Part 1. Guest editorial

Caregiver decision-making for vaccinating children and adolescents to prevent COVID-19

The introduction of COVID-19 vaccination has been unprecedented in scope and challenges. Multiple new vaccines of differing types and efficacy have been delivered in phases to different target groups, starting with at-risk people and older adults and more recently, adolescents and children. While the risk of severe disease is lower in children and adolescents, there have been 17,200 recorded deaths in children and adolescents under 20 years of age and vaccination significantly reduces the risk of severe complications in the young. Not only does vaccination protect children and adolescents on an individual level from severe illness and death but increasing COVID-19 vaccination coverage among young people is critical to curbing overall community transmission of the disease at a population level.

This digest summarizes the evidence of factors influencing caregiver decision-making attitudes and behaviours regarding vaccinating children and adolescents to prevent COVID-19, drawing from...
UNICEF Innocenti’s Children and COVID-19 Research Library. Eleven research papers are spotlighted in this digest along with some practical tools to support caregiver decision-making and enhance vaccine uptake. The evidence, insights and lessons from these studies can help policymakers and health practitioners better support caregivers to make important decisions related to the health of their children and communities.

Slower uptake of COVID-19 vaccines for children

Where vaccines have been made available to children and young adults, recent evidence points to a general trend of uptake being generally slower for children than for adults. In a systematic review of 44 studies across 18 countries, parents, on average, were willing to accept a vaccine for their child only 60 per cent of the time, which is significantly lower than the 73 per cent vaccine acceptance rate of the general population (P1). This trend was also evident in individual studies. For example, in a study of West African countries, vaccine acceptance for children lagged behind vaccine acceptance of adults, dropping from 60 per cent acceptance in adults to 53 per cent acceptance in children in Guinea, from 50 per cent in adults to 47 per cent in children in Sierra Leone and from 11 per cent in adults to 7 per cent in children in Senegal (P3). Also, in a United States study of parents with rheumatic disease, vaccination acceptance of parents themselves was 64.2 per cent for fathers and 57.7 per cent for mothers but dropped to 41.8 per cent acceptance on behalf of their children (P7). Although there is a drop from adult to children vaccination acceptance, there is a correlation between adult and children vaccination acceptance rates (P3), a correlation between speed of a vaccination programme and vaccine acceptance in children (P10) and a correlation between parental and adolescent acceptance for themselves (P11) also exist, but the substantial variance lies between countries and regions. Some regions have exceptionally high rates of vaccine acceptance for children. For example, consistent across multiple studies, parental acceptance of the COVID-19 vaccine is very high (over 90 per cent acceptance) in Latin America and the Caribbean (P5, P6). However, further to the very low acceptance rate in Senegal, individual studies also found vaccine acceptance of children to be very low (under 7 per cent acceptance) in Nigeria (P2, P8). Generally, vaccine acceptance for children is higher in Asian countries than in North American and European countries (P1). Across the emerging evidence, there does not appear to be a consistent correlation between parental vaccine acceptance and income. The evidence instead points to a need for local understanding of the context of caregiver decision-making for vaccinating children and adolescents against COVID-19 (P2, P4, P5).

Protection Motivation Theory: An apparent risk-reward calculation

Perceived vaccine safety (P1, P2, P5, P7) and perceived threat of COVID-19 (P1, P5, P6, P8) were consistently found to be strong predictors of caregiver acceptance across the emerging evidence. This suggests that the decision-making process for parents and guardians is at least partly a calculation about perceived risks versus perceived benefits. The Protection Motivation Theory (PMT), which has been shown to correlate with intentions to vaccinate for a number of vaccines including COVID-19 vaccines, helps us to understand what is happening here. This theory suggests that people evaluate a health threat and their ability to cope with that threat simultaneously. For vaccines, threat appraisal involves feelings of personal susceptibility to a disease through perceived vulnerability and likelihood that one may catch the disease. Coping appraisal includes perceived efficacy of the vaccine, costs (or risk) of the vaccine, and self-efficacy to get vaccinated. If someone finds that their threat and coping appraisals are equivalent, they are more likely to be motivated to protect themselves. If not, they may adopt maladaptive coping behaviours. This thought process

1 P1 refers to Publication 1 in Part 2 Research Highlights in this digest, as do other abbreviations that appear in the editorial.
bears out in the recent evidence where the age of a child and vaccine acceptance correlates; vaccine acceptance was lowest (51.5 per cent) for the least vulnerable group of 0–4-year-old children and highest (69.7 per cent) for 12–17-year-olds (P9).

Factors related to perceived vaccine safety that were also found to be predictive of parental acceptance were perceived vaccine efficacy (P2, P4, P5), trust in health authorities (P5) and attitudes towards vaccines generally (P1, P2, P4, P6). Factors related to perceived threat of COVID-19 that were also found to be predictive of parental acceptance were attitudes towards mask wearing and social distancing (P5, P6) and perceived susceptibility to COVID-19 (P4, P8). That older caregivers who are vaccinated themselves are more likely to accept the vaccine for their children (P1, P2, P4, P6) suggests that the risk-reward calculation is not just related to protection of the child from COVID-19, but also the protection of caregivers and others from COVID-19. This recognizes that having a child vaccinated against COVID-19 provides some protection against them catching COVID-19 and therefore reduces the risk of spreading COVID-19 to others.

Vaccine decision making is complex and context specific. The decisions to vaccinate oneself versus vaccinating one’s children may be influenced by very different considerations. Where vaccines have been made available to children and young adults, uptake has generally been significantly slower than for adults.

To effectively support parents and caregivers with their decisions to vaccinate their children, it is crucial to first understand the context-specific determinants of those decisions, and to then tailor communications and other interventions accordingly to ensure we talk with people about what matters to them.

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Part 2. Research highlights

Introduction
Each quarter, this Digest highlights newly curated research papers selected based on criteria of relevance to children’s rights; diverse research methodologies; and insights from low-and middle-income countries. This selection is not exhaustive, and we welcome suggestions from our readers on further criteria and papers for inclusion.

Publication 1
Willingness, Refusal and Influential Factors of Parents to Vaccinate their Children Against the COVID-19: A systematic review and meta-analysis
Understanding parental COVID-19 vaccine hesitancy benefits can help policy makers to alter preconceptions and establish broad COVID-19 community immunization. Based on 44 studies from 18 countries, this systematic review and meta-analysis estimates parents’ willingness and reluctance to vaccinate their children against COVID-19. Results reveal that the overall proportion of parents who intended to vaccinate their children against the COVID-19 was 60.1 per cent, and the main predictors of parents’ intention to vaccinate their children were fathers’ approval; the older age of parents; their higher income; higher levels of the perceived threat from COVID-19; and confidence in vaccines and vaccination history within the family.

The review suggests that factors influencing parents’ desire to vaccinate their children against COVID-19 can be investigated to improve parents’ confidence in the vaccines and increase children’s uptake. Targeted public health strategies should aim to assuage parents’ concerns regarding vaccines, including through the use of clear messages and effective community engagement.

Publication 2
Public Attitudes and Influencing Factors Toward COVID-19 Vaccination for Adolescents/Children: A scoping review
This scoping review covers 34 recent studies on public perceptions and influencing variables on COVID-19 vaccination in children and adolescents. Results show that the public’s acceptance rate toward COVID-19 vaccination for children or adolescents ranged from 4.9 per cent (southeast Nigerian mothers) to 91 per cent (Brazilian parents). Socio-demographic factors that affect vaccination are parents’ and adolescents’ age, gender, and educational level; as well as parents’ readiness to themselves be vaccinated; their experience in vaccinating their children with influenza; where parents seek medical advice; and personal beliefs. Perceptions around vaccine safety, effectiveness, and possible adverse effects were major determinants in shaping parents’ and teenagers’ attitudes and decisions.

Understanding the current public attitudes toward COVID-19 immunization for adolescents and children will help to develop successful intervention strategies and manage the pandemic as soon as feasible through herd immunity. During vaccination promotion, governments should rely on scientific evidence and thoroughly examine local and individual circumstances. Multiple sectors (healthcare centres, communities, schools, etc.) should be mobilized to improve vaccination rates by providing multilevel interventions for children and parents.

Publication 3
Factors Influencing Hesitancy Towards Adult and Child COVID-19 Vaccines in Rural and Urban West Africa: A cross-sectional study
This survey, conducted in five West African countries-Burkina Faso, Guinea, Mali, Senegal and Sierra Leone, compared determinants of hesitancy towards adult versus child COVID-19 vaccines, measuring socio-demographic, perception-related and behavioral factors. Over 4000 responses from people in urban and rural settings indicated that only half of the surveyed population were aware of COVID-19 vaccines. The main sources of information about COVID-19 vaccines across the 5 countries were television (60 per cent), radio (56 per cent), social media (34 per cent) and family/friends/neighbors (28 per cent). Child COVID-19 vaccine acceptance ranged from 53 per cent in Guinea and 47 per cent in Sierra Leone to 7 per cent in Senegal and were generally congruent with acceptance levels of adult COVID-19 vaccination, with 80 per cent of respondents showing the same level of willingness in both cases.
While perceived effectiveness and safety of COVID-19 vaccines were associated with willingness to get vaccinated, none of the socio-demographic factors appeared correlated with acceptance. This study suggests that in West Africa there is low awareness of COVID-19 vaccines, but the 50 per cent of people who are aware have reasonable and equivalent levels of acceptance for adult and child vaccination. Addressing vaccine hesitancy is particularly relevant in countries, where access to vaccines is limited. Communication strategies addressed at the adult population using mass and social media and emphasizing vaccine efficacy and safety could encourage greater acceptance also towards COVID-19 child vaccinations in the countries included in the study.

**Publication 4**

**Adults’ Acceptance of COVID-19 Vaccine for Children in Selected Lower- and Middle-Income Countries**


This study assessed the willingness to vaccinate children with a COVID-19 vaccine in lower- and middle-income countries (LMICs) using an online cross-sectional survey. Of the 6,571 adult participants, 64.0 per cent, 72.6 per cent and 92.9 per cent were willing to vaccinate children at 50 per cent, 75 per cent and 95 per cent effectiveness levels respectively. Respondents who were undergraduates, who were more worried about COVID-19, had higher knowledge scores regarding COVID-19 and a higher belief that COVID-19 vaccination is important to protect others, were more willing to accept COVID-19 vaccination of children. Factors influencing willingness to vaccinate children were parental gender; age; education; income level; residential setting; knowledge; worry about being infected; and their understanding of the importance of vaccination to protect self or others. The desire to vaccinate a child against COVID-19 differed by country and was also found to rise as vaccine efficacy rose.

**Publication 5**

**COVID-19 Vaccine Acceptance Among Pregnant Women and Mothers of Young Children: Results of a survey in 16 countries**


The study investigated the acceptance of COVID-19 vaccination among pregnant women and mothers of children, and potential predictors based on an online survey with 17,871 total responses from 16 countries. As per the findings, 69.2 per cent of women, both pregnant and non-pregnant, intended to vaccinate their children. Vaccine acceptability was highest in India, the Philippines and all Latin American nations examined; it was lowest in Russia, the US and Australia. The strongest predictors of vaccination uptake were confidence in vaccine safety or efficacy; concern about COVID-19; conviction in the value of vaccines to their own country; adherence to mask standards; faith in public health institutions; and views toward regular immunizations.

These findings could inform evidence-based policies to improve the immunization of vulnerable groups, including pregnant women and children. Results underscore the importance of tailoring vaccination programmes for women and children in each country to achieve the greatest impact since statistics demonstrate significant geographic diversity in COVID-19 vaccine acceptability among pregnant women and mothers of young children. Furthermore, policymakers must address public anxieties and misconceptions about the disease, as well as denial and uncertainty about the disease, through transparent communication and effective community engagement, in order to build a national consensus on the fundamental need for public health measures.

**Publication 6**

**Prevalence and Factors Associated With Parents’ Non-Intention to Vaccinate Their Children and Adolescents Against COVID-19 in Latin America and the Caribbean**


This study estimated the prevalence and factors associated with parents' non-intention to vaccinate their children and adolescents against COVID-19 in Latin America and the Caribbean (LAC) by performing
secondary analysis on a sample of 227,740 adults from 20 LAC countries. The prevalence of parents’ non-intention to vaccinate their children and adolescents against COVID-19 was only 7.8 per cent (n = 15,196). On the contrary, 9 out of 10 parents in LAC intended to vaccinate their children and adolescents against COVID-19. The intention to vaccinate their children was more evident in parents residing in a city and in those presenting good adherence to health recommendations or with chronic health conditions. The factors associated with a lower prevalence of non-intention to vaccinate children and adolescents against COVID-19 included a parental age above 35 years; educational level above college; compliance with physical distancing; use of masks; having had COVID-19; anxiety symptoms; depressive symptoms; having a chronic condition or two or more comorbidities; and being vaccinated themselves.

Findings underline that factors associated with non-compliance have varying magnitudes, and that their interpretation is vital for prioritizing the measures that should be implemented to raise children and adolescent vaccination intentions.

Publication 7
Exploring the Attitudes, Concerns and Knowledge Regarding COVID-19 Vaccine by the Parents of Children With Rheumatic Disease: Cross-sectional online survey

The study explored the underlying causes of vaccine acceptance, hesitation and refusal, as well as concerns about the acceptability of the COVID-19 vaccine by parents of children with rheumatic diseases. It is based on a closed web-based online survey conducted cross-sectionally involving 201 parents of children. According to the survey, parents were more inclined to accept a COVID-19 vaccine for themselves than for their children. The two most common reasons for vaccine rejection were fear of the side effects of the vaccine and its possible interaction with rheumatic drugs used by their children.

The willingness of individuals to receive the vaccine is critical to the success of COVID-19 vaccination efforts. Parents should be presented accurate information about the vaccine, particularly concerning the vaccine’s adverse effects, potential interactions with rheumatoid medicines and illness exacerbations. To alleviate worries and prevent disinformation, such information should be communicated with the public in a transparent manner, using well-known and widely used channels. Data from larger, multicentric research exploring the causes of anxiety in parents of both healthy and chronically ill children should be analysed.

Publication 8
Maternal Level of Awareness and Predictors of Willingness to Vaccinate Children Against COVID-19: A multi-centre study

This cross-sectional survey polled 577 women who presented with their children at two tertiary health institutions in south-east Nigeria. A high degree of awareness but a low level of acceptability for COVID-19 vaccination was found among mothers, with only 6.9 per cent reporting readiness to get the COVID-19 vaccine for themselves and only 4.9 per cent for their children. The odds of receiving the COVID-19 vaccine were four times greater in those who believed that they could be infected than in those who did not, and six times greater in those who were aware of someone who had died from COVID-19 than in those who did not.

Overall, a high level of awareness but a low level of acceptance for COVID-19 vaccination among mothers and their children was noted. Socioeconomic class, maternal age and level of education did not influence the willingness of mothers to receive the COVID-19 vaccination. Having a belief of the possibility of infection with COVID-19 as well as being aware of someone who had died from the disease were important positive variables that could predict vaccine acceptance from this study.

Publication 9
COVID-19 Vaccine Acceptance Among US Parents: A nationally representative survey

A cross-sectional study of COVID-19 vaccine acceptance among caregivers in the US found that acceptance increased with the age of children: Among children aged 0–4 years, 51.5 per cent of parents were likely to have them vaccinated and for those aged 5–11 and 12–17 years, respective rates of vaccination were 54.0 per cent and 69.7 per cent. Belief in the benefits of COVID-19 vaccination and the severity of COVID-19 disease in children were associated with increased intention to vaccinate children. Interestingly, both parents being vaccinated against COVID-19 and a general acceptance of routine childhood vaccines were correlates of intention to vaccinate children. Results also suggested that school vaccination requirements may encourage vaccine uptake for some children, including among those whose parents were very unlikely to accept COVID-19 vaccination.
The strongest correlates with vaccine acceptance for children were belief in the benefits of COVID-19 vaccination and acceptance of routine childhood vaccines. Pro-vaccine engagement with parents should emphasize that COVID-19 vaccines will protect their children just as the routine vaccines their children have already received also keep their children protected.

**Publication 10**

**National COVID-19 Vaccine Program Progress and Parents’ Willingness to Vaccinate Their Children**


This study examined the correlation between a country’s rate of vaccinating the population and the willingness of parents to vaccinate their children under 12 years against COVID-19 in the future (i.e., a survey was conducted before vaccines had been approved for children) in three countries. Results suggested that a robust population-based vaccination programme as in Israel and to a lesser degree, the United States, led to an increasing willingness by parents to vaccinate their children younger than 12 years against COVID-19. In Canada, slower rates of vaccination of the adult population were associated with a lower willingness to vaccinate children.

These results suggest that the faster and more inclusive the country’s vaccine implementation, the higher the willingness of parents in that country to vaccinate their children against COVID-19. However, while high immunization rates in adults may support a social norm of vaccination which can carry over to children, once rates reach very high levels decreasing disease salience may negatively influence intentions.

**Publication 11**

**Attitude and Acceptance of COVID-19 Vaccine in Parents and Adolescents: A nationwide survey**


A nationwide cross-sectional survey among parents and adolescents in Korea, from June to July 2021, assessed the attitudes and acceptance towards vaccination in adolescents. Intention for vaccination was 69 per cent for adolescents and 72 per cent of parents reported they would recommend vaccination for their child. Results suggested that self-perceived knowledge and perceptions of the safety and effectiveness of vaccines, the severity of COVID-19 disease and risk-benefits had the highest impact on the intention for COVID-19 vaccination in adolescents. Similar to another study in this report, recent vaccination with a childhood vaccine was also associated with willingness to vaccinate.

The authors conclude that decisions on COVID-19 vaccination for adolescents should be a shared process between adolescents, parents and physicians, based on updated information on safety and effectiveness. Public health authorities should design targeted communications for both parents and the adolescents who will be vaccinated as COVID-19 vaccination programmes expand.
Part 3. Library update: Facts and figures

UNICEF Innocenti’s Children and COVID-19 Research Library has collected over 300 research publications exploring the impact of COVID-19 on child vaccination and immunization.

Overall, the library contains nearly 5,000 records and is being updated daily. More than 1,400 new records have been added since January 2022.

Trending topics in the library include the impact of COVID-19 on health (including over 1,800 records on mental health), education, and social protection, well-being and equity, with less, but increasing, research on nutrition, poverty, refugee and migrant youth, and water, sanitation and hygiene.

(All figures are updated as of 7 July 2022)
Part 4. Editors’ pick: What’s emerging and trending?

Children on the move

New operational guidance for migrant and displaced children during COVID-19 has been published by Save the Children and will be updated to include practical examples of best practices emerging across the various thematic sectors at the field level.

Recent evidence shows that Rohingya refugee children suffer widespread rates of education insecurity both in their home country, Myanmar, and in their host country, Bangladesh. It points out that restrictions on accredited education; COVID-19-related school closures; failures in launching a pilot of the Myanmar curriculum; and recent plans to relocate refugees to Bhasan Char Island have created a ‘lost generation’ of Rohingya youth.

An alarming prevalence of PTSD and depression was found among Syrian Refugee Children during the pandemic due to decreasing family income and limited access to food. On the other hand, the positive effects of an occupational training program on the well-being of Syrian refugee children resettled in Turkey during the COVID-19 pandemic were noted.

Recent studies also uncovered the heightening risks for mental and physical health burdens faced by unaccompanied children at the U.S.-Mexican border in relation to their reunification with sponsors in US communities, and the increased risk of behavioural health concerns among new-coming Latinx immigrant youths to the United States.

Evidence from China captured the experiences of children and adolescents left behind by their domestically migrant parents before the COVID-19 outbreak. Findings indicate that they exhibit severe psychological distress, since the pandemic has limited their social interactions with peers and increased improper caretaking from grandparents.

Children’s rights and COVID-19

During the pandemic, children experienced difficulties accessing crucial services, including for education, health and care, with increased risks for their protection and development. Emerging evidence illustrates the impact of COVID-19 on children from the perspective of children’s rights.

Evidence from the UK reveals the impact of COVID-19 on the lives and rights of children who are modern slavery survivors, those who are in exploitation and children at risk of entering exploitation. Reduced face-to-face legal services, unsupervised self-isolation, digital divides, and other gaps in existing provisions have hindered the rights of child victims and put these children at greatest risk of being exploited and going missing from care. Findings from a children’s rights impact assessment in Scotland uncovered gaps in rights accountability, including children’s inadequate access to complaints and justice; lack of children’s rights indicators and disaggregated data; and the need for improved information to children and their participation.

A few pieces of research examined the impact of school closures on the rights of children and young people under the United Nations Convention on the Rights of the Child. They also examined wider physical health rights and explored the impact of the response to COVID-19 on the rights of children in conflict with the law. More evidence is needed to further explore how pandemic responses hinder children’s rights to safety, development and participation and representation in legal processes.

Impacts of COVID-19 on children’s lifestyle and mental health

Socio-behavioural adaptations during the COVID-19 pandemic may have significantly affected children and adolescents’ lifestyles. Research from India highlights “problematic internet use” among adolescents amid the pandemic and further identifies several predictors such as age, lifestyle and mental health. Evidence from Italy also indicates that children and adolescents engaged in solitary screen time are vulnerable to behavioural problems. Social networks appear to play a protective role for emotional well-being, but only for adolescents rather than children.

Further to this, a multi-national study examines COVID-19-related predictors of emotional and behavioural symptoms in youth with pre-existing mental health conditions. Research from Indonesia confirms that children are significantly less active and using more screen-based devices, either for educational or recreational purposes, compared to before the pandemic.

Other studies explore the adaptive online learning behaviour of high school students in China, behavioural outcomes of children with autism spectrum disorder and other developmental disabilities in Spain and Ireland, and analyse the association between emotional and behavioural changes in children and parental depression in Bangladesh.
Nutrition and food insecurity

The COVID-19 lockdown had a significant impact on household food insecurity, dietary diversity and acute malnutrition in children in economically disadvantaged situations.

Phone surveys in Ethiopia, India, Peru and Vietnam were conducted to estimate the changes in the prevalence of food insecurity in these countries based on the Food Insecurity Experience Scale. Findings in Peru show that during the pandemic, almost half of households (46.9 per cent) were at risk of moderate or severe household food insecurity and 59.4 per cent received food assistance from the government. Research in the US also found that households with children on the autism spectrum in the Autism Speaks’ Food Insecurity Survey were nearly four times more likely to be very low food secure during the COVID-19 pandemic in comparison with the general population. Evidence in Bangladesh reveals that food insecurity caused a large use of coping mechanisms by households, leading to insufficient dietary diversity and food consumption, resulting in a higher risk of acute malnutrition among children under the age of five.

Part 5. Other useful links

- The COVID-19 Vaccine for Kids: What parents need to know (UNICEF, January 2022)
- How To Talk To Your Children About COVID-19 Vaccines: Help your child understand how vaccines work (UNICEF, May 2021)
- Routine Vaccinations During COVID-19: What parents need to know – How to safely get routine vaccinations for your child during the COVID-19 pandemic (UNICEF, January 2021)
- Vaccines For All: Reaching every community, everywhere with life-saving vaccines (UNICEF)
- Understanding the Behavioural and Social Drivers of Vaccine Uptake WHO Position Paper. Weekly Epidemiological Record, vol. 97, no. 20 (WHO, May 2022)
- The Little Jab Book: A series of playbooks for COVID-19 vaccination in Nepal, the Philippines, and Kenya (Busara Centre for Behavioural Economics, Common Thread, Save the Children, 2022)

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About this digest
Each quarterly thematic digest features the latest evidence drawn from UNICEF Innocenti’s Children and COVID-19 Research Library on a particular topic of interest. Updated daily, the library is a database collecting research from around the world on the socio-economic impacts of COVID-19, with the potential to inform programmatic and policy work for children and adolescents.