January 29, 2021

KEY TAKEAWAYS

- Data and model results have stabilized following the holidays. Test positivity remains high, however, making comparisons to earlier data difficult.
- Virginia's mean weekly incidence declined sharply from 72/100k to 54/100k, but exceeds the national level of 45/100k. The sharp decline has affected projections. Nevertheless, 13 Health Districts are experiencing case growth, including 6 experiencing surges.
- New variants appear to increase transmission. Low case and transmission rates may limit the impact of new variants.

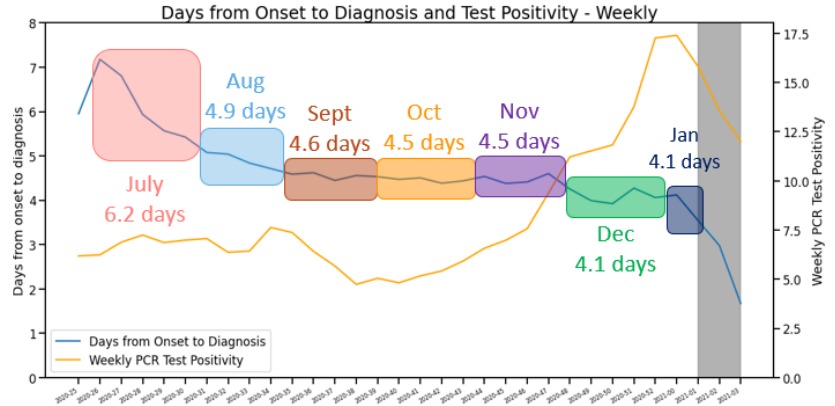### 45,721
Expected Peak Weekly Cases Week Ending Feb 21, 2021

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Total Cases Expected in:

Dec: 94,000
Jan: 180,000
Feb: 179,000
Mar: 143,000

KEY FIGURES

Reproduction Rate
(Based on Confirmation Date)

Region	R_e Jan 25	Weekly Change
State-wide	**0.809**	**-0.340**
Central	0.820	-0.398
Eastern	0.942	-0.167
Far SW	0.698	-0.109
Near SW	0.746	-0.351
Northern	0.708	-0.636
Northwest	0.910	-0.010

Case Detection

Days from Onset to Diagnosis and Test Positivity - Weekly

July 6.2 days; Aug 4.9 days; Sept 4.6 days; Oct 4.5 days; Nov 4.5 days; Dec 4.1 days; Jan 4.1 days

— Days from Onset to Diagnosis
— Weekly PCR Test Positivity

Growth Trajectories: 6 Health Districts in Surge

Status	# Districts (prev week)
Declining	20 (10)
Plateau	2 (1)
Slow Growth	7 (11)
In Surge	6 (13)

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UVA COVID-19 MODEL
WEEKLY UPDATE

VDH VIRGINIA
DEPARTMENT
OF HEALTH
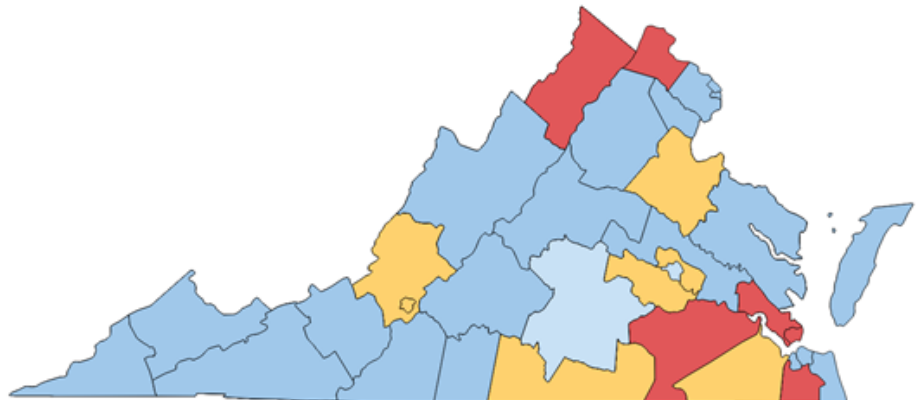
THE MODEL

The UVA COVID-19 Model and the 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 (S)usceptible, (E)xposed, (I)nfected, (R)ecovered epidemiologic model designed to evaluate policy options and provide projections of future cases based on the current course of the pandemic.
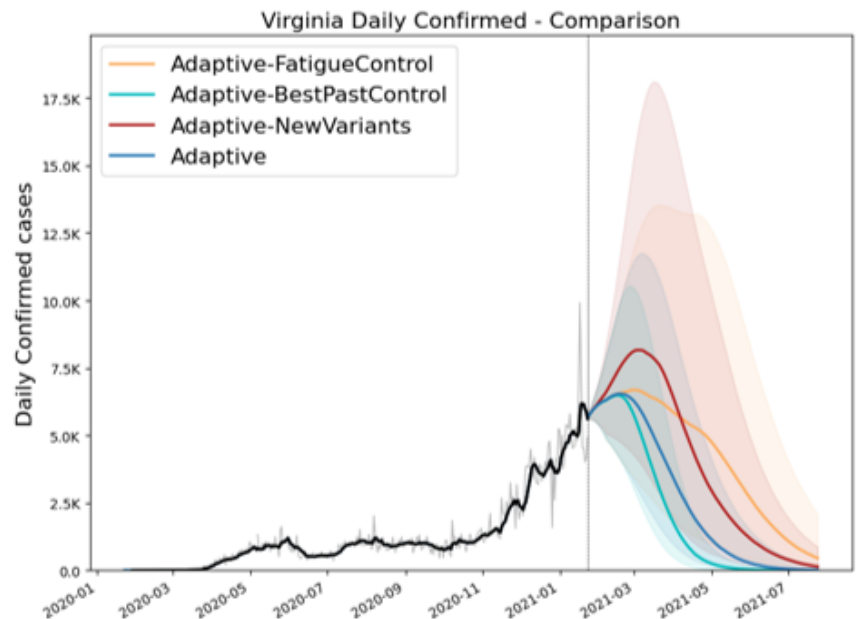
> *COVID-19 is a novel virus causing an unprecedented global pandemic and response. The model improves as we learn more about it.*

THE PROJECTIONS

The UVA team continues to improve the model weekly. The UVA model uses an "adaptive fitting" methodology, where the model precisely traces past and current trends and uses that information to predict future cases at the local level. This week, the model incorporates preliminary projections on the impact of vaccines. Projections incorporating vaccines will improve over time. Several scenarios are included, including counterfactual "no vaccine" scenarios. The model also includes three "what-if" or planning scenarios. The "Best Past Control" scenario projects what may occur if localities match the lowest rates of transmission seen earlier in the summer. This scenario also includes an optimistic vaccine rollout scenario, meeting public targets. The "Fatigued Control" scenario does the opposite, projecting the highest transmission rates forward and using a pessimistic vaccine rollout scenario. The "New Variants" scenario projects the potential impact of new variants, including a 50% increase in transmission, with new variants gradually becoming dominant in two months.

MODEL RESULTS

This week's model incorporated preliminary information on the effect of vaccines, along with several other scenarios. The adaptive model shows weekly cases peaking at almost 46,000 during the week ending February 21. Over the course of the model projections, behavioral and community mitigation strategies have a far higher impact on case numbers than the vaccine. Under the Fatigued Control scenario, new weekly cases peak at 46,612, in early March. However, in this scenario cases stay higher longer. If new variants become dominant, which is expected in the US by March, new weekly cases could peak at 57,000 new weekly cases in early March. To avoid high peaks or sustained spread, we must give vaccines time to have an impact. **Do your part to stop the spread. Continue to** <u>**practice good prevention**</u> **and** <u>**get vaccinated when eligible**</u>**.**

Virginia Daily Confirmed - Comparison

Legend:
- Adaptive-FatigueControl
- Adaptive-BestPastControl
- Adaptive-NewVariants
- Adaptive

The solid lines show scenarios with the potential impact of the vaccine included, while the dashed lines show the same scenarios without. Regardless of the scenario, the vaccine will have only a limited impact with the projection period. Behavioral and community mitigation strategies will have a much larger impact, as shown in the "less control" and "more control" scenarios.

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CASE RATES

New confirmed cases of COVID-19 in the United States peaked at just over 300,000 on January 8, 2021. Since then, new daily cases in the US have been declining steadily. On January 27, the US had just over 155,000 new confirmed cases, almost half of the peak. Cases had declined by 34% over the previous 14 days. While these declines are good news, case rates are still extremely high. The 155,000 new cases is twice the summer peak of almost 76,000, which occurred on July 16, 2020.

While the national trend has been encouraging, the pattern among states is mixed. If you follow the CDC COVID Data Tracker or other resources you may have noted that the latest national surge began in the Midwest, centered in the Dakotas, in early fall, and radiated outwards, towards coastal and Southern states. Following a similar pattern, cases began plateauing and declining first in states that surged earlier. The Dakotas now have some of the lowest cases per 100k residents. Over the past few weeks many coastal and Southern states, including Virginia, have seen the highest case rates.
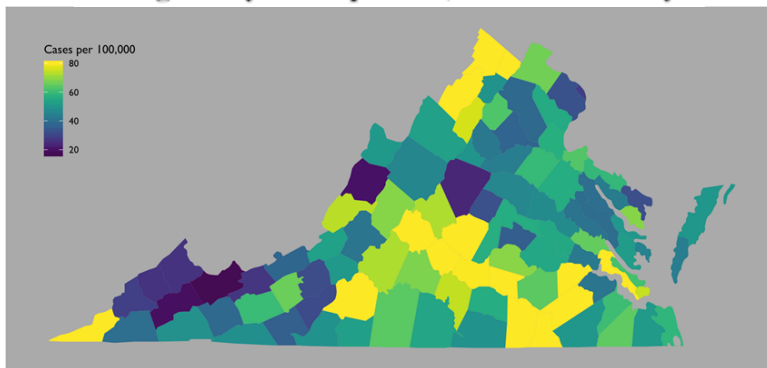

Average Daily Cases per 100,000 in Last 7 Days
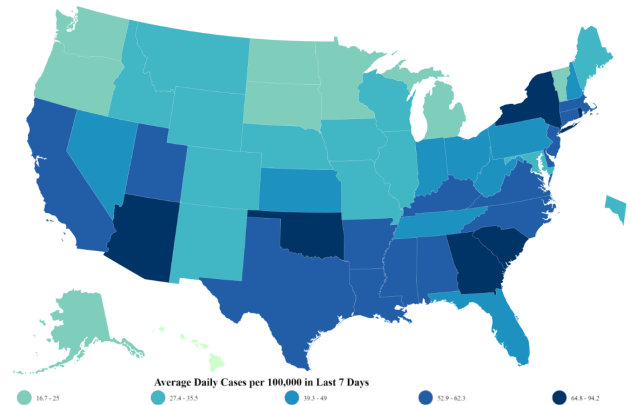
The CDC Data Tracker shows that average daily cases per 100,000 residents are currently highest in coastal and Southern US states. Jan 28, 2021.

Case Rates in Virginia

Average Daily Cases per 100,000 in Last 7 Days

Map provided by RAND Corporation. Data updated January 26, 2021.

As of January 28, Virginia had 57 average daily cases per 100K residents over the past week, ranking 12th among US states and surpassing the national rate of 49 per 100k residents. Comparatively, however, Virginia has limited the impact of COVID-19. Virginia's peak incidence rate was less than half of the peaks experienced in the Dakotas. Virginia also has the 8th lowest total COVID-19 deaths per 100K residents. 6,608 COVID-19 deaths is 6,608 too many, but the prevention measures and best practices implemented by Virginia's residents and businesses have, so far, kept this number from being higher.

In Virginia, case rates have followed the national pattern. The surge in Virginia began in the Southwest and, to a lesser extent, the Northwest during the fall. Cases have now declined in these areas. Several localities in Southwest Virginia have the lowest per capita cases in the states, while localities in the Southside and Crater regions of Virginia have some of the highest rates.

Looking Forward

The human mind is almost designed to see patterns. So much so that we often see patterns where none exist. So it is too soon too conclude that Virginia will see the same plateaus and declines that followed surges in other states. A number of factors could explain such declines, but one of the main ones is that people respond to high case rates by changing behavior. In Virginia, case rates in populous metro areas are a major driver of statewide case rates. Despite some inroads and short-term surges, Virginia's metro areas have avoided some of the exceptionally high incidence rates seen elsewhere so far. If this persists, cases may plateau and decline in Virginia. However, if large metro areas experience the higher rates seen elsewhere, whether due to pandemic fatigue, new variants, or both, Virginia could see current high rates persist or increase into the spring. **Do your part to stop the spread. Continue to follow prevention best practices and get vaccinated when eligible.**

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