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1. [Implementation and Delivery of Oral Cholera Vaccination Campaigns in Humanitarian Crisis Settings among Rohingya Myanmar nationals in Cox's Bazar, Bangladesh.](#)

Khan A, Islam M, Khan Z, Tanvir N, Amin M, Khan I, et al.

Vaccines (Basel). 2023 May 01;11(4).

PubMed ID: 37112756

ABSTRACT

BACKGROUND: Over 700,000 Myanmar nationals known as the 'Rohingyas' fled into Cox's Bazar, Bangladesh, in late 2017. Due to this huge displacement into unhygienic areas, these people became vulnerable to communicable diseases including cholera. Assessing the risk, the Government of Bangladesh (GoB), with the help of the International Centre for Diarrhoeal Disease Research, Bangladesh (ICDDR,B) and other international partners, decided to take preventive measures, one of which is the execution of oral cholera vaccination (OCV) campaigns. This paper describes the implementation and delivery of OCV campaigns during humanitarian crises in Bangladesh.

METHODS: Seven rounds of OCV campaigns were conducted between October 2017 and December 2021. The OCV campaigns were conducted by applying different strategies.

RESULTS: Approximately 900,000 Rohingya Myanmar nationals (RMNs) and the host population (amounting to 528,297) received OCV across seven campaigns. In total, 4,661,187 doses of OCVs were administered, which included 765,499 doses for RMNs, and 895,688 doses for the host community. The vaccine was well accepted, and as a result, a high level of coverage was achieved, ranging from 87% to 108% in different campaigns.

CONCLUSIONS: After successful pre-emptive campaigns in Cox's Bazar humanitarian camps, no cholera outbreaks were detected either in the RMN or host communities.

WEB: [10.3390/vaccines11040843](https://doi.org/10.3390/vaccines11040843)

IMPACT FACTOR: 4.086

CITED HALF-LIFE: 3.4

START COMMENTARY

In this review, *Khan et al* describe the implementation and delivery of oral cholera vaccination (OCV) campaigns within the context of the Rohingya Myanmar humanitarian crisis in Bangladesh. In total, seven rounds of OCV campaigns were conducted from 2017 to 2021 resulting in 4,661,187 doses of OCV to 900,000 Rohingya Myanmar nationals and over 500,000 Bangladeshi hosts. *Figure 1* shows the location of the various refugee camps and the population distribution. Strategies used during the campaigns to distribute the two doses of OCV included: fixed site strategy – mass campaign (first- and second-round), fixed site and mobile team approach (third-round), using a routine immunization platform (fourth-round), house-to-house strategy (fifth- and sixth-round), and finally, a camp-by-camp rolling approach strategy (seventh-round). *Table 1* summarizes the doses and target population of each OCV campaign round. All of these efforts resulted in no major outbreak detected in the Rohingya camps, showing cholera epidemics can be prevented through implementation of strategic OCV campaigns.

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2. [Achieving the IA2030 Coverage and Equity Goals through a Renewed Focus on Urban Immunization.](#)

Dadari I, Belt R, Iyengar A, Ray A, Hossain I, Ali D, et al.

Vaccines (Basel). 2023 May 01;11(4).

PubMed ID: 37112721

ABSTRACT

The 2021 WHO and UNICEF Estimates of National Immunization Coverage (WUENIC) reported approximately 25 million under-vaccinated children in 2021, out of which 18 million were zero-dose children who did not receive even the first dose of a diphtheria-tetanus-pertussis-(DPT) containing vaccine. The number of zero-dose children increased by six million between 2019, the pre-pandemic year, and 2021. A total of 20 countries with the highest number of zero-dose children and home to over 75% of these children in 2021 were prioritized for this review. Several of these countries have substantial urbanization with accompanying challenges. This review paper summarizes routine immunization backsliding following the COVID-19 pandemic and predictors of coverage and identifies pro-equity strategies in urban and peri-urban settings through a systematic search of the published literature. Two databases, PubMed and Web of Science, were exhaustively searched using search terms and synonyms, resulting in 608 identified peer-reviewed papers. Based on the inclusion criteria, 15 papers were included in the final review. The inclusion criteria included papers published between March 2020 and January 2023 and references to urban settings and COVID-19 in the papers. Several studies clearly documented a backsliding of coverage in urban and peri-urban settings, with some predictors or challenges to optimum coverage as well as some pro-equity strategies deployed or recommended in these studies. This emphasizes the need to focus on context-specific routine immunization catch-up and recovery strategies to suit the peculiarities of urban areas to get countries back on track toward achieving the targets of the IA2030. While more evidence is needed around the impact of the pandemic in urban areas, utilizing tools and platforms created to support advancing the equity agenda is pivotal. We posit that a renewed focus on urban immunization is critical if we are to achieve the IA2030 targets.

WEB: [10.3390/vaccines11040809](https://doi.org/10.3390/vaccines11040809)

IMPACT FACTOR: 4.086

CITED HALF-LIFE: 3.4

START COMMENTARY

In this review, *Dadari et al* summarizes the decline in routine immunization coverage following the COVID-19 pandemic. Authors focused on 20 countries, which are home to approximately 75% of the world's zero-dose children (defined as never receiving the first dose of a diphtheria-tetanus-

pertussis-(DPT) vaccine). The review focused on the impact of routine immunization coverage in urban and peri-urban areas, as it was previously estimated that 30% of zero-dose children are concentrated in urban and peri-urban areas. Findings show evidence of backsliding and disruption across the globe in urban and peri-urban contexts; major urbanized countries from around the world (Brazil, Pakistan, Ethiopia, India, and Cameroon), show immunization performance disruption in multiple contexts and across multiple vaccines. The results highlight several potential target areas to increase coverage; most importantly it was found that pro-equity strategies need to be tailored to be context specific. As noted by the authors, one limitation of this review is its generalizability; only 15 papers met eligibility criteria after screening, so some of the 20 targeted countries were not represented.

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3. [Lessons Learned and Future Perspectives for Rotavirus Vaccines Switch in the World Health Organization, Regional Office for Africa.](#)

Mandomando I, Messa A, Biey J, Paluku G, Mumba M, Mwenda J.

Vaccines (Basel). 2023 May 01;11(4).

PubMed ID: 37112700

ABSTRACT

BACKGROUND: Following the World Health Organization (WHO) recommendation, 38/47 countries have introduced rotavirus vaccines into the program of immunization in the WHO Regional Office for Africa (WHO/AFRO). Initially, two vaccines (Rotarix and Rotateq) were recommended and recently two additional vaccines (Rotavac and Rotasiil) have become available. However, the global supply challenges have increasingly forced some countries in Africa to switch vaccine products. Therefore, the recent WHO pre-qualified vaccines (Rotavac, Rotasiil) manufactured in India, offer alternatives and reduce global supply challenges related to rotavirus vaccines; **Methods:** Using a questionnaire, we administered to the Program Managers, Expanded Program for Immunization, we collected data on vaccine introduction and vaccine switch and the key drivers of the decisions for switching vaccines products, in the WHO/AFRO. Data was also collected from literature review and the global new vaccine introduction status data base maintained by WHO and other agencies.

RESULTS: Of the 38 countries that introduced the vaccine, 35 (92%) initially adopted Rotateq or Rotarix; and 23% (8/35) switched between products after rotavirus vaccine introduction to either Rotavac (n = 3), Rotasiil (n = 2) or Rotarix (n = 3). Three countries (Benin, Democratic Republic of Congo and Nigeria) introduced the rotavirus vaccines manufactured in India. The decision to either introduce or switch to the Indian vaccines was predominately driven by global supply challenges or supply shortage. The withdrawal of Rotateq from the African market, or cost-saving for countries that graduated or in transition from Gavi support was another reason to switch the vaccine; **Conclusions:** The recently WHO pre-qualified vaccines have offered the countries, opportunities to adopt these cost-effective products, particularly for countries that have graduated or transitioning from full Gavi support, to sustain the demand of vaccines products.

WEB: [10.3390/vaccines11040788](https://doi.org/10.3390/vaccines11040788)

IMPACT FACTOR: 4.086

CITED HALF-LIFE: 3.4

START COMMENTARY

Mandomando et al aimed to elucidate decision making regarding the use of rotavirus vaccines in countries participating in the African Rotavirus Surveillance Network through qualitative questionnaires and literature review. Overall, 80% of countries in the WHO Africa region (38/47) had introduced rotavirus vaccines in their national immunization programs as of October 2022. Two vaccines were initially recommended by WHO (Rotarix and Rotateq). Recently two additional rotavirus vaccines have gained approval (Rotavac and Rotasiil); both are Indian-manufactured and may help reduce global supply challenges. Three countries (Benin, Democratic Republic of Congo, and Nigeria) introduced one of the recently approved vaccines, 28 countries have kept their initially introduced vaccine (Rotarix or Rotateq), and eight countries switched their initially adopted vaccine. *Table 2* presents countries that have switched rotavirus vaccines and drivers behind this decision. 6/8 countries (Burkina Faso, Cote d'Ivoire, the Gambia, Mali, Rwanda, Sao Tome e Principe) cited *Challenges with supply after Rotateq was removed from GAVI market* and *Challenges in cold chain* as the motivation for their switch. *Cost factors associated with graduation from GAVI support* and *Supply shortages* were cited as the primary reason for switching from Ghana and The Gambia, United Republic of Tanzania, respectively. Rotateq was withdrawn and no longer in use in the African region by early 2020. It is worth noting that two countries switched from Rotateq to Rotarix in 2017, prior to the approval of the Indian-manufactured vaccines. Additionally, five countries (Kenya, Senegal, Tanzania, Zambia and Zimbabwe) were informed by GAVI to switch from Rotarix to Indian-manufactured Rotavac or Rotasiil, due to supply constraints. Overall, the approval of Rotavac and Rotasiil provided more opportunities to adopt rotavirus vaccines and maintain a sustainable supply of vaccines.

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4. [Vaccine co-administration in adults: An effective way to improve vaccination coverage.](#)

Bonanni P, Steffen R, Schelling J, Balaisyte-Jazone L, Posiuniene I, Zatoński M, et al.

Hum Vaccin Immunother. 2023 May 03;19(1):2195786.

PubMed ID: 37039318

ABSTRACT

The ongoing COVID-19 pandemic highlights that complications and mortality associated with infectious diseases increase with age. Various vaccines are recommended for adults, but coverage rates remain suboptimal. Although co-administration would improve vaccine uptake and timely immunization, this is not routine practice in adults. We review key data on co-administration of vaccines in children and adults to reassure healthcare providers about its safety and advantages. In European countries and the United States, combined tetanus, diphtheria, and acellular pertussis boosters as well as meningococcal and human papillomavirus vaccines are recommended for healthy adolescents and adults of certain ages. Vaccination against influenza (annually), pneumococcal disease, and herpes zoster is recommended for older adults and specific risk groups. While co-administration is well established in children, it is less common in adults. Travelers can also receive multiple co-administered vaccines. Pediatric and travel vaccine co-administration has a well-established positive benefit-risk profile and is an efficient and cost-saving strategy to improve coverage. Healthcare providers could more often recommend and practice vaccine co-administration; this would not risk patient safety and health, would improve protection against vaccine-preventable diseases, and would help comply with national vaccination calendars. Recommending bodies may consider revising vaccination schedules to reduce the number of visits.

WEB: [10.1080/21645515.2023.2195786](https://doi.org/10.1080/21645515.2023.2195786)

IMPACT FACTOR: 2.619

CITED HALF-LIFE: 3.9

START COMMENTARY

In this literature review, *Bonanni et al* explore safety, on-time administration, and coverage implications of co-administration of vaccines in adults. Vaccinations considered in this review include those for particular risk groups (vaccinations against influenza, pneumococcal disease, and herpes zoster), routine boosters (tetanus, diphtheria, and acellular pertussis), young adults (meningococcal and human papillomavirus vaccines), and travelers (yellow fever, meningococcal disease, poliomyelitis, hepatitis B and/or A, rabies, typhoid fever, etc.). Authors argue that vaccines should be co-administered unless there are existing contraindications or scientific evidence to discourage simultaneous administration. *Table 1* shows the three contraindications specified by the Advisory

Committee on Immunization Practices (ACIP) in the United States. The benefits of co-administration of routine adult vaccinations are easy to understand, however, concrete data on adverse events associated with vaccines administered concomitantly or in series, as well as specific cost-benefits would strengthen the argument. Ultimately, revision of vaccination schedules in adults should be considered to reduce number of visits, improve coverage, and save resources, but additional research is needed.

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5. [Perception and awareness towards malaria vaccine policy implementation in Nigeria by health policy actors.](#)

Nnaji A, Ozdal M.

Malar J. 2023 Mar 31;22(1):111.

PubMed ID: 36991411

ABSTRACT

BACKGROUND: This study aimed to assess the perception and awareness of malaria vaccine policy implementation among health policy actors in Nigeria.

METHODS: A descriptive study was conducted to assess the opinions and perceptions of policy actors on the implementation of a vaccination programme against malaria in Nigeria. Descriptive statistics were carried out to study the characteristics of the population and the univariate analysis of the responses to questions presented to the participants. Multinomial logistic regression was conducted to evaluate the association between demographic characteristics and the responses.

RESULTS: The study revealed that malaria vaccine awareness was poor, with only 48.9% of the policy actors having previous knowledge of the malaria vaccine. The majority of participants (67.8%) declared that they were aware of the importance of vaccine policy in efforts to manage disease transmission. As the number of years of work experience of the participants increased, the odds of being more likely to be aware of the malaria vaccine increased [OR 2.491 (1.183-5.250), p value < 0.05].

CONCLUSION: It is recommended that policy-makers develop methods of educating populations, increase awareness of the acceptability of the vaccine and ensure that an affordable malaria vaccine programme is implemented in the population.

WEB: [10.1186/s12936-023-04536-z](https://doi.org/10.1186/s12936-023-04536-z)

IMPACT FACTOR: 2.631

CITED HALF-LIFE: 5.6

START COMMENTARY

In this descriptive study, *Nnaji and Ozdal* assess the perceptions of officials on the implementation of the malaria vaccination program in Nigeria which accounts for for 25% of global malaria cases. The implementation of a malaria vaccination program in Nigeria presents a great opportunity to reduce malaria burden globally. *Table 3* shows a positive perception among malaria policy actors surrounding the vaccine in reducing hospital admissions (65% strongly agree, 34% agree), and reducing money spent on recurring treatment (45% strongly agree, 40% agree). Authors found that

65% of malaria policy actors agreed the current malaria treatment measures were not sufficient (*Table 4*), and the overwhelming majority believes the populace would be accepting of the vaccine (70% strongly agree, 25.6% agree, *Table 5*). Though awareness of the malaria vaccine among policy actors is low, the perception of its potential impact and acceptance from the general population appear to be positive. This article highlights the need for a commitment to implementation of a malaria vaccine by the Nigerian policymakers and government. Future research should be expanded to include perceptions from the general population in Nigeria, in particular, honing in on individual cost-limits for seeking the vaccine.

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6. [Pneumococcal Vaccination in Children: A Systematic Review and Meta-Analysis of Cost-Effectiveness Studies.](#)

Syeed M, Ghule P, Le L, Veettil S, Horn E, Perdrizet J, et al.

Value Health. 2023 Apr 04;26(4):598-611.

PubMed ID: 36328324

ABSTRACT

OBJECTIVES: Pneumococcal conjugate vaccines (PCVs) have significantly reduced disease burden caused by *Streptococcus pneumoniae*, a leading cause of childhood morbidity and mortality globally. This systematic review and meta-analysis aimed to assess the incremental net benefit (INB) of the 13-valent PCV (PCV13) and 10-valent PCV (PCV10) in children.

METHODS: We performed a comprehensive search in several databases published before May 2022. Studies were included if they were cost-effectiveness or cost-utility analyses of PCV13 or PCV10 compared with no vaccination or with each other in children. Various monetary units were converted to purchasing power parity, adjusted to 2021 US dollars. The INBs were calculated and then pooled across studies stratified by country income level, perspective, and consideration of herd effects, using a random-effect model.

RESULTS: Seventy studies were included. When herd effects were considered, PCV13 was cost-effective compared with PCV10 from the payer perspective in both high-income countries (HICs) (INB, \$103.94; 95% confidence interval, \$75.28-\$132.60) and low- and middle-income countries (LMICs) (INB, \$53.49; 95% confidence interval, \$30.42-\$76.55) with statistical significance. These findings were robust across a series of sensitivity analyses. PCV13 was cost-effective compared with no vaccination across perspectives and consideration of herd effects in both HICs and LMICs, whereas findings were less consistent for PCV10.

CONCLUSION: PCVs were generally cost-effective compared with no vaccination in HICs and LMICs. Our study found that PCV13 was cost-effective compared with PCV10 when herd effects were considered from the payer perspective in both HICs and LMICs. The results are sensitive to the consideration of herd effects.

WEB: [10.1016/j.jval.2022.10.006](https://doi.org/10.1016/j.jval.2022.10.006)

IMPACT FACTOR: 5.156

CITED HALF-LIFE: 7.3

START COMMENTARY

In this systematic review, *Syeed et al* assess the incremental net benefit (INB) of the 13-valent Pneumococcal conjugate vaccine (PCV13) and 10-valent Pneumococcal conjugate vaccine (PCV10) in children. The primary outcome was INB of PVC10 and PCV13 vaccination in children compared with each other or with no vaccination. *Table 1* summarizes the study characteristics of the 70 included studies (n = 48 from databases and registers; n = 22 from other methods). *Table 2* displays the pooled INB across the studies, with information reported by country income (High Income Country, HIC; Low Income Country, LIC), comparator groups (PCV10 v PCV13 v no vaccination), perspective (societal v payer) of cost-effectiveness analysis (CEA), and if herd effects were included. Though significant heterogeneity was found, results demonstrate that PCV13 is cost-effective compared with PCV10, with herd effects included. Generally, compared with no vaccination, PCV10 and PCV13 were found to be cost-effective from both a societal and payer perspective. Though generalizability of these results should be interpreted with caution, results from this paper are beneficial for decision-makers, particularly in countries where context-specific cost-effectiveness analyses are not available.

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7. [Digital vaccine passports and digital health diplomacy: an online model WHO simulation.](#)

Godinho M, Liaw S, Kanjo C, Marin H, Martins H, Quintana Y.

J Am Med Inform Assoc. 2023 Mar 20;30(4):712-717.

PubMed ID: 35866622

ABSTRACT

In the wake of Coronavirus disease 2019 (COVID-19), several nations have sought to implement digital vaccine passports (DVPs) to enable the resumption of international travel. Comprising a minimum dataset for each unique individual, DVPs have the makings of a global electronic health record, broaching key issues involved in building a global digital health ecosystem. Debate simulations offer a safe, interactive space to foster participatory policy discussions for advancing digital health diplomacy. This study used an online simulation of a Model World Health Assembly to critically analyze the sociotechnical issues associated with the global implementation of DVPs, and to generate useful insights and questions about the role of diplomacy in global digital health. The debate arguments addressed and provided insights into the technological, scientific, ethical, legal, policy, and societal aspects of DVPs. Reflecting on the simulation, we discuss its opportunities and challenges for the digitalization, decolonization, decentralization, and democratization of participatory policymaking.

WEB: [10.1093/jamia/ocac126](https://doi.org/10.1093/jamia/ocac126)

IMPACT FACTOR: 7.942

CITED HALF-LIFE: 5.9

START COMMENTARY

In this case report, *Godinho et al* discuss the potential implications and necessary considerations with global implementation of a digital vaccine passport (DVP). Reporting on a simulated online debate of a Model World Health Assembly, authors includes perspectives from six participants with expertise in law, development studies, medicine, and dentistry from Australia, Indonesia, the Philippines, and the United States. *Table 1* summarizes the key considerations presented in the policy brief, categorized into the following themes: technological considerations, ethical considerations, legal considerations, scientific considerations, and public policy & societal concerns. Though this scenario did not result in policy change, it provides a demonstration of how health diplomacy can function in an online environment, and brought to light necessary considerations for future real-life debates surrounding digitalization, decolonization, decentralization and

democratization of these efforts. Authors note there is a loss of interpersonal in-person communication with online debates that is not likely to be solved in real-world diplomatic processes, but a massive positive to this format is the increased opportunity for equity and cost-savings.

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8. [Review of use of inactivated poliovirus vaccine in campaigns to control type 2 circulating vaccine derived poliovirus \(cVDPV\) outbreaks.](#)

Estivariz C, Kovacs S, Mach O.

Vaccine. 2023 Apr 03;41 Suppl 1:A113-A121.

PubMed ID: 35365341

ABSTRACT

Delivering inactivated poliovirus vaccine (IPV) with oral poliovirus vaccine (OPV) in campaigns has been explored to accelerate the control of type 2 circulating vaccine-derived poliovirus (cVDPV) outbreaks. A review of scientific literature suggests that among populations with high prevalence of OPV failure, a booster with IPV after at least two doses of OPV may close remaining humoral and mucosal immunity gaps more effectively than an additional dose of trivalent OPV. However, IPV alone demonstrates minimal advantage on humoral immunity compared with monovalent and bivalent OPV, and cannot provide the intestinal immunity that prevents infection and spread to those individuals not previously exposed to live poliovirus of the same serotype (i.e. type 2 for children born after the switch from trivalent to bivalent OPV in April 2016). A review of operational data from polio campaigns shows that addition of IPV increases the cost and logistic complexity of campaigns. As a result, campaigns in response to an outbreak often target small areas. Large campaigns require a delay to ensure logistics are in place for IPV delivery, and may need implementation in phases that last several weeks. Challenges to delivery of injectable vaccines through house-to-house visits also increases the risk of missing the children who are more likely to benefit from IPV: those with difficult access to routine immunization and other health services. Based upon this information, the Strategic Advisory Group of Experts in immunization (SAGE) recommended in October 2020 the following strategies: provision of a second dose of IPV in routine immunization to reduce the risk and number of paralytic cases in countries at risk of importation or new emergences; and use of type 2 OPV in high-quality campaigns to interrupt transmission and avoid seeding new type 2 cVDPV outbreaks.

WEB: [10.1016/j.vaccine.2022.03.027](https://doi.org/10.1016/j.vaccine.2022.03.027)

IMPACT FACTOR: 4.169

CITED HALF-LIFE: 7.3

START COMMENTARY

In this review, *Estivariz et al* summarize current data on use of oral poliovirus vaccine (OPV) and inactivated poliovirus vaccine (IPV) to address circulating vaccine-derived poliovirus (cVDPV) outbreaks. Authors consider the possibility of combined deployment of OPV and IPV in outbreak settings, but ultimately agree with the Strategic Advisory Group of Experts in immunization (SAGE)

and do not recommend implementing supplementary doses of IPV in combination with OPV during cVDPV type 2 outbreaks. *Table 1* shows the seroconversion and antibody titers after routine immunization with OPV-IPV in sequence, while *Table 2* shows the seroprevalence and antibody titers before and after booster doses with either OPV or IPV. Authors considered both humoral and mucosal immunity implications of OPV and IPV but highlight that results on IPV booster doses reported before May 2021 may be limited in their applicability as children under 5 years old were not exposed to OPV type 2 vaccines. For IPV to impact intestinal mucosal immunity, it should be provided after one or more rounds of type 2-containing OPV. These results are very informative, but it remains to be seen how the introduction of the novel OPV type 2 (nOPV2) vaccine impacts recommendations from authors.

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9. [The immediate impact of the COVID-19 pandemic on polio immunization and surveillance activities.](#)

Burkholder B, Wadood Z, Kassem A, Ehrhardt D, Zomahoun D.

Vaccine. 2023 Apr 03;41 Suppl 1:A2-A11.

PubMed ID: 34756614

ABSTRACT

In addition to affecting individual health the COVID-19 pandemic has disrupted efforts to deliver essential health services around the world. In this article we present an overview of the immediate programmatic and epidemiologic impact of the pandemic on polio eradication as well as the adaptive strategic and operational measures taken by the Global Polio Eradication Initiative (GPEI) from March through September 2020. Shortly after the World Health Organization (WHO) declared a global pandemic on 11 March 2020, the GPEI initially redirected the programme's assets to tackle COVID-19 and suspended house-to-house supplementary immunization activities (SIAs) while also striving to continue essential poliovirus surveillance functions. From March to May 2020, 28 countries suspended a total of 62 polio vaccine SIAs. In spite of efforts to continue poliovirus surveillance, global acute flaccid paralysis (AFP) cases reported from January-July 2020 declined by 34% compared with the same period in 2019 along with decreases in the mean number of environment samples collected per active site in the critical areas of the African and Eastern Mediterranean regions. The GPEI recommended countries should resume planning and implementation of SIAs starting in July 2020 and released guidelines to ensure these could be done safely for front line workers and communities. By the end of September 2020, a total of 14 countries had implemented circulating vaccine-derived poliovirus type 2 (cVDPV2) outbreak response vaccination campaigns and Afghanistan and Pakistan restarted SIAs to stop ongoing wild poliovirus type 1 (WPV1) transmission. The longer-term impacts of disruptions to eradication efforts remain to

be determined, especially in terms of the effect on poliovirus epidemiology. Adapting to the pandemic situation has imposed new considerations on program implementation and demonstrated not only GPEI's contribution to global health security, but also identified potential opportunities for coordinated approaches across immunization and health services.

WEB: [10.1016/j.vaccine.2021.10.028](https://doi.org/10.1016/j.vaccine.2021.10.028)

IMPACT FACTOR: 4.169

CITED HALF-LIFE: 7.3

START COMMENTARY

In this editorial report, *Burkholder et al* provide insight into the programmatic and epidemiologic impact of the COVID-19 pandemic on polio eradication efforts. Authors categorize the months covered by this report into three distinct phases: Emergency Phase (March – June 2020), Resumption Phase (July – September 2020), and Para-pandemic Phase (October 2020 – September 2021 and beyond). *Figure 6* summarizes the priority programmatic activities associated with each phase, focusing on supplementary immunization activities (SIAs), surveillance, and strategy. The Emergency Phase specifically included the initial Global Polio Eradication Initiative (GPEI) response, initial programmatic impact, surveillance efforts, and impact on SIAs. The Resumption Phase includes details on mitigation and response, specifically surrounding strategic guidance and coordination, enhancing polio surveillance, polio vaccine delivery, and SIA statuses. Lastly, the para-pandemic phase details continued challenges with catchup and expansion of immunization activities, integrating polio vaccination and surveillance activities, and revisions to medium- and long-term strategies. Though this report provides a comprehensive review of the polio eradication efforts and the impact of the COVID-19 pandemic, the authors would have benefited from a stricter definition of the Para-pandemic Phase, given the paper was last updated in late 2021. Certainly country strategy and need have evolved since late 2021; truncating the Para-pandemic Phase would have provided authors with an opportunity to update their findings.

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10. [Real-time prediction model of cVDPV2 outbreaks to aid outbreak response vaccination strategies.](#)

Voorman A, O'Reilly K, Lyons H, Goel A, Touray K, Okiror S.

Vaccine. 2023 Apr 03;41 Suppl 1(Suppl 1):A105-A112.

PubMed ID: 34483024

ABSTRACT

BACKGROUND: Circulating vaccine-derived poliovirus outbreaks are spreading more widely than anticipated, which has generated a crisis for the global polio eradication initiative. Effectively responding with vaccination activities requires a rapid risk assessment. This assessment is made difficult by the low case-to-infection ratio of type 2 poliovirus, variable transmissibility, changing population immunity, surveillance delays, and limited vaccine supply from the global stockpile. The geographical extent of responses have been highly variable between countries.

METHODS: We develop a statistical spatio-temporal model of short-term, district-level poliovirus spread that incorporates known risk factors, including historical wild poliovirus transmission risk, routine immunization coverage, population immunity, and exposure to the outbreak virus.

RESULTS: We find that proximity to recent cVDPV2 cases is the strongest risk factor for spread of an outbreak, and find significant associations between population immunity, historical risk, routine immunization, and environmental surveillance ($p < 0.05$). We examine the fit of the model to type 2 vaccine derived poliovirus spread since 2016 and find that our model predicts the location of cVDPV2 cases well (AUC = 0.96). We demonstrate use of the model to estimate appropriate scope of outbreak response activities to current outbreaks.

CONCLUSION: As type 2 immunity continues to decline following the cessation of tOPV in 2016, outbreak responses to new cVDPV2 detections will need to be faster and larger in scope. We provide a framework that can be used to support decisions on the appropriate size of a vaccination response when new detections are identified. While the model does not account for all relevant local factors that must be considered in the overall vaccination response, it enables a quantitative basis for outbreak response size.

WEB: [10.1016/j.vaccine.2021.08.064](https://doi.org/10.1016/j.vaccine.2021.08.064)

IMPACT FACTOR: 4.169

CITED HALF-LIFE: 7.3

START COMMENTARY

In this infectious disease modelling study, *Khan et al* develop a spatio-temporal model of spread to improve response to circulating vaccine-derived poliovirus type 2 (cVDPV2) outbreaks. Further transmission of cVDPV2 is prevented through the administration of the monovalent oral polio vaccine type 2 (mOPV2). However mOPV2 eventually mutates to cause new events of cVDPV2 outbreaks. As such, population-level vaccine administration must be appropriately-sized so as to not put the population at excessive risk of a new cVDPV2 outbreak, while also providing coverage for the existing outbreak. The novel oral polio vaccine type 2 (nOPV2), introduced in November 2020, addresses this issue, but is restricted to use in emergency contexts.

Figure 1 shows the spatial distribution of variables used to estimate cVDPV2 risk: Wild Poliovirus (WPV) risk score, diphtheria tetanus toxoid and pertussis (DTP3), estimated type 2 immunity, and exposure. Authors found immunity to type 2 poliovirus was restricted to areas where mOPV2 immunization activities have been recently implemented. Overall, factors influencing risk of cVDPV2 outbreak vary widely by geography, with weak routine immunization and high risk of WPV and high localized immunity. Authors found a significant association with exposure to cVDPV2, high WPV risk, increased susceptibility, and the existence of environmental surveillance sites. While this model is a useful tool to predict polio outbreak spread, the model includes variables that may be correlated with cVDPV2 outbreak but does not establish causal interpretation and relies on clinical surveillance.

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Appendix

The literature search for the [MONTH] 2023 Vaccine Delivery Research Digest was conducted on April 30, 2023. We searched English language articles indexed by the US National Library of Medicine and published between April 15, 2023 and May 14, 2023. The search resulted in [534] items.

SEARCH TERMS

(((((vaccine[tiab] OR vaccines[tiab] OR vaccination[tiab] OR immunization[tiab] OR immunisation[tiab] OR vaccine[mesh] OR immunization[mesh]) 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])) 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[LA]) (“2023/15/4”[PDAT] : “2023/14/5”[PDAT]))