COVID-19 Results Briefing
Spain
January 21, 2022

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

Current situation

- Daily infections in the last week decreased to 438,500 per day on average compared to 651,900 the week before (Figure 1.1). Daily hospital census in the last week (through January 18) increased to 157,500 per day on average compared to 137,600 the week before.
- Daily reported cases in the last week increased to 119,900 per day on average compared to 118,300 the week before (Figure 2.1).
- Reported deaths due to COVID-19 in the last week increased to 160 per day on average compared to 150 the week before (Figure 3.1).
- Total deaths due to COVID-19 in the last week increased to 270 per day on average compared to 250 the week before (Figure 3.1). This makes COVID-19 the number 1 cause of death in Spain this week (Table 1). Estimated total daily deaths due to COVID-19 in the past week were 1.7 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 4 autonomous communities. (Figure 4.1).
- The daily rate of total COVID-19 deaths is greater than 4 per million in 13 autonomous communities. (Figure 4.2).
- We estimate that 72% of people in Spain 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 5 autonomous communities. (Figure 7.1).
- The infection-detection rate in Spain was close to 14% 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 (Figure 9.1-Figure 9.5). We estimate that the Alpha variant is circulating in 0 autonomous communities, that the Beta variant is circulating in 0 autonomous communities, that the Delta variant is circulating in 17 autonomous communities, that the Gamma variant is circulating in 0 autonomous communities and that the Omicron variant is circulating in 19 autonomous communities.

Trends in drivers of transmission

- Mobility last week was 6% 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, 78% of people self-report that they always wore a mask when leaving their home compared to 77% last week (Figure 13.1).
- There were 414 diagnostic tests per 100,000 people on January 18 (Figure 15.1).
- As of January 18, 19 autonomous communities have reached 70% or more of the population who have received at least one vaccine dose and 19 autonomous communities have reached 70% or more of the population who are fully vaccinated (Figure 17.1). 84% of people in Spain have received at least one vaccine dose and 79% are fully vaccinated.
- In Spain, 91% 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. This is down by 0 percentage points from last week. The proportion of the population who are open to receiving a COVID-19 vaccine ranges from 82% in Navarre to 96% in Asturias (Figure 19.1).
- In our current reference scenario, we expect that 38.6 million people will be vaccinated with at least one dose by May 1 (Figure 20.1). We expect that 79% 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 decline to 3,200 on May 1, 2022 (Figure 21.1).
- Daily estimated infections in the 80% mask coverage scenario will decline to 3,130 on May 1, 2022 (Figure 21.1).
- Daily estimated infections in the third dose scenario will decline to 2,800 on May 1, 2022 (Figure 21.1).

Cases
- Daily cases in the reference scenario will decline to 600 on May 1, 2022 (Figure 21.2).
- Daily cases in the 80% mask coverage scenario will decline to 590 on May 1, 2022 (Figure 21.2).
- Daily cases in the third dose scenario will decline to 520 on May 1, 2022 (Figure 21.2).

Hospitalizations
- Daily hospital census in the reference scenario will decline to 1,400 on May 1, 2022 (Figure 21.3).
- Daily hospital census in the 80% mask coverage scenario will decline to 1,360 on May 1, 2022 (Figure 21.3).
- Daily hospital census in the third dose scenario will decline to 1,240 on May 1, 2022 (Figure 21.3).

Deaths
- In our reference scenario, our model projects 105,000 cumulative reported deaths due to COVID-19 on May 1. This represents 3,000 additional deaths from January 18 to May 1. Daily reported COVID-19 deaths in the reference scenario will decline to 0 on May 1, 2022 (Figure 21.4).
- Under our reference scenario, our model projects 171,000 cumulative total deaths due to COVID-19 on May 1. This represents 5,000 additional deaths from January 18 to May 1 (Figure 24.2).
- In our 80% mask coverage scenario, our model projects 105,000 cumulative reported deaths due to COVID-19 on May 1. This represents 3,000 additional deaths from January 18 to May 1. Daily reported COVID-19 deaths in the 80% mask coverage scenario will decline to 0 on May 1, 2022 (Figure 21.4).
- In our third dose scenario, our model projects 105,000 cumulative reported deaths due to COVID-19 on May 1. This represents 3,000 additional deaths from January 18 to May 1. Daily reported COVID-19 deaths in the third dose scenario will decline to 0 on May 1, 2022 (Figure 21.4).
- Figure 22.1 compares our reference scenario forecasts to other publicly archived models. Forecasts are widely divergent.
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

<table>
<thead>
<tr>
<th>Cause name</th>
<th>Weekly deaths</th>
<th>Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>COVID-19</td>
<td>1,899</td>
<td>1</td>
</tr>
<tr>
<td>Ischemic heart disease</td>
<td>1,031</td>
<td>2</td>
</tr>
<tr>
<td>Stroke</td>
<td>713</td>
<td>3</td>
</tr>
<tr>
<td>Chronic obstructive pulmonary disease</td>
<td>601</td>
<td>4</td>
</tr>
<tr>
<td>Alzheimer’s disease and other dementias</td>
<td>562</td>
<td>5</td>
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<tr>
<td>Tracheal, bronchus, and lung cancer</td>
<td>472</td>
<td>6</td>
</tr>
<tr>
<td>Colon and rectum cancer</td>
<td>385</td>
<td>7</td>
</tr>
<tr>
<td>Chronic kidney disease</td>
<td>282</td>
<td>8</td>
</tr>
<tr>
<td>Lower respiratory infections</td>
<td>273</td>
<td>9</td>
</tr>
<tr>
<td>Diabetes mellitus</td>
<td>195</td>
<td>10</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Andalucia</th>
<th>Aragon</th>
<th>Asturias</th>
<th>Balearic Islands</th>
<th>Basque Country</th>
<th>Canary Islands</th>
<th>Cantabria</th>
<th>Castile and León</th>
<th>Castilla–La Mancha</th>
<th>Catalonia</th>
<th>Ceuta</th>
<th>Community of Madrid</th>
<th>Extremadura</th>
<th>Galicia</th>
<th>La Rioja</th>
<th>Melilla</th>
<th>Murcia</th>
<th>Navarre</th>
<th>Valencian Community</th>
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<tbody>
<tr>
<td>Mandate in place</td>
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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.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Ancestral Severe disease</th>
<th>Ancestral Infection</th>
<th>Alpha Severe disease</th>
<th>Alpha Infection</th>
<th>Beta Severe disease</th>
<th>Beta Infection</th>
<th>Gamma Severe disease</th>
<th>Gamma Infection</th>
<th>Delta Severe disease</th>
<th>Delta Infection</th>
<th>Omicron Severe disease</th>
<th>Omicron Infection</th>
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<tr>
<td>AstraZeneca</td>
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<td>63%</td>
<td>94%</td>
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<td>94%</td>
<td>69%</td>
<td>94%</td>
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<tr>
<td>CoronaVac</td>
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<td>47%</td>
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<tr>
<td>Covaxin</td>
<td>78%</td>
<td>73%</td>
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<td>73%</td>
<td>76%</td>
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<tr>
<td>Johnson &amp; Johnson</td>
<td>86%</td>
<td>72%</td>
<td>86%</td>
<td>72%</td>
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<tr>
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<tr>
<td>Novavax</td>
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<td>83%</td>
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<tr>
<td>Pfizer/BioNTech</td>
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<tr>
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<td>92%</td>
<td>86%</td>
<td>89%</td>
<td>85%</td>
<td>89%</td>
<td>85%</td>
<td>89%</td>
<td>85%</td>
<td>89%</td>
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</tr>
<tr>
<td>Other vaccines</td>
<td>75%</td>
<td>70%</td>
<td>75%</td>
<td>70%</td>
<td>73%</td>
<td>69%</td>
<td>73%</td>
<td>69%</td>
<td>73%</td>
<td>69%</td>
<td>73%</td>
<td>69%</td>
</tr>
<tr>
<td>Other vaccines (mRNA)</td>
<td>91%</td>
<td>86%</td>
<td>91%</td>
<td>86%</td>
<td>88%</td>
<td>85%</td>
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</tbody>
</table>
Spain

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.
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.