VACCINE DELIVERY RESEARCH DIGEST

UNIVERSITY OF WASHINGTON STRATEGIC ANALYSIS, RESEARCH & TRAINING (START) CENTER

REPORT TO THE GATES FOUNDATION

PRODUCED BY: SUTTON, A. & SHARMA, M.

MAY 2025

Want the Vaccine Delivery Research Digest delivered directly to your inbox?

Subscribe on the Digest website: http://uwstartcenter.org/publication-digests/vaccine-digest

List of Articles

1 Estimating the effects of interventions on increasing vaccination: systematic review and meta-analysis.

{Abstract & START Commentary} {Full Article}

- Interventions were grouped by theme and assessed for effectiveness in increasing vaccine uptake.

2 Tackling infectious disease outbreak and vaccination misinformation: a community-based strategy in Niger State, Nigeria.

{Abstract & START Commentary} {Full Article}

- A fellowship training program to combat health misinformation in Nigeria is described.

3 Overcoming HPV vaccine hesitancy: insights from a successful school-based vaccination campaign in the Saa health district of Cameroon.

{Abstract & START Commentary} {Full Article}

- Active contributions by key stakeholders led to a successful HPV vaccination campaign in Cameroon.

4 Impact of electronic immunization registries and electronic logistics management information systems in four low-and middle-income countries: Guinea, Honduras, Rwanda, and Tanzania.

{Abstract & START Commentary} {Full Article}

- The use of electronic health tools to support immunization services in Guinea, Honduras, Rwanda, and Tanzania was explored.

5 Clinical and evidence-based considerations for choosing a pneumococcal conjugate vaccine in India: A narrative review.

{Abstract & START Commentary} {Full Article}

- Factors to consider when choosing a pneumococcal conjugate vaccine are identified and discussed.

6 Measles seroprevalence in infants under nine months of age in low- and middle-income countries: a systematic review and meta-analysis.

{Abstract & START Commentary} {Full Article}

- Evidence for measles seroprevalence in infants was collected and analyzed.

7 A double-blind, randomised phase III clinical trial to evaluate safety, immunogenicity, non-inferiority & lot to lot consistency of single component oral cholera vaccine BBV131 (Hillchol®) in comparison to Shanchol™.

{Abstract & START Commentary} {Full Article}

- Results from phase III trials of the BBV131 oral cholera vaccine were presented, showing non-inferiority to an existing vaccine.

8 Community pharmacy workforce willingness, readiness, and infrastructural capacity to deliver vaccination services: a cross-sectional survey in Nigeria.

{Abstract & START Commentary} {Full Article}

- Responses from community pharmacists to a survey on willingness and capacity to provide vaccination services were analyzed.

9 Identification of potential vaccines for use with microarray patches in low- and middle-income countries: An assessment from the Vaccine Innovation Prioritisation Strategy Alliance.

{Abstract & START Commentary} {Full Article}

- Criteria were developed to determine which vaccines would be most appropriate for use with microarray patches in low- and middle-income countries.

10 Vaccination strategies against wild poliomyelitis in polio-free settings: outbreak risk modelling study and cost-effectiveness analysis.

{Abstract & START Commentary} {Full Article}

- Vaccine strategies that include routine immunization, outbreak supplementary immunization activities, and preventive supplementary immunization activities were modeled.

11 Immunogenicity and safety of an Escherichia coli-produced bivalent human papillomavirus vaccine (Cecolin) in girls aged 9-14 years in Ghana and Bangladesh: a randomised, controlled, open-label, non-inferiority, phase 3 trial.

{Abstract & START Commentary} {Full Article}

- Results from a phase 3 vaccine trial of a bivalent human papillomavirus vaccine were described.

12 Uptake and determinants of routine immunization among vulnerable children and adolescents in sub-Saharan Africa: A scoping review.

{Abstract & START Commentary} {Full Article}

- Factors associated with routine immunization among children and adolescents were assessed.

13 Challenges and lessons learned during the switching of rotavirus vaccine from Rotarix to Rotavac in Zambia.

{Abstract & START Commentary} {Full Article}

- The impact of a rotavirus vaccine stockout and switch to a new vaccine was assessed.

14 Unveiling the Drivers of Polio Vaccine Uptake: Insights from a Multi-Country Study of 37 Nations in Sub-Saharan Africa.

{Abstract & START Commentary} {Full Article}

- Factors associated with non-vaccination and partial vaccination for polio were explored.

Additional Articles of Interest

Appendix

Details of Articles

1. Estimating the effects of interventions on increasing vaccination: systematic review and meta-analysis.

Liu J, Zhang Y, Zhang H, Tan H.

BMJ Glob Health. 2025 Apr 09;10(4).

PubMed ID: 40204467

ABSTRACT

As global vaccination rates have reached their lowest point in nearly 15 years, effective interventions are being required globally to promote vaccination; however, there is a lack of rigorous evaluation of the effect of various interventions. Through a global synthesis, we analysed data from approximately 6,125,795 participants across 319 studies in 41 countries to reveal the global landscape of four intervention themes and to assess their effectiveness in increasing vaccination rates. We found an overall positive effect of the interventions across four main themes on improving vaccination. Specifically, dialogue-based interventions increased vaccination rates by 43.1% (95% CI: 29.8 to 57.9%, with effect sizes measured as relative risks (RRs)), though they may not always be effective in adolescents or in the sample with a higher percentage of male participants. Incentive-based interventions, whether implemented alone or combined with other intervention themes, failed to demonstrate a significant effect in children. Reminder/recall-based interventions were also effective for promoting vaccination (38.5% increase, 95% CI: 28.9 to 48.9%), particularly for completing vaccine series. Multi-component interventions exhibited excellent effectiveness in vaccination (54.3% increase, 95% CI: 40.5 to 69.6%), with the combination of dialogue, incentive and reminder/recall proving more effective than other multi-component interventions, but showing no significant effects in populations with high initial vaccination rates. However, we found that in most cases combining additional interventions with a single intervention may not significantly improve their effectiveness, especially for incentive-based interventions, but dialogue-based and reminder/recall-based interventions appear to be beneficial in some specific combinations. These findings underscore the importance of governments, public health officials and advocacy groups implementing appropriate vaccine interventions by selecting interventions tailored to specific populations, strategically promoting the completion of vaccine series and effectively combining interventions to promote global vaccination and save more lives.

WEB: 10.1136/bmjgh-2024-017142

IMPACT FACTOR: 7.1

CITED HALF-LIFE: 3.2

START COMMENTARY

At vaccine coverage of >80%, incentive-based and multi-component interventions did not significantly impact vaccine uptake, and reminder/recall-based interventions were associated with only slightly higher coverage (RR=0.03). Reminder/recall-based interventions were more effective for vaccine series completion than initial vaccination. The heterogeneity of results highlight the importance of tailoring interventions to the population, but suggest that multi-component and dialogue-based interventions are generally effective across populations.

Return to List of Articles

2. Tackling infectious disease outbreak and vaccination misinformation: a community-based strategy in Niger State, Nigeria.

Erim A, Oko S, Biose S, Agbaoye K, Nzedibe O, Nwankwo A, et al.

BMC Health Serv Res. 2025 Apr 09;25(1):513.

PubMed ID: 40200261

ABSTRACT

BACKGROUND: While studies might have found misinformation to affect health decision-making, it is not solely responsible; it also plays a role. The rapid spread of misinformation undermines public trust in health systems and interventions, negatively affecting health decisions and exacerbating health crises. Nigeria Health Watch established a Health Misinformation Fellowship programme in this study to combat health misinformation through community-based approaches in Nigeria.

METHODS: The fellowship was conducted between August 2023 and January 2024 in Niger State, Nigeria, and combines both in-person and virtual training sessions to equip participants with the skills and knowledge needed to identify, address, and manage health misinformation. The participants were from diverse backgrounds, including media practitioners, civil society organisations, traditional and religious leaders, community leaders, and people with disabilities. The programme included practical community engagement activities and strategic collaborations with state authorities. The evaluation was conducted through pre-and post-test assessments of participants' knowledge levels.

RESULTS: Participants (25) were selected from 45 applicants; 56% were males, and the largest groups of participants were from religious organisations (28%). The pre-test assessment revealed a 31-40% score for respondents, indicating a low level of knowledge, whereas the post-test indicated an improvement, with the highest score ranging from 81 to 100%. Several rumours were identified through community listening and social media monitoring, including misconceptions about vaccines and herbal medications. TV and Radio had the highest media engagement (10,000). The proactive engagement of fellows led to effective interventions and increased awareness within the community.

CONCLUSIONS: Community-based approaches were found to be effective at combating health misinformation. The programme developed a sustainable health communication model by resolving issues related to logistics, cultural considerations, and coordination efforts. Lessons learned and strategies established provided a robust framework for future initiatives. Continued efforts to expand the programme and build strong partnerships with learning networks and government agencies are essential for sustainable impact and achieving long-term public health goals.

WEB: 10.1186/s12913-025-12683-z
IMPACT FACTOR: 2.7
CITED HALF-LIFE: 5.6

START COMMENTARY

Fellows were trained to recognize health misinformation and its mechanisms of spread, including identifying misleading headlines and unverified claims. They were taught strategies to effectively counteract misinformation and to amplify correct information using social media and other community outreach platforms. After completing initial trainings, fellows participated in community-based activities, including school-based outreach, market visits, and public forums to combat misinformation and directly interact with community members. Cultural sensitivity training was a key part of the training, providing skills to respectfully interact with communities.

Return to List of Articles

3. Overcoming HPV vaccine hesitancy: insights from a successful school-based vaccination campaign in the Saa health district of Cameroon.

Haddison E, Engoung D, Bodo C, Njie V.

BMC Infect Dis. 2025 Apr 05;25(1):465.
PubMed ID: 40186125

ABSTRACT

BACKGROUND: Vaccination against human papillomavirus (HPV) represents a critical strategy in the global effort to eradicate cervical cancer. Nonetheless, the uptake of HPV vaccination in Cameroon has been slow, resulting in vaccine wastage during a period of constrained global supply. In the Saa health district, factors such as concerns about infertility, fears of COVID-19 infection, and restrictions on HPV awareness initiatives in Catholic churches and schools have been identified as contributors to vaccine hesitancy. This report outlines the observations from a successful impromptu HPV vaccination campaign conducted in the context of this hesitancy within the Saa health district.

METHODS: The campaign took place from the 9th to 25th of May 2023 and targeted 853 adolescents aged 9-13 years. A single-dose schedule with Gardasil was used mainly through the school strategy. Community health workers, teachers and priests participated in sensitization activities via door-to-door sensitization for parents, sensitization in schools for students and in churches for faithfuls respectively. Health facilities vaccinated schools in their catchment area. Vaccination data were recorded in routine vaccination registers.

RESULTS: A total of 1321 adolescents (154%) were vaccinated, 48.9% (n = 646) of whom were boys. Thirty-four primary and two secondary schools participated in the campaign. Health workers, teachers and Catholic priests all participated in sensitization activities. No backlash was reported from parents after vaccination.

CONCLUSION: The successful execution of the campaign can be attributed to the active involvement of key stakeholders within the health district. Continuous advocacy for HPV vaccination, even in a climate of vaccine hesitancy, plays a significant role in positively altering perceptions. Recognizing stakeholders and their influence is essential for tailoring strategies aimed at enhancing HPV vaccine uptake.

WEB: 10.1186/s12879-025-10864-z
IMPACT FACTOR: 3.4
CITED HALF-LIFE: 4.9

START COMMENTARY

Community outreach prior to the day of vaccination was key to the success of the campaign. Letters were sent to local authorities and delivered to religious and traditional leaders; announcements were played on local radio stations and made in churches and mosques in the week prior to the vaccine campaign. Community health workers conducted door-to-door outreach. Vaccines were given primarily at schools but also included door-to-door campaigns in areas where the school principals were not supportive. Authors identified the inclusion of boys in the vaccine target population as a factor in the success of the campaign as it appeared to counteract the concern surrounding infertility that had been seen when only girls were being vaccinated.

Return to List of Articles

4. Impact of electronic immunization registries and electronic logistics management information systems in four low-and middle-income countries: Guinea, Honduras, Rwanda, and Tanzania.

Mantel C, Hugo C, Federici C, Sano N, Camara S, Rodriguez E, et al.

Vaccine. 2025 Apr 03;54:127066.
PubMed ID: 40179523

ABSTRACT

BACKGROUND: There is increasing interest in low-and middle-income countries (LMICs) to introduce and scale-up digital health tools like electronic immunization registries (eIR), and electronic logistics management information systems (eLMIS) to support immunization services. An evaluation of the use of these tools was conducted in four LMICs to inform decisions about their further expansion and investments.

METHODS: Purposive sampling of regions, districts, and health facilities was done in each country based on predefined criteria. Primary data were collected between October 2021 and September 2022 in 50 health facilities in Guinea, 88 in Honduras, 36 in Rwanda, and 101 in Tanzania using semi-structured questionnaires, standardized competency assessments and data accuracy checks. Data focused on electronic tool usage, user experience, infrastructure, workforce needs, and decision-making, as well as immunization data quality and perceptions of health workers and vaccine recipients. Data analysis combined both quantitative and qualitative methods.

FINDINGS: The implementation of eIR and eLMIS was associated with improvements in National Immunization Programme (NIP) processes and outcomes. Users were satisfied with the tools (87 % satisfaction rate), and 95 % of users in the African countries valued the accessibility of information, with 91 % finding it accurate and complete. Some caregivers reported better organization and shorter waiting times in health facilities using the tools. Most eIR users noted improvements in process efficiencies (81 %) and immunization service delivery (89 %). In Rwanda and Tanzania data accuracy was higher in exclusively paper or electronic settings (60 %) compared to dual paper-electronic systems (45 %). eLMIS use was associated with improvements in vaccine stock data quality and reduced stock-outs. While 77 % of health workers were digitally literate, inadequate digital infrastructure was a key barrier to tool use. Interoperability with the Civil Registration and Vital Statistics system (CRVS) was limited, hindering the tracking of unimmunized children.

CONCLUSIONS: To fully realize the potential of electronic tools in LMICs, full government ownership, targeted infrastructure investments, migration to fully electronic systems, and the integration of eIR with the CRVS will be essential.

WEB: 10.1016/j.vaccine.2025.127066
IMPACT FACTOR: 4.5
CITED HALF-LIFE: 7.9

START COMMENTARY

While use of digital tools for immunization management was generally viewed favorably by health workers using them in Guinea, Honduras, Rwanda, and Tanzania, lack of access to IT infrastructure has limited the implementation in all four countries. Paper-based systems are still necessary in each system. When developing and implementing digital health tools, local expertise and resources were utilized in Guinea, Honduras, and Rwanda while Tanzania relied more on external service providers. When external support was phased out, several regions in Tanzania stopped using the electronic systems in part due to lack of local expertise to resolve technical issues.

Return to List of Articles

5. Clinical and evidence-based considerations for choosing a pneumococcal conjugate vaccine in India: A narrative review.

Yewale V, Chatterjee P, Marathe S, Taur S, Sathyanarayanan S.

Hum Vaccin Immunother. 2025 Apr 03;21(1):2482285.
PubMed ID: 40179380

ABSTRACT

Immunization plays a crucial role in protecting children from life-threatening conditions such as pneumococcal disease. Pneumococcal disease can affect multiple organ systems and manifest as an invasive or noninvasive disease. Despite being preventable by vaccines, it remains a public health concern in India. The development of pneumococcal conjugate vaccines (PCVs) has helped reduce the burden of pneumococcal disease by overcoming the limitations of polysaccharide vaccines, especially in young children. Although immunogenicity is used as a proxy for the evaluation and approval of PCVs, results from immunogenicity studies have been bridged back to vaccine trial efficacy. Post-approval effectiveness and impact of new PCVs must be established. This review aims to consolidate evidence-based considerations that play a role in the evaluation of PCVs. Critical aspects related to the assessment of vaccines, their importance, and limitations in real-world contexts are discussed in this review.

WEB: 10.1080/21645515.2025.2482285
IMPACT FACTOR: 4.1
CITED HALF-LIFE: 4.1

START COMMENTARY

In addition to immunogenicity, Yewale et al. discuss the importance of understanding efficacy, effectiveness, and impact in the target population when choosing a pneumococcal conjugate vaccine (PCV). Several *Streptococcus pneumoniae* serotypes cause pneumococcal disease and the distribution varies by region. Understanding the serotype distribution causing disease is necessary to choose the PCV that will have the most impact, and periodically evaluating the impact of vaccination on serotype distribution can provide evidence for changing PCV formulations to cover additional serotypes emerging as problematic. Authors note that PCV effectiveness is measured by invasive pneumococcal disease (IPD) prevention, not pneumonia or ear infection prevention which would require much higher antibody levels.

Return to List of Articles

6. Measles seroprevalence in infants under nine months of age in low- and middle-income countries: a systematic review and meta-analysis.

Ong D, von Mollendorf C, Mulholland K, Do L.

J Infect Dis. 2025 Apr 03.

PubMed ID: 40179253

ABSTRACT

BACKGROUND: Measles infections cause significant morbidity and mortality in low- and middle-income countries (LMICs), especially infants under nine months. Measles seroprevalence data in infants too young to be vaccinated can identify immunity gaps to inform immunisation strategies. Our systematic review and meta-analysis describes measles seroprevalence in infants <9 months in LMICs.

METHODS: We systematically searched journal articles and conference abstracts from 1 January 2018 to 25 December 2024 across 10 databases and registers (PROSPERO: CRD42023429586). We included observational studies presenting measles antibody seroprevalence data from infants <9 months in LMICs. Studies underwent dual reviewer screening and risk of bias was assessed using an adapted Joanna Briggs Institute tool. Seropositivity estimates were pooled using a random-effects inverse variance model. We performed subgroup analyses by country income level, measles vaccine coverage and measles incidence.

RESULTS: Among 1421 studies identified, 34 were included. Most studies were from middle-income countries (n=30/34) using hospital/health-centre data (n=22/34). Risk of bias was generally low or moderate (n=33/34). The meta-analysis included 20 studies (N=8230 infants) with high inter-study heterogeneity. Pooled seropositivity was highest at birth (81%, 95% CI: 75-88), decreasing to 30% (95% CI: 24-35) by four months, and lowest at seven months (18%, 95% CI: 0-41). Subgroup analyses showed minimal differences between categories.

CONCLUSIONS: Seventy percent of infants are seronegative by four months old and unprotected from measles before their first vaccine dose at 9-12 months. Early administration of measles-containing vaccines could provide sustained protection throughout infancy.

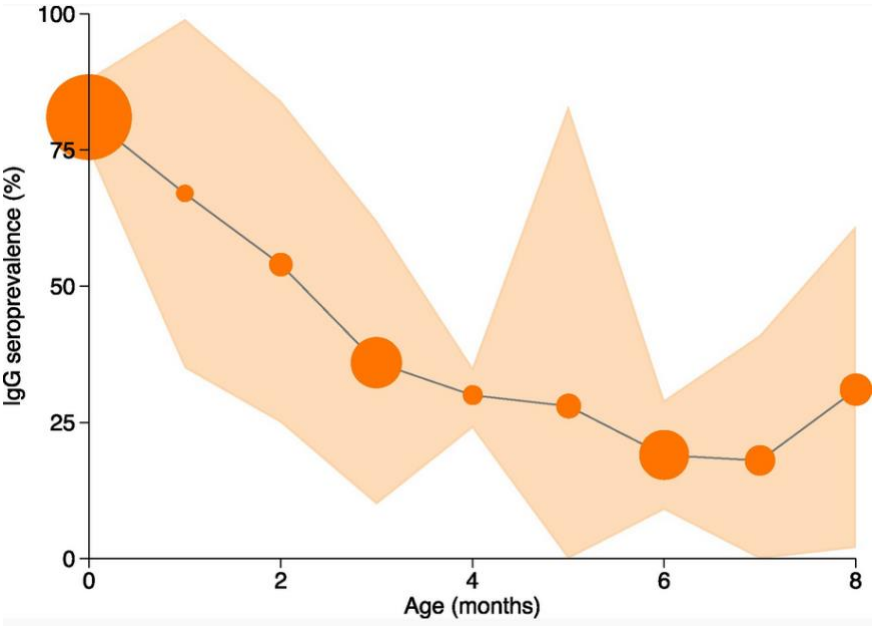
WEB: 10.1093/infdis/jiaf177

IMPACT FACTOR: 5.0

CITED HALF-LIFE: 9.9

START COMMENTARY

The figure below shows the pooled measles seropositivity from birth to age 8 months for the 20 included studies. The orange dots indicate pooled estimates and the dot size indicates the sample size for each age group, while the light orange area denotes the 95% confidence interval for each estimate. Sample sizes range from n=203 at 1 month to n=6193 at birth. In a subgroup analysis, seropositivity estimates were higher in lower-middle income countries when compared to upper-middle income countries, which authors suggested was due to repeated maternal exposures to measles in lower-income settings boosting maternal antibodies.



Return to List of Articles

7. A double-blind, randomised phase III clinical trial to evaluate safety, immunogenicity, non-inferiority & lot to lot consistency of single component oral cholera vaccine BBV131 (Hillchol®) in comparison to Shanchol™.

Vadrevu K, Chavan A, Chawla A, Chakravarthy B, Singh C, Redkar S, et al.

Vaccine. 2025 Apr 02;55:126998.

PubMed ID: 40174256

ABSTRACT

BACKGROUND: Cholera is a vaccine-preventable disease that has faced a surge in outbreaks and a shortage of vaccines. The new generation oral cholera vaccine (OCV) BBV131, featuring a simplified single stable O1 Hikojima strain, aims to enhance production efficiency and affordability. This study evaluates BBV131's immune profile, safety, and non-inferiority compared to Shanchol™ in healthy adults and children. Adding BBV131 to the vaccine stockpile could improve supply, simplify logistics, and ease administration efforts.

METHODS: In this randomised, modified, double-blind, multi-centre, phase III trial, 1800 participants were recruited across 10 clinical trial sites across India. Participants were stratified into three age groups (adults >18 years, children ≥5 to <18 years, and infants ≥1 to <5 years) and were randomised in a 3:1 ratio to receive either BBV131 or Shanchol™. All participants received two doses of the vaccine orally on days 0 and 14. Immunogenicity was assessed through blood samples collected at baseline, two weeks after each dose, and follow-ups at days 28, 56, 90, and 180. The primary endpoint focused on the proportion of participants achieving >4-fold increase in vibriocidal antibody titres against Ogawa and Inaba serotypes 14 days post two doses. While secondary endpoints included Geometric Mean Titre (GMT) measurements and safety. Safety was evaluated throughout the study, reporting solicited and unsolicited adverse events (AEs). Another cohort of 1800 was added to the above study as an addendum to expand the safety database.

FINDINGS: Of the 1800 enrolled participants, 1794 completed the study. Post-vaccination, the percentage of participants in the BBV131 group who exhibited a > 4-fold increase in anti-V. cholerae antibody titres were 68.25 % for Ogawa and 69.52 % for Inaba-demonstrating non-inferiority to Shanchol™, with a lower limit of 95 % CI above the non-inferiority margin. The safety profile revealed 257 AEs among 236 participants (13.1 %), with similar incidence across age groups and between vaccines; common AEs included dry mouth and headache.

INTERPRETATION: The findings indicate that BBV131 demonstrates non-inferior immunogenicity and comparable safety to Shanchol™ in healthy Indian adults and children, supporting its potential as an effective OCV.

CLINICAL TRIAL REGISTRATION: CTRI/2022/01/039734.

WEB: 10.1016/j.vaccine.2025.126998
IMPACT FACTOR: 4.5
CITED HALF-LIFE: 7.9

START COMMENTARY

Seroconversion rates among those who received BBV131 were similar to those who received Shanchol™ among all age groups (adults >18 years, children ≥5 to <18 years, and infants ≥1 to <5 years) for both Ogawa and Inaba serotypes (Figure 2). Geometric mean titers were measured at 180 days, and no difference was found between BBV131 and Shanchol™ (Figure 3). Overall, 11.2% of those in the BBV131 group reported an adverse event following immunization, which was not significantly different from the 10% reported in the Shanchol™ group. No serious adverse events were reported in either group; all adverse events resolved by the end of the study.

Return to List of Articles

8. Community pharmacy workforce willingness, readiness, and infrastructural capacity to deliver vaccination services: a cross-sectional survey in Nigeria.

Oladigbolu A, Okafor U, Oluwaseyi C, Ashore O.

BMC Health Serv Res. 2025 Apr 02;25(1):485.

PubMed ID: 40169982

ABSTRACT

BACKGROUND: There is a growing need for community pharmacists to support universal health coverage by providing vaccination services to address low coverage, as they are among the most accessible healthcare professionals. In some Nigerian states, community pharmacists were trained in vaccination, but there are concerns about their capacity to enroll as vaccination service providers. This study evaluated the community pharmacy workforce willingness, readiness, and infrastructural capacity to deliver vaccination services in Nigeria.

METHODS: We conducted a descriptive cross-sectional study using a self-administered structured questionnaire among community pharmacists in Nigeria using a Google Form and administered through WhatsApp platforms. Descriptive statistics were performed on the collected data using SPSS statistical software, version 21.

RESULTS: Of the 414 community pharmacists sampled, 395 (response rate = 95.4%) were retrieved and included in the final analysis. Although most community pharmacists did not currently practice vaccine administration in their pharmacies (n = 295, 74.9%), most were willing to start administering vaccines (n = 359, 91.3%), participate in routine and supplemental immunization services (n = 373, 95.4%), receive training related to vaccination (n = 374, 95.2%), and encourage patients to get vaccinated in their pharmacies (n = 367, 93.6%). Tetanus vaccine was the most common (n = 158, 40%) among the vaccines administered by the respondents. Infrastructure was inadequate in many critical areas: vaccine-specific equipment (n = 263, 67.8%), safety boxes (n = 216, 55.7%), medical waste bins (n = 178, 45.8%), portable vaccine refrigerators in case of power failures (n = 218, 56.1%), anaphylaxis response kit (n = 340, 87.4%), and anaphylaxis management guidance (n = 346, 88.9%). Barriers to the pharmacists' willingness to deliver vaccination services were inadequate funds to procure appropriate storage equipment (n = 269, 70.0%), inadequate training (n = 265, 69.1%), conflicts with other professionals (64.4%), concerns about patient safety (n = 185, 47.7%), and handling vaccines and disposal of sharps (n = 182, 47.4%).

CONCLUSIONS: Community pharmacists have indicated their willingness to embrace the advanced role of vaccine administration. The government and other healthcare stakeholders should address the infrastructural gaps and other barriers highlighted in the study to help improve vaccine access and availability.

WEB: 10.1186/s12913-025-12655-3

IMPACT FACTOR: 2.7

CITED HALF-LIFE: 5.6

START COMMENTARY

Since community pharmacies are easier for most people to access than medical facilities, community vaccination rates could increase if pharmacists are provided infrastructure support and training in vaccine delivery. This survey of community pharmacists in Nigeria assessed willingness to provide vaccination delivery services, the types of vaccination services they would be willing to provide, the technical capacity to deliver vaccination services, the infrastructure capacity, and barriers to willingness to provide vaccination services. Less than half of respondents (43%) had received training in vaccine delivery, and <42% had been received training on reporting and addressing adverse events following immunization. Chain pharmacies were more likely to provide vaccination services than independent pharmacies.

Return to List of Articles

9. Identification of potential vaccines for use with microarray patches in low- and middle-income countries: An assessment from the Vaccine Innovation Prioritisation Strategy Alliance.

Frivold C, Giersing B, Amorij J, Mvundura M, Hasso-Agopsowicz M, Mistilis J, et al.

Vaccine. 2025 Mar 25;55:126996.

PubMed ID: 40132321

ABSTRACT

INTRODUCTION: Microarray patches (MAPs) have the potential to increase equitable vaccine coverage in low- and middle-income countries (LMICs). However, MAP developers and vaccine manufacturers have identified a barrier to development of MAPs for global health applications: the need for guidance on which vaccine MAPs would be of value to LMIC immunization programs. To address this gap, the Vaccine Innovation Prioritisation Strategy (VIPS) Alliance conducted a prioritization process to identify high-priority vaccines that could be delivered via MAPs in LMICs.

METHODS: We first compiled a reference list of vaccine targets through desk research, then filtered these targets based on route of administration, market distribution, existing interest from a global/regional health organization, whether the vaccine would address a specific global health priority or stakeholder agenda, development status, and potential MAP use cases. To further down-select the list, we consulted an external advisory group and evaluated the potential regulatory pathway, programmatic impact, and financial sustainability to define two priority levels.

RESULTS: From a reference list of 91 vaccine targets, we identified 21 with applicability to LMICs, which were further down-selected to a VIPS priority list of 11 vaccine targets grouped by priority level. Priority group 1 included vaccines against hepatitis B virus, measles-rubella/measles-mumps-rubella viruses, human papillomavirus, rabies virus, yellow fever, influenza virus (seasonal and pandemic), and SARS-CoV-2. Priority group 2 included vaccines against Group B streptococcus, Neisseria meningitidis A,C,W,Y,(X), Salmonella Typhi, and Streptococcus pneumoniae.

CONCLUSIONS: These vaccine MAP priorities will inform the investment decisions of MAP developers, vaccine manufacturers, donors, and global health partners to better respond to country needs when designing their MAP portfolios. By providing a holistic assessment of the potential drivers for and key risks of developing specific vaccine MAPs, our findings have the potential to promote MAP development activities for vaccines that are priorities for LMICs.

WEB: 10.1016/j.vaccine.2025.126996

IMPACT FACTOR: 4.5

CITED HALF-LIFE: 7.9

START COMMENTARY

Initial selection criteria for potential microarray patch (MAPs) vaccines include those 1) administered via injection, 2) in phase 3 or later trials that have already demonstrated efficacy or phase 2 trials if targeting outbreak pathogens that are high priority, and 3) are not routine childhood immunizations. This list was further refined to create a final priority list after evaluating estimated regulatory pathway complexity, potential programmatic impact given current challenges that could be addressed by MAP, and financial sustainability and interest from funders. The 11 priority vaccines are listed in Table 6, and an overview of each vaccine target can be found in sections 3.4 to 3.14.

Return to List of Articles

10. Vaccination strategies against wild poliomyelitis in polio-free settings: outbreak risk modelling study and cost-effectiveness analysis.

Auzenbergs M, Abbas K, Peak C, Voorman A, Jit M, O'Reilly K.

BMJ Glob Health. 2025 Mar 23;10(3).

PubMed ID: 40122528

ABSTRACT

The 2021 importation of wild poliovirus serotype 1 (WPV1) into Malawi with subsequent international spread represented the first WPV1 cases in Africa since 2016. Preventing importations and spread of WPV1 is critical and dependent on population immunity provided through routine immunisation (RI) and supplementary immunisation activities (SIAs). We aim to estimate outbreak risk and costs, given the importation of WPV1 for non-endemic countries in the WHO Africa region. We developed a stochastic mathematical model of polio transmission dynamics to evaluate the probability of an outbreak, expected number of poliomyelitis cases, costs and incremental cost-effectiveness ratios under different vaccination strategies. Across variable RI coverage, we explore three key strategies: RI+outbreak SIAs (oSIAs), RI+oSIAs+annual preventative SIAs (pSIAs) and RI+oSIAs+biennial pSIAs. Results are presented in 2023 USD over a 5year- time horizon from the Global Polio Eradication Initiative (GPEI) and health system perspectives. The annual pSIA strategy has the greatest probability of no outbreaks in comparison to other strategies: under our model assumptions, annual pSIAs result in an 80% probability of no outbreaks when RI coverage is ≥50%. The biennial pSIA strategy requires RI coverage ≥65% to achieve an equivalent risk of no outbreaks. The strategy with no pSIAs requires ≥75% RI coverage to achieve an equivalent risk of no outbreaks. For the health system, when RI coverage is between 35% and 60%, both pSIA strategies are cost-saving. For the GPEI, below 65% RI pSIA strategies are cost-effective, but the biennial pSIA strategy incurs higher costs in comparison to annual pSIAs due to more oSIAs required to stop outbreaks. Prioritisation of pSIAs must balance outbreak risk against implementation costs, ideally favouring the smallest manageable outbreak risk compatible with elimination. We infer that there are few short-term risks due to population immunity from RI, but without pSIAs, long-term risks accumulate and can result in outbreaks with the potential for international spread.

WEB: 10.1136/bmjgh-2024-016013

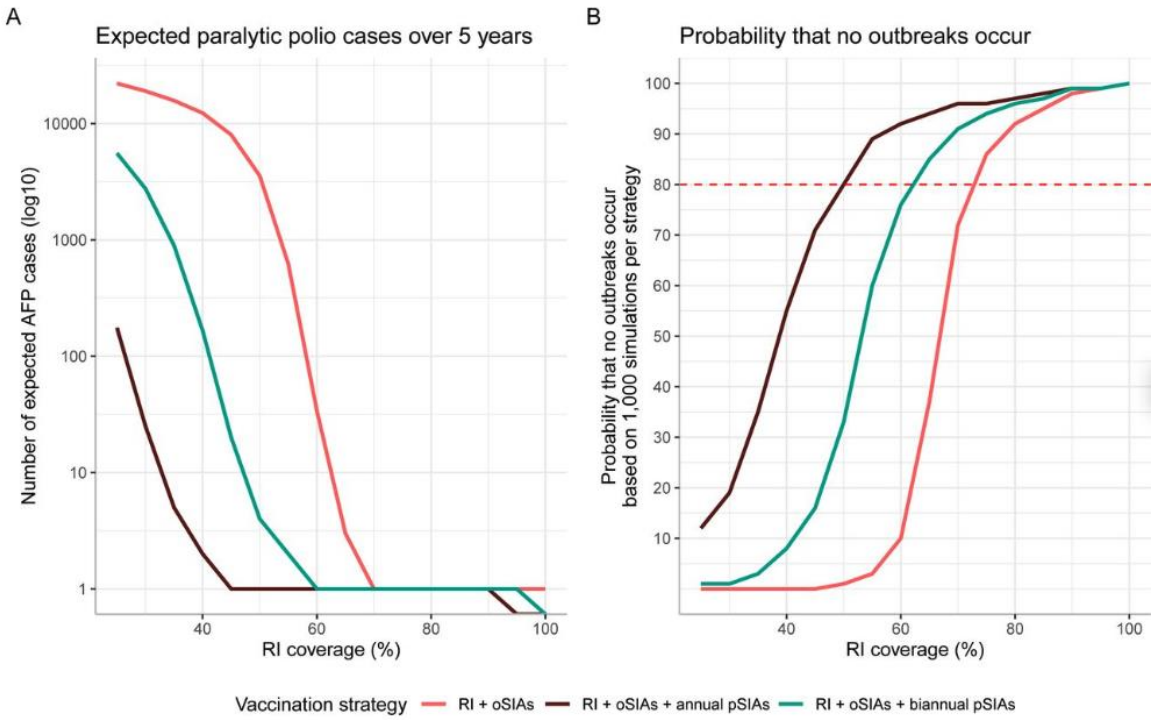
IMPACT FACTOR: 7.1

CITED HALF-LIFE: 3.2

START COMMENTARY

Outbreak supplementary immunization activities (SIAs) are often prioritized over preventive SIAs (pSIAs) because they are in reaction to disease detection requiring rapid response to contain the

outbreak. However, outbreak SIAs (oSIAs) are more costly than pSIAs and have a different impact on polio eradication efforts which is often not included or evaluated in economic models. In the figure below, the estimated number of paralytic polio cases over the next 5 years (A) and probability of outbreak (B) are shown under the three vaccination strategies based on different routine immunization (RI) coverage (x-axis): 1) RI and oSIAs only; 2) RI, oSIAs, and annual pSIAs; and 3) RI, oSIAs, and pSIAs every 2 years. The red dotted line indicates 80% probability that no outbreaks occur. Table 5 provides policy implications of the polio vaccination strategies based on RI coverage.



Return to List of Articles

11. Immunogenicity and safety of an Escherichia coli-produced bivalent human papillomavirus vaccine (Cecolin) in girls aged 9-14 years in Ghana and Bangladesh: a randomised, controlled, open-label, non-inferiority, phase 3 trial.

Agbenyega T, Schuind A, Adjei S, Antony K, Aponte J, Buabeng P, et al.

Lancet Infect Dis. 2025 Mar 22.

PubMed ID: 40120597

ABSTRACT

BACKGROUND: Human papillomavirus (HPV) vaccines have been available for nearly 20 years. However, the overall coverage of girls aged 15 years and younger is low, especially in low-resource settings, where the burden of cervical cancer is highest. Increasing access and facilitating implementation of HPV vaccination will contribute to cervical cancer elimination efforts. To generate data in different dosing regimens and in low-resource settings, we aimed to evaluate the safety and immunogenicity of various schedules of an Escherichia coli-expressed bivalent HPV vaccine (2vHPV) compared with a widely used quadrivalent vaccine.

METHODS: This randomised, controlled, open-label, non-inferiority, phase 3 trial enrolled healthy girls aged 9-14 years from single sites in Ghana and Bangladesh. Participants were randomly assigned via interactive web response system technology equally into five study groups, stratified by site: two doses of 2vHPV, the first at baseline and the second 6, 12, or 24 months later; a quadrivalent HPV vaccine (4vHPV) at baseline followed 24 months later by 2vHPV; or two doses of 4vHPV given 6 months apart (referent). We tested for antigen-specific (HPV-16 and HPV-18) binding antibodies by ELISA at baseline and before and 1 month after the second dose. The primary objective was to show immunological non-inferiority of the 2vHPV vaccine schedules to the referent 1 month after the second dose in the per-protocol population, with a non-inferiority margin of 0·5 for the lower bound of the 98·3% CI for the geometric mean concentration (GMC) ratio. Adverse events and serious adverse events were evaluated as secondary endpoints in the total vaccinated population. The study is registered at ClinicalTrials.gov (NCT04508309) and is completed.

FINDINGS: Between March 15 and Nov 18, 2021, 1025 girls were enrolled and received 2vHPV at baseline and 6 months (n=205), 12 months (n=206), or 24 months (n=204); 4vHPV at baseline and 6 months (n=205); or 4vHPV at baseline and 2vHPV at 24 months (n=205). 96-99% of participants across groups were included in the per-protocol analysis. 1 month after the second dose, 2vHPV non-inferiority was shown, with GMC ratios between 1·1 and 2·4 (lower bound of the 98·3% CI of the GMC ratio between 0·9 and 1·9) for HPV-16, and between 1·3 and 1·7 (1·0 and 1·4) for HPV-18. As an exploratory objective, we assessed 2vHPV immunogenicity after one dose, finding that it was similar to that of 4vHPV up to 24 months, with GMC ratios at 24 months of 1·1 (95% CI 0·9-1·4) for HPV-16 and 1·4 (1·1-1·7) for HPV-18. The frequency of adverse events was similar across study

groups, with no related unsolicited events reported. Serious adverse events were rare and none were determined to be related to vaccination.

INTERPRETATION: Non-inferior immune responses for extended two-dose regimens of 2vHPV support dosing flexibility. For up to 24 months, one dose of 2vHPV elicited immunogenicity that was similar to one dose of 4vHPV, for which single-dose efficacy has been shown, supporting a single-dose use of 2vHPV.

FUNDING: The Bill & Melinda Gates Foundation and the German Federal Ministry of Education and Research and immunological testing was funded in part by the National Cancer Institute, National Institutes of Health.

TRANSLATION: For the Bengali translation of the abstract see Supplementary Materials section.

WEB: 10.1016/S1473-3099(25)00031-3
IMPACT FACTOR: 36.4
CITED HALF-LIFE: 4.4

START COMMENTARY

After the second vaccine dose, the seropositivity for HPV-16 & 18 reached 100% for all study groups. Anti-HPV IgG geometric mean concentrations (GMCs) were higher with greater intervals between the first and second dose of the 2-valent HPV vaccine. Immune response to HPV-16 & 18 in the group that received one 4-valent HPV vaccine at baseline followed by the 2-valent HPV vaccine at 24 months (mixed-dose schedule) was similar to the immune response in the group that received the 4-valent HPV vaccine at baseline and 6 months one month after the second dose (Figure 3). Pain at the injection site and headache were the most commonly reported adverse reactions and were more common after the second dose (Table 3).

Return to List of Articles

12. Uptake and determinants of routine immunization among vulnerable children and adolescents in sub-Saharan Africa: A scoping review.

Chege C, Karanja S, Ogallo W, Were F, van Hensbroek M, Agweyu A.

Vaccine. 2025 Mar 21;54:127021.
PubMed ID: 40117940

ABSTRACT

BACKGROUND: Despite notable improvements in coverage of immunization services in sub-Saharan Africa (SSA) over recent decades, there are marked inequities across populations. We undertook a scoping review to study the uptake and determinants of routine immunization (RI). This is the health system component that regularly delivers vaccination services to eligible populations as set out in national immunization schedules among vulnerable children and adolescents in sub-Saharan Africa.

METHODS: We adopted the population-concept-context format to address the 2 research questions. The population was vulnerable children and adolescents from birth to 18 years from 2010 to 2020. The context was sub-Saharan Africa. An electronic search was conducted in PubMed, SCOPUS and African Journals Online, following which the selected studies were entered into a data extraction tool. Estimates of immunization uptake as well as quantitative and qualitative synthesis of demand and supply determinants of immunization were carried out.

RESULTS: Out of the 6040 studies screened, 68 articles were finally selected. Nineteen of these focused on older children and adolescents (9-18 years). RI uptake ranged from 1/201 (0.01 %; 95 % CI:0.01-0.03) to 205/216 (95 %; 95 % CI:0.92-0.97). Demand-related factors that were positively correlated with RI uptake were non-Muslim religion (aOR:1.56,95 % CI:1.11-2.17), high caregiver vaccination knowledge (aOR:3.30,95 % CI:0.26-3.56), high household socio-economic status (aOR:1.25,95 % CI:1.04-1.49) and short distance from health facility (aOR:1.63,95 % CI:1.10-2.39). Attendance of less than 4 antenatal visits (aOR:0.47,95 %CI:0.32-0.67) and Somali ethnicity (aOR:0.41,95 %CI:0.19-0.91) were negatively associated with RI uptake. Only 3 quantitative studies examined supply determinants of immunization uptake. Conducive health facility attributes were positively correlated with RI uptake (aOR:2.21,95 % CI:1.22-3.98) while the cost of obtaining vaccination (aOR:1.01,95 % CI:0.63-1.60) and health worker shortage (aOR:0.33,95 % CI:0.02-0.13) were negatively correlated.

CONCLUSION: RI uptake among vulnerable sub-populations of children and adolescents varies widely. There is a paucity of studies on supply-side determinants of routine immunization uptake and also among adolescents.

WEB: 10.1016/j.vaccine.2025.127021
IMPACT FACTOR: 4.5
CITED HALF-LIFE: 7.9

START COMMENTARY

Most included studies were from Eastern Africa (57%), with 13 of the 68 studies from Ethiopia (Figure 2). No studies were included from Central African Republic, Equatorial Guinea, Mauritania, Chad, or Sudan. Table 1 describes vulnerable sub-populations included in studies, with most studies focused on geographically hard to reach or urban informal settlement populations. Determinants of routine immunization were classified as either supply-related (procurement, distribution, administration, policy factors, etc.) or demand-related (community level and individual level factors such as poverty, proximity to health facilities, child age, etc.). Quantitative and qualitative findings are found in Tables 4 and 5, respectively.

Return to List of Articles

13. Challenges and lessons learned during the switching of rotavirus vaccine from Rotarix to Rotavac in Zambia.

Mpabalwani E, Sakala C, Kamiji E, Simwaka J, Soko J, Kabwe M, et al.

Vaccine. 2025 Mar 19;55:127012.
PubMed ID: 40107130

ABSTRACT

INTRODUCTION: Active Rotavirus diarrhea surveillance has been ongoing in Zambia at three dedicated sentinel sites since 2007, focusing on hospitalized children under five years of age. During 2021 and 2022, many African countries, including Zambia, experienced a severe shortage of rotavirus vaccines. This vaccine shortage resulted in many children who were eligible for vaccination remaining unvaccinated. Consequently, these children were exposed to a higher risk of severe acute gastroenteritis.

METHODS: To ascertain the impact of rotavirus vaccine stock-out and switch in Zambia, a comprehensive desk review was conducted focusing on the switch of the vaccine from Rotarix to Rotavac and the change of the Rotavac formulation. This review encompassed all children under five years of age recruited at the surveillance sites between 2017 and 2023 and the country's comparison of national administrative and WUENIC 2023 rotavirus vaccine coverage rate estimates for 2014 to 2023. March 2022 to April 2023 was defined as the Rotarix vaccine stock-out period. Hospitalization trends, demographic and clinical data, and rotavirus confirmed ELISA results were analyzed.

RESULTS: Following the introduction of rotavirus vaccine, the number of fully vaccinated children increased steadily over the years, reaching 4.73 million in 2023. However, 2.63 million children missed vaccination between 2016 and 2023. The administrative and WUENIC 2023 estimates for rotavirus coverage rates were the same during the period under review. Hospitalized diarrhea cases and rotavirus positivity rates remained essentially the same during the in-stock and stock-out periods of rotavirus vaccine. However, mortality rates increased three-fold during the vaccine stock-out period.

CONCLUSION: The impact of the Rotarix vaccine era was reversed due to the global supply chain disruptions, leading to missed vaccinations, increased diarrhea-related hospitalizations, and higher infant mortality in Zambia. The COVID-19 pandemic may also have further disrupted the vaccination sessions, further impacting rotavirus vaccination. Rotarix shortages likely contributed to rising rotavirus cases. There is an urgent need to completely replace the old under-5 vaccination card with a revised one to improve documentation for new rotavirus vaccines.

WEB: 10.1016/j.vaccine.2025.127012

IMPACT FACTOR: 4.5

CITED HALF-LIFE: 7.9

START COMMENTARY

The World Health Organization and United Nations Children's Fund national immunization coverage (WUENIC) estimates for the first dose of rotavirus vaccine in Zambia dropped from 87% in 2020 & 2021 to 32% and 40% in 2022 and 2023, respectively, due to Rotarix stock out. This led to an increase in children < 1 year hospitalized with rotavirus. While rotavirus vaccine coverage is recovering with the switch to Rotavac, authors note continued concerns with cold chain capacity. They suggest that a rotavirus vaccine requiring 4-8°C cold chain facilities like most other routine immunizations in sub-Saharan Africa would be ideal rather than the -20°C required by Rotavac.

Return to List of Articles

14. Unveiling the Drivers of Polio Vaccine Uptake: Insights from a Multi-Country Study of 37 Nations in Sub-Saharan Africa.

Antehunegn Tesema G, Sarfo M, Okeke S, Ameyaw E, Yaya S.

PLoS One. 2025 Mar 19;20(3):e0316884.

PubMed ID: 40106450

ABSTRACT

BACKGROUND: Childhood vaccination is a highly cost-effective strategy for preventing vaccine-preventable diseases, including poliomyelitis. Despite advancements in vaccination coverage across Africa, polio remains a public health concern. Limited multi-country analyses on oral polio vaccine (OPV) dropout in African nations hinder the development of context-specific interventions. This study investigates OPV uptake and associated factors in sub-Saharan Africa (SSA).

METHODS: This study analyzed data from the Demographic and Health Surveys of 37 sub-Saharan African countries, encompassing 60,846 children aged 12-23 months. Multilevel multinomial logistic regression models were employed to explore associations between individual- and community-level factors and vaccination status, categorized as non-vaccinated, dropout, or fully vaccinated. Four nested models were assessed, with the model exhibiting the lowest deviance (-2 Log-likelihood Ratio (-2LLR)) identified as the best fit. Variables with p-values < 0.2 in bivariable analysis were included in the multivariable analysis. The adjusted Relative Risk Ratios (aRRR) with 95% Confidence Intervals (CI) were reported to determine statistical significance and the strength of associations.

RESULTS: Among children aged 12-23 months, OPV1, OPV2, and OPV3 coverage rates were 86.59%, 81.27%, and 68.41%, respectively. The prevalence of OPV dropout and full vaccination in SSA were 19.38% (95% CI: 19.06%, 19.69%) and 67.77% (95% CI: 67.40%, 68.14%), respectively, with a dropout rate of 20.98%. Key factors significantly associated with non-vaccination included maternal education (primary: aRRR = 0.58; secondary: aRRR = 0.64; higher: aRRR = 0.75), household wealth (poorer: aRRR = 0.91; middle: aRRR = 0.82; richer: aRRR = 0.70), maternal age (20-29: aRRR = 0.67; 30-39: aRRR = 0.60; 40-49: aRRR = 0.59), health facility delivery (aRRR = 0.28), media exposure (aRRR = 0.64), marital status (currently married: aRRR = 0.87), parity (2-3 births: aRRR = 1.11), and rural residence (aRRR = 0.73). Regional disparities revealed higher risks of non-vaccination and dropout in Southern, Central, and West Africa compared to East Africa.

CONCLUSION: This study highlights the multifaceted determinants of oral polio vaccination dropout in SSA. Targeted interventions, such as improving maternal education, enhancing access to healthcare facilities, addressing socioeconomic inequalities, and mitigating regional disparities, are

essential to boosting vaccination coverage and preventing polio resurgence. Focused efforts in Western and Central Africa are critical to sustaining and expanding vaccination programs.

WEB: 10.1371/journal.pone.0316884
IMPACT FACTOR: 2.9
CITED HALF-LIFE: 8.0

START COMMENTARY

Factors associated with incomplete vaccination status differed slightly from those associated with non-vaccination. Although associated with non-vaccination, maternal education status was not associated with incomplete vaccination status. Children of mothers who were divorced, widowed, or separated had a 34% higher risk of incomplete vaccination, and risk was higher with higher parity (7% for parity of 2-3, 16% for parity ≥4).Compared to East Africa, children living in Southern Africa had 39% lower risk of incomplete vaccination while those living in Central and West Africa had 67% and 159% higher risk, respectively. Household wealth status, maternal age, place of delivery, media exposure, and place of residence (urban/rural) were associated with incomplete vaccination, but less strongly than they were association with non-vaccination (Table 3).

Return to List of Articles

Additional Articles of Interest

1 Fitting dynamic measles models to subnational case notification data from Ethiopia: Methodological challenges and key considerations. {Full Article}
2 Hepatitis B vaccination coverage and associated factors among children living in northwest Ethiopia city administrations: A community-based study. {Full Article}
3 Is Southeast Asia and the Western Pacific ready for potential monkeypox virus outbreaks? {Full Article}
4 Indirect Comparison of PCV20 Immunogenicity with PCV10 in Pediatric 3 + 1 and 2 + 1 Schedules. {Full Article}
5 Assessing Prevalence and Regional Disparities in Zero-Dose Immunization Among Children Aged 12-23 Months in Somalia. {Full Article}
6 Timeliness of the second dose of measles-containing vaccine uptake and its determinants among children aged 24-36 months in Gondar City, Northwest Ethiopia, 2023: Community-based cross-sectional study design. {Full Article}
7 Clinical presentation and epidemiological assessment of confirmed human mpox cases in DR Congo: a surveillance-based observational study. {Full Article}
8 Regional cooperation on pandemic preparedness and vaccine equity from an economic, regulatory and legal perspective. {Full Article}
9 Pertussis in India: Vaccine-driven evolution, waning immunity, and the urgent need for Tdap boosters. {Full Article}
10 Why does health literacy matter, and for whom? Explaining the differentiating impact of health literacy on vaccine attitudes. {Full Article}
11 Cost-effectiveness analysis of alternative infant and neonatal rotavirus vaccination schedules in Malawi. {Full Article}
12 Child immunization data quality in Rwanda: an assessment of routine health information system data. {Full Article}
13 Geographic equity in essential newborn care practices in Ethiopia: a cross-sectional study. {Full Article}
14 Optimal Timing of Vaccination: A Narrative Review of Integrating Strategies for COVID-19, Influenza, and Respiratory Syncytial Virus. {Full Article}
15 Monkeypox: Prevention Strategies and Challenges: Updated Review. {Full Article}
16 Immunisation status of children under 2 years of age visiting Khyber Teaching Hospital, Peshawar, Pakistan: a cross-sectional analysis. {Full Article}
17 Current Developments in Malaria Vaccination: A Concise Review on Implementation, Challenges, and Future Directions. {Full Article}
18 The advent of clinical self-amplifying RNA vaccines. {Full Article}

19 Microarray patch vaccines for typhoid conjugate vaccines: A global cost-effectiveness analysis. {Full Article}
20 Impact of ADE and Dengue Vaccination with Screening on Cost and Disease Burden for Homoserotypic Dengue and Zika. {Full Article}
21 Understanding the resurgence of mpox: key drivers and lessons from recent outbreaks in Africa. {Full Article}
22 A pragmatic covariate-constrained cluster-randomised controlled trial of hybrid parents and health workers adaptive intervention for optimal (timely, cumulative age-appropriate) community-wide routine childhood immunisation coverage: the AGINTOPIC trial. {Full Article}
23 Factors influencing vaccine hesitancy toward non-covid vaccines in South Asia: a systematic review. {Full Article}
24 Ebola virus vaccination elicits Ebola virus-specific immune responses without substantial cross-reactivity to other filoviruses. {Full Article}
25 Comparative analysis of the structural dynamics of diphtheria toxin and CRM197 carrier proteins used in the development of conjugate vaccines. {Full Article}
26 Vaccine handling practices and conformity to cold chain temperature requirements in selected regions of Tanzania: a descriptive cross-sectional study. {Full Article}
27 Insights from national stakeholders and health workers on learning and performance interventions in immunisation programs: a multi-country situational analysis. {Full Article}
28 Childhood vaccination trends among the Maasai nomadic pastoralists: Insights from a community-based vaccine registry in Kenya. {Full Article}
29 Prediction of zero-dose children using supervised machine learning algorithm in Tanzania: evidence from the recent 2022 Tanzania Demographic and Health Survey. {Full Article}
30 Understanding vaccine hesitancy: Insights from social media on polio, human papilloma virus, and COVID-19 in Zambia. {Full Article}
31 Regional difference on rotavirus vaccine coverage in children with diarrhea in Mozambique, before and during COVID-19 pandemic: a cross-sectional analysis. {Full Article}
32 Online Discourse and Trends Surrounding HPV Vaccination for Head and Neck Cancer Prevention. {Full Article}
33 Validating the predicted impact of HPV vaccination on HPV prevalence, cervical lesions, and cervical cancer: A systematic review of population level data and modelling studies. {Full Article}
34 Meeting report: CEPI workshop on Rift Valley fever epidemiology and modeling to inform human vaccine development, Nairobi, 4-5 June 2024. {Full Article}
35 The Vaccine Cold Chain in North Korea: Assessing the Capacity to Store Routine Vaccines and Potential to Support Pandemic Vaccination Activities. {Full Article}
36 Strategically striving to be more inclusive: A recommendation for gender-neutral human-papillomavirus vaccine policies. {Full Article}

37 Uptake and determinants of routine vaccines among children aged 12-23 months in adansi South district of Ghana. a cross-sectional study. {Full Article}

Appendix

The literature search for the May 2025 Vaccine Delivery Research Digest was conducted on April 22, 2025. We searched English language articles indexed by the US National Library of Medicine and published between March 15, 2025 and April 14, 2025. The search resulted in 447 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 2025/03/15:2025/04/14[Date - Publication]