

BRIEF19

A daily review of covid-19 research and policy

RESEARCH BRIEFING

US pediatric testing results for covid-19: The kids are...just ok. And not immune.

The number of children in the United States diagnosed with SARS-CoV-2 recently reached a grim milestone: [1 million](#). Most of the information we know about the infection rates in children come from local and regional data. US-level data has been difficult to find. Now, a group of researchers from the Children's Hospital of Philadelphia have provided a high-quality assessment of infections and testing among children around the country in a [new study](#) out today in *JAMA Pediatrics*. Seven large children's hospitals—Children's Hospital of Philadelphia, Cincinnati Children's Hospital Medical Center, Children's Hospital of Colorado, Nationwide Children's Hospital, Nemours Children's Health System, Seattle Children's Hospital and St. Louis Children's Hospital—compiled data to gain insight.

First, they determined how many tests have been performed and tracked the number of positive tests. From there, they wanted to determine whether the presence of a complicated medical history had any association with the likelihood of developing covid-19. In short, do children with preexisting conditions get sick, hospitalized, or die? Lastly, they looked for rare but potentially dangerous cases of Multisystem Inflammatory Syndrome in Children ([MIS-C](#)) an inflammatory disease some children can develop.

A total of 135,794 “children” ages 0 to 25 (yes, people see pediatricians into their 20s) were tested. Of those tested, 4 percent (5,374 cases) tested positive. Though over half of the tests were done on White children (59 percent), the highest number of positive cases were in Black, Hispanic, and Asian children. This should surprise no one. It's an example of social determinants of health at work—the notion that your ZIP code is every bit as important as your genetic code, if not more so. This racial disparity in both testing and positivity is striking and mirrors findings in adult populations.

Unsurprisingly, children and young adults with chronic or underlying medical conditions were found to be more likely to get sick. Also, the older the patient, the more likely they were to be worse. That said, only 7 percent of the 5,374 children who tested positive had severe illness—meaning they required services such as hospitalization, respiratory support, and or admission to an intensive care unit. The death rate was 0.15 percent, or 8 of those 5,374 known to have the disease. While that is low, there are very few viral infections that cause death in one out of 672 people in this age range. It is likely that many milder cases go diagnosed in the communities where the data are from. So while scary, the real mortality rate may be better.

As for evaluating the rare and elusive MIS-C, this study found that rates of [Kawasaki's disease](#) (thought to be similar to MIS-C) were actually *lower* in 2020, according to hospital billing codes from January 1st to September 8th. The reason for this is unclear. One possibility is under-diagnosis; not all clinicians know how to document MIS-C, and not all hospital computer systems have well-defined codes for this new disease variant. An alternative explanation is that the lower rates of these inflammatory condition might be a result of increased physical distancing; some infections that lead to these conditions in children may have decreased this year. For example, Australia and New Zealand had *extremely* mild flu seasons this year, as they also controlled covid-19 impressively.

In sum, this study provides new insight on how frequently covid-19 infects, affects, and kills children. In short, no, they are *not* immune. However, they are less likely than [adults](#) to develop serious illness. Much remains unknown. Because of this, we should continue to evaluate

children for infection, include them in vaccine trials, and address the disparities that are endemic to the way healthcare in America is delivered.

—Joanna Parga-Belinkie, MD

Oxford/AstraZeneca vaccine 62% or 90% effective against covid-19, depending on dose.

Early Monday, a [news release](#) from Oxford University and AstraZeneca announced that its vaccine is either 62 percent or 90 percent effective in preventing covid-19, depending on the dosing scheme. The average across both dosing strategies was 70 percent. Similar to the [Pfizer](#) and [Moderna](#) news early in the month, we do not know whether infections were prevented. Rather we know that among those who received the vaccine, symptoms were far less likely than among those who received a placebo. Zero patients who received the vaccine were hospitalized, though it is unknown whether any who received placebo were hospitalized.

Unlike the two other vaccines making news this month, this vaccine uses a different technology. Instead of mRNA, this vaccine gains entry into human cells by way of a weakened and “replication incompetent” cold virus (an adenovirus). This means it is unlikely to cause severe cold-like illnesses and that it is impossible for the virus to replicate and cause disease in a recipient. But it has been engineered to encode the spike protein of SARS-CoV-2 (as the Pfizer and Moderna vaccines do).

It is unknown why there was a 18% difference between the dosing strategies, a finding made more bewildering by the fact that subjects receiving two full doses fared less well than those who received a half dose followed by a full dose. Information on how common adverse events occurred was not given, which is a weakness in the transparency of this report compared to the Moderna and Pfizer competition. However, the researchers state that the vaccine was “well tolerated.” Reassuring, though vague. One major advantage of this vaccine is that it can be stored at normal refrigerator temperatures for six months, making distribution easier.

—Jeremy Samuel Faust, MD MS

POLICY BRIEFING

Numbers don't lie.

Last week *Brief19* [covered](#) the new infection milestones that many states were hitting on a daily basis. Unfortunately, the hits keep on coming. According to [Reuters](#), which keeps a daily tally, the United States has now surpassed 250,000 total deaths. While it is reassuring that the case fatality rate had a 30 percent relative [decrease](#), this has been somewhat blunted by the [news](#) that an estimated 3.2-3.6 million Americans are currently infected and contagious with covid-19. It is important to note that these numbers are higher than other reported totals due to the community spread of the virus and how these models use metrics to estimate positive tests beyond those reported by state health departments.

Part of the concern originates from the fact that the wave this past fall followed a similar progression to the 1918 H1N1 Spanish Flu pandemic. As the country moves into the holidays, many new cases are anticipated, in spite of new lockdown measures being [instituted](#) by many states. While the White House has [focused](#) on strategies aimed at protecting high-risk individuals and allowing the development of herd immunity for other citizens, infectious disease experts fear this strategy will result in “many tens of thousands” of preventable death. This comes in addition to previous figures which estimate that around 130,000-210,000 preventable deaths are [attributable](#) to prior inaction. *Various*.

—Joshua Lesko, MD

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Brief19 is a daily executive summary of covid-19-related medical research, news, and public policy. It was founded and created by frontline emergency medicine physicians with expertise in medical research critique, health and public policy.