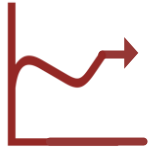# VIRGINIA

COVID-19 Update September 17th, 2020

Carter C. Price, Ph.D.

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 plateaued

- Case counts remain higher in the southern counties

- Hospitalizations have declined slightly

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 is continuing
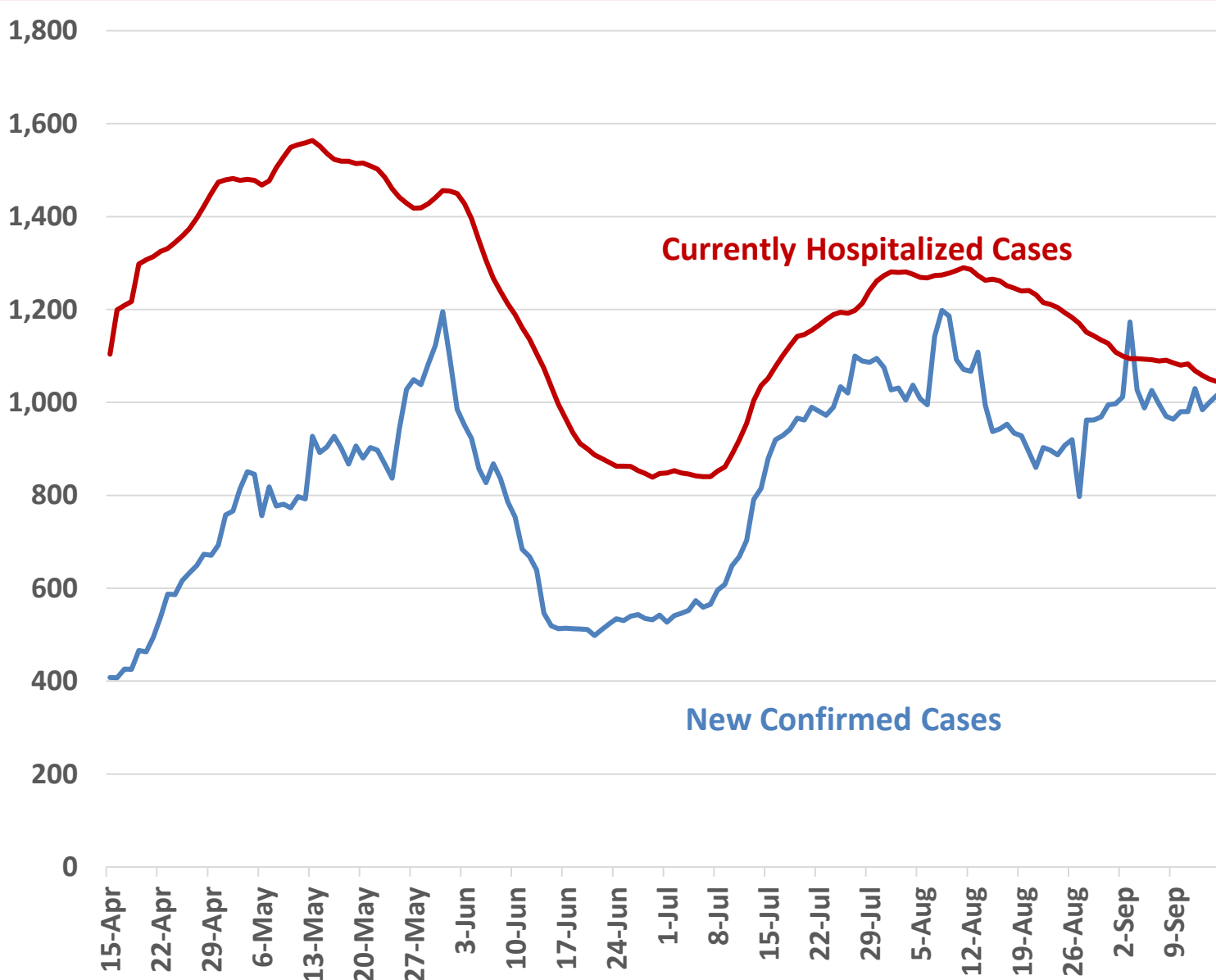

New confirmed cases have plateaued

- Cases are essentially the same as last week
- Any effects from reopening schools should begin show up soon though many have been delayed or are remote for the time being

Currently hospitalized cases have declined slightly

- This is a lagging indicator and so will likely move within a range until a significant movement in the case trends

Testing levels are near the target range for a test-and-trace strategy
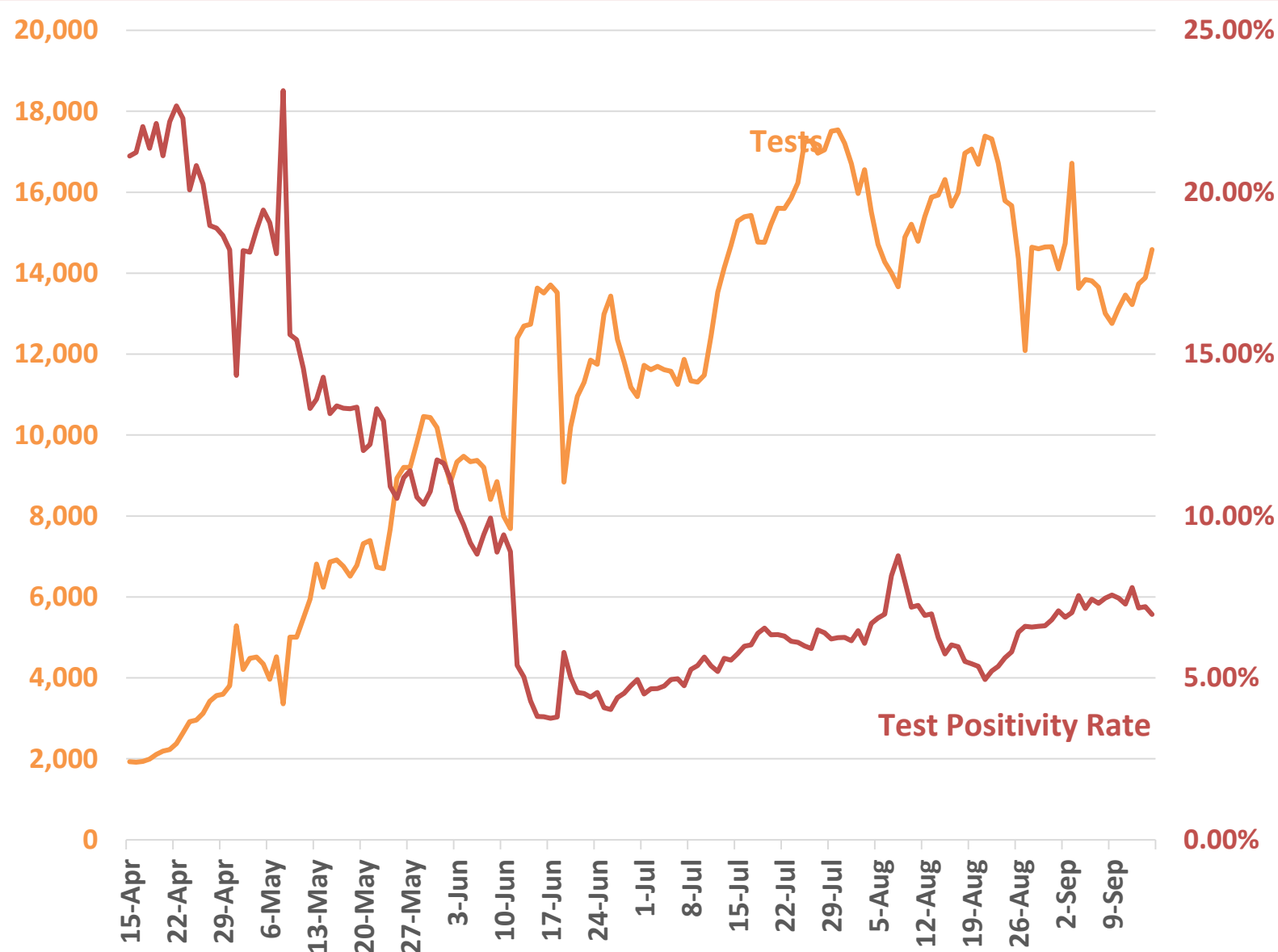
Tests per day have increased slightly
- Testing levels are close to an appropriate pace for a test-and-trace strategy
- It is not clear whether or how tests from colleges and universities are being included
- Further reopening is estimated to require five times more testing along with lower case rates (See Rockefeller Foundation)

The **test positivity rate** is about seven percent and has been mostly flat for the last three weeks
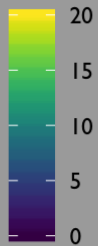- Five percent is a suggested target

Per capita new cases are highest in the southern counties

CASE COUNT
Source: VDH

Cases per 100,000

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 16th and represent a seven-day average of the previous week

Neighboring states have seen declines

Over the last 7 days, Virginia had 11.9 (**+4%** from last week) new confirmed cases per day per 100,000

Very high case loads:
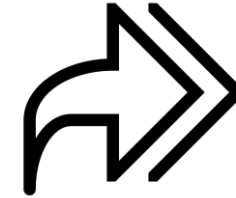Tennessee (21.8 new cases per 100k, **-1%** from last week)

High case loads:
- Kentucky (13.5, **-9%**)
- North Carolina (10.7, **-26%**)

Lower case loads:
- District of Columbia (7.1, **-8%**)
- Maryland (8.9, **-18%**)
- West Virginia (9.9, **-7%**)

These data were updated September 16th and represent a seven-day average of the previous week

Assessment of the near-term

	Current Hospital Census	**Near-term Forecasts**
Values:	Confirmed: 678 Pending: 349	Near-term: Cases estimated to be flat next week and remain near that level until the first week of October Longer-term: Cases are expected to begin rising again in early October
Notes:	This is down a little from last week	Second peak is estimated to have occurred in the past A third peak is expected to occur sometime after November 1st
Source:	Virginia Hospital and Healthcare Association https://www.vhha.com/communications/virginia-hospital-covid-19-data-dashboard/ Accessed 9/16/2020	Youyang Gu http://covid19-projections.com/us-va Accessed 9/16/2020

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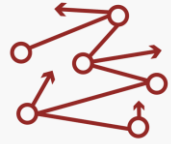
- Some of the triggers could have an impact now and others will build up over time

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

We've been monitoring recent, relevant literature

Graham et al., tested the use of wastewater-based epidemiology (WBE) for monitoring COVID
- They found that applying WBE to the primary settled solids provided sufficient RNA to meaningfully compare COVID levels between wastewater treatment plants and their serviced areas
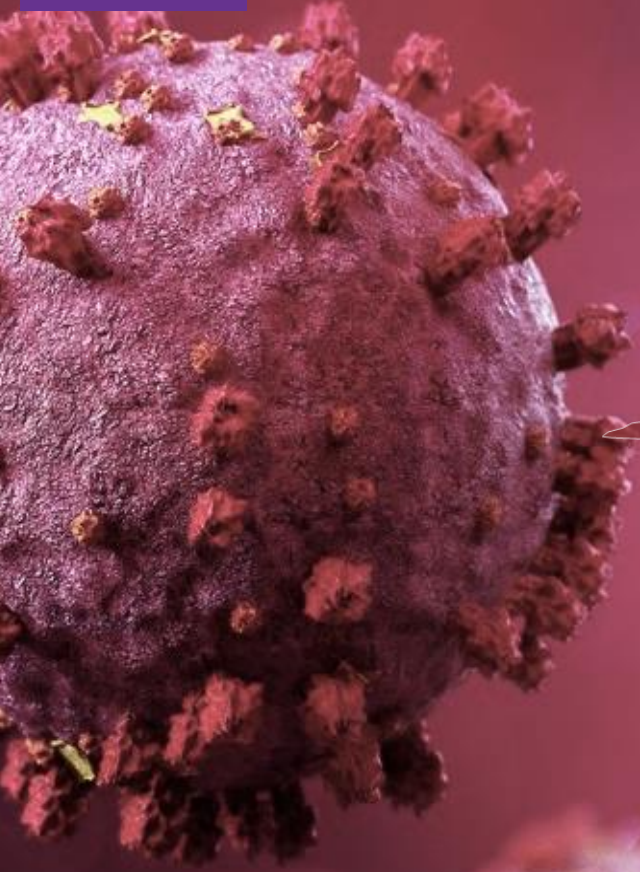- The University of Arizona was able to apply WBE to flag a potential outbreak in a dorm before it occurred

Stephenson examined survey data on food insecurity (sometimes or often not enough to eat) before and after the pandemic
- Nationally, food insecurity increased from 9.2% in March to 12.1% in July
- Using the same census data for Virginia, food insecurity among adults has increased from 7.3% to 11.0%
- Because of substantial overlap in the populations eligible for Medicaid and Supplemental Nutrition Assistance Program (SNAP), enrolling SNAP and related programs through Medicaid contact may help

Christensen et al., performed a literature review on simulations of COVID in universities
- Five papers with 17 non-pharmaceutical interventions met their inclusion criteria
- All were SEIR-type models but with different assumptions and structures
- The model results were highly sensitive to the assumptions, which highlights the importance of model transparency and the need for vetting model design

Discussion and Questions