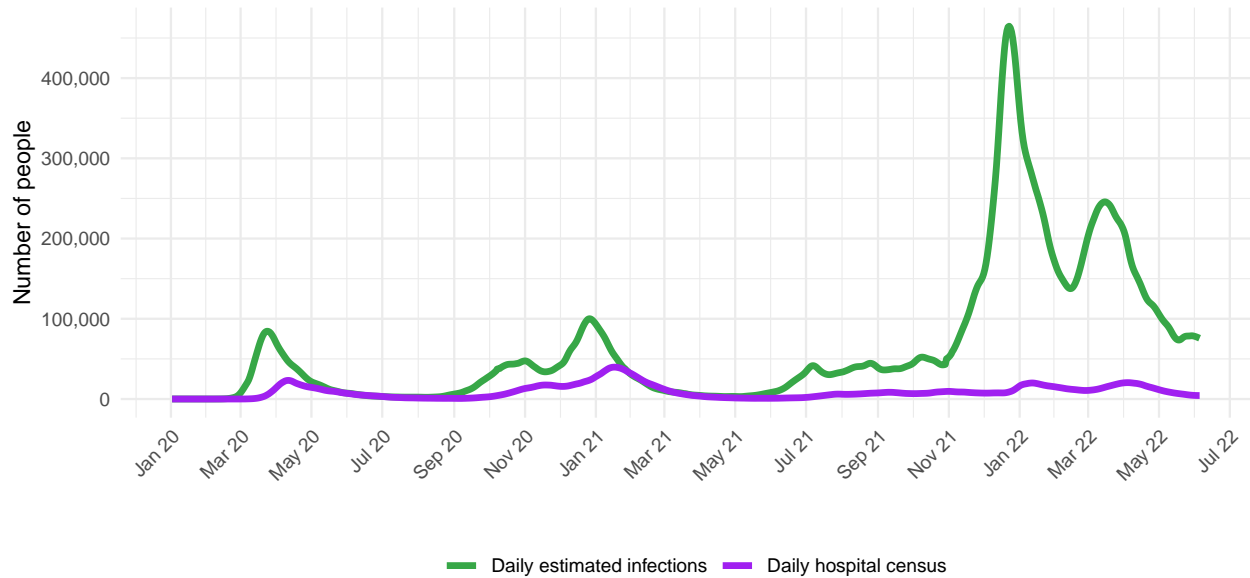
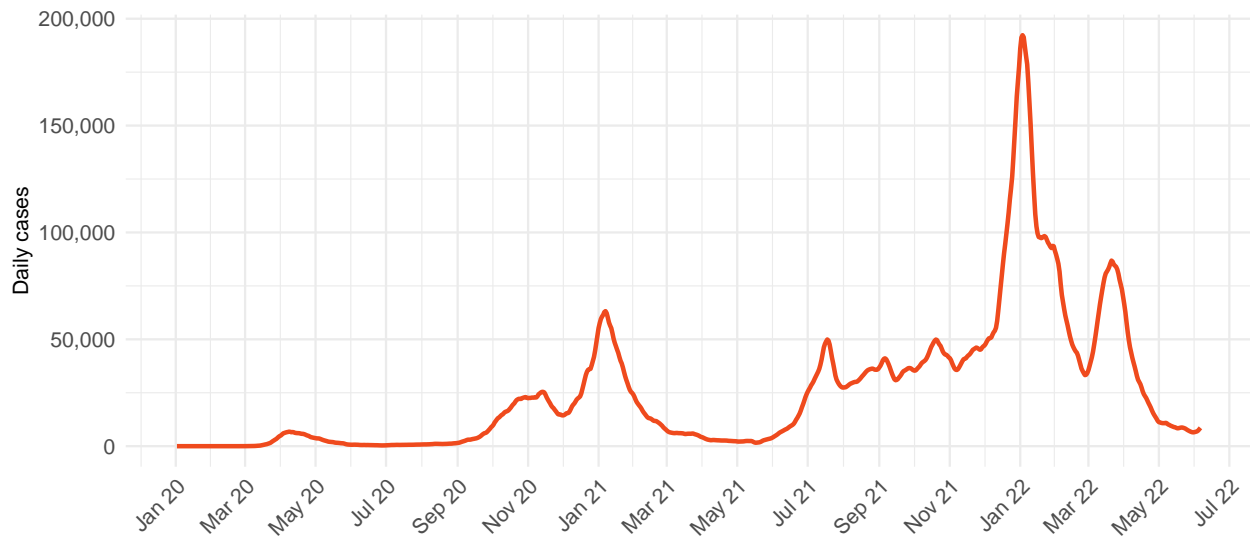
- In our **reference scenario**, our model projects 198,000 cumulative reported deaths due to COVID-19 on October 1. This represents 1,700 additional deaths from June 6 to October 1. Daily reported COVID-19 deaths in the **reference scenario** will decline to zero by September 18, 2022 (Figure 23.4).
- Under our **reference scenario**, our model projects 199,000 cumulative total deaths due to COVID-19 on October 1. This represents 1,700 additional deaths from June 6 to October 1 (Figure 23.5).
- In our **80% mask use scenario**, our model projects 197,000 cumulative reported deaths due to COVID-19 on October 1. This represents 1,200 additional deaths from June 6 to October 1. Daily reported COVID-19 deaths in the **80% mask use scenario** will decline to zero by October 1, 2022 (Figure 23.4).
- In our **antiviral access scenario**, our model projects 198,000 cumulative reported deaths due to COVID-19 on October 1. This represents 1,700 additional deaths from June 6 to October 1. Daily reported COVID-19 deaths in the **antiviral access scenario** will decline to zero by September 18, 2022 (Figure 23.4).
- Figure 24.1 compares our reference scenario forecasts to other publicly archived models. Forecasts are widely divergent.

## Model updates

This month, we have made three alterations to our reference assumptions in the model. First, we expect the recent rollout of Paxlovid treatments in high-income settings to greatly reduce severe disease and death outcomes. We do not currently have data to inform levels of coverage, so we have introduced a simple scale-up model that assumes individuals over the age of 65 will be targeted for treatment, and access to treatment among this group will rise from 0% on June 15, 2022, to a maximum of 80% on July 31, 2022. Clinical trials suggest a Paxlovid provides an 88% reduction in the risk of hospitalization and death <https://www.pfizer.com/news/press-release/press-release-detail/pfizer-announces-additional-phase-23-study-results> among people treated within five days of symptom onset. We make a slightly more conservative assumption that the hospitalization and death rates will be reduced by 80% to account for variations in treatment timing and patient adherence in a real-world setting.

Second, survey data suggest that mask use is continuing to decline in most world locations. We have updated our reference mask use forecast to introduce a linear decline in mask use prevalence down to 50% of the minimum use level between January 1, 2021, and May 1, 2022, in each location. We have kept our previous assumption that mask use will continue at current levels in China, South Korea, Japan, Taiwan, Singapore, and South Africa, as current data do not suggest an imminent reduction.

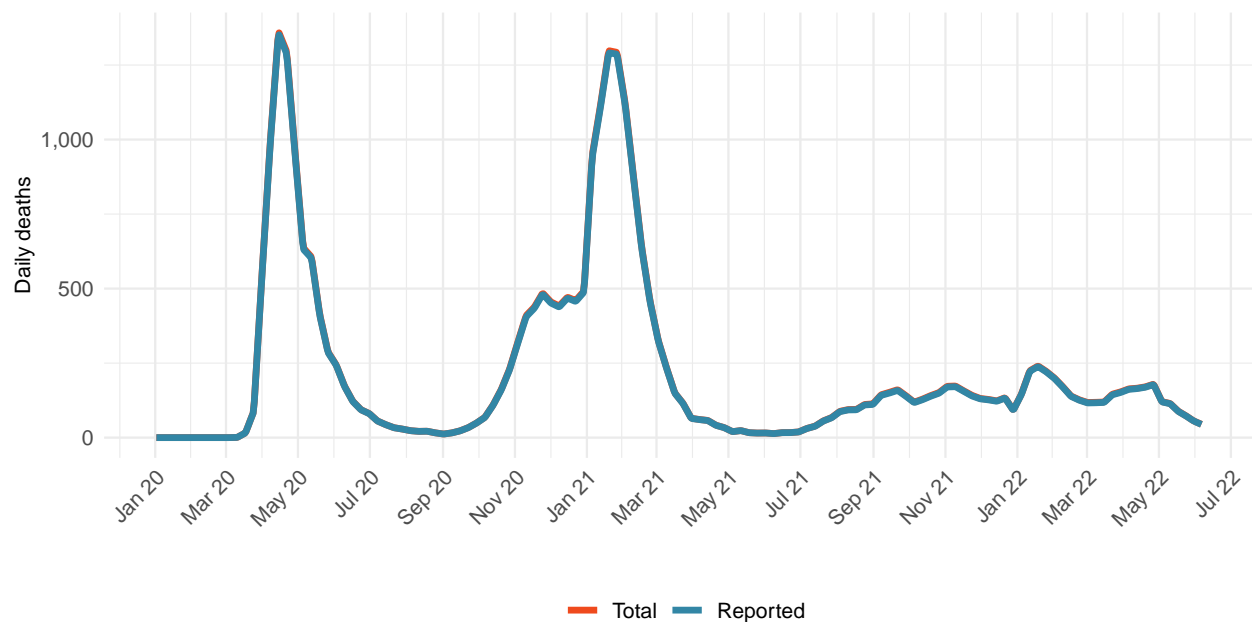
Finally, similar to mask use, observed mobility continues to increase in much of the world. We have replaced our previous reference scenario that assumed current levels of mobility would persist indefinitely with a scenario that has mobility increase to match vaccine coverage. We continue to produce three scenarios when projecting COVID-19, but we have replaced the increased booster coverage scenario with an antiviral access scenario that examines the impact of more equitable distribution of Paxlovid to low- and middle-income countries (LMICs).

**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	1,796	1
Stroke	974	2
Chronic obstructive pulmonary disease	845	3
Tracheal, bronchus, and lung cancer	824	4
Lower respiratory infections	805	5
Alzheimer's disease and other dementias	624	6
Colon and rectum cancer	466	7
COVID-19	350	8
Prostate cancer	307	9
Breast cancer	293	10

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



Daily COVID-19 death rate per 1 million on June 6, 2022

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

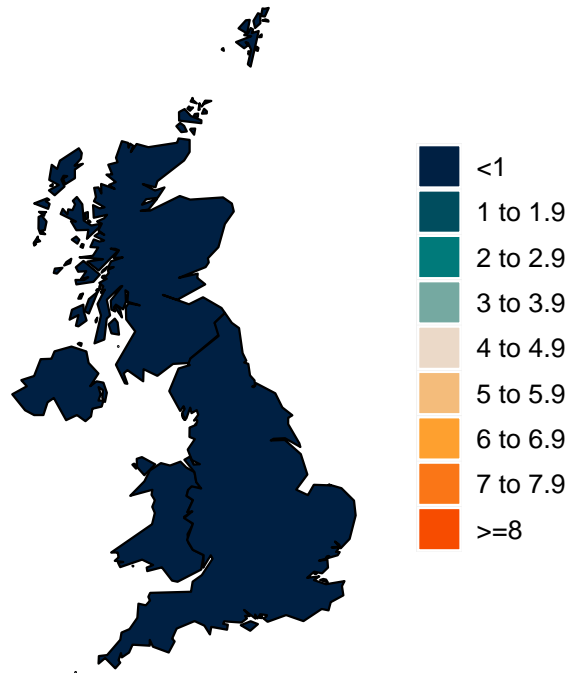
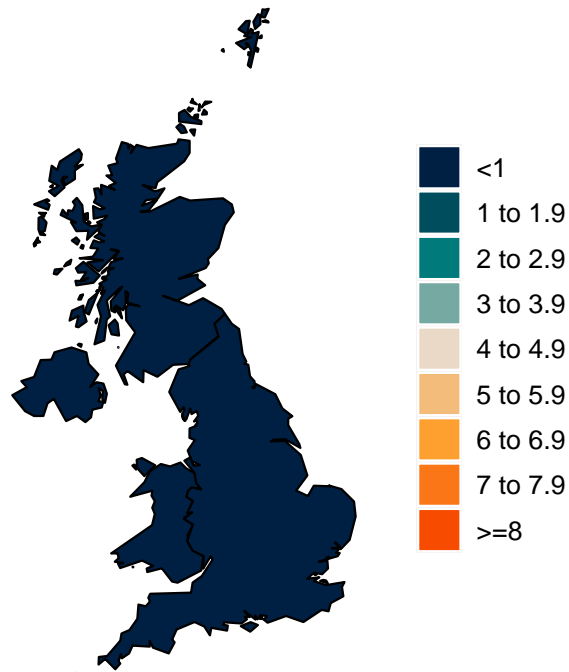


Figure 4.2: Daily total COVID-19 death rate per 1 million



Cumulative COVID-19 deaths per 100,000 on June 6, 2022

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

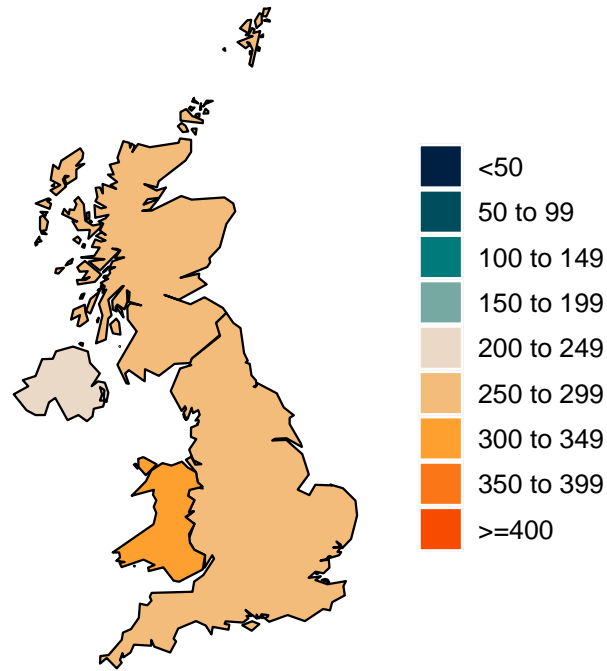


Figure 5.2: Total cumulative COVID-19 deaths per 100,000

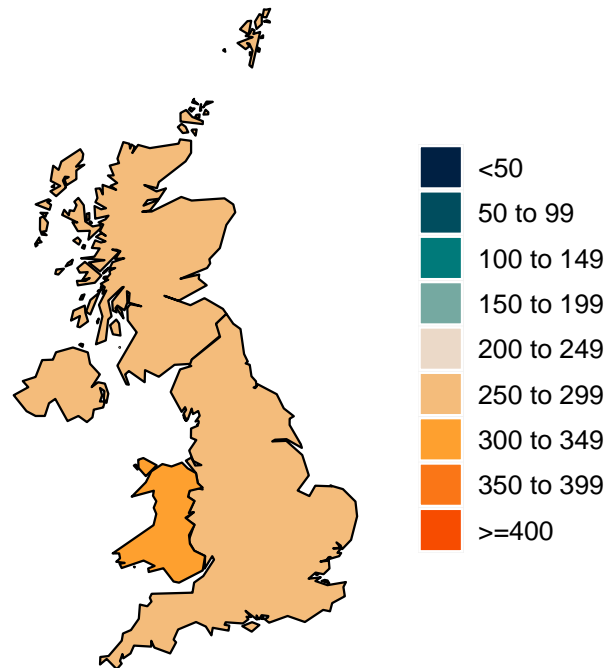




Figure 6.1: Estimated percent of the population infected with COVID-19 on June 6, 2022

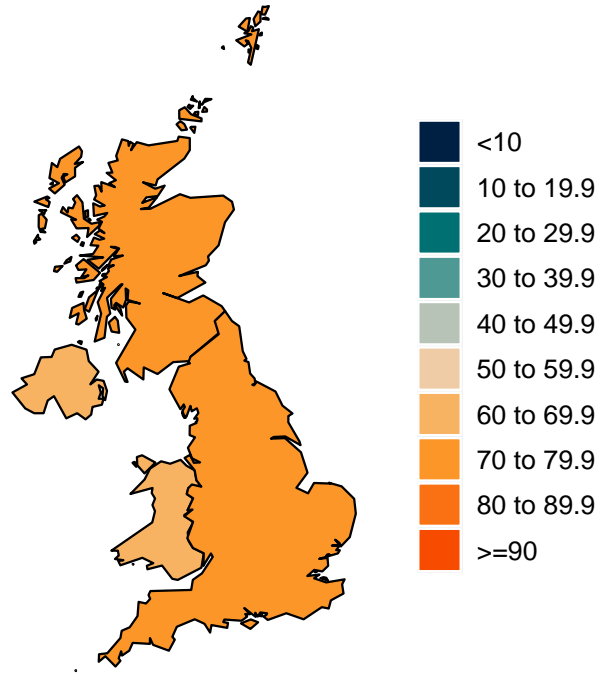
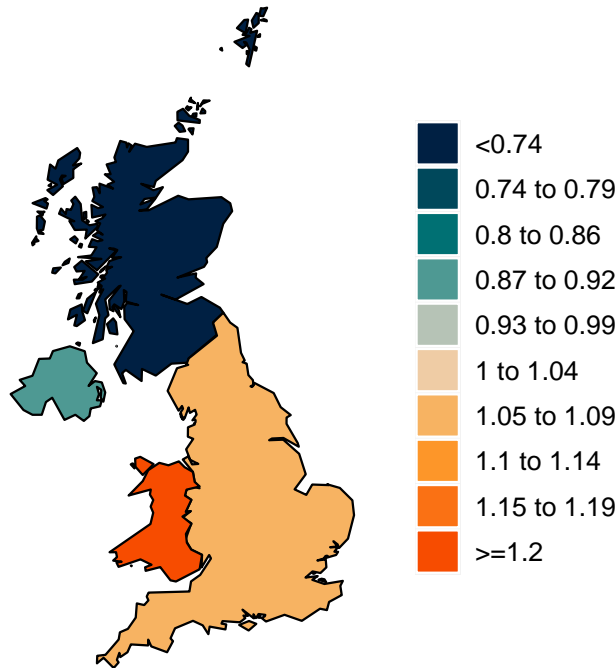
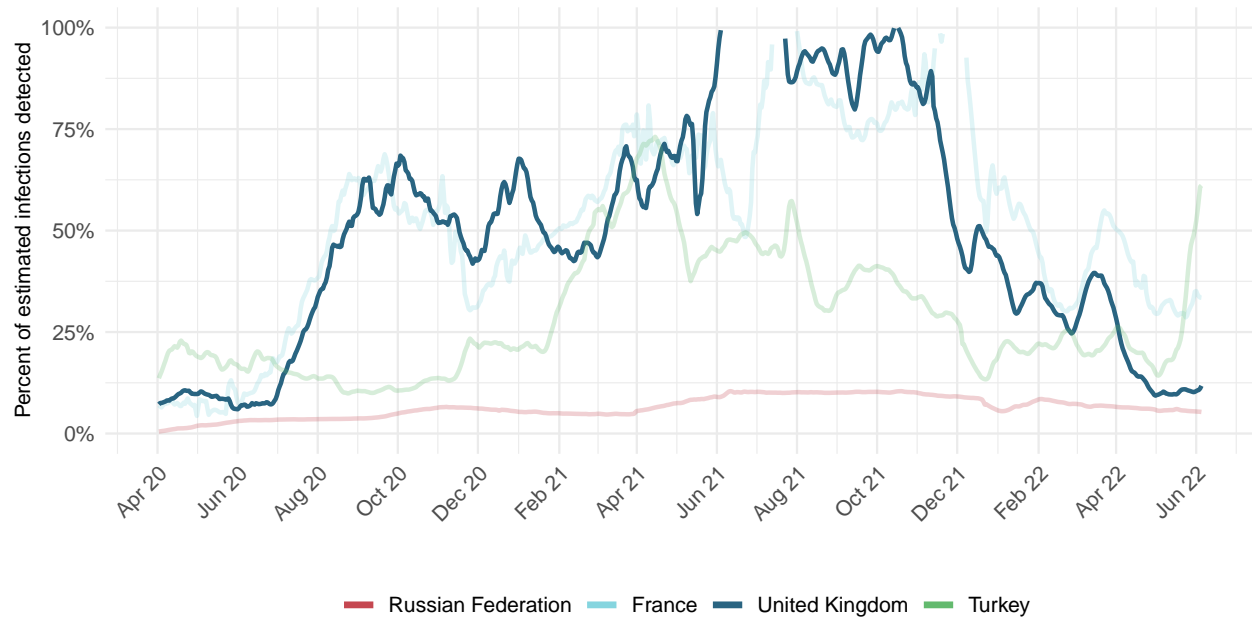


Figure 7.1: Mean effective R on May 26, 2022. Effective R less than 1 means that transmission should decline, all other things being held the same. The estimate of effective R is based on the combined analysis of deaths, case reporting, and hospitalizations where available. Current reported cases reflect 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 June 6, 2022

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

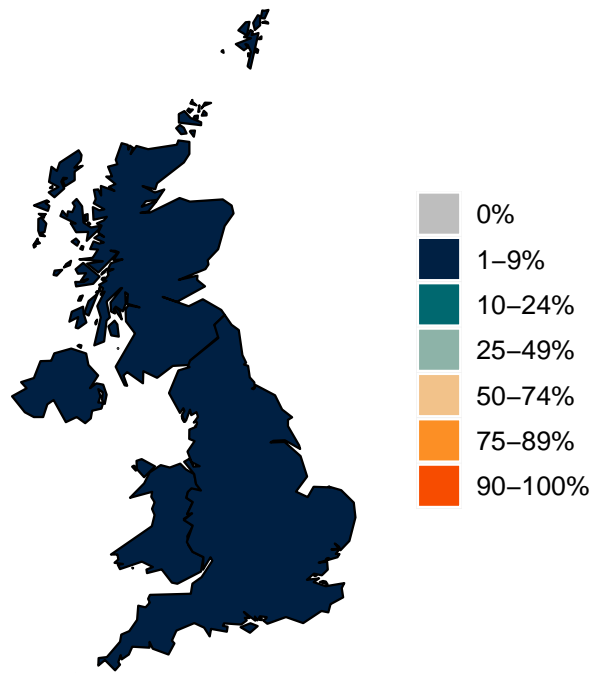


Figure 9.2: Estimated percent of new infections that are Beta variant

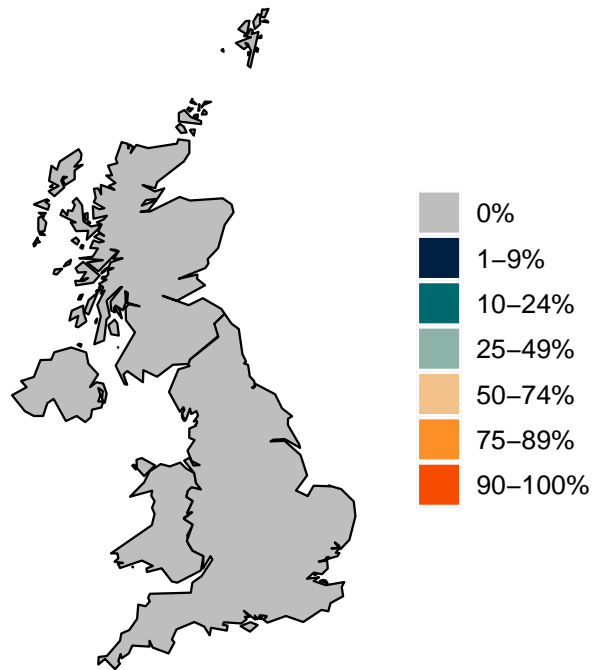


Figure 9.3: Estimated percent of new infections that are Delta variant

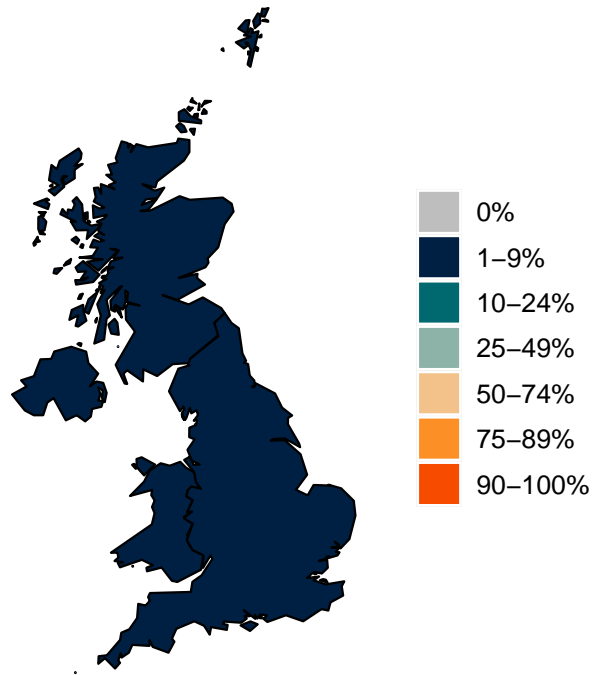


Figure 9.4: Estimated percent of new infections that are Gamma variant

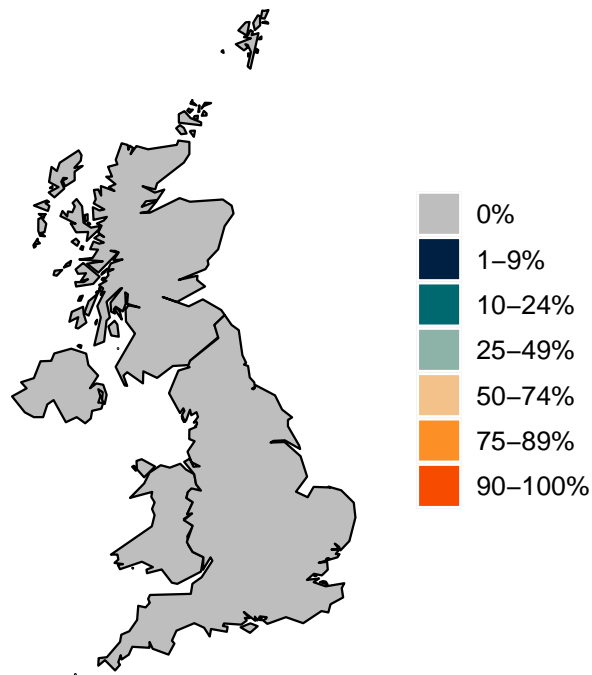
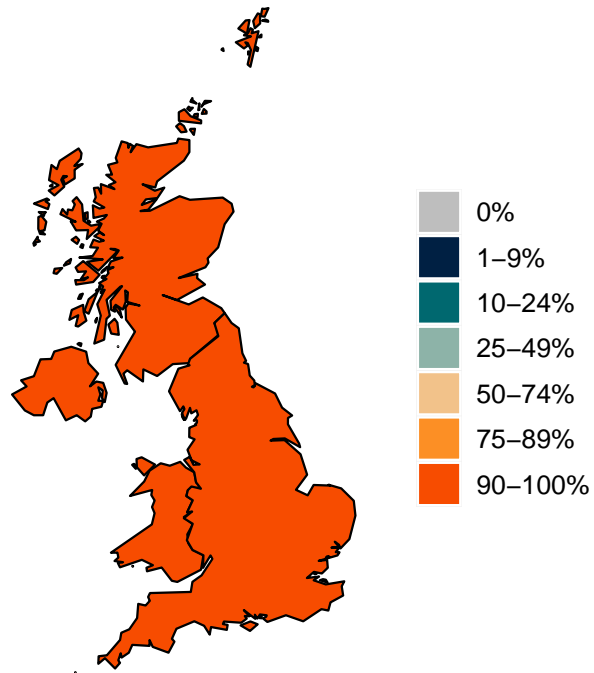
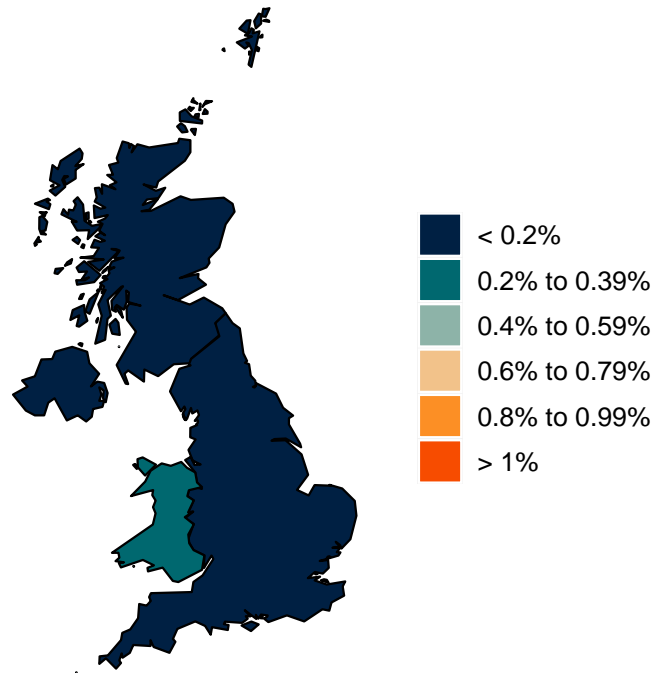


Figure 9.5: Estimated percent of new infections that are Omicron variant



**Figure 10.1: Infection-fatality rate on June 6, 2022.** This is estimated as the ratio of COVID-19 deaths to estimated daily COVID-19 infections.



**Critical drivers**
**Table 2: Current mandate implementation**

	Primary school closure	Secondary school closure	Higher school closure	Entry restrictions for some non-residents	Entry restrictions for all non-residents	Individual movements restricted	Curfew for businesses	Individual curfew	Gathering limit: 6 indoor, 10 outdoor	Gathering limit: 10 indoor, 25 outdoor	Gathering limit: 25 indoor, 50 outdoor	Gathering limit: 50 indoor, 100 outdoor	Gathering limit: 100 indoor, 250 outdoor	Restaurants closed	Bars closed	Restaurants / bars closed	Restaurants / bars curbside only	Gyms, pools, other leisure closed	Non-essential retail closed	Non-essential retail curbside only	Non-essential workplaces closed	Stay home order	Stay home fine	Mask mandate	Mask mandate fine
England	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate
Northern Ireland	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate
Scotland	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	Mandate in place (imposed this week)	Mandate in place (imposed this week)	Mandate in place (imposed this week)
Wales	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate	No mandate

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

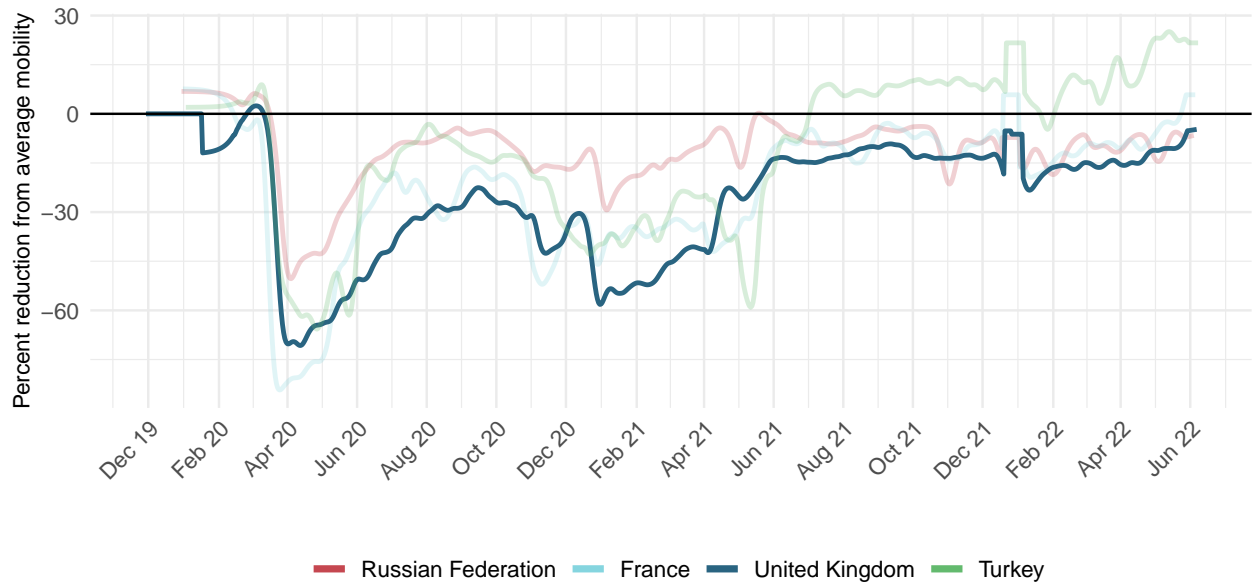




Figure 12.1: Mobility level as measured through smartphone app use, compared to January 2020 baseline (percent) on June 6, 2022

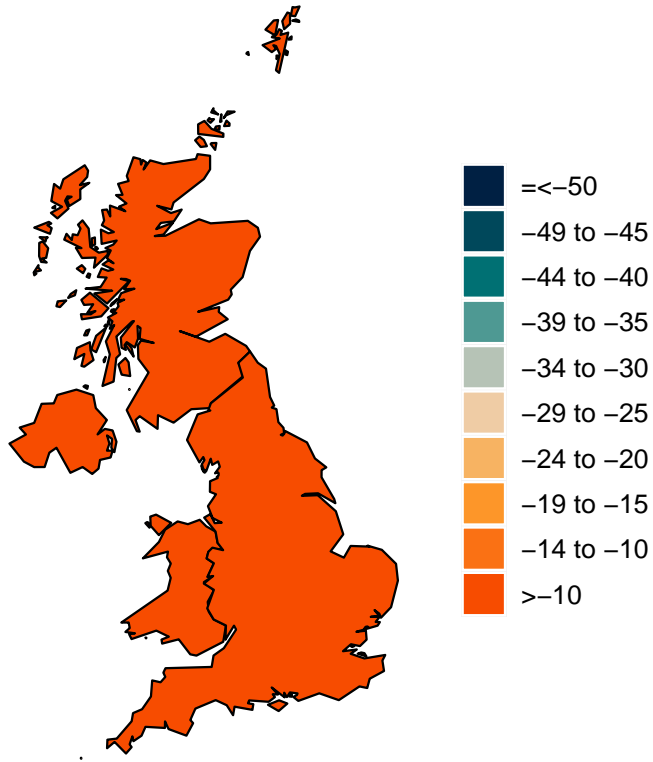


Figure 13.1: Trend in the proportion of the population reporting always wearing a mask when leaving home

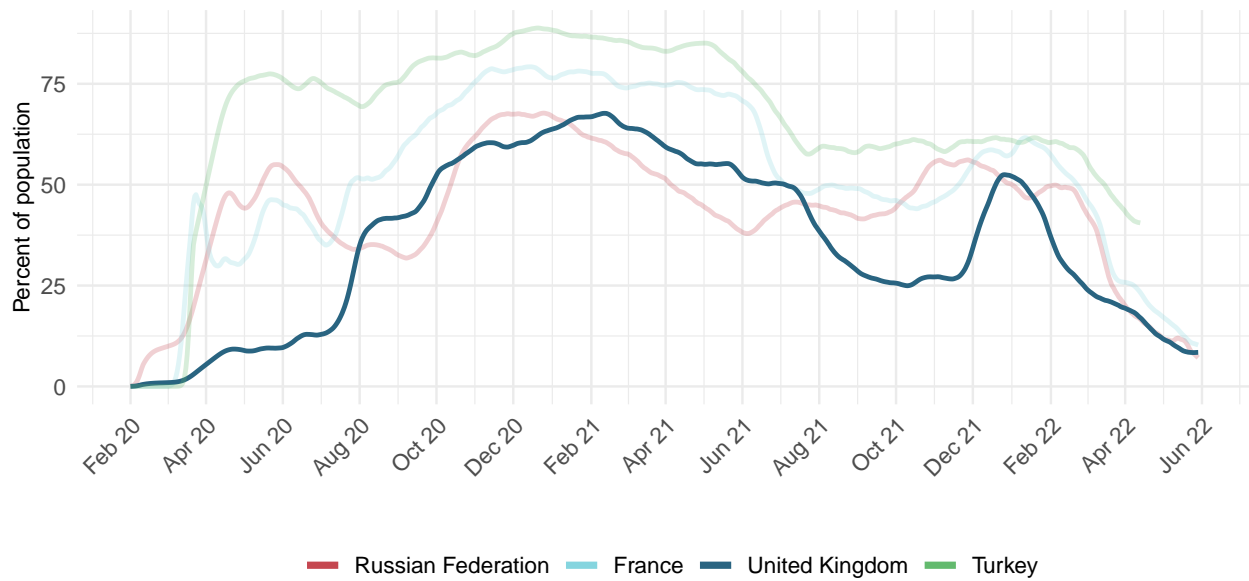


Figure 14.1: Proportion of the population reporting always wearing a mask when leaving home on June 6, 2022

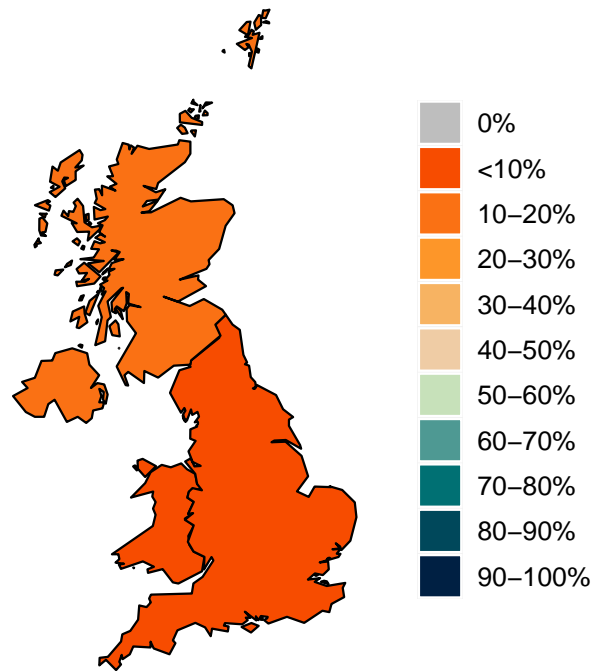


Figure 15.1: Trend in COVID-19 diagnostic tests per 100,000 people

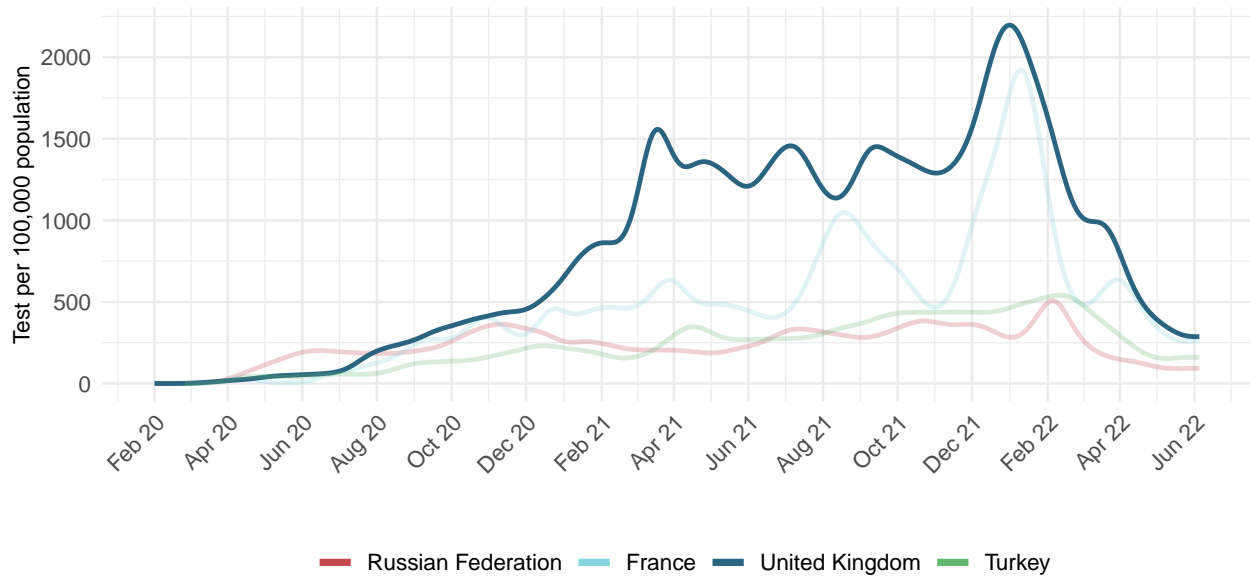
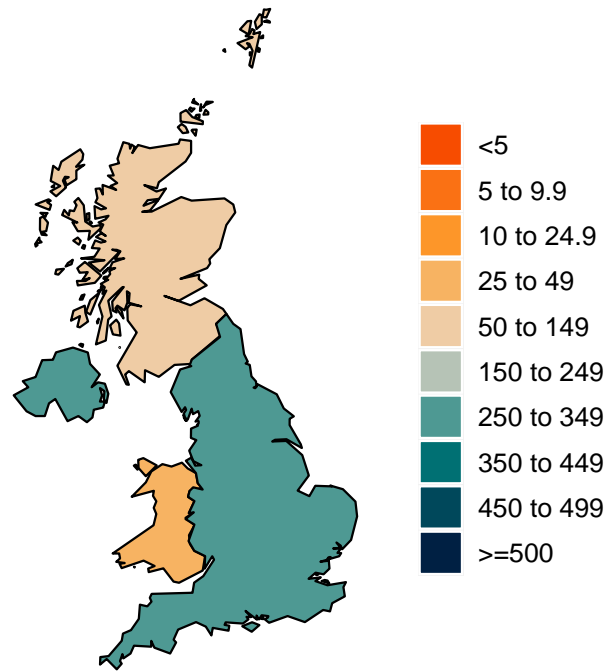


Figure 16.1: COVID-19 diagnostic tests per 100,000 people on June 6, 2022

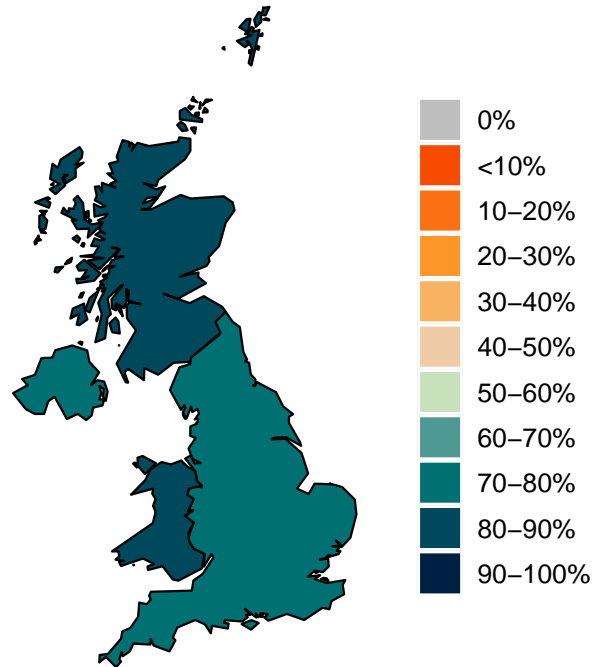


**Table 3: Estimates of vaccine effectiveness for specific vaccines used in the model at preventing severe disease and infection.** We use data from clinical trials directly, where available, and make estimates otherwise. More information can be found on our [website](#).

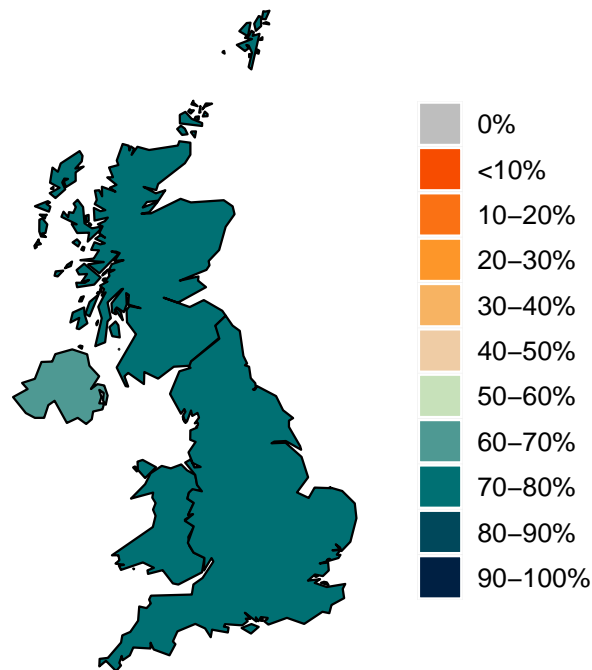
Vaccine	Effectiveness at preventing											
	Ancestral		Alpha		Beta		Gamma		Delta		Omicron	
	Severe disease	Infection	Severe disease	Infection	Severe disease	Infection	Severe disease	Infection	Severe disease	Infection	Severe disease	Infection
AstraZeneca	94%	63%	94%	63%	94%	69%	94%	69%	94%	69%	71%	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 June 6, 2022

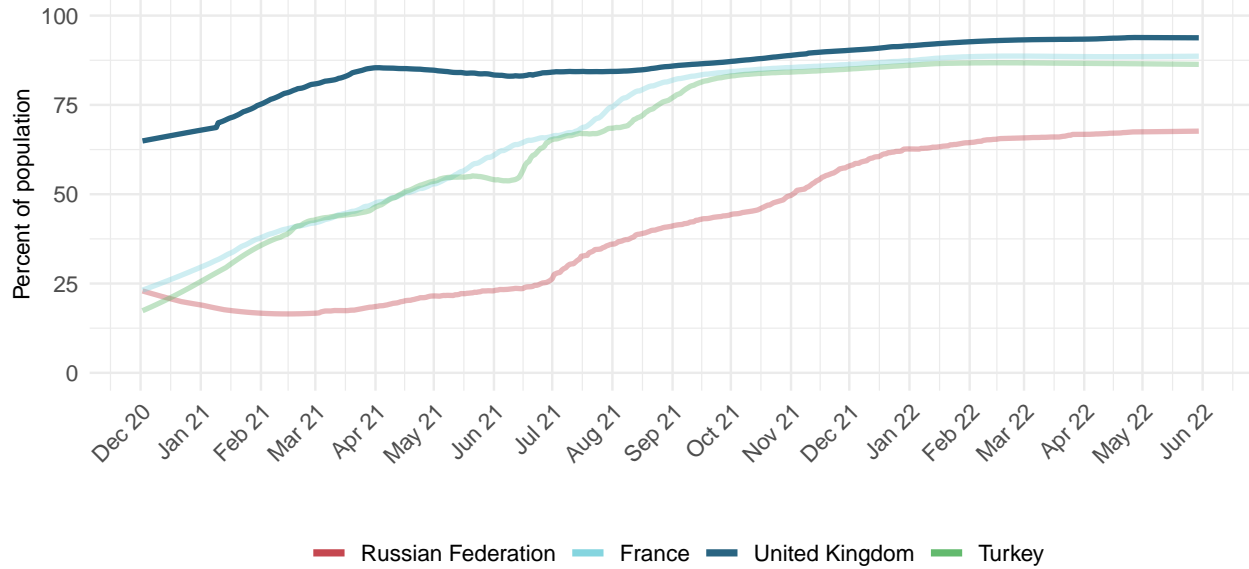
**Figure 17.1: Percent of the population having received one dose of a COVID-19 vaccine**



**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 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 definitely receive the COVID-19 vaccine if available.** Note that vaccine acceptance is calculated using survey data from the 18+ population.

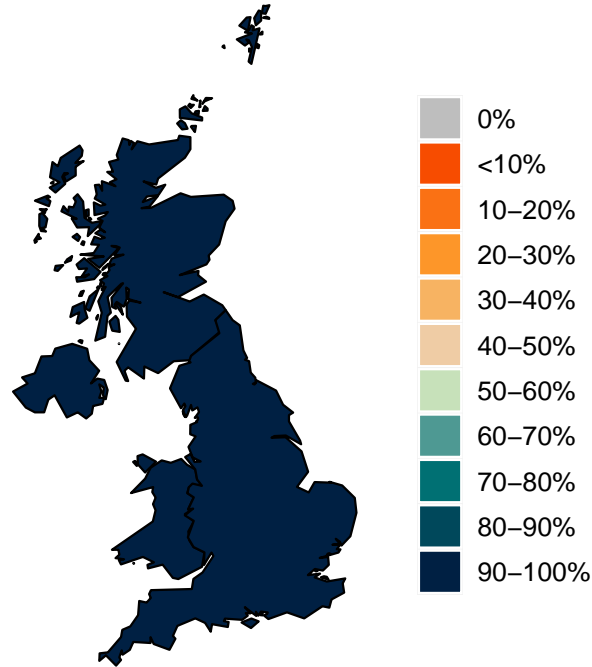
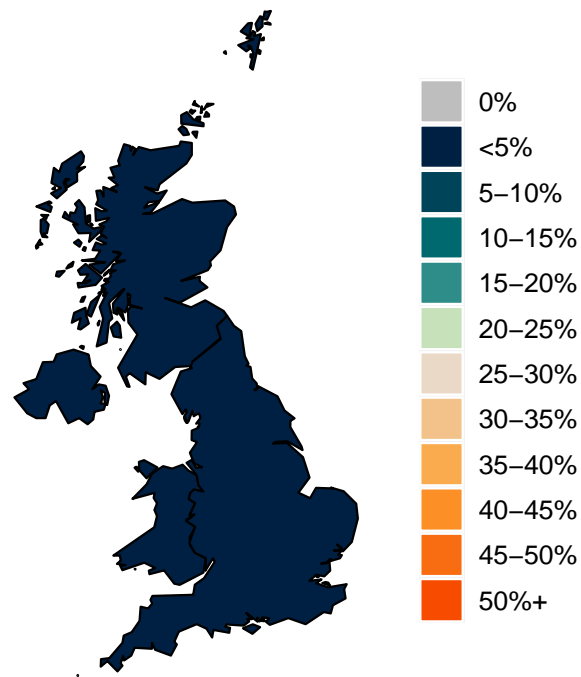
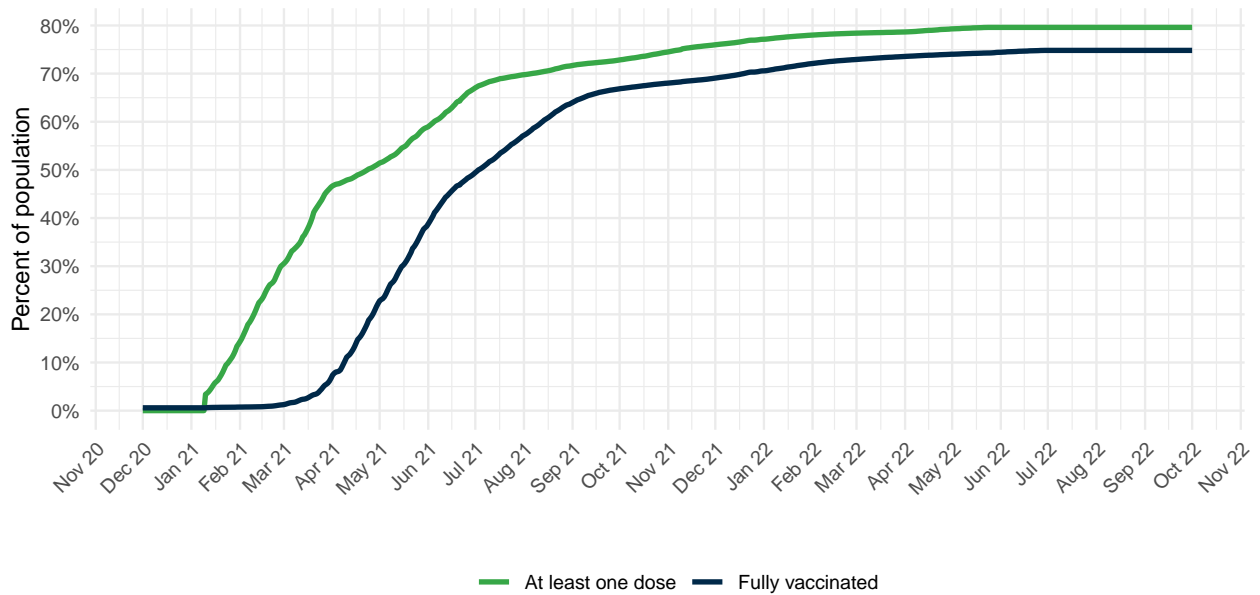


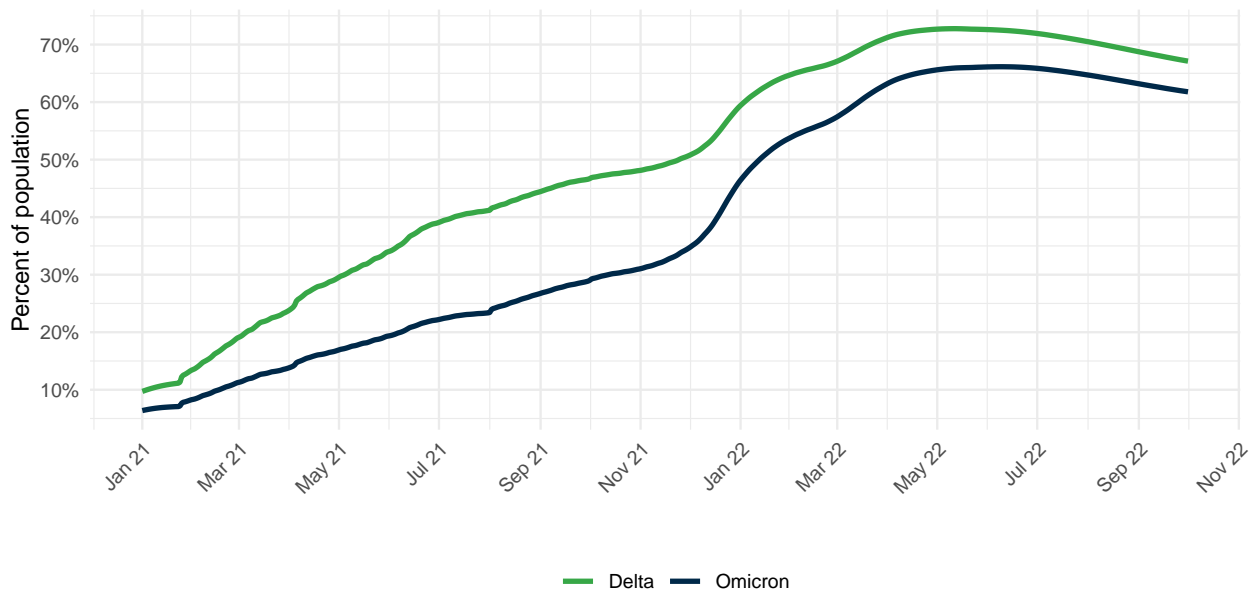
Figure 20.1: Estimated proportion of the total population that is not vaccinated but willing to be vaccinated as of May 30, 2022



**Figure 21.1: Percent of people who receive at least one dose of a COVID-19 vaccine and those who are fully vaccinated**



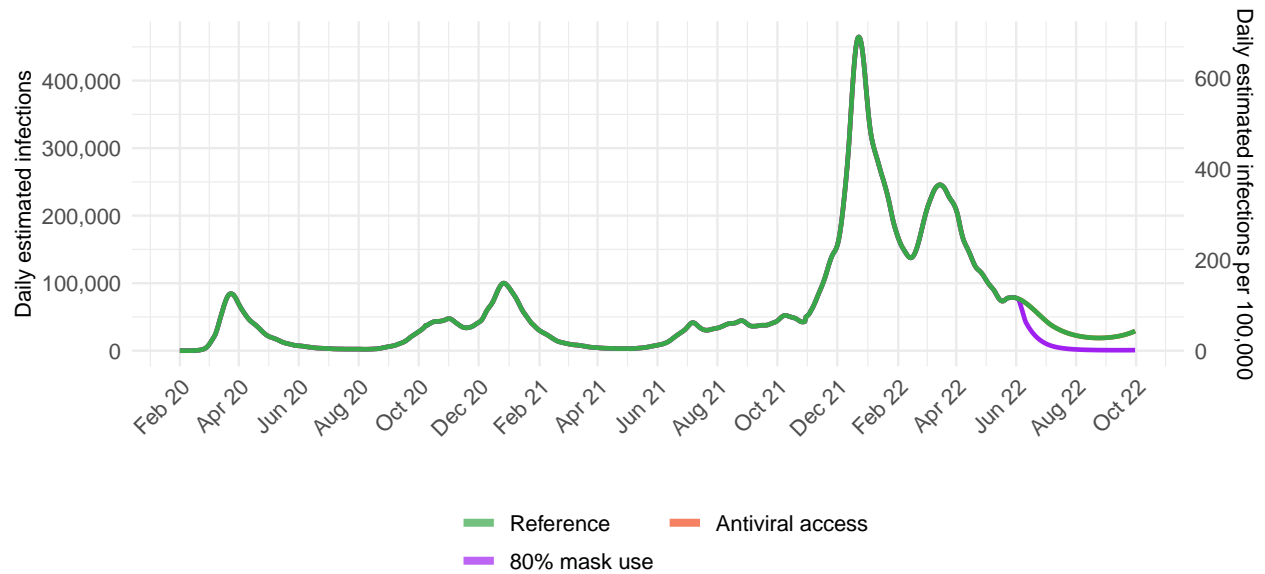
**Figure 22.1: Percent of people who are immune to Delta or Omicron.** Immunity is based on protection due to prior vaccination and infection(s). Moreover, variant-specific immunity is also based on variant-variant specific protection.



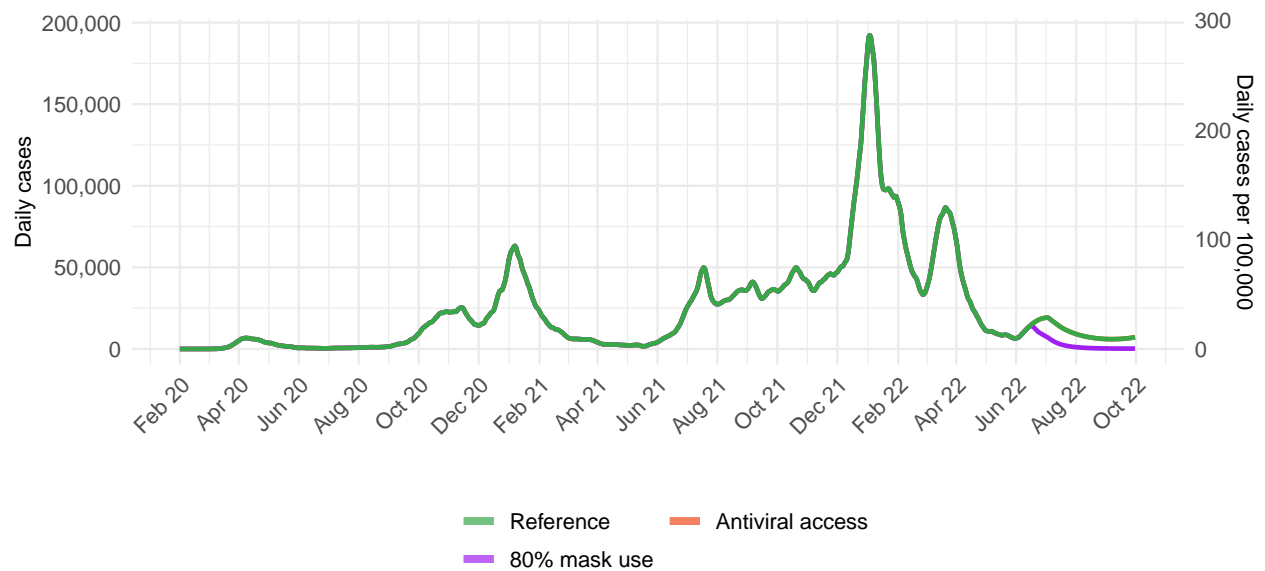


## Projections and scenarios

**Figure 23.1: Daily COVID-19 infections until October 01, 2022 for three scenarios**



**Figure 23.2: Daily COVID-19 reported cases until October 01, 2022 for three scenarios**



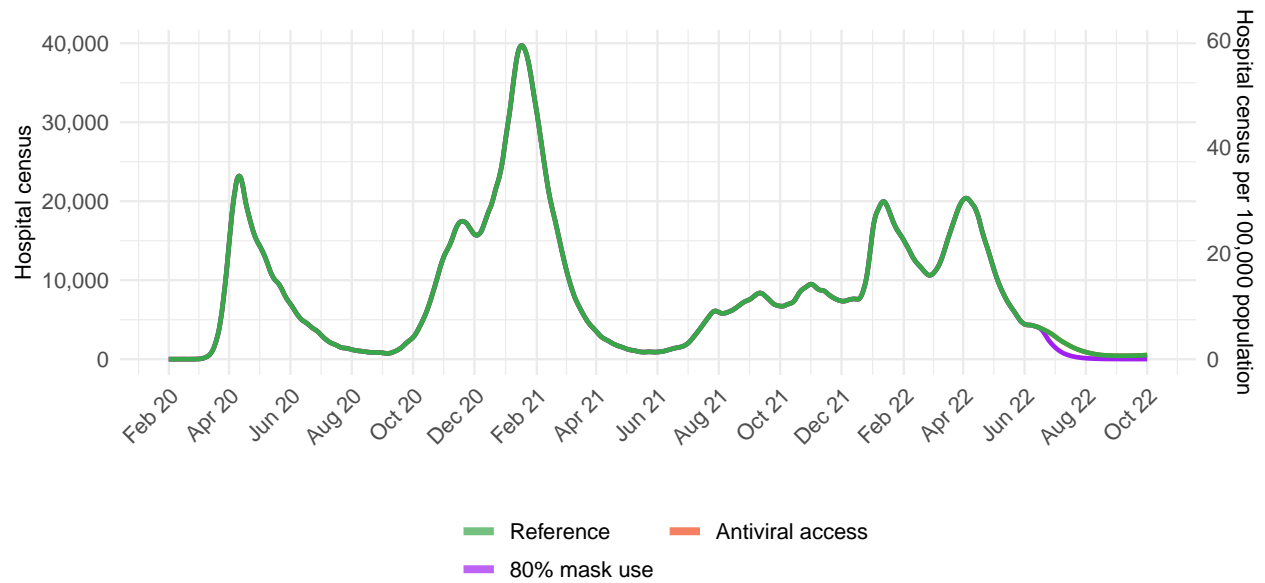
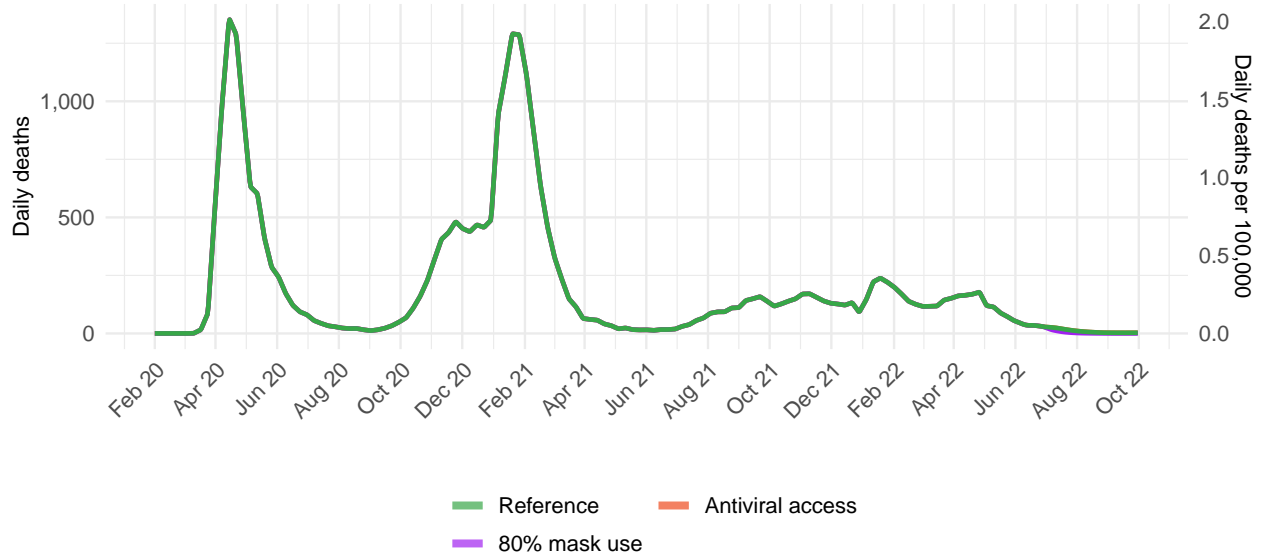
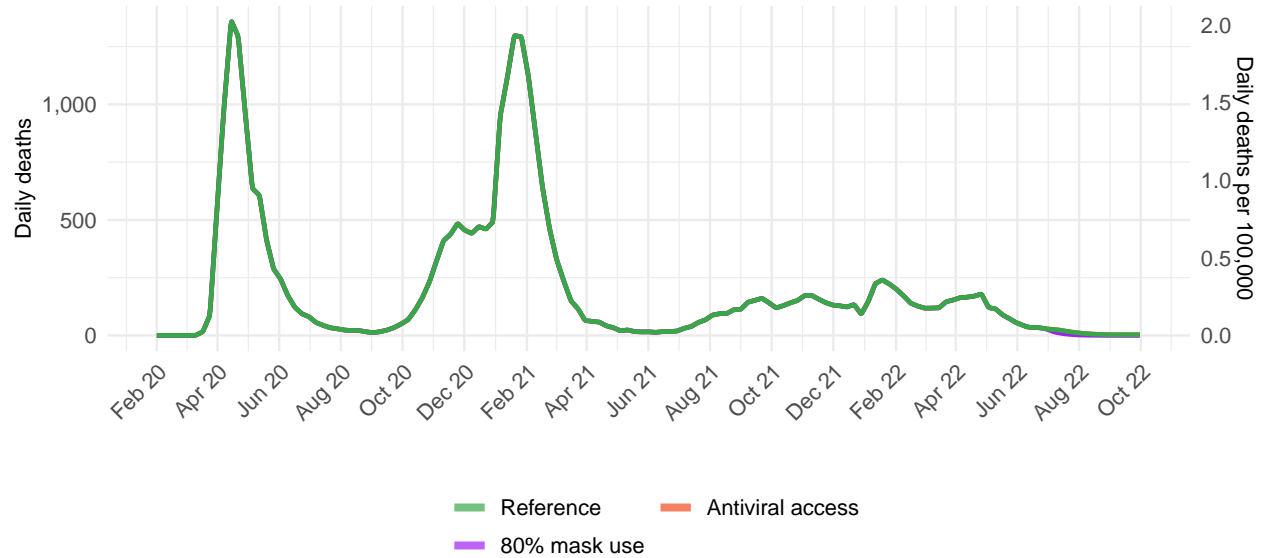
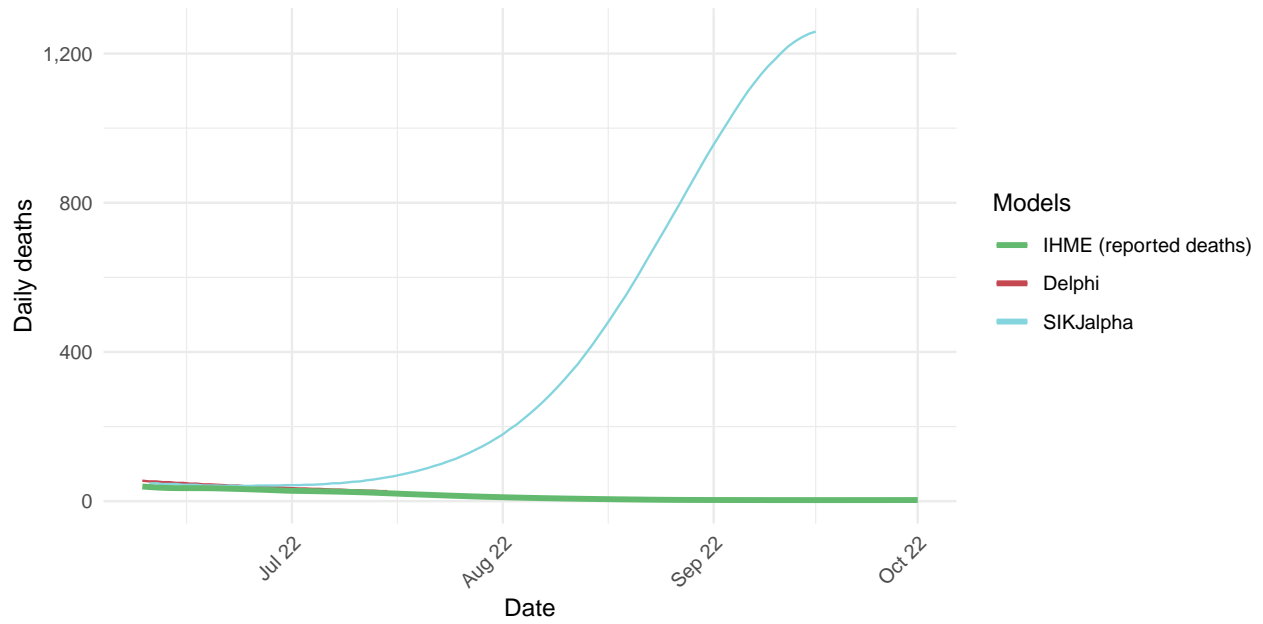
**Figure 23.3: Daily COVID-19 hospital census until October 01, 2022 for three scenarios**

Figure 23.4: Reported daily COVID-19 deaths per 100,000

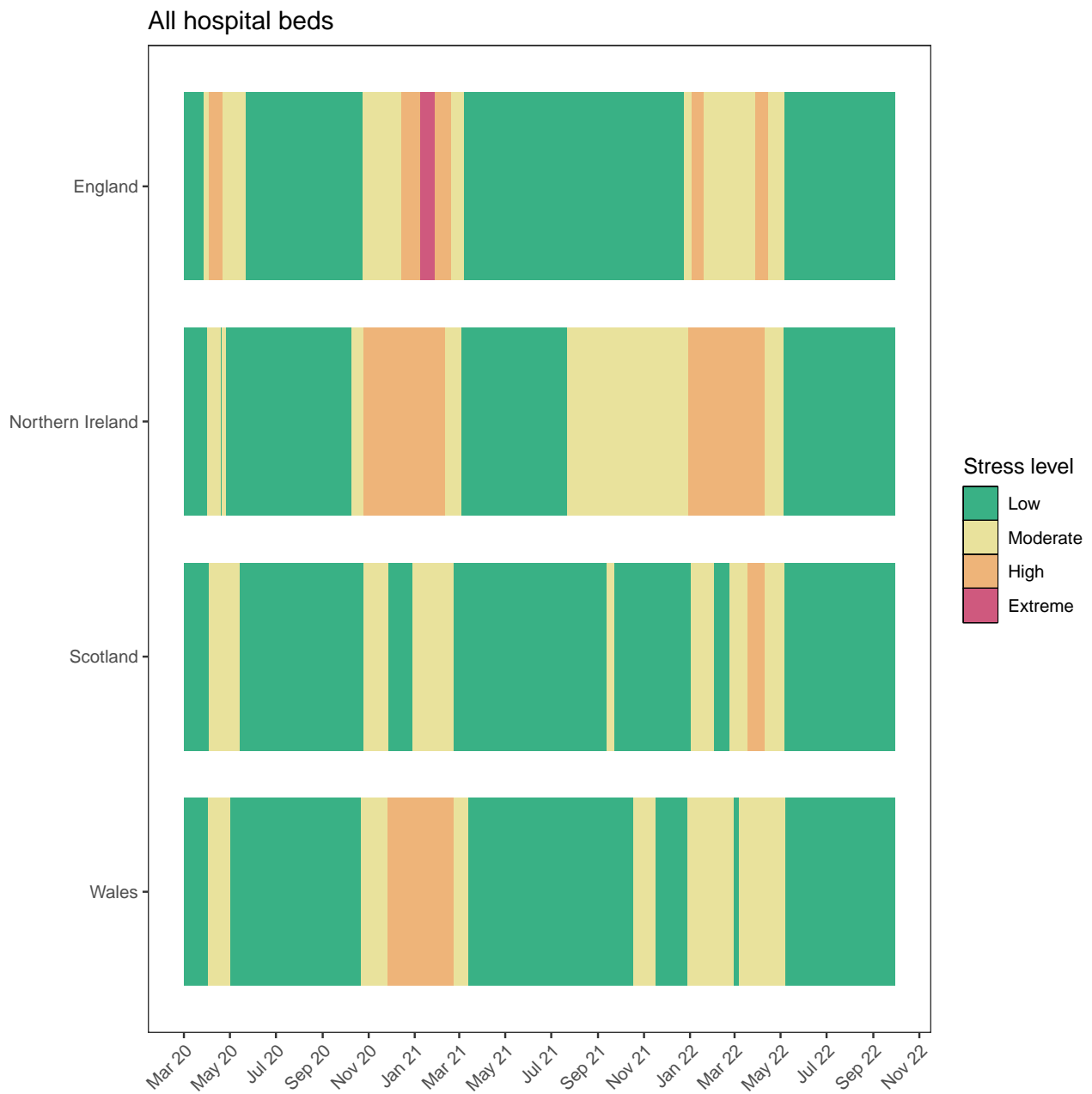


**Figure 23.5: Total daily COVID-19 deaths per 100,000**

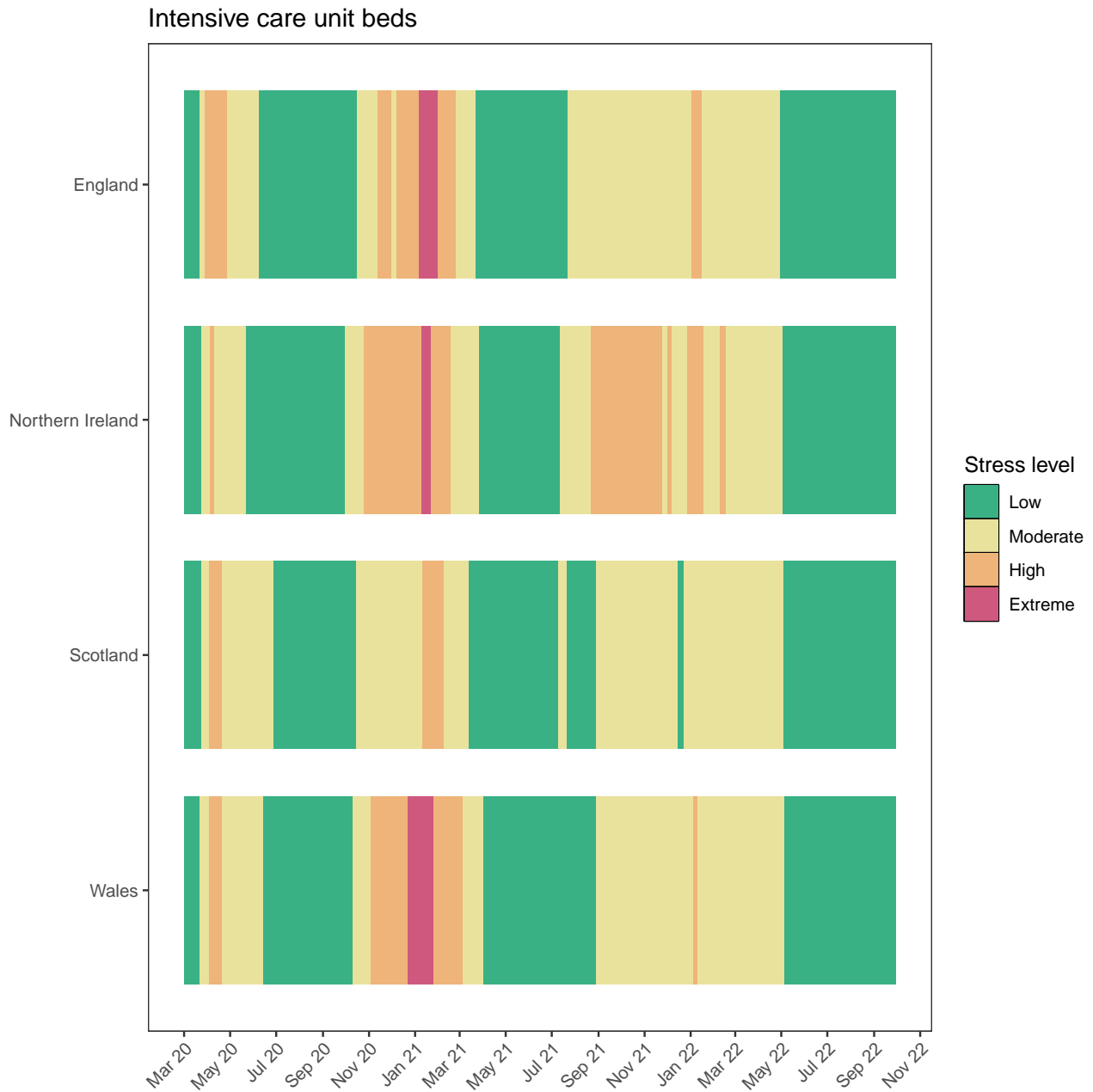
**Figure 24.1: Comparison of reference model projections with other COVID modeling groups.** For this comparison, we are including projections of daily COVID-19 deaths from other modeling groups when available, last model update in brackets: Delphi from the Massachusetts Institute of Technology ([Delphi](#)) [May 29, 2022], and the SI-KJalpha model from the University of Southern California ([SIKJalpha](#)) [June 9, 2022]. Regional values are aggregates from available locations in that region.



**Figure 25.1: 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 26.1: 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>.