OHSU COVID Forecast
Edition: 11/18/2022

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Key Outcomes

Update: The OHSU COVID Forecasting Brief is produced every two weeks. The next brief will be available the week ending Friday, December 2nd.
As of 11/16/2022, 230 people are hospitalized with COVID-19 in Oregon.

The level has been relatively flat over the last three months.
Regional Hospital Census

All the regions are relatively flat.

Source: https://public.tableau.com/profile/oregon.health.authority.covid.19#!/vizhome/OregonCOVID-19HospitalCapacity/BedAvailabilitybyRegion
Some increase is evident in the Mountain region and slower growth in both West North Central and Pacific. Other regions are flat or declining.
There is continued evidence that the peak of the current wave in Europe has occurred.

Data are through 11/6/22.

Pediatric Census in Oregon

The pediatric census level is at 5. This is a very slight increase.

Source: https://healthdata.gov/Hospital/COVID-19-Reported-Patient-Impact-and-Hospital-Capa/g62h-syeh/data
Oregon Hospital Capacity

As of 11/15, 4% of occupied ICU beds are filled with COVID patients.

Statewide, the number of available beds is 341.

<table>
<thead>
<tr>
<th>Region</th>
<th>ICU</th>
<th>Non-ICU</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>5%</td>
<td>5%</td>
<td>5%</td>
</tr>
<tr>
<td>2</td>
<td>3%</td>
<td>5%</td>
<td>3%</td>
</tr>
<tr>
<td>3</td>
<td>3%</td>
<td>6%</td>
<td>6%</td>
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<tr>
<td>5</td>
<td>8%</td>
<td>9%</td>
<td>9%</td>
</tr>
<tr>
<td>6</td>
<td>0%</td>
<td>18%</td>
<td>13%</td>
</tr>
<tr>
<td>7</td>
<td>0%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>9</td>
<td>0%</td>
<td>1%</td>
<td>1%</td>
</tr>
<tr>
<td>Total</td>
<td>4%</td>
<td>5%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Source: [https://public.tableau.com/profile/oregon.health.authority.covid.19#!/vizhome/OregonCOVID-19HospitalCapacitySummaryTables_15965754787060/HospitalizationbySeveritySummaryTable](https://public.tableau.com/profile/oregon.health.authority.covid.19#!/vizhome/OregonCOVID-19HospitalCapacitySummaryTables_15965754787060/HospitalizationbySeveritySummaryTable)
Wastewater Surveillance in Oregon

Some mild increase in wastewater levels is evident.

Source: https://data.cdc.gov/Public-Health-Surveillance/NWSS-Public-SARS-CoV-2-Wastewater-Metric-Data/2ew6-ywp6
Wastewater Surveillance

Portland levels show inconsistent signs of increase and flatness.

Source: https://public.tableau.com/app/profile/oregon.health.authority.covid.19/viz/OregonsSARS-CoV-2WastewaterMonitoring/WastewaterDashboard
Wastewater Surveillance by US Region

Across the regions in the US, New England has highest levels while most other areas remain low or declining.

Source: https://data.cdc.gov/Public-Health-Surveillance/NWSS-Public-SARS-CoV-2-Wastewater-Metric-Data/2ew6-ywp6
ED Visits for COVID

The rate of ED visits for COVID has increased in the last 2 weeks to 4.2%.

ED visits overall have increased as well.

Source: https://public.tableau.com/app/profile/oregon.health.authority.covid.19/viz/OregonCOVID-19TestingandOutcomesbyCounty-SummaryTable/CasesandTestingbyCountySummaryTable
Testing

Test positivity increased slightly to 7.2% in the most recent data through 11/13/22.

Testing volume is showing a slow decline.

Source: https://public.tableau.com/app/profile/oregon.health.authority.covid.19/viz/OregonCOVID-19TestingandOutcomesbyCounty-SummaryTable/CasesandTestingbyCountySummaryTable
New Cases in Oregon

COVID cases have increased slightly in the last week. The levels remain low.

Source: https://public.tableau.com/app/profile/oregon.health.authority.covid.19/viz/OregonCOVID-19TestingandOutcomesbyCounty-SummaryTable/CasesandTestingbyCountySummaryTable
COVID Forecast
Behavior Effects

This residual factor of the model represents unmeasured elements impacting transmission (including seasonal factors).

After generally higher transmission prevention during the summer, the projection assumes we have reached a seasonal low in transmission prevention.
The forecast show a continued flat period followed by slight decline.
Bed Demand Type

Approximately 50% of the beds forecasted are expected to be new demand and the rest are existing demand.

Note: The share of hospitalizations generating existing demand are estimated using the population prevalence of the virus in relation to the number of beds in the state. The share is calibrated to match estimates from states and countries. This definition is different than CDC surveillance measures of COVID related admissions and is designed to assist with bed planning, not clinical interpretations.
Infection Rates

The infections underlying the model are shown in the graph.

While more infections are expected the rate of hospitalization is much lower now than at earlier points in the pandemic and thus the hospitalized patients remain low.
This chart shows the sizes of the susceptible, infected, and recovered compartments used in the model.

Note: the apparent non-linearity in the states on 5/1/2022 is due the immune evasion of BA4/5.
Immunity Factors

This chart shows the model’s historical and projected levels of various factors changing the immunity in the population.
The forecast is fairly similar to last edition.
The number of deaths per day is expected to be relatively flat.
RSV Forecast
The rate of hospitalizations for children age 0-17 are shown. The most recent season (2022-2023) is showing an early and high rate.

Source: https://www.cdc.gov/rsv/research/rsv-net/dashboard.html
The RSV actuals and forecast for Oregon is shown in the chart as is the count of pediatric and adult hospitalizations.

The model uses previous season growth rate lined up with an earlier start and higher peak than usual (based on patterns from other states).
Ancillary Data
While BQ.1.1 is growing at the national level it is still only a small share of samples in Oregon.
Vaccination data at OHA are updated once per month. These data show values through 11/6/2022.

Influenza levels are picking up quickly in Oregon.

Influenza rates remain highest in the Southeast, though some states there appear to be peaking.

Source: https://www.cdc.gov/flu/weekly/index.htm
Influenza-United States

While the flu has started earlier than most years, so far it is not reaching the peak hospitalization rates of other seasons.

This may be due to a better efficacy, virus transmission prevention, or other factors.

Source: https://www.cdc.gov/flu/weekly/index.htm
Influenza-United States

Hospitalizations continue to increase.

Source: https://www.cdc.gov/flu/weekly/index.htm
RSV has spiked dramatically in the US.

Source: https://www.cdc.gov/surveillance/nrevss/rsv/natl-trend.html
RSV has increased dramatically in Oregon, and now matches national levels.

Source: https://www.cdc.gov/surveillance/nrevss/rsv/natl-trend.html
Acknowledgments

Each week this model requires updates, input and expertise from many people.

Thank you to Guang Fan, Xuan Qin and Brian O’Roak, at OHSU, for their work to monitor variants in Oregon.

Thank you to Siouxzanna Downs for providing data and visualizations about RSV. Thank you to Melissa Sutton at OHA and Carl Eriksson at OHSU for their insights on RSV transmission.

Thank you!
## COVID Variant Specifications

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Original</th>
<th>CA/Alpha/Gamma Alpha</th>
<th>Delta</th>
<th>BA1</th>
<th>BA2</th>
<th>BA4/BA5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Immune Escape</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0.5</td>
<td>0</td>
</tr>
<tr>
<td>Herd Immunity</td>
<td>57%</td>
<td>64%</td>
<td>68%</td>
<td>74%</td>
<td>71%</td>
<td>74%</td>
</tr>
<tr>
<td>Hosp rate</td>
<td>1.40%</td>
<td>1.40%</td>
<td>1.40%</td>
<td>2.80%</td>
<td>1.80%</td>
<td>1.40%</td>
</tr>
<tr>
<td>R0</td>
<td>2.3</td>
<td>2.8</td>
<td>3.1</td>
<td>3.9</td>
<td>3.4</td>
<td>3.9</td>
</tr>
<tr>
<td>Recovery</td>
<td>9</td>
<td>8</td>
<td>8</td>
<td>7</td>
<td>6</td>
<td>6</td>
</tr>
</tbody>
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