November 4, 2022

KEY TAKEAWAYS

- Case rates and hospitalizations across the Commonwealth remain low. But early signs suggest that Virginia may be headed into a period of new growth. The effective reproduction number is above one (1.005) and the rate is at or above 0.979 in all regions.
- More than half of health districts are in growth trajectories, including one in surge. Only nine remain in declining trajectories.
- At least three serious respiratory diseases are spreading in Virginia. In addition to COVID-19, flu levels are high in all regions of Virginia. RSV levels are also high for this time of year in Virginia. These may have a cumulative impact on hospitals and health systems, straining resources.
- Vaccinations and boosters for flu and COVID-19, coupled with basic respiratory hygiene, offer the best protection. Those who have not received their annual flu shot or bivalent COVID-19 booster should do so now, especially if gathering with family or friends for the holidays.

831,890
Total Bivalent Booster Doses Administered by Nov. 3, 2022

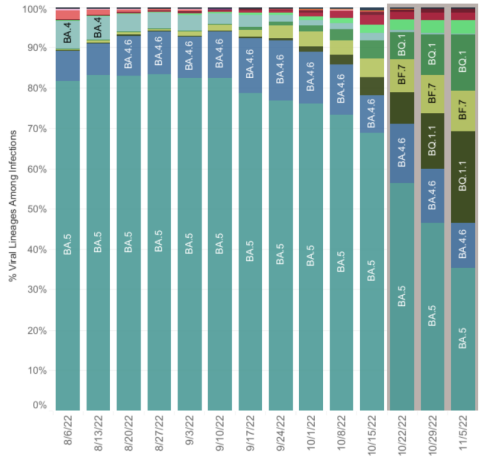
9% / 32%
Of Virginians/Seniors have received a Bivalent Booster as of October 26, 2022

18% / 40%
Of Virginians / Seniors have received an annual Flu shot as of October 26, 2022

Zero
*Virginia Localities at **High** CDC Community Levels as of November 3, 2022*

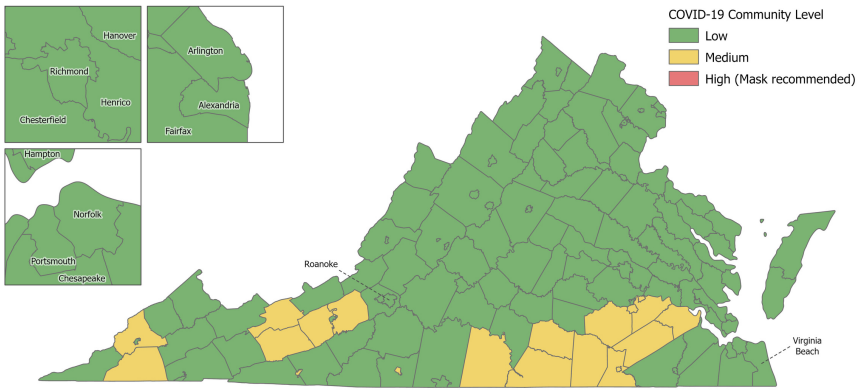
KEY FIGURES

Variant Mix – HHS Region 3



CDC Community Levels

As of November 3, 2022

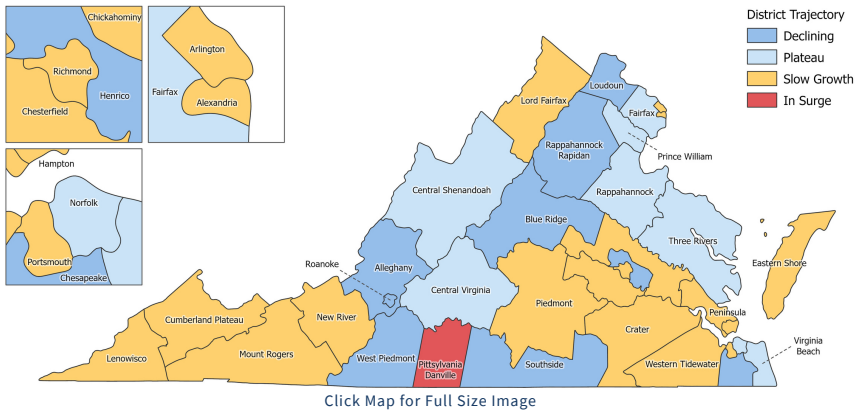


Click Map for Full Size Image

Growth Trajectories: One Health Districts in Surge

Status	# Districts (prev week)
Declining	9 (17)
Plateau	8 (8)
Slow Growth	17 (8)
In Surge	1 (2)

Click Table for Dashboard



Click Map for Full Size Image

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 future conditions. Model projections take a variety of factors into account, including current variants, vaccine uptake, vaccination/boosting rates, previous infection, waning immunity, weather, and behavioral responses. **All models now account for bivalent boosters.** Unless otherwise specified, they assume that they will match the 3rd dose booster rollout. The "**Adaptive**" scenario represents the current course of the pandemic, projecting it forward with no major changes. The "**VariantX**" modifier explores the potential impact of a new variant. This hypothetical variant is imagined as having the same immune escape and transmissibility advantages over BA.4/5 that BA.4/5 did over the earlier BA.2. See page three of the July 15 report for details. The "**FallWinter"** modifier layers seasonal increases associated with colder weather, holiday gatherings, and travel, on top of the base scenarios. It does this by artificially adjusting transmissibility between September and January to match transmissibility from the same time last year. The "**OptBooster**" (optimistic) modifier assumes that bivalent booster coverage will increase *beyond* the current pace and be 25% higher than 3rd dose boosters from Fall of 2021. The new "**NoMoreBooster**" examines the impact of a reduced vaccine rollout, and assumes that boosters stop at current levels.

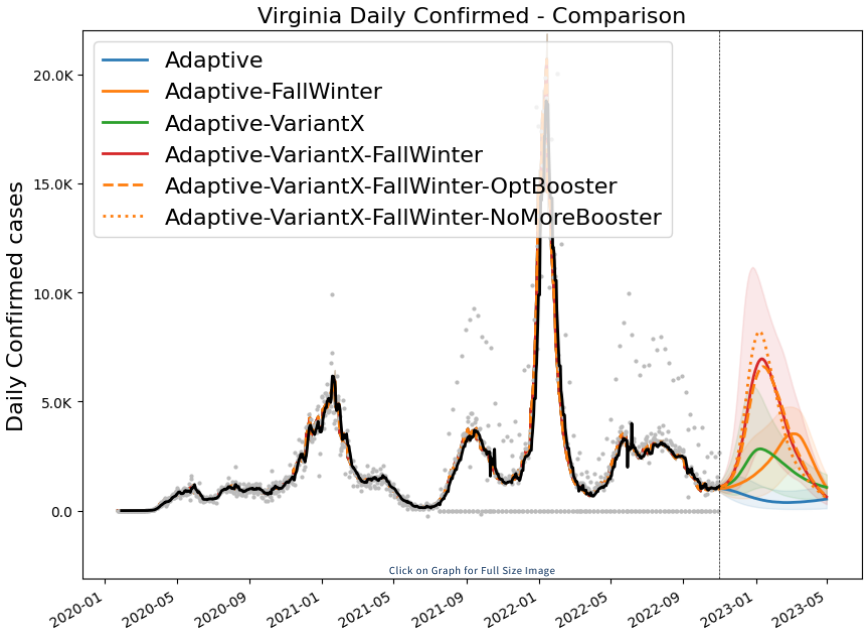
MODEL RESULTS

Updated: As always, the current course "**Adaptive**" scenario is shown in blue. This scenario projects a continued decline of cases. In this scenario, Virginia will fall below 500 daily cases by early January.

Both the "**Adaptive-FallWinter**" (orange) and "**Adaptive-VariantX**" (shown in green) scenarios project mild surges. The former peaks at 3,500 daily cases in early March, the latter at 2,800 daily cases in early January.

The "**Adaptive-VariantX-FallWinter**" (red) combines both a hypothetical new variant with the seasonal forcing of Fall / Winter. The combination allows for a significant surge, peaking at about 7,000 daily cases in mid January, before steadily declining.

Both "**OptBooster**" and "**NoMoreBooster**" scenarios (dashed orange lines) are applied to the VariantX-FallWinter scenario. They show that increasing booster uptake could prevent over 10,000 cases. If booster rates slow, this could cause an extra 23,000 cases.



Date of Latest Model Run: November 2, 2022
Date of Next Model Run: November 16, 2022

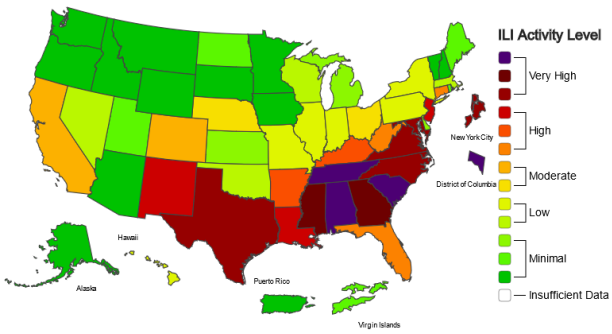
Please note: The data and projections shown here reflect reported cases. During the Omicron wave, testing shortages resulted in far fewer infections being reported as cases. This suggests fewer total infections than experienced in January. Please see page three of the May 13th modeling report for more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

(Explore the model results in detail on this dashboard)

A POTENTIAL TRIDEMIC

While it did not come to pass, last fall many health experts were concerned that the United States would experience a so-called "twindemic" over the winter. Basically, a twindemic is shorthand for two diseases, in this case Influenza (flu) and COVID-19, spreading at high-levels at once, causing a cumulative burden for hospitals and health systems, the public - and on those poor souls who happen to catch both diseases. Flu is a seasonal disease. It largely disappears during the summer and usually peaks during winter months. COVID-19 also has a seasonal aspect, but the extent is not known. In the first two years of the pandemic, the highest peaks occured during winter. However, large case surges have also occurred in summer, as we saw during the Delta and BA.5/BA.4 waves. Currently, Metaculus forecasters give just a 43% chance that summer cases will exceed winter cases at least once before 2027. The odds favor another peak this winter.

Health experts were also concerned that a larger share of the population than usual may be susceptible to flu. Public health restrictions, along with behavioral changes such as masking and social distancing, are effective against a variety of respiratory diseases, including flu and COVID-19. In the first year of the pandemic, flu virtually disappeared, while last year's season was very mild. Lack of exposure over the past two years may create an immunity deficit which in turn may lead to a particularly bad flu season. Indeed, that may already be happening this season. The flu season has started early, and is more severe to this point than it has been in 13 years. Several states, including Virginia, are already at high or very high flu levels according to the CDC.



Although it is still early in the season, several states are already at high or very high (red or dark red) flu level by some indicators, including Virginia. Source: CDC Weekly U.S. Influenza Surveillance Report

In addition to flu, another virus is off to an early and severe start. Respiratory Syncytial Virus (RSV) is surging in the United States, including Virginia. Mercifully, COVID-19 largely spared children from its worst affect, with most severe disease and death occurring among seniors. By contrast, flu and RSV are most severe in both the very young and the very old. Spikes in pediatric flu and RSV are already stressing pediatric hospitals in some regions.

Responding to the Respiratory Disease Surge

Fortunately, we are already familiar with the best methods to respond to this tridemic. Vaccination remains the best defense. Although there is no vaccine for RSV, vaccines are available for both flu and COVID-19. Most people have received a flu vaccination at some point. An annual flu shot is a booster shot usually received in the fall due to flu's highly seasonal nature. New bivalent boosters for COVID-19 are also available. If you have yet to get your flu and COVID-19 boosters, now is the time to do so, especially if you plan to gather with family and friends this holiday season. It is safe and effective to get your flu and COVID-19 boosters at the same time. (This author has done so - twice).

Beyond vaccines, the CDC has published guidelines for preventing RSV, flu, and COVID-19. While each virus has its quirks, there are some overlapping themes. Stay home if you are sick. Avoid close contact. Wash your hands frequently. Cover your nose and mouth - masks reduce the risk of catching or spreading all three viruses. Follow the links above for details on all three viruses.

Current Vaccine Uptake

Currently, booster uptake has been slow in Virginia. As of October 26, only 18% of Virginians have received an annual flu shot, including just 19% of children age 6 months to 4 years, and just 40% of seniors. After a strong start, COVID-19 bivalent booster uptake has lagged as well, falling short of both flu vaccination rates and 2021 booster rates. With three serious respiratory viruses spreading in Virginia, it is important we all do our part to stop the spread. Practice basic respiratory hygiene and get vaccinated when eligible.