UVA COVID-19 MODEL WEEKLY UPDATE

April 1st, 2022

KEY TAKEAWAYS

- Cases continue to decline in most of the state. Three health districts are in slow growth but this is from low levels and may be influenced by data entry backlogs.
- Likewise, most of the state is at Low COVID-19 Community Level according to the CDC, while no counties are at High levels at the time of publication.
- The BA.2 subvariant will likely be the dominant variant in the coming weeks. It is unclear whether BA.2 will cause a surge in Virginia but if it does, it is projected to have less impact than the Delta surge last fall.
- Vaccination, including boosters when eligible, remains the most effective method to manage risks from COVID-19 variants.

8 per 100k
Average Daily Cases Week Ending March 28, 2022

(187 per 100k)
*Adaptive Scenario Forecast Average Daily Cases, **Already Peaked** on Jan. 16, 2022*

764 / 863
Average Daily 1st / 2nd Doses March 25, 2022

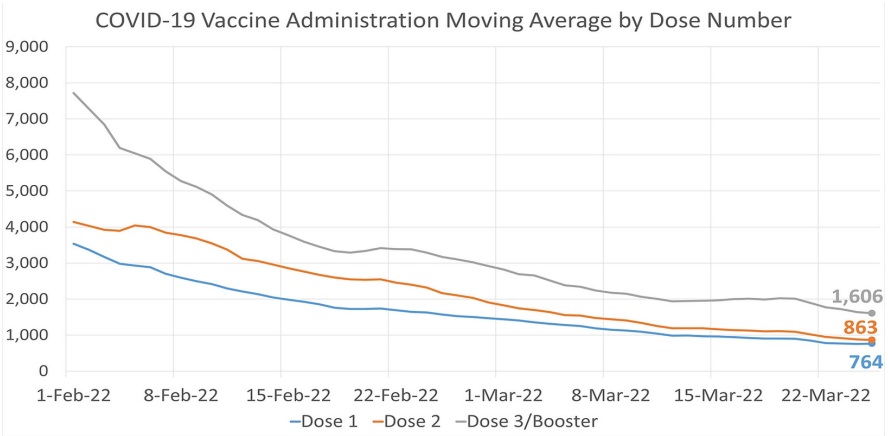
1,606
Average Daily Boosters March 25, 2022

KEY FIGURES

Reproduction Rate
(Based on Confirmation Date)

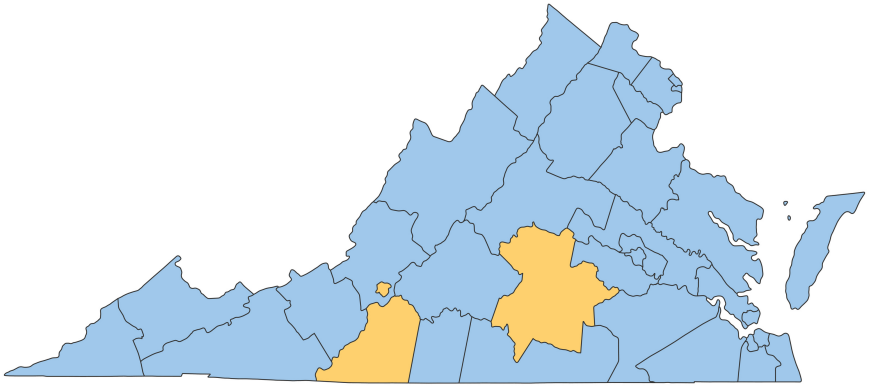
Region	R_e Mar. 28	Weekly Change
Statewide	**0.787**	**0.194**
Central	0.982	0.585
Eastern	0.823	0.387
Far SW	0.527	0.071
Near SW	0.132	-0.537
Northern	0.912	0.095
Northwest	0.958	0.302

Vaccine Administrations



Growth Trajectories: 0 Health Districts in Surge

Status	# Districts (prev week)
Declining	32 (31)
Plateau	0 (1)
Slow Growth	3 (3)
In Surge	0 (0)



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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 county-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

Major updates: The models use various scenarios to explore the path the pandemic is likely to take under differing conditions. The CDC now estimates that the Omicron variant and its subvariants represent >99% of all new cases in Virginia. As such, we have retired all prior Delta variant-based scenarios. Current scenarios are based on the immune escape and transmission profiles of the Omicron BA.1 variant. As before, models use COVIDcast surveys to estimate county-level vaccine acceptance levels. They then assume that vaccinations increase in each county until they reach this value. Afterwards, we assume that 40% of vaccinated individuals will receive a booster at the same rate.

As always, the "**Adaptive**" scenario represents the current course of the pandemic. It assumes that there will be no major changes in interventions or transmissibility. It also does not track changes in seasonal forcing, variant proportions, or public vigilance. Rather, it is a basic projection of current trends.

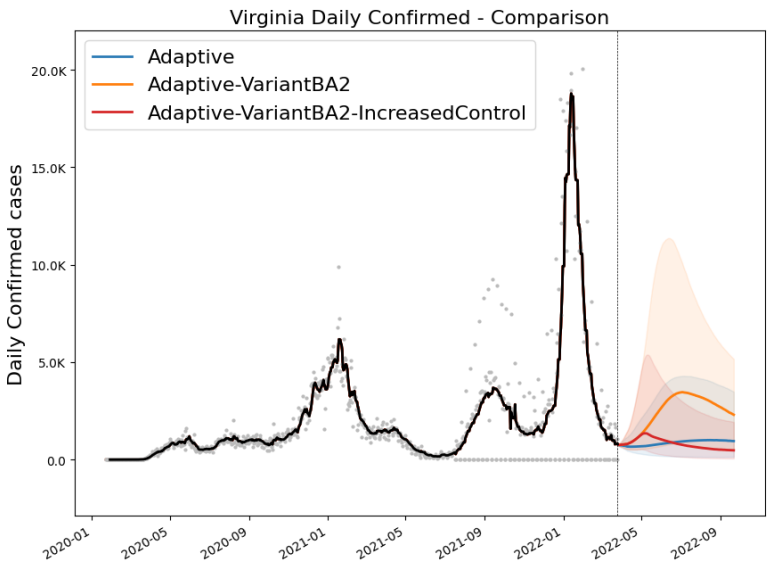
The "**Adaptive-VariantBA2**" scenario adjusts for the new Omicron BA.2 subvariant's enhanced transmissibility. It assumes that BA.2 will become dominant in April and reach 95% prevalence by May. It also assumes that BA.2 is 30% more infectious than Omicron BA.1. The new "**Adaptive-VariantBA2-IncreasedControl**" scenario adds increased mitigation strategies and seasonality to the "Adaptive-VariantBA2" scenario. These include increased home testing, masking, and self-isolation when sick. This scenario is meant to model the potential public response to a near-term BA.2 related surge. It assumes that these interventions will have a 25% reduction in community transmission and start on May 1st.

MODEL RESULTS

Updated: The current course "**Adaptive**" scenario (blue) projects a very slow decline. Case rates level off at about 4,700 per week in early May. These rates do not significantly change until late July.

The "**Adaptive-VariantBA2**" scenario (orange) shows slow but steady growth in the near term. Case rates double by May and reach 20,000 weekly cases by June. This scenario peaks in July. The "**Adaptive-VariantBA2-IncreasedControl**" (red) scenario is identical to "Adaptive-VariantBA2" until May 1st. From there, case rates decline slowly until they return to current levels in late June.

Please do your part to drive down cases. Always practice good prevention including masking in indoor public areas and self-isolating when sick. Also please get vaccinated and boosted when eligible.



Date of Latest Model Run: 2022-03-29

BA.2 IS HERE. WHAT DOES THAT MEAN?

According to the CDC's "Nowcast," the BA.2 subvariant of Omicron is now the predominant subvariant nationally, and accounts for 48% of cases in the mid-Atlantic region. UVA's model estimates similar numbers for Virginia. This time last year we were watching another Variant of Concern, the Alpha variant, very closely. The Alpha variant had created notable surges in several European countries, and was becoming the dominant variant in the United States. But the feared surge did not come, with Virginia reaching some of its lowest case rates of the pandemic early in the summer. Alpha had come a little later to the United States, giving more time for vaccinations and summer weather to blunt spread.

BA.2 is very different than Alpha, and the environment it is encountering is very different than the one Alpha encountered in March 2021. BA.2 may cause case and hospitalization surges like it has in Europe. But the Alpha story reminds us that it is not just the characteristics of variants that matter. Other factors, such as case rates and trajectories, the current variant mix, seasonality, immunity provided by vaccines and previous infection (tempered by waning immunity), and our own behavior do play a large role.

Reasons for Optimism

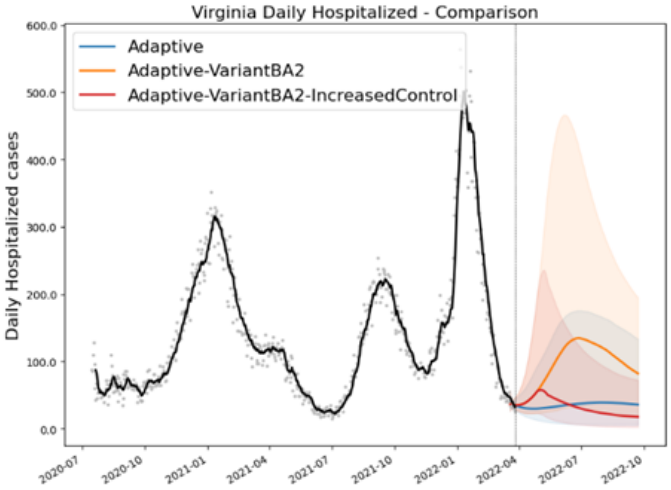
There are a number of reasons to be optimistic as BA.2 becomes predominant in Virginia. Cases levels are low and declining in most of the state. Although there are three districts in "slow growth" trajectories these are from low levels, and may be influenced by technicians catching up with data entry backlogs that accrued during the Omicron wave. Similar to Alpha, the BA.2 variant is hitting the US a few weeks later than it hit Europe. Warmer weather makes it easier to socialize outside, and more difficult for the virus to spread. Most important, however, is the immunity profile of Virginia's population. Gaps remain, but currently, over 80% of Virginians have received at least one vaccine dose, including a whopping 95% of Virginia's seniors, the most vulnerable population. Both strains of Omicron have shown significant vaccine escape, but full vaccination remains effective against hospitalization and death, while boosters are highly effective.

Reasons for Caution

Regardless, BA.2 is still a threat. Although the evidence is mixed, the UVA team has settled on a 30% transmission advantage over the original, highly transmissible Omicron strain - a significant advantage. Statewide, vaccination rates are high, but some areas of the states and some subpopulations lag statewide trends. In particular, vaccination rates are lower in many rural areas of Virginia, and among Black Virginians age 18-30. Unfortunately, vaccine administrations continue to decline, including the important booster dose. More than a third of Virginia's seniors have yet to receive their booster. Boosters shore up protection against new variants, especially as immunity wanes.

Overall

Taken together, the outlook for Virginia under BA.2 is cautiously optimistic. In the BA.2 scenario, the UVA model does project cases to rise, but hospitalizations and deaths are projected to remain below previous surges. Importantly, we all have the power to control the risk BA.2 poses for ourselves and our families. Acknowledging the importance of boosters in protecting vulnerable seniors, the CDC recently authorized an additional booster for those age 50 and older. Getting vaccinated, boosted, and keeping vaccinations up to date when eligible is essential to protecting yourself and minimizing the impact of COVID-19 on yourself, your family and your community. Additionally, remain aware of community transmission levels and take appropriate precautions.



While cases are projected to match the Delta surge in the BA.2 scenario, hospitalizations are projected to be lower. If cases continue to decline the outlook may improve even as BA.2 becomes dominant