

VACCINE DELIVERY RESEARCH DIGEST

UNIVERSITY OF WASHINGTON STRATEGIC ANALYSIS,
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1. [Determinants of Missed Opportunities for Vaccination \(MOVs\) Indicators Among Children Aged 12-23 Months in Sub-Saharan African Countries: A Multilevel Analysis of Survey Data.](#)

Tamuzi J, Katoto P, Sakala D, Wiysonge C, Nyasulu P.

Vaccines (Basel). 2026 May 26;14(5).

PubMed ID: 42188789

ABSTRACT

Background: In sub-Saharan Africa, missed opportunities for vaccination are a major obstacle to reaching the global target of vaccination coverage. The study's aim was to identify the factors driving missed opportunities for vaccination indicators, including crude missed opportunities for vaccination, all corrected, uncorrected, and some corrected missed opportunities for vaccination in children aged 12-23 months in sub-Saharan Africa. Methods: This was a multilevel mixed-effects population-based cross-sectional analysis using Demographic Health Surveys and Multiple Indicators Cluster Surveys data collected from 1 January 2019 to 31 December 2023 from twenty-one countries in sub-Saharan Africa. Both multilevel mixed-effects logistic regression and multilevel multinomial logistic regression were undertaken to assess the strengths of association between missed opportunities for vaccination indicators and covariates. Results: We included a total of 23,490 children aged 12-23 months. In multilevel fixed-effects logistic regression, our findings revealed that mothers' education levels, listening to radio, sales 'occupation, bicycle as mode of transportation to the nearest health facility, and health insurance were all associated with lower crude missed opportunities for vaccination. In contrast, father's primary education and watching television were associated with increased risk of missed opportunities for vaccination. In multilevel fixed-effects multinomial logistic regression, mothers' education levels, watching television, Muslim, and health-insured children were all associated with all corrected missed opportunities for vaccination. In the same line, mothers with primary education, watching television, private health facilities as delivery place, and health-insured children were associated with some corrected missed opportunities for vaccination. In the random-effects, the intraclass correlation coefficient showed missed opportunities for vaccination variances of 18% for crude missed opportunities for vaccination and 27% for all corrected, some corrected, and uncorrected missed opportunities for vaccination between communities in SSA. Conclusions: A variety of driving factors influence MOVs indicators in children aged 12-23 months, mainly caregivers' education, media exposure, health insurance, occupation, religion, and mode of transportation to the nearest health facility. Effective evidence-based strategies are needed to

minimize the influence of barriers on missed opportunities for vaccination in children aged 12-23 months in sub-Saharan Africa.

WEB: [10.3390/vaccines14050417](https://doi.org/10.3390/vaccines14050417)

IMPACT FACTOR: 3.4

CITED HALF-LIFE: 2.8

START COMMENTARY

Missed opportunities for vaccination (MOVs) are a major contributor to suboptimal immunization coverage globally. This article examined drivers of MOVs among children aged 12–23 months in 21 countries in sub-Saharan Africa using DHS data from 2019 to 2023.

The findings show that caregiver education and communication access were important factors associated with MOVs. Higher maternal education was associated with lower risk of MOVs, particularly among mothers with secondary or higher education. Mothers with no education made up a substantial portion of the study population (37%), of whom half were 15-24 years old. The authors suggest that targeting interventions toward this group of young mothers with no formal education may be important for improving MOV indicators in sub-Saharan Africa. Media use, including television, radio, and internet were associated with lower odds of MOVs. In the adjusted analysis, listening to the radio remained associated with reduced MOV risk when controlling for maternal education, wealth, media exposure, place of delivery, and insurance status. The authors discuss leveraging radio broadcasts as an important communication channel, especially for delivering targeted information to caregivers in local languages.

Reducing MOVs likely requires addressing broad social and health system barriers including caregiver education, access to health services, insurance coverage, and reliable vaccine information. Recommended strategies include strengthening postnatal and child health services, expanding health insurance, using local radio campaigns, and implementing reminder systems like electronic immunization records. The authors also highlight the potential role of artificial intelligence in identifying underserved populations, forecasting vaccine demand, automating reminders, and addressing misinformation.

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2. [Operational intelligence for immunization recovery: mapping system shocks and capacity to zero-dose debt and outbreak risk.](#)

Ramakrishnan S, Vignesh U, Parvathi R.

Front Health Serv. 2026 May 25;6:1745633.

PubMed ID: 42180635

ABSTRACT

Immunization services continue to face uneven recovery following the COVID-19 shock, leaving zero-dose children unreached and elevating the risk of measles in many settings. We analyzed a multicountry observational panel spanning 2019-2024 to generate operational intelligence for immunization recovery. Using routinely available indicators, we developed measures of service disruption (including conflict exposure, displacement pressure, and price instability) and indicators of system capacity (governance effectiveness and health financing) and then summarized coverage gaps relative to prepandemic baselines as recovery debt. We identified service delivery archetypes using unsupervised clustering, with stability and interpretability checks, and then assessed whether archetype membership and recovery debt were associated with reported measles activity using negative binomial models with population offsets, regional fixed effects, and clustered standard errors. Four robust archetypes emerged, each characterized by distinct driver profiles and equity gradients. Two of these archetypes accounted for the majority of recovery debt and were associated with substantially higher measles incidence compared to the lowest-risk reference group, with patterns remaining robust across prespecified sensitivity analyses. Countries transitioning toward lower-risk archetypes over time exhibited improvements in predicted measles activity. These findings provide a health services typology that links routinely available indicators to immunization service risk, enabling managers to target high-leverage recovery actions, prioritize catch-up delivery, and monitor service improvements alongside surveillance indicators.

WEB: [10.3389/frhs.2026.1745633](https://doi.org/10.3389/frhs.2026.1745633)

IMPACT FACTOR: 2.6

CITED HALF-LIFE: 2.7

START COMMENTARY

This study develops a typology of immunization service recovery following the COVID-19 pandemic by integrating routine immunization coverage trends with indicators of system shock and service capacity across WHO Member States. Four service delivery archetypes were identified: stable recovery, characterized by sustained improvements in coverage supported by adequate governance and financing; macrostressed stall, where food price inflation and budget constraints impede recovery; fragility and displacement, observed in settings affected by conflict and large refugee

populations; and capacity-constrained plateau, where weak governance and limited health financing restrict further gains in coverage.

The authors emphasize that countries may transition between archetypes over time, providing a useful framework for monitoring changing conditions and informing targeted recovery strategies. In settings falling under the fragility and displacement archetype, high-traffic borders and population mobility frequently complicate microplanning since population denominators change rapidly. In these contexts, fixed-site and school-based delivery models often underperform unless supplemented by mobile outreach vaccination teams. Countries facing high refugee burdens with fragile health systems showed lower rates of vaccination recovery and more volatility in immunization program performance overall. Population displacement and disruptions to service delivery complicate effective planning and implementation of routine immunization services. For fragile and displacement-affected settings, policy priorities include developing dynamic population denominators, strengthening cross-border data-sharing mechanisms, enhancing coordination with humanitarian partners, and implementing adaptive outreach strategies to improve routine immunization delivery.

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3. [Impact of introducing RTS,S/AS01E malaria vaccine on mortality in young children in Ghana, Kenya, and Malawi: an observational evaluation of a cluster-randomised implementation programme.](#)

Mwapasa V, Asante K, Milligan P, Akech S, Oduro A, Mathanga D, et al.

Lancet. 2026 May 10;407(10541):1796-1808.

PubMed ID: 42107373

ABSTRACT

BACKGROUND: Malaria vaccines have been added to immunisation schedules in 25 sub-Saharan African countries, with the expectation that deaths in young children would be prevented. The introduction of the RTS,S/AS01E malaria vaccine (RTS,S) in Ghana, Kenya, and Malawi in 2019 was evaluated over 4 years to show the impact on mortality in young children and to monitor severe malaria admissions, vaccine uptake, and safety. Favourable evidence on safety and impact on severe malaria admissions during the first 2 years contributed to WHO's recommendations on malaria vaccines. Here, we report the primary analysis of the impact on mortality at 46 months.

METHODS: Clusters of administrative units (districts in Ghana, subcounties in Kenya, and groups of immunisation clinics in Malawi), each with an estimated annual birth cohort of about 4000 children, were randomly assigned 1:1 to introduce the RTS,S malaria vaccine in 2019 (implementation areas), or to implement later (comparison areas). RTS,S was delivered in a four-dose schedule, at age 6, 7, 9, and 24 months in Ghana and Kenya, and at age 5, 6, 7, and 22 months in Malawi. Surveillance for post-neonatal mortality in children younger than 5 years was established throughout by a network of 26 000 local reporters who notified deaths in their community. The families were then visited at home by study staff to confirm details and complete a verbal autopsy. Surveillance for severe malaria and other conditions was strengthened in 18 sentinel hospitals serving part of the study area and maintained for 46 months. Uptake of RTS,S and other vaccines was monitored by the Expanded Programme on Immunisation in each country and independently through three household coverage surveys, at baseline, and at about 18 months and 30 months after introduction of RTS,S. The primary outcome of this impact evaluation was mortality due to any cause, except injury, in children eligible to receive three doses of RTS,S. Mortality rate ratios were estimated by comparing the ratio of deaths among vaccine-eligible age groups to deaths in non-eligible age groups between implementation and comparison areas. This evaluation is registered on ClinicalTrials.gov (NCT03806465) and is complete.

FINDINGS: 158 clusters (66 in Ghana, 46 in Kenya, and 46 in Malawi) were selected and randomly assigned; 79 areas served as implementation areas and 79 as comparison areas. By the end of the 46-month evaluation period, 1 289 504 children had received the first dose of RTS,S, 1 158 850 had received the second dose, 1 068 039 had received a third dose, and 436 527 had received a fourth

dose. Coverage assessed in 2022 was 82·8% (95% CI 80·7-84·9) for the first dose, 71·1% (68·8-73·5) for the third dose, and 39·9% (36·9-42·9) for the fourth dose. Excluding deaths due to injury, there were 5576 deaths in implementation areas versus 6152 in comparison areas in children eligible to have received the third dose of RTS,S, and 7534 versus 7044 deaths among non-eligible children. The mortality rate ratio was 0·87 (95% CI 0·77-0·97; $p=0·016$).

INTERPRETATION: Introduction of the RTS,S malaria vaccine in routine immunisation programmes was associated with a significant reduction in mortality in young children, averting about one in eight deaths, in areas with moderate coverage of three doses of the vaccine and low uptake of the fourth dose. These results highlight the urgency to accelerate the deployment of malaria vaccines in areas of Africa where malaria continues to be a leading cause of child mortality.

FUNDING: WHO; Gavi, the Vaccine Alliance; the Global Fund to Fight AIDS, Tuberculosis and Malaria; and Unitaid.

TRANSLATIONS: For the French translation of the abstract see Supplementary Materials section.

WEB: [10.1016/S0140-6736\(26\)00248-5](https://doi.org/10.1016/S0140-6736(26)00248-5)

IMPACT FACTOR: 109.0

CITED HALF-LIFE: 8.0

START COMMENTARY

This study reports the primary analysis of the impact of introducing the RTS,S malaria vaccine on all-cause mortality, vaccine coverage, and severe malaria hospital admissions in Ghana, Kenya, and Malawi through the Malaria Vaccine Implementation Program (MVIP) using a cluster-randomized design. After four years of follow-up, RTS,S introduction was associated with a 13% reduction in all-cause mortality among children eligible to receive three doses of the vaccine. Notably, this impact was achieved despite only 40% of children receiving the fourth dose which suggests that substantial mortality benefits can be achieved even when completion of the full schedule is relatively low. Vaccination coverage was assessed through household surveys conducted 18 and 30 months after vaccine introduction.

The coverage surveys also identified potential missed opportunities for RTS,S delivery. Routine childhood vaccines like measles had higher coverage than RTS,S suggesting that some children who were successfully reached through the routine immunization system were not receiving RTS,S at the same rate. In Ghana, uptake of the fourth RTS,S dose improved after it was rescheduled to coincide with an existing measles vaccination visit which highlights the potential benefits of leveraging established immunization contacts to improve RTS,S coverage. Additionally, RTS,S introduction did not negatively impact uptake of other routine vaccines or the use of insecticide-

treated nets. The authors suggest additional immunization visits created for RTS,S could serve as touchpoints to strengthen delivery of other child health interventions. A major strength of the study was its large-scale cluster-randomized design across three countries. A limitation is that vaccine coverage estimates relied on household survey data and caregiver recall. These findings support continued RTS,S scale-up in high-burden settings and suggest that leveraging routine immunization visits may improve vaccine uptake and maximize public health impact.

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4. [Mass vaccination with two-dose Oral cholera vaccine in vulnerable populations, using existing public health infrastructure from planning to delivery through multi-sectoral collaboration in West Bengal, India.](#)

Pahari S, Ghosh P, Paul A, Talukdar R, Chatterjee S, Barman D, et al.

J Infect Public Health. 2026 May 16;19(6):103237.

PubMed ID: 42092212

ABSTRACT

BACKGROUND: Cholera continues to pose a serious public health threat in India, particularly in flood-prone and resource-constrained settings where water, sanitation, and hygiene (WASH) infrastructure is inadequate. OCV offers an economically favorable and scalable solution in such contexts. This study evaluated the feasibility, coverage, safety, and delivery cost of a pre-emptive two-doses OCV campaign conducted through the routine public health system.

METHODS: This descriptive implementation study, conducted in Bishnupur-II block of South 24 Parganas, West Bengal, enumerated 45,073 individuals across three Gram Panchayats through a household census that generated a vaccination line list with unique household identifiers. The campaign, executed in two phases (October and November 2024), utilized census-based microplanning, door-to-door vaccination by ASHAs and AWWs, and cold-chain management through the local health system. Outcomes included coverage (≥ 1 dose; 2-doses), AEFIs, and program costs. Costs estimated via activity-based micro-costing from the health-system perspective, excluding research costs; reported in INR with USD equivalents.

RESULTS: Of the target population, first-dose coverage reached 66.4% (29,929/45,073) and two-dose coverage 63.1% (28,461/45,073), with a second-dose retention rate of 95.1% (28,461/29,929). Coverage exceeded 75% in children aged 1-5 years and varied across sub-centers (46.3%-86.2%) for both doses. Only mild adverse events were recorded [0.3% (167 cases/58,390 doses)] with no serious events. The overall expenditure was INR 12,493,303 (USD 150,521.72), with vaccine procurement accounting for 97% (INR 12,096,000; USD 145,734.94). The per-person delivery cost was INR 13.24 (USD 0.16), and the total cost, including procurement and delivery per fully vaccinated person was INR 416.44 (USD 5.01).

CONCLUSIONS: The campaign demonstrates that large-scale pre-emptive OCV delivery is feasible, safe, and affordable within India's public health infrastructure. The West Bengal strategy provides a replicable framework for future cholera control efforts in similar high-risk settings across South and Southeast Asia, aligning with WHO's Ending Cholera: A Global Roadmap to 2030.

WEB: [10.1016/j.jiph.2026.103237](https://doi.org/10.1016/j.jiph.2026.103237)

IMPACT FACTOR: 4.8

CITED HALF-LIFE: 4.2

START COMMENTARY

This study evaluated oral cholera vaccine (OCV) coverage during a large-scale, preemptive vaccination campaign in a rural, cholera-endemic administrative block in West Bengal, India. The campaign targeted 45,073 individuals and achieved 66% first-dose coverage and 63% second-dose coverage, with a 95% second-dose retention rate among those who initiated vaccination. The intervention used existing public health infrastructure, including local community health workers, microplanning with local stakeholders, household census-based line lists, door-to-door vaccination, and local cold-chain capacity. A notable finding was the gap between perceived disease risk and vaccine awareness. In baseline household surveys, 17% of households reported at least one diarrhea episode in the past six months, and 62% perceived cholera or diarrhea as a major local health problem. However, prior awareness of OCV was only 0.11%, and no households reported OCV receipt prior to the campaign.

Coverage also varied substantially by geography. First-dose coverage ranged from 87% in Khagramuri sub-center to 53% in Angarberia, suggesting that barriers with accessibility, infrastructure, mobility, or community awareness may have affected uptake in some locations. The authors note that these differences point to the need to identify and address localized barriers, like transportation constraints, vaccine hesitancy, and other logistical challenges common in rural settings. These findings reinforce the importance of hyper-local planning and operational adjustments in future campaigns. The study's limitations include reliance on data from a single administrative block and potential for recall or social desirability bias in self-reported household data. Overall, the campaign provides a feasible model for resource-constrained settings, while emphasizing the need for locally adapted strategies to improve equitable coverage.

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5. [Media Exposure and Its Association With Vaccine Attitudes, Intentions, and Hesitancy: Systematic Review.](#)

Leonforte F, Nicosia V, Comite P, Morlino G, Mistretta A.

J Med Internet Res. 2026 Apr 30;28:e74280.

PubMed ID: 42061834

ABSTRACT

BACKGROUND: Vaccine hesitancy, amplified by the COVID-19 “infodemic,” has emerged as a pressing public health challenge. Communication strategies are pivotal for enhancing vaccine literacy, countering misinformation, and sustaining immunization programs.

OBJECTIVE: This systematic review evaluates the association between communication channels and vaccine hesitancy and adherence, while examining the moderating role of sociodemographic factors.

METHODS: A PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses)-compliant search was conducted across PubMed, Scopus, and Web of Science, yielding 17,407 records screened according to predefined eligibility criteria (peer-reviewed studies with N>1000 adults assessing communication media targeting vaccine hesitancy and adherence, excluding pediatric, health care-specific, and non-English research). After full-text assessment, studies were appraised using the Modified Medical Education Research Study Quality Instrument for methodological quality and the Joanna Briggs Institute Critical Appraisal Checklist, ROBIN-I (Risk of Bias in Nonrandomized Studies of Interventions), or RoB 2.0 (Risk-of-Bias 2.0 tool for randomized trials) tools for risk of bias.

RESULTS: Thirty-six studies were included (26 cross-sectional, 4 quasi-experimental, 4 randomized controlled trials, 1 cohort, and 1 global analysis). Randomized and nonrandomized experimental studies demonstrated that tailored communication strategies delivered via radio, web platforms, and social media significantly improved vaccine acceptance. Adaptive public health campaigns achieved up to an 8% weekly increase in uptake in Madagascar (relative risk 1.08; 95% CI 1.01-1.15) and a 7.8% higher vaccination rate among Nigerian adults at first follow-up compared with controls. Digital and social media campaigns effectively reduced hesitancy and enhanced trust among hesitant pregnant women in the United States. Sociodemographic factors significantly moderated communication outcomes: a COVID-19 chatbot proved most effective among individuals with lower education and minority backgrounds, while religiosity ($b=0.17$; 95% CI 0.05-0.30; $t_{810}=2.80$; $P=.005$) and cultural congruence (odds ratio 1.89; $P<.01$) influenced message credibility and engagement, respectively. The persuasive effect of online memes on COVID-19 vaccine intentions was not significantly influenced by gender ($P=.83$), age ($P=.60$), or political orientation ($P=.44$). Age-specific

effects were observed, with greater responsiveness to a social media campaign among adults aged 25-34 years and reduced hesitancy among older groups. Multiple cross-sectional studies indicated higher adherence among audiences exposed to traditional media (television, radio, newspapers) and lower trust among social media users. Other studies suggested significant influences of gender, age, socioeconomic status, education level, and political orientation.

CONCLUSIONS: By synthesizing fragmented evidence, this review provides a systematic examination of the interplay between multichannel media and vaccine acceptance. It diverges from existing literature by integrating both traditional and digital media perspectives through the lens of sociodemographic moderation. This work offers a critical framework for public health interventions, advocating for rigorous longitudinal research to establish definitive causal links between communication and behavior. Consequently, these findings support a “precision” communication model, enabling the development of culturally congruent strategies tailored to specific recipient profiles to bolster vaccine adherence.

TRIAL REGISTRATION: PROSPERO CRD42025637441; <https://tinyurl.com/4r9w83kw>.

WEB: [10.2196/74280](https://doi.org/10.2196/74280)

IMPACT FACTOR: 8.2

CITED HALF-LIFE: 4.8

START COMMENTARY

This review synthesizes evidence on the relationship between communication channels, vaccine attitudes, hesitancy, and uptake, while examining the influence of sociodemographic factors. The experimental studies included demonstrated that well-tailored communication strategies delivered through community-based initiatives and digital platforms can improve vaccine uptake.

For example, a quasi-experimental study in Madagascar evaluated the CoBoGo campaign, which combined radio spots, community-based initiatives, and endorsements from community health workers while using an adaptive strategy informed by continuous feedback from program stakeholders and community members. Adaptations implemented during the second phase of the program significantly increased vaccine uptake, although vaccine hesitancy remained unchanged. Program sustainability was further strengthened through staff training, facility upgrades, and the integration of standard operating procedures. Similarly, a public health campaign delivered through Facebook and Instagram in Nigeria increased vaccination rates among exposed adults compared with controls at follow-up (31.7% vs 25.3%). In Tanzania, a social media campaign featuring high-profile influencers and viral content reduced vaccine hesitancy among adults aged 35 years and older and increased uptake among those aged 25–34 years, although no substantial effects were observed among individuals aged 18–24 years.

The findings suggest that while traditional media like radio and television are broadly associated with improving public trust and vaccine adherence, evidence-based and adaptive digital communication strategies may be especially effective for engaging vaccine-hesitant populations and underserved groups. A major strength of this study is its synthesis of evidence from both traditional and digital media sources. Findings are limited by the small number of experimental studies evaluating vaccine communication interventions included in the review. The authors suggest future research should prioritize longitudinal and experimental designs, particularly in low-resource settings, and apply standardized methods to evaluate emerging communication tools for vaccine communication.

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6. [Priority implementation research for measles-rubella microarray patches identified using the Child Health and Nutrition Research Initiative methodology.](#)

Sá Silva S, Ko M, Cherian T, Qazi S, Chang Blanc D, Mvundura M, et al.

J Glob Health. 2026 Apr 30;16:04141.

PubMed ID: 42060342

ABSTRACT

BACKGROUND: Measles and rubella continue to be a significant global health challenge, disproportionately impacting marginalised communities in low- and middle-income countries (LMICs). Innovative technologies such as measles-rubella microarray patches (MR-MAPs) are currently in development and can potentially improve immunisation coverage and equity through their unique product characteristics. Nonetheless, the limited evidence around their use cases, optimal implementation, cost-effectiveness, and integration into national immunisation programmes raises the need for the development of a prioritised implementation research agenda.

METHODS: We used the Child Health and Nutrition Research Initiative (CHNRI) methodology to prioritise 36 research questions (RQs), which we identified through a rapid literature assessment and consultations with experts. We then prepared an online survey and asked stakeholders to assess each question considering the selected CHNRI criteria. We calculated research priority scores (RPS) and average expert agreement (AEA) and conducted stratified analyses restricted to: LMIC government representatives, respondents based in middle-income countries, those with at least moderate experience in implementing health products in LMICs, those with at least moderate knowledge of MR-MAPs, and representatives from academic or research institutions.

RESULTS: A total of 139 respondents identified a diverse range of priorities for MR-MAP implementation research. The 36 RQs had a median RPS of 80%. The key priorities identified included research on vaccine supply chain management, vaccine uptake among underserved populations, and human resource implications for integration in routine immunisation services. Stratified analyses revealed a diversity of scores, with representatives from LMIC governments generally prioritising operational questions related to human resources, vaccine administration, and managing dual delivery mechanisms. Fifteen RQs were prioritised to accommodate different perspectives.

CONCLUSION: This exercise prioritised implementation questions that will inform MR-MAPs' research investments and efforts over the next 10 years in order to prepare for their introduction in LMICs. While the questions identified in this exercise were specifically about MR-MAPs, the RQs and potential evidence may apply to other vaccine MAPs. This research addresses critical evidence needed towards the successful roll-out of this innovative technology in LMICs, to ensure equitable

access to measles and rubella vaccination and accelerate progress towards measles and rubella control and elimination.

WEB: [10.7189/jogh.16.04141](https://doi.org/10.7189/jogh.16.04141)

IMPACT FACTOR: 5.5

CITED HALF-LIFE: 3.9

START COMMENTARY

Measles-rubella microarray patches (MR-MAPs) are an innovative tool for vaccine delivery that addresses common challenges associated with vaccine delivery in LMIC settings such as cold chain dependence, open vial wastage, and the need for highly trained health workers. As implementers anticipate licensing of MR-MAPs by 2030, this study sought to identify the highest-priority research questions to be addressed before MR-MAPs are introduced in LMICs. The authors identified 36 implementation research questions which were ranked by 139 vaccine implementation experts and stakeholders using the Child Health and Nutrition Research Initiative (CHNRI) methodology. The highest-priority topics focused on how MR-MAPs would affect vaccine supply chains and cold chain logistics, whether patches could increase vaccination among underserved populations, whether they could reduce missed vaccination opportunities and needle-related hesitancy, how they would affect workforce requirements and delivery strategies, and how they could be used during outbreaks. Notably, government representatives from LMICs prioritized practical implementation issues such as training, supervision, and workforce capacity, whereas other stakeholders, including researchers and global health experts, placed greater emphasis on vaccine coverage and acceptability. Strengths of the study include its inclusion of diverse stakeholder perspectives and its focus on implementation challenges before product introduction. Limitations include the relatively small number of LMIC government respondents and study participants' limited real-world experience with microarray patches. The findings provide a useful framework for future implementation research and may help guide funding and policy decisions to support the equitable introduction of MR-MAPs in low- and middle-income countries. The authors also note that this research agenda should be viewed as a living resource that will require periodic updating as MR-MAPs move closer to licensure and implementation.

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7. [Effect of community engagement interventions on child health care utilization: a quasi-experimental study in Afar and Benishangul Gumuz Regions, Ethiopia.](#)

Gobezayehu A, Cranmer J, Debelew G, Desalew T, Frew A, Kahissay D, et al.

BMC Public Health. 2026 Apr 30.

PubMed ID: 42057053

ABSTRACT

BACKGROUND: Child health in Ethiopia is influenced by socioeconomic disparities, limited healthcare access, weak community engagement, and low service utilization, with greater challenges in resource-limited regions such as Afar and Benishangul Gumuz. To address these issues, Emory University Ethiopia, in partnership with UNICEF, Ministry of Health, and regional health bureaus, implemented community engagement interventions from February 2021 to April 2024 to improve health-seeking behavior and service use. However, their effects on care-seeking for sick children and infant immunization remain unassessed. This study addressed this gap.

METHODS: A pre-post quasi-experimental study was conducted in 14 Woredas (7 per region). Over three years, interventions included training quality improvement teams to identify mothers and children needing care and link them to facilities, alongside community festivals, dialogues, women's conferences, and social and behavior change activities. Baseline and endline surveys were conducted in January 2021 and April 2024, respectively, with baseline immunization data drawn from the 2019 Demographic and Health Survey. Mixed-effects multilevel logistic regression assessed intervention effects by controlling for potential confounders ($p < 0.05$).

RESULTS: At the endline, 21.9% of children under 18 months of age (26.6% in Afar and 17.6% in Benishangul Gumuz) presented symptoms of common illnesses, a decrease from 43.3% at baseline (48.8% in Afar and 37.8% in Benishangul Gumuz). Among them, 90.4% (89.0% in Afar and 92.3% in Benishangul Gumuz) sought treatment at health facilities, an increase from 83.4% at baseline (75.1% in Afar and 94.1% in Benishangul Gumuz). The percentage of full immunization coverage increased from 40.0% at baseline to 66.4% at the endline. Mothers who participated in community interventions were nearly four times more likely to have their children fully immunized (AOR = 3.96; 95% CI: 1.70, 9.20). Other predictors included residence, parity, maternal education, knowledge, attitudes and healthcare utilization.

CONCLUSIONS: Community engagement interventions significantly improved treatment-seeking behavior and the full immunization rate in the study area. Future efforts should focus on context-specific strategies that engage existing community platforms and address factors such as parity, education, and geographic location to enhance child health care.

WEB: [10.1186/s12889-026-27407-z](https://doi.org/10.1186/s12889-026-27407-z)

IMPACT FACTOR: 4.4

CITED HALF-LIFE: 5.1

START COMMENTARY

This study assessed the impact of implementing several community-based maternal, neonatal, and child health interventions that were implemented together in resource-limited areas of Ethiopia characterized by dispersed settlements, pastoralist populations, limited transportation, and other structural barriers. The interventions included community quality improvement (QI) programs, using community festivals as engagement platforms, women's empowerment initiatives, and other community-based strategies. The community QI intervention used multidisciplinary teams that linked community engagement, local leadership, and health system strengthening.

The QI intervention focused on strengthening community-level problem-solving and accountability through monthly meetings. Each participating village established a QI team with members with a range of expertise, including health extension workers, village and clan leaders, religious leaders, traditional birth attendants, and Women Development Group representatives. Team members identified and referred pregnant women, sick infants, and postnatal mothers to appropriate health services. They also reviewed local health post data to guide decision making and identify barriers to care-seeking. With these localized data, QI teams developed uniquely tailored solutions for maternal and child health outcomes within their own communities. Alongside other community engagement interventions implemented during the study period, community QI teams were associated with substantial improvements in childhood vaccination, with full immunization coverage increasing from 40.0% at baseline to 66.4% three years after implementation.

A key strength of the study was its focus on remote, pastoralist, and conflict-affected communities with limited access to healthcare to address health service equity. However, improvements in vaccine uptake and health care utilization may have been influenced by broader time trends and government health programs that may have been implemented at the same time. Additionally, the study cannot evaluate the impact of each strategy as they were implemented simultaneously. The authors suggest that effective programs should prioritize context-specific community engagement, empower caregivers, leverage existing community structures, integrate immunization with broader maternal and child health services, and target mobile and underserved populations to improve timely service utilization and reduce missed opportunities for care.

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8. [Timeliness of children's vaccinations in 91 low-income and middle-income countries: an analysis of survey data.](#)

Clark A, Feikin D, Danovaro-Holliday M, Sanderson C.

Lancet Glob Health. 2026 Apr 26;14(5):e714-e722.

PubMed ID: 42035756

ABSTRACT

BACKGROUND: For many children in low-income and middle-income countries (LMICs) the actual age of vaccination is later than the recommended target age. We provide updated evidence on the coverage and timeliness of vaccination across a broad and geographically diverse set of LMICs.

METHODS: We included 91 LMICs, using data from 45 Demographic and Health Surveys and 46 Multiple Indicator Cluster Surveys conducted between 2010 and 2019. We calculated coverage by day of age for children younger than 3 years for BCG, hepatitis B birth dose vaccine (HBV0), polio vaccine (Polio0-3), diphtheria-tetanus-pertussis-containing vaccine (DTP1-3), pneumococcal conjugate vaccine (PCV1-3), rotavirus vaccine (RV1-2), and measles-containing vaccine (MCV1-2). We calculated the percentage of doses that were early, timely (0-28 days after the target age), and late, and net delays (actual age at administration minus target age). We compared the coverage and timeliness of BCG and DTP1-3 with co-recommended vaccinations. We devised a curve-fitting method for reproducing estimates of coverage by day of age from birth to younger than 3 years for each vaccine, country, and year.

FINDINGS: The unweighted median of the net mean delays (mean vaccination age minus target age) was 3·3 weeks (IQR 1·7-4·6) for BCG (90 surveys), 3·7 weeks (2·2-4·9) for DTP1 (91 surveys), 5·2 weeks (3·8-7·3) for DTP2 (91 surveys), 7·7 weeks (5·4-10·7) for DTP3 (91 surveys), 5·5 weeks (4·1-7·8) for MCV1 (86 surveys), and 5·4 weeks (3·7-7·7) for MCV2 (24 surveys). The corresponding median of the net median delays (median vaccination age minus target age) was 1·0 weeks (IQR 0·3-1·9) for BCG, 1·4 weeks (1·0-2·1) for DTP1, 2·6 weeks (1·6-3·6) for DTP2, 3·9 weeks (2·1-5·6) for DTP3, 2·2 weeks (1·6-3·1) for MCV1, and 3·2 weeks (2·4-3·8) for MCV2. The unweighted median percentage of vaccinations that were timely was 79% (71-92) for BCG, 70% (59-81) for DTP1, 59% (46-73) for DTP2, 50% (35-66) for DTP3, 56% (45-64) for MCV1, and 50% (37-55) for MCV2. Median BCG vaccine coverage increased from 73% (59-87) to 93% (85-96) between 1 month and 6 months of age. Median DTP3 coverage increased from 47% (13-65) to 76% (64-88) between 6 months and 12 months of age. Median MCV1 coverage increased from 53% (6-73) to 81% (69-88) between 12 months and 18 months of age. Vaccines co-recommended with BCG (HBV0 and Polio0) and DTP1-3 (Polio1-3, PCV1-3, and RV1-2) had similar timeliness but lower coverage.

INTERPRETATION: Many children in LMICs continue to experience substantial delays in vaccination. Strategies to boost vaccine impact should be informed by systematic evidence on vaccine timeliness.

WEB: [10.1016/S2214-109X\(25\)00554-6](https://doi.org/10.1016/S2214-109X(25)00554-6)

IMPACT FACTOR: 22.5

CITED HALF-LIFE: 5.2

START COMMENTARY

This analysis provides estimates on the timeliness of childhood vaccination in 91 LMICs using DHS data from 2010-2019. A notable finding was the delay in administering birth dose vaccines. Although BCG coverage was relatively high, vaccination often occurred weeks after birth, and only half of HBV0 doses were administered within the recommended first 24 hours of life. Lower coverage was found of HBV0, Polio0–3, PCV1–3, and RV1–2 compared with BCG and DTP vaccines despite having similar schedules; this suggests gaps in vaccine delivery that may reflect supply constraints, implementation challenges, or delayed program adoption. Conventional coverage estimates among children aged 12–23 months often do not capture these delays in vaccine receipt. The authors recommend reporting vaccine coverage at standard ages, net delays from the target age, and the proportion of doses administered early, late, and on time. Indicators like these could support more consistent monitoring of vaccination timeliness. The authors also suggested that mathematical models should account for timeliness to improve estimates for vaccine impact, especially when comparing vaccination schedules. A key strength of this study is its large, representative sample including two-thirds of LMICs. Limitations include variation in national vaccine schedules and difficulty distinguishing routine doses from campaign or catch-up doses. Findings suggest future strategies to improve vaccine impact should be informed by systematic evidence on timeliness.

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9. [Determinants and gaps influencing zero-dose immunization and maternal Health service utilization in Nigeria: a cross-sectional household survey across six Nigerian states.](#)

Akinjeji A, Fasawe O, Abba A, Adebawale A, Nordenstedt H, Reidy W, et al.

Glob Health Action. 2026 Apr 24;19(1):2660488.

PubMed ID: 42029668

ABSTRACT

BACKGROUND: Nigeria continues to experience high maternal and child mortality, despite extensive health reforms and international investment. Missed opportunities across the continuum of care, antenatal care (ANC), skilled birth attendance, facility-based delivery, and child immunization, contribute to these outcomes. Children who receive no vaccines (zero-dose) reflect a key vulnerability in service delivery.

OBJECTIVE: To identify factors associated with zero-dose immunization and patterns of maternal healthcare utilization among women in six Nigerian states.

METHODS: A cross-sectional household survey was conducted in Gombe, Kaduna, Kano, Katsina, Lagos, and Niger states. A total of 1,958 women aged 15-49 years with recent live births were interviewed. Structured questionnaires captured data on ANC attendance, delivery location and attendant, immunization status, and socio-demographic characteristics. Descriptive statistics, chi-square tests, and multinomial logistic regression were used to assess predictors of maternal and child health service utilization.

RESULTS: Only 31% of women received complete care; 58% received partial care, and 11% received none. Zero-dose prevalence was significantly higher among children whose mothers had fewer than four ANC visits (35%), delivered at home (35%), or were attended by unskilled providers (39%). Lower zero-dose rates were found among those delivered in facilities (16%) or by skilled attendants (19%). Key predictors included maternal and paternal education, socioeconomic status, geographic location (notably Kano and Katsina), and maternal age.

CONCLUSIONS: Significant disparities in maternal and child health service utilization remain. Expanding ANC coverage, increasing skilled facility-based deliveries, and ensuring postnatal immunization linkage are essential to reduce zero-dose prevalence and promote equity in low-resource settings.

: Main findings: Women who received fewer than four antenatal care visits, delivered at home, or used unskilled birth attendants were significantly more likely to have children who received no routine vaccinations. Added knowledge: This study uniquely links maternal healthcare utilization across the continuum of care with zero-dose immunization outcomes, highlighting compounded

service gaps in low-resource settings. Global health impact for policy and action: Targeted, equity-focused interventions that integrate maternal health services with immunization efforts are essential to reducing zero-dose prevalence and achieving universal health coverage in underserved populations.

WEB: [10.1080/16549716.2026.2660488](https://doi.org/10.1080/16549716.2026.2660488)

IMPACT FACTOR: 3.4

CITED HALF-LIFE: 8.0

START COMMENTARY

This study examines patterns of maternal health service use and zero-dose immunization in Nigeria using cross-sectional survey data from six states. The findings show substantial geographic differences in access to care and health service utilization. Complete care was defined as receiving at least four antenatal care visits, facility-based delivery, skilled birth attendance, and at least one child vaccination, while partial care referred to receiving one to three of these services and no care referred to receiving none.

Lagos had the highest overall care utilization, with 65% of women receiving complete care, compared with much lower levels in Kano and Katsina at 12% and 11%, respectively. This geographic disparity likely reflects a combination of supply- and demand-side constraints that are especially pronounced in northern states. In many northern settings, limited investment in health infrastructure, shortages of skilled health workers, supply chain challenges, lower levels of female education, household decision-making dynamics, and higher trust in traditional birth attendants may restrict regular use of formal maternal and child health services. One notable finding was that Hausa women were less likely to receive no care, which differs from prior studies reporting lower service use among northern ethnic groups. This may reflect recent maternal health interventions or improved outreach within Hausa communities.

A strength of the study is its analysis of maternal health service utilization and childhood immunization together as part of a continuum of care. However, its cross-sectional design limits causal inference, and reliance on self-reported data may introduce recall or social desirability bias. The authors recommend integrated, equity-oriented strategies that improve early antenatal care uptake, encourage facility-based delivery, and connect mothers and newborns to postnatal immunization services. Context-specific approaches, including mobile outreach, community health worker programs, financial protection, and engagement with male partners, may help reduce zero-dose immunization and improve maternal and child health outcomes.

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10. [Exploring gender-intentional implementation of Digital Health Information for Immunization in Ethiopia.](#)

Amare G, Abebe Andargie B, Mechael P, Qiu X, Kaufman M, Fikadie Endehabtu B, et al.

PLOS Glob Public Health. 2026 Apr 22;6(4):e0005530.

PubMed ID: 42018516

ABSTRACT

Despite growing investment in digital health for immunization, there is limited evidence on how gender is considered into design and implementation. In 2022, Ethiopia launched a Gender-intentional Digital Health Information Roadmap with the support of Gavi, the Vaccine Alliance; however, the operationalization of gender strategies remains unclear. This qualitative study explored gender inclusiveness in digital health for immunization in Ethiopia, drawing on document reviews, participatory workshops, key informant interviews, and stakeholder analysis across selected three regions in Ethiopia. Findings revealed that women dominate frontline roles as caregivers and vaccinators but remain underrepresented in supervisory, leadership, and digital system development positions. Although gender strategies and units exist, implementation is weak, with limited gender awareness and no intentional planning. In addition, a notable gender digital divide persists. Senior leadership role assignments, despite competence, depend on ability for women to balance responsibilities and travel with household duties. The routine health data systems, like District Health Information Software, version 2, lack sex-disaggregated immunization data, hindering gender-informed decision making. Enabling factors include national prioritization of gender equity, empowerment programs, and partner support, whereas barriers include cultural norms, inadequate advocacy, weak accountability, and insufficient resources. Embedding gender-transformative approaches is vital for equitable, inclusive digital health information and associated health system and immunization outcomes in Ethiopia.

WEB: [10.1371/journal.pgph.0005530](https://doi.org/10.1371/journal.pgph.0005530)

IMPACT FACTOR: 2.8

CITED HALF-LIFE: 2.5

START COMMENTARY

This qualitative study examined gender-inclusivity within Ethiopia's Digital Health Information (DHI) system for immunization. The authors explored gender representation across immunization and digital health roles, how gender is considered in programmatic decision making, and what factors support or limit gender-intentional implementation.

A key finding was the gap between women's central role as frontline users of immunization digital tools and their limited involvement in designing, leading, and governing those systems. Women were highly represented among vaccinators and caregivers however, digital health development and leadership roles were largely male dominated. From the perspective of digital health professionals, this limited women's input into system design and risked overlooking gender-specific barriers such as mobile phone access, digital literacy, household responsibilities, mobility constraints, and safety concerns. The study also noted that digital tools and training often reached female vaccinators by default because they made up much of the frontline workforce even though these tools were not intentionally designed around the unique challenges women may face when implementing or using these technologies.

A strength of the study is its use of multiple qualitative methods to enable a comprehensive perspective on gender dynamics in Ethiopia's immunization system. However, the study was limited by its geographic scope and did not include pastoralist areas, where gender norms and digital access may differ. The findings suggest that gender-intentional digital health requires more than including women as end users. Future efforts should prioritize women's participation in system design, leadership, data use, and decision-making.

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11. [Global Vaccine Confidence at a Crossroads: Immunisation Coverage Declines, Misinformation, and the Future of Vaccine Policy.](#)

Sophian A, Normasari B, Harumanto A, Abinawanto D.

Rev Med Virol. 2026 Apr 18;36(3):e70149.

PubMed ID: 41999127

ABSTRACT

Vaccination remains one of the most effective public health interventions; however, recent global trends indicate a reversal in routine immunisation coverage alongside resurgent outbreaks of vaccine-preventable diseases. This review synthesises current evidence on declining immunisation coverage, the re-emergence of diseases such as measles and poliomyelitis, and the growing influence of vaccine hesitancy and misinformation on vaccine uptake. A systematic search of PubMed, Scopus, and WHO/UNICEF databases was conducted using terms including 'vaccine hesitancy', 'immunisation coverage', 'vaccine-preventable diseases', 'misinformation', and 'vaccine policy', covering literature published between 2000 and 2024. We examine how pandemic-related disruptions, structural inequities, and evolving information ecosystems have collectively weakened immunisation system resilience across diverse settings. Beyond epidemiological consequences, declining coverage reflects broader challenges related to trust, governance, and equity in vaccine delivery. The review highlights the limitations of reactive, outbreak-driven approaches and emphasises the central role of strong routine immunisation systems embedded within primary healthcare. We discuss policy implications for integrating behavioural and social science insights, strengthening risk communication, and advancing equity-oriented immunisation governance. We conclude that sustaining and extending global immunisation gains will depend on aligning scientific innovation with public trust and system resilience. Addressing vaccine confidence as a core component of immunisation performance is essential to safeguarding global health security in the coming decade.

WEB: [10.1002/rmv.70149](https://doi.org/10.1002/rmv.70149)

IMPACT FACTOR: 5.5

CITED HALF-LIFE: 5.5

START COMMENTARY

This narrative review synthesizes evidence on declining immunization coverage, vaccine hesitancy, and the re-emergence of vaccine-preventable diseases. The article discusses that, while vaccine hesitancy and misinformation have become prominent in public discourse, structural inequities in vaccine access and delivery are still major drivers of immunization gaps, especially in resource-limited settings. Geographic, economic, and social barriers limit access to routine immunization

services, especially for populations in remote areas, informal urban settlements, and regions affected by displacement. In these settings, missed vaccinations often occur because of transportation barriers, prohibitive costs, weak health infrastructure, and competing health and survival priorities rather than active refusal. The review also highlights how inequities in vaccine access are closely tied to trust. During the COVID-19 pandemic, unequal vaccine distribution between high-income countries and low- and middle-income countries exposed longstanding disparities in access, availability, and global prioritization. Newer vaccines often follow similar patterns, with slower rollout and limited availability in lower-resource settings which contributes to sentiments of exclusion or neglect. When communities already face unreliable access to basic health services, vaccination efforts may be perceived as temporary outside interventions rather than consistent parts of the healthcare system. In some contexts, mistrust is also shaped by histories of medical exploitation, unethical research practices, and colonial public health interventions. The authors recommend that global vaccine policy address delivery inequities that impact both access and trust. Reaching zero-dose and missed communities requires targeted outreach alongside broader system reforms, including increased financing, better data systems, and expanded regional manufacturing capacity.

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12. [Health-seeking in fragile and conflict-affected settings: how armed violent conflict shapes maternal and child health-seeking behaviours.](#)

Adeyanju G, Abreu L, Schrage P, Brinkel J, Jalo R, Bello M, et al.

BMC Public Health. 2026 Apr 20;26(1).

PubMed ID: 41998560

ABSTRACT

BACKGROUND: Maternal and child mortality rates remain unacceptably high in fragile and conflict-affected settings, where insecurity, displacement, and systemic disruption hinder access to healthcare. Nigeria is one of the countries most severely affected, and continues to experience widespread maternal and neonatal deaths despite global and national efforts to achieve SDG 3.1. This study explored stakeholders' perspectives on how armed conflicts shapes maternal and child health-seeking behaviours and outcomes in northeastern Nigeria.

METHODS: A qualitative approach was employed, involving Key Informant Interviews with healthcare workers, community leaders, local officials, and caregivers in three fragile and conflict-affected states: Adamawa, Borno and Yobe. These semi-structured interviews explored access to and quality of care, barriers to seeking healthcare, vaccination practices and community trust. The audio recordings were transcribed and translated, then analysed thematically in accordance with Braun and Clarke's approach.

RESULTS: The analysis identified five interrelated themes on how armed conflict shaped maternal and child healthcare seeking behavior. Prolonged insecurity generated psychological trauma, stress-related illnesses, malnutrition, and infectious disease outbreaks, particularly in Internally Displaced Camps. Health systems collapsed due to facility destruction, workforce flight, and drug shortages, limiting service availability. Access was further constrained by poverty, insecurity, transport barriers, gender norms, low literacy, and negative provider attitudes. These challenges contributed to unsafe deliveries, increased maternal and child mortality, declining immunisation coverage, and a heightened fear of vaccine side effects amid misinformation. While trust in frontline health workers often persisted, confidence in government institutions declined.

CONCLUSION: Armed violent conflict undermines maternal and child health through compounded psychosocial, structural, and behavioural pathways. To restore equitable service use in conflict-affected settings, it is essential to leverage residual trust in local healthcare workers, alongside community-based, conflict-sensitive strategies that address issues such as fear, costs, gender norms, transport and vaccine misinformation.

SUPPLEMENTARY INFORMATION: The online version contains supplementary material available at [10.1186/s12889-026-27385-2](https://doi.org/10.1186/s12889-026-27385-2).

WEB: [10.1186/s12889-026-27385-2](https://doi.org/10.1186/s12889-026-27385-2)

IMPACT FACTOR: 4.4

CITED HALF-LIFE: 5.1

START COMMENTARY

This qualitative study explores stakeholder perspectives on maternal and child health-seeking behaviors and outcomes in conflict-affected settings in northeastern Nigeria. The authors interviewed healthcare workers, community and religious leaders, local government health officials, and mothers of young children. Respondents consistently reported worsening maternal and child health outcomes.

Fear of adverse events following immunization stood out as a major driver of vaccine hesitancy. Participants reported that caregivers avoided vaccination because of concerns about side effects. The authors suggest that trauma and exposure to conflict may have intensified these fears. Misinformation was also rooted in and amplified by armed conflict. Vaccination became politicized and rumors spread that immunizers were government spies or that vaccines were intended to cause infertility, depopulate communities, or harm children. Religious and traditional beliefs were also reported as important drivers of childhood immunization decisions. Some caregivers preferred herbal or traditional medicine over conventional medicine, while others avoided vaccination because of cultural concerns about introducing foreign substances into children's bodies. These beliefs, combined with insecurity and reduced outreach by healthcare workers, contributed to lower vaccination coverage and higher dropout rates.

A strength of the study is its inclusion of diverse, local stakeholder perspectives. However, the study is limited by its focus on only three conflict-affected states and may not be representative of other conflict-affected regions. The authors suggest using community-based and mobile outreach models to help reach populations affected by insecurity and geographic isolation. Interventions could also integrate psychosocial and livelihood support, strengthen trusted local health workers, engage men in maternal and child health decisions, and involve religious and community leaders to rebuild trust and improve vaccine acceptance.

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Additional Articles of Interest

- 1 Barriers to Childhood Immunisation in Selected Zero-Dose Communities in Gauteng Province: A Qualitative Study. [{Full Article}](#)
- 2 Bridging the Gap: Disparities in HPV Vaccine Uptake Between In-School and Out-of-School Girls Following a Demand Generation Intervention in Ethiopia: A Cross-Sectional Study. [{Full Article}](#)
- 3 Modelling the Cost-Effectiveness of a Placental Malaria Vaccine in Sub-Saharan Africa. [{Full Article}](#)
- 4 Immunization Coverage and Associated Factors Among Children Aged 18 to 72 Months in Communities With High Malaria Transmission, Bioko Island. [{Full Article}](#)
- 5 HOW TO INTRODUCE A NEW TB VACCINE IN ADOLESCENTS AND ADULTS: Insights from Key Stakeholders in Mozambique, Southern Africa. [{Full Article}](#)
- 6 Understanding barriers to immunization among women with zero-dose or under-immunized children in an urban area in Cameroon. [{Full Article}](#)
- 7 Determinants of Zero-Dose Bacillus Calmette-Guérin Vaccination in Somaliland: A Cross-Sectional Study. [{Full Article}](#)
- 8 Factors associated with laboratory-confirmed measles cases during the 2023 and 2024 outbreaks in Tanzania-a mixed-methods study. [{Full Article}](#)
- 9 Mpox vaccine acceptance and uptake in Africa: a systematic review and meta-analysis. [{Full Article}](#)
- 10 Prevalence and determinants of human papillomavirus vaccine hesitancy among parents of young girls in Morocco. [{Full Article}](#)
- 11 A Prioritised Research Agenda to Inform the Introduction and Use of Lassa fever vaccines in West Africa. [{Full Article}](#)
- 12 Global patterns of pertussis incidence and vaccination strategies: implications of divergent surveillance data. [{Full Article}](#)
- 13 Estimating the impact of the RTS,S/AS01 malaria vaccine in Benin: A mathematical modelling study. [{Full Article}](#)
- 14 Leaving no child behind? developing zero-dose and under-immunized child archetypes to improve vaccine uptake in Nigeria. [{Full Article}](#)
- 15 Zero-dose vaccination status among children in Malawi: patterns, predictors, and geographic hotspots. [{Full Article}](#)
- 16 Age and vaccine information sources drive vaccine hesitancy: A household survey in Central-Western Brazil. [{Full Article}](#)
- 17 Impact and cost-effectiveness of two interventions to prevent paediatric respiratory syncytial virus disease in Cameroon: a modelling approach. [{Full Article}](#)

- 18 Geographic inequities in human papillomavirus vaccine non-uptake and its determinants among adolescent girls in Ethiopia: Evidence from the National Immunization Survey. [{Full Article}](#)
- 19 The Malaria Vaccine Programme Evaluation in Kenya: results of a baseline household survey prior to the introduction of the RTS,S/AS01 vaccine. [{Full Article}](#)
- 20 Childhood immunization barriers and interventions in low- and middle-income countries: A scoping review of access, delivery systems, and health literacy. [{Full Article}](#)
- 21 Spatial variation and determinants of hepatitis B birth dose vaccination in Nigeria: a population-based study. [{Full Article}](#)

Appendix

The literature search for the June 2026 Vaccine Delivery Research Digest was conducted on May 28, 2026. We searched English language articles indexed by the US National Library of Medicine and published between April 15, 2026 and May 14, 2026. The search resulted in 562 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 2026/04/15:2026/05/14[Date - Publication]

