OHSU COVID Forecast
Edition: 9/16/2022

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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 30th.
Hospitalized Patients in Oregon

As of 9/13/2022, 254 people are hospitalized with COVID-19 in Oregon.

This is only a slight drop from last report.

Regional Hospital Census

Region 5 has continued to decline. Other regions are mostly flat or slight declines.

Source: https://public.tableau.com/profile/oregon.health.authority.covid.19#!/vizhome/OregonCOVID-19HospitalCapacity/BedAvailabilitybyRegion
All regions in the US are either flat or declining.
Pediatric Census in Oregon

The pediatric census level is at 4 as of 9/15. 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 9/13, 4% of occupied ICU beds are filled with COVID patients.

Statewide, the number of available beds increased to 409, which is well below levels in March of 2021.
Oregon Hospital Capacity

Boarding showed a spike in the last 2 weeks reaching 247 patients statewide.
Wastewater Surveillance

In data through 9/6, most regions are showing declines or plateaus with a couple showing increase.

While all cities are below the peak of the BA4/5 wave, they are not as low as the trough after the BA1 wave.

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 remains at 2.6%. The absolute number of ED visits has continued to decline.

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

Test positivity has dropped to 8.0% in the most recent data.

Tests continue to be very low relative to other points in the pandemic.

New Cases in Oregon

Oregon’s cases are slowly but steadily reducing since peaking in early July. At 13.4 per 100k per day, Oregon has the 15th lowest case rate.

Source: https://91-divoc.com/pages/covid-visualization/
Statewide Forecast
Behavior Effects

The most recent data point estimated is back above 0 after several lower estimates.

The low level of transmission prevention is expected to continue.
The forecast shows declining census values over the next 1-2 months.

The minimum of the current decline is expected to be 109 on 11/6/2022.
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.
With higher infection levels continuing the time until the next wave is pushed out slightly.
Death Forecast

The number of deaths per day is expected to remain low over the forecast period.
Ancillary Data
Influenza-Australia

Cases levels of flu were higher than usual. Hospitalizations were more similar to 2019 and less than 2017.

Influenza-South America

No significant spikes in flu. Previous seasons are shown.

### Flu Scenarios

Four different scenarios are considered.

**Key factors:**
- Vaccination coverage: +/−10%
- Vaccine efficacy: 60% vs 30%
- Prior immunity: normal vs 50% low

<table>
<thead>
<tr>
<th>Vaccination Protection</th>
<th>Optimistic flu prior immunity</th>
<th>Pessimistic flu prior immunity</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Vaccination Protection</td>
<td>No impact of missed flu seasons due to the COVID-19 pandemic on prior immunity.*</td>
<td>Substantial impact of missed flu seasons due to the COVID-19 pandemic and/or new variants on prior immunity.*</td>
</tr>
<tr>
<td>- Vaccination coverage is 10% higher than 2020-21 for each age group [p(vacc) = 60% for adults]</td>
<td>Same amount of prior immunity as in a typical, pre-COVID19 pandemic prior season</td>
<td>50% lower immunity than a typical, pre-COVID19 pandemic season</td>
</tr>
<tr>
<td>- VE = 60% against medically attended influenza illnesses and hospitalizations (comparable to 2010-11 season)</td>
<td>Scenario A</td>
<td>Scenario B</td>
</tr>
</tbody>
</table>

| Low Vaccination Protection | | |
|-----------------------------| | |
| - Vaccination coverage is 10% lower than 2020-21 for each age group [p(vacc) = 40% for adults] | | |
| - VE = 30% against medically attended influenza illnesses and hospitalizations (comparable to 2018-19 season) | Scenario C | Scenario D |

*Source: https://github.com/midas-network/flu-scenario-modeling-hub*
Flu Scenarios

This shows the average of two modeling groups (UVA FluXSim and MOBS_NEU-GLEAM_FLU). Other modeling group results are being released and may be incorporated in future briefs.

Traditional Flu Season: A and C
Average of Scenarios: A, B, C, D

Source: https://github.com/midas-network/flu-scenario-modeling-hub
COVID and Flu Forecast

This chart shows the average of A and C scenarios for both modeling groups.

By December, flu is projected to be 3 times larger than current COVID forecast. That is, it is shown to make up approximately 75% of the combined total.

Note: these results have been converted to per capita (per 100k) to align with CDC flu data.

COVID and Flu Forecast

This chart shows the average of all 4 scenarios for both modeling groups.

Over the next 3 weeks the ensemble forecast is showing a flat forecast.

BA5 in Portugal

Portugal has continued to see low levels of cases. Hospitalizations also remain low with continued decline.

Omicron Strains in Oregon

BA5 is still the dominant strain making up nearly all the sequenced samples.

Source: https://public.tableau.com/app/profile/oregon.health.authority.covid.19/viz/GISAIDVariantDashboardUpdated/OregonVariantDashboard
COVID Vaccinations

COVID vaccinations have increased in the last week, after declining for over 4 months, with the release of new bivalent vaccine and change in eligibility for those under age 50.

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

I would like to thank Dr. William Messer 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.