# UVA COVID-19 MODEL WEEKLY UPDATE



*July 30th, 2021*

## KEY TAKEAWAYS

- The Delta variant is dominant in Virginia, driving an increase in cases. All areas of Virginia are seeing case growth, with 10 of 35 Health Districts experiencing surges.
- Model projections indicate that, along current trajectories, cases could exceed last January's peak.
- Evidence is building that the Delta variant causes more severe disease, adding to the threat posed by its increased transmissibility.
- Vaccines are our best defense against the Delta variant, drastically reducing the risk of infection and severe disease.

**8 per 100k**
*Average Daily Cases*
*Week Ending July 11, 2021*

**103 per 100k**
*Potential Peak Average Delta Variant Scenario Daily Cases, Week Ending September 12, 2021*

**5,761**
*Average Daily 1st Doses*
*July 18, 2021*

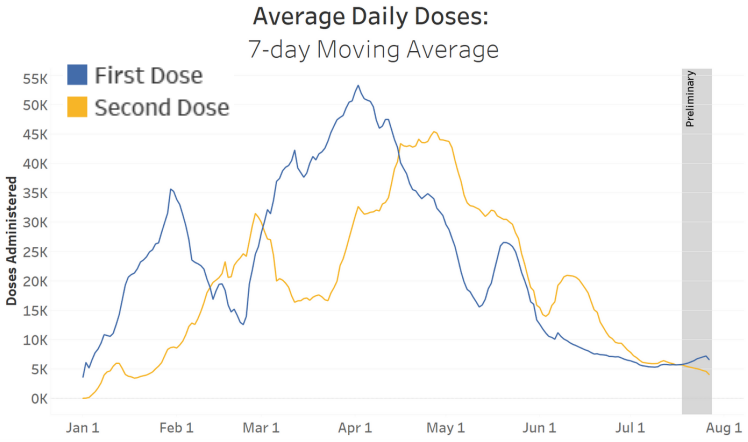
**5,695**
*Average Daily 2nd Doses*
*July 18, 2021*

## KEY FIGURES

### Reproduction Rate
**(Based on Confirmation Date)**

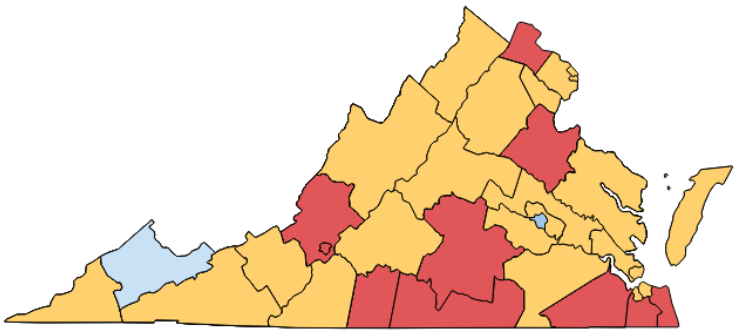
| Region | $R_e$ July 26th | Weekly Change |
|---|---|---|
| **Statewide** | **1.193** | **0.018** |
| Central | 1.231 | 0.125 |
| Eastern | 1.191 | 0.024 |
| Far SW | 1.209 | 0.220 |
| Near SW | 1.180 | -0.067 |
| Northern | 1.194 | -0.008 |
| Northwest | 1.126 | -0.041 |

### Vaccine Administrations




### Growth Trajectories: 10 Health Districts in Surge

| Status | # Districts (prev week) |
|---|---|
| Declining | 1 (3) |
| Plateau | 1 (19) |
| Slow Growth | 23 (12) |
| In Surge | 10 (1) |



UNIVERSITY of VIRGINIA
BIOCOMPLEXITY INSTITUTE

# UVA COVID-19 MODEL WEEKLY UPDATE

VDH VIRGINIA DEPARTMENT OF HEALTH

## 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 epidemiological model designed to evaluate policy options and provide projections of future cases based on the current course of the pandemic. The Institute is also able to model alternative scenarios to estimate the impact of changing health behaviors and state policy.

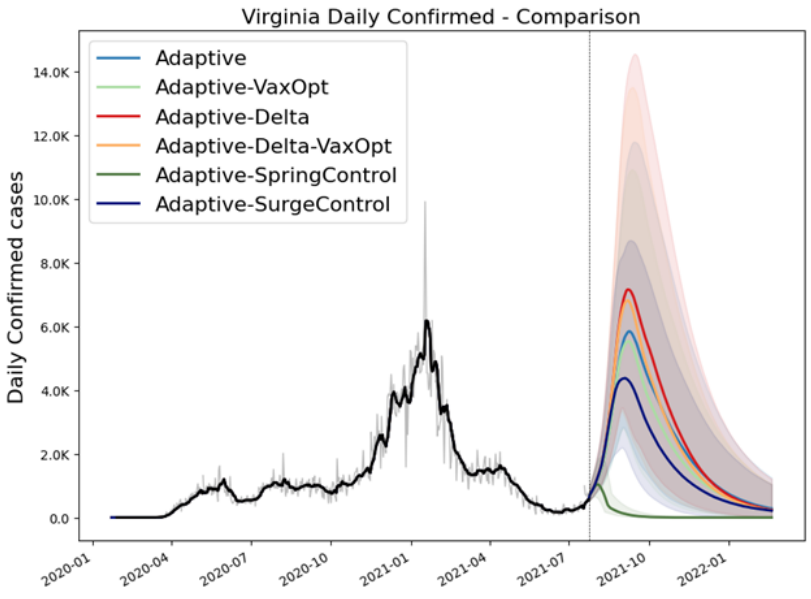
***COVID-19 is a novel virus, and the variant mix changes constantly. The model improves as we learn more.***

## THE PROJECTIONS

The UVA team continues to improve the model. 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. Since the Delta (B.1.617.2) variant has now become dominant in Virginia, the model includes increased transmission and severity associated with this Variant of Concern. The "Delta" scenarios adds the known effects of the Delta Variant of Concern to transmission rates. The model incorporates projections on the impact of vaccines, including current vaccinations and the stalled rate of vaccine uptake.

## MODEL RESULTS

With the Delta virus becoming dominant, the model estimates cases will return to growth through the fall, reaching levels not seen since April in mid-September. Vaccination rates are still below herd immunity levels and, with many Virginians returning to normal, the virus has room to run. If the Delta variant continues to spread, cases could peak at **103 average daily cases per 100,000 in mid September**. To lessen the projected peak, we must give vaccines time to have an impact. If vaccination rates pick up, the model estimates that over 60,000 cases could be avoided. **Do your part to stop the spread. Continue to practice good prevention and get vaccinated when eligible.**



# DELTA IS HERE

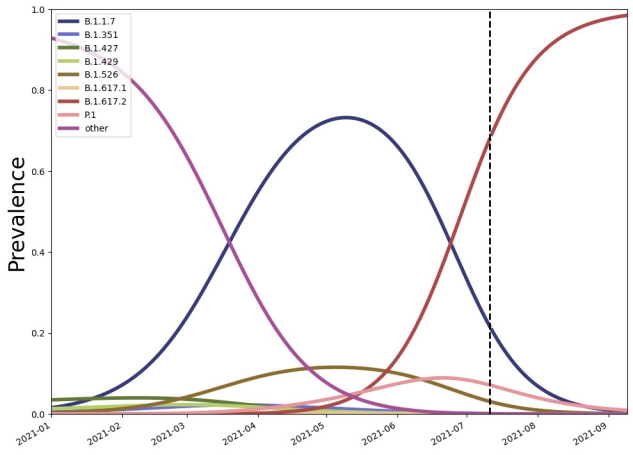
The Delta variant, first identified in India, is now well established in Virginia. Over 70% of new COVID19 cases in the Commonwealth are of the Delta variant. Models predict this figure will reach 90% by mid-August. The Alpha variant, which was dominant from April to July, has declined and is expected to represent fewer than 10% of cases by mid-August.

Delta poses a **significant public health concern**. It is considerably more transmissible and is thought to be largely responsible for the recent surge of cases in Virginia. Delta also causes **more severe cases** than prior variants. Studies suggest it may be nearly twice as likely to cause illness requiring hospitalization compared to earlier variants. Delta is also more likely to cause reinfections in those who have previously had COVID-19 and recovered.

## Vaccine Efficacy

The Delta variant is more capable of causing breakthrough infections in fully vaccinated individuals than prior strains. However, **confidence in the efficacy of these vaccines remains high**. Vaccines offer strong protection against the Delta variant, and those who do get infected are far less likely to develop severe illness requiring hospitalization. Between May 22 and June 22 over 97% of COVID-19 cases in the Commonwealth were among Virginians who were not fully vaccinated.

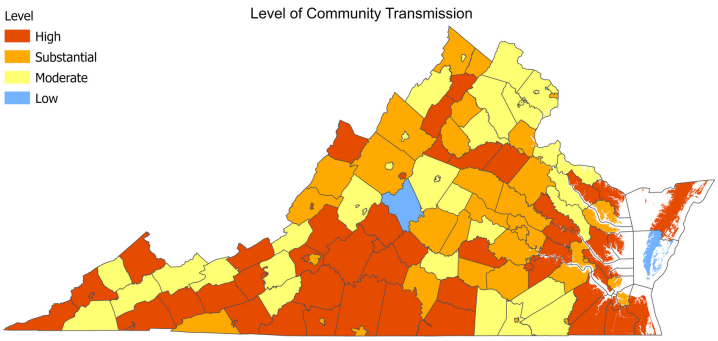
Those who clear the virus do develop “natural immunity” to the disease. However, studies suggest that the Delta variant is more capable than prior strains of causing reinfection. Multiple studies measuring the number of neutralizing antibodies in blood samples have shown that both the Moderna and Pfizer **vaccines create a greater immune response** to COVID-19, including the Delta variant, than would occur from naturally clearing an earlier infection [1, 2]. As such, it is strongly recommended that those who are eligible get vaccinated as soon as possible, even if they have had a confirmed case of COVID-19 in the past.




*Data from Scripps Research (outbreak.info) suggest that the B.1.617.2 (Delta) variant has largely supplanted the B.1.1.7 (Alpha) variant in Virginia.*

## CDC Recommends Masking Indoors

Though vaccines are effective at protecting against illness, evidence is mounting that it may be possible to catch and spread the Delta variant **even if one is fully vaccinated**. In such cases, the vaccinated individual may feel few or no symptoms of illness, but still be infectious to others. Though they are likely less infectious than someone who was not fully vaccinated and developed the disease, the potential to infect others still exists. As such, on July 27, the CDC issued guidance recommending that fully vaccinated individuals wear masks when indoors in areas with "substantial to high" transmission.




As most of Virginia’s counties fall into these categories, Governor Northam has echoed this recommendation. **Masking, vaccinating, and social distancing** remain the most effective ways to protect yourself, your family, and your community from the Delta variant and COVID-19.

*Left: Most of Virginia's counties are experiencing "Substantial" or "High" levels of community transmission as per the CDC.*