VACCINE DELIVERY RESEARCH DIGEST

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

REPORT TO THE GATES FOUNDATION

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JULY 2025

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1 Creating cohesive communities: using Conditional-Collective-Community-Based Incentives to change social norms on polio immunization in Pakistan.

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- The role of community engagement and conditional incentives in increasing polio vaccine uptake in High-Risk Union Councils of Pakistan is investigated.

2 Vaccination in Forcibly Displaced, Pediatric Populations: A Systematic Review and Meta-Analysis.

{Abstract & START Commentary} {Full Article}

- Vaccination coverage and factors associated with vaccination in forcibly displaced, pediatric populations were assessed.

3 Sense-Making During the RTS,S Malaria Vaccine Pilot Implementation in Ghana.

{Abstract & START Commentary} {Full Article}

- The lived experiences of caregivers and how they made decisions about participating in the vaccine pilot implementation of the RTS,S malaria vaccine were evaluated.

4 Report from the World Health Organization's immunization and vaccines-related implementation research advisory committee (IVIR-AC) meeting, virtual gathering, 17-21 February 2025.

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- This report provides a summary of the seven sessions conducted during the World Health Organization's immunization and vaccines-related research advisory committee meeting in February 2025.

5 Strategies for men's engagement and its effectiveness in improving child health and immunization-a rapid review.

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- Effective strategies for men's engagement in child health and immunization in low-and-middle-income countries were identified and described.

6 Prediction of subnational-level vaccination coverage estimates using routine surveillance data and survey data.

{Abstract & START Commentary} {Full Article}

- The use of three surveillance-based indicators to predict measles vaccination coverage at the subnational level was evaluated compared to administrative coverage estimates.

7 Evaluating the Impact of Needle-Free Delivery of Inactivated Polio Vaccine on Nigeria's Routine Immunization Program: An Implementation Hybrid Trial.

{Abstract & START Commentary} {Full Article}

- The vaccine coverage, cost, feasibility, and acceptability of using a needle-free delivery method (Tropis) for fractional IPV compared to traditional needle and syringe administration in Nigeria was evaluated.

8 Safety of nOPV2 administered during a supplementary immunisation activity in Uganda, 2022: data triangulation from a prospective cohort event monitoring programme and vaccine safety surveillance reports.

{Abstract & START Commentary} {Full Article}

- A multipronged surveillance approach to evaluate the safety profile of novel oral poliovirus vaccine type 2 (nOPV2) administered in response to an outbreak in Uganda was described.

9 A 2024 global report on national policy, programmes, and progress towards hepatitis B elimination: findings from 33 hepatitis elimination profiles.

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- The Coalition for Global Hepatitis Elimination Progress reported progress toward hepatitis B elimination in 33 countries.

10 Estimated Current and Future Congenital Rubella Syndrome Incidence with and Without Rubella Vaccine Introduction - 19 Countries, 2019-2055.

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- The benefits of introducing rubella-containing vaccine within the 19 countries where it has not yet been introduced are explored.

11 Clinical and Epidemiological Investigation of Vaccine-Derived Poliovirus Type 2 Outbreak in Pakistan During 2019-2021.

{Abstract & START Commentary} {Full Article}

- The effectiveness of cVDPV2 outbreak response activities in Pakistan during a sustained 2 year outbreak was assessed.

Additional Articles of Interest

Appendix

Details of Articles

1. Creating cohesive communities: using Conditional-Collective-Community-Based Incentives to change social norms on polio immunization in Pakistan.

Tabassum F, Delawalla Z, Mirani M, Khan Z, Muhammad A, Asim M, et al.

Front Public Health. 2025 Jun 18;13:1575319.

PubMed ID: 40529690

ABSTRACT

Immunization remains a critical public health strategy, particularly in countries like Pakistan where vaccine-preventable diseases are prevalent despite global efforts to eradicate poliomyelitis. This study investigates the role of community engagement (CE) and conditional incentives in increasing polio vaccine uptake in High-Risk Union Councils (HRUCs) of Pakistan. Utilizing an exploratory qualitative research design, the study was conducted to assess the impact of an intervention which involved participatory CE, including the formation of Community Health Committees (CHCs) that conducted community sessions, made home visits, and implemented the Conditional-Collective-Community-Based Incentives (C3Is) in HRUCs in Bannu and Karachi, Pakistan to reduce the rate of refusals for the oral polio vaccine (OPV). These conditional incentives were based on the reduction of polio vaccine refusals by 30 and 50% in specific clusters during the first and second phase of the trial. The findings indicate that leveraging community influencers to change the social norms of the community through CE and C3Is lead to collective behavioral changes. CE served as an effective tool for dispelling myths while also providing a springboard to build community connections and cohesion. Furthermore, this change was accelerated by the provision of conditional communal non-cash incentives, leading to a significant improvement in polio immunization coverage and a reduction in the rate of vaccine refusals. The study underscores the importance of integrating context specific innovative community-specific strategies to overcome vaccine hesitancy and achieve immunization goals in challenging environments and when the target of polio eradication cannot be realized with business as usual.

WEB: 10.3389/fpubh.2025.1575319

IMPACT FACTOR: 3.4

CITED HALF-LIFE: 2.7

START COMMENTARY

Interviews identified areas of concern with polio immunization campaign methods that should be considered when planning future campaigns. Administering the polio vaccine without parental

approval and taking pictures of parents who refused the vaccine created distrust within the community. Parents reported that polio workers did not provide education during the campaign, and therefore parents were not aware vaccine health benefits until the community engagement intervention was conducted. There were also concerns about how refusals were counted by polio workers, as any lack of participation in the polio campaign was considered a refusal and refusals required a follow-up visit, resulting in multiple follow-up visits to families with vaccinated children. Developing a method to indicate that a child has already been vaccinated could improve efficiency for the polio team by reducing time spent on unnecessary additional visits and decrease parental frustration about repeated visits. The most frequently voiced concerns were centered around the presence of police with polio immunization teams as parents reported that it felt coercive.

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2. Vaccination in Forcibly Displaced, Pediatric Populations: A Systematic Review and Meta-Analysis.

Virk S, Milewski A, Khan N, Cheung C, Wright D, Kaur G.

JAMA Netw Open. 2025 Jun 16;8(6):e2516237.

PubMed ID: 40522657

ABSTRACT

IMPORTANCE: Accessing forcibly displaced, pediatric populations for vaccination is challenging, and precise vaccination rates remain largely unknown.

OBJECTIVE: To estimate vaccination coverage and identify factors associated with vaccination in forcibly displaced, pediatric populations.

DATA SOURCES: Six databases were searched in November 2023-Ovid MEDLINE, Ovid EMBASE, PubMed, Scopus, Web of Science, and Cochrane-with no restrictions on language or publication dates. The search strategy included all appropriate controlled vocabulary and keywords for vaccination, pediatrics, and displaced populations.

STUDY SELECTION: Included studies were original research articles investigating vaccination in pediatric populations (<19 years) that were forcibly displaced as defined by the United Nations High Commissioner for Refugees. Reviews, nonresearch articles, and qualitative studies were excluded. Screening was conducted by 2 independent reviewers with discrepancies resolved by a third reviewer. Of 1731 studies identified, 294 underwent full-text review.

DATA EXTRACTION AND SYNTHESIS: Data abstraction and quality assessment followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses 2020 guidelines. A random-effects model was used to pool data. Data quality was assessed using the Downs and Black Checklist.

MAIN OUTCOMES AND MEASURES: The primary outcome was pooled vaccination coverage, defined as the proportion vaccinated. Additionally, the factors associated with vaccination were pooled from reported unadjusted odds ratios (ORs) or adjusted ORs (aORs).

RESULTS: Of the 1731 studies identified, 39 studies from 24 countries were included. Based on 11 studies, the full vaccination coverage was 21% (95% CI, 11%-36%; I2 = 98.90%). Factors associated with greater odds of vaccination included having 2 or more children in the family (OR, 1.70; 95% CI, 1.43-2.02; I2 = 0.00%; aOR, 1.81; 95% CI, 1.28-2.57; I2 = 0.00%), higher levels of guardian education (OR, 1.60; 95% CI, 1.06-2.43; I2 = 71.60%), father's employment (OR, 2.75; 95% CI, 1.67-4.53; I2 = 0.00%), higher household income (OR = 1.33; 95% CI, 1.29-1.37; I2 = 0.00%), housing

stability (OR, 2.80; 95% CI, 2.10-3.73; I2 = 0.00%; aOR, 2.62; 95% CI, 1.55-4.40; I2 = 0.00%), and residing in an area with more access to health care services (OR, 2.11; 95% CI, 1.44-3.09; I2 = 0.00%), while being forcibly displaced was associated with lower odds of vaccination (OR, 0.70; 95% CI, 0.55-0.89; I2 = 69.41%; aOR, 0.73; 95% CI, 0.63-0.86; I2 = 13.64%).

CONCLUSION AND RELEVANCE: In this systematic review and meta-analysis of vaccination coverage among forcibly displaced, pediatric populations, vaccination coverage remained low. These findings highlight the urgent need for development of healthcare strategies and policies to close the immunization gap in this vulnerable population.

WEB: 10.1001/jamanetworkopen.2025.16237
IMPACT FACTOR: 9.7
CITED HALF-LIFE: 3.1

START COMMENTARY

Included studies focused on refugees (n=22), internally displaced people (n=8), asylum seekers (n=3), and undocumented individuals (n=1), with an additional 5 studies including a combination of these populations (Supplementary Table 4). Pooled coverage for individual vaccines was low, ranging from 28% for pneumococcal conjugate vaccines to 64% for BCG. After vaccination campaigns, coverage was higher (86%), indicating that lack of access to vaccines was a key component of low vaccine coverage. Barriers to vaccinations during campaigns were lack of knowledge about the timing and location of the campaign and difficulties traveling to campaign sites, while engaging with community leaders facilitated vaccine campaign success.

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3. Sense-Making During the RTS,S Malaria Vaccine Pilot Implementation in Ghana.

Tani-Eshon E.

Qual Health Res. 2025 Jun 13:10497323251347922.
PubMed ID: 40512580

ABSTRACT

The pilot implementation of the RTS,S/AS01E (Mosquirix) malaria vaccine marked a significant step in addressing one of Africa's leading causes of mortality by providing essential data that led to its approval for use in children under two years old in malaria-endemic regions. However, little attention has been given to the lived experiences of caregivers and how they made decisions about participating in the vaccine pilot implementation. This paper takes an interpretive phenomenological analysis lens to understand caregivers' process of negotiating participation in the pilot implementation. I conducted 11 in-depth interviews with caregivers in the RTS,S pilot implementation site in the Assin North district in Ghana. Findings reveal that participants engaged in three overarching sense-making processes to negotiate their involvement in the pilot. These were questioning the vaccine, considering political and socio-economic concerns, and biting the bullet. Embodied within these themes are how agency, power, politics, trust in healthcare workers, and knowledge of vaccines undergird respondents' decision-making regarding the pilot implementation. The study evidenced the need for a holistic approach to engaging community members in pilot sites to guide their vaccine decision-making. By identifying the complex decision-making processes that individuals go through, we can better inform vaccine policy and public messaging to guide vaccine decision-making.

WEB: 10.1177/10497323251347922
IMPACT FACTOR: 2.4
CITED HALF-LIFE: 10.5

START COMMENTARY

Caregivers indicated that their experiences with and understanding of established vaccines influenced their decision to have their child receive the vaccine in the pilot implementation of the RTS,S vaccine program. Because measles and polio vaccines are highly effective in preventing disease while RTS,S is less effective, they weighed the tradeoff between vaccine protection and potential side effects, particularly since side effects were potentially more severe than with other established vaccines. Since RTS,S is given in multiple doses during intervals outside of the established vaccine schedule, caregivers weighed the financial impact of missed work for vaccine visits and the potential need to stay home with children experiencing vaccine-related side effects like

fever and pain. Efforts by trusted community health workers to share accurate information, some of whom showed their own children receiving the vaccine, influenced caregivers to participate.

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4. Report from the World Health Organization's immunization and vaccines-related implementation research advisory committee (IVIR-AC) meeting, virtual gathering, 17-21 February 2025.

Lambach P, Silal S, Sbarra A, Koh M, Aggarwal R, Farooqui H, et al.

Vaccine. 2025 Jul 06;61:127384.

PubMed ID: 40494225

ABSTRACT

The Immunization and Vaccines-related Implementation Research Advisory Committee (IVIR-AC) serves as the World Health Organization's (WHO) key advisory body for independently reviewing research that assesses the impact and value of vaccines, particularly using transmission and economic modeling analyses. During its first semi-annual meeting of 2025, held on 17-21 February and complemented by ad hoc sessions on 5 February, 11 April and 14 April, IVIR-AC provided feedback and recommendations across seven key sessions. This report summarizes the discussions and outcomes of the meeting. Topics covered included immunization research priorities in the WHO Eastern Mediterranean region, multi-model comparisons of typhoid conjugate vaccine schedules, a malaria intervention multi-model comparison, a full value assessment of invasive non-typhoidal Salmonella (iNTS) vaccination, an evaluation of improved influenza vaccines, vaccine impact modeling under the Immunization Agenda 2030 (IA2030) framework, and combination vaccines value assessment.

WEB: 10.1016/j.vaccine.2025.127384

IMPACT FACTOR: 3.5

CITED HALF-LIFE: 8.2

START COMMENTARY

Several recurring themes emerged in the sessions. First, the importance of tailoring communication to the needs of stakeholders was identified in sessions focused on typhoid conjugate vaccine (TCV), malaria intervention implementation prioritization, and the full value of vaccine assessment for invasive non-typhoidal Salmonella (iNTS) vaccine. Second, It is important to communicate uncertainty to policymakers when model parameters are based on limited evidence. Third, archetype analysis was highlighted in the TCV, malaria interventions, and full value of improved influenza vaccine assessment (FVIVA) sessions as a valuable framework to evaluate vaccine impact and cost-effectiveness.

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5. Strategies for men's engagement and its effectiveness in improving child health and immunization-a rapid review.

Nabia S, Betron M, Arlotti-Parish E, Varnauskas A, Nduka C, Pius A, et al.

Front Public Health. 2025 Jun 10;13:1539190.

PubMed ID: 40492002

ABSTRACT

INTRODUCTION: Despite widespread evidence and recognition that women bear the disproportionate burden of caregiving, there are major gaps in action geared towards equalizing this burden of care between men and women especially in the context of child health and immunization. The goal of this rapid review is to identify and summarize effective and promising strategies for men's engagement in child health and immunization in low-and-middle-income countries (LMICs) and further categorize the strategies into its potential for gender transformative outcomes.

METHODS: We searched PubMed, Embase and CINAHL databases for peer-reviewed literature and identified grey literature sources through key informant interviews. Twenty-seven papers and/or documents were included in the analysis. Data analysis was done through narrative synthesis, and results have been presented using the various levels of the socio-ecological model (SEM).

RESULTS: Majority strategies were at the "intrapersonal" level of SEM and focused on individual education and awareness building through one-on-one or group communication approaches and practical training. Efficacy of these strategies was measured using various indicators such as knowledge and perception levels, paternal-infant attachment, biological marker levels, and paternal behavior. Joint / shared couples' decision-making was the only gender transformative outcome reported in this review.

DISCUSSION: We found gaps in community and policy level interventions, and provider-side interventions to positively influence men's engagement in child health and immunization. Moreover, only two studies measured the strategies' influence on improving immunization outcomes.

CONCLUSION: It can be concluded there is a significant need for more evidence on gender-transformative approaches in child health and immunization programming in LMICs.

WEB: 10.3389/fpubh.2025.1539190

IMPACT FACTOR: 3.4

CITED HALF-LIFE: 2.7

START COMMENTARY

In this review of strategies for men's engagement in child health and immunization in low- and middle-income countries, Nabia et al. identified only one study that measured child immunization uptake as an outcome. This study, reported in the grey literature, was conducted in rural India and measured childhood vaccine coverage after community workshops highlighting joint parental responsibility for health-related behaviors. After the intervention, childhood coverage for pentavalent, rotavirus, and measles- and rubella-containing vaccines increased by 14%, 32%, and 31%, respectively although the study did not have a control group and no details were provided for how this measure was defined or calculated. More research is needed on the impact of strategies for engaging male caregivers in immunization activities.

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6. Prediction of subnational-level vaccination coverage estimates using routine surveillance data and survey data.

Bhatia D, Crowcroft N, Antoni S, Danovaro-Holliday M, Bose A, Minta A, et al.

Vaccine. 2025 Jun 05;60:127277.

PubMed ID: 40435633

ABSTRACT

BACKGROUND: Measles vaccination has significantly reduced the global burden of the disease, but disparities in vaccination coverage persist. Accurate and timely estimates of subnational vaccination coverage are crucial for identifying high-risk areas and guiding targeted interventions. However, existing methods face limitations related to accuracy, timeliness, and spatial resolution. We explored the use of routinely collected case-based surveillance data to predict measles vaccination coverage at the subnational level.

METHODS: The study used aggregated case data from 18 countries in the WHO African region, obtained from the WHO measles surveillance database. Three surveillance-based indicators were derived: mean age of suspected measles cases, proportion of vaccinated suspected cases, and proportion of IgM-negative suspected cases. These indicators were used to build a beta regression model with measles vaccination coverage from the Demographic and Health Surveys (DHS) as the gold standard. We compared out-of-sample predictions created using this model to withheld DHS estimates using Pearson's rho.

FINDINGS: We found that each of the three surveillance-based indicators were more strongly correlated with DHS-based survey coverage than administrative estimates. Out-of-sample predictions achieved high correlation with DHS-based coverage, with a rho of 0.74.

INTERPRETATION: The findings suggest that routinely collected measles surveillance data can effectively predict subnational measles vaccination coverage. The approach addresses limitations of existing methods by providing yearly estimates that are more accurate than administrative data and more readily available than surveys. This enables timely identification of low-coverage areas and facilitates targeted interventions.

WEB: 10.1016/j.vaccine.2025.127277

IMPACT FACTOR: 3.5

CITED HALF-LIFE: 8.2

START COMMENTARY

Accurate sub-national measles vaccination coverage estimates are obtained through large probability-based surveys. As these surveys are conducted every 3 to 5 years, there is a need for more timely estimates, particularly as the currently used administrative data is not well correlated with subnational survey-based estimates. To estimate subnational measles vaccination coverage, Bhatia et al. investigated the use of three measures routinely reported to the World Health Organization for suspected measles cases : age, prior vaccination history, and immunoglobulin M (IgM) test results. Since vaccine coverage increases over time in younger age cohorts, susceptible individuals become less likely to encounter infection, so mean age of suspected measles cases will be higher in areas with higher vaccine coverage. As vaccine coverage increases, a higher proportion of cases will be among vaccinated individuals who did not generate an immune response to the vaccine and a higher proportion of suspected cases will be due to non-measles cases; thus, vaccination coverage among suspected cases with known vaccination status was investigated as a means to derive vaccine coverage. The proportion of suspected cases that test negative for measles (negative IgM) is expected to increase as measles vaccination coverage increases, since the proportion of cases that are truly measles will decrease relative to similarly presenting non-measles cases. Therefore, the proportion of negative IgM test results among suspected cases was tested to derive estimates of measles vaccine coverage. Proportion of those vaccinated among suspected measles cases with known vaccination status was the most highly correlated with survey-based data of the three measures.

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7. Evaluating the Impact of Needle-Free Delivery of Inactivated Polio Vaccine on Nigeria's Routine Immunization Program: An Implementation Hybrid Trial.

Mohan D, Mvundura M, Sampson S, Adepoju V, Bakunawa G, Umebido C, et al.

Vaccines (Basel). 2025 May 31;13(5).

PubMed ID: 40432142

ABSTRACT

Background/Objectives: The Tropis® ID device (PharmaJet®), a needle-free injection system, is a World Health Organization prequalified, hand-held device, which delivers intradermal injections without the use of needles and has previously been used for the delivery of fractional doses of inactivated polio vaccine (fIPV) in campaign and house-to-house settings. This implementation research study aimed to comparatively evaluate the vaccine coverage, cost, feasibility, and acceptability of using Tropis for fIPV for routine immunizations in two states in Nigeria (Kano and Oyo). **Methods:** The study included: (i) a cluster randomized trial (22 intervention facilities using Tropis for fIPV and 30 control facilities using the standard of care [SoC-full-dose IPV]) to assess the effectiveness in terms of improving the coverage of two doses of IPV, using a coverage survey involving 3433 children (aged 3-12 months); (ii) a pre- and post-implementation micro-costing evaluation involving the intervention facilities to estimate the costs; and (iii) mixed methods assessments (post-training assessment, provider survey, key informant interviews, and focus group discussions) to assess the feasibility and acceptability of fIPV delivery using Tropis. **Results:** The intention-to-treat analysis among the 3433 children surveyed did not show any difference between the intervention and control groups, primarily due to low compliance (approximately 50% of target beneficiaries reported Tropis use). The more relevant per protocol analysis, adjusting for lower compliance, showed that among those vaccinated with Tropis, second dose IPV coverage was 11.2% higher than the SoC. The delivery of fIPV using Tropis compared to the SoC resulted in incremental program cost savings, ranging from USD 0.07 to USD 1.00 per dose, administered across the scenarios evaluated. High acceptability was seen amongst caregivers (94%), and 95% of healthcare workers preferred Tropis over the SoC. **Conclusions:** Tropis is effective, feasible, acceptable, and saves costs when used as part of routine immunization programs.

WEB: 10.3390/vaccines13050533

IMPACT FACTOR: 3.4

CITED HALF-LIFE: 2.8

START COMMENTARY

Healthcare workers overwhelmingly preferred the needle-free device (97%) and reported that it was easier to use when compared to the standard needle and syringe (95%), with almost all reporting

that children experienced less discomfort (94%). All 65 healthcare workers reported that they were confident in using the device after the 2 day training and indicated that the device was user-friendly and could easily be used in both outreach programs and clinic settings. In follow-up surveys, nearly all caregivers with children who received an inactivated poliovirus vaccine (IPV) dose using the needle-free device reported that they would be more likely to return for future vaccinations if they knew the device was being used (n=682, 96%), and 68% indicated that they had permitted their child to receive all scheduled vaccines because there was a needle-free option for IPV. Caregivers in focus group discussions reported that their children experienced less pain, discomfort, and swelling, and expressed hope that the device could be used for other vaccines in the future.

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8. Safety of nOPV2 administered during a supplementary immunisation activity in Uganda, 2022: data triangulation from a prospective cohort event monitoring programme and vaccine safety surveillance reports.

Longley A, Nsubuga F, Gilani Z, Tobolowsky F, Kisakye A, Greene S, et al.

Lancet Glob Health. 2025 Jun 28;13(7):e1213-e1220.
PubMed ID: 40414241

ABSTRACT

BACKGROUND: In November, 2020, WHO authorised novel oral polio vaccine type 2 (nOPV2) use under Emergency Use Listing in response to outbreaks of circulating vaccine-derived poliovirus type 2 (cVDPV2). Although no concerns were identified in nOPV2 trials, the Global Advisory Committee on Vaccine Safety requested more extensive vaccine safety data during emergency use. The Uganda Ministry of Health declared a cVDPV2 outbreak in 2021 and responded with an nOPV2 campaign in January, 2022. More than 9 million children aged 0-59 months were vaccinated, providing an opportunity to generate robust safety data.

METHODS: We monitored the safety of nOPV2 for 42 days post-vaccination using: routine passive surveillance for adverse events following immunisation (AEFI); ongoing acute flaccid paralysis (AFP) surveillance; active, hospital-based surveillance for pre-specified adverse events of special interest (AESI); and active, cohort event monitoring. AFP cases were reviewed by the National Polio Expert Committee. Serious AEFI and all AESI and AFP cases with nOPV2 receipt underwent causality assessment by the National AEFI Committee.

FINDINGS: Across surveillance systems, 1128 children vaccinated with nOPV2 experienced one or more AEFI: 43 children identified through passive surveillance, 128 suspected AFP cases, five AESI cases, and 952 children with reported AEFI through cohort event monitoring. Overall, 109 adverse events were considered serious; six (fever, gastroenteritis (n=3), acute disseminated encephalomyelitis, and encephalitis) were determined by the National AEFI Committee to be consistent with causal association to immunisation with nOPV2. No cases of vaccine-associated paralytic poliomyelitis were detected. One death was detected, considered inconsistent with causal association to immunisation with nOPV2, per the National AEFI Committee.

INTERPRETATION: No new safety concerns were identified with nOPV2 use in Uganda following a national vaccination campaign, providing valuable data that informed WHO prequalification and product licensure.

FUNDING: Centers for Disease Control and Prevention.

WEB: 10.1016/S2214-109X(25)00110-X
IMPACT FACTOR: 18.0
CITED HALF-LIFE: 4.8

START COMMENTARY

A national-level evaluation of nOPV2 safety in Uganda during a 2022 supplementary immunization activity found that among children with acute flaccid paralysis (AFP) symptoms following vaccination, 28% were subsequently diagnosed with injection neuritis, likely resulting from improper injection techniques rather than the vaccine itself. This highlights how clinical practices can generate events that may be mistakenly attributed to the vaccine, reinforcing the importance of sensitive AFP surveillance systems. Additionally, active cohort event monitoring utilized in this study identified that over 40% of children experienced at least one adverse event (e.g., fever, diarrhea, general malaise) following vaccination. These symptoms, which are necessary to capture the full picture of vaccine reactogenicity and inform public interventions aimed at reducing vaccine hesitancy, are largely absent from passive surveillance systems. Therefore, future studies of nOPV2 should use active, community-based monitoring alongside passive surveillance to provide a more complete safety profile, where possible.

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9. A 2024 global report on national policy, programmes, and progress towards hepatitis B elimination: findings from 33 hepatitis elimination profiles.

Hiebert-Suwondo L, Manning J, Tohme R, Buti M, Kondili L, Spearman C, et al.

Lancet Gastroenterol Hepatol. 2025 Jun 07;10(7):671-684.
PubMed ID: 40409324

ABSTRACT

The Coaltion for Global Hepatitis Elimination's National Hepatitis Elimination Profiles assess the status of national data, policy, and programme development the elimination of viral hepatitis. Profiles from 33 countries and territories show progress, towards elimination of hepatitis B with 24 (73%) of them meeting the 2025 WHO interim target of 0·5% or less HBsAg prevalence in children younger than 5 years. 22 (67%) of countries and territories profiled have policies for universal hepatitis B birth-dose vaccination of newborns. Access to hepatitis B testing and treatment, including removing HBsAg screening and hepatitis B treatment patient co-payments and simplifying treatment algorithms, remains suboptimal, especially in low-income and middle-income countries and territories. Of the seven profiled countries and territories meeting the 60% WHO 2025 diagnosis coverage target, all but one (Rwanda) is a high-income country or territory. No country or territory has met the WHO 2025 treatment target of at least 50% of people living with hepatitis B receiving treatment. The profiles guide national planning and identify priorities for resource mobilisation to further accelerate hepatitis B elimination.

WEB: 10.1016/S2468-1253(25)00069-X
IMPACT FACTOR: 38.6
CITED HALF-LIFE: 3.7

START COMMENTARY

Hepatitis B vaccination can prevent vertical transmission from mother to child. The World Health Organization (WHO) has established a goal to eliminate vertical transmission by 2030, which requires countries and territories to have HBsAg prevalence of 0.1% or less among children ≤5 years old and 90% coverage of both hepatitis B birth-dose vaccine (HepB-BD) and the three dose hepatitis B vaccine series for infants for 2 consecutive years. To meet these goals by 2030, 2025 programmatic targets were established, including HepB-BD coverage of ≥70% and three-dose hepatitis B vaccine coverage of ≥90%. While progress toward these goals is being made in the 33 countries profiled, only 42% (n=14) have met the HepB-BD target and 30% have met the target for both HepB-BD and the three dose hepatitis B vaccine series.

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10. Estimated Current and Future Congenital Rubella Syndrome Incidence with and Without Rubella Vaccine Introduction - 19 Countries, 2019-2055.

Lebo E, Vynnycky E, Alexander J, Ferrari M, Winter A, Frey K, et al.

MMWR Morb Mortal Wkly Rep. 2025 May 22;74(18):305-311.
PubMed ID: 40402850

ABSTRACT

Rubella is a leading cause of vaccine-preventable birth defects. Rubella virus infection during early pregnancy can result in miscarriage, fetal death, stillbirth, or a constellation of birth defects known as congenital rubella syndrome (CRS). This report describes current and future estimated CRS incidence in countries that have not yet introduced rubella-containing vaccine (RCV) into their national childhood immunization schedules and the estimated effect of implementing a recent recommendation to introduce RCV into these programs even if population coverage with measles-containing vaccine is <80%. During 2000-2022, the number of countries that introduced RCV increased from 99 (52%) of 191 in 2000 to 175 (90%) of 194 in 2022. By the end of 2023, 19 lower- and middle-income countries had not yet introduced RCV. In 2019, an estimated 24,000 CRS cases occurred in these countries, representing 75% of the estimated 32,000 cases worldwide. In a modeling study estimating the effect of RCV introduction in these countries during 2025-2055, an estimated 1.03 million CRS cases are projected to occur without RCV. In contrast, fewer than 60,000 cases are estimated if RCV is introduced with catch-up and follow-up supplementary immunization activities, averting more than an estimated 986,000 CRS cases over 30 years. Based in part on these estimates, in September 2024, the World Health Organization Strategic Advisory Group of Experts on Immunization recommended removing the ≥80% coverage threshold and instituting universal RCV introduction in these countries. RCV introduction in these 19 countries during 2025-2030 could rapidly accelerate progress toward rubella and CRS elimination worldwide.

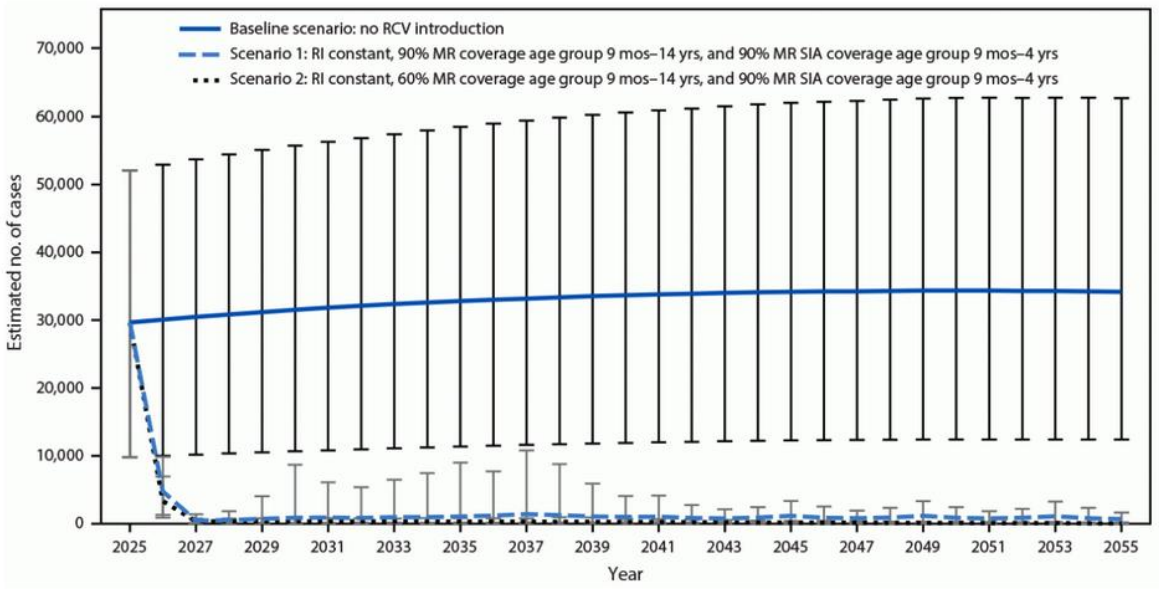
WEB: 10.15585/mmwr.mm7418a3
IMPACT FACTOR: 17.3
CITED HALF-LIFE: 4.4

START COMMENTARY

The figure below shows the estimated number of annual congenital rubella syndrome (CRS) cases under the baseline scenario with no rubella containing vaccine (RCV) introduction and two rubella vaccine introduction scenarios in the 19 countries that have not yet introduced RCV. In both vaccination scenarios, rubella vaccine is introduced in a combined measles and rubella-containing (MR) vaccine, and a catch-up MR supplementary immunization activity (SIAs) for children between 9 months and 14 years of age is conducted per World Health Organization recommendations, with MR

SIAs conducted every 4 years for children aged 9 months – 4 years. Routine immunization (RI) coverage is the mean of the 2018 and 2019 estimates for RI coverage in each country of the first dose of the measles-containing vaccine, and that RI estimate was held constant throughout the follow-up period while SIA coverage was either 60% or 90%. The number of CRS cases declined sharply between 2025 and 2027 in both scenarios and remained low throughout the follow-up period.

Figure: Estimated number of annual congenital rubella syndrome cases with rubella vaccine introduction and in the absence of rubella vaccine introduction – 19 countries, 2025-2055



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11. Clinical and Epidemiological Investigation of Vaccine-Derived Poliovirus Type 2 Outbreak in Pakistan During 2019-2021.

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Clin Infect Dis. 2025 Jul 06.

PubMed ID: 40396726

ABSTRACT

BACKGROUND: To mitigate the risk of circulating vaccine-derived poliovirus type 2 (cVDPV2) establishment and associated paralytic cases, oral polio vaccine 2 was globally withdrawn from the routine immunization schedule in 2016, soon after the certification of wild poliovirus type 2 eradication. We investigated the epidemiology of cVDPV2 outbreak and impact of type 2 immunization response in Pakistan to contain the transmission of poliovirus type 2 after trivalent to bivalent oral polio vaccine switch in 2016.

METHODS: Epidemiological, virological, and immunization data were assessed to ascertain the effectiveness of cVDPV2 outbreak response activities. A total of 35 724 paralytic cases and 2804 sewage wastewater samples collected between July 2019 and March 2022 were tested for cVDPV2 detection.

RESULTS: Circulating vaccine-derived poliovirus type 2 was identified in 0.5% (181/35 724) of paralytic cases and 11% (298/2804) of sewage wastewater samples. The cVDPV2 strains were grouped into 13 indigenous and 2 imported emergence groups. Fourteen vaccination rounds of oral poliovirus type 2 (monovalent oral polio vaccine/trivalent oral polio vaccine) and 5 rounds of inactivated poliovirus vaccine were conducted between September 2019 and December 2021, resulting in successful interruption of cVDPV2 transmission in ~2 years.

CONCLUSIONS: Our findings highlight the imperative need of optimal vaccination coverage during routine immunization to build up and sustain the immunity against poliovirus for successful eradication of endemic wild poliovirus type 1 and to prevent cVDPV2 emergence.

WEB: 10.1093/cid/ciaf151
IMPACT FACTOR: 7.3
CITED HALF-LIFE: 7.7

START COMMENTARY

Initial vaccine response to the 2019 outbreak of circulating vaccine-derived poliovirus type 2 (cVDPV2) began four months after the first case was detected and consisted of five rounds of monovalent oral poliovirus type 2 (mOPV2) vaccine campaigns in 34 districts between November

2019 and March 2020. High levels of vaccine coverage were reached (88%– 100%) that effectively addressed the outbreak within these districts, but transmission had spread beyond the targeted areas by the time the response was initiated. Ultimately, cVDPV2 spread to an additional 32 districts with cases in all 6 provinces of Pakistan. Slow initial response and interruption of vaccine campaigns due to the COVID-19 shutdown delayed control of the outbreak. While this report focused on the cVDPV2, Pakistan also experienced a wild poliovirus type 1 (WPV1) outbreak during the same time period, with similar incidences of paralysis (188 and 181 cases for cVDPV2 and WPV1, respectively) and comparable disease outcomes. This may have complicated vaccine response, as the type of vaccine used depends on the poliovirus strain causing the outbreak.

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Additional Articles of Interest

1 Human papillomavirus vaccine uptake and its determinants among women in Africa: an umbrella review. {Full Article}
2 Knowledge, attitudes, and practices of polio vaccination among mothers attending vaccination sites in Gaza during the conflict. {Full Article}
3 Reasons for excluding adverse events in cost-effectiveness analyses of vaccines: A survey amongst authors. {Full Article}
4 Malaria vaccine implementation in Nigeria: Addressing the coverage challenges within the national immunization program for high impact. {Full Article}
5 What are the key features of an equitable global vaccine strategy for the next pandemic? A qualitative study of pandemic control experts. {Full Article}
6 Seasonal variations in public perceptions of diphtheria in Northern Nigeria. {Full Article}
7 Resurgence of pertussis: Epidemiological trends, contributing factors, challenges, and recommendations for vaccination and surveillance. {Full Article}
8 Routine immunization status of nomadic children aged five years and below in Volta Region, Ghana in the post-COVID-19 pandemic era: a cross-sectional study. {Full Article}
9 Time series modelling and forecasting of mpox incidence and mortality in Nigeria. {Full Article}
10 Investigating the association between yellow fever vaccination and symptomatic acute Zika virus infection: a case-control study. {Full Article}
11 Determinants of routine immunization coverage among under-five children in Jigawa state, Nigeria. {Full Article}
12 Economic Evaluation of PHID-CV versus PCV10-SII Compared with no Vaccination in the Philippines. {Full Article}
13 Childhood vaccination catch-up and recovery plans for mitigating immunity gap post the COVID-19 pandemic: A case study of selected African countries. {Full Article}
14 Estimated effect of media use on mothers' vaccination of their children in Sub-Saharan Africa: a quasi-experimental propensity score matching analysis using DHS data. {Full Article}
15 Malaria vaccine acceptance and associated factors in Cameroon: A nationwide cross-sectional survey. {Full Article}
16 Prioritizing interventions to address healthcare worker barriers to reporting adverse events following immunization in Ghana. {Full Article}
17 Effective coverage of child immunisation service in Ethiopia. {Full Article}
18 Spatial distribution of effective coverage of child immunisation in Ethiopia. {Full Article}
19 Vaccination dropout and associated factors among children in Ethiopia: a systematic review and meta-analysis (2014-2024). {Full Article}

20 Vaccination delay and associated factors among children of age 12-23 months in Gomma district, Oromia, Ethiopia, 2022. {Full Article}
21 Development of a prediction rule for incomplete vaccination among children in Indonesia. {Full Article}
22 Assessment of effectiveness of health education bundle to overcome vaccine hesitancy in mothers: single blinded randomized study. {Full Article}
23 Knowledge, attitudes, and factors associated with vertical transmission of hepatitis B among pregnant women in Gurage Zone, Ethiopia. {Full Article}
24 BCG Vaccination Reprograms the Function of M-MDSCs and Aggravates Necrotizing Enterocolitis in Neonates. {Full Article}
25 Reflections on 50 years of immunisation programmes in the WHO African region: an impetus to build on the progress and address the unfinished immunisation business. {Full Article}
26 Estimating Hidden Cholera Burden and Intervention Effectiveness. {Full Article}
27 The Role of Adverse Event Follow-Up in Advancing the Knowledge of Medicines and Vaccines Safety: A Scoping Review. {Full Article}
28 Does timing of the Bacillus Calmette-Guérin vaccine affect weight in children under the age of 5 years? An observational study in Guinea-Bissau. {Full Article}
29 Predictors of incomplete childhood vaccination in four West African countries: a population based cross-sectional study. {Full Article}
30 Mapping the role of vaccines in combating AMR in the WHO African region: a scoping review and implications for research and policy. {Full Article}
31 Childhood vaccine hesitancy: The power of metaphors. {Full Article}

Appendix

The literature search for the July 2025 Vaccine Delivery Research Digest was conducted on June 23, 2025. We searched English language articles indexed by the US National Library of Medicine and published between May 15, 2025 and June 14, 2025. The search resulted in 493 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 2025/05/15:2025/06/14[Date - Publication]