



**VIRGINIA'S  
HEALTH  
IS IN YOUR  
HANDS.**  
Do your part,  
stay at home.

# UVA COVID-19 MODEL WEEKLY UPDATE



May 29, 2020

## KEY TAKEAWAYS

- Public health restrictions paused the epidemic in Virginia and bought time
- Data suggests social distancing is already relaxing
- Statewide, the reproduction rate dropped below 1.0 on May 15. It averaged 2.2 prior to March 15
- Days from onset to diagnosis have dropped ~30% in recent weeks, from 6.8 April to 4.7 in early May
  - This suggests increased testing is improving detection

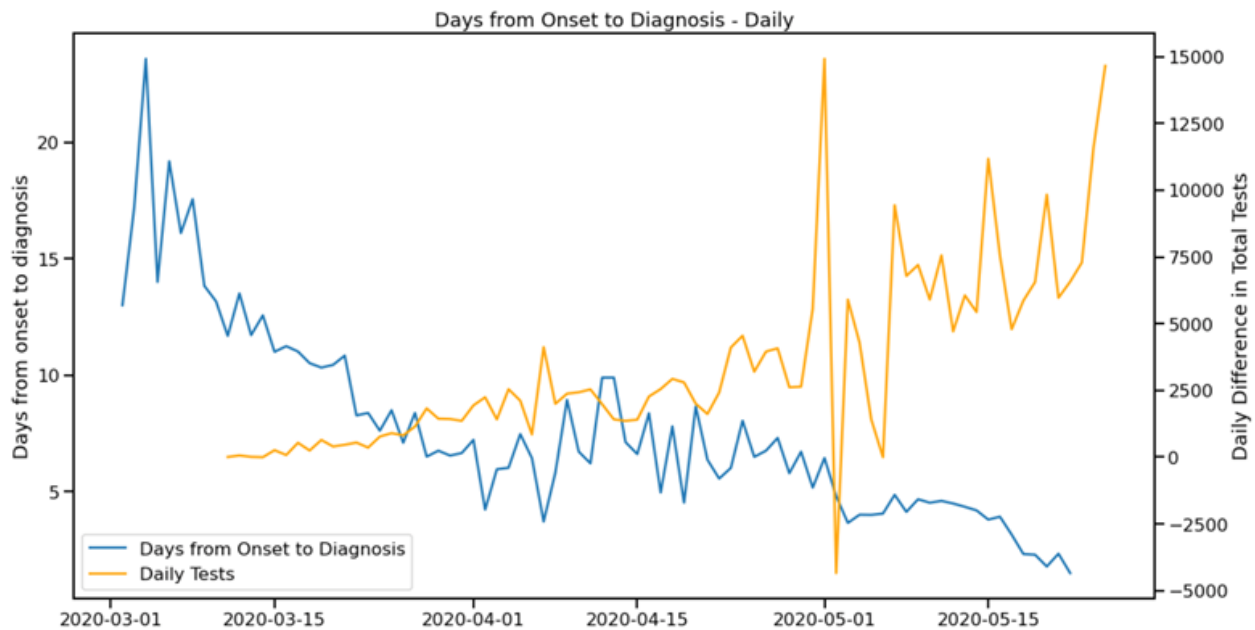
**682,882**

*Cases Avoided so far*

**0.971**

*Reproduction Rate*

*Based on onset date  
14 days ending May 16*



Testing data sourced from covidtracking.com. Days from Onset to Diagnosis calculated by the UVA Biocomplexity Institute using VDH data.

The community mitigation strategies employed by Virginia's residents and businesses successfully lowered the transmission rate, or  $R_0$ , from 2.2 before public health restrictions were put in place to around 1.0 so far in May. This success shows the importance of maintaining social distancing, wearing masks, and washing hands even as Virginia moves into Phase 1 of the [Forward Virginia](#) plan. Virginia is taking a cautious approach, but increased interactions will provide the COVID-19 virus with increased opportunities to spread. Fortunately, the public health restrictions also bought time to build capacity and develop new approaches. One approach, used successfully in places like Singapore, South Korea, and Germany, is a containment strategy based on increased testing, contact

tracing, and isolation. The Virginia Department of Health is hiring over 1,300 contact tracers, investigators and other personnel to assist with tracing and isolation. Virginia has also been working with university and business partners to increase the number of tests, as shown in the yellow line above. This has coincided with a sharp decrease in the time it takes for people to find out they have COVID-19. As shown in the blue line above, this has dropped from about 6.8 days in April to 4.7 days so far in May. People who know they are sick tend to self-isolate, decreasing the opportunity for COVID-19 to spread. Better detection, along with continued social distancing, may allow Virginia to maintain an  $R_0$  of 1.0 or below even as the economy reopens, making COVID-19 manageable.

## THE MODEL

The UVA COVID-19 Model was developed 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 specifically designed to evaluate policy options. That is to say, it is NOT designed to precisely predict future numbers. It is designed to tell us that, given what we know, IF we do "x", THEN we can expect "y". It does this by modeling scenarios.

*It is designed to tell us that, given what we know, IF we do "x", THEN we can expect "y"...*

## THE SCENARIOS

This week's model run examines five scenarios, one unmitigated scenario, and four tracking the public health restrictions lifted on May 15th for most of Virginia, and two weeks later for Northern Virginia, Richmond City and Accomack County.

**Unmitigated:** No community mitigation measures are put in place in Virginia, and the public does not change behavior.

**Light Rebound:** Once community mitigation measures are lifted, interactions return to 17% of pre-pandemic levels, with a moderate increase in transmission.

**Strong Rebound:** Once community mitigation measures are lifted, interactions return to 33% of pre-pandemic levels, with a stronger increase in transmission.

**Better Detection:** Both rebound scenarios are paired with a scenario in which new cases are identified and isolated 30% more quickly through a combination of increased testing and contact tracing.

## MODEL RESULTS

The model estimates that community mitigation strategies employed in Virginia have **prevented 682,882 confirmed cases in Virginia so far**. Most of Virginia entered *Phase I: Safer at Home* of the [Forward Virginia Plan](#) on May 15, which is a slight lift of public health restrictions. If Virginia experiences better case detection and a light rebound of COVID-19 cases after public health restrictions are lifted, the model estimates new confirmed cases already peaked during the week ending May 17. However, if Virginia's residents relax social distancing even further, leading to a strong rebound, and case detection does not improve, the model forecasts new confirmed cases will peak at 53,726 per week during the week ending July 19, 2020, overwhelming hospitals in some areas. Though it is too early to be sure, the model indicates that even with a strong rebound, better detection alone may prevent hospitals from being overwhelmed

