OHSU COVID Forecast
Edition: 8/18/2022

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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, September 2\textsuperscript{nd}. 
As of 8/18/2022, 292 people are hospitalized with COVID-19 in Oregon.

This is a 38% drop from the peak of 464 reached on July 17th.

Regional Hospital Census

While most regions are down from their peak, Region 5 is still at a peak.

Source: https://public.tableau.com/profile/oregon.health.authority.covid.19#!/vizhome/OregonCOVID-19HospitalCapacity/BedAvailabilitybyRegion
All regions in the US are declining in hospital census per capita. The South Atlantic reached a higher level than other regions.

Source: https://healthdata.gov/Hospital/COVID-19-Reported-Patient-Impact-and-Hospital-Capa/g62h-syeh/data
The pediatric census level is at 6 as of 8/14. This is a drop from the peak of 22 set on 6/20.

Source: https://healthdata.gov/Hospital/COVID-19-Reported-Patient-Impact-and-Hospital-Capa/g62h-syeh/data
As of 8/16, 5% of occupied ICU beds are filled with COVID patients. This is a drop from 9% in last report. Statewide, the number of available beds increased from 311 in last report to 382 on 8/16.

*Source: https://public.tableau.com/profile/oregon.health.authority.covid.19#!/vizhome/OregonCOVID-19HospitalCapacitySummaryTables_15965754787060/HospitalizationbySeveritySummaryTable*
Wastewater Surveillance

In data through 8/10, most regions are showing declines or plateaus.

Specific trends in selected cities are shown on the following slide.

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

Portland

Eugene

Pendleton

Corvallis

Bend

Grants Pass

Source: https://public.tableau.com/app/profile/oregon.health.authority.covid.19/viz/OregonsSARS-CoV-2WastewaterMonitoring/WastewaterDashboard
The rate of ED visits for COVID has declined in the last week to 2.9%. The absolute number of ED visits for COVID has also declined.

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

Test positivity appears to have peaked at 15.3% the week of 6/26 and has declined to 11.4% in the most recent complete week (starting 8/7).

New Cases in Oregon

Oregon’s cases are slowly be steadily reducing since peaking in early July. At 20 per 100k per day, Oregon has the 10th lowest case rate.

Source: https://91-divoc.com/pages/covid-visualization/
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 forecast shows declining census values over the next 1-2 months.

The minimum of the current decline is expected to be 129 on 9/21/2022.
Infection Rates

The infections underlying the model are shown in the graph.

While infections are expected to decline, standard waning of immunity is expected to generate a fall increase in infections. This may be mitigated by a vaccine booster. When the details of the vaccine become more clear the impact will be added to the model.
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.

At the peak on July 17\textsuperscript{th}, it is estimated that 56\% of the hospitalizations are incidental.
The current forecast is very similar to the previous forecast.
Death Forecast

The number of deaths per day has likely peaked according to the model.
Ancillary Data
Influenza-South America

Brazil and Southern Cone had a significant influenza season that was as high or higher than pre-pandemic levels.

Over the next 3 weeks the forecasters reporting results to CDC are showing constant levels of hospitalizations.

CDC Scenarios

Round 15 of the Scenario Modeling hub was released. The scenarios consider 4 scenarios with different specifications for variants and timing of reformulated vaccines.

<table>
<thead>
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<th>No New Variant</th>
<th>High Immune Escape Variant X</th>
</tr>
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<td><strong>No new Variant</strong></td>
<td>- No new variant</td>
<td>- 50 infections with variant X seeded weekly from Sep 4th-Dec 24th (16 weeks).</td>
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<td>Protection from natural immunity and VE against infection decrease over time due to waiting, but not due to variant mix.</td>
<td>- 40% immune escape against infection (applies to VE and to protection from natural immunity).</td>
<td>- There is a 20% increased risk of hospitalization and death with variant X, relative to Omicron, conditional on infection and immune status.</td>
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<td>- Booster response is 10% less effective compared to historical seasonal flu vaccination, whether individuals get a 2nd or 3rd booster is at teams discretion.</td>
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Source: [https://covid19scenariomodelinghub.org/viz.html](https://covid19scenariomodelinghub.org/viz.html)
For Oregon, the scenarios for incident hospitalizations (without uncertainty level) are shown in the chart. The colored lines are each particular model. The black line is the ensemble, or average of individual models.

Without a new immune escape variant, the results are pretty mild. With a new immune escape variant, two of the five models show more severe surges.

Source: https://covid19scenariomodelinghub.org/viz.html
Omicron Strains in Oregon

BA4/5 is on track to displace BA2.12.1.

Though a new variant is expected at some point, there are no new variants of concern in Oregon.
BA5 in Portugal

Portugal has continued to see its number of hospitalizations fall. Cases have not shown any sign of increase. If cases increase it could be a sign of immunity levels have waned sufficiently to spur an increase.

Acknowledgments

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

I would like to thank Dr. John Townes, Dawn Nolt and Marcel Curlin for their assistance in understanding respiratory virus impacts on hospitalizations. I also thank Guang Fan, Xuan Qin, at OHSU, for their work to monitor variants in Oregon. I also thank 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 39%.
• Immune Escape during Omicron: 72%, BA4/5=15%
• Behavior: Decreased NPI pattern.
• Hospitalization Rate: 30% 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.