



June 5, 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 continues to wobble around 1.0 in most regions
- New Agent Based Models (ABM) suggest that enhanced contact tracing may lead to significant containment

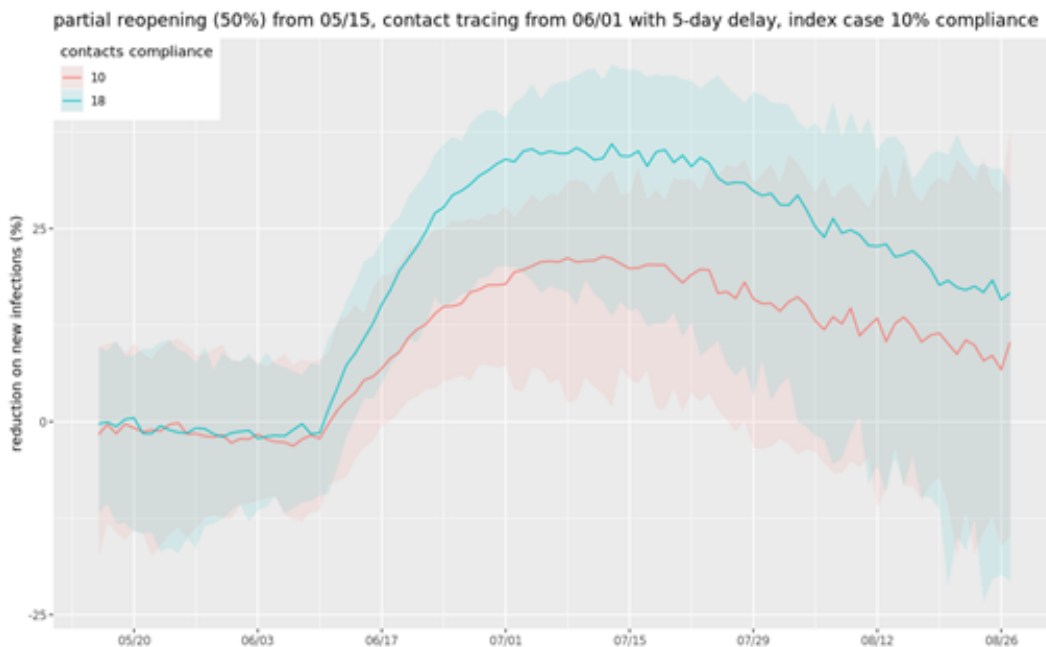
793,625

Cases Avoided so far

1.038

Reproduction Rate

Based on onset date
14 days ending May 23



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 2 of the [Forward Virginia](#) plan. Despite Virginia's cautious approach, 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. Using a new Agent Based Model, UVA researchers estimated that even moderate success in identifying and isolating new cases and contacts can lead to sizable reductions in new cases. These *preliminary estimates* suggest that a 10% improvement in case isolation, along with a 10-18% isolation among identified contacts results in a 20-30% reduction in new infections. 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. COVID-19 won't go away until a vaccine is developed, but, with your help, it may be 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.

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THE SCENARIOS

This week's model run examines six scenarios, one unmitigated scenario, and five 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.

Full Rebound: Once public health restrictions are lifted, interactions return to 100% of pre-pandemic levels, with transmission returning to its pre-March 15 rate.

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 793,625 confirmed cases in Virginia so far**. Most of Virginia entered *Phase II: Safer at Home* of the [Forward Virginia Plan](#) on June 5, 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. 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 52,265 per week during the week ending July 26, 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 may prevent hospitals from being overwhelmed. Doing nothing is not an option, however. Under the full rebound scenario, we expect new cases would peak at 146,863 during the July 4th holiday week.

