

February 12, 2021

KEY TAKEAWAYS

- Cases are declining statewide, with 33 of 35 health districts in a declining trajectory. Nonetheless, rates remain high. Current case rates are similar to those seen in December 2020.
- The majority of model projection scenarios predict we are past the peak. Only the "Adaptive, Fatigue Control with Variant" scenario predicts another peak later this year.
- Mean weekly incidence in Virginia has declined to 39 per 100k, a decrease from last week but above the national incidence of 29 per 100k.

68 per 100k

Peak Average Daily Cases
 Week Ending Jan 24, 2021

42 per 100k

Current Average Daily Cases
 Week Ending Feb 7, 2021

66 per 100k

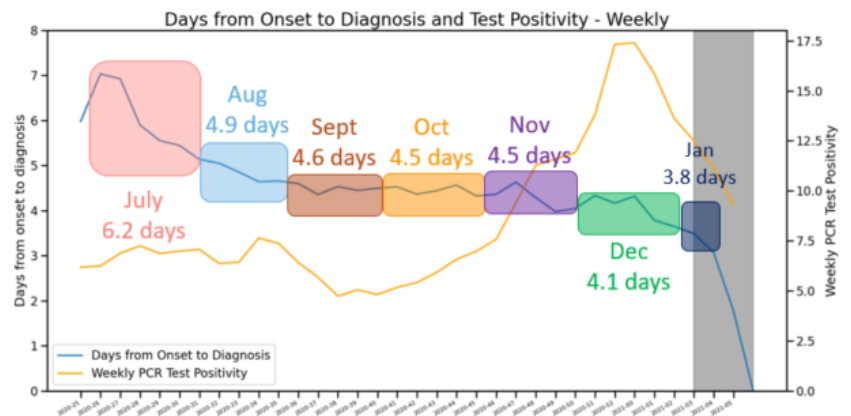
Potential Peak Average Daily Cases,
 Week Ending May 30, 2021 w/ New Variants &
 Pandemic Fatigue

KEY FIGURES

Reproduction Rate (Based on Confirmation Date)

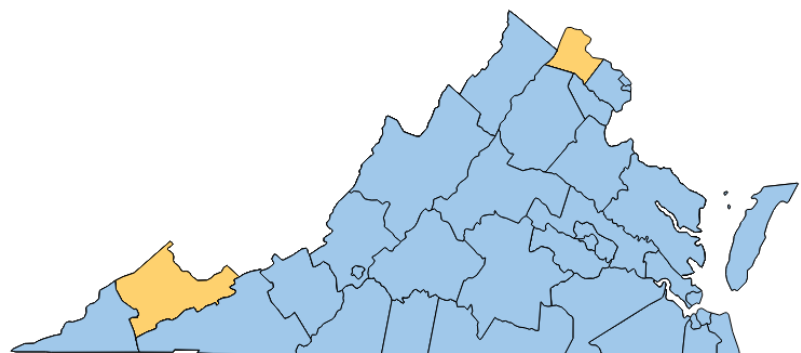
Region	R _e Feb 7	Weekly Change
State-wide	0.780	-0.162
Central	0.816	-0.148
Eastern	0.786	-0.080
Far SW	0.739	-0.082
Near SW	0.789	-0.163
Northern	0.768	-0.256
Northwest	0.738	-0.161

Case Detection



Growth Trajectories: 0 Health Districts in Surge

Status	# Districts (prev week)
Declining	33 (29)
Plateau	0 (1)
Slow Growth	2 (4)
In Surge	0 (1)



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.

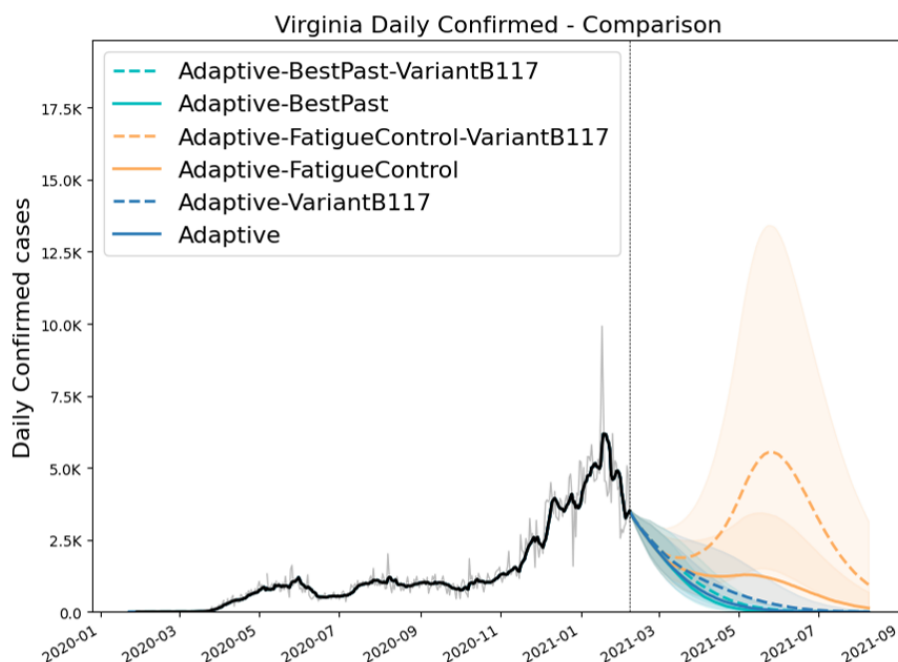
COVID-19 is a novel virus causing an unprecedented global pandemic and response. The model improves as we learn more about it.

THE PROJECTIONS

The UVA team continues to improve the model weekly. The UVA model uses an "adaptive fitting" methodology, where the model 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. The model also includes three "what-if" or planning scenarios. The "Best Past Control" scenario projects what may occur if localities match the lowest rates of transmission seen earlier in the summer. This scenario also includes an optimistic vaccine rollout scenario, meeting public targets. The "Fatigued Control" scenario does the opposite, projecting the highest transmission rates forward and using a pessimistic vaccine rollout scenario. The "New Variants" scenario projects the potential impact of new variants, including a 40% increase in transmission, with new variants gradually becoming dominant in late March.

MODEL RESULTS

The model results are encouraging again this week. All model scenarios show that weekly cases have already peaked at just over 68 average daily cases per 100K residents during the week ending January 24th. However, if Virginians relax their behavior as new variants take hold, we could face another near-peak in the spring, with cases nearly as high as January 2021. Under the Fatigued Control, Variant B.1.1.7 scenario, cases would reach 66 average daily cases per 100k the week ending May 30th. To avoid high peaks, we must give vaccines time to have an impact, especially as new variants become more prevalent across the nation. **Do your part to stop the spread. Continue to practice good prevention and get vaccinated when eligible.**



WHERE WE STAND

Things are looking up. [Cases are dropping](#) at their fastest rate since the pandemic began. [Vaccine uptake is increasing](#). [Hospitalizations](#) and [deaths](#) are on a decline. While the situation looks promising, the model provides fair warning: we could reach another peak just as high as the one we saw this January if we relax our behavior.

Last week's Super Bowl brought opportunities for loosening of public health recommendations. While the snow in some parts of the state kept some people home with just their families, Super Bowl Sunday is historically a popular date for large gatherings. It is too soon to see the impact of these gatherings on case rates, but next week's numbers will show whether Super Bowl events led to another holiday surge.



HERD IMMUNITY: WHAT IS IT AND CAN WE GET THERE?

Humans keep viruses alive. Viruses are transmitted person to person; they cannot survive long outside the body. You may have heard the term “herd immunity” as a goal to eradicate the pandemic. Herd immunity occurs when enough people are immune to a virus that it can no longer find a host, and the virus dies out. Immunity develops from prior infection or through immunization.

The percentage of the population that must be immune to achieve herd immunity varies by disease. Estimates suggest that 75-90% of the population must be immune to COVID-19 to achieve herd immunity. Before a vaccine, this meant 75-90% of people must be infected with the virus – not a goal we'd hope to achieve. Now that a vaccine is available, herd immunity looks different.

We can achieve herd immunity most quickly and most efficiently, and with less illness and death, through widespread and effective vaccination. Whether this is an achievable goal is still unknown.

Important Considerations

We do not yet know how long immunity lasts. COVID-19 is a novel coronavirus, meaning it is new and we are learning about the virus as the pandemic progresses. [We do not have enough evidence on how or when re-infection may occur.](#) Some diseases, like tetanus, require booster doses over time. Others, like the seasonal flu, require updated vaccinations as new strains emerge.

This leads to a second important consideration. **Variants may disrupt immune effectiveness.** If, or when, variants predominate, the outlook could change. [Estimates suggest variants could dominate by mid to late March.](#) Which of the emerging variants predominates (B.1.1.7 vs. B.1351) could dictate their overall impact. Research is ongoing to measure the effectiveness of vaccines against variants.

Pockets of unvaccinated can impact immunity. Like the trend in cases, vaccine rates are unequal throughout the state. Concerningly, [key populations at high risk for disease also face lower rates of vaccination.](#)

The Numbers

About 8.5 million people live in the state of Virginia. To achieve 80% immunity, over **6.5 million Virginians** must be immune to the virus. However, according to some estimates, even this may not be enough to achieve herd immunity.

Researchers of a recent seroprevalence study estimated that [2.4% of Virginians were infected as of August 2020.](#) The CDC estimates that [5.7% of Virginians, or about 480,000 people, were infected as of December.](#)

The vaccine is recommended regardless of prior infection. To date, over 946,000 Virginians received at least one vaccine dose and 245,000 are fully vaccinated. While this is a great start, **we still have a long way to go to achieve adequate immunity** and must not become complacent.

DO YOUR PART

- Get the vaccine when you are eligible.
- Continue practicing public health precaution, such as wearing a mask, maintaining proper social distancing, and handwashing.