

September 17th, 2021

KEY TAKEAWAYS

- COVID19 case rate growth has slowed, but case rates remain high.
- Parts of Virginia show case rates plateauing (4 districts) or even in a slow decline (12 districts), but other parts are still surging (another 12 districts).
- Models continue to forecast a peak in statewide case rates at the start of October. Masking and social distancing remain the best option for limiting the short-term impact of this surge.
- A repeat of surges seen over the 2020 holiday season could cause a significant burden for the hospital system. Increasing vaccine uptake could prevent thousands of cases and reduce this burden.
- The Delta variant has completely supplanted all other strains and now makes up over 99% of Virginia cases.

41 per 100k

Average Daily Cases
Week Ending Sept. 12, 2021

47 per 100k

Potential Peak Average
Adaptive Scenario Daily
Cases, Week Ending
October 3, 2021

6,697

Average Daily 1st Doses
Sept. 12, 2021

6,593

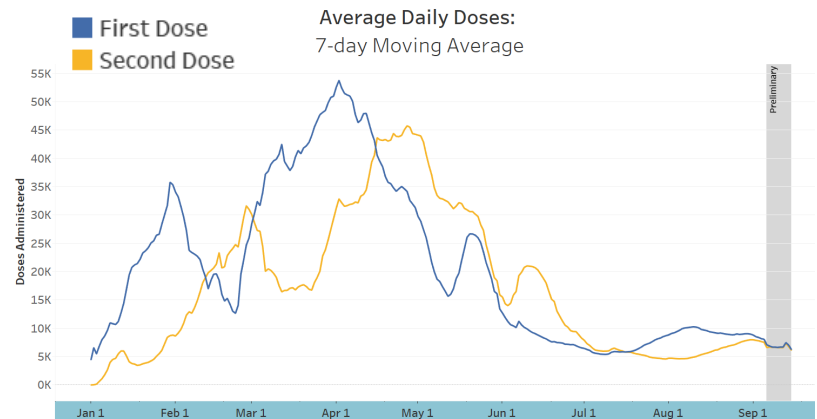
Average Daily 2nd Doses
Sept. 12, 2021

KEY FIGURES

Reproduction Rate (Based on Confirmation Date)

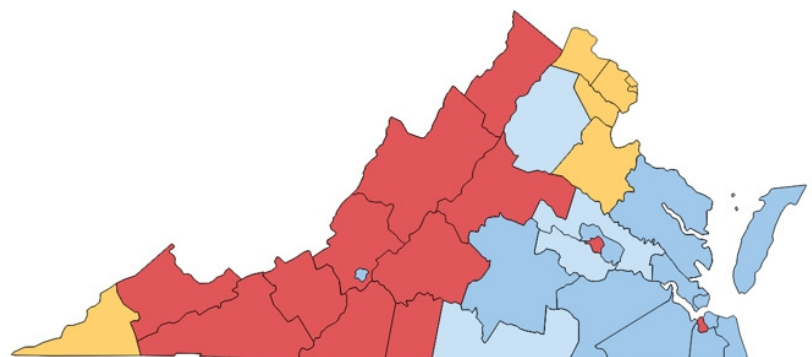
Region	R _e Sept 13th	Weekly Change
Statewide	1.065	0.062
Central	1.037	0.129
Eastern	1.039	0.134
Far SW	1.121	0.184
Near SW	1.042	0.023
Northern	1.089	0.174
Northwest	1.053	0.071

Vaccine Administrations



Growth Trajectories: 12 Health Districts in Surge

Status	# Districts (prev week)
Declining	12 (3)
Plateau	4 (2)
Slow Growth	7 (4)
In Surge	12 (26)



THE MODEL

The UVA COVID-19 Model and these 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 constantly. The model improves as we learn more.

THE SCENARIOS

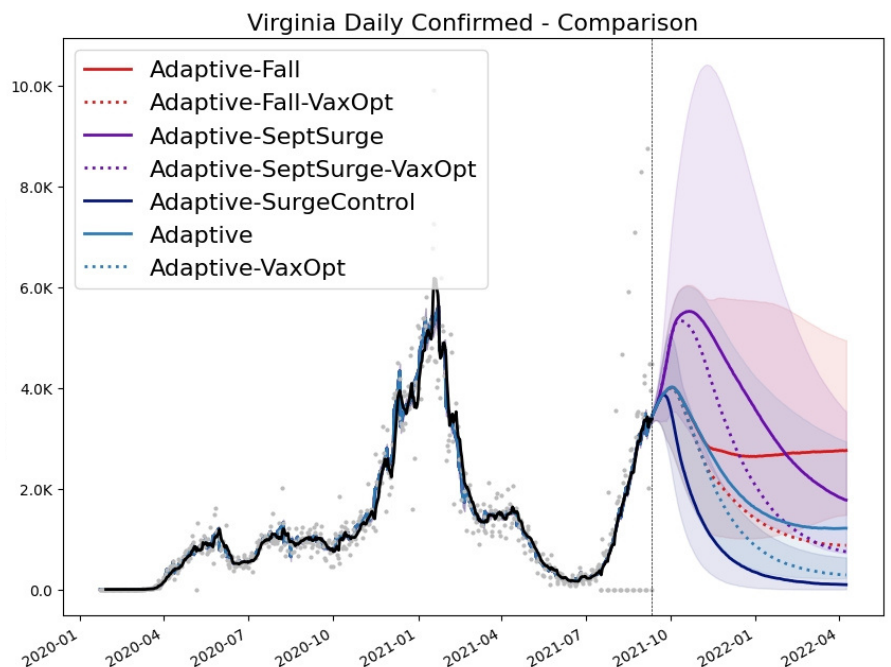
The model uses various scenarios to explore the path the pandemic is likely to take under differing conditions. The **Adaptive** scenario takes the current course of the pandemic at the county level, including the impact of the Delta variant and vaccines, and projects it forward. The **SurgeControl** scenario shows the likely impact of prevention and mitigation efforts (masking, social distancing, testing and isolating, etc.) by employing a 25% reduction in transmission rates. The **SeptSurge** (September surge) scenario replicates the surge Virginia experienced when schools reopened last year, boosted by the impact of the Delta variant. The **Fall** surge scenario is similar, but replicates the 2020 holiday season, including effects of winter weather and holiday travel. All of these scenarios are also augmented by the **VaxOpt** (optimistic vaccine) modifier that adds to the existing scenario a hypothetical increase in vaccinations among adults and assumes vaccine eligibility for children ages 5-11 years in November. Specifically, this modifier assumes that we reach an average of 85% acceptance among adults, with a minimum of 65% in each county. Note that all scenarios also include the effects of natural immunity.

MODEL RESULTS

Delta variant models continue to forecast that cases will surge through the fall. The Adaptive scenario (blue), our present course, shows a **peak coming in the next few weeks** followed by a gradual decline. However, a school-related "September surge" (purple) could exacerbate this, pushing the peak further back by a month and causing a large spike in cases rivaling the rates seen in February. Conversely, if we instead see a late Fall surge (red) caused by Holiday travel and weather, this could prologue the expected decline and keep cases surging for months.

More optimistic scenarios include the SurgeControl (indigo) which shows a quicker decline of cases in October, and the VaxOpt (dashed lines) modified scenarios, which show that in the long-run vaccinations can prevent thousands of cases.

Do your part to stop the spread. Please continue to **practice good prevention**, including masking, social distancing and self-isolating when sick, and **get vaccinated** as soon as possible. There is still time to get yourself fully vaccinated before the Holiday season starts.



SURGE AT THE HOSPITAL

Yesterday's heavy rains caused significant flooding in Richmond and the surrounding areas, but across the Commonwealth Virginians are dealing with a different kind of flood. A surge of COVID19 patients is filling Emergency Rooms and Urgent Care centers across the Commonwealth, displacing patients with unrelated conditions and overtaxing healthcare workers.

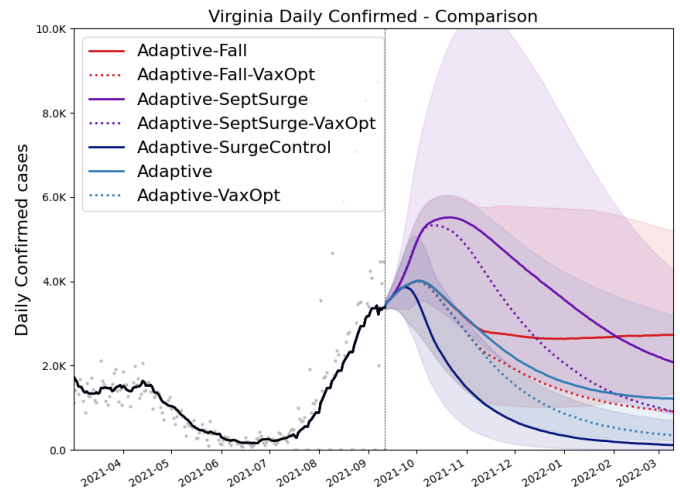
As of September 16th, the Virginia Hospital and Healthcare Association is reporting 2,142 hospitalized COVID19 patients, up nearly **10-fold** from the 233 patients recorded on July 16th. Current hospitalization rates are higher than they have been at any point since mid-February, and smaller rural hospitals are struggling to keep up. Southwest Virginia is being hit particularly hard, with some hospitals from Roanoke to Abingdon reporting near capacity conditions. The availability of hospital beds is not the only issue. Across the nation, it is becoming increasingly difficult to keep hospitals staffed, as burnout and fatigue have caused shortages of nurses and physicians. Our neighbors are having just as much trouble, as West Virginia and North Carolina report similar conditions, while Tennessee is deploying their National Guard to augment hospital personnel.

This surge directly puts healthcare workers and first responders at risk, while potentially compromising quality of care for all. It also causes burnout and fatigue for hospital personnel. Like yesterday's flash floods, it is a significant threat to the health and safety of everyone involved, but unlike yesterday's floods, we can do something about this surge.

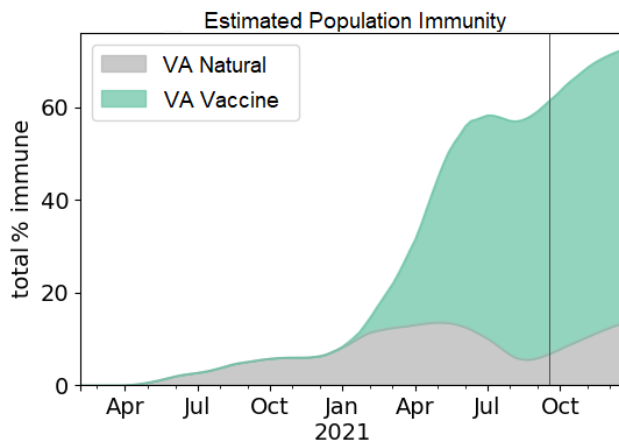
Stopping the Current Flood

Models suggest that we are not out of the woods yet, and in fact cases and hospitalizations may continue to increase for a few more weeks. However, the models also show that this trajectory isn't set in stone. Model scenarios with increased vaccinations do reduce case rates, but not for a few weeks. It takes 5-6 weeks for a vaccine to reach full effectiveness, so it is simply too late for new vaccinations to affect September cases in Virginia.

On the other hand, the SurgeControl scenario (the indigo line), which assumes a 25% reduction in transmission rates, shows an almost immediate drop-off in case rates. This translates to an estimated **18,400 potential cases averted** over the next month. **Prevention** is key to this strategy: wear a mask indoors, practice social distancing, and self-isolate when sick. By doing so, you can help alleviate the burden on our hospital system.



Vaccinations: Still Critical



Population immunity reached an estimated 61% this week. This value accounts for natural immunity, vaccine efficacy, and waning immunity; and it may be lower than the total vaccination rate. Virginia is doing better than many of its neighbors, but to get back to normal we need to increase vaccinations statewide. As seen above, in the Adaptive-VaxOpt scenario, doing so may **prevent 38,000 cases** by the end of the year. Moreover, despite the rise of the Delta variant, the vaccines remain extremely effective at reducing hospitalization and death rates, particularly among the elderly. A significant increase in vaccinations could alleviate hospital congestion regardless of transmission rates. It is not too late to get vaccinated before the holiday season. If you haven't done so already, please **get vaccinated** as soon as possible.