Key Outcomes

Update: The OHSU COVID Forecasting Brief is produced every two weeks. The next brief will be available the week ending Friday, October 28th.
Hospitalized Patients in Oregon

As of 10/12/2022, 248 people are hospitalized with COVID-19 in Oregon.

The level has been relatively flat over the last month.

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 slight increase detected in New England. Other regions appear flat.
Nearly all European countries are experiencing increases in hospitalized patients.

The average of country results shows a return, already, to BA4/5 peak levels.

The pediatric census level is at 9 as of 10/13. There has been a mild increase since beginning of September.

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

As of 10/11, 5% of occupied ICU beds are filled with COVID patients.

Statewide, the number of available beds is 365.

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

In data through 10/4, the levels are mostly flat.

Source: https://public.tableau.com/app/profile/oregon.health.authority.covid.19/viz/OregonsSARS-CoV-2WastewaterMonitoring/WastewaterDashboard
This chart shows the population weighted average of wastewater points around the state of Oregon.

It is expressed as a percentile of each site’s maximum level of virus detected.

The trend through 9/24, the decline has appeared to halt.
The rate of ED visits for COVID is relatively flat from previous weeks at 2.6%. The absolute number of ED visits dropped slightly.

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

Test positivity dropped back to 7.8% in the most recent data.

Testing volume remained flat.

Source: https://public.tableau.com/app/profile/oregon.health.authority.covid.19/viz/OregonCOVID-19TestingandOutcomesbyCounty-SummaryTable/CasesandTestingbyCountySummaryTable
After increasing slightly at beginning of September, overall cases have declined a little since then.

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

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

After generally high transmission prevention during the summer, the projection assume decreased effectiveness in coming months, due to seasonal factors.
The forecast shows increased levels over the next 2 months.

The maximum of the upcoming wave is expected to be 630 on 12/13/2022.
To assist with bed planning, the forecast distinguishes patients creating new demand for beds compared with those that may be part of existing demand. COVID can be an element of a patient’s stay and care needed without creating additional demand for beds.

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 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.
Herd Chart

This chart has been revamped to show the impact of infections, vaccines, boosters, waning immunity and immune evasion.

Note: the apparent non-linearity in the states on 5/1/2022 is due the immune evasion of BA.4/5. As it was modeled as separate strain, the relative impacts are not non-linear.
Immunity Factors

This chart shows the model’s historical and projected levels of various factors changing the immunity in the population.
The forecast is virtually unchanged from previous edition.
The number of deaths per day is expected to increase with the coming wave.
Ancillary Data
Lineage Prevalence

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

Pentagon set of variants have increased slightly. Specifically, BA.4.6, BF.7, and BA.2.75 are shown in the most recent week.

Source: https://public.tableau.com/app/profile/oregon.health.authority.covid.19/viz/GISAIDVariantDashboardUpdated/OregonVariantDashboard
In data through 10/9, the increase in boosters due to the new bivalent booster and increased eligibility has shown to plateau after about one month.

The projection expects a similar reduction from peak as observed during the previous booster round.

COVID in Portugal

Portugal has continued to see low levels of cases and hospitalizations.

The absence of a wave in Portugal but the presence in other countries suggests seasonal factors are more of a factor than waning immunity.

Influenza-Oregon

The first two weeks of data for the 2022-2023 season are reported.

For comparison to a pre-COVID season, the 2018-2019 season is shown.

Influenza rates continue to increase.

Source: https://www.cdc.gov/flu/weekly/index.htm
Respiratory illness is above levels in previous seasons for this part of the year.

Source: https://www.cdc.gov/flu/weekly/index.htm
Hospitalizations continue to increase.

Source: https://www.cdc.gov/flu/weekly/index.htm
The beginning of a wave is just starting for North America.

Interestingly, an off-season wave appears to be forming in Brazil and the Southern Cone.

Report as of 10/6/2022

The beginning of a wave is just starting for North America.

Report as of 10/6/2022
Over the next 3 weeks the ensemble forecast is showing a flat forecast.

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 respiratory virus impacts on waning immunity. I also thank Guang Fan, Xuan Qin and Brian O’Roak, 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!
## Variant Specifications

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