

April 30th, 2021

KEY TAKEAWAYS

- Transmission rates are below 1.0 in all areas of Virginia, and 22 of 35 health districts have declining trajectories.
- Vaccination rates and vaccine acceptance vary widely by region. Some regions are likely to reach community immunity levels in the next few months, while others may take much longer.
- There is growing uncertainty in short term forecasts, indicating that variants and pandemic fatigue continue to pose significant risk.

17 per 100k

Average Daily Cases
 Week Ending April 25, 2021

77 per 100k

Potential Peak Average Daily Cases, Week Ending July 25, 2021 with B.1.1.7 Variant & Pandemic Fatigue

13 per 100k

2020 Summer Peak
 Week Ending Aug 2, 2020

68 per 100k

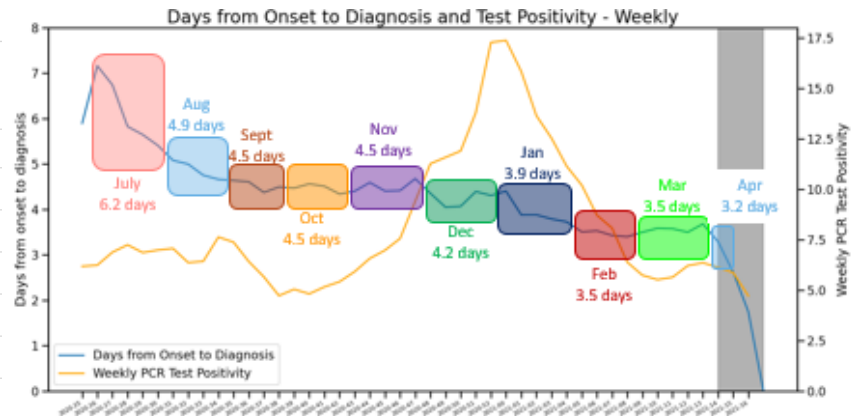
Highest Peak Average Daily Cases
 Week Ending Jan 24, 2021

KEY FIGURES

Reproduction Rate (Based on Confirmation Date)

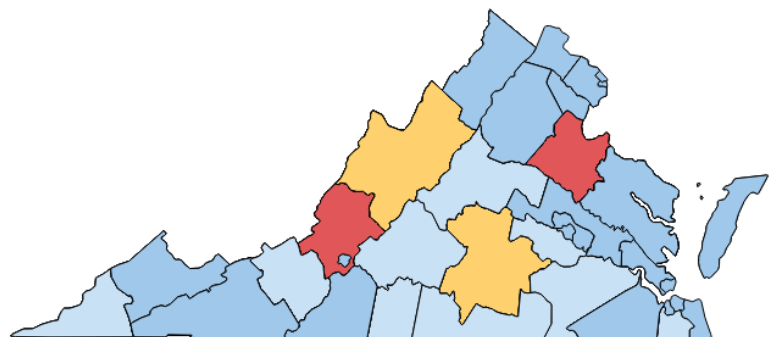
Region	R _e Apr 26	Weekly Change
State-wide	0.779	-0.156
Central	0.788	-0.185
Eastern	0.816	-0.129
Far SW	0.816	-0.143
Near SW	0.800	-0.221
Northern	0.779	-0.110
Northwest	0.854	-0.121

Case Detection



Growth Trajectories: 2 Health Districts in Surge

Status	# Districts (prev week)
Declining	22 (9)
Plateau	9 (18)
Slow Growth	2 (7)
In Surge	2 (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.

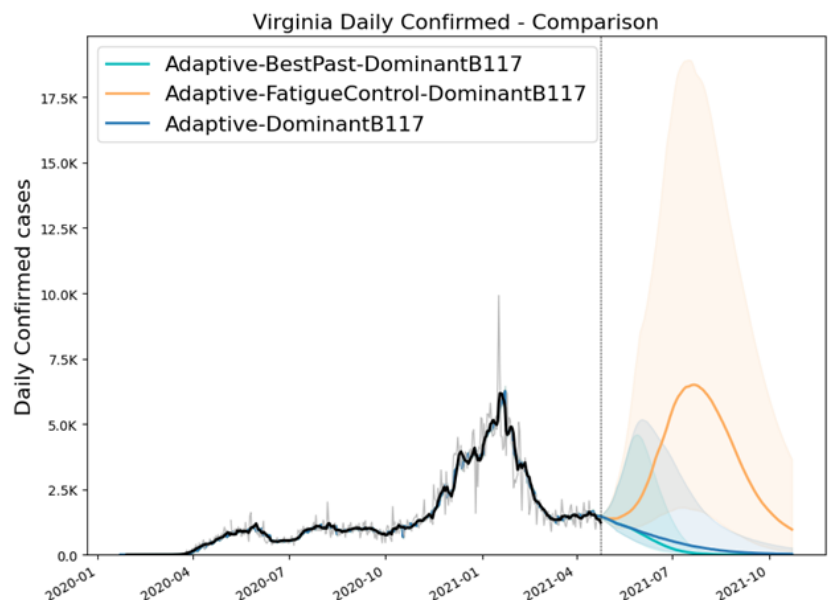
COVID-19 is a novel virus causing a global pandemic and response. The model improves as we learn more about it.

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. The model incorporates projections on the impact of vaccines, which will improve over time. Since the B.1.1.7 Variant has become dominant, the model includes increased transmission and severity associated with this Variant of Concern. The model also includes "what-if" or planning scenarios. The "Fatigued Control" scenario identifies the highest transmission rates seen during summer 2020 and projects those forward. The "Best Past" scenario does the opposite, identifying the lowest transmission rates seen since May 2020, projecting them forward.

MODEL RESULTS

With the B.1.1.7 variant becoming predominant, the model shows a continued decline in new weekly cases along the current course, but warns of a surge in cases that could occur if Virginians relax precautions. Under the current course, model scenarios show that cases peaked at **68 average daily cases** per 100,000 residents during the week ending **January 24th**. However, under the Fatigued Control - Dominant B.1.1.7 scenario, if Virginians relax their behavior as Variants of Concern take hold, cases will reach a higher peak with **77 average daily cases** per 100,000 the week ending **July 25th**. To lessen the projected peak, we must give vaccines time to have an impact, especially as the B.1.1.7 variant is the predominant strain in Virginia. **Do your part to stop the spread. Continue to practice good prevention and get vaccinated when eligible.**

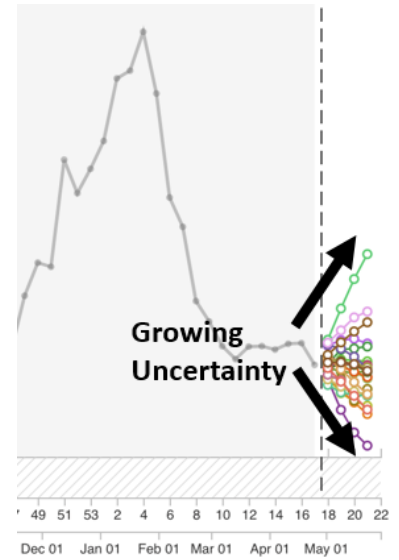


KEY FIGURES

Over the past several weeks, public health and infectious disease experts have been discussing the race between variants and vaccines. While this is an easy shorthand, it is also somewhat deceiving. With effective prevention, we have the power to slow the spread of the virus, which limits the ability of variants to proliferate. Thus, it has always been a race between pandemic fatigue and vaccines. The model has consistently shown that with effective prevention, variants may have limited impact. But with pandemic fatigue, variants could push us back into crisis mode. For the past several weeks it has been unclear which side was ahead. This week, at least, it looks like our continued vigilance is giving vaccines an edge.

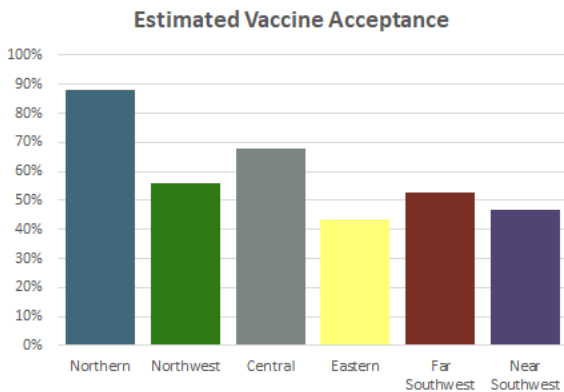
Uncertainty Remains

Despite this, vaccines still need our help to win the race against COVID-19 and its variants. There is increasing evidence that supply constraints are no longer slowing vaccines in its race against variants. Rather, demand is. Even with just 44% of Virginians vaccinated, and eligibility open to every Virginian age 16 and over, we are beginning to see appointments unfilled, and doses left on shelves. Like the race against variants, terms like vaccine hesitancy mask a simple truth: we can only win this race if we choose to. Vaccines do not work unless people take them.



Short-term forecasts show growing uncertainty in the direction of the pandemic. Source: RAND and COVID-19 Forecast Hub.

The Limits of Herd Immunity



As COVID-19 vaccination has progressed, many people have discussed the concept of herd immunity, often referring to statewide or national vaccination rates from 75 to 90%. However, community immunity, a synonym for herd immunity, may better reflect how the concept works. This emphasizes the fact that herd immunity is local. Some communities may achieve it and safely return to normal, while others are still ravaged by COVID-19. Data on vaccine hesitancy is still sparse. However, the UVA Biocomplexity Institute has developed regional estimates for Virginia using currently available sources. It shows wide regional variation in vaccine acceptance.

Community Immunity

If this persists, it will have an impact on community immunity. Combining current vaccine uptake rates and vaccine acceptance levels, the UVA Biocomplexity has modeled the expected share of the adult population with some protection from COVID-19. In this model, Northern Virginia could reach community immunity in June or July. Other regions may not reach it this year. The Virginia Department of Health and partners are working on getting the vaccine to more communities, including accelerating outreach efforts and mobile clinics. Ultimately, however, vaccines can only win this race if we choose to take them. Virginia's health is in our hands.

