

August 21, 2020

KEY TAKEAWAYS

- Eight health districts are experiencing surges, a significant reduction as the risk of surges moves from urban Hampton Roads into rural South and Southwest Virginia.
- Model methodology has been updated. The new model closely traces past and current trends to predict future cases. The new model replaces the 8 scenarios shown in previous weeks.
- Projections now extend into the fall. However, considerable uncertainty remains as the impact of key seasonal effects is still unknown.
- The transmission rate remains below 1.0 statewide, but has edged above 1.0 in populous Northern Virginia. Transmission rate estimates have been volatile, however.

930,449
 Cases Avoided since
 May 15

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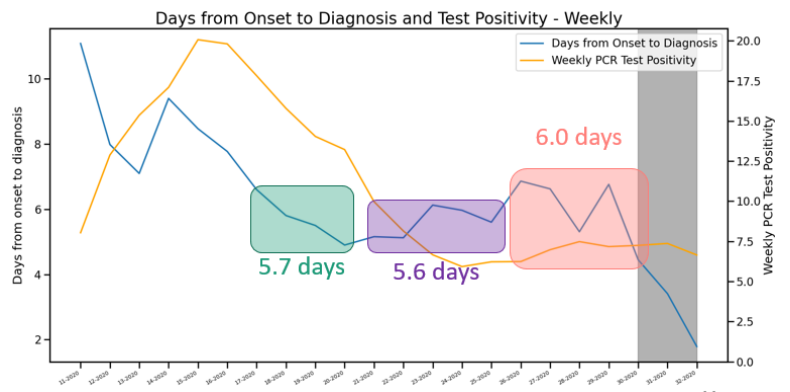
0.931
 Reproduction Rate
 Based on onset date
 7 days ending Aug 8

KEY FIGURES

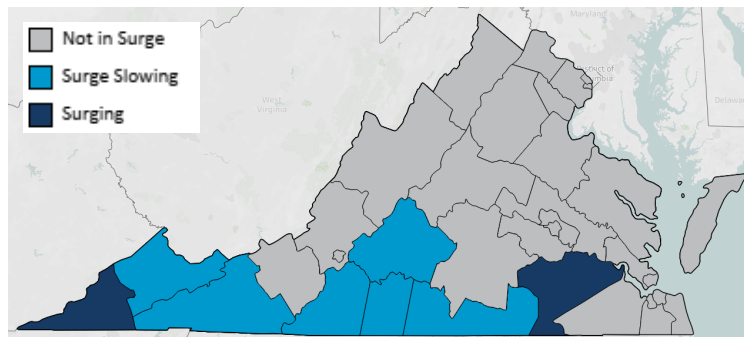
Reproduction Rate

Region	R0 Aug 8	Weekly Change
State-wide	0.931	0.014
Central	0.942	0.005
Eastern	0.790	-0.087
Far SW	0.850	-0.289
Near SW	1.042	0.134
Northern	1.019	0.034
Northwest	0.978	0.215

Case Detection



In Surge: 8 Health Districts



THE MODEL

The UVA COVID-19 Model and the weekly results are provided 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)nfectious, (R)ecovered epidemiologic model designed to evaluate policy options and provide projections of future cases based on the current course of the pandemic.

THE PROJECTIONS

The UVA team continues to improve the model weekly. The UVA model now uses an "adaptive fitting" methodology, where the model precisely traces past and current trends and uses that information to predict future cases. These new projections are based on recent trends the model learns through its precise fitting of each individual county's cases. This model replaces the 8 scenarios reported in prior weeks. Each health district now has its own unique scenario.

The new model also includes two "what-if" scenarios to predict what we might see if cases increase in response to seasonal effects in the Fall, such as schools re-opening and changing weather patterns. It is still too early to know the impact that these seasonal effects will have. For now, the model assumes a 10-20% increase in transmissibility beginning on Labor Day. The model will be updated regularly to incorporate new information.

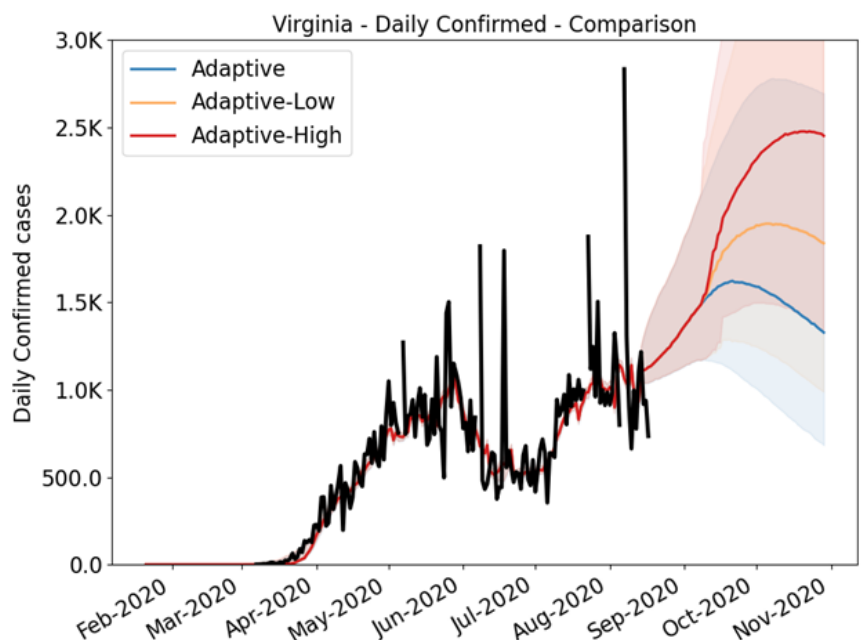
Low impact of seasonal effects: 10% increase in transmission starting September 8, 2020

High impact of seasonal effects: 20% increase in transmission starting September 8, 2020

MODEL RESULTS

The model estimates that Virginia's cautious approach to reopening prevented **930,449** confirmed cases in Virginia since May 15 compared to a hypothetical scenario where interactions returned to 100% of pre-pandemic levels upon entering the [Forward Virginia Plan](#). With the new modeling approach, the current course predicts a peak the week of **September 27th** with **11,306 new** weekly confirmed cases. Anticipated seasonal changes in the Fall could lead to a surge beginning around Labor Day with schools and universities re-opening, changes to workplace attendance, and the impact of weather patterns. With a 10% increase in transmissibility beginning on Labor Day, we would expect to see cases peak at 14,000 the week of October 11th. A 20% increase in transmissibility leads to a slightly later peak the week of October 25th with over 17,000 weekly cases.

COVID-19 is a novel virus causing an unprecedented global pandemic and response. The model improves as we learn more about it.



THE UNKNOWN OF SCHOOLS REOPENING

Autumn is approaching, and with it, the reopening of K-12 schools and university campuses. This has raised a number of questions for parents, students, teachers, and administrators, as well as state and local officials. Should students return to classrooms? If so, should they return fully or partially? What precautions should be taken? Will children and young adults practice basic precautions consistently (or at all)? What about sports, epidemiology club, and other extracurricular activities? And, most importantly, will our students, teachers, professors, cafeteria workers, cross guards, bus drivers, and everyone else be safe?

There has been wide-ranging discussion about these questions. Unfortunately, the COVID-19 virus is unique and the response unprecedented. As a result, hard information on schools reopening has been limited. Statisticians and modelers have weighed in where they could. For instance, researchers with the COVID-19 Modeling Consortium at The University of Texas at Austin looked at the chance that at least one student would arrive on campus with COVID-19 based on local conditions. Using their model, researchers at RAND Corporation estimated the risk for a Virginia campus with 500 students. In Northern Virginia, there is a 67% chance at least one person would arrive on campus with COVID-19. With conditions in Southern Virginia, that risk increases to 98%. Of course, as campus size increases, so does the risk.

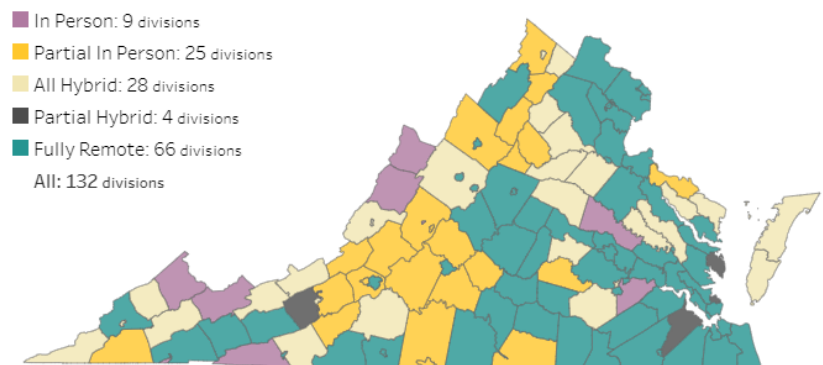
As schools reopen, better information will become available. Anecdotally, the results so far raise concerns. The University of North Carolina at Chapel Hill and nearby North Carolina State University both reopened on August 10. Both quickly announced a shift to online classes following outbreaks among students. UNC-Chapel Hill closed its on-campus housing, while N.C. State allowed students to cancel housing contracts, a whiplash that saw many students traveling across the state and around the country. This highlights broader community risks that come with campuses reopening. What effect will the movement of students have on the spread of COVID-19? According to the State Council of Higher Education in Virginia, there were almost 325,000 students enrolled full-time in higher education in Virginia in 2019. Including part-time students, 155,000 out-of-state students enrolled in post-secondary schools in Virginia.

The UVA modeling team has begun to incorporate the risk of schools reopening into their model, albeit with limited information. Beginning last week, the team included two scenarios with rough, ballpark estimates of the potential impact. One scenario projects a 10% surge in cases beginning on Labor Day, while the other projects a 20% surge. Early evidence suggests these estimates may not be far off. Preliminary analysis indicate that Georgia counties that reopened K-12 schools fully in early August saw an initial 10% increase in transmission rates.

So far, the model has applied these increases evenly across Virginia. However, localities may see broadly different impacts. School districts in Virginia are pursuing very different approaches to reopening (see map). These approaches are often based on differences in local conditions and resources. Colleges and universities are also taking different approaches to reopening, while the risk of reopening on college towns depends on both policies and the size of the local student population.

Division Schedule Fall 2020-21

As of August 20, 2020 ([Va. Dept of Education](https://www.doe.virginia.gov)).



There is good news, however. Evidence suggests that basic prevention, such as moderate social distancing, washing hands, wearing masks, and limiting gatherings, does work to slow the spread. It will take some time to fully understand the effectiveness of classroom mitigation strategies, and the impacts of schools reopening on the spread of COVID-19. However, if we all do our part, we can minimize these risks, and maximize classroom time for Virginia's students.