Key Outcomes
Hospitalized Patients

As of 8/24/2021, the statewide census was 1,000.

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

Regions 3, 5, 7 are at extremely high census levels and continue to increase.

Regions 1 and 2 appear to reaching a peak.
Hospital Census by US Region

The South and West are showing accelerating increase.

The Midwest is showing minor increases in hospital census.

The Northeast is showing slight increase at very low levels.

Source: https://carlsonschool.umn.edu/mili-misrc-covid19-tracking-project
As of 8/24, of the 622 occupied ICU beds, 283 (45%) are filled with COVID patients.

Note: the 106% in Region 5 is likely a data reporting error of some kind.

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

This chart shows that while, there are some beds listed as “available”, they are likely not truly available since COVID patients are crowding out Other patients in the last month.

These data are based on HOSCAP reports.
Case rates are showing signs of leveling in the last week.

Oregon ranks 16th in the number of new cases per day.

Several states appear to have reached their Delta surge peak and are beginning to decline.

Source: http://91-divoc.com/pages/covid-visualization/
While cases amongst vaccination have increased, the huge majority are among the unvaccinated.

Admits by Vaccination Status

This charts shows that while cases have gone up for previously vaccinated people the hospitalization count and rate remain very low.

For the most recent week (8/8-8/14) of complete data, the hospitalization rate is 3.7%.

This represents a return to previous rates of hospitalization.

Source: https://public.tableau.com/profile/oregon.health.authority.covid.19#!/vizhome/OregonHealthAuthorityCOVID-19SummaryTable_15889676399110/OregonsEpiCurveSummaryTable
Positivity has been rising for 6 weeks.

The most recent complete week (8/15/21-8/21/2021) had a test positivity of 12.3%.

Testing continues to increase. While tests are equivalent to the fall surge the case count is much higher.

Review of Leading Indicators
Leading Indicators Comparison

Several metrics of activity have begun declining beginning the week of 8/13.

While still above previous pandemic levels, the change may represent changes in behavior to avoid COVID.

Source: SDI from: https://data.covid.umd.edu/
DEX from https://github.com/COVIDExposureIndices/, Google mobility reports from https://www.google.com/covid19/mobility/
Higher Risk Behaviors

There are continued moderate declines in time w/others, restaurant and large events indoors since 8/13.

Note:
- Estimated percentage of respondents who went to an “indoor market, grocery store, or pharmacy” in the past 24 hours.
- Estimated percentage of respondents who went to an indoor “bar, restaurant, or cafe” in the past 24 hours.
- Estimated percentage of respondents who “spent time indoors with someone who isn’t currently staying with you” in the past 24 hours.
- Estimated percentage of respondents who “attended an indoor event with more than 10 people” in the past 24 hours.

Source: https://covidcast.cmu.edu/
As of 8/23, mask wearing has increased to 75%.

While it is a large increase, this rate is still below 80% which is the minimum necessary to impact transmission. Additionally, mask wearing by unvaccinated is unknown.

Note:
Estimated percentage of people who wore a mask for most or all of the time while in public in the past 7 days; those not in public in the past 7 days are not counted.

Source: https://covidcast.cmu.edu/
Symptoms continue to show a sharp increase. The level is slightly above previous peak and is consistent with widespread transmission. Also, if these were much higher than the relative case level it would be indication of greater untested infection than usual.

“Symptoms” refer to community reports of COVID-like symptoms through Facebook surveys.

Source: https://covidcast.cmu.edu/
Statewide Forecast
“Fast” scenario assumes some increased vaccine rates due to attention from current surge. It also assume 5-11 become eligible in late fall.

“Slow” scenario show previous pattern of declining vaccine providing little boost to immunity levels.

The fast uptick in delta variant is shown by a kink in the overall R0 of circulating virus.

The “Fast” scenario assumes delta variant has an R0 of 8.0.

The “Slow” scenario has been removed as the virus has been growing at rate consistent with the faster R0.

Note: There are some published studies showing lower R0, it is possible the higher one estimated empirically in Oregon is due to clustering of susceptible people or changes in recovery period.

Source: Actuals from https://outbreak.info/location-reports?loc=USA_US-OR, Projections by Simulation by OHSU
“Recent” Scenario represents maintaining our current performance. “Moderated” shows what happens with a lower amount of intervention effectiveness.

Note: The fear and fatigue cycle is shifted upwards to account for the increased transmissibility of the virus.
Census Forecast-Primary Scenario

The forecast shows a peak census level of 1,197 on 9/6.
The impact of the mask mandate or other behavior and policy changes has not been included in the primary scenario.
The primary scenario is
• “Moderated” intervention effect
• Fast Variant (Delta R₀=8.0)
• Fast Vaccine

Source: OHSU COVID Forecast Model
Census Forecast-Alternative Scenarios

Scenarios:
Variant
a) Fast (ie. Delta $R_0=8.0$)

Policy/Behavior:
  a) Moderated effectiveness level
  b) Recent effectiveness level

Vaccine:
  a) Fast (quicker distribution)
  b) Slow (slower distribution)

Vaccine Efficacy to Hospitalization
  a) 95%
  b) 90%

Note: due to similarity between Fast and Slow Vaccine results slow can be seen only in the tails.
Previous Forecasts

Previous forecasts can help assess accuracy of the model.
As of 8/25, the estimated population proportions are:
Susceptible: 18%
Vaccinated: 47%
Infected: 28%
Vaccinated & Infected: 7%

Projection uses primary scenario.

Source: OHSU COVID Forecast Model
Local Forecasts
Region 5 Forecast

This forecast uses specific vaccination data for the region.

Model: The OHSU state hospital census forecast is an SIR model that includes traditional assumptions about first transmission (2/1/2020), doubling rate (5 days), days from exposure to admissions (12 days), length of stay (8 days, 13 days for ICU), and recovery period (14 days). It has an innovative feature which is that it includes a factor that moderates transmission rates which is called policy effectiveness. The factor is estimated historically for key policy dates and/or weekly intervals. It also allows future policies to be projected.

Source: OHSU COVID Forecast Model
Policy Issues
Vaccination Rates

Oregon has given a first dose to 63.1% of population (not just eligible).

This rate ranks 19th in the US.

Source: https://covid.cdc.gov/covid-data-tracker/#vaccinations
Community Impacts

Compared to last week the age-adjusted hospitalization rates have decreased for all non-white groups. This is consistent with the current surge impacting white populations to a larger extent than non-white.

Appendix
The most recent forecast was issued on 8/19.

The model shows continued dramatic increases to levels 3 times higher than previous surges.

Figure 6: Observed hospitalized cases for Oregon and projection scenario. Black dots show observed daily counts, while the grey line shows model fit. The red line shows hospitalizations projected if the transmission rate estimated for the week ending August 4 persists. Shaded areas: 2.5th-97.5th percentile ranges.
CDC Forecast-Ensemble

CDC forecasts show an upcoming peak.

Source: https://covid.cdc.gov/covid-data-tracker/#forecasting_weeklycases
As of 8/19, the IHME model shows an upcoming peak.

Projections and scenarios We produce three scenarios when projecting COVID-19. The reference scenario is our forecast of what we think is most likely to happen:

- Vaccines are distributed at the expected pace.
- Governments adapt their response by re-imposing social distancing mandates for 6 weeks whenever daily deaths reach 8 per million, unless a location has already spent at least 7 of the last 14 days with daily deaths above this rate and not yet re-imposed social distancing mandates. In this case, the scenario assumes that mandates are re-imposed when daily deaths reach 15 per million.
- Variants B.1.1.7 (first identified in the UK), B.1.351 (first identified in South Africa), and P1 (first identified in Brazil) continue to spread from locations with (a) more than 5 sequenced variants, and (b) reports of community transmission, to adjacent locations following the speed of variant scale-up observed in the regions of the United Kingdom. The worse scenario modifies the reference scenario assumptions in two ways:
  - First, it assumes that variants B.1.351 or P.1 begin to spread within three weeks in adjacent locations that do not already have B.1.351 or P.1 community transmission.
  - Second, it assumes that all those vaccinated increase their mobility toward pre-COVID-19 levels. The universal masks scenario makes all the same assumptions as the reference scenario but also assumes 95% of the population wear masks in public in every location.

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