

COVID-19 Vaccine Hesitancy and Refusal:

The Same But Different?

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Abstract

Pediatric providers deal with vaccine hesitancy and vaccine refusal for routine childhood vaccinations on a regular basis. However, the COVID-19 pandemic has brought challenges for pediatricians including COVID-19 vaccine hesitancy and refusal. Some of the issues surrounding COVID-19 vaccine hesitancy are similar to those associated with routine vaccines, however some are unique to COVID-19. Much of COVID-19 vaccine hesitancy has been because of both the fear of the known and unknown. Identifying these issues and reasons for hesitancy is important to devising strategies and approaches pediatric providers can use to address patient and parent concerns, and hopefully convince them to vaccinate against COVID-19.

Introduction

Vaccine hesitancy and vaccine refusal are not a new issues in pediatrics. On a regular basis, pediatricians face vaccine hesitancy from their patients and families for well-established routine immunizations such as the measles, mumps and rubella (MMR) vaccine; pneumococcal vaccine; and the seasonal influenza vaccine. Reasons for hesitancy or refusal can vary from religious or cultural to mistrust of medicine or fear of side effects. Most pediatricians are very familiar with not only encountering vaccine hesitancy, but also how to deal with families who refuse or hesitate to vaccinate their children. Many families who refuse or delay vaccination for children fit a common profile and for many pediatricians identifying those parents who may hesitate may be easy.

However, while the COVID-19 vaccine has brought some of the same issues seen with other routine vaccines in terms of hesitancy and refusal, many pediatric providers are facing new and different challenges and are surprised by families where vaccine hesitancy or refusal was never before an issue. Many pediatricians are perplexed by this and are struggling to convince families to get their children vaccinated against COVID-19.

In the United States, COVID-19 vaccine became available for persons aged 16 years old and older in early December of 2020. Children and adolescents, aged 12 to 15 years, could receive the COVID-19 vaccine starting in May of 2021. By November 2, 2021, children 5 to 11 years of age became eligible to receive the COVID-19 vaccine. National data from the Centers for Disease Control and Prevention (CDC) report that in the United States, approximately 54% of children and adolescents are either vaccinated or report they will “definitely get vaccinated.” However, specifically in the 5 to 11 age group, only approximately 21 percent of children in this group are vaccinated. Additionally, approximately 29 percent of parents surveyed for this younger age group report they “probably or definitely” will not get vaccinated.¹

In the State of Delaware, the Division of Public Health reports that only approximately 32% of the 5 to 11 year old age group are vaccinated, as opposed to the 12 to 17 year old age group that has approximately 65 percent vaccinated.²

The path out of this pandemic relies heavily on getting as many people vaccinated as possible, including children. COVID-19 vaccine for children less than 5 years of age has yet to become available but based on our current vaccination rates for children the prospect of having impactful immunization rates in children overall is worrisome. Why are parents hesitant to vaccinate their children against COVID-19? How are the reasons for COVID-19 vaccine hesitancy the same or different than other childhood vaccine hesitancy? What can pediatric providers do to convince families to vaccinate against COVID-19, and is it a different approach than other vaccines?

The Fear of the “Unknown” and the “Known”

Much of parental vaccine hesitancy in general stems from the fear of side effects and adverse reactions related to the vaccine. Parents can fear true, known side effects or reactions, such as allergic reactions, injection site reactions, reactions that mimic the acute illness, and even psychologic or mental anguish caused by administration of vaccines. Parents fear even reactions that may be unfounded or untrue but are perceived as real, such as vaccine causing autism or certain vaccines causing the very infection for which they provide protection. Nevertheless, despite these fears, per CDC data, for most routine vaccines more than 80 percent of US children are vaccinated by age 24 months.³

What has been somewhat different for the COVID-19 vaccine for many parents has been the fear of the unknown. Many parents feel “comfortable” with most routine vaccines; those vaccines are familiar. Even for relatively newer routine vaccines such as the varicella, conjugated pneumococcal, and human papillomavirus vaccines, many parents feel because the possible side effects are known and because there is long-term experience, these vaccines are safe. However, for the COVID-19 vaccine, many parents are hesitant because they believe that both the short-term and long-term adverse effects of this vaccine are still unknown because of how new the COVID-19 vaccine is and because it developed with “new” technology that has not previously been used. Additionally, families have concerns that the clinical trial testing and the scientific and regulatory vetting of this vaccine was rushed given the urgency of the pandemic. Their fear comes from a lack of knowledge or understanding of clinical trials and the regulatory process. Many families have never before been faced with considering what regulatory terms such as “Emergency Use Authorization” or “EUA” or “FDA approved” meant to the health of their child.

What many families fail to realize is that the mRNA technology used in COVID-19 vaccine has existed for decades, and was developed to improve both vaccine efficacy and safety. And while these COVID-19 vaccines are the first mRNA vaccines to be used clinically, there is no mystery of how they work or their potential. While many people understand the need and urgency to expedite COVID-19 vaccines availability to the American public, the US Food and Drug Administration (FDA) regulatory process in terms of clinical trial and approval for use of COVID-19 vaccines for children was the same exact process that has been used in all vaccines, and no exceptions or short cuts were made.

Adverse Effects

Many vaccine-hesitant parents do not realize that most short-term adverse effects develop within the first six weeks after immunization, and would likely be observed during clinical trials. Thus, it is rare that unknown side effects occur once a vaccine has been approved for use.⁴ Even when a short-term side effect is identified, data and information from surveillance and reporting allows for not only good risk stratification for vaccine administration, but also awareness and quick, decisive intervention when these short-term adverse events occur. Historically, US medical and regulatory institutions have good track records on picking up on short-term adverse effects with vaccines, including for such vaccines against polio and rotavirus. Despite these past events, vaccination rates for these infections remains high among US children.

Post-vaccination myocarditis has been a major deterrent for parents to vaccinate their child against COVID-19. In a recent study that reported on myocarditis cases after mRNA-based COVID-19 vaccination in the US from December of 2020 to August of 2021, rates are highest among adolescent males aged 12 to 15 years (70.7 per million doses) and aged 16 to 17 years (105.9 per million doses).⁵ However, these numbers are still relatively rare and death associated with myocarditis has also been rare. Most patients have had relatively quick resolution of symptoms with conservative treatments such as non-steroidal anti-inflammatory medications.⁶ Knowing this information has allowed for identification of people who may be at higher risk, informed decision making for parents, and swift and effective diagnosis and treatment of people when post-vaccination myocarditis has occurred. Even now with a year of experience with the COVID-19 vaccine and better knowledge on short-term outcomes, vaccination rates remain low in eligible children.

Much of the concern of parents for long-term effects from COVID-19 vaccination has been due to not only to the concern of the unknown, but also to misinformation. Historical experience with other routine childhood immunizations has shown that long-term side effects are unlikely. However, similar to the false autism scare with the MMR vaccine, long-term effects such as infertility due to COVID-19 vaccination has been driven by medical implausibility and misguided theoretical science. Even when these outlandish concerns have been entertained, they have been debunked. Lu-Culligan et al. showed that claims that circulating levels of specific antibodies produced following COVID-19 mRNA vaccination were not increased and unlikely to contribute to infertility and adverse birth outcomes.⁷ Additionally, a study performed at the University of Miami showed no significant decreases in any sperm parameters in men after receiving two doses of COVID-19 mRNA vaccine.⁸ Like many aspects of the COVID-19 pandemic, vaccine hesitancy and refusal has been fueled by myths and misconceptions.

An interesting anecdotally observed phenomenon during the COVID pandemic is parental willingness to give their child acute COVID-19 infection treatments (i.e. antiviral medications such as remdesivir, or monoclonal antibodies) despite previous vaccine refusal. While these therapies for children may be relatively new, have limited clinical experience and carry only a FDA EUA similar to the COVID-19 mRNA vaccines, some parents inexplicably are able to overlook the “unknown” of these medications and request these therapies when their children get infected. Perhaps for these parents, the fear of severe infection outweigh the fear of the unknown of these medications.

At the beginning of the pandemic, there was a wide-spread notion that COVID-19 did not significantly affect children and adolescents. It was “known” that children did not get infected

with COVID-19 and if they did get infected, they were unlikely to significantly spread COVID-19 or have severe symptoms or complications associated with infection. While parents vaccinated themselves for fear of the COVID-19-related morbidity and mortality, this perception that children were unaffected by COVID-19 likely lead many parents to not vaccinate their children once COVID-19 vaccine became available. However, as schools opened and new variants such as Delta and Omicron emerged in late 2021, the impact of COVID-19 on children became more apparent. Mounting evidence proved that children and adolescents contributed to COVID-19 transmission. Not only did the number of infections increase, pediatric hospitalizations associated with COVID-19 infection sky-rocketed. While parents readily vaccinate their children against diseases they have never seen or have little first-hand knowledge of (i.e. diphtheria, polio, tetanus), they continue to hesitate to vaccinate their children even in the midst of the most recent COVID-19 surge. Death and severe complications like respiratory failure, hematologic abnormalities, and cardiac problems such as myocarditis seen in the adult population are rare among children but have been seen. Regardless, the fear of these complications may not be enough for some parents to vaccinate.

One COVID-19-related complication that has disproportionately effected children as compared to adults has been Multisystem Inflammatory Syndrome in Children or MIS-C. MIS-C has been a newly discovered condition in children during the pandemic, and presumed to occur 4 to 6 weeks following acute COVID-19 infection. Often, children with MIS-C had no known previous COVID-19 infection or acute COVID-19 infection that was asymptomatic or mildly symptomatic. MIS-C causes inflammation in different areas of the body including the heart, lungs, brain and gastrointestinal system, very similar to other childhood systemic inflammatory diseases like Kawasaki Disease. Many patients have presented in cardiogenic shock due to severe ventricular dysfunction. Data from the CDC reports that 6,851 children have had MIS-C in the US with 59 reported deaths. Recent studies that looked at the association of MIS-C and COVID-19 mRNA vaccination have shown that the majority of children who had MIS-C were unvaccinated.⁹ In data reported in a January Morbidity and Mortality Weekly Report, 95% of cases reported were unvaccinated.¹⁰ The lack of wide-spread knowledge and highlighting of this aspect of the pandemic has likely contributed to the slowed uptake of vaccination in children and adolescents.

Public Health

Parental instinct may prompt parents to vaccinate their children for individual protection of their child from infection and complications. However, conversely, the idea of reducing the risk of transmission in the community may not be compelling enough for parents to vaccinate. While public health reasons to vaccinate may seem less important in rarer diseases where only local pockets of outbreaks occur (i.e. measles or mumps), during a life-threatening global pandemic, public health interest should seemingly be reason enough to vaccinate. For many parents, it has not.

Finally, political, cultural, and socioeconomic factors have always played into parental vaccine hesitancy and refusal, and the COVID-19 vaccine is no exception. However, given the era of social media and the ease of how information and misinformation can be spread, COVID-19 vaccine hesitancy and refusal may be the most affected by misinformation compared to other vaccines. Social health disparities that existed prior to the pandemic have only been more apparent. In terms of infection rates, access to care, hospitalizations and death, disparities have

significantly been shown in people of color and those of lower socioeconomic status. This has also been seen in childhood COVID-19 infection and vaccination. Additionally, while the epidemic of childhood obesity rages on (and likely worsened by the COVID-19 pandemic), what has been less emphasized has been how obesity impacted the severity of COVID-19 disease in children. Obesity has been the leading underlying medical condition seen in COVID-19-related hospitalization in children.¹¹ The efforts and strategies to change COVID-19 vaccine hesitancy likely need to occur not only at the individual parent level, but also at the community level.

Bridging the Unknown and Known Gap

Prior to the COVID-19 pandemic, many providers were already honing their skills to handle vaccine hesitancy and refusal in their practice. However, the different and unique aspect of COVID-19 vaccine hesitancy has created different and unique challenges for pediatric providers. Parents who had never hesitated to give other vaccines now have new questions and concerns, and are trying to make thoughtful decisions on the health of the children. What can providers do to help convince parents and families that the right decision is to vaccinate?

Previous approaches to vaccine hesitancy should still be employed. Pediatric providers need to arm themselves with accurate information and feel confident to talk with families regarding the benefits of vaccination. Many families are invested in the advice and recommendations of their medical providers, and their confidence in vaccination can be directly tied to providers' confidence. Asking families about their fears and concerns, validating their feelings without judgment, and genuinely showing emotional investment in the health of their child and family will likely go a long way. Respectfully discussing the facts—including the risks and complications of infection, and the risks and benefits of vaccination—and dispelling misinformation in language that parents can easily understand is essential. These discussions should be true to the known medical science, but not overwhelming or filled with too much data and scientific information. When there is discordance between the child's opinion and parents' decision on getting vaccinated, providers should validate the autonomy of child, address their questions and concerns, and attempt to negotiate a shared decision between parents and child. Finally, providers should give patients and families space and time to decide without feeling pressured or rushed.

Specific to the COVID-19 vaccine, pediatricians should inform families about the true individual risk of COVID-19 infection and risks due to vaccination (e.g. myocarditis), especially to those patients at higher risk. Highlighting the risk for associated conditions such MIS-C is also important. Discussing the community benefits of COVID-19 vaccination, not just the individual benefits, may be helpful in convincing families. Emphasis should be made on the secondary protective effects for the highest at risk for COVID-19 infection complications (the elderly and immunocompromised). Additionally, medical providers can show families that getting as many people vaccinated as possible—including children—is a larger part of ending the COVID-19 pandemic.

Providers can make trusted and reliable resources—local and national public health and government websites, and fair and unbiased social media sites that give accurate and updated information—available to families. Finally, providers can help organize, participate in, or support broader programs that provide education and access to the COVID-19 vaccine, especially to underserved or unrepresented communities.

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