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Important considerations for COVID-19 vaccination of children with developmental disabilities

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Children can transmit SARS-CoV-2, and although lower risk, can experience serious outcomes from infection. Vaccinating children against COVID-19 is essential to protecting their health and establishing higher population immunity. In 2015–2017, 1 in 6 children aged 3–17 years had a developmental disability (DD) such as cerebral palsy, autism spectrum disorder (ASD), or intellectual disability (ID).¹ DDs are a diverse group of chronic conditions that begin in childhood and can impact functioning throughout life. Despite limited data in public health surveillance systems, some evidence suggests that some children with DDs might be disproportionately affected by COVID-19, both by the illness itself, and the pandemic's impact on receipt of services. Children with DDs often have medical conditions that contribute to higher risk for severe illness from COVID-19,² and can experience barriers to accessing needed health care and possess other characteristics increasing their risk from COVID-19, including limited mobility, direct care requirements, and challenges practicing preventive measures and communicating illness symptoms.³ We describe the limited available data relevant for children with DDs and highlight other considerations for COVID-19 vaccination.

In a cross-sectional study of >64 million U.S. patients of all ages, COVID-19 incidence was >3 times higher among people with ID than those without.⁴ Among those with COVID-19, twice as many people with ID were hospitalized, admitted to the intensive care unit, or died compared to those without ID. In analyses adjusting for age and comorbidities, ID was the strongest risk factor for COVID-19 diagnosis and the odds of mortality were almost six times higher among patients with COVID-19 who had ID compared with those without ID.

Private insurance claims data from the FAIR Health database showed similar results among patients of all ages for other DDs.⁵ Among people with COVID-19, those with ASD, ID, learning disabilities, and attention-deficit/hyperactivity-disorder had ~3 to 9 times

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higher likelihood of hospitalization (adjusted for age and gender) than those without these conditions, and longer hospitalizations. Those who had a DD had ~3-fold higher odds of mortality than those without.⁶ Data on 43,465 children <18 years showed that from March 2020–January 2021 children with neurodevelopmental disorders were 1.6 times as likely to be hospitalized with COVID-19 than children without neurodevelopmental disorders, although severe illness among children hospitalized for COVID-19 with neurodevelopmental disorders was less common than among children with other conditions.⁷ An analysis of 30,282 patients with COVID-19 from the TriNetX COVID-19 Research Network showed the COVID-19 fatality rate among children <18 years with ID and other DDs was 13 times higher than among children without these conditions. However, these rates were based on only two fatalities among 125 children with DD and one fatality among 791 children without DD.²

Limitations of the available data should be considered. It is challenging to compare results across studies because of variability in types, severity, and definitions of DDs, which can lead to heterogeneity in risk. Few studies examined children specifically, and not all accounted for underlying medical conditions or other confounders. Many studies used administrative healthcare data, which is not generalizable to all patients (e.g., includes only commercial insurance) and relies on diagnostic or other billing codes, which might result in misclassification of DDs or of COVID-19 as the reason for healthcare use (versus incidental finding). Finally, not all analyses have undergone peer-review.

Data on influenza vaccination can be used to inform potential challenges to COVID-19 vaccination among children with DDs. Despite many children with DDs being considered high-risk for influenza complications, vaccination rates in this population are consistently low (see Data Supplement). Reasons for these suboptimal vaccination rates might be related to limited knowledge about increased risk for severe outcomes, access barriers, or vaccine hesitancy.

An online survey of parents of children with an ID or other neurological disorder found that their most important source of information regarding vaccines was their child's healthcare provider.⁸ However, in a companion survey of physicians likely to treat these children, <50% recognized ID as a high-risk condition for influenza.⁸

Data from studies before 2020 show that children with ASD have lower rates of influenza and other vaccinations compared with children without ASD and that parents of children with ASD have higher rates of vaccine hesitancy than parents of children with other DDs or no DDs (see Data Supplement).

Although vaccinating siblings of children with DDs might help to reduce COVID-19 transmission within households, data show that siblings of children with DDs have lower vaccination rates than their siblings with DDs, and siblings of children with DDs have a lower prevalence of on-time vaccination and a higher prevalence of parent vaccine refusal than siblings of children without DDs (see Data Supplement).

People with DDs face long-standing systemic health and social inequities. Children with DDs have greater healthcare and community-based service use than children without DDs,⁹

yet are more likely to have unmet healthcare needs. Additional challenges were raised by the COVID-19 pandemic. In a survey of >3,000 caregivers of children with ASD, 62% reported moderate to severe negative impacts of COVID-19-related disruption in services on their child's ASD symptoms and 72% reported experiencing moderate to extreme stress due to these disruptions.¹⁰ School closings to in-person learning and modified remote learning options have kept children within the home more, isolating and essentially re-segregating many children with DDs from their peers, despite the Individuals with Disabilities Education Act mandate that children with disabilities be educated with children without disabilities to the maximum extent possible in the least restrictive environment. Prioritizing adolescents with DDs aged 12 years for COVID-19 vaccination, and children aged <12 years when vaccines are authorized for use in this age group, is essential to resuming needed educational services within the school setting.

Pediatricians can work with other providers to tailor COVID-19 vaccination efforts for children with DDs to overcome issues of access and hesitancy. Children with DDs may have more interactions with healthcare or other service specialists than with general pediatricians. Collaboration between pediatric hospital systems, pediatric specialists, disability-specific practices and clinics, and occupational, physical, or speech specialists with knowledge of the specific needs of the children with DD in their community will be important for successful vaccination implementation. COVID-19 vaccination can be provided in ways that are easier for children with DDs to accept, such as the option to be vaccinated in their vehicle or in quiet areas. Some children with DDs may require more time or sensory modifications during vaccination appointments. In addition, some children with DDs may be unable to wear masks or practice physical distancing, limiting their ability to receive services at many locations. Trusted care providers can work with parents to learn and address specific concerns with vaccination. Collaboration with schools may facilitate parental education and/or leverage school-based clinics.

In conclusion, children with DDs are likely at higher risk of COVID-19 illness because of increased prevalence of underlying health conditions, suboptimal vaccination rates, and systemic inequities. Strategies can be implemented and supported by pediatricians to ensure that children with DDs, their caregivers, family members, and service providers receive the COVID-19 vaccine to reduce negative outcomes. Highlighting the unique considerations for COVID-19 vaccination for children with DDs can support equitable access of vaccination for children with DDs and their families.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Abbreviations:

DD developmental disability

ASD	autism spectrum disorder
ID	intellectual disability

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