

2 June 2021

BRIEF19

A daily review of covid-19 research and policy

RESEARCH BRIEFING

Rapid testing highly accurate in children. Important implications for getting back to “regular life.”

For those who are vaccinated wondering what activities they can do, decisions are getting easier all the time; according to the US Centers for Disease Control and Prevention, most activities are safe, indoors or outdoors, mask or no, especially in areas with low case counts.

But what about the 73 million infants, children, and adolescents living in the United States? More specifically, how safe is “normal life” for the 48 million children and infants in the US who are under the age of 12, and for whom there are currently no authorized coronavirus vaccines? At the moment there are two options: “chance it” or “test it.”

The question is: which test? The problem with standard PCR testing (which is the test that most people have had) is that these tests detect the genetic material of SARS-CoV-2, the virus that causes covid-19. But positive results do not tell you whether a person is contagious. In fact, the tests can be positive for days or weeks after the contagious period. But rapid antigen tests are different. These tests detect intact viral particles. Therefore, the results of rapid antigen tests tell us whether the tester is contagious or not. That has implications for whether they need to continue to isolate or not.

A [new study](#) in the journal *Pediatrics* tested children with symptoms highly suspicious for covid-19, or known exposure and a combination of possible covid-19 symptoms. All subjects had symptoms for under 7 days, which would capture a majority of the contagious period for most covid-19 patients. One nostril was tested with the usual PCR test, and the other was tested with a rapid antigen test. For children ages 0-6, 100 percent of the samples that tested positive on the PCR test also tested positive on the rapid antigen test. Among subjects aged 7 to 20, 85 percent of the positive tests matched. This means that rapid tests are not only detecting a grand majority of PCR-confirmed cases, but that our assumptions around contagion in the first week of symptomatic disease appear to be holding up.

Positive tests are important because they send identify kids who might be contagious. But another key to a good test is that a negative result is meaningful. Fortunately, a negative result on a rapid test was 100 percent valid for children ages 0-6, and around 93 percent valid for those ages 7 to 20.

As good as those numbers are, does that mean that up to 7 percent of cases would be “missed” by rapid tests? No. If that were true, we might be worried, though serial (i.e. repeat) testing for symptomatic individuals is likely the safest overall approach in suspicious cases. But in reality, this study used PCR tests as the “gold standard.” That implies that the PCR is the “correct” answer. However, if the question is whether or not the test subject had “contagious disease,” using PCR as the “gold standard” is actually not the correct test at all. Even in light of that, these data show how schools and other public accommodations might use rapid antigen testing to insure a contagion-free zone.

So, what should kids be allowed to do? If case numbers are low enough in any given area, the odds are good that there will be vanishingly few pediatric covid-19 cases serious enough to warrant hospitalization, and even fewer deaths will occur. In those areas, testing will be less essential as a part of “regular” life this fall. But in areas with inadequate vaccination rates, or if vaccine breakthrough variants become prevalent, a small but important number of children could be substantially harmed by covid-19 when in-person learning resumes nationally,

as well as other close-contact activities. In such locales, “rapid antigen testing” could be the difference between whether schools and other child-centric activities remain open or not.

—Jeremy Samuel Faust, MD MS

POLICY BRIEFING

Most vulnerable saw mildest gain in vaccination rates.

Over the past several months, *Brief19* has extensively covered the expansion of vaccine [eligibility](#) and the various government-led programs meant to [increase](#) access. After the initial wave of interest, many of the steps taken were meant to reach out to vulnerable populations, including the immunocompromised, immobile, and incarcerated. A new study from the US Centers for Disease Control and Prevention (CDC), shows that [mild progress](#) has been made. Nevertheless, we still have a long way to go.

Specifically, the data show that US counties with higher vulnerability indices had lower rates of vaccination than their less vulnerable counterparts. This trend was more obvious in counties surrounding metropolitan areas and rural locations, with as many as 16.7 percentage points separating the most and least vulnerable groups.

The big takeaway is that the shift away from mass vaccination centers towards other options, like pharmacy and even door-to-door inoculation, needs to further focus on underserved populations in order to make the largest impact on the pandemic’s course. These efforts will bolster the country’s march towards [reaching](#) the seventy percent vaccination goal set by the summer that was recently declared by President Biden. *Various.*

—*Brief19 Policy Team*