EDITORIAL

COVID-19 vaccines for children

Earlier this month, the US Centers for Disease Control and Prevention (CDC) recommended Pfizer's COVID-19 messenger RNA (mRNA) vaccine for children between 5 and 11 years of age—that's 28 million children. Yet surveys show that 42 to 66% of parents of these children are reluctant or opposed to seeking this protection. Without vaccination, it is likely that almost everyone—including young children—will be infected with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) at some point in their lives. So, the question for parents and caregivers is: Which is worse, vaccination or natural infection?

Make no mistake—COVID-19 is a childhood illness. When SARS-CoV-2 entered the United States early in 2020, children accounted for fewer than 3% of cases; today, they account for more than 25%. More than 6 million US children have been infected with SARS-CoV-2, including 2 million between the ages of 5 and 11. At the end of October 2021, about 100,000 children per week were infected. Of the tens of thousands of children who have been hospitalized, about one-third had no preexisting medical conditions, and many have required the intensive care unit. Almost 700 children have died from COVID-19, placing SARS-CoV-2 infection among the top 10 causes of death in US children. No children have died from vaccination.

Many parents are concerned that Pfizer's mRNA vaccine was not adequately tested in young children. In a study of approximately 2400 children between 5 and 11 years of age, performed when the Delta variant was the dominant strain, vaccine efficacy was 90.7% against symptomatic disease. However, Pfizer's phase 3 study in adults involved about 40,000 participants. How could the CDC be certain that the vaccine was safe in children given the small size of the study, specifically regarding the problem of myocarditis? In postauthorization studies, myocarditis occurred in approximately 5 per 1,000,000 individuals receiving mRNA COVID-19 vaccines, possibly as high as 1 per 10,000 in young men. But context is important. Vaccine-associated myocarditis has been relatively mild and self-limited—an outcome fundamentally different from the cardiac effects associated with acute COVID-19 or multisystem inflammatory syndrome, which typically involve cardiac dysfunction and require critical care. Moreover, both in Israel and the United States, the incidence of myocarditis in children 12 to 15 years of age receiving mRNA vaccines is less than that in the 16- to 25-year-old age group. And because the dose of Pfizer's mRNA is one-third that given to older adolescents, myocarditis in the younger age group will likely be even rarer.

Myocarditis is only one piece of the risk-benefit analysis. Children need to go to school, play with friends, and participate in extracurricular activities for their social and emotional development. This is their life. Since August 2021, more than 2000 schools in the US have been forced to close because of COVID-19 outbreaks, affecting more than 1 million students. The disruption of school activities has harmed children more than any detectable vaccine side effect, including worsening of mental health, widening education gaps, and decreased physical activity. These harms have disproportionately affected people of color, Indigenous persons, and individuals of lower socioeconomic status, further exacerbating inequities. Avoidance of routine health care and routine vaccination has also emerged, with potentially devastating future consequences. Furthermore, children live closely with and rely on adults to whom they can pass SARS-CoV-2 infection—adults who can be overwhelmed by this infection. And children grow up. Countries are going to need a highly protected population for as long as COVID-19 exists in the world, which will likely be for years if not decades. Vaccinating all children against SARS-CoV-2 could be among the most impactful public health efforts the US has seen in decades.

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Although it is true that most children experience asymptomatic or mild disease, some will get quite sick, and a small number will die. It's why children are vaccinated against influenza, meningitis, chickenpox, and hepatitis—none of which, even before vaccines were available, killed as many as SARS-CoV-2 per year.

Some parents are understandably hesitant to vaccinate their young children. However, a choice not to get a vaccine is not a risk-free choice; rather, it's a choice to take a different and more serious risk. The biomedical community must strive to make this clear to the public. It could be one of the most important health decisions a parent will make.

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