OHSU COVID Forecast
Edition: 5/20/2022

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Key Outcomes

Update: The OHSU COVID Forecasting Brief will move to a every other week schedule. The next brief will be available the week ending Friday, June 3rd.
As of 5/19/2022, 281 people are hospitalized with COVID-19 in Oregon. This is 100 more than last report.

Source: https://public.tableau.com/profile/oregon.health.authority.covid.19#!/vizhome/OregonCOVID-19HospitalCapacitySummaryTables_15965754787060/HospitalizationbySeveritySummaryTable
Most regions are seeing mild increases in hospitalized patients but at levels well below Delta and Omicron peaks.
Hospitalized patients are increasing slowly compared to the Omicron surge and appear to be peaking in some regions.

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

The pediatric census level is at 5 as of 5/16.

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

As of 5/17/22, 5% of occupied ICU beds are filled with COVID patients. This level has not changed since last reported two weeks ago.

<table>
<thead>
<tr>
<th>Region</th>
<th>ICU</th>
<th>Non-ICU</th>
<th>Total</th>
</tr>
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<tbody>
<tr>
<td>1</td>
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<tr>
<td>2</td>
<td>4%</td>
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<tr>
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<td>2%</td>
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<tr>
<td>Total</td>
<td>5%</td>
<td>6%</td>
<td>6%</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)
New Cases in Oregon

Oregon cases levels are about middle of the pack (26th in US) and appear to be cresting.

Region 1 and Region 7 have the highest cases per capita. The apparent decrease in the last 8 days is due to reporting lags.

Cases by County in U.S.

The Northeast continues to lead the U.S. in cases. Other regions are increasing more moderately.

Omicron in Northeast

Cases continue to increase in some states in the Northeast while others have crested and the hospital census remains mostly flat, though elevated.

The most recent complete week (5/8-5/14) had a test positivity of 10.9%.

The rate has increased since week of 3/13.

Testing levels have not picked up despite the increased positivity rate.

Wastewater levels have switched to generally showing plateaus, increases, or sustained increases.

In Portland, viral concentrations appear higher than during Delta, though lower than Omicron BA1 wave.

Data from Portland are highlighted in the chart over time.

Source: https://public.tableau.com/app/profile/oregon.health.authority.covid.19/viz/OregonsSARS-CoV-2WastewaterMonitoring/WastewaterDashboard
Review of Leading Indicators
While the masking rate varies between regions, the levels is largely unchanged since beginning of April.
Time with Others Indoors

Time with others indoors is generally steady across regions in the US and Oregon.

Source: https://covidcast.cmu.edu/
Bar/Restaurant Indoors

The percent of people indicating going to a bar or restaurant indoors is relatively stable across regions.

Source: https://covidcast.cmu.edu/
Large Events Indoors

The percentage of people attending large events indoors is lower in Oregon than other regions. The trend is generally stable.

Source: https://covidcast.cmu.edu/
Symptoms

Symptom levels continue to increase in Oregon and other regions. These reports suggest infection levels are above Delta though still only 75% of what they were during BA1.

Source: https://covidcast.cmu.edu/
Statewide Forecast
Behavior Effects

This value represents how effective the non-pharmaceutical interventions (NPIs) and individual behaviors have been at reducing the spread of the virus.

The last 5 weeks of data have shown considerably lower levels of transmission reduction from non-pharmaceutical interventions.
The percent susceptible is at 17% which is down from two weeks ago.

There is a significant discrepancy between the percentage of people the model assumes are being infected during BA2 compared to BA1 and the apparent levels of symptoms in the community (the model assumes smaller levels during BA2). This is likely due to an over-estimate of the hospitalization rate during the BA2 surge and an over-estimate of the R0 of BA1.
Similar to case counts, the model assumes infection levels during the current BA2 surge are much lower than during BA1 but higher than Delta.
The primary forecast shows a slight increase in hospitalized patients as the impacts of BA2 and reduced COVID restrictions are experienced.

The peak is shown as 329 on 6/9/2022.
Incidental Hospitalization Estimate

Due to the high prevalence of infections and low hospitalization rate per infection, a significant share of hospitalizations are expected to be incidental.

Notes: Incidental cases are estimated by 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.
There has been very little change from the forecast two weeks ago.
Deaths are expected to increase modestly over the next 2 months due to the current wave.
Ancillary Data
Hospitalized Influenza Cases in U.S.

Despite moderate increases in influenza admissions, the cumulative count of lab-confirmed hospitalizations remains much lower than previous years.

*In this figure, weekly rates for all seasons prior to the 2021-22 season reflect end-of-season rates. For the 2021-22 season, rates for recent hospital admissions are subject to reporting delays. As hospitalization data are received each week, prior case counts and rates are updated accordingly. Due to late season activity during the 2021-2022 season, FluSurv-NET surveillance has been extended beyond the typical end date of April 30 (MMWR week 17).
Influenza Cases in Oregon

After an apparent peak, reported flu cases increases to higher levels in the last 3 weeks.

Over the next 3 weeks the forecasters reporting results to CDC are generally increases in new hospital admissions.

Despite a new surge in cases in Portugal, corresponding to the increased prevalence of BA5, the hospitalized population has been steady (though not declining as it would have been expected to).
Many strains of Omicron are present. BA2 and its sub-strains make up about 90% of the currently circulating virus in Oregon according to sequenced samples.

BA2.12.1 is not showing particular growth in Oregon.

No sequences of BA4 or BA5 are in the dataset.

School Infection Levels

Note: X-axis is opposite direction in Beaverton

Acknowledgments

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

I would like to thank Dr. William Messer for his assistance in understanding waning dynamics, Brian O’Roak and Xuan Qin, at OHSU, for their expertise to understand genetic sequencing information, and the hospital forecasting workgroup for their feedback on weekly forecasts, including collaboration with Julie Maher and Erik Everson at Multnomah County PDES.

Thank you!
Specifications

- **Specifications:**
- Spread: Omicron is faster spreading due to shorter recovery period (12 days vs 9 days with R0 at 6.5). BA2 faster than BA1 by 23%.
- Immune Escape during Omicron: 72%
- Behavior: Decreased NPI pattern.
- Hospitalization Rate: 15% of Delta
- ICU Rate of hospitalized: 80% of Delta
- Boosters: fitted with actuals and decline expected.
- Incidental: Estimated with community prevalence and calibrated with external estimates.
- Length of stay: shortening of stay over time. From 7 and 14 to 5 and 12 days for those with and without ICU.
- Days from exposure to admission= decreasing from 12 to 8 days.
- Recovery period=12 days prior to Omicron and 9 days for Omicron.