

VACCINE DELIVERY RESEARCH DIGEST

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 - The latest advancements in poliovirus vaccine development, production, and global deployment were reviewed, and future strategies were explored.
- 6 Drivers of human papillomavirus vaccine uptake in migrant populations and interventions to improve coverage: a systematic review and meta-analysis.

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- There is a major geographic gap in evidence on HPV vaccine uptake among migrants, with nearly all studies conducted in high-income countries, leaving policymakers in low-resource settings without the data needed to design equitable, context-specific interventions.

- 7 Subnational introduction of the RTS,S/AS01E malaria vaccine into routine immunization: experience and lessons from the three pilot countries.

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- Malaria vaccine pilots in Malawi, Ghana, and Kenya demonstrated that a new six-month immunization visit could be integrated into EPI schedules, creating an additional child health touchpoint that, while showing limited improvements to vitamin A supplementation, established a feasible precedent for future integrated interventions.

- 8 Projecting the population-level impact of norovirus vaccines.

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- Projections of norovirus vaccine impact are highly sensitive to uncertain immunological parameters, with model outcomes shifting dramatically depending on assumptions about cross-protection and the duration of broad immunity.

- 9 Overcoming Vaccine Inequities and Research Gaps in Africa: Challenges and Opportunities Identified During the COVID-19 Pandemic.

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- The COVID-19 pandemic has highlighted challenges and inequities within the health systems in African, and partnerships are being developed to address these issues.

- 10 A global living systematic review and meta-analysis hub of emerging vaccines in pregnancy and childhood.

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- A frequently updated meta-analysis of safety, effectiveness, and immunogenicity of emerging vaccines for Lassa fever, chikungunya, and mpox given during pregnancy has been created to inform clinical practice guidelines.

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Details of Articles

1. [Can unvaccinated children be reached through mobile phones? Analyses of national cross-sectional surveys from 70 countries.](#)

Costa F, Santos T, Silva L, Mengistu T, Holroyd T, Hogan D, et al.

J Glob Health. 2025 Aug 11;15:04232.

PubMed ID: 40785513

ABSTRACT

BACKGROUND: Interventions using mobile phones, otherwise known as mHealth interventions, are increasingly being used in low- and middle-income countries to remind families about scheduled child immunisations. Despite this, few studies examined impact on zero-dose children - those who failed to receive a single dose of a routine vaccine. As disparities in mobile phone ownership may limit the effectiveness of mHealth interventions, we assessed associations between mobile phone ownership, gender, wealth, residence, and zero-dose and modelled their potential impact for reaching unvaccinated children.

METHODS: We analysed 70 nationally representative surveys with data on immunisations and mobile phone ownership by households and mothers, and correlated ownership with household wealth and place of residence. We performed analyses at the individual child level and pooled across all countries weighted by national populations. We modelled the mHealth interventions' potential impact on zero-dose prevalence by estimating how many unvaccinated children are reachable via mobile phones.

RESULTS: The surveys included 163 527 children aged 12-23 months, with 13.4% being zero-dose. Among them, 34% of mothers and 73% of households had a mobile phone, compared to 60% and 89% for vaccinated children. Mobile phone ownership by mothers ranged from 32% in the poorest to 86% in the wealthiest quintile. A hypothetical 100% effective intervention using household mobile phones would reduce zero-dose prevalence from 13% to 4%, while one using similar effectiveness assumptions for mothers' phones would reduce national prevalence to 10%. Interventions with effectiveness ranging from 10% to 50% would lead to smaller impact levels. The largest impact is expected in countries like Guinea and Cote d'Ivoire, where both zero-dose prevalence and mobile phone ownership are high.

CONCLUSIONS: The potential impact of mHealth interventions for reaching zero-dose children may be limited by mobile phone ownership among mothers and families, particularly among the poor, where we find the greatest number of unvaccinated children.

WEB: [10.7189/jogh.15.04232](https://doi.org/10.7189/jogh.15.04232)

IMPACT FACTOR: 4.3

CITED HALF-LIFE: 3.9

START COMMENTARY

Gender, wealth, and place of residence (urban/rural) are strongly associated with access to mobile phones. Overall, mobile health (mHealth) messages targeting household phones had greater impact on vaccine uptake than those delivered to phones owned by the mothers. This is likely because children who are zero-dose are more likely to live in families where mothers do not own phones. Across countries, there were large differences in mobile phone ownership, number of mothers with mobile phones, and associations of those factors with zero-dose children (Table 1), highlighting the need for country-specific interventions. Additionally, authors note that mobile phone ownership does not necessarily equate to reachability, citing a study that found nearly half of low-income households with a known phone could not be contacted 18 months after initial contact. While mobile health messages show promise for reaching zero-dose children, the impact of mHealth messages may be limited until mobile phones are more universally accessible.

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2. [The Immunization Agenda 2030 Strategy to reach zero-dose children in low-income and middle-income countries: a scoping review.](#)

Beaulieu A, Ducharme J, Thibeault C, Akani B, Ziegler D, Hogan D, et al.

BMJ Glob Health. 2025 Aug 05;10(8).

PubMed ID: 40763981

ABSTRACT

INTRODUCTION: Intensified efforts are needed to achieve the Immunization Agenda 2030 (IA2030) target to halve the number of children not reached by routine vaccination ('zero-dose' (ZD) children) by 2030. This scoping review maps and synthesises the scientific literature on ZD children in low-income and middle-income countries since the IA2030 launch.

METHODS: Our protocol, developed per the PRISMA-ScR (Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews) guidelines, was registered on the Open Science Framework prior to execution, and our search strategies were designed by a research librarian. We searched MEDLINE (Ovid), CINAHL Complete (EBSCOhost), EBM Reviews (Ovid), EMBASE (Ovid), LILACS and Google Scholar for peer-reviewed studies with quantitative evidence on ZD children published between January 2020 and January 2024. Using Covidence, we screened citations in a two-stage process by two independent reviewers and conducted data charting using a pretested form. Disagreements were resolved by consensus or consultation with a senior reviewer.

RESULTS: Of the 82 articles included, 73 provided evidence on prevalence, and/or distribution, 24 on barriers to vaccination services and 44 on deprivations faced by ZD children, their households and communities, with the risk of deprivations varying importantly across contexts. The barriers to vaccination most reported related to the intent to vaccinate (n=20), followed by community access (n=10). Deprivations mainly concerned access to health services, such as low utilisation of maternal health services (n=22), and other key development indicators, such as low socioeconomic status (n=29) and poor maternal education/literacy (n=28). We found no studies (n=0) on interventions focused on reaching ZD children with routine immunisation services.

CONCLUSION: Our findings highlight the imperative to generate evidence on interventions delivering routine immunisation to ZD children and missed communities. Results also underscore the need for transformative approaches that address multiple deprivations using carefully selected, integrated services, tailored to context-specific needs.

WEB: [10.1136/bmjgh-2024-018293](https://doi.org/10.1136/bmjgh-2024-018293)

IMPACT FACTOR: 6.1

CITED HALF-LIFE: 3.9

START COMMENTARY

This scoping review of peer-reviewed literature identified studies on prevalence, risk factors, and interventions for zero-dose children. Authors did not report specific findings or indicate the strength of those findings. Intent to vaccinate in this study refers to the demand for vaccines by primary caregivers, and include knowledge, attitudes and perceptions, community norms, and agency; these were the most commonly identified barriers, found in 83% of studies. Gender inequality was a factor in intent to vaccinate, with 8 articles identifying an association between restricted autonomy for women and likelihood of having a zero-dose child. While mortality in children <5 years is an expected result of non-vaccination, only one study reported an association between zero-dose vaccination status and under 5 child mortality. One additional study reported child development outcomes, finding that zero-dose vaccination status in early childhood was associated with lower learning levels at 8-11 years old among those living in high deprivation contexts.

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3. [Prioritizing countries for TB vaccine readiness research using a global stakeholder-centric approach.](#)

Gill M, Limaye R, Pelzer P, Frick M, Kerkhoff A.

PLOS Glob Public Health. 2025 Aug 05;5(8):e0004668.

PubMed ID: 40749042

ABSTRACT

The promise of new tuberculosis (TB) vaccine candidates prompts the need for research on vaccine demand and health system readiness to help ensure effective and equitable vaccine deployment. We developed an approach to prioritizing countries for TB vaccine readiness research by combining stakeholder preferences, elicited through best-worst scaling (BWS) with an analytical hierarchy process (AHP) framework. We conducted a self-administered electronic survey targeting TB vaccine stakeholders involved in vaccine development, advocacy, and implementation across 23 of the 24 USAID TB priority countries, and key stakeholders working globally. The survey included BWS to determine the relative importance of 17 criteria for country selection. Stakeholders were recruited using an existing email list, a 'snowball' approach, and TB experts' recommendations. In a series of 13 choice tasks, respondents selected the most and least important criteria from four randomly generated criteria. The weights derived through BWS for each criterion were combined with country-specific scores for each criterion using publicly available data to determine the overall prioritization score for each country. Of 427 stakeholders, 115 (26%) completed the survey; 88% were from TB priority countries. Sixteen of 17 criteria were identified as 'important' using BWS. Overall country TB burden (weight = 11.1) and TB-related political will (weight = 10.3) were the most important, followed by burden of TB-related deaths (weight = 7.9), health systems strength (weight = 7.5), and adult COVID-19 coverage (weight = 7.4). The five countries with the highest prioritization scores were in sub-Saharan Africa. Three of them were selected alongside the highest-scoring country from South Asia, Europe and Central Asia, and East Asia as priority research settings in pursuit of regional diversity. This study demonstrates the successful use of the AHP combined with BWS, as a practical and transparent approach for prioritizing countries for TB vaccine readiness research which could be applied to support other evidence-based funding decisions in global public health.

WEB: [10.1371/journal.pgph.0004668](https://doi.org/10.1371/journal.pgph.0004668)

IMPACT FACTOR: 2.5

CITED HALF-LIFE: 1.9

START COMMENTARY

New vaccines for tuberculosis (TB) are expected to be available within 5-7 years. This study sought to create and test a methodology to objectively decide where funding should be designated for TB

vaccine readiness research and to demonstrate the feasibility of this method to help address the complexities of global public health prioritization generally. Overall, 17 criteria for prioritization were identified through a review of existing literature and collaboration with the Supporting, Mobilizing, and Accelerating Research for Tuberculosis Elimination (SMART4TB) project and experts in vaccine introduction, policy, and market analysis. 115 Stakeholders completed an online Best-Worst scaling exercise with the 17 criteria in which each stakeholder was asked to choose the most important and least important criteria out of 4 presented options. This process was repeated 13 times in each exercise with different combinations of criteria presented each time. Responses were analyzed to assign weights to each criterion, and priority countries with high TB burden were evaluated based on the weighted criteria. Ultimately, six priority countries were prioritized to conduct multi-year, mixed-methods TB vaccine readiness research from among 24 high TB burden countries. While labor-intensive, this approach provides a more objective methodology to approach global health prioritization challenges.

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4. [Association of women's empowerment with childhood immunisation coverage in South and Southeast Asia: meta-analysis of Demographic and Health Surveys data from 11 countries.](#)

Khatir A, Rahman N, Ariyo T, Ge T, Saleem M, Jiang Q.

BMJ Glob Health. 2025 Jul 31;10(7).

PubMed ID: 40744673

ABSTRACT

BACKGROUND: Child health and gender inequalities are significant global public health issues that demand immediate action, particularly in South and Southeast Asian (SSEA) countries where both challenges are prevalent. This study examines the association between women's empowerment and child vaccination coverage in 11 SSEA low- and middle-income countries.

METHODS: Using population-level cross-sectional data from Demographic and Health Surveys across 11 SSEA countries, we developed an Individual-Level Women's Empowerment Index (ILWEI) based on three dimensions of women's empowerment: decision-making autonomy, attitude towards intimate partner violence and social independence. A three-stage mixed-effect individual participant data meta-analysis was employed to assess the association between ILWEI and childhood immunisation coverage.

RESULTS: In India, 81.28% of women reported participation in three to four decision-making areas, followed by 62.07% in Bangladesh. Full immunisation coverage ranged from 32.43% in Afghanistan to 63.30% in Bangladesh. The association between women's empowerment and vaccination coverage varied across South and Southeast Asia, with the strongest positive associations observed in Pakistan. However, mixed or negative associations were found in countries such as India and Timor-Leste.

CONCLUSION: Our findings indicate that in several SSEA countries, including Pakistan, Cambodia, the Philippines and Afghanistan, higher levels of individual women's empowerment are positively associated with an increased likelihood of childhood immunisation coverage. However, in countries such as India, Myanmar and Timor-Leste, higher women's empowerment was associated with lower odds of childhood immunisation, highlighting potential contextual or systemic barriers that may hinder vaccination uptake. This underscores the critical role of women's empowerment in enhancing childhood vaccination intake while also emphasising the need for targeted interventions to address country-specific challenges. Coordinated, multifaceted strategies are essential to empower women and thereby support the immunisation of children across regions.

WEB: [10.1136/bmjgh-2024-018306](https://doi.org/10.1136/bmjgh-2024-018306)

IMPACT FACTOR: 6.1

CITED HALF-LIFE: 3.9

START COMMENTARY

An important dimension of women's empowerment was social independence, measured through education, work status, and media exposure. This study showed significant differences in social independence by country, with nearly 99% of women in Pakistan classified as having low social independence, while in Cambodia nearly half of all women were considered to have high social independence. These differences provide important context for understanding the uneven effects of empowerment. Where social independence is widespread, women may be better positioned to act on health information and navigate health systems, whereas in geographies where social independence is absent, empowerment in decision making autonomy may not be sufficient alone. By incorporating this often-overlooked dimension of women's empowerment, the authors highlight the multifaceted nature of autonomy and the importance of tailoring guardian-targeted strategies to the dominant constraints in each geographical context to improve childhood vaccinations.

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5. [Advances and challenges in poliomyelitis vaccines: a comprehensive review of development, production, and global deployment.](#)

Liang J, Zhang Q, Li Y, Wang L.

Front Public Health. 2025 Jul 31;13:1611028.

PubMed ID: 40740383

ABSTRACT

Poliomyelitis has been a significant global health challenge for centuries. Since the launch of the Global Polio Eradication Initiative (GPEI) in 1988, remarkable progress has been achieved, with wild poliovirus (WPV) cases reduced by over 99%. However, challenges persist, including endemic transmission in conflict zones, the emergence of vaccine-derived polioviruses (VDPVs), and the complex logistics of vaccine production and distribution. This review synthesized the latest advancements in poliovirus vaccine development, production, and global deployment. Specific topics include the historical milestones of inactivated poliovirus vaccine (IPV) and oral poliovirus vaccine (OPV), innovations in next-generation vaccines such as novel OPV (nOPV2), intradermal IPV (IIPV), virus-like particle (VLP) vaccines, and mRNA vaccines, as well as critical considerations in manufacturing, quality control, and regulatory compliance. We also examined global strategies for vaccination campaigns, cold chain management, and eradication-endgame planning, alongside emerging challenges like VDPVs outbreaks, funding constraints, and geopolitical barriers. The significance of sustained global cooperation, equitable resource allocation, and technological advancement are essential to achieving a polio-free world, with the integration of scientific innovation with public health strategies. The lessons and insights presented herein inform polio eradication efforts, providing a blueprint for future disease eradication initiatives. The importance of resilience, adaptability, and community engagement was also emphasized for global health governance.

WEB: [10.3389/fpubh.2025.1611028](https://doi.org/10.3389/fpubh.2025.1611028)

IMPACT FACTOR: 3.4

CITED HALF-LIFE: 2.7

START COMMENTARY

Liang et al. provide a detailed overview of poliovirus vaccines and highlight India's success in achieving polio-free certification in 2014. India implemented extensive, frequent polio vaccine campaigns with oral poliovirus (OPV) to ensure that every child <5 years received a vaccine. Community stakeholders were mobilized to address concerns of vaccine hesitant families, helping immunization teams to build trust in the communities. Social mobilization networks engaged hard-to-reach populations and established connections between health workers and communities. Once OPV campaigns were successfully implemented, inactivated poliovirus vaccination (IPV), which

provides complete individual protection, was introduced in India to sustain polio-free status. In direct contrast to the success seen in India, parts of Afghanistan and Pakistan that are conflict zones continue to have wild poliovirus transmission. Misinformation about the safety and efficacy of the polio vaccine in addition to inaccessibility due to conflict have led to outbreaks. Strategies that include community engagement have been successful in increasing vaccine coverage even in high-risk areas.

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6. [Drivers of human papillomavirus vaccine uptake in migrant populations and interventions to improve coverage: a systematic review and meta-analysis.](#)

Iwami M, Bouaddi O, Razai M, Mansour R, Morais B, Ali N, et al.

Lancet Public Health. 2025 Jul 30;10(8):e693-e711.

PubMed ID: 40738554

ABSTRACT

BACKGROUND: WHO's Cervical Cancer Elimination Initiative has set a target for 90% of girls to be fully vaccinated against human papillomavirus (HPV) by the age of 15 years by 2030, to substantially reduce deaths from cervical and other HPV-related cancers. However, progress has been slow, with only 27% global vaccine coverage in 2023. Migrants are an under-immunised group globally for many vaccine-preventable diseases, with data showing that they experience a high burden of HPV infection and widespread HPV under-immunisation. We aimed to identify drivers of HPV vaccine uptake in migrants, as well as assess uptake and explore recommended approaches, strategies, and best practices to promote uptake in migrant communities.

METHODS: In this systematic review and meta-analysis, we searched seven databases and several grey literature sources for information published in any language between Jan 1, 2006, and Dec 4, 2024, on the drivers of HPV vaccine uptake among migrants globally. Defining migrants as foreign-born nationals, we included qualitative and quantitative cross-sectional studies, cohort studies, and randomised controlled trials focused on first-generation and second-generation migrants and excluded studies of internal migrants. Outcomes were frequency and percentage of HPV vaccine uptake; factors positively or negatively influencing uptake; and recommended approaches, strategies, and best practices to promote uptake as reported by study authors or participants. We conducted a hybrid thematic analysis using the WHO Behavioural and Social Drivers of Vaccination model to map drivers of uptake, and a random-effects meta-analysis to calculate pooled estimates of uptake. Risk of bias was assessed using Joanna Briggs Institute checklists. This study is registered with PROSPERO, CRD42022347513.

FINDINGS: Of 3562 records returned by the search, 117 studies were included in the analysis, involving 5 638 838 participants across 16 countries and one territory, of whom 933 189 were first-generation and second-generation migrants. The pooled estimates of HPV vaccine uptake were 23·0% (95% CI 10·0-44·0; I²=99·3%; n=7614) among female migrants, 21·0% (5·0-58·0; I²=99·3%; n=2764) among male migrants, and 17·0% (8·0-33·0; I²=98·0%; n=3583) among male and female migrants combined. 79 (68%) studies were considered at low risk of bias, 32 (27%) were considered at moderate risk, and six (5%) were considered at high risk. Factors negatively influencing vaccine uptake included concerns about vaccine safety, cultural beliefs, uncertainty and low levels of knowledge about HPV vaccines or infection, exposure to negative information, and lack of

recommendations from health-care providers. Practical barriers to uptake included little information on services, language barriers, logistical challenges, and the high cost of the vaccine. Enablers mainly included positive perceptions and trust in the vaccine and health-care providers, realistic expectations from parents regarding adolescents' sexual activity, a sense of responsibility, recommendations from health-care providers, and support from social networks. Recommended strategies and interventions to improve uptake included culturally sensitive messaging and tailored communication for different target groups (eg, parents or caregivers and adolescents). Deploying trusted mediators (eg, peer school health promoters, religious champions, and community health workers) was key, alongside implementing practical solutions to address missed opportunities (eg, bundling HPV vaccination with other services), implementing eHealth initiatives, ensuring strong provider recommendations, reducing access barriers (eg, through walk-in, mobile, and outreach services), and strengthening vaccination monitoring systems.

INTERPRETATION: We show that migrants globally face complex individual, family and social, and provider-level and system-level barriers to HPV vaccination, resulting in low uptake of HPV vaccines and missed opportunities for protection. In many low-income and middle-income countries, there is little to no availability of vaccines and/or the recipient must pay for them. Achieving global commitments to universal and equitable immunisation across the life course-and making progress towards cervical cancer elimination-requires these barriers to be addressed through multipronged strategies. Collaborative efforts with migrant communities are essential to co-develop effective, tailored delivery models that meet their unique needs.

FUNDING: The National Institute for Health and Care Research, the Academy of Medical Sciences, and the Medical Research Council.

WEB: [10.1016/S2468-2667\(25\)00148-3](https://doi.org/10.1016/S2468-2667(25)00148-3)

IMPACT FACTOR: 25.2

CITED HALF-LIFE: 3.9

START COMMENTARY

To date, there is a significant geographic gap in our understanding of HPV vaccine uptake among migrant populations. Of the 117 included studies, 115 were conducted in high-income countries, with only one study originating from an upper-middle-income country (Malaysia) or lower-middle-income country (Nepal). Importantly, no studies were identified from Latin America or Africa, despite these regions hosting large and diverse migrant populations resulting in part from political instability or climate change. This lack of evidence highlights that the experiences of migrants in low-resource settings remain largely undocumented. Without data from these regions, policymakers and health systems face challenges in tailoring interventions that reflect the realities of local health

infrastructure, cultural contexts, and patterns of mobility. Expanding research beyond high-income countries will be essential to developing strategies that ensure equitable protection against HPV for migrant populations, globally.

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7. [Subnational introduction of the RTS,S/AS01E malaria vaccine into routine immunization: experience and lessons from the three pilot countries.](#)

Jalang'o R, Amponsa-Achiano K, Chisema M, Malm K, Khalayi L, Mhone B, et al.

Malar J. 2025 Jul 29;24(1):244.

PubMed ID: 40721790

ABSTRACT

BACKGROUND: In October 2021, the World Health Organization (WHO) recommended the RTS,S/AS01E (RTS,S) malaria vaccine for the prevention of *Plasmodium falciparum* malaria in children living in endemic areas informed by evidence from the subnational pilot introduction and evaluation in Ghana, Kenya, and Malawi as part of the WHO-coordinated Malaria Vaccine Implementation Programme (MVIP). With the global vaccine supply boosted by the pre-qualification of a second malaria vaccine, R21/Matrix-M (R21), in October 2023, many endemic countries (20 as of April 2025) have introduced malaria vaccines into their national childhood immunization and malaria control programmes. More endemic countries are expected to introduce or scale up malaria vaccines in 2025 and beyond. This paper summarizes key operational lessons from the pilot countries to facilitate the introduction and scale-up of malaria vaccination in other countries.

METHODS: Pilot areas were identified, in part, based on local malaria epidemiology. RTS,S was initially introduced in randomly selected areas, while other areas served as comparators until the four-dose schedule vaccine was scaled up following the WHO recommendation in 2021. In Ghana and Kenya, the vaccine was administered at ages 6, 7, 9, and 24 months (Ghana switched to administer the fourth dose at age 18 months in 2023), and Malawi chose a schedule of 5, 6, 7, and 22 months.

RESULTS: Vaccination coverage improved over time, reaching about 80% for the first dose and around 75% for the third dose by 2023 in the initial pilot areas. Implementation challenges included an inadequate understanding of age eligibility among healthcare workers during the early phase of introduction, low fourth dose coverage (with a median coverage of 46% in 2023 across the three countries), and disruptions to service delivery caused by disease outbreaks and other natural disasters. Health stakeholders and caregivers attested to the positive impact of introducing the malaria vaccine, including a reduction in malaria hospitalizations and the strengthening of the National Immunization Programme (NIP) through routine immunization refresher training and supportive supervision.

CONCLUSIONS: The pilot highlighted lessons for malaria vaccine introduction: (1) clearly outlined roles and responsibilities of key stakeholders including NIP and National Malaria Programme (NMP); (2) appropriate approach to vaccine introduction launch, communication, and demand generation to

enhance vaccine uptake; (3) flexibility with dose scheduling to optimize coverage; and (4) updated data collection tools for accurate documentation, and data quality.

WEB: [10.1186/s12936-025-05484-6](https://doi.org/10.1186/s12936-025-05484-6)

IMPACT FACTOR: 3.0

CITED HALF-LIFE: 7.3

START COMMENTARY

The malaria vaccine pilots in Malawi, Ghana, and Kenya demonstrate that a new immunization contact at six months of age could be successfully integrated into the Expanded Program on Immunization (EPI) schedules. All three pilot countries introduced RTS,S with a six-month dose, creating novel touch points for post-natal care visits. This visit was also leveraged to reinforce delivery of vitamin A supplementation and growth monitoring, although independent household surveys suggested that, while vitamin A coverage rose marginally, there were no statistically significant differences between implementation and comparison areas by 2022. Even without major spillover effects, the pilots showed that health systems and caregivers could adapt to a 6-month visit, normalizing a new age-specific contact within routine services. This precedent is critical for future integrated child health interventions via immunization or other non-immunization services.

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8. [Projecting the population-level impact of norovirus vaccines.](#)

Koelle K, Lappe B, Lopman B, Lau M, Viscidi E, Carlson K.

Epidemics. 2025 Jul 22;52:100842.

PubMed ID: 40695110

ABSTRACT

Norovirus diversity has major implications for vaccine design. The number of circulating genogroups and genotypes, and the way this viral diversity interacts at the population level, will factor into how many and which genotypes should be included in an effective vaccine. Here, we develop an age-stratified, multi-strain model for norovirus to project potential population-level impacts of different vaccine formulations on genotype-specific and overall annual attack rates. Our model assumes that vaccination impacts susceptibility to infection but not infectiousness or the risk of developing disease. We parameterize the baseline model (without vaccination) based on literature estimates and the ability to recover observed epidemiological patterns. We then simulate this model under seven different potential vaccine formulations, initially assuming only pediatric vaccination. While we find that increases in coverage result in declines in annual norovirus attack rates for all formulations considered, we also find that vaccine formulations that include genotype GII.4 would be most effective at lowering overall norovirus attack rates. Inclusion of additional genotypes in a vaccine would further lower attack rates but more incrementally, with the addition of GI.3, GII.2, GII.3, and GII.6 together having a similar impact to that of GII.4 alone on reducing overall norovirus incidence. We further find that transient dynamics are expected for 10-20 years following roll-out with any pediatric vaccine. During this time, there may be unanticipated changes in genotype circulation patterns, although long-term increases in non-vaccine genotype attack rates above baseline levels are not expected. Finally, we anticipate that annual vaccination of older-aged individuals with a GII.4-containing vaccine can, under certain conditions but not others, provide appreciable direct benefits to individuals in this age group beyond what pediatric vaccination affords. Together, our results indicate that there is a clear population-level benefit of primary pediatric vaccination with a GII.4-inclusive norovirus vaccine plus incremental value of other genotypes, with additional direct benefits of annual vaccination to older adults provided that vaccination results in a considerable (multi-month) duration of broadly protective immunity to infection. More empirical studies are needed to validate the structure of the model and refine its parameterization, both of which affect projections of vaccine impact.

WEB: [10.1016/j.epidem.2025.100842](https://doi.org/10.1016/j.epidem.2025.100842)

IMPACT FACTOR: 2.4

CITED HALF-LIFE: 5.2

START COMMENTARY

Sensitivity analyses demonstrated that vaccine impact projections were strongly dependent on assumptions about both cross-protection and the duration of immunity. When cross-genogroup protection was removed, GI.3 infections surged. Similarly, eliminating all cross-genotype protection produced high attack rates of ~60% annually, far above observed patterns, reinforcing that some degree of cross-protection must exist. Additionally, uncertainty about how long either natural infection or vaccination confers broad immunity further shaped outcomes. The baseline assumption of nine months of immunity supported strong direct and indirect benefits, especially for older-age vaccination. Reducing this immunity window to one month increased illness risk from 8.3% to ~11.5% and nearly erased the added value of vaccinating older-aged individuals. Together, these findings highlight that projections of norovirus vaccination are highly sensitive to immunological parameters that need further refinement.

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9. [Overcoming Vaccine Inequities and Research Gaps in Africa: Challenges and Opportunities Identified During the COVID-19 Pandemic.](#)

Kim C, Thwe T, Espinoza L, Sugimoto J, Fallah M, Jeon H, et al.

Clin Infect Dis. 2025 Jul 22;80(Supplement_1):S9-S15.

PubMed ID: 40694515

ABSTRACT

Before the onset of the coronavirus disease 2019 (COVID-19) pandemic, the African region already faced a substantial communicable disease burden and a rising prevalence of noncommunicable and chronic conditions. The COVID-19 pandemic has underscored critical vulnerabilities within the health systems in African countries and highlighted the urgent need for self-sufficiency to increase resilience in vaccine manufacturing and clinical trial capacity. In response, substantial efforts are underway to develop vaccine and pharmaceutical manufacturing capabilities across the continent. Ongoing initiatives supported by large donor organizations are aimed at initiating much-needed progress toward greater self-sufficiency in vaccine production in Africa, as coordinated by the Africa Centers for Disease Control. Continued investment, regulatory harmonization, and strengthened international and regional partnerships are essential for Africa to develop sustainable vaccine manufacturing.

WEB: [10.1093/cid/ciaf055](https://doi.org/10.1093/cid/ciaf055)

IMPACT FACTOR: 7.3

CITED HALF-LIFE: 7.7

START COMMENTARY

Investment in COVID-19 research and clinical trials in Africa has been inadequate, with only 4% of global investment going to Africa in 2022. Vaccination strategies for COVID-19 have also been rife with inequity, with vaccine rollout occurring ~3 months after vaccination campaigns began in other regions. Additionally, only 39% of the population in the World Health Organization's AFRO Region had received one dose of a COVID-19 vaccine by December 2023 compared to 80% in the WPRO Region and 67% globally. This was due in part due to limited vaccine supply. With these disparities exposed, the Africa CDC has set a goal of producing 60% of Africa's vaccines locally by 2040, and several partnerships and alliances have been established to increase vaccine and pharmaceutical manufacturing in the region. These include the African Vaccine Manufacturing Accelerator (AVMA) launched by Gavi in 2024 to provide over a billion dollars of funding for the development of sustainable vaccine manufacturing in Africa and Advancing Research Capacities, West Africa (ARC-WA) which aims to build clinical trial and research capacity.

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10. [A global living systematic review and meta-analysis hub of emerging vaccines in pregnancy and childhood.](#)

Ciapponi A, Bardach A, Berrueta M, Ballivian J, Brizuela M, Caravario J, et al.

Reprod Health. 2025 Jul 19;22(1):129.

PubMed ID: 40682141

ABSTRACT

The COVID-19 pandemic accelerated vaccine development and generated a rapidly evolving body of evidence before and after the vaccine rollout. We developed a robust online platform to efficiently synthesize this emerging information for current and future challenges. Expanding upon our interactive living systematic review-initially focused on COVID-19- we now include chikungunya and Lassa fever (with protocols presented in this issue), Mpox, and Disease X (<https://www.safeinpregnancy.org>). We aim to continuously monitor and periodically update and disseminate high-quality data on vaccine safety, efficacy, effectiveness, and immunogenicity in pregnancy and childhood. This platform computes real-time meta-analyses and features a visualization tool to present findings in a clear and accessible manner, supporting decision-making, vaccine development pipelines, and implementation strategies worldwide. It is also designed to integrate data on a hub of emerging vaccines in pregnancy and childhood and reflects a collaborative effort among multiple organizations.

WEB: [10.1186/s12978-025-02090-2](https://doi.org/10.1186/s12978-025-02090-2)

IMPACT FACTOR: 3.4

CITED HALF-LIFE: 5.7

START COMMENTARY

Ciapponi et al. have created a living systematic review platform to continually update safety and effectiveness data for selected vaccines administered to pregnant individuals and young children. Data is often lacking for these high-risk groups since they are typically excluded from early-stage vaccine trials. Researchers have integrated artificial intelligence (AI) into their data identification process to increase efficiency, with full text review of published and grey literature completed by both an AI and human reviewer. The analysis of data from studies that included COVID-19 vaccination during pregnancy found no increase in the risk of adverse pregnancy outcomes. These findings were used by the World Health Organization (WHO) to inform policy decisions and clinical practice guidelines, and findings from their new chikungunya, Lassa fever, and mpox vaccine meta-analyses could have similar uses.

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Additional Articles of Interest

- 1 Strengthening vaccine capacity building on the African continent. [{Full Article}](#)
- 2 Innovative adjuvant strategies for next-generation pertussis vaccines. [{Full Article}](#)
- 3 Descriptive Epidemiology of the 2022-2023 Cholera Outbreak in Lebanon and Lessons Learned in the Context of a Humanitarian Emergency Situation. [{Full Article}](#)
- 4 From decentralization to re-centralization: lessons learned from Vietnam's rapid reversal in the financing of the Expanded Program on Immunization. [{Full Article}](#)
- 5 Community readiness and acceptance for the implementation of the malaria vaccine among caretakers of at-risk children in sub-Saharan Africa: a systematic review and meta-analysis. [{Full Article}](#)
- 6 Oral cholera vaccine uptake, acceptance and confidence among residents of a high-risk township in Zambia: key insights for future vaccination programs. [{Full Article}](#)
- 7 Experiences and perceptions about vaccines and reporting of adverse events following immunisation: a qualitative study among mothers in Northern Ghana. [{Full Article}](#)
- 8 Dengue vaccine rollout in India: lessons for Pakistan's public health preparedness. [{Full Article}](#)
- 9 Barriers and facilitators associated with migrant parents' decisions regarding childhood vaccinations: A mixed methods systematic review. [{Full Article}](#)
- 10 Propensity score matching analysis of the effect of four or more antenatal care visits on basic childhood immunization in Ethiopia. [{Full Article}](#)
- 11 Parental and step-parental attitudes toward childhood vaccination in Kaduna State of Nigeria: a health belief model approach. [{Full Article}](#)
- 12 One-step ahead: evaluating the efficacy of single-visit rabies pre-exposure prophylaxis against conventional multi-visit protocol: a randomized non-inferiority clinical trial. [{Full Article}](#)
- 13 Performance characteristics and potential public health impact of improved pre-erythrocytic malaria vaccines targeting childhood burden. [{Full Article}](#)
- 14 Artificial intelligence and machine learning in the development of vaccines and immunotherapeutics-yesterday, today, and tomorrow. [{Full Article}](#)
- 15 Barriers and drivers to childhood vaccinations in Forcibly Displaced Myanmar Nationals (FDMN)/Rohingya refugees in Cox's Bazar, Bangladesh: a scoping review. [{Full Article}](#)
- 16 A cost-benefit analysis of using wastewater monitoring to guide typhoid vaccine campaigns. [{Full Article}](#)
- 17 Facilitators and barriers to implementation of HPV vaccination in Tanzania: a mixed-methods study exploring perspectives from national, subnational, and community stakeholders, 2018-2023. [{Full Article}](#)
- 18 Essential newborn care practices at health facilities and homes in Ethiopia: a cross-sectional study. [{Full Article}](#)

- 19 Trust in government, science, and vaccine confidence in Southeast Asia: A latent profile analysis. [{Full Article}](#)
- 20 100-Day Mission for Future Pandemic Vaccines, Viewed Through the Lens of Low- and Middle-Income Countries (LMICs). [{Full Article}](#)
- 21 Cervical cancer trends, HPV vaccine utilization, and screening in low- and lower-middle-income countries: an updated review. [{Full Article}](#)
- 22 Post COVID 19 resurgence of diphtheria in Kano, Nigeria: analysis of 18,320 cases. [{Full Article}](#)
- 23 Effects of climate change on vaccine storage and cold chain logistics: a qualitative study in Ogun State, Nigeria. [{Full Article}](#)
- 24 The influence of the COVID-19 pandemic on measles vaccination coverage. [{Full Article}](#)
- 25 New adult and adolescent tuberculosis vaccines and Indonesia: policy planning and evidence, November 2024. [{Full Article}](#)
- 26 A qualitative study on gender relations and digital payments: healthcare workers' experiences during polio vaccination campaigns in Uganda and Malawi. [{Full Article}](#)
- 27 Cost-effectiveness modeling for gender-neutral human papillomavirus vaccines: A systematic literature review. [{Full Article}](#)
- 28 Economic evaluations of vaccines against respiratory infections in adults in Southeast Asia: A systematic review. [{Full Article}](#)
- 29 Integrative mapping of pre-existing influenza immune landscapes predicts vaccine response. [{Full Article}](#)

Appendix

The literature search for the August 2025 Vaccine Delivery Research Digest was conducted on July 24, 2025. We searched English language articles indexed by the US National Library of Medicine and published between July 15, 2025, and August 14, 2025. The search resulted in 484 items.

SEARCH TERMS

(((((“vaccine”[tiab] OR “vaccines”[tiab] OR “vaccination”[tiab] OR “immunization”[tiab] OR “immunisation”[tiab] OR “vaccines”[MeSH Terms] OR (“vaccination”[MeSH Terms] OR “immunization”[MeSH Terms])) AND (“logistics”[tiab] OR “supply”[tiab] OR “supply chain”[tiab] OR “implementation”[tiab] OR “expenditures”[tiab] OR “financing”[tiab] OR “economics”[tiab] OR “Cost effectiveness”[tiab] OR “coverage”[tiab] OR “attitudes”[tiab] OR “belief”[tiab] OR “beliefs”[tiab] OR “refusal”[tiab] OR “Procurement”[tiab] OR “timeliness”[tiab] OR “systems”[tiab])) OR “vaccine delivery”[tiab] OR “vaccination refusal”[MeSH Terms] OR “immunization programs”[MeSH Terms] OR “zero dose”[tiab] OR “unvaccinated children”[tiab] OR “gavi”[tiab]) NOT (“in vitro”[tiab] OR “immune response”[tiab] OR “gene”[tiab] OR “chemistry”[tiab] OR “genotox”[tiab] OR “sequencing”[tiab] OR “nanoparticle”[tiab] OR “bacteriophage”[tiab] OR “exome”[tiab] OR “exogenous”[tiab] OR “electropor*”[tiab] OR “systems biology”[tiab] OR “animal model”[tiab] OR “cattle”[tiab] OR “sheep”[tiab] OR “goat”[tiab] OR “rat”[tiab] OR “pig”[tiab] OR “mice”[tiab] OR “mouse”[tiab] OR “murine”[tiab] OR “porcine”[tiab] OR “ovine”[tiab] OR “rodent”[tiab] OR “fish”[tiab])) AND “English”[Language] AND 2025/07/15:2025/08/14[Date - Publication]