

December 10th, 2021

KEY TAKEAWAYS

- Cases rates are up considerably from last week, and the effective reproduction number (R_e) is now greater than one for all health regions and the Commonwealth itself.
- Though a few districts are still in decline, most are now in surge (12) or experiencing slow growth (15). This marks the first time any district has been in surge since the first week of October.
- This sudden increase in cases, R_e , and epidemic trajectory may be the result of testing and reporting delays from the Thanksgiving holiday. This may also explain why the previous week appeared to show fewer cases and a smaller R_e than expected.
- Models continue to forecast a gradual growth in case rates through the new year, though the possibility of a winter surge remains.

27 per 100k

Average Daily Cases
Week Ending Dec. 5, 2021

(43 per 100k)

Adaptive Scenario
Forecast Average Daily Cases **Already Peaked**
on September 19, 2021

8,570 / 13,118

Average Daily 1st / 2nd Doses
Dec. 4, 2021

26,360

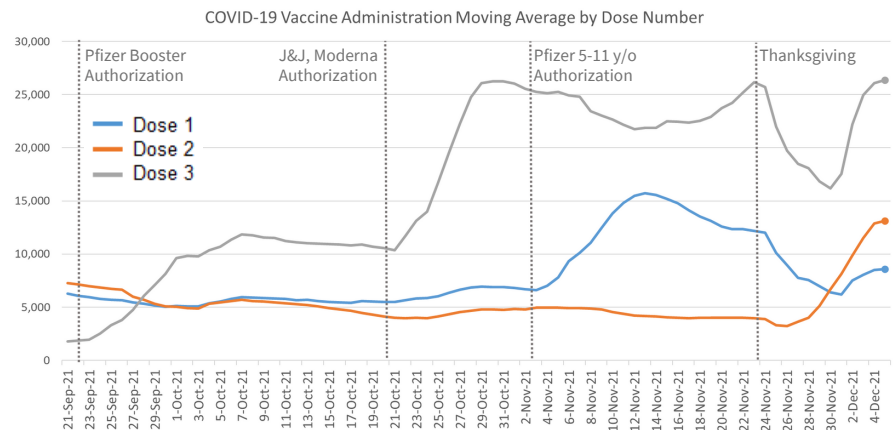
Average Daily Boosters
Dec. 4, 2021

KEY FIGURES

Reproduction Rate (Based on Confirmation Date)

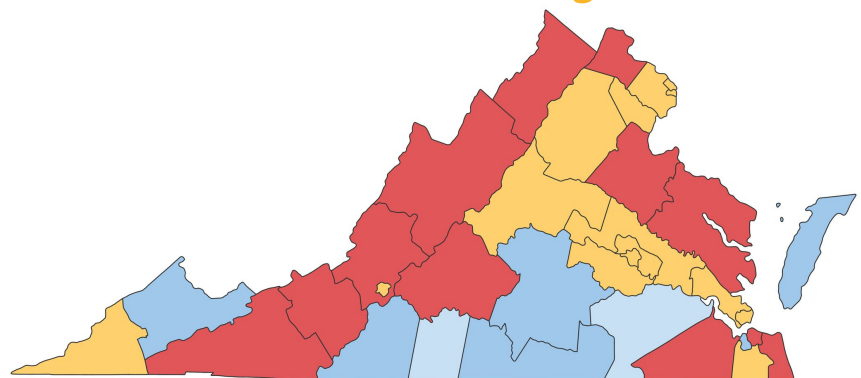
Region	R_e Dec. 6th	Weekly Change
Statewide	1.253	0.349
Central	1.107	0.182
Eastern	1.125	0.153
Far SW	1.101	0.311
Near SW	1.159	0.315
Northern	1.160	0.291
Northwest	1.132	0.233

Vaccine Administrations



Growth Trajectories: 12 Health Districts in Surge

Status	# Districts (prev week)
Declining	6 (10)
Plateau	2 (7)
Slow Growth	15 (18)
In Surge	12 (0)



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 **Susceptible, Exposed, Infected, Recovered (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

Unchanged: The models use 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 starting next week. The **"FallWinter"** scenario captures the transmission drivers of the entire 2020 holiday season and projects them forward. In this scenario, transmission rates from December 2021 to February 2022 are manually set to reflect the transmission rates from the same time period last year, but boosted by Delta's enhanced transmissibility.

All models use COVIDcast surveys to estimate county-level vaccine acceptance. They then assume that vaccination uptake continues in each county until this value is reached. The new **"HighBoost"** scenario modifier is meant to examine the impact of an optimistic increase in booster doses for adults. This should not be confused with the older "VaxOpt" scenario modifier which imagined a significant boost in first-time adult vaccinations. Current models assume that 40% of vaccinated individuals will receive a booster. The HighBoost modifier increases this figure to 70%, and doubles the rate of deployment.

MODEL RESULTS

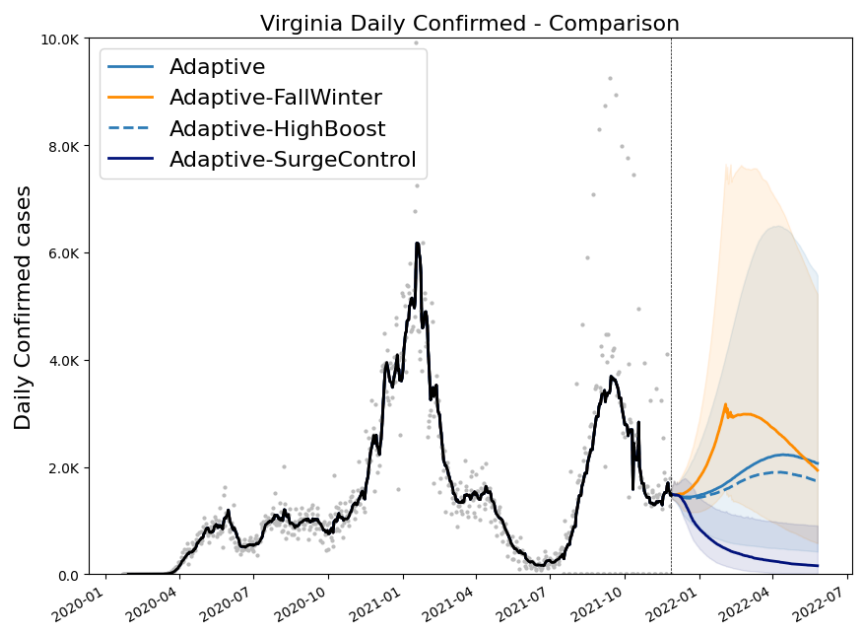
Unchanged: The "present course" Adaptive scenario (blue) now shows a flat trajectory in the short-term, with a gradual rise in cases starting in early 2022 and peaking in April.

The FallWinter scenario (shown here in orange), projects a rise in case rates, potentially rivaling the recent September surge with a peak in February of 2022.

The HighBoost (dashed blue line) scenarios shows that in the long-run, increased booster coverage could prevent thousands of cases.

The SurgeControl (indigo) scenario forecasts a quick drop-off of case rates, now reaching Summer-2021 lows by March or early April.

Please do your part to stop the spread and continue to **practice good prevention**, including indoor masking, social distancing, and self-isolating when sick, and **get vaccinated** and boosted as soon as possible.



Date of Latest Model Run: 2021-11-30