

22 March 2021

## **BRIEF19**

*A daily review of covid-19 research and policy*

### **RESEARCH BRIEFING**

#### **Coronavirus antibody levels of children and adults differ widely in response to infection, new study finds.**

The mystery of why SARS-CoV-2, the virus that causes covid-19, currently spares most children from serious disease remains unsolved. It may be that children are less likely to be infected due to a [difference in the number of receptors](#) that the virus uses to enter cells. Or it may be that pediatric immune systems respond more favorably to infection. The second explanation is especially important in light of [recent evidence](#) suggesting that far more children in the US have already been infected with the virus, many of whom had few or even no symptoms.

A [new study](#) in *JAMA Network Open* provides substantial readouts on the immune-response to SARS-CoV-2 infection, stratified by age. Antibody levels (immunoglobulin G, which reflect longer-term antibodies that develop after an initial infection) among children ages 1-10 were similar to adults over 51 years of age. But older children (ages 11-18), and young and middle-aged adults had markedly lower (approximately 50 percent lower) antibody levels. Also, functional studies of the antibodies' ability to neutralize the virus showed that younger children had better responses than adolescents and young adults.

These new data comport with epidemiologic data (that we have come to take for granted) that children are less likely to develop serious or critical covid-19. In addition, these findings add information that may be more widely applicable than previous studies, as the samples from this study included far more asymptomatic cases and those with mild illness only in comparison to previous studies which focused on sicker and hospitalized children.

The question as to why some of the immune responses that we can measure appear to be less robust in older children and young adults than in very young children and older adults is another remaining puzzle. This study therefore highlights how much we have left to learn. If the very young and the very old have at least some important measurable immunologic responses in common in a quantitatively meaningful way, why is it that the young have experienced far milder clinical outcomes on average? Once this is worked out, the lessons may help us treat not just SARS-CoV-2 but a variety of respiratory illnesses.

—Jeremy Samuel Faust, MD MS

### **POLICY BRIEFING**

#### **CDC updates school distancing guidance.**

The US Centers for Disease Control and Prevention (CDC) has [updated](#) its social distancing policy in schools based on community transmission rates and masking use. The new recommendations are based on a trio of studies [published](#) in the CDC's *Morbidity and Mortality Weekly Report* providing more data about the spread of SARS-CoV-2 in schools. The recommendations are as follows:

- For elementary schools, regardless of the community transmission, three feet of separation is recommended if there is a universal mask policy in place.
- For middle and high schools where community transmission is not high, three feet of separation is similarly recommended.
- In areas where community transmission is high, schools should attempt to cohort students and teachers to reduce contact between groups, and if not possible, middle and high school students should still maintain six feet of separation.

It is important to note that these updates only apply to students in classrooms with enforced *universal* masking policies. The CDC still recommends that adults maintain six feet of separation at all times, and that students similarly maintain six feet in common areas, when eating, during increased exertion, and in the community at large. *The Centers for Disease Control and Prevention*

—Brief19 Policy Team

*Kimi Chernoby, MD, JD, Policy Section Founder, Joshua Niforatos, MD Research Section Editor, Frederick Milgrim, MD, Editor-at-Large, Joshua Lesko, MD Lead Policy Analyst, Barb Cunningham, Copy-editor, Benjy Renton, Thread-of-the-Week, Anna Fang, Week-in-Review, Megan Davis, social media, Kane Elfman PhD, Publishing and Design, Jeremy Samuel Faust MD MS, Editor-in-Chief. <http://www.brief19.com/> Twitter: [@brief\\_19](https://twitter.com/brief_19) [submissions@brief19.com](mailto:submissions@brief19.com). 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.*