

January 8, 2020

KEY TAKEAWAYS

- The holidays are still affecting testing and case data and projections
 - Cases surged prior to Thanksgiving, paused over the holiday, surged again after, and have paused again (see page 3)
 - Data will not fully reflect the holiday impact until next week, and projections are difficult to interpret in the interim
 - This week's projections reflect a pause in case growth over the holidays but this may be temporary.
- Test positivity is above 15%, indicating that some cases are likely being missed
- Projections include preliminary estimates of the affect of vaccine deployment. The impact is limited early in 2021.

38,930
 Expected Peak Weekly Cases
 Week Ending Feb 14, 2021

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Total Cases Expected in:

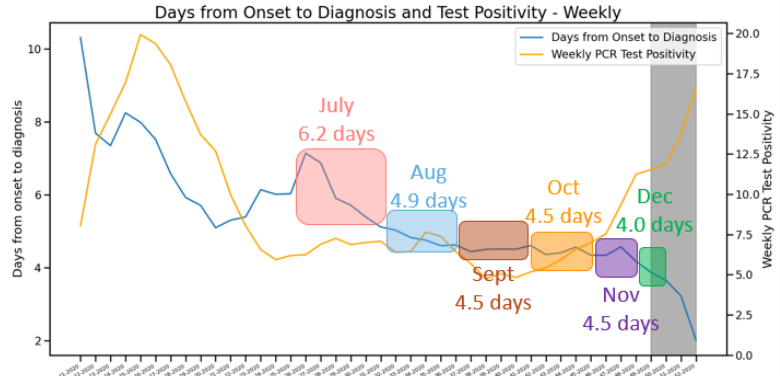
Dec: 94,000
Jan: 161,000
Feb: 152,000
Mar: 115,000

KEY FIGURES

Reproduction Rate (Based on Confirmation Date)

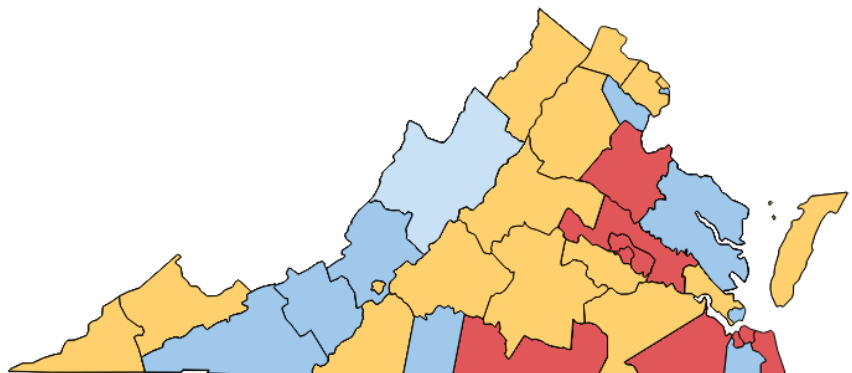
Region	R _e Jan 4	Weekly Change
State-wide	1.159	0.127
Central	1.300	0.235
Eastern	1.185	0.202
Far SW	1.137	0.220
Near SW	1.125	0.155
Northern	1.083	-0.045
Northwest	1.186	0.201

Case Detection



Growth Trajectories: 9 Health Districts in Surge

Status	# Districts (prev week)
Declining	10 (12)
Plateau	3 (4)
Slow Growth	13 (9)
In Surge	9 (10)



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)nfectious, (R)ecovered epidemiologic model designed to evaluate policy options and provide projections of future cases based on the current course of the pandemic.

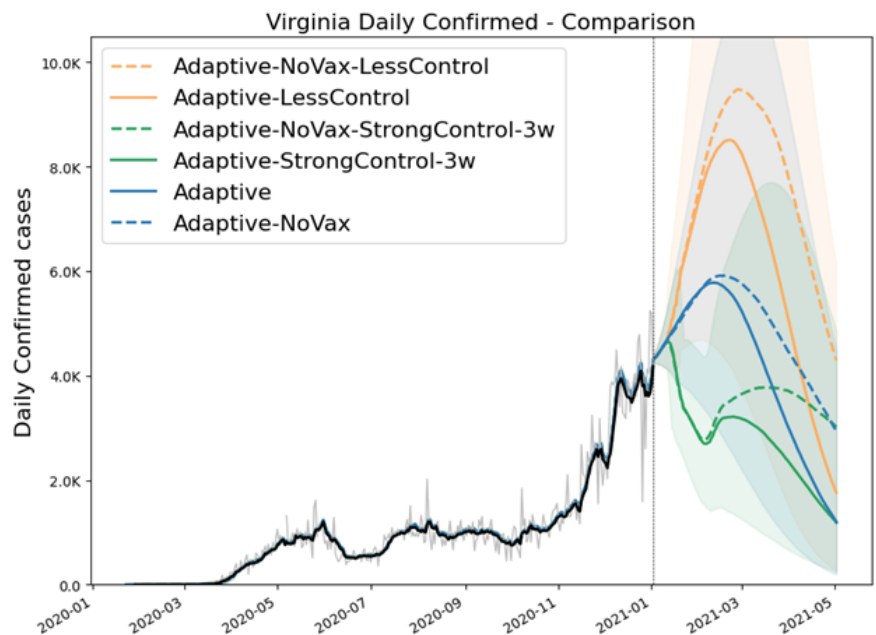
COVID-19 is a novel virus causing an unprecedented global pandemic and response. The model improves as we learn more about it.

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. The new model also includes two "what-if" or planning scenarios. The "Strong Control - 3 Week" scenario projects what may occur from a strong, three week, effort to suppress the spread of the virus. The "Less Control" scenario projects a 15% increase in spread.

MODEL RESULTS

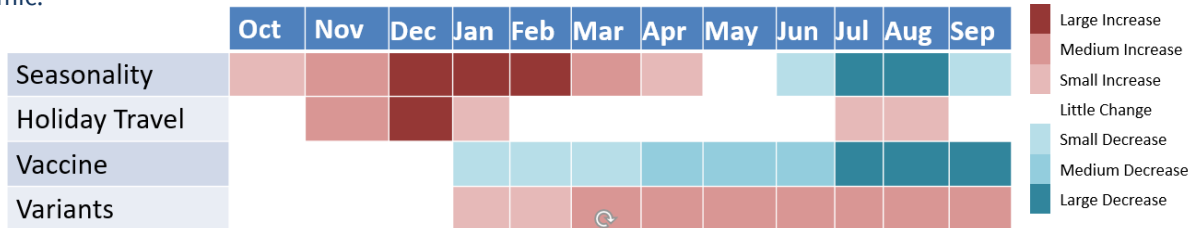
This week's model incorporated preliminary information on the effect of vaccines, along with several counterfactual scenarios. The adaptive model shows weekly cases peaking at over 38,000 during the week ending February 14. Over the course of the model projections, behavioral and community mitigation strategies have a far higher impact on case numbers than the vaccine. Under the less control scenario, new weekly cases peak at over 57,000. However, with more control, cases peak at 30,000 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.

PROJECTING COVID-19 IN 2021

The first COVID-19 cases were reported almost ten months ago in March, 2020. The team at the UVA Biocomplexity Institute began providing projections a month later, in April 2020. Over the ensuing nine months, we have learned much about COVID-19 and the UVA team has made significant improvements to the model. Despite this, projecting the course of the COVID-19 pandemic remains challenging. Even as we enter 2021, projections are still affected by data anomalies from the holidays. A new COVID-19 variant, termed the B.1.1.7 variant, first identified in the United Kingdom, has been sequenced in several states. Finally, vaccines are being administered throughout the US, signaling the beginning of the end of the COVID-19 pandemic.



Partners at RAND Corporation identified four factors that could effect COVID-19 growth rates and the likely timing. All four factors are expected to impact case growth in January 2021, including the potential to see early impacts from vaccine distribution and the new COVID-19 variant.

Vaccine Deployment

So far, the [US Food and Drug Administration](#) has authorized two COVID-19 vaccines for emergency use, while several more are [in development](#). Vaccine deployment at this scale is complex. Early hopes that 20 million doses would be administered in 2020 [fell short](#), but early wrinkles will likely be ironed out over the next several weeks. The [phased rollout](#) targeting healthcare providers, vulnerable populations, and frontline and essential workers adds additional complexities. As more people receive the vaccine transmission rates should decline. According to [surveys](#), most Americans will get the vaccine once it is available. Some, however, may refuse the vaccine, which could extend the length of the pandemic or cause local outbreaks. The speed of deployment, the impact of the phased rollout, and the potential for holdouts all complicate projections.

New Variants

So far, [52 cases in five states](#) have been linked to the B.1.1.7 variant. This variant is more contagious but does not appear to increase risk of severe disease or death. [Early studies](#) estimate this variant increases the reproduction rate of COVID-19 by 40 to 80 percent. Other "variants of concern" have also [emerged](#), including one first identified in South Africa that also appears to more contagious.

What It Means

Over the next several weeks prevention efforts will have a much larger impact than vaccines or new variants. However, the race between vaccines and new variants will become increasingly important. The model will continue to incorporate new data, improving projections in this new environment.

