had the chance to go to Sumner Elementary School, as she was in junior high school by the time the case was decided. Understanding these limitations is important. However, as we seek creative ways to confront and prevent bullying, litigation merits further consideration as a potential tool. Hatzenbuehler et al have done valuable early work examining its impact, and the results are encouraging for cases in which the student, or student’s family, is ultimately successful.

There is much more we still need to know. Additional research is needed, as the authors note. We need to understand whether the positive impact of litigation sustains over time and whether that occurs on its own or is dependent on other variables. In addition, we should examine whether the specifics of the court order affect the impact—that is, is an order of monetary damages adequate, or does a court need to require the school or district to take specific steps? Understanding that will help tailor litigation strategies so they can be more impactful. We also need further research about the potential backlash after cases in which schools or districts win. If it occurs, does it sustain over time? Can it be mitigated? If so, what law, policy, or programs help mitigate the downside risk of adverse litigation outcomes for students who are at risk of being bullied?

Given the time-sensitive nature of childhood and child development and the long-term adverse consequences of bullying, we need more robust bullying prevention efforts. Hatzenbuehler et al provide an important early step in understanding the potential contributions that litigation can make to bullying prevention and intervention strategies.

If Young Children’s Risk of SARS-CoV-2 Infection Is Similar to That of Adults, Can Children Also Contribute to Household Transmission?

Flor M. Munoz, MD

During the early phases of the SARS-CoV-2 pandemic, children were sheltered and protected from exposures and infection with this new respiratory virus. They were also thought to be less susceptible and were not tested or diagnosed as often as adults. Historically, young children are at unique high risk of infection and severe disease from respiratory viruses, as seen during the influenza A/H1N1 2009 pandemic. However, SARS-CoV-2 initially appeared to affect primarily older adults, who experienced the highest morbidity and mortality of COVID-19. As the pandemic evolved and children and adolescents were gradually allowed to resume social and school activities, and particularly with the relaxation of the use of public health measures such as masking and social distancing, the actual impact of SARS-CoV-2 in the pediatric population has become apparent. While relative to adults, children continue to be generally less affected from severe COVID-19, hospitalization, and death, the number of pediatric cases, hospitalizations, and complications such as multisystem inflammatory syndrome are not insignificant and continue to rise with the advent of the Delta variant in the United States. Less clarity exists regarding the risk of SARS-CoV-2 infection in children.
In this issue of *JAMA Pediatrics*, Dawood et al\(^6\) report the results of a large (1236 participants in 310 households) prospective household cohort study conducted from August 2020 to April 2021, encompassing the most active epidemic periods of COVID-19 prior to the emergence of the Delta variant. The study demonstrates that all along, children of all ages including infants and toddlers have had a similar risk of SARS-CoV-2 infection compared with adults.\(^6\) In this study conducted by the US Centers for Disease Control and Prevention and investigators in Utah and New York City, New York, the incidence rates of infection were similar by age group among adolescents aged 12 to 17 years (5.9/1000 person-weeks), children aged 5 to 11 years (4.4/1000 person-weeks), and notably infants from birth to age 4 years (6.3/1000 person-weeks), compared with adults 18 years and older (5.1/1000 person-weeks). Therefore, children are not only capable of becoming infected, but are also capable of transmitting SARS-CoV-2.

The prospective and systematic assessment of infection through weekly self-testing independent from the presence of symptoms and the careful additional evaluation of symptomatic cases allowed for the measurement of true infection rates in the study by Dawood et al.\(^6\) While infection rates were similar in all age groups, asymptomatic infection was definitely more common in pediatric groups, particularly children up to 11 years of age, in whom only half of the confirmed cases of infection resulted in symptomatic disease compared with more than 88% of adults. The real-time ascertainment of both symptomatic and asymptomatic infection by molecular diagnostic testing in all age groups within the household during a period of high virus circulation is a notable strength of this study. Despite inherent limitations as described by the authors, the study design and clever approach for remote data collection, self-sampling, and real-time disease surveillance can be a model for the timely implementation of infection and transmission studies in areas of disease activity in future outbreaks and pandemics.

Dawood et al\(^6\) estimated that in households with at least 1 documented case of pediatric infection, the risk of infection among household members was 52% (range, 11%-100%). This is a high rate of transmission, and it is likely to be higher with the Delta variant and other emerging variants with increased infectivity and transmissibility. The fact that children, and especially young children, can transmit SARS-CoV-2 is now established and more clearly understood. In another relevant study by Paul et al,\(^7\) among 6289 households in Ontario, Canada, where a pediatric age (birth to age 17 years) index case of laboratory-confirmed SARS-CoV-2 was identified from June to December 2020, the youngest children from birth to age 3 years had the highest odds (adjusted odds ratio, 1.43; 95% CI, 1.17-1.75) of transmitting SARS-CoV-2 to household contacts when compared with adolescents aged 14 to 17 years.\(^7\) Importantly, school-aged children aged 4 to 8 years in particular, but also those aged 9 to 13 years, also had a higher rate of household transmission than adolescents in this study. Other studies in the US and other countries have reported similar observations regarding the role of young children in SARS-CoV-2 transmission.\(^7\) Interestingly, in a California elementary school outbreak with the Delta variant, the reported attack rate was 50%, showing that even in less enclosed environments, transmission can be high.\(^8\)

The findings of Dawood et al\(^6\) and Paul et al\(^7\) have substantial implications for decision-making in regard to return-to-school planning and the participation of children in various group activities, including childcare, after-school programs, and camps. While there has been reluctance by some, the need for appropriate use of face masks, handwashing, and social distancing among pediatric populations is evident and necessary to protect children and their household contacts. Children play a key role in the transmission of respiratory viruses, and the start of the school year typically coincides with community spread of respiratory illnesses such as influenza. Therefore, it is likely that as SARS-CoV-2 establishes itself as a respiratory human pathogen, outbreaks associated with participation of children in childcare, school, and other group activities will continue to occur and contribute to the perpetuation of this virus as a threat to communities in the United States and worldwide, especially where children and other populations remain unvaccinated.

The findings of the study by Dawood et al\(^6\) also have implications for pandemic control. There is a need for the early inclusion of children in vaccine studies and vaccination strategies for their own protection, for protection of other children and the adults they are in contact with at home and in schools, and for the protection of the community. It is also imperative to include children in studies of preventive treatments such as monoclonal antibodies, antivirals, and other therapeutics for SARS-CoV-2. The delay in initiating such studies and subsequent paucity of data to support the use of vaccines and therapeutics has resulted in delays in the development of evidence-based guidance for the care of children with COVID-19. This is painfully apparent today, as the Delta variant continues to ravage through vulnerable populations, unvaccinated individuals, and young individuals, children included.

If lessons are to be learned from our collective experience and if we agree to acknowledge the role of children in the transmission of respiratory viral infections, then pediatric populations, from infants to adolescents, must be included in pandemic preparedness, disease burden assessment, timely vaccine and therapeutics research, and strategies and policies for the control of outbreaks and pandemics from day 1 without delay.

**ARTICLE INFORMATION**

Author Affiliations: Department of Pediatrics, Baylor College of Medicine, Houston, Texas; Section of Infectious Diseases, Baylor College of Medicine, Houston, Texas; Department of Molecular Virology and Microbiology, Baylor College of Medicine, Houston, Texas.  

Corresponding Author: Flor M. Munoz, MD, Baylor College of Medicine, One Baylor Plaza, BCM-280, Houston, TX 77030 (florm@bcm.edu).


Conflict of Interest Disclosures: Dr Munoz reported grants from Pfizer (paid to their institution for a vaccine study) and is a data and safety monitoring board member of Moderna (various...
COVID-19 and Routine Childhood Vaccinations—Identifying Gaps and Informing Solutions

Brian P. Jenssen, MD, MSHP, Alexander G. Fiks, MD, MSCE

On March 11, 2020, the World Health Organization declared COVID-19 a global pandemic. The United States declared a national emergency and, on March 18, 2020, the American Academy of Pediatrics issued guidance advising pediatricians to restrict preventive care visits to younger children requiring immunizations. Pediatric primary care visit volumes precipitously declined. A growing literature is helping to define this impact and raise questions about how best to address the consequences of that lost care.

In this issue of JAMA Pediatrics, DeSilva et al address the critical issue for the pediatric community of declining vaccination rates during the COVID-19 pandemic. The study team used data from the Vaccine Safety Datalink, a collaborative effort between the US Centers for Disease Control and Prevention’s Immunization Safety Office and 8 integrated health care organizations across 6 US states. Using this data set, the study team conducted a retrospective observational study with a pre-post control design, examining both weekly routine childhood vaccination rates and the proportion of children in key age groups with up-to-date (UTD) vaccinations as of February, May, and September 2020. The study team then compared these rates with comparable 2019 time periods. Analyzing the data for approximately 1.4 million children in each year, the study team identified substantially lower rates of weekly vaccine administration across age groups during the early months of the COVID-19 pandemic, followed by an increase to near prepandemic levels from summer into fall 2020. Despite the return to more typical levels of vaccination, the proportion of children with UTD vaccinations was lower among the 7-month, 18-month, and 13-year age groups while remaining stable for the 6- and 18-year age groups.

In all, the data presented by the study team describe a situation that is both reassuring and concerning regarding the impact of the COVID-19 pandemic on childhood vaccinations. Vaccine administration rates in health care systems, after an initial decline, have essentially returned to prepandemic levels. However, as has been observed in other studies, there are lingering effects of the pandemic, as the proportion of children with UTD vaccinations has declined over time.

The COVID-19 pandemic also has increased health disparities in a range of settings. For pediatric vaccination, the study team examined and found wide disparities in the proportion of children with UTD vaccinations by race and ethnicity. These differences preceded the pandemic, and, for some age cohorts, the disparity may have widened. For example, rates of UTD vaccination for the 7- and 18-month age groups varied widely by race, with rates highest in Asian children and lowest in Black children. The differences were not as stark for other age cohorts but were nonetheless present. Worse still, differences in proportion of UTD vaccinations at age 18 months between Black children and children of other races may have increased through the COVID-19 pandemic.

The study had several meaningful strengths and limitations. The Vaccine Safety Datalink uses electronic health record and claims data from each participating site. This approach allows for timely data collection and interpretation and is highly accurate. The study population is mostly children with commercial and/or stable health insurance receiving care in large health care systems. Even with the addition of Denver Health, which includes children with Medicaid insurance, vaccination coverage trends may be different for other populations, including patients who receive vaccinations through the Vaccines for Children Program. Further, the sample has large numbers of Hispanic children (another strength), al-

References


