



May 22, 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 10. It averaged 2.2 prior to March 15
- Early evidence suggests rebound may be less intense than feared. Intensity depends on:
  - "The new normal"
  - Effectiveness of test/trace/isolate

**534,775**

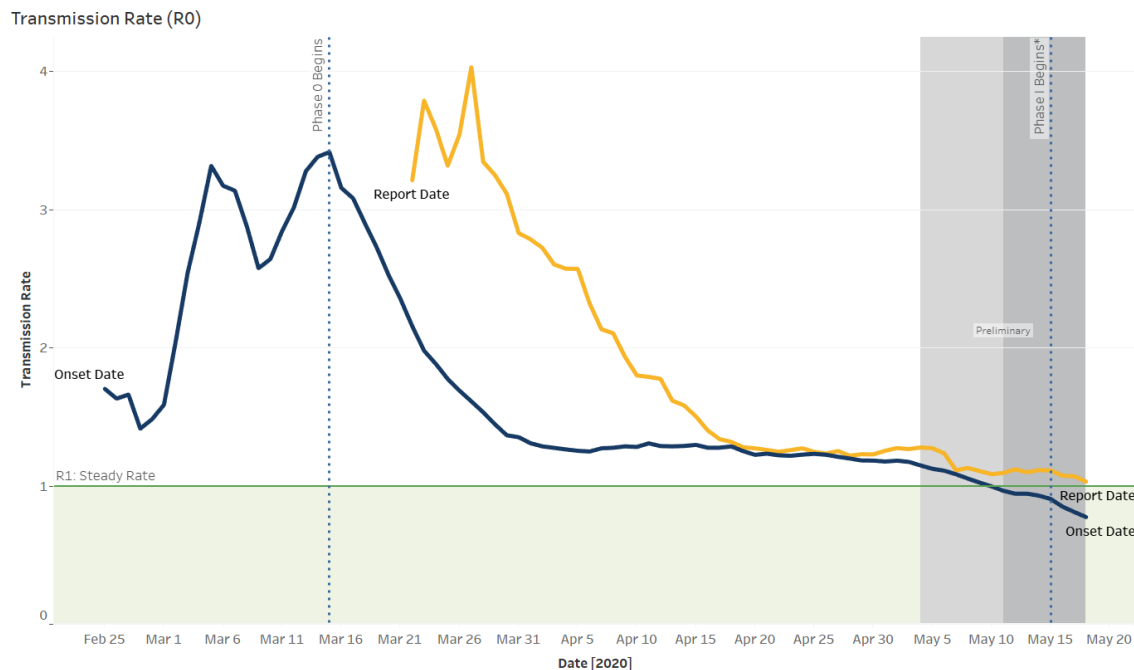
*Cases Avoided so far*

**0.998**

*Reproduction Rate*

*Based on onset date*

*14 days ending May 10*



Researchers use the transmission rate of a disease, often referred to as R-naught ( $R_0$ ), to measure how fast it spreads.  $R_0$  is roughly the number of people one sick person infects. So a transmission rate of 2.0 means that, on average, one sick person infects two others with the disease. The key number for transmission rates is 1.0. At an  $R_0$  above 1.0, the infection will spread. But below 1.0 the infection will die out. There are many factors that can impact  $R_0$ , including virility, mode of transmission, population resistance, and, the one we can control, community mitigation strategies such as social distancing, hand-washing, masks, and contact tracing.

In the fast-paced world of COVID-19, VDH is using two methods to "time" a case of COVID-19. Report date, which is the date a case is first reported to VDH, provides timely case counts but may be influenced by factors such as increased testing. The second, onset date, is defined loosely as the earliest evidence that COVID-19 was present. Depending on the evidence available, this could be based on exposure, symptom onset, a positive test, or date reported. It can take 14 or more days to sort through the available evidence. While not as timely, this is a better estimate of reality. Based on onset date, the  $R_0$  of COVID-19 in Virginia dipped below 1.0 beginning on May 10. However this rate is still preliminary.



## 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 three scenarios, one unmitigated scenario, and two tracking the public health restrictions in Virginia for 61 days, and lifted on May 15th. This week's run includes the two week delays for Northern Virginia localities, Richmond City or 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.

## MODEL RESULTS

The model estimates that community mitigation strategies employed in Virginia have **prevented 534,775 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 a light rebound in COVID-19 cases after public health restrictions are lifted, the model forecasts new confirmed cases will peak at 38,456 per week during the week ending August 9, 2020. However, if the rebound is strong, the model forecasts new confirmed cases will peak at 65,454 per week during the week ending July 26, 2020. If Virginians continue to social distance, giving room for the containment strategy of test, trace and isolate to succeed, then we can expect to maintain the flat curve in the light rebound scenario, and could flatten it further.

