

Informe de resultados de COVID-19

México

17 de noviembre de 2021

Este documento contiene información resumida sobre las últimas proyecciones del modelo IHME sobre COVID-19 en México. El modelo se ejecutó el 16 de noviembre de 2021, con datos hasta el 15 de noviembre de 2021.

Esta semana la epidemia mantiene una tendencia descendente con una disminución de 2.6% de los infectados y de 4.5% de los casos con respecto a la semana anterior. Así mismo las defunciones por COVID-19 reportadas y totales cayeron 16 y 10% respectivamente, con respecto a las estimaciones anteriores. En la tercera semana de noviembre COVID-19 es la segunda causa de muerte en el país. Actualmente solo Baja California y Chihuahua presentan una tasa de mortalidad total por COVID-19 superior a 4 por 1 millón de habitantes. Esta semana 4 estados presentan una R efectiva, calculada utilizando casos, hospitalizaciones y muertes, mayor que 1. Ellos son Chihuahua, Durango, Michoacán y Zacatecas.

Sigue aumentando la movilidad, en 30 estados de hecho es mayor a la observada antes de la epidemia. Con respecto a la semana pasada, la movilidad en el país fue 8% más alta que la línea de base anterior al inicio de la epidemia. Al 15 de noviembre, la Ciudad de México y Quintana Roo han llegado al 70% o más del total de la población que ha recibido al menos una dosis de vacuna y en ninguno se ha llegado al 70% del total de la población completamente vacunada

En nuestro escenario de referencia, que representa lo que creemos que es más probable que suceda, nuestro modelo proyecta 560,000 muertes totales por COVID-19 el 1 de marzo de 2022. Esto representa 23,000 muertes adicionales del 15 de noviembre al 1 de marzo. Si se alcanzara la cobertura universal de la mascarilla (95%) en la próxima semana, nuestro modelo proyecta 4,300 muertes reportadas menos en comparación con el escenario de referencia el 1 de marzo. Los casos diarios en el escenario de referencia subirán a 2,520 para el 9 de febrero de 2022 y en el peor escenario subirán a 20,630 para el 28 de enero de 2022.

Las infecciones y los casos están disminuyendo en todo el país, con excepción de Baja California, pero se espera un incremento de muertes y casos para principios de 2022 en al menos 14 estados que afectará ligeramente el promedio nacional. Se estima mayor incremento en Chiapas, Michoacán, Oaxaca y Zacatecas. El hecho de relajar completamente las medidas no farmacológicas pondría en peligro la estabilidad de la pandemia que observamos actualmente. Se estima que a final de año este pésimo escenario llevaría a más de mil defunciones por día y más de 10 mil casos diariamente.

Los problemas de pérdida de la inmunidad adquirida y la aparición de nuevas variantes, con una mayor transmisibilidad y escape inmunológico continúan planteando amenazas significativas. Aunque ha mejorado la vacunación de la población, no hay que bajar la guardia en los comportamientos de protección de la salud en curso, como el uso de máscaras

y el distanciamiento social, particularmente en espacios cerrados. La planificación de estrategias a largo plazo para mitigar el daño de COVID-19 es cada vez más importante.

Situación actual

- Las infecciones diarias en la última semana disminuyeron a 33,900 por día en promedio en comparación con 34,800 la semana anterior (Figura 1.1). El censo hospitalario diario en la última semana (hasta el 15 de noviembre) disminuyó a 2600 por día en promedio en comparación con los 2900 de la semana anterior.
- Los casos notificados diariamente en la última semana disminuyeron a 2100 por día en promedio en comparación con los 2200 de la semana anterior (Figura 2.1).
- Las muertes reportadas por COVID-19 en la última semana disminuyeron a 160 por día en promedio en comparación con 190 la semana anterior (Figura 3.1).
- El total de muertes por COVID-19 en la última semana disminuyó a 210 por día en promedio en comparación con 240 la semana anterior (Figura 3.1). Esto convierte a COVID-19 en la segunda causa de muerte en México esta semana (Tabla 1). El total estimado de muertes diarias por COVID-19 en la última semana fue 1.3 veces mayor que el número reportado de muertes.
- La tasa diaria de muertes reportadas por COVID-19 es mayor a 4 por millón en Baja California (Figura 4.1).
- La tasa diaria de muertes totales por COVID-19 es mayor a 4 por millón en Baja California y Chihuahua (Figura 4.2).
- Estimamos que el 65% de las personas en México han sido infectadas al 15 de noviembre (Figura 6.1).
- La R efectiva, calculada usando casos, hospitalizaciones y muertes, es mayor que 1 en 4 ubicaciones. (Figura 7.1).
- La tasa de detección de infecciones en México fue cercana al 6% el 15 de noviembre (Figura 8.1).
- Basándonos en el GISAID y varias bases de datos nacionales, combinado con nuestro modelo de dispersión de variantes, estimamos la prevalencia actual de variantes de interés (Figura 9.1). Estimamos que la variante Beta no circula en ningún estado, que la variante Delta circula en 32 estados y que la variante Gamma circula en 4 estados de la región.

Tendencias en los impulsores de la transmisión

- La movilidad la semana pasada fue un 8% más alta que la línea de base anterior a COVID-19 (Figura 11.1). La movilidad estuvo cerca de la línea de base (dentro del 10%) en 30 estados. La movilidad no fue inferior al 30% de la línea de base en ningún estado.

- Al 15 de noviembre, en la Encuesta de Tendencias e Impacto de COVID-19, el 79% de las personas informan que siempre usaban una máscara al salir de casa en comparación con el 79% de la semana pasada (Figura 13.1).
- Se realizaron 13 pruebas de diagnóstico por cada 100.000 personas el 15 de noviembre (Figura 15.1).
- Al 15 de noviembre, dos estados han llegado al 70% o más de la población que ha recibido al menos una dosis de vacuna y ningún estado ha llegado al 70% o más de la población que está completamente vacunada (Figura 17.1).
- En nuestro escenario de referencia actual, esperamos que 82,3 millones de personas estén vacunadas con al menos una dosis para el 1 de marzo (Figura 20.1). Esperamos que el 60% de la población esté completamente vacunada para el 1 de marzo.
- Con base en la estimación de la población que ha sido infectada con COVID-19 y vacunada hasta la fecha, combinada con supuestos sobre la protección contra la infección con la variante Delta proporcionada por infección natural, vacunación o ambas, estimamos que el 61% de la región es inmune a la variante Delta. En nuestro escenario de referencia actual, esperamos que para el 1 de marzo, el 67% de las personas sean inmunes a la variante Delta (Figura 21.1). Estos dos cálculos no tienen en cuenta la disminución de la inmunidad natural o derivada de la vacuna.

Proyecciones

- En nuestro escenario de referencia, que representa lo que creemos que es más probable que suceda, nuestro modelo proyecta 415,000 muertes reportadas acumuladas debido a COVID-19 el 1 de marzo. Esto representa 17,000 muertes adicionales del 15 de noviembre al 1 de marzo. Las muertes reportadas diarias aumentarán. a 190 para el 23 de febrero de 2022 (Figura 22.1).
- Bajo nuestro escenario de referencia, nuestro modelo proyecta 560,000 muertes totales acumuladas debido a COVID-19 el 1 de marzo. Esto representa 23,000 muertes adicionales del 15 de noviembre al 1 de marzo (Figura 22.1).
- Si se alcanzara la cobertura universal de mascarillas (95%) en la próxima semana, nuestro modelo proyecta 4.300 muertes reportadas acumuladas menos en comparación con el escenario de referencia el 1 de marzo.
- En nuestro peor escenario, nuestro modelo proyecta 468,000 muertes reportadas acumuladas el 1 de marzo, 53,000 muertes adicionales en comparación con nuestro

escenario de referencia. Las muertes reportadas diariamente en el peor escenario aumentarán a 1290 para el 10 de febrero de 2022 (Figura 22.1).

- Las infecciones diarias en el escenario de referencia aumentarán a 42,360 al 30 de enero de 2022 (Figura 22.3). Las infecciones diarias en el peor escenario aumentarán a 274,030 para el 18 de enero de 2022 (Figura 22.3).
- Los casos diarios en el escenario de referencia subirán a 2.520 para el 9 de febrero de 2022 (Figura 22.4). Los casos diarios en el peor escenario aumentarán a 20,630 para el 28 de enero de 2022 (Figura 22.4).
- El censo hospitalario diario en el escenario de referencia se elevará a 3.020 al 14 de febrero de 2022 (Figura 22.5). El censo hospitalario diario en el peor escenario aumentará a 20,620 para el 1 de febrero de 2022 (Figura 22.5).
- La Figura 23.1 compara nuestros pronósticos de escenarios de referencia con otros modelos archivados públicamente. Los pronósticos son muy divergentes.
- En algún momento, desde noviembre hasta el 1 de marzo, 3 estados tendrán un estrés alto o extremo en las camas de hospital (Figura 24.1). En algún momento, desde noviembre hasta el 1 de marzo, 8 estados tendrán un estrés alto o extremo en la capacidad de la unidad de cuidados intensivos (UCI) (Figura 25.1).

Actualizaciones de modelos

No hay actualizaciones de modelos.

COVID-19 Results Briefing

Mexico

November 17, 2021

This document contains summary information on the latest projections from the IHME model on COVID-19 in Mexico. The model was run on November 16, 2021, with data through November 15, 2021.

This week the epidemic maintains a downward trend with a 2.6% decrease in those infected and 4.5% in cases compared to the previous week. Likewise, reported and total deaths from COVID-19 fell 16 and 10% respectively, compared to previous estimates. In the third week of November COVID-19 was the second-leading cause of death in the country. Currently only Baja California and Chihuahua have a total mortality rate from COVID-19 higher than 4 per 1 million inhabitants. This week four states present an effective R, calculated using cases, hospitalizations and deaths, greater than 1. They are Chihuahua, Durango, Michoacán, and Zacatecas.

Mobility continues to increase; in 30 states it is actually greater than that observed before the epidemic. Compared to last week, mobility in the country was 8% higher than the baseline prior to the start of the epidemic. As of November 15, Mexico City and Quintana Roo have reached 70% or more of the total population that has received at least one dose of vaccine, and neither has 70% of the total population fully vaccinated.

In our baseline scenario, which represents what we believe is most likely to happen, our model projects 560,000 total deaths from COVID-19 on March 1, 2022. This represents an additional 23,000 deaths from November 15 to March 1. If universal mask coverage (95%) is reached in the next week, our model projects 4,300 fewer reported deaths compared to the baseline scenario on March 1. Daily cases in the baseline scenario will rise to 2,520 by February 9, 2022, and in the worse scenario they will rise to 20,630 by January 28, 2022.

Infections and cases are declining across the country, with the exception of Baja California, but an increase in deaths and cases is expected by early 2022 in at least 14 states that will slightly affect the national average. The greatest increase is estimated in Chiapas, Michoacán, Oaxaca, and Zacatecas. Completely relaxing non-pharmacological measures, such as social distancing and mask mandates, would jeopardize the stability of the pandemic that we are currently witnessing. It is estimated that at the end of the year this terrible scenario would lead to more than a thousand deaths per day and more than 10,000 cases daily.

The problems of loss of acquired immunity and the appearance of new variants, with increased transmissibility and immune escape continue to pose significant threats. Although the vaccination of the population has improved, we must not lower our guard on ongoing health protection behaviors, such as the use of masks and social distancing, particularly in closed spaces. Planning long-term strategies to mitigate the damage of COVID-19 is becoming increasingly important.

Current situation

- Daily infections in the last week decreased to 33,900 per day on average compared to 34,800 the week before (Figure 1.1). Daily hospital census in the last week (through November 15) decreased to 2,600 per day on average compared to 2,900 the week before.
- Daily reported cases in the last week decreased to 2,100 per day on average compared to 2,200 the week before (Figure 2.1).
- Reported deaths due to COVID-19 in the last week decreased to 160 per day on average compared to 190 the week before (Figure 3.1).
- Total deaths due to COVID-19 in the last week decreased to 210 per day on average compared to 240 the week before (Figure 3.1). This makes COVID-19 the number 2 cause of death in Mexico this week (Table 1). Estimated total daily deaths due to COVID-19 in the past week were 1.3 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 Baja California (Figure 4.1).
- The daily rate of total deaths due to COVID-19 is greater than 4 per million in Baja California and Chihuahua (Figure 4.2).
- We estimate that 65% of people in Mexico have been infected as of November 15 (Figure 6.1).
- Effective R, computed using cases, hospitalizations, and deaths, is greater than 1 in four states. (Figure 7.1).
- The infection-detection rate in Mexico was close to 6% on November 15 (Figure 8.1).
- Based on the GISAID and various national databases, combined with our variant spread model, we estimate the current prevalence of variants of concern (Figure 9.1). We estimate that the Beta variant is circulating in no states, that the Delta variant is circulating in 32 states, and that the Gamma variant is circulating in four states in Mexico.

Trends in drivers of transmission

- Mobility last week was 8% higher than the pre-COVID-19 baseline (Figure 11.1). Mobility was near baseline (within 10%) in 30 states. Mobility was lower than 30% of baseline in no locations.
- As of November 15, in the COVID-19 Trends and Impact Survey, 79% of people self-report that they always wore a mask when leaving their home, about the same as last week (Figure 13.1).
- There were 13 diagnostic tests per 100,000 people on November 15 (Figure 15.1).

- As of November 15, two states have reached 70% or more of the population who have received at least one vaccine dose and no states have reached 70% or more of the population who are fully vaccinated (Figure 17.1).
- In our current reference scenario, we expect that 82.3 million people will be vaccinated with at least one dose by March 1 (Figure 20.1). We expect that 60% of the population will be fully vaccinated by March 1.
- Based on the estimate of the population that have been infected with COVID-19 and vaccinated to date, combined with assumptions on protection against infection with the Delta variant provided by either natural infection, vaccination or both, we estimate that 61% of the region is immune to the Delta variant. In our current reference scenario, we expect that by March 1, 67% of people will be immune to the Delta variant (Figure 21.1). These two calculations do not take into account waning of natural or vaccine-derived immunity.

Projections

- In our **reference scenario**, which represents what we think is most likely to happen, our model projects 415,000 cumulative reported deaths due to COVID-19 on March 1. This represents 17,000 additional deaths from November 15 to March 1. Daily reported deaths will rise to 190 by February 23, 2022 (Figure 22.1).
- Under our **reference scenario**, our model projects 560,000 cumulative total deaths due to COVID-19 on March 1. This represents 23,000 additional deaths from November 15 to March 1 (Figure 22.1).
- If **universal mask coverage (95%)** were attained in the next week, our model projects 4,300 fewer cumulative reported deaths compared to the reference scenario on March 1.
- Under our **worse scenario**, our model projects 468,000 cumulative reported deaths on March 1, an additional 53,000 deaths compared to our reference scenario. Daily reported deaths in the **worse scenario** will rise to 1,290 by February 10, 2022 (Figure 22.1).
- Daily infections in the **reference scenario** will rise to 42,360 by January 30, 2022 (Figure 22.3). Daily infections in the **worse scenario** will rise to 274,030 by January 18, 2022 (Figure 22.3).
- Daily cases in the **reference scenario** will rise to 2,520 by February 9, 2022 (Figure 22.4). Daily cases in the **worse scenario** will rise to 20,630 by January 28, 2022 (Figure 22.4).

- Daily hospital census in the **reference scenario** will rise to 3,020 by February 14, 2022 (Figure 22.5). Daily hospital census in the **worse scenario** will rise to 20,620 by February 1, 2022 (Figure 22.5).
- Figure 23.1 compares our reference scenario forecasts to other publicly archived models. Forecasts are widely divergent.
- At some point from November through March 1, three states will have high or extreme stress on hospital beds (Figure 24.1). At some point from November through March 1, eight states will have high or extreme stress on intensive care unit (ICU) capacity (Figure 25.1).

Model updates

No model updates.

Figure 1.1. Daily COVID-19 hospital census and infections

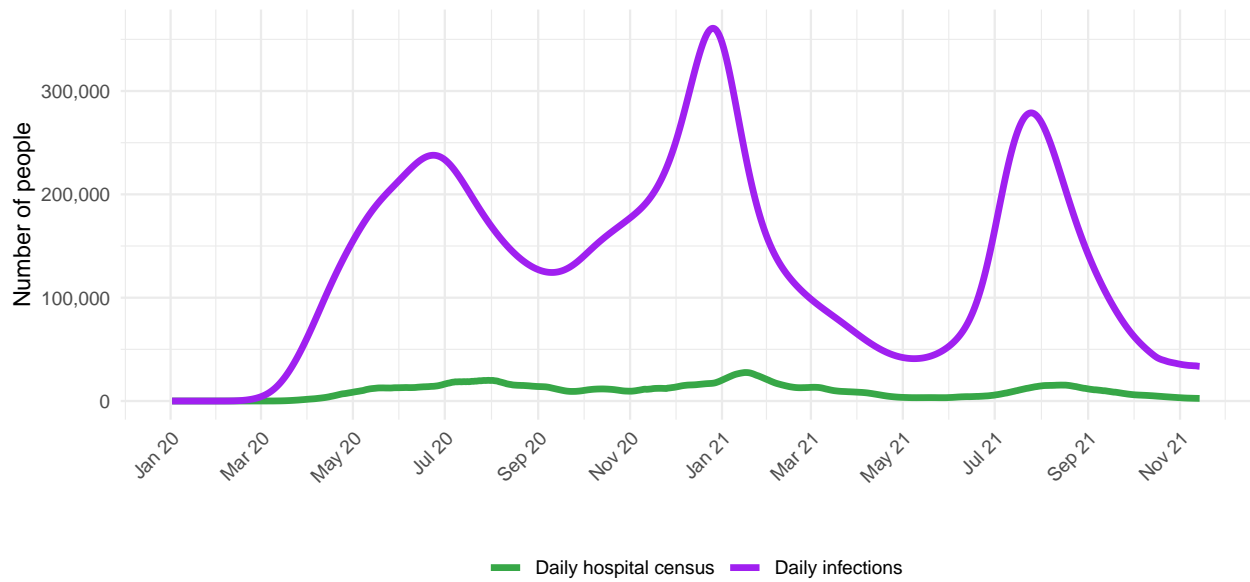


Figure 2.1. Reported daily COVID-19 cases, moving average

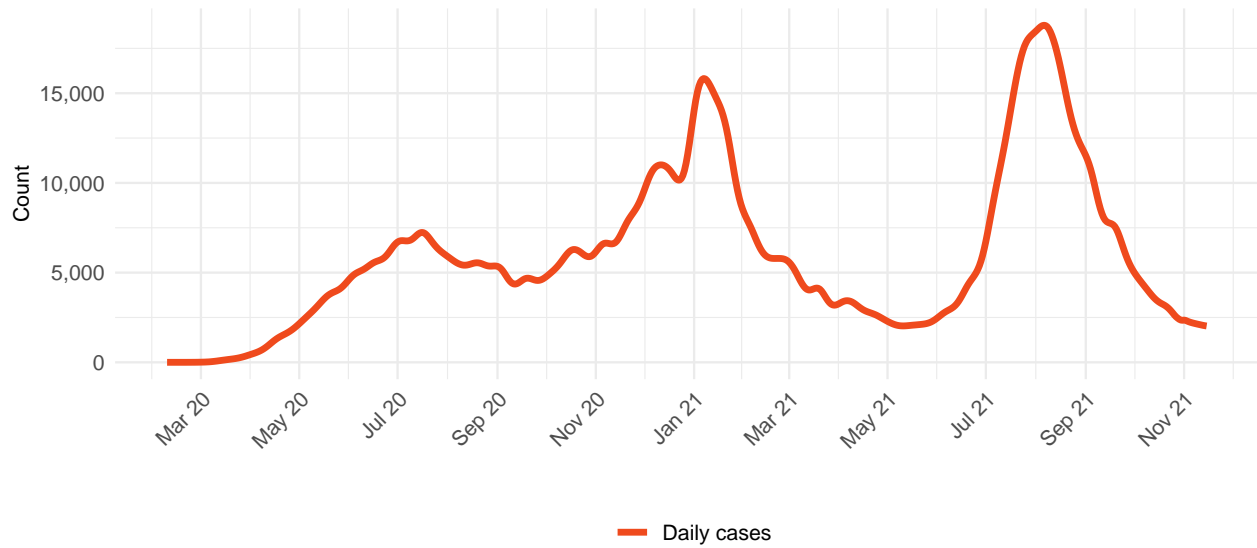
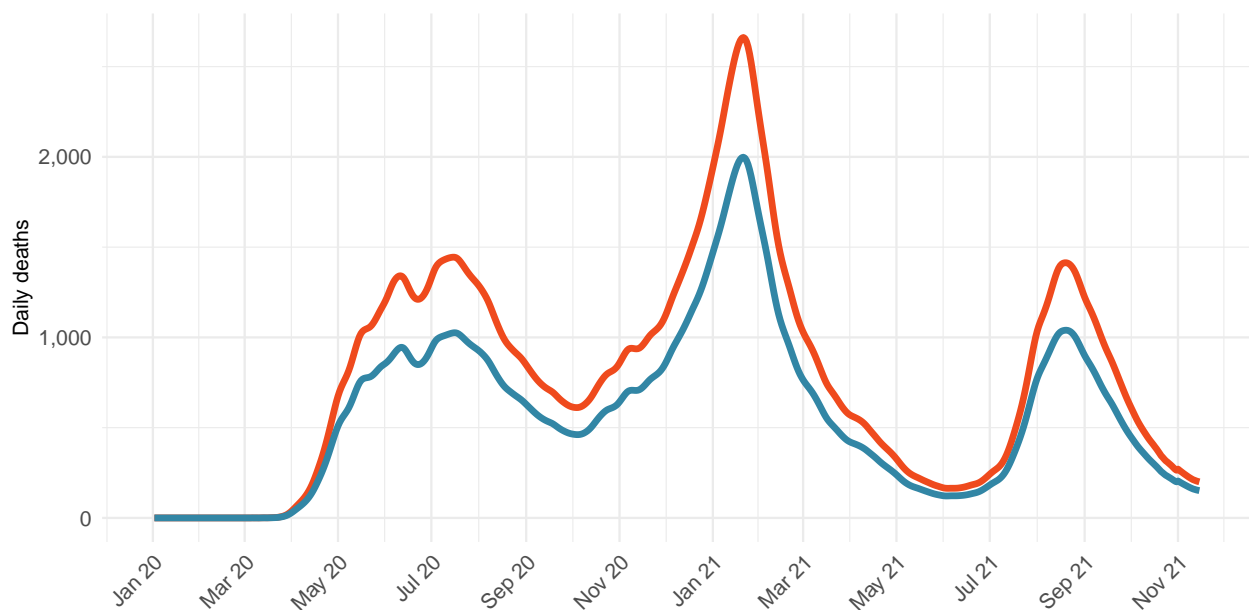


Table 1. Ranking of total deaths due to COVID-19 among the leading causes of mortality this week, assuming uniform deaths of non-COVID causes throughout the year

Cause name	Weekly deaths	Ranking
Ischemic heart disease	2,044	1
COVID-19	1,463	2
Diabetes mellitus	1,420	3
Chronic kidney disease	1,395	4
Cirrhosis and other chronic liver diseases	891	5
Stroke	729	6
Chronic obstructive pulmonary disease	630	7
Interpersonal violence	590	8
Alzheimer’s disease and other dementias	455	9
Lower respiratory infections	434	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 November 15, 2021

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

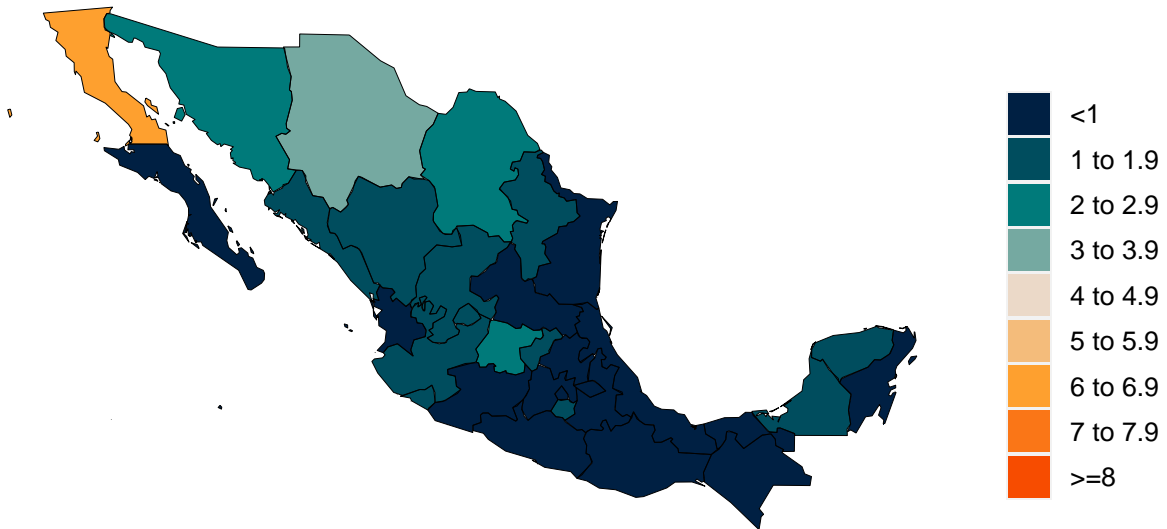
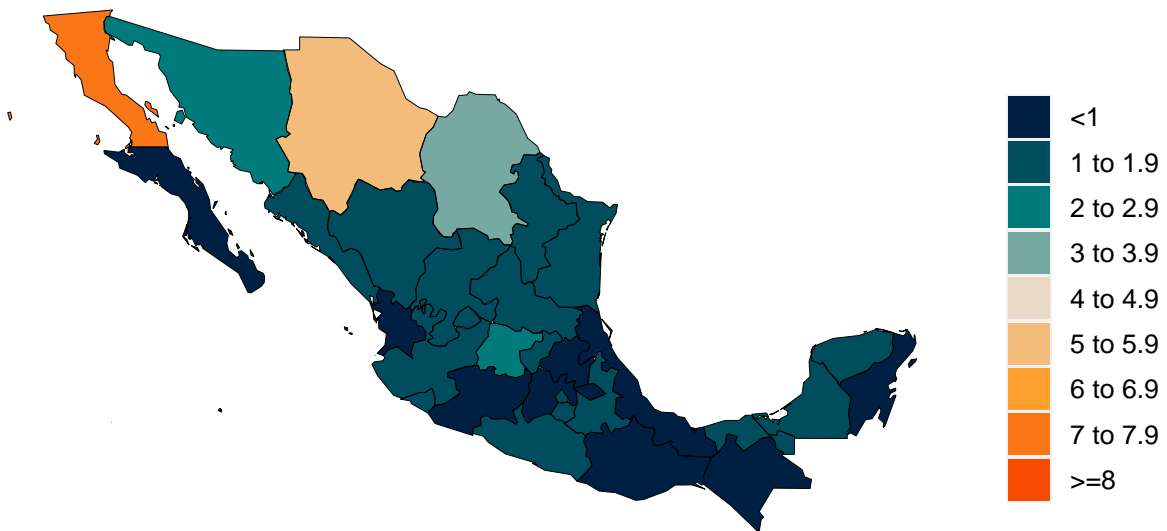


Figure 4.2 Daily total COVID-19 death rate per 1 million



Cumulative COVID-19 deaths per 100,000 on November 15, 2021

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

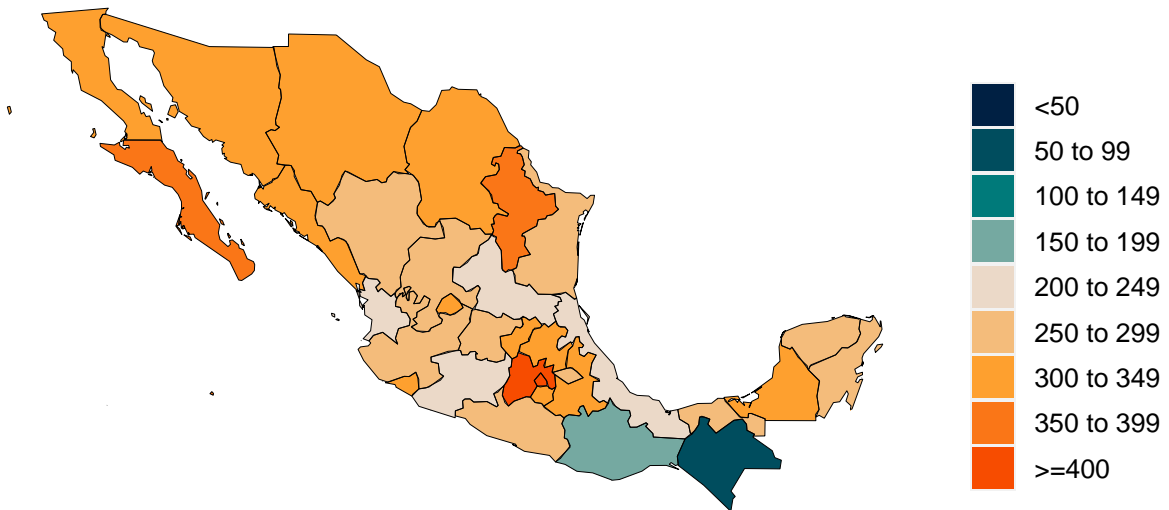


Figure 5.2 Total cumulative COVID-19 deaths per 100,000

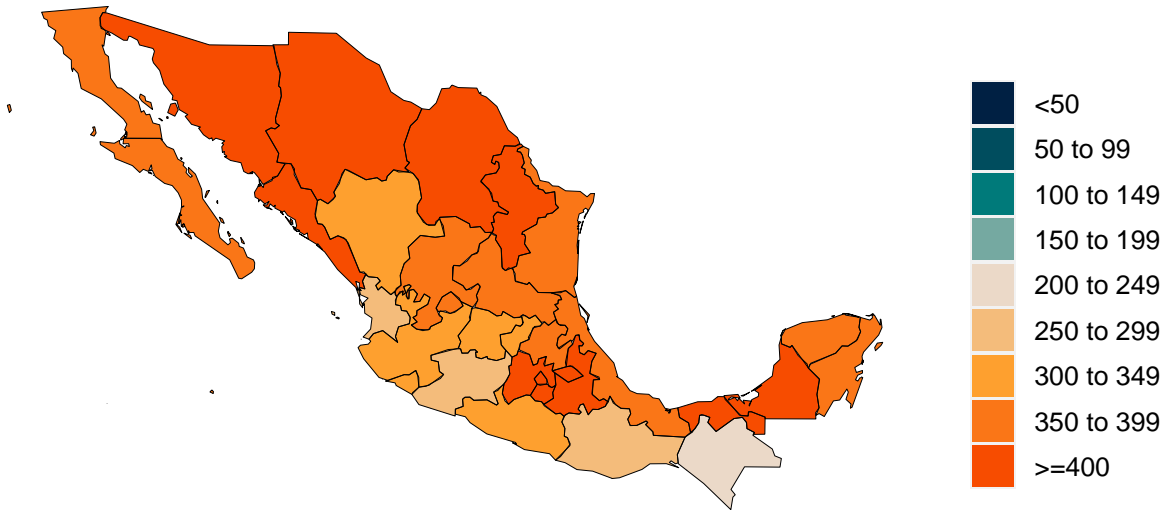


Figure 6.1. Estimated percent of the population infected with COVID-19 on November 15, 2021

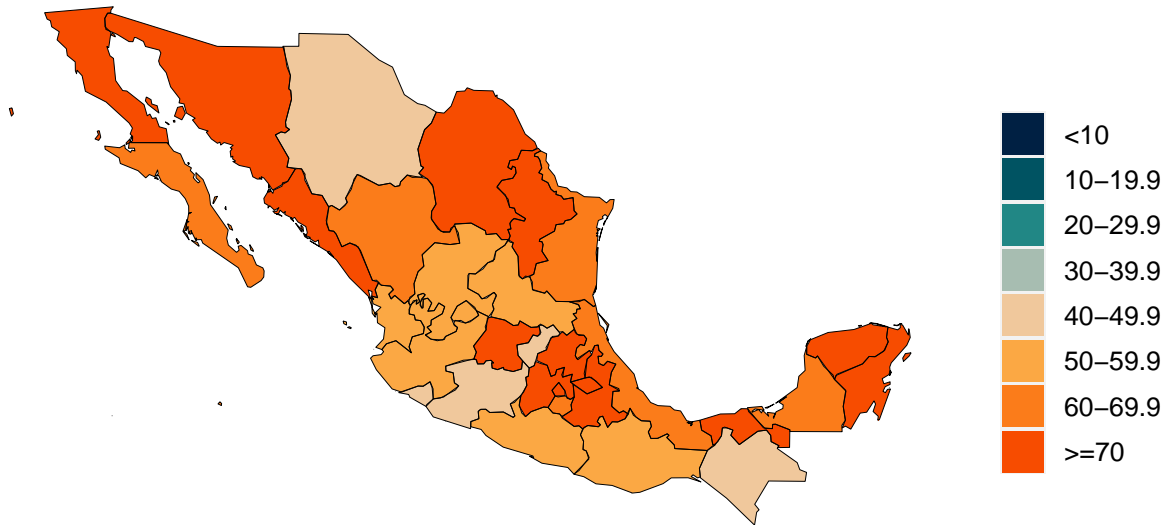


Figure 7.1. Mean effective R on November 4, 2021. Effective R less than 1 means that transmission should decline, all other things being held the same. The estimate of effective R is based on the combined analysis of deaths, case reporting, and hospitalizations where available. Current reported cases reflect infections 11-13 days prior, so estimates of effective R can only be made for the recent past.

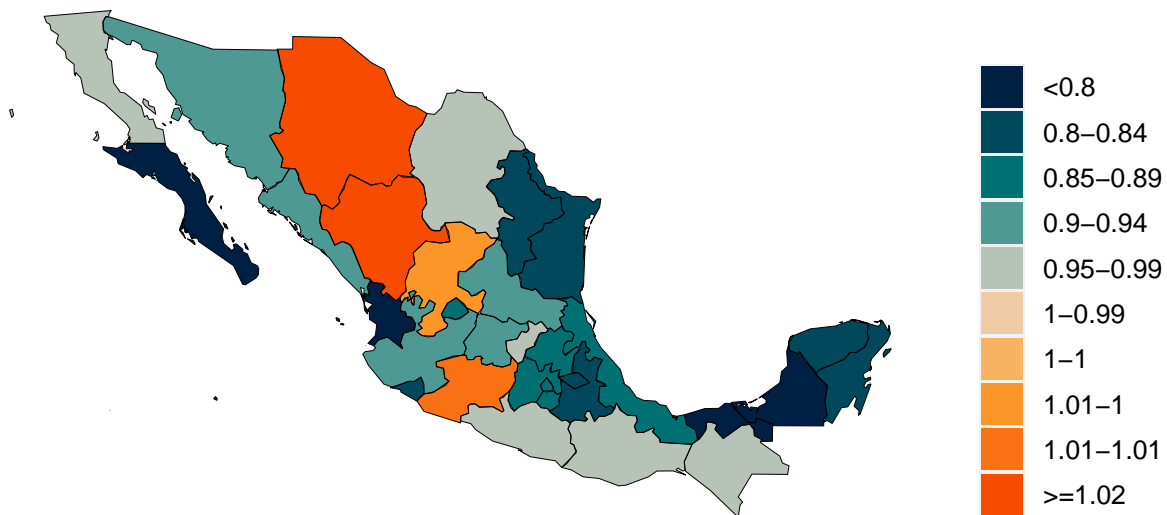
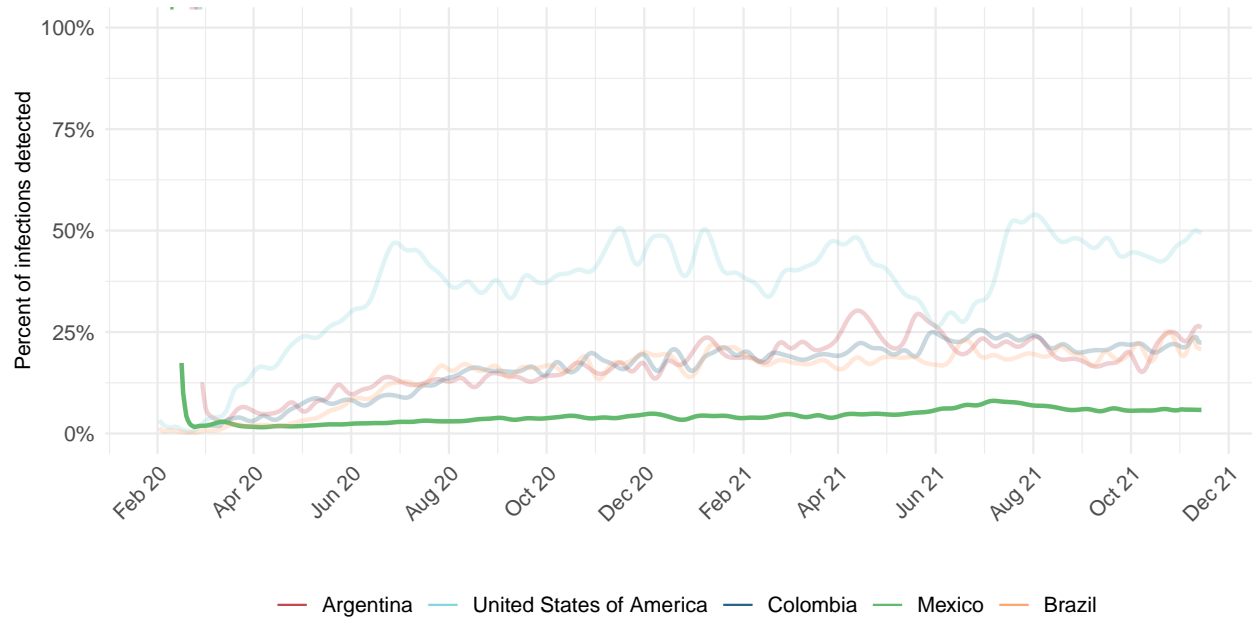


Figure 8.1. Percent of COVID-19 infections detected. This is estimated as the ratio of reported daily COVID-19 cases to estimated daily COVID-19 infections based on the SEIR disease transmission model. Due to measurement errors in cases and testing rates, the infection-detection rate can exceed 100%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



Estimated percent of circulating SARS-CoV-2 for primary variant families on November 15, 2021

Figure 9.1 Estimated percent Alpha variant



Figure 9.2 Estimated percent Beta variant



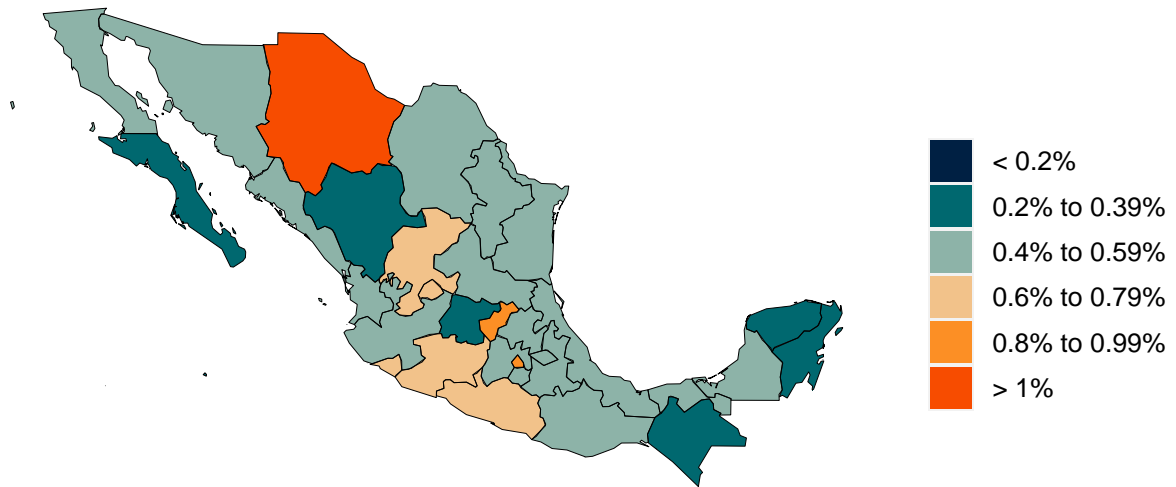
Figure 9.3 Estimated percent Delta variant



Figure 9.4 Estimated percent Gamma variant



Figure 10.1. Infection-fatality rate on November 15, 2021. 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	Borders closed to any non-resident	Borders closed to 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
Aguascalientes																									
Baja California																									
Baja California Sur																									
Campeche																									
Chiapas																									
Chihuahua																									
Coahuila																									
Colima																									
Durango																									
Guanajuato																									
Guerrero																									
Hidalgo																									
Jalisco																									
Mexico City																									
Michoacán de Ocampo																									
Morelos																									
México																									
Nayarit																									
Nuevo León																									
Oaxaca																									
Puebla																									
Querétaro																									
Quintana Roo																									
San Luis Potosí																									
Sinaloa																									
Sonora																									
Tabasco																									
Tamaulipas																									
Tlaxcala																									
Veracruz de Ignacio de la Llave																									
Yucatán																									
Zacatecas																									

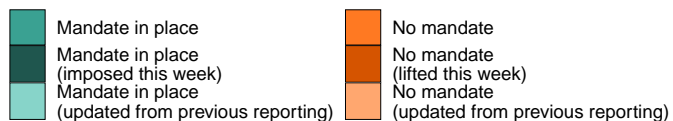


Figure 11.1. Trend in mobility as measured through smartphone app use, compared to January 2020 baseline

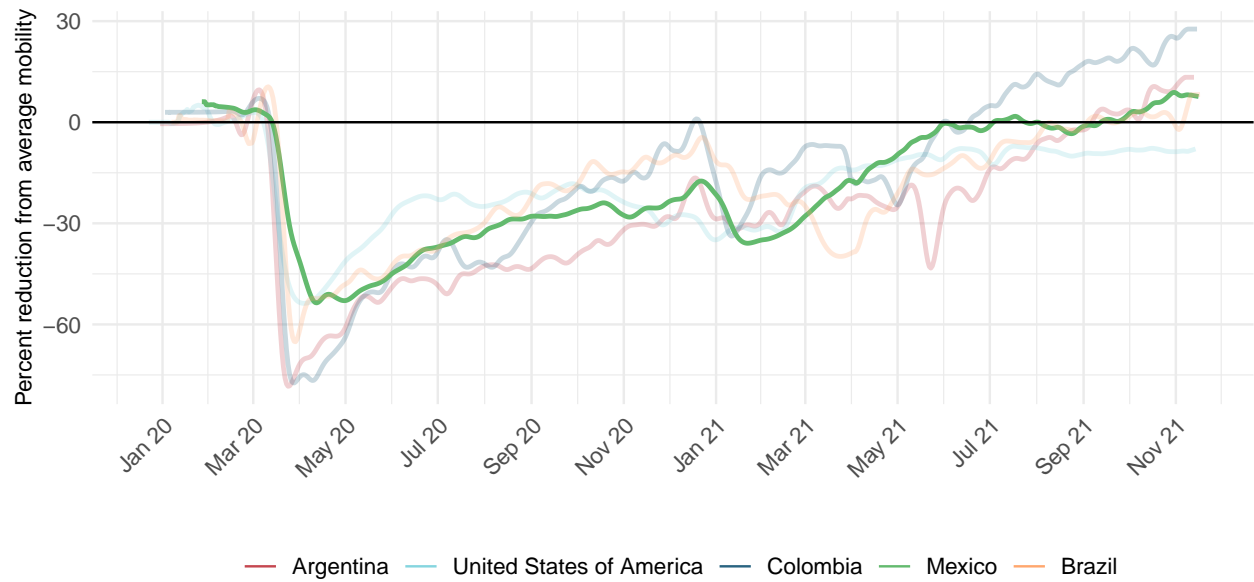


Figure 12.1. Mobility level as measured through smartphone app use, compared to January 2020 baseline (percent) on November 15, 2021



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

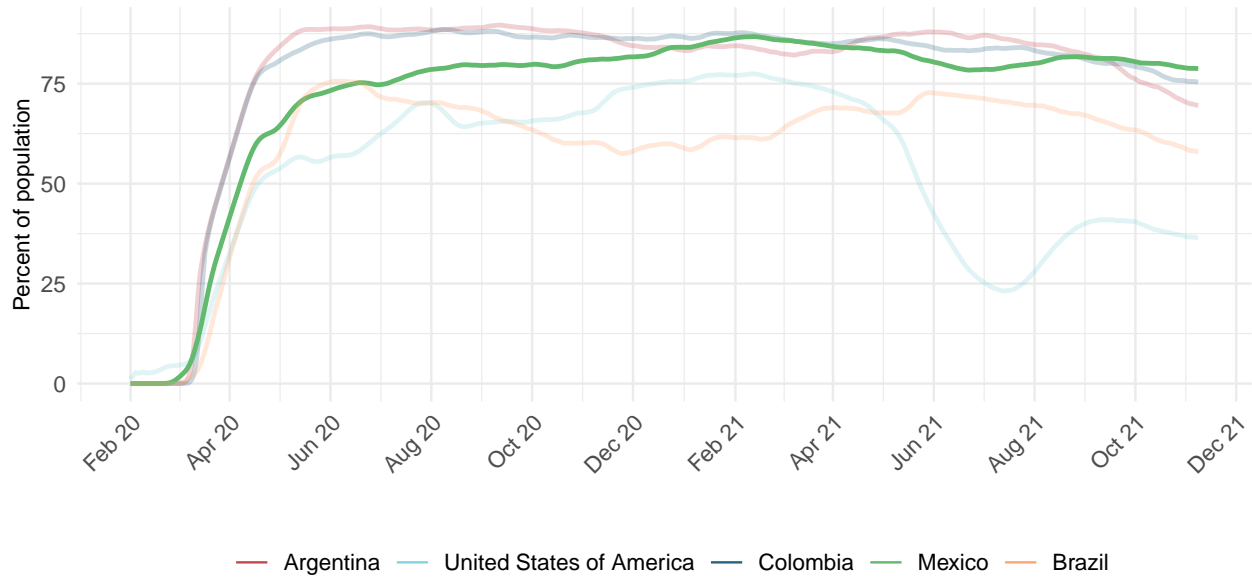


Figure 14.1. Proportion of the population reporting always wearing a mask when leaving home on November 15, 2021

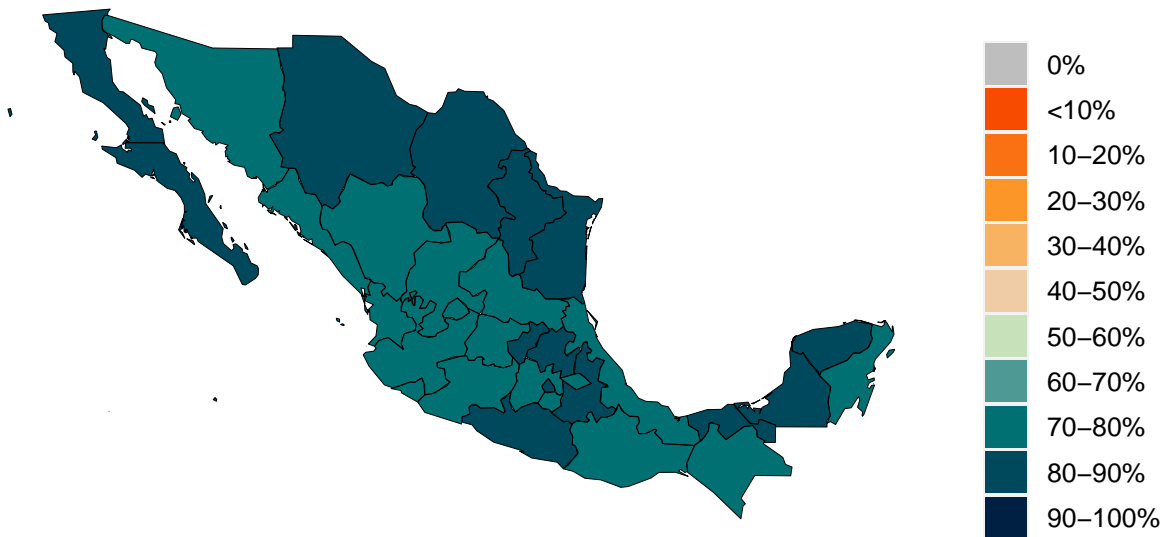


Figure 15.1. Trend in COVID-19 diagnostic tests per 100,000 people

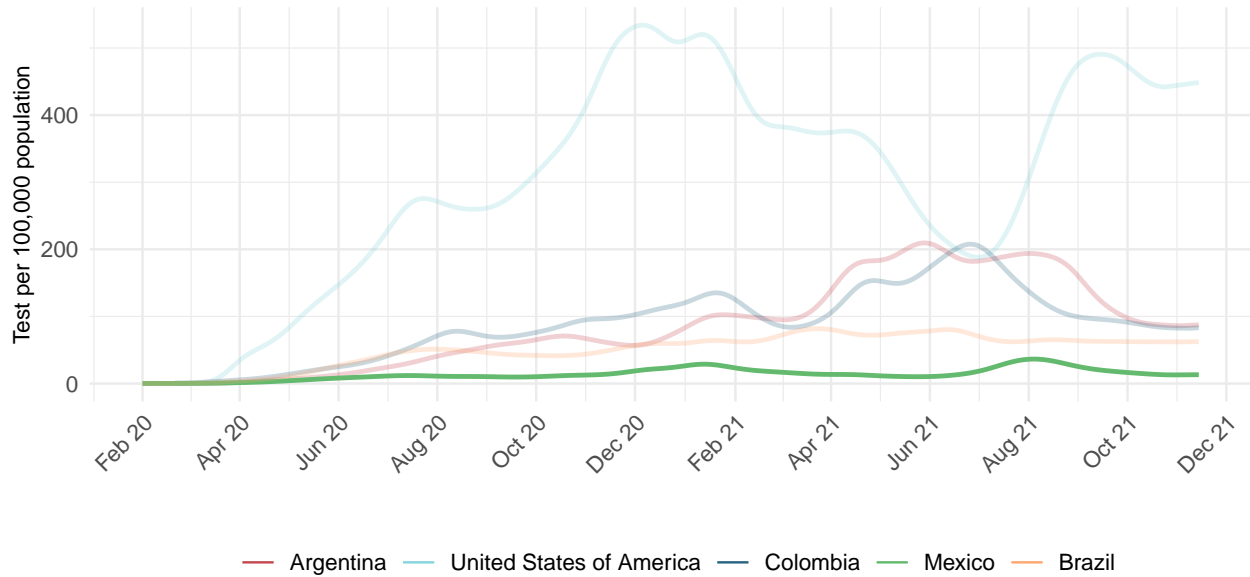


Figure 16.1. COVID-19 diagnostic tests per 100,000 people on November 15, 2021

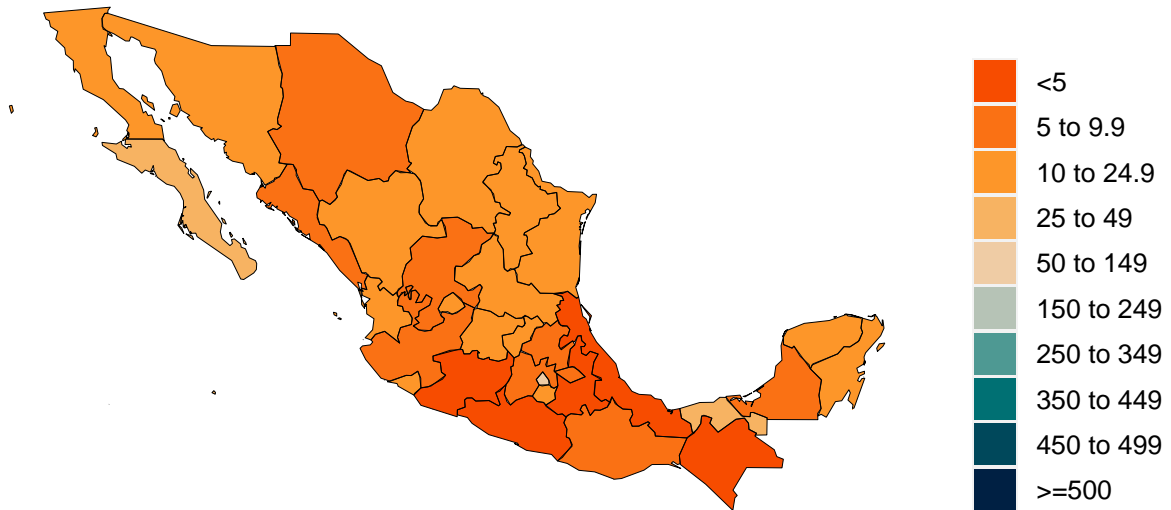


Table 3. Estimates of vaccine efficacy for specific vaccines used in the model at preventing disease and infection. The SEIR model uses variant-specific estimates of vaccine efficacy at preventing symptomatic disease and at preventing infection. We use data from clinical trials directly, where available,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

Vaccine	Efficacy at preventing disease: ancestral and Alpha	Efficacy at preventing infection: ancestral and Alpha	Efficacy at preventing disease: Beta, Delta, & Gamma	Efficacy at preventing infection: Beta, Delta, & Gamma
AstraZeneca	90%	52%	85%	49%
CoronaVac	50%	44%	43%	38%
Covaxin	78%	69%	68%	60%
Johnson & Johnson	86%	72%	60%	56%
Moderna	94%	89%	94%	80%
Novavax	89%	79%	79%	69%
Pfizer/BioNTech	94%	86%	85%	78%
Sinopharm	73%	65%	63%	56%
Sputnik-V	92%	81%	80%	70%
Tianjin	66%	58%	57%	50%
CanSino				
Other vaccines	75%	66%	65%	57%
Other vaccines (mRNA)	91%	86%	85%	78%

Percent of the population having received at least one dose (17.1) and fully vaccinated against SARS-CoV-2 (17.2) by November 15, 2021

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

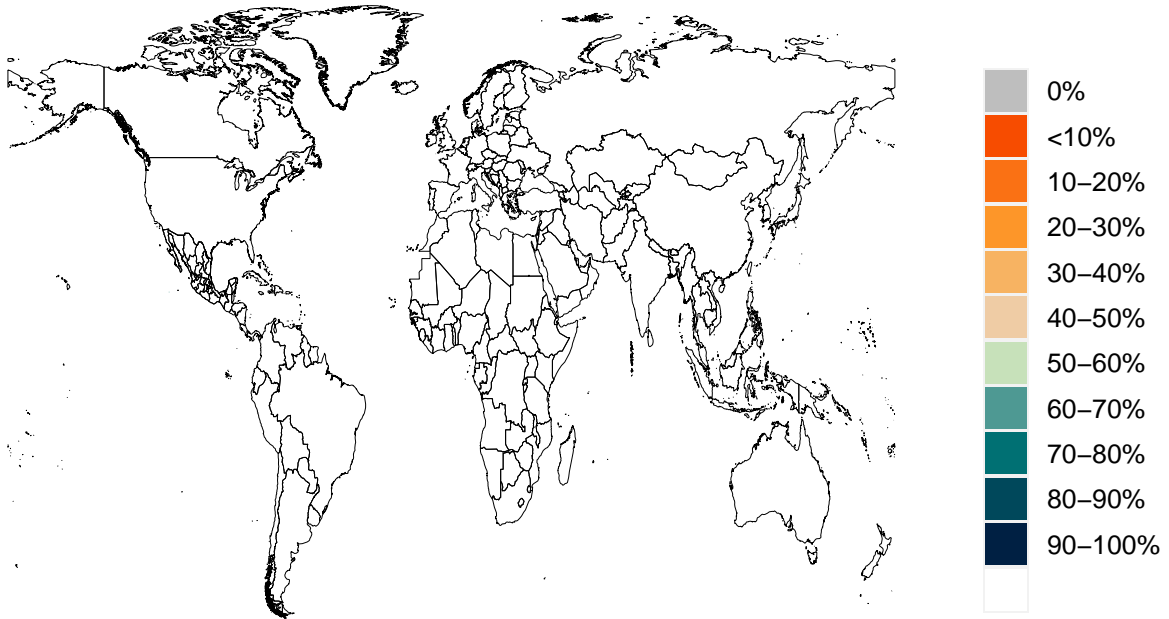


Figure 17.2 Percent of the population fully vaccinated against SARS-CoV-2



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

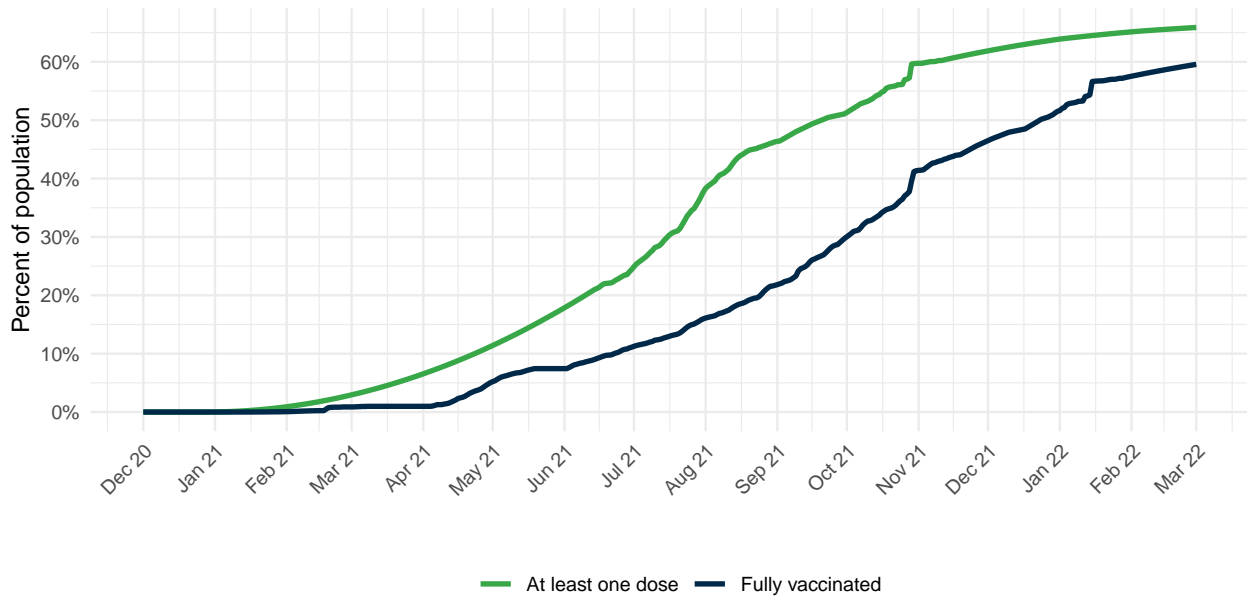
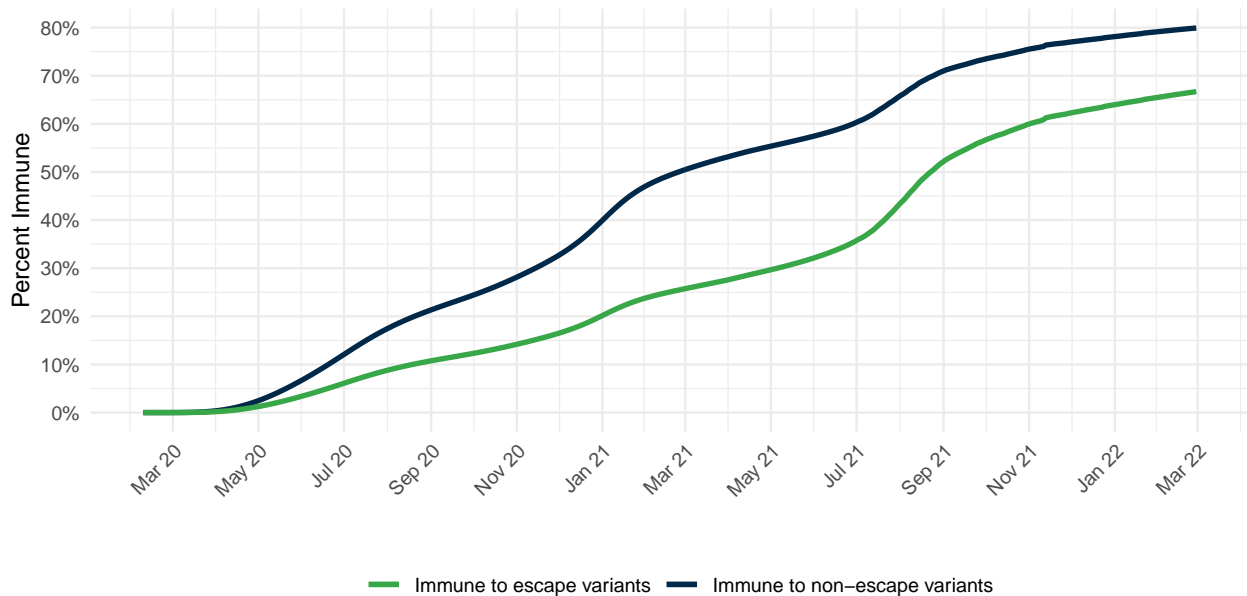


Figure 21.1. Percentage of people who are immune to non-escape variants and the percentage of people who are immune to escape variants



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 is the mean of mask use over the last 7 days.
- Mobility increases as vaccine coverage increases.
- Governments adapt their response by re-imposing social distancing mandates for 6 weeks whenever daily deaths reach 8 per million, unless a location has already spent at least 7 of the last 14 days with daily deaths above this rate, and not yet re-imposed social distancing mandates. In this case, the reference scenario assumes that mandates are re-imposed when daily deaths reach 15 per million.
- Variants Alpha, Beta, Gamma, and Delta continue to spread regionally and globally from locations with sufficient transmission.

The **worse scenario** modifies the reference scenario assumption in four ways:

- 100% of vaccinated individuals stop using masks.
- Mobility increases in all locations to 25% above the pre-pandemic winter baseline, irrespective of vaccine coverage.
- Governments are more reluctant to re-impose social distancing mandates, waiting until the daily death rate reaches 15 per million, unless a location has already spent at least 7 of the last 14 days with daily deaths above this rate, and not yet re-imposed social distancing mandates. In this case, the reference scenario assumes that mandates are re-imposed when daily deaths reach 38 per million. In either case, we assume social distancing mandates remain in effect for 6 weeks.
- Variants Alpha, Beta, Gamma, and Delta spread between locations twice as fast when compared with our reference scenario.

The **universal masks scenario** makes all the same assumptions as the reference scenario but assumes all locations reach 95% mask use within 7 days.

Daily COVID-19 deaths until March 01, 2022 for three scenarios

Figure 22.1 Reported daily COVID-19 deaths per 100,000

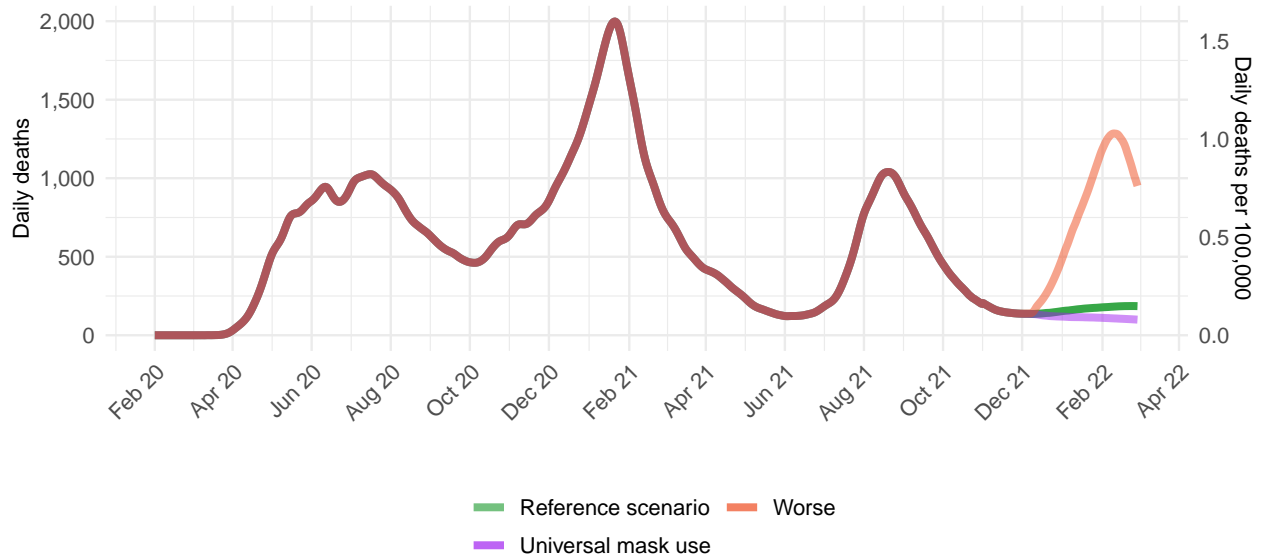


Figure 22.2 Total daily COVID-19 deaths per 100,000

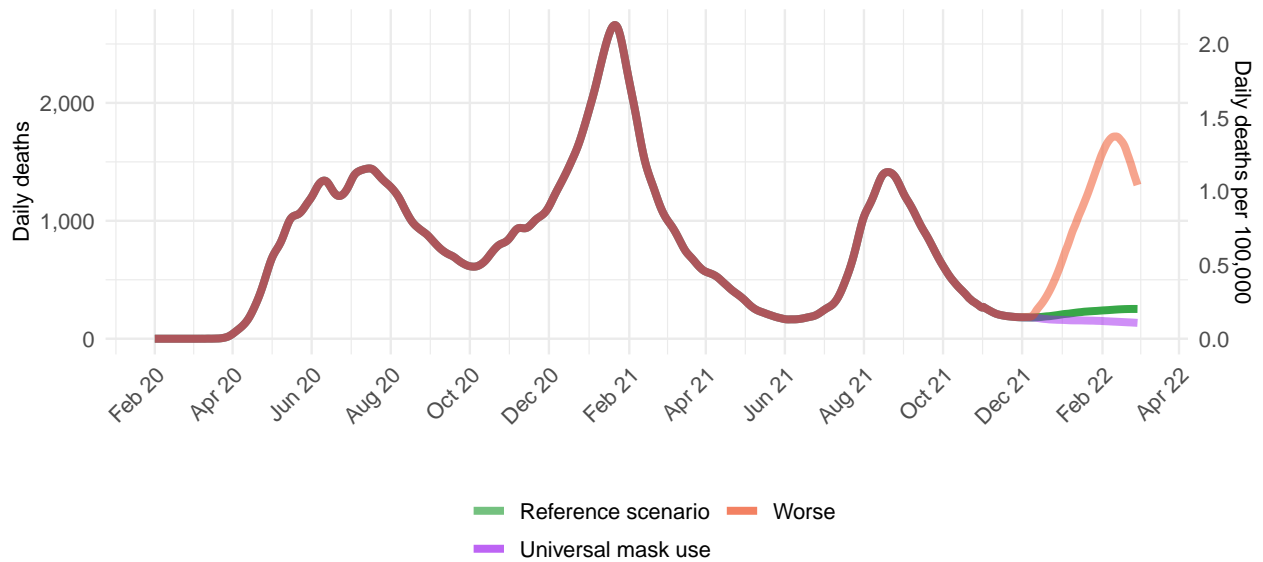


Figure 22.3. Daily COVID-19 infections until March 01, 2022 for three scenarios

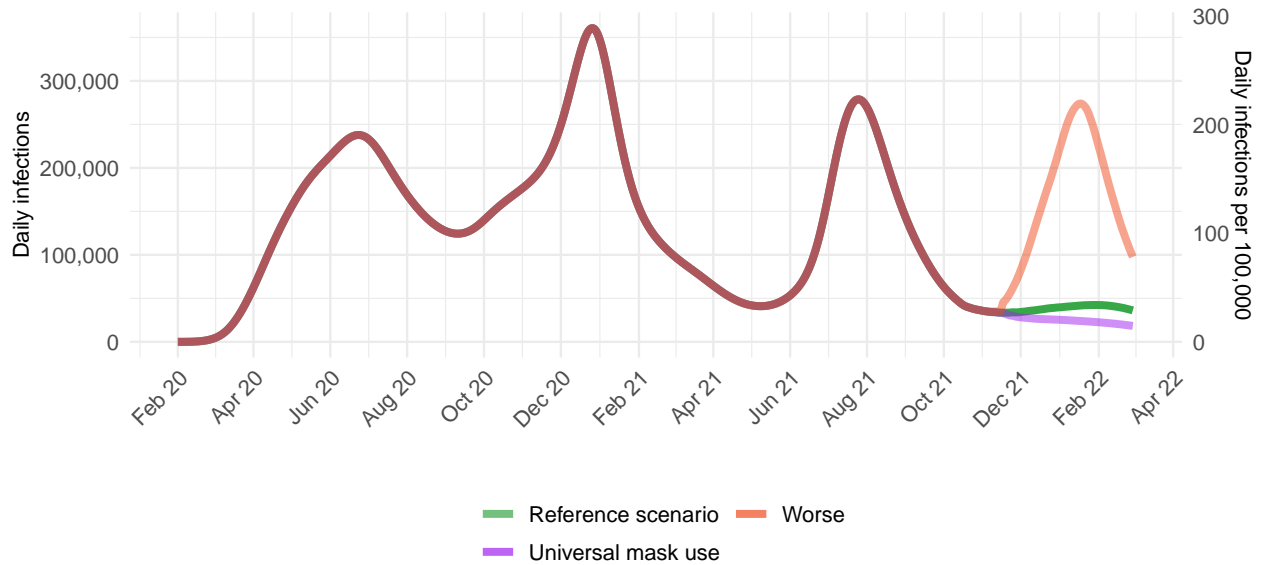


Figure 22.4. Daily COVID-19 reported cases until March 01, 2022 for three scenarios

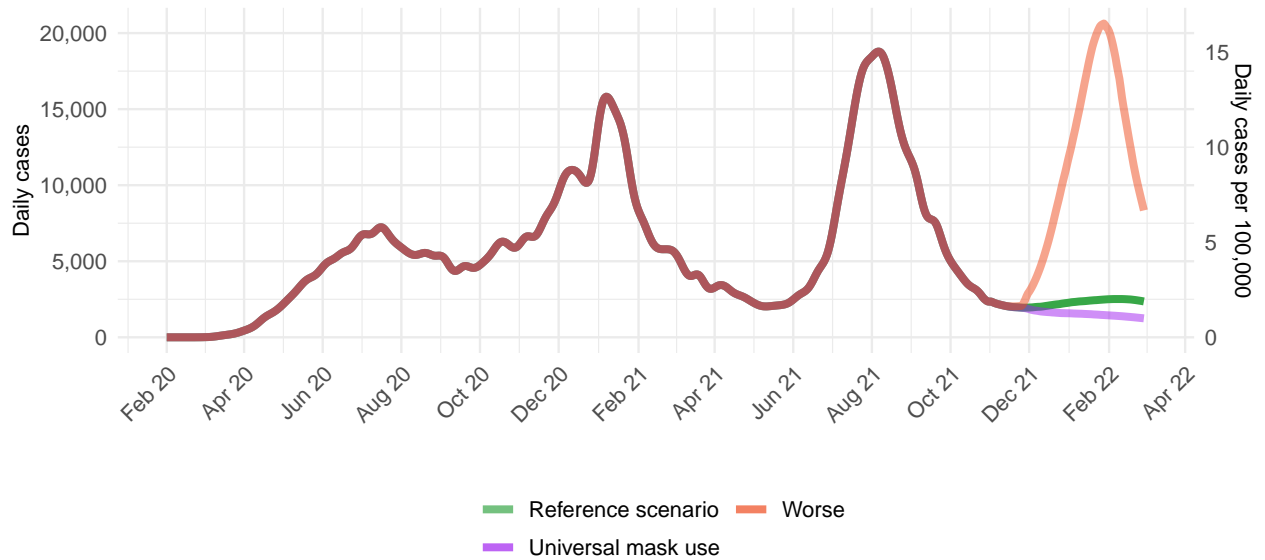


Figure 22.5. Daily COVID-19 hospital census until March 01, 2022 for three scenarios

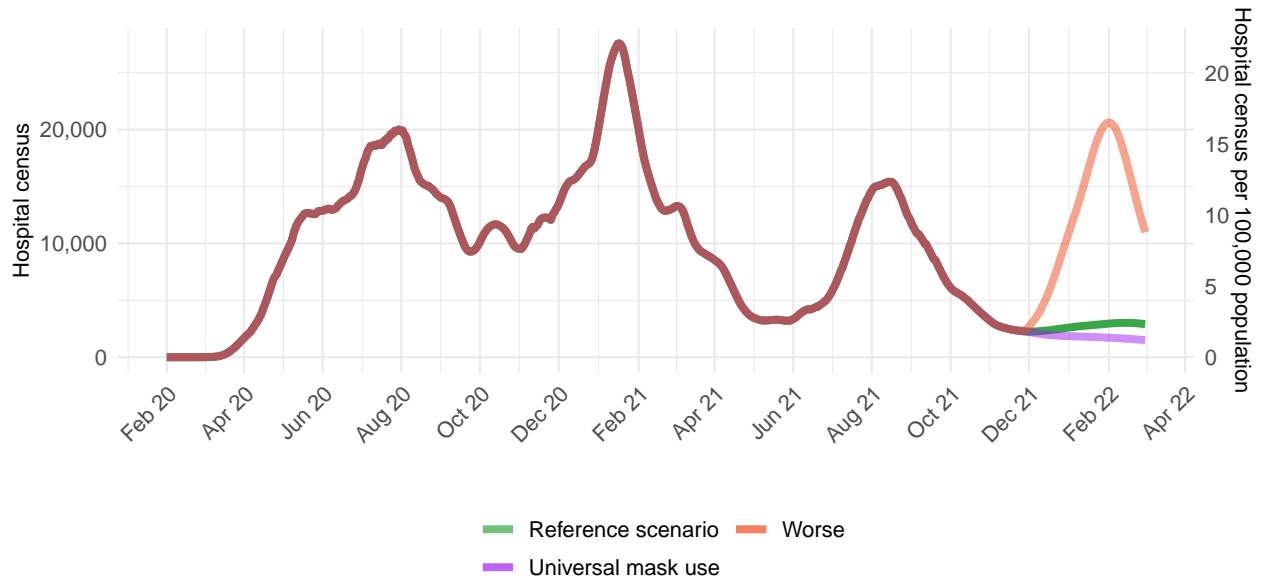


Figure 23.1. Comparison of reference model projections with other COVID modeling groups. For this comparison, we are including projections of daily COVID-19 deaths from other modeling groups when available, last model update in brackets: Delphi from the Massachusetts Institute of Technology ([Delphi](#)) [November 17, 2021], Imperial College London ([Imperial](#)) [November 3, 2021], the SI-KJalpha model from the University of Southern California ([SIKJalpha](#)) [November 17, 2021]. Daily deaths from other modeling groups are smoothed to remove inconsistencies with rounding. Regional values are aggregates from available locations in that region.

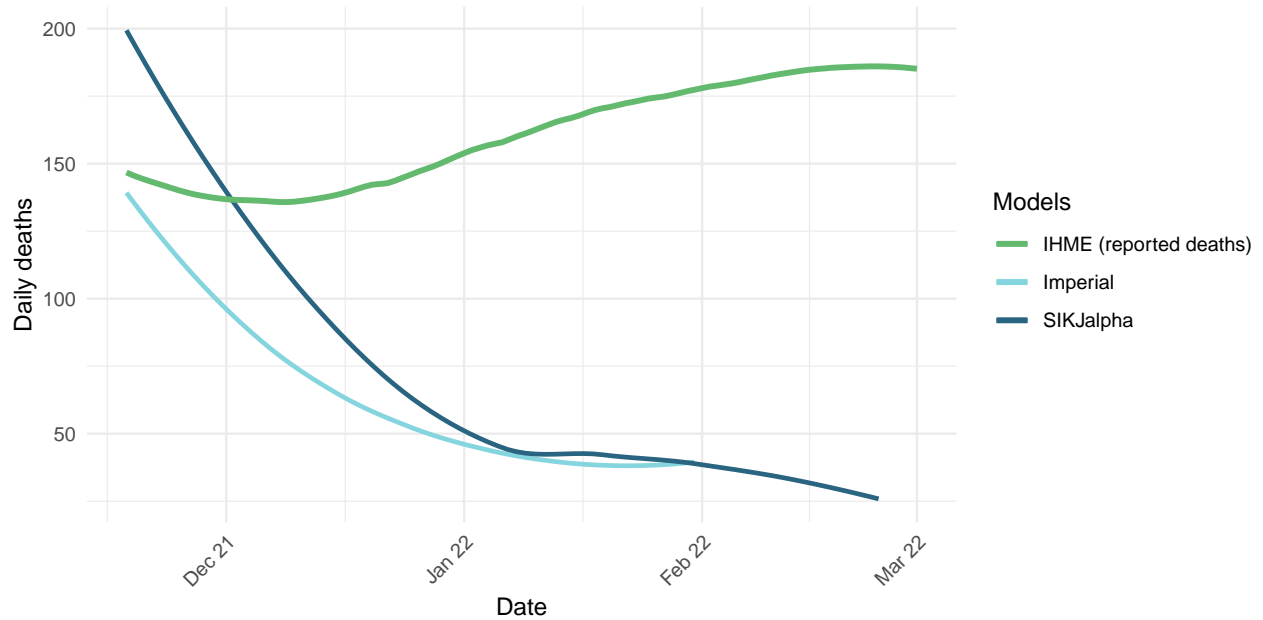


Figure 24.1. The estimated inpatient hospital usage is shown over time. The percent of hospital beds occupied by COVID-19 patients is color-coded based on observed quantiles of the maximum proportion of beds occupied by COVID-19 patients. Less than 5% is considered *low stress*, 5-9% is considered *moderate stress*, 10-19% is considered *high stress*, and 20% or greater is considered *extreme stress*.

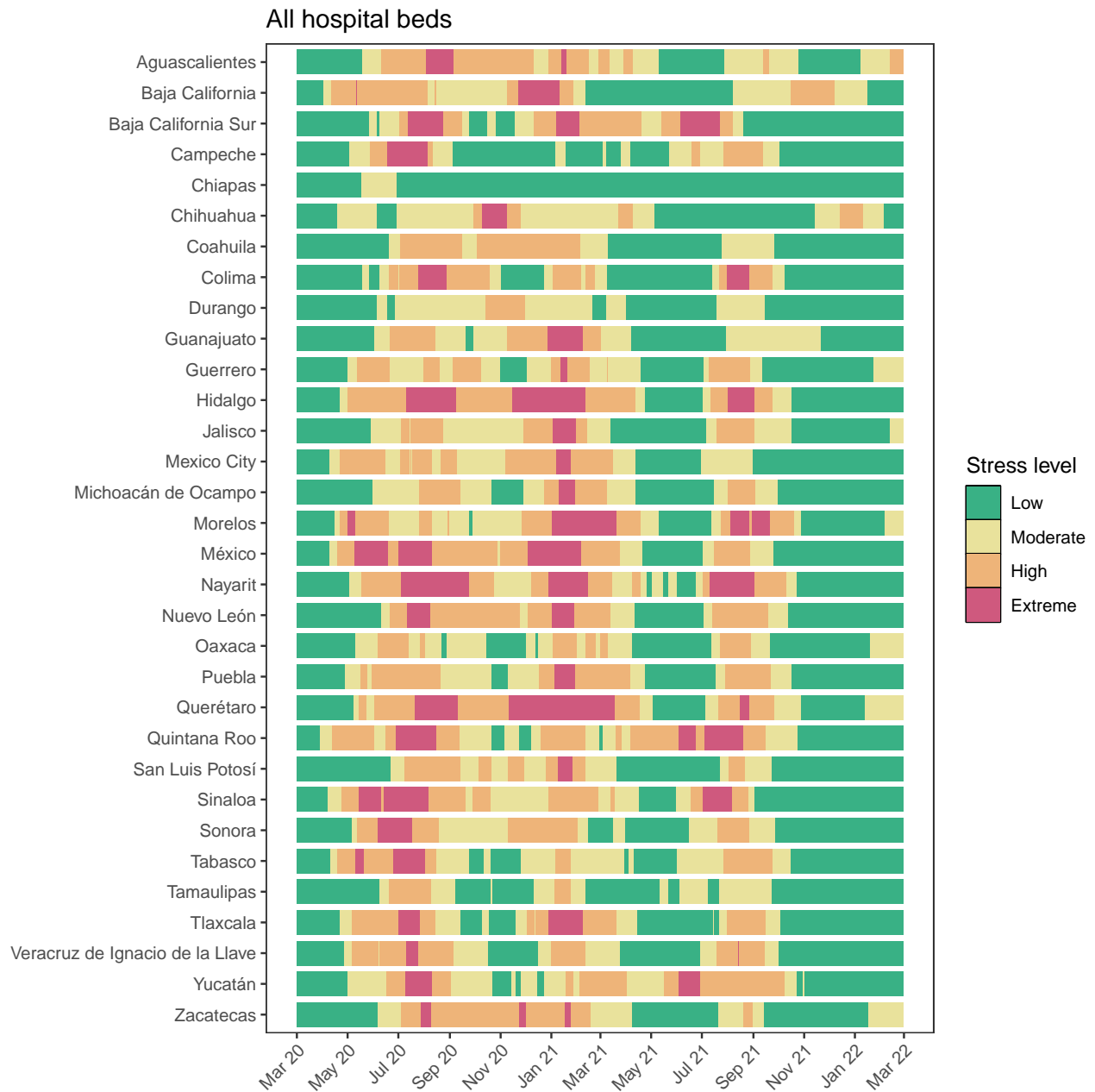
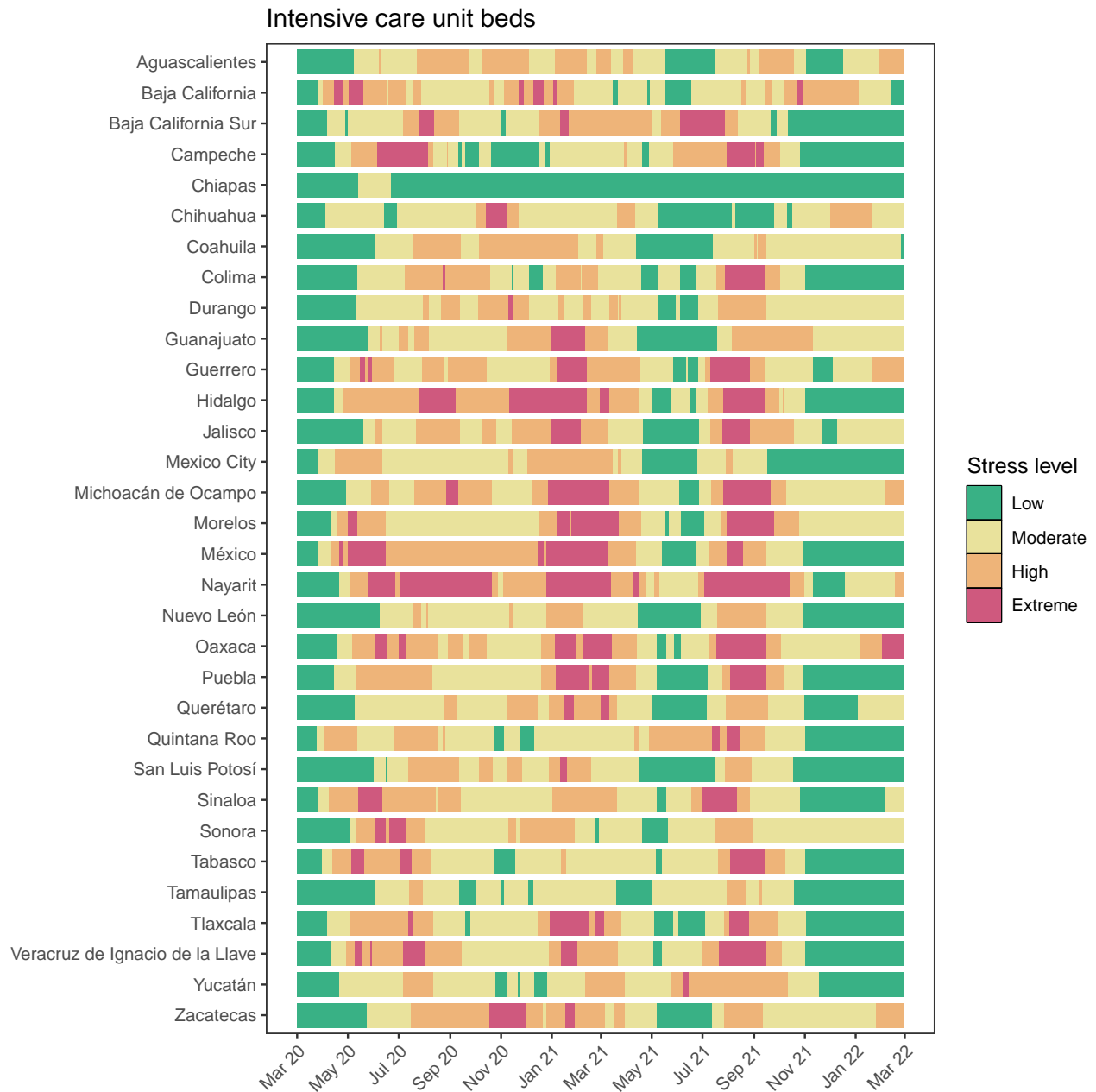


Figure 25.1. The estimated intensive care unit (ICU) usage is shown over time. The percent of ICU beds occupied by COVID-19 patients is color-coded based on observed quantiles of the maximum proportion of ICU beds occupied by COVID-19 patients. Less than 10% is considered *low stress*, 10-29% is considered *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>.