December 25, 2020

KEY TAKEAWAYS

- Virginians appear to be adjusting demand for testing around the holidays causing abrupt shifts in case data
  - Cases surged prior to Thanksgiving, paused over the holiday, surged again after, and have paused again (see page 3)
  - Abrupt shifts in data lead to abrupt shifts in model projections, making interpretation of case and model data challenging
  - This will likely continue into early January
  - This week's projections are significantly lower than last weeks, however, this may be short term reflection of holiday data shifts
- Test positivity is consistently above 10%, indicating that some cases are likely being missed
- Activities over the holidays will largely dictate the course of the pandemic early in 2021.

47,125

Expected Peak Weekly Cases
Week Ending Feb 7, 2021

Total Cases Expected in:

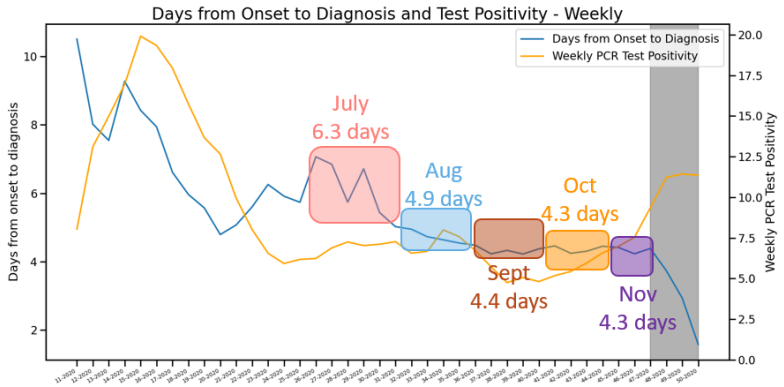
Dec: 94,000
Jan: 194,000
Feb: 183,000
Mar: 125,000

KEY FIGURES

Reproduction Rate
(Based on Confirmation Date)

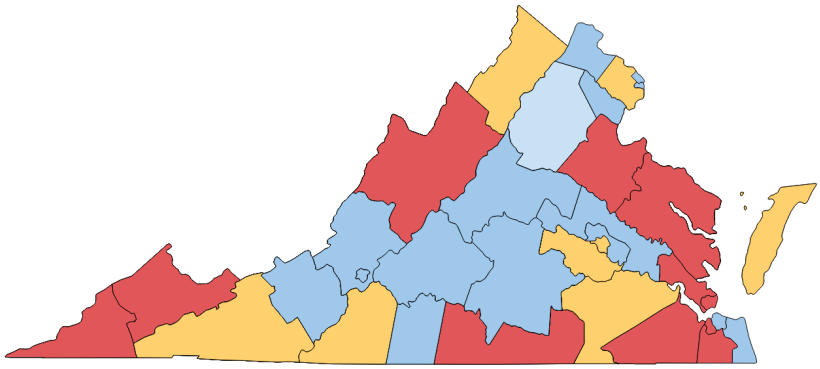
Region	R_e Dec 20	Weekly Change
State-wide	**0.924**	**-0.470**
Central	0.918	-0.214
Eastern	1.139	-0.248
Far SW	0.945	-0.258
Near SW	0.848	-0.537
Northern	0.821	-0.436
Northwest	0.972	-0.250

Case Detection



Growth Trajectories: 9 Health Districts in Surge

Status	# Districts (prev week)
Declining	12 (2)
Plateau	3 (1)
Slow Growth	11 (7)
In Surge	9 (25)



UVA COVID-19 MODEL WEEKLY UPDATE

THE MODEL

The UVA COVID-19 Model and the weekly results are provided by the UVA Biocomplexity Institute, which has over 20 years of experience crafting and analyzing infectious disease models. It is a (S)usceptible, (E)xposed, (I)nfected, (R)ecovered epidemiologic model designed to evaluate policy options and provide projections of future cases based on the current course of the pandemic.

COVID-19 is a novel virus causing an unprecedented global pandemic and response. The model improves as we learn more about it.

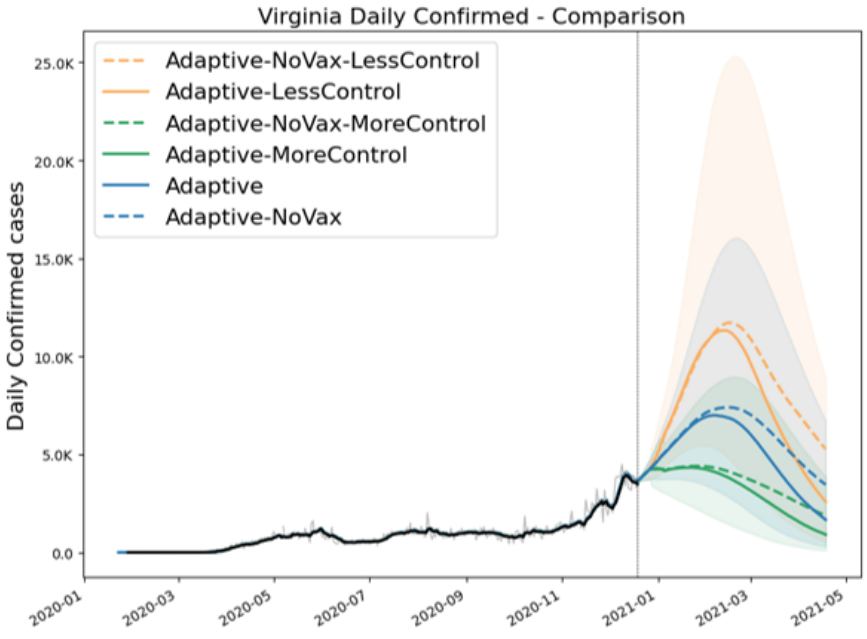
THE PROJECTIONS

The UVA team continues to improve the model weekly. The UVA model uses an "adaptive fitting" methodology, where the model precisely traces past and current trends and uses that information to predict future cases at the local level. This week, the model incorporates preliminary projections on the impact of vaccines. Projections incorporating vaccines will improve over time. Several scenarios are included, including counterfactual "no vaccine" scenarios and scenarios showing either more or less non-vaccine control of transmission, including behavioral and policy changes.

Less control of seasonal effects: 15% increase in transmission starting December 24, 2020
More control of seasonal effects: 15% decrease in transmission starting December 24, 2020

MODEL RESULTS

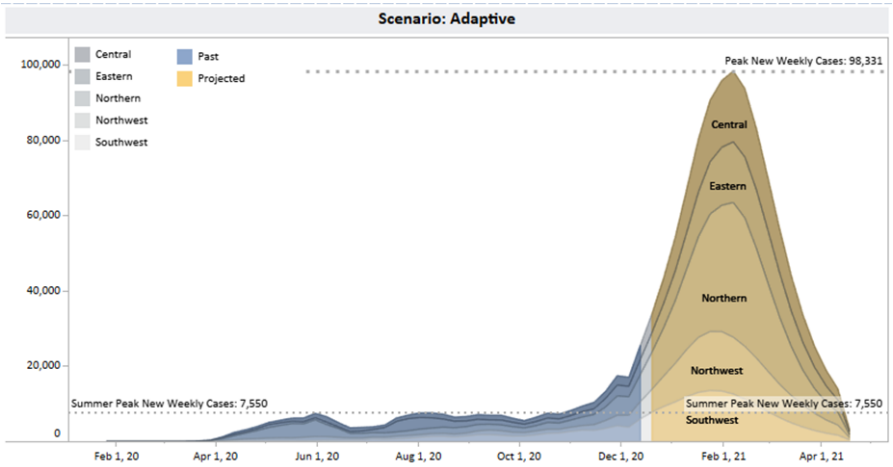
This week's model incorporated preliminary information on the effect of vaccines, along with several counterfactual scenarios. The adaptive model shows weekly cases peaking at over 47,000 during the week ending February 7. Over the course of the model projections, behavioral and community mitigation strategies have a far higher impact on case numbers than the vaccine. Under the less control scenario, new weekly cases peak at over 76,000. However, with more control, cases peak at 629,000 per week in late January. On December 10, Governor Northam announced new mitigation measures to slow COVID-19 spread, complementing the guidance in the Forward Virginia plan. Virginia's health is in our hands. Do your part to stop the spread.



The solid lines show scenarios with the potential impact of the vaccine included, while the dashed lines show the same scenarios without. Regardless of the scenario, the vaccine will have only a limited impact with the projection period. Behavioral and community mitigation strategies will have a much larger impact, as shown in the "less control" and "more control" scenarios.

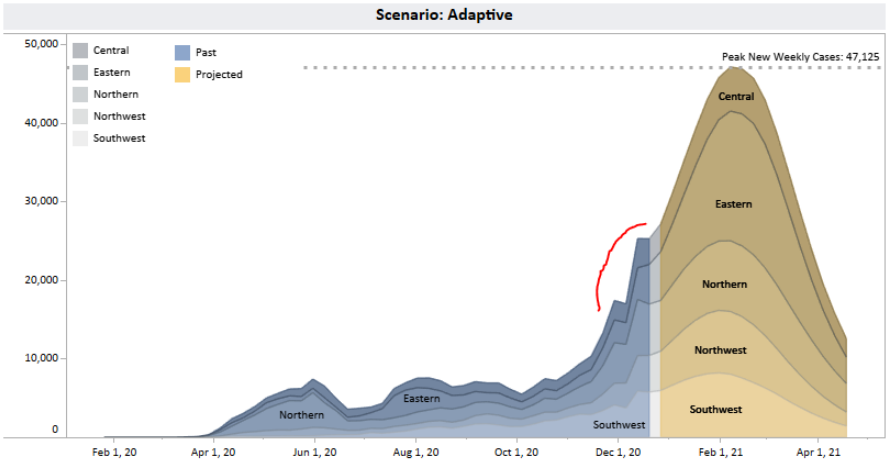
INTERPRETING HOLIDAY DATA

A few weeks ago, this report discussed how the holidays are affecting COVID-19 case data. The data around the holidays continues to shift abruptly, affecting interpretation and the UVA COVID-19 model projections. Cases in Virginia surged prior to Thanksgiving, paused over Thanksgiving weekend, and surged again immediately afterward. Model projections last week were built using data covering these two surge periods, with one pause period, leading to high case projections into the early parts of 2021. The case growth rate, along with projected peaks were high as a result.



UVA COVID-19 Model projections published last week included two surge periods and one pause in cases over Thanksgiving. The pause was likely due to shifts in testing around the holiday.

Current Projections



UVA COVID-19 Model projections published this week included the latest pause period, along with previous surge and pause periods. The latest pause is more difficult to interpret than the one that occurred over Thanksgiving weekend.

The post-Thanksgiving surge was itself followed by a pause in case growth. This may indicate a real pause in case growth. Secondary infections from Thanksgiving gatherings may be limited. For instance, rather than a single member of a household contracting COVID-19, and then spreading it to other family members later, all household members were infected at once. However, it could simply indicate that Virginians are shifting demand for testing around the holidays, leading to unique patterns in the case data. The test positivity rate remains high, suggesting that case growth is continuing despite the pause. Regardless of the cause, this week's projections were built on data that include both periods of reduced case growth.

Interpreting the Data and the Model Projections

Exactly as discussed two weeks ago, the data and projections may be hazy, but still offer insight into the course of COVID-19, providing the best guideposts available to plan for the future. Importantly, the Virginia Department of Health, along with state, federal, and private sector partners such as the Virginia Hospital and Health Care Association, collect and report on a wide variety of indicators. When one gets hazy, others can fill the gap much like the testing data discussed above. Public health officials are also in contact with health systems and providers on the ground, providing another check on the data. Taken together, the outline is clear. COVID-19 is surging nationally and in Virginia. We all must take additional steps to slow the spread. Virginia's health is in our hands.