June 10, 2022

KEY TAKEAWAYS

- Omicron subvariant BA.2.12.1 is dominant in Virginia, bringing with it a higher effective transmission rate than BA.2.
- The BA.4 and BA.5 subvariants may account for 10% of cases in HHS region 3, which includes Virginia. These subvariants show increased immune escape. Vaccination remains effective at preventing severe disease and death.
- 91 of Virginia's 133 localities are at medium or high CDC community levels, including 22 at high. Masking in indoor public places is recommended at high community levels. Masking is also advised for high-risk individuals in areas with medium community levels.
- Of Virginia's thirty-five health districts, eighteen are experiencing growth trajectories. This includes ten districts in surge.

34 per 100k
Average Daily Cases Week Ending June 6, 2022

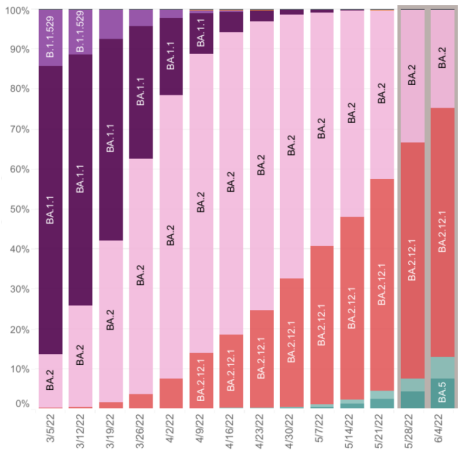
0.977
Statewide Reproductive Number as of June 6th, 2022

22
*Virginia Localities at **High** CDC Community Levels as of June 9th, 2022*

69
*Virginia Localities at **Medium** CDC Community Levels as of June 9, 2022*

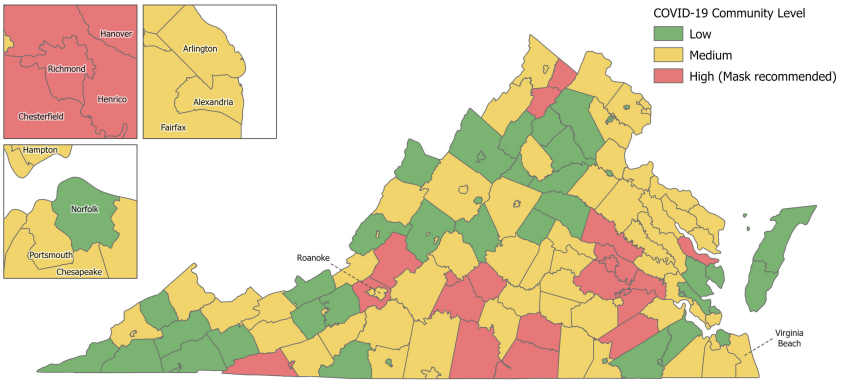
KEY FIGURES

Variant Mix -HHS Region 3



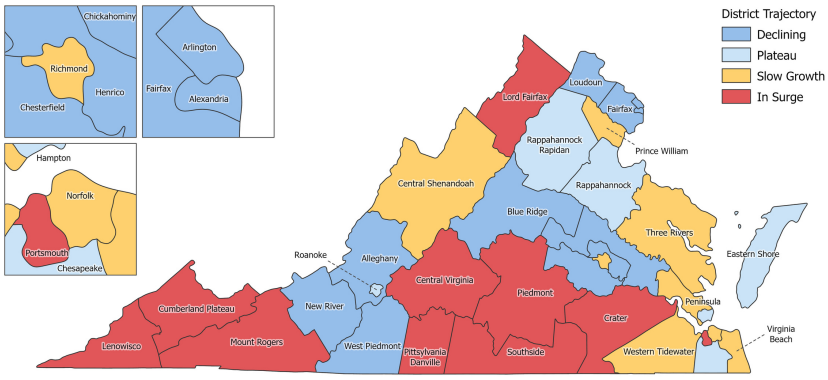
CDC Community Levels

As of June 9,2022



Growth Trajectories: 10 Health Districts in Surge

Status	# Districts (prev week)
Declining	11 (7)
Plateau	6 (3)
Slow Growth	8 (4)
In Surge	10 (21)



UNIVERSITY of VIRGINIA
BIOCOMPLEXITY INSTITUTE

UVA COVID-19 MODEL WEEKLY UPDATE

VDH VIRGINIA DEPARTMENT OF HEALTH

THE MODEL

The UVA COVID-19 Model and 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 health district-level **S**usceptible, **E**xposed, **I**nfected, **R**ecovered (SEIR) 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 periodically. These models improve as we learn more.

THE SCENARIOS

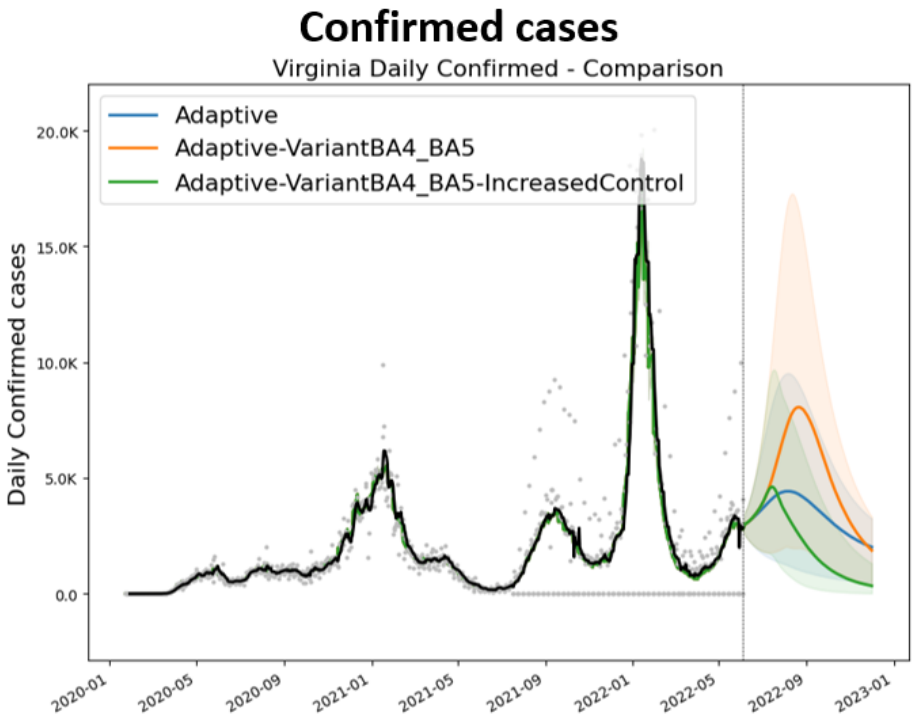
Updated: The model uses scenarios to explore the potential paths the pandemic may take under different conditions. Model projections take a variety of factors into account, including current variants, vaccine uptake, vaccination rates (including boosters), previous infection, waning immunity, weather, and behavioral responses (e.g., mask-wearing, social distancing). The "**Adaptive**" scenario represents the current course of the pandemic, projecting it forward with no major changes. The new "**Adaptive-VariantBA4_BA5**" assumes these two variants become dominant in Virginia by July 1st. In this scenario, these variants have an 80% increase in immune escape compared to BA.2.12.1, but a 20% decreased transmission advantage. The new "**Adaptive-VariantBA4_BA5-IncreasedControl**" scenario adds seasonality and increased prevention efforts to the "Adaptive-VariantBA4_BA5" scenario. These efforts include increased home testing, masking, and self-isolation when sick. This scenario explores the potential public response to a new summer surge, assuming that these could cause a 25% reduction in transmission, and will begin in 30 days.

MODEL RESULTS

Updated: As always, the current course "**Adaptive**" scenario is shown in blue. If the current course persists, this scenario projects a muted rise, with cases beginning to fall by the start of the school year.

The new "**Adaptive-VariantBA4_BA5**" scenario, shown in orange, projects a larger surge with the peak occurring in early September.

The optimistic "**Adaptive-BA4_BA5-IncreasedControl**" scenario is shown here in green. It is identical to "Adaptive-VariantBA4_BA5" until early July. From there, rates quickly peak then fall through the rest of the year. This scenario shows the importance of Virginians continuing to practice appropriate prevention and following the prevention guidelines for the CDC Community Level in their area.

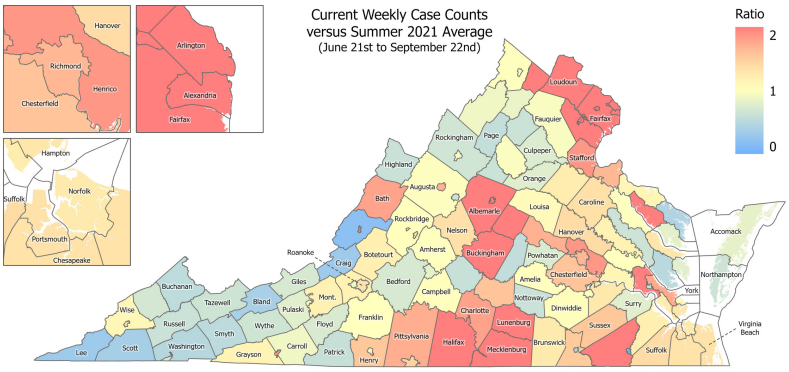


Date of Latest Model Run: 2022-06-08
Date of Next Model Run: 2022-06-22

Please note: The data and projections shown here reflect reported cases. During the Omicron wave, testing shortages resulted in far fewer infections being reported as cases. This suggests fewer total infections than experienced in January. Please see page three of the May 13th modeling report for more details.

CAUTIOUS OPTIMISM

After a few weeks of extreme temperatures, much of the Commonwealth is enjoying a break from the heat. In much the same way, while the last few weeks gave COVID19 forecasters some troubling signs, this week offers a better outlook. Though cases are not in decline, there are some indications that case rates are plateauing. Ten of our thirty-five health districts are in surge this week. This is half the number from last week. The Commonwealth as a whole has also moved from "Surge" to "Slow Growth". Among our neighbors, only Tennessee is still in surge. Moreover, the statewide reproductive number (R_e) remains slightly below one. All six regions report similar values. This week's models project smaller peaks than those generated two weeks ago, and none of the modeling scenarios project hospitalizations will approach capacity. These are all good signs for those hoping for a mild summer. Despite this, there are reasons to remain vigilant. Cases have plateaued, but have done so at a relatively high level. Additionally, new variants continue to move into Virginia.



This figure shows the ratio of last week's case counts to the average weekly counts recorded in the Summer of 2021. Areas in orange and red are currently exceeding last year's averages. Some areas including Northern Virginia and Southside are seeing rates four to five times higher than last year's average.

The Current Plateau

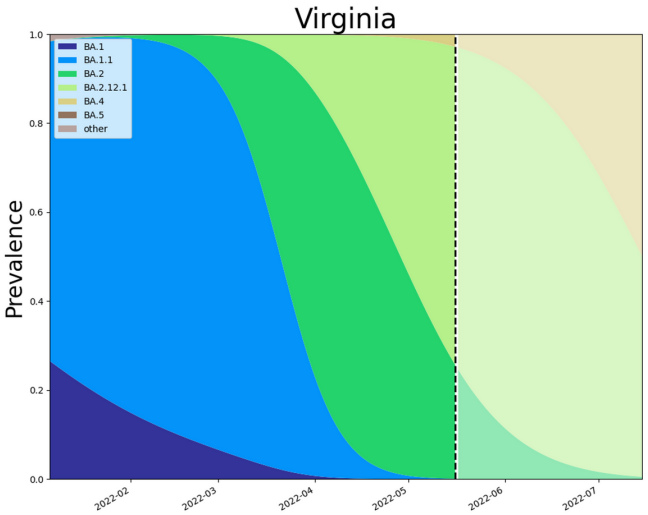
We often describe the trajectory of a pandemic as "valleys and peaks". In that case, a plateau is an apt metaphor for our current position. Case-rates may have leveled off, but are not in a valley as occurred in Summer 2021. Though 42 counties report low community levels this week, they only account for about 17% of our population. Over seven million Virginians are living in counties with medium or high community levels. Moreover, the current weekly case-rate of 34 / 100,000 rivals values seen during the Delta surge of September 2021. It is also 14x larger than statewide case-rates from this time last year. Though there is reason for optimism, there are also reasons to remain vigilant.

Uncertainty

In the short-term, there is uncertainty surrounding the effect of Memorial Day weekend. The holiday may affect surveillance and modeling efforts with testing and reporting delays. A few districts are showing case declines this week, but interruptions in testing and reporting may be impacting case data. Gatherings and travel may also result in increased transmission. The impact of Memorial day should become cleare in the next week or two.

Newly emerging subvariants are also quite difficult to account for. The mild days of Summer of 2021 ended abruptly with the emergence of the Delta variant. Preliminary evidence suggests the BA.4 and BA.5 subvariants have advantages over BA.2.12.1 and will eventually out-compete it. Models suggest the possibility of considerable growth in the coming weeks, but the uncertainty bounds are quite large.

The environment we are in is very different than the one from last summer. 82% of Virginians have received at least one dose of vaccine, 74% are fully vaccinated, and over 3 million have received a booster dose. Even as cases persist and new variants escape immunity, these vaccinations continue to provide protection from sever disease and death. Nevertheless, COVID-19 continues to kill, including over 100 Virginians in April. A summer reprieve is warranted, but Virginians should continue to follow the prevention guidelines for the CDC Community Level in their area.



Variants BA.4 and BA.5 (both shown in tan) are projected to slowly out-compete BA.2.12.1. The older BA.2 variant will continue to lose ground to the newcomers.