

VIRGINIA

COVID-19 Update October 1st, 2020

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A team of RAND researchers was asked by the Commonwealth of Virginia to review available information on COVID-19 models of the commonwealth to determine the strengths and weaknesses of each model and their relevance to decisionmaking. The work of the research team will be documented in a forthcoming RAND research report. The information in this presentation is intended to keep policymakers abreast of the latest findings of the research team.

This research was sponsored by the Commonwealth of Virginia and conducted by the RAND Corporation. RAND is a research organization that develops solutions to public policy challenges to help make communities throughout the world safer and more secure, healthier and more prosperous. RAND is nonprofit, nonpartisan, and committed to the public interest. For more information, visit www.rand.org.



Bottom-Line Up Front



Virginia's total case level has declined

- Case counts remain higher in the southern counties
- Hospitalizations have declined
- Testing has increased significantly in the last week

Additional triggers could lead to a rapid rise in the near term

- Seasonal changes
- Distancing fatigue
- In-person school
- Interstate travel
- Hurricane season

Cheaper, faster testing could reduce the spread if widely deployed



Modeling is less useful for forecasting because behavioral responses are driving current trends

 Models will continue to be very useful for comparing policies and exploring scenarios

Changes in testing practices may change data quality in ways that make it difficult to produce consistent data series

The current trends indicate the latest wave may be declining



New confirmed cases have declined significantly

 The level has broken out of the 900 to 1,100 cases/day range

Currently hospitalized cases have continued to slowly decline

- There has been a change in the demographics of the infected population (e.g., younger)
- This is a lagging indicator and so may continue to decline for the near term

Testing levels are at the target range for a test-and-trace strategy



Tests per day have increased significantly

- Testing levels are appropriate for a test-and-trace strategy
- Further reopening is estimated to require four to five times more testing along with lower case rates (See Rockefeller Foundation)

The test positivity rate has sharply declined and is now below five percent

• Five percent is a suggested target

Per capita new cases are highest in the southern counties

CASE COUNT Source: VDH



Yellow indicates at least 20 cases per 100,000

Virginia's southern counties have continued to see high case levels

Elsewhere case counts were mixed with some increases and some decreases compared to last week

These data were updated September 29th and represent a seven-day average of the previous week

Case rates in neighboring states have been mixed

Over the last 7 days, Virginia had 9.5 (-14% from last week) new confirmed cases per day per 100,000



Very high case loads:

Tennessee (20.2 new cases per 100k, -6% from last week)

High case loads:

- Kentucky (15.9, +7%)
- North Carolina (18.8, +61%)
- West Virginia (10.4, -4%)

Lower case loads:

- District of Columbia (7.1, -15%)
- Maryland (7.7, -21%)

These data were updated September 29th and represent a seven-day average of the previous week

Forecasts based on current policy estimate higher case level





	Near-term Forecasts	Outcomes	
Values:	Near-term: Cases estimated to rise around 5% per week for the foreseeable future	Deaths: About 700 COVID additional deaths by November 1^{st}	
		Hospitalizations: At current levels, there are 60 to 90 new hospitalized COVID cases per day, but this could grow 80 percent higher by November 1 st	
Notes:	A new peak is expected to occur sometime after November 1st	The exact case fatality rate varies, but, as a rule of thumb, each additional case per 100,000 results in one to three additional deaths statewide Severe cases have been shown to have longer term negative health consequences	
Source:	Youyang Gu <u>http://covid19-projections.com/us-va</u> Accessed 9/29/2020	Youyang Gu <u>http://covid19-projections.com/us-va</u> John's Hopkins University <u>https://coronavirus.jhu.edu/us-map</u> COVID Tracking Project <u>https://covidtracking.com/data/state/virginia</u> Accessed 9/29/2020	

We've been monitoring recent, relevant literature



Karaivanov et al. looked at the effects of face mask mandates in Canada

- Over the course of two months, mandatory face mask orders were issued across Ontario
- The authors estimate that the orders reduced the new case count by about 25%
- This is slightly higher than some of the other estimates, which highlights the importance of compliance

Brinks et al. assessed different epidemiological measures for informing policy and the public

- Time variations in the case detection rate make metrics based on case counts biased
- The effective reproduction number and related measures have the least bias
- While all of the measures are related, it may be most informative to use the effective reproduction number when communicating COVID-19 trends

Leeb et al. from the CDC analyzed the data and recent studies on COVID in K-12 schools

- Cases among children aged 5-17 years rose slowly during the March to May timeframe, increased rapidly when movement restrictions were released in May/June, then plateaued in July to August, and dropped in late-August/early-September as schools reopened
- The report provided limited speculation for causes of the trends, but one interpretation is that children are less likely to catch COVID with the school year mobility patterns compared to summer mobility patterns
- More data and analysis is needed here





The two waves were in different parts of the state



- Too little testing to know the true case load
- Cases mostly in the Northern Region

■ Central ■ Eastern ■ Northern

■ Northwestern ■ Southwest

- Cases fell for the first half of June
- Cases flattened after stayat-home order ended

Cases spiked in July in the Eastern Region

- By August, case loads had grown substantially across Southwest Region
- In late-August/September, case rates grew across the state

There are several triggers that could lead to increased spread

Trigger	Likely effect	Timeframe
Seasonal changes	Increased transmission as people spend more time indoors and virus persists longer in cooler/less sunny settings	Increasing as the weather gets cooler
Distancing fatigue	Increased transmission as people are less rigorous about distancing	Gradual and continuous
In-person school	School reopenings could become super- spreader events or students return with COVID from out-of-state	Now
Hurricane season	Evacuees catch or spread COVID	Now to November
Increased interstate travel	People from out-of-state spread COVID	Gradual and continuous
Expanded testing	Paired with self-isolation could dramatically reduce the spread	A few months

These triggers are likely to lead to increased spread

 Some of the triggers could have an impact now and others will build up over time

Expanded testing is the primary trigger to decrease the spread

- Preparation is needed to quickly and effectively deploy enhanced capacity
- Modelling alternative testing strategies could help



Discussion and Questions