COVID-19 Results Briefing

The Western Pacific Region

July 30, 2021

This document contains summary information on the latest projections from the IHME model on COVID-19 in the Western Pacific Region. The model was run on July 27, 2021, with data through July 26, 2021.

Current situation

- Daily reported cases in the last week (through July 26) increased to 34,600 per day on average compared to 29,000 the week before (Figure 1).
- Reported deaths due to COVID-19 in the last week increased to 270 per day on average compared to 240 the week before (Figure 2).
- Excess deaths due to COVID-19 in the last week increased to 640 per day on average compared to 570 the week before (Figure 2). This makes COVID-19 the number 16 cause of death in the Western Pacific Region this week (Table 1). Estimated excess daily deaths due to COVID-19 were 2 times larger than the reported number of deaths.
- The daily reported COVID-19 death rate is greater than 4 per million in Fiji, and Malaysia (Figure 3).
- The daily rate of excess deaths due to COVID-19 is greater than 4 per million in Fiji, and Malaysia (Figure 3).
- We estimated that 2% of people in the Western Pacific Region have been infected as of July 26 (Figure 5).
- Effective R, computed using cases, hospitalizations, and deaths, is greater than 1 in 15 countries (Figure 6).
- The infection-detection rate in the Western Pacific Region was close to 16% on July 26 (Figure 7).
- Based on the GISAID and various national databases, combined with our variant spread model, we estimate the current prevalence of variants of concern (Figure 8). We estimate that B.1.351 is circulating in 2 countries, that B.1.617 is circulating in 12 countries, and that P.1 is circulating in 0 countries.

Trends in drivers of transmission

- Mobility last week was 13% lower than the pre-COVID-19 baseline (Figure 10). Mobility was near baseline (within 10%) in China, Mongolia, New Zealand, and Papua New Guinea. Mobility was lower than 30% of baseline in Cambodia, Fiji, Lao People’s Democratic Republic, Malaysia, and Viet Nam.
- As of July 26, in the COVID-19 Trends and Impact Survey, 65% of people self-report that they always wore a mask when leaving their home compared to 65% last week (Figure 12).
- There were 129 diagnostic tests per 100,000 people on July 26 (Figure 14).
- In the Western Pacific Region 83.7% of people say they would accept or would probably accept a vaccine for COVID-19. This is up by 0.7 percentage points from last week. The fraction of the population who are open to receiving a COVID-19 vaccine ranges from 52% in Mongolia to 91% in Malaysia (Figure 18).
- In our current reference scenario, we expect that 2.4 billion people will be vaccinated by November 1 (Figure 19).
- In our current reference scenario, we expect that by November 1, 22% of people will be immune to non-escape variants and 18% of people will be immune to escape variants (Figure 20).
Projections

- In our reference scenario, which represents what we think is most likely to happen, our model projects 115,000 cumulative reported deaths due to COVID-19 on November 1. This represents 54,000 additional deaths from July 26 to November 1. Daily reported deaths will rise to 790 on November 1, 2021 (Figure 21).

- Under our reference scenario, our model projects 253,000 cumulative excess deaths due to COVID-19 on November 1. This represents 131,000 additional deaths from July 26 to November 1. Daily excess deaths due to COVID-19 will rise to 790 on November 1, 2021 (Figure 21).

- If universal mask coverage (95%) were attained in the next week, our model projects 13,000 fewer cumulative reported deaths compared to the reference scenario on November 1.

- If universal mask coverage (95%) were attained in the next week, our model projects 33,000 fewer cumulative excess deaths due to COVID-19 compared to the reference scenario on November 1.

- Under our worse scenario, our model projects 219,000 cumulative reported deaths on November 1, an additional 104,000 deaths compared to our reference scenario. Daily reported deaths in the worse scenario will rise to 3,740 by October 31, 2021 (Figure 21).

- Under our worse scenario, our model projects 487,000 cumulative excess deaths due to COVID-19 on November 1, an additional 234,000 deaths compared to our reference scenario. Daily excess deaths due to COVID-19 in the worse scenario will rise to 8,310 by October 25, 2021 (Figure 21).

- Daily infections in the reference scenario will rise to 954,930 on November 1, 2021 (Figure 22). Daily infections in the worse scenario will rise to 2,772,960 by October 2, 2021 (Figure 22).

- By November 1, we project that 42,800 lives will be saved by the projected vaccine rollout. This does not include lives saved through vaccination that has already been delivered.

- Figure 23 compares our reference scenario forecasts to other publicly archived models. Forecasts are widely divergent.

- At some point from July through November 1, 8 countries will have high or extreme stress on hospital beds (Figure 24). At some point from July through November 1, 9 countries will have high or extreme stress on intensive care unit (ICU) capacity (Figure 25).
Model updates

Our projections of SARS-CoV-2 infections and COVID-19 deaths in the worse scenario were updated to account for the possibility that population mobility may continue to increase, irrespective of vaccine coverage or infection levels. Specifically, a new mobility scenario was formulated in which all locations exhibit an 8-week linear increase in mobility to the regional maximum mobility level observed between the period 1/1/2020 and the last day of data. Furthermore, the new projections of mobility for the worse scenario assume that population mobility will remain elevated until COVID-19 mortality reaches a minimum of 15 deaths per million, at which point a location may re-impose all social distancing mandates for a period of six weeks, causing mobility to rapidly decline.
Figure 1. Reported daily COVID-19 cases, moving average

Table 1. Ranking of excess 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>Stroke</td>
<td>51,115</td>
<td>1</td>
</tr>
<tr>
<td>Ischemic heart disease</td>
<td>44,778</td>
<td>2</td>
</tr>
<tr>
<td>Chronic obstructive pulmonary disease</td>
<td>22,489</td>
<td>3</td>
</tr>
<tr>
<td>Tracheal, bronchus, and lung cancer</td>
<td>18,018</td>
<td>4</td>
</tr>
<tr>
<td>Alzheimer’s disease and other dementias</td>
<td>10,761</td>
<td>5</td>
</tr>
<tr>
<td>Stomach cancer</td>
<td>9,878</td>
<td>6</td>
</tr>
<tr>
<td>Lower respiratory infections</td>
<td>8,865</td>
<td>7</td>
</tr>
<tr>
<td>Hypertensive heart disease</td>
<td>7,494</td>
<td>8</td>
</tr>
<tr>
<td>Colon and rectum cancer</td>
<td>7,483</td>
<td>9</td>
</tr>
<tr>
<td>Chronic kidney disease</td>
<td>6,343</td>
<td>10</td>
</tr>
<tr>
<td>COVID-19</td>
<td>4,448</td>
<td>16</td>
</tr>
</tbody>
</table>
Figure 2. Smoothed trend estimate of reported daily COVID-19 deaths (blue) and excess daily deaths due to COVID-19 (orange)
Figure 3. Daily COVID-19 death rate per 1 million on July 26, 2021

A. Daily reported COVID-19 death rate per 1 million

B. Daily excess COVID-19 death rate per 1 million
Figure 4. Cumulative COVID-19 deaths per 100,000 on July 26, 2021

A. Reported cumulative COVID-19 deaths per 100,000

B. Excess cumulative COVID-19 deaths per 100,000
Figure 5. Estimated percent of the population infected with COVID-19 on July 26, 2021

Figure 6. Mean effective R on July 15, 2021. 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. Effective R less than 1 means that transmission should decline, all other things being held the same.
Figure 7. 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.
Figure 8. Estimated percent of circulating SARS-CoV-2 for primary variant families on July 26, 2021

A. Estimated percent B.1.1.7 variant

B. Estimated percent B.1.351 variant
C. Estimated percent B.1.617 variant

D. Estimated percent P.1 variant
Figure 9. Infection-fatality ratio on July 26, 2021
### 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

*Not all locations are measured at the subnational level.*

**Mandate in place**
**Mandate imposed in some subnational locations**
**Mandate imposed in some subnational locations (imposed this week)**
**Mandate imposed in some subnational locations (imposed from previous reporting)**
**No mandate**
**No mandate (imposed this week)**
**No mandate (lifted this week)**
**No mandate (updated from previous reporting)**
**Figure 10.** Trend in mobility as measured through smartphone app use compared to January 2020 baseline

**Figure 11.** Mobility level as measured through smartphone app use compared to January 2020 baseline (percent) on July 26, 2021
Figure 12. Trend in the proportion of the population reporting always wearing a mask when leaving home.

Figure 13. Proportion of the population reporting always wearing a mask when leaving home on July 26, 2021.
Figure 14. Trend in COVID-19 diagnostic tests per 100,000 people

Figure 15. COVID-19 diagnostic tests per 100,000 people on July 26, 2021
Figure 16. Increase in the risk of death due to pneumonia on February 1 compared to August 1.
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.

<table>
<thead>
<tr>
<th>Vaccine</th>
<th>Efficacy at preventing disease: D614G &amp; B.1.1.7</th>
<th>Efficacy at preventing infection: D614G &amp; B.1.1.7</th>
<th>Efficacy at preventing disease: B.1.351, B.1.617, &amp; P.1</th>
<th>Efficacy at preventing infection: B.1.351, B.1.617, &amp; P.1</th>
</tr>
</thead>
<tbody>
<tr>
<td>AstraZeneca</td>
<td>74%</td>
<td>52%</td>
<td>53%</td>
<td>47%</td>
</tr>
<tr>
<td>CoronaVac</td>
<td>50%</td>
<td>44%</td>
<td>40%</td>
<td>35%</td>
</tr>
<tr>
<td>Covaxin</td>
<td>78%</td>
<td>69%</td>
<td>62%</td>
<td>55%</td>
</tr>
<tr>
<td>Janssen</td>
<td>72%</td>
<td>72%</td>
<td>64%</td>
<td>56%</td>
</tr>
<tr>
<td>Moderna</td>
<td>94%</td>
<td>89%</td>
<td>83%</td>
<td>79%</td>
</tr>
<tr>
<td>Novavax</td>
<td>89%</td>
<td>79%</td>
<td>73%</td>
<td>64%</td>
</tr>
<tr>
<td>Pfizer/BioNTech</td>
<td>91%</td>
<td>86%</td>
<td>81%</td>
<td>77%</td>
</tr>
<tr>
<td>Sinopharm</td>
<td>73%</td>
<td>65%</td>
<td>47%</td>
<td>41%</td>
</tr>
<tr>
<td>Sputnik-V</td>
<td>92%</td>
<td>81%</td>
<td>73%</td>
<td>65%</td>
</tr>
<tr>
<td>Tianjin</td>
<td>66%</td>
<td>58%</td>
<td>53%</td>
<td>47%</td>
</tr>
<tr>
<td>CanSino</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other vaccines</td>
<td>75%</td>
<td>66%</td>
<td>60%</td>
<td>53%</td>
</tr>
<tr>
<td>Other vaccines (mRNA)</td>
<td>91%</td>
<td>86%</td>
<td>81%</td>
<td>77%</td>
</tr>
</tbody>
</table>
**Figure 17.** Trend in the estimated proportion of the adult (18+) population that have been vaccinated or would probably or definitely receive the COVID-19 vaccine if available.

![Trend in the estimated proportion of the adult (18+) population that have been vaccinated or would probably or definitely receive the COVID-19 vaccine if available](image1)

**Figure 18.** This figure shows the estimated proportion of the adult (18+) population that has been vaccinated or would probably or definitely receive the COVID-19 vaccine if available.

![Map showing estimated vaccination rates in different regions](image2)
**Figure 19.** Number of people who receive any vaccine and those who are effectively vaccinated and protected against disease, accounting for efficacy, loss to follow up for two-dose vaccines, partial immunity after one dose, and immunity after two doses.

![Graph showing number of people vaccinated](image)

**Figure 20.** Percentage of people who are immune to non-escape variants and the percentage of people who are immune to escape variants.

![Graph showing immune percentages](image)
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.
- 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 scenario assumes that mandates are re-imposed when daily deaths reach 15 per million.
- Variants B.1.1.7 (first identified in the UK), B.1.351 (first identified in South Africa), and P.1 (first identified in Brazil) continue to spread from locations with (a) more than 5 sequenced variants, and (b) reports of community transmission, to adjacent locations following the speed of variant scale-up observed in the regions of the United Kingdom.

The worse scenario modifies the reference scenario assumptions in two ways:

- First, it assumes that variants B.1.351 or P.1 begin to spread within three weeks in adjacent locations that do not already have B.1.351 or P.1 community transmission.
- Second, it assumes that all those vaccinated increase their mobility toward pre-COVID-19 levels.

The universal masks scenario makes all the same assumptions as the reference scenario but also assumes 95% of the population wear masks in public in every location.
Figure 21. Daily COVID-19 deaths until November 01, 2021 for three scenarios

A. Reported daily COVID-19 death per 100,000

B. Excess daily COVID-19 deaths per 100,000
Figure 22. Daily COVID-19 infections until November 01, 2021 for three scenarios

- **Reference scenario**
- **Universal mask use**
- **Worse**

The graph shows the daily infections and infections per 100,000 population from January 2020 to November 2021. The reference scenario and universal mask use scenarios show relatively stable infection rates, while the worse scenario exhibits a significant increase in infections.
**Figure 23.** 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: Delphi from the Massachusetts Institute of Technology (Delphi), Imperial College London (Imperial), The Los Alamos National Laboratory (LANL), and the SI-KJalpha model from the University of Southern California (SIKJalpha). 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. 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.** 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*. 

The chart shows the intensive care unit (ICU) beds usage over time for various countries in the Western Pacific Region. The stress level is color-coded as follows: low stress (dark green), moderate stress (light green), high stress (yellow), and extreme stress (red). The x-axis represents the time periods from March 2020 to November 2021, and the y-axis lists the countries. Each horizontal bar represents a country, and the segments within the bar indicate the proportion of ICU beds occupied by COVID-19 patients at different times.
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.