July 1, 2022

KEY TAKEAWAYS

- 28 Virginia counties are at high community levels, and 75 are at medium, both increasing from last. Residents of these counties should follow recommended prevention measures as appropriate.
- BA.4 and BA.5 Omicron subvariants continue to make inroads, and may account for a third of new cases in HHS Region 3, which includes Virginia. These subvariants have stronger immune escape properties than previous Omicron subvariants but so far show no evidence of increased transmission rates or severity.
- Fewer (23) of Virginia's 35 health districts are in decline than last week, and 7 are in slow growth trajectories. Models show continued declines in most regions. Cases are projected to increase in far Southwest Virginia, and may rise in some scenarios in other regions.

30.2 per 100k
Average Daily Cases Week Ending June 27, 2022

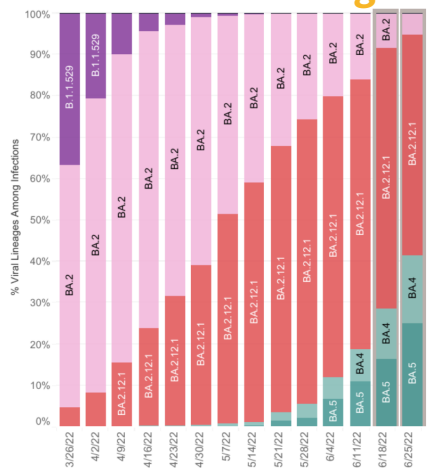
0.996
Statewide Reproductive Number as of June 27, 2022

28
*Virginia Localities at **High** CDC Community Levels as of June 30, 2022*

75
*Virginia Localities at **Medium** CDC Community Levels as of June 30, 2022*

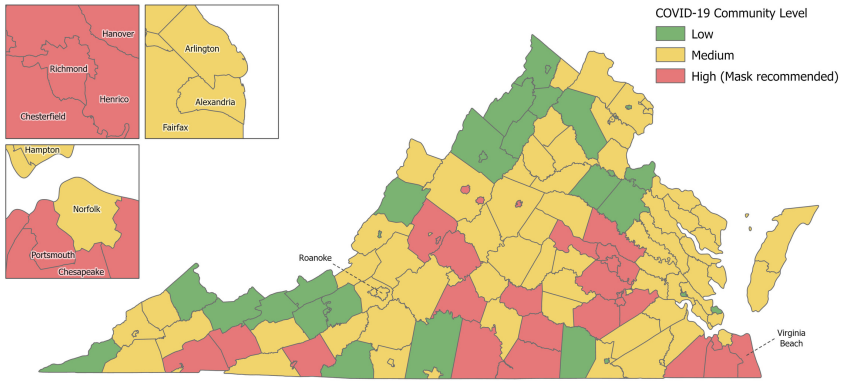
KEY FIGURES

Variant Mix -HHS Region 3



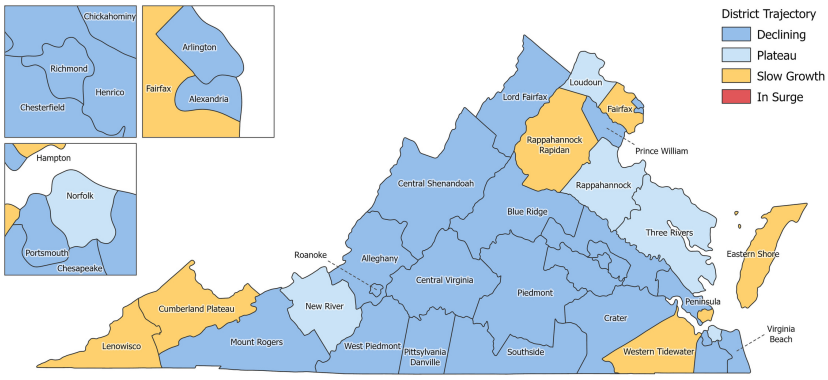
CDC Community Levels

As of June 30, 2022



Growth Trajectories: No Health Districts in Surge

Status	# Districts (prev week)
Declining	23 (28)
Plateau	5 (5)
Slow Growth	7 (3)
In Surge	0 (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 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

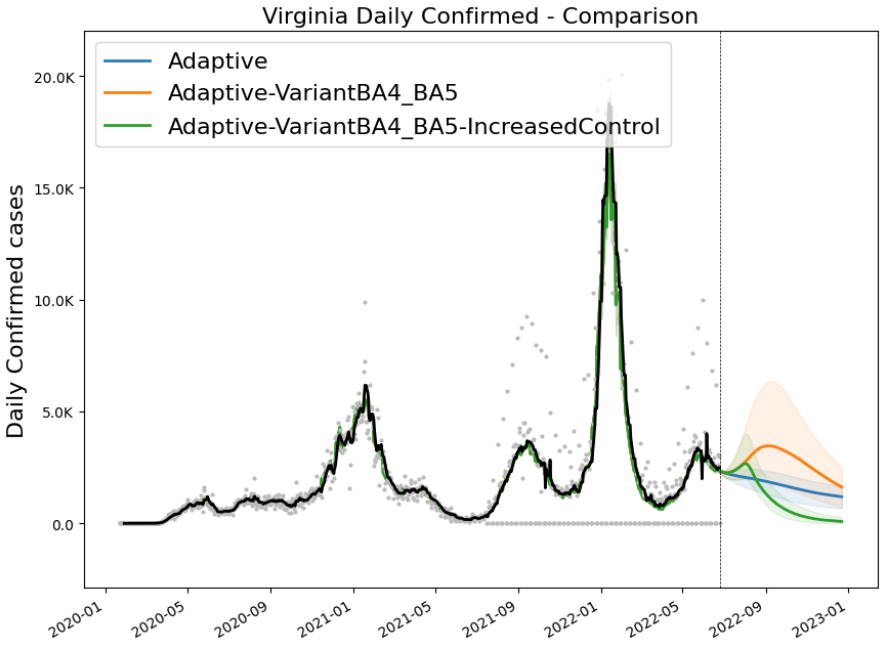
Unchanged: The model uses scenarios to explore the potential paths the pandemic may take under different conditions. Model projections take a variety of factors into account, including current variants, vaccine uptake, vaccination rates (including boosters), previous infection, waning immunity, weather, 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 slow but steady decline in cases. In this scenario, Virginia reaches fewer than 2,000 daily cases by early August.

The "**Adaptive-VariantBA4_BA5**" scenario, shown here in orange, projects a small surge with the peak occurring in early September with roughly 3,500 daily cases.

The more optimistic "**Adaptive-BA4_BA5-IncreasedControl**" scenario is shown here in green. It is identical to "Adaptive-VariantBA4_BA5" until August. From there, rates quickly fall through the rest of the year reaching fewer than 1,000 daily cases by mid-September. 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.



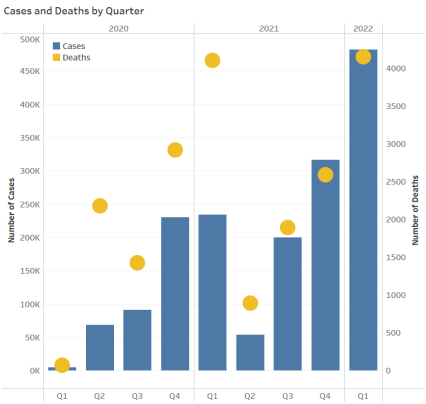
Date of Latest Model Run: 2022-06-29
Date of Next Model Run: 2022-07-13

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.

A NEW COVID-19 ENVIRONMENT

The COVID-19 pandemic is far from over. In May, the last month with complete data available, Virginia experienced over 88,000 confirmed or probable COVID-19 cases resulting in 180 deaths. Nevertheless, we have entered a very different phase of the pandemic. Up until April 18, 2021, when eligibility for vaccination was opened to all Virginians avoiding or minimizing exposure, including masking, was the only reliable defense against COVID-19.

Since April 18, 2021 over 7 million Virginians have received at least one vaccine dose, and over 3 million have received a booster dose. For those at increased risk of severe disease, treatments are also available. Additionally, using seroprevalence surveys to detect antibodies, the CDC estimates that by the end of February, almost 3.8 million Virginians have had a previous COVID-19 infection. For individuals, up-to-date vaccination provides the only first-rate defense against serious disease or death from COVID-19. But from a public health perspective all of these factors have an impact.



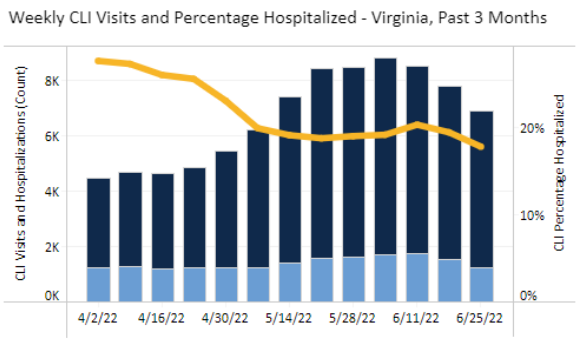
This figure show cases (blue bars, left axis) and deaths (yellow circles, right axis) by quarter in Virginia. Although an imperfect comparison, the declining ratio of deaths to cases is clear.

In this new environment, a COVID-19 case is very different than a case early in the pandemic. In the first quarter of 2021, for instance, when vaccines were first becoming available, Virginia recorded almost 234,000 COVID-19 cases and 4,102 deaths. In the first quarter of 2022, during the Omicron wave, Virginia recorded more than twice as many cases, 480,000, but only 50 more deaths. This comparison is imperfect. Deaths lag cases and, due to a lack of testing, there were likely far more undetected infections than in previous waves, but the declining ratio of deaths to cases is clear. Though not likely, new variants could disrupt this trend. Individuals, particularly those at high-risk, should assess their own risk, keep abreast of CDC community levels. Residents of counties with high community levels should mask when indoors in public places, and persons at high risk in counties at medium community levels should mask in these settings as well. New variants have found a way to continue spreading, pharmaceutical interventions are a game-changer nonetheless.

A New COVID-19 Data Environment

The COVID-19 data environment continues to shift as well. We have discussed the growing difficulties of estimating case ascertainment on this page before. Unfortunately, the CDC has not updated its monthly seroprevalence estimates since February, compounding the difficulties in estimating case ascertainment. Additionally, Carnegie Mellon's Delphi Group retired its COVID-19 Trends and Impacts Surveys on June 25. The UVA team has used this survey to report detailed information on mask-wearing, vaccine acceptance, and other factors since its inception in April, 2020.

However, a number of old and new data sources is rising to fill the gap. Data on COVID-19 hospitalizations and deaths continues to be reliable, providing comparable metrics since the beginning of the pandemic. For years, epidemiologists have tracked the number of people showing up at emergency rooms and urgent care facilities with flu symptoms, known as Influenza-Like Illness (ILI). Virginia has done the same for COVID-Like Illness (CLI), and this has become an increasingly valuable tool in understanding disease burden as case ascertainment rates have become unstable. Virginia is participating in the the CDC's National Wastewater Surveillance System. Together, these data streams provide a reliable set of indicators to understand the burden of COVID-19 in Virginia.



Together, these data streams provide a reliable set of indicators to understand the burden of COVID-19 in Virginia. They are also available to assess old public health threats, such as seasonal influenza, and new ones as they emerge. As the COVID-19 environment shifts, the Virginia Department of Health, along with our partners at the UVA Biocomplexity Institute, will continue to provide you with the data, insight, and foresight needed to manage COVID-19 and other public health risks.