Technical Brief

Public Health Campaign Integration: Lessons Learned from 30 Years of Polio Campaigns in Ethiopia, India, and Nigeria

Abigail Neel,[*] Svea Closser,[*] Catherine Villanueva,[*] Daniel Krugman,[†] Anna Kalbarczyk,[*] Eme Owoaje,[‡] Wakgari Deressa,[§] Piyusha Majumdar,[#] Olakunle Alonge[*]

KEY MESSAGES

- Co-delivery and collaboration of campaigns are powerful tools for increasing coverage of health services and improving community acceptance of campaigns. The impact of integrated campaigns on broader health system and population health outcomes is less clear.
- A range of health interventions were successfully integrated with mass polio campaigns in Ethiopia, India, and Nigeria, including provision of vitamin A for child malnutrition, provision of de-worming tablets for helminthiasis, and distribution of insecticide-treated nets (ITNs) for malaria
- Surveillance of diseases targeted by campaigns can be successfully integrated with broader disease surveillance
- Campaign implementation is shaped by the local context, especially by the influence of frontline health workers. Campaigns interact on the ground regardless of planned collaboration and co-delivery. *Planning for integration*, with consideration of workflows of frontline health workers, could maximize positive impacts of campaigns.
- Suggestions from policymakers in Ethiopia, India, and Nigeria on ways to improve planning and implementation of co-delivery and collaboration of campaigns include
    - Investing in long-term contracts and coordinated training for campaign workers
    - Using co-delivery and collaboration to reach hard-to-reach populations
    - Engaging in coordinated social mobilization across health programs
- Co-delivery and collaboration plans should avoid creating parallel structures
- The following questions should be considered when planning for and implementing coordinated and/or co-delivered health campaigns:
    - How can co-delivery or collaboration help to improve the efficiency (cost and quality of delivery) and effectiveness of these programs?
    - What are the critical needs of target communities? Can co-delivery or collaboration help address any of these needs?
    - Is the workflow across all campaigns well integrated and streamlined for frontline staff?
    - Are campaigns pulling human or other resources from the health system, and if so how might co-delivery and collaboration serve to minimize negative health system impacts?
    - Does integration exacerbate long-term health-system dependence on campaign funding and resources? What is the plan for transition, if needed?

[*]Johns Hopkins Bloomberg School of Public Health, Baltimore, MD, USA; [†]Middlebury College, Middlebury, VT, USA; [‡]University of Ibadan College of Medicine, Ibadan, Nigeria; [§]Addis Ababa University School of Public Health, Addis Ababa, Ethiopia; [#]Indian Institute of Health Management Research, Jaipur, India

Introduction

Campaigns are focused activities designed to deliver a specific health product that addresses a particular health problem and/or public health challenge. Campaigns can lead to quick and cost-effective gains for the health problem or challenges that they target.

They are also a controversial strategy because they are often set up in parallel to routine health service delivery systems and can pose the potential for interference, including with the provision of integrated primary health care. Thus, understanding how and which campaigns can best be integrated with each other, and with broader health system functions, is an important goal.

Polio eradication has the most experience with campaigns of any initiative in the world: over the past 30 years, campaigns in most of the world's countries have delivered well over 20 billion doses of oral polio vaccine (OPV). Some polio campaigns have been used as a platform to deliver other products and health interventions; others have been entirely standalone. The degree to which polio-related activities— including surveillance, cold chain, and social mobilization—have been integrated into the broader health system has also varied considerably by setting.

Our aim is to use polio's rich experience to improve population health by providing lessons learned to inform future research around campaign effectiveness and efforts to align mass campaigns with routine health services delivery. The COVID-19

pandemic is a particularly opportune moment to explore how campaigns could best be integrated across programs. In the short term, efforts to control COVID-19 have interrupted campaigns across the world, while in the long term controlling COVID-19 may require extensive vaccination campaigns once vaccines are available. This brief focuses on best practices and lessons learned on co-delivery and collaboration of campaigns from polio programs in Ethiopia, India, and Nigeria—countries that have had a range of experiences with polio campaigns over the past 30 years.

KEY DEFINITIONS+

Co-delivery of campaigns: Full integration of most or all campaign components (e.g., planning, implementation, evaluation) to enable simultaneous delivery of two or more health interventions (targeting different health problems) at the point-of-service delivery.

Collaboration of campaigns: Partial integration of specific campaign components between vertical health programs (targeting different health problems) to improve efficiency and effectiveness of the vertical programs, but without co-delivery of interventions at the same service delivery points.

+Adapted from definitions developed by the Health Campaign Effectiveness Coalition (1)

Methods

In gathering our information, we drew primarily from key informant interviews conducted with individuals involved in polio eradication activities at the frontline, sub-national, and national levels as part of two studies: *Impact of the Global Polio Eradication Initiative on Routine Immunization and Primary Health Care (2011-2012)* (2), and *Synthesis and Translation of Research and Innovations from Polio Eradication (STRIPE) (2018-2019)* (3). We also reviewed relevant literature on campaigns in each country from 1988-2019, which are captured in a scoping review completed as part of the STRIPE project.

Summary of Findings

Polio Campaign Delivery Approaches: Current Evidence and Lessons Learned

Co-delivery and collaboration of campaigns are powerful tools for increasing coverage (the proportion of population with access) of relevant health products and improving community acceptance of campaigns

Impact on coverage of interventions

- Implementation resources, strategies, and **tools developed for one campaign can be used to improve coverage of other health interventions to address specific health problems**. For example, enumeration data and community maps developed for polio campaigns were helpful in planning other campaigns (e.g., malaria campaigns in Nigeria). Cold chain and laboratory facilities for polio were used to support other vaccine-preventable diseases and to respond to Ebola in Nigeria (4-6). (See Appendix I).

- This impact is optimized when implementation strategies and tools are used to support routine health services. For example, *Mission Indra Dhanush* (a government program launched in 2014 to increase routine immunization coverage in high-risk districts in India) adopted polio's intensified monitoring approach, including conducting regular review meetings, to improve coverage of routine immunization services.

- Co-delivery is the most direct way of improving coverage of other interventions. Vitamin A and ITNs, for example, have been successfully co-delivered during door-to-door polio campaigns. The polio experience demonstrated that co-delivery can improve coverage of health services in hard-to-reach communities that may not receive regular health services.

Impact on acceptability of campaigns

- **Co-delivery improved community acceptability of campaigns** by better aligning services offered during campaigns with community priorities. For example, Nigeria's Immunization Plus Days (IPDs) improved community acceptance of polio campaigns (1,7,8) (See Box). In pastoralist communities in Ethiopia (and elsewhere in East Africa [9, 10]), integrating polio campaigns with veterinary services improved community acceptance. Conversely, singular focus on vertical programs can reduce community trust and negatively impact health outcomes (11, 12).

- **Co-delivery can improve frontline worker satisfaction with campaign work** by allowing workers to provide a broader range of services. In

> **Box. Co-delivery in Nigeria through Immunization Plus Days (IPDs)**
> Prior to 2006, Nigeria's National Immunization Days co-delivered OPV and vitamin A to children under age 5 years, yet many parents in under-served communities remained frustrated they were receiving limited interventions and did not have access to broader health services. This contributed to mistrust of polio vaccine in many areas.
>
> **IPDs were developed to use polio infrastructure to provide much-needed child survival interventions and to strengthen routine immunization.** House-to-house teams delivered OPV and vitamin A, while special teams of vaccinators reached children in popular community spaces like markets and schools. At the same time, other routine vaccinations and interventions including ITNs, soap, de-worming, and birth registration were provided at fixed sites within the community. Educational activities were also conducted at the fixed sites. As part of IPDs, traditional and local leaders were engaged in micro-planning and education activities.
>
> The rollout of IPDs led to increased acceptance of polio vaccine and to decreased incidence of polio. While they are not a substitute for a quality health system and their sustainability remains to be seen, IPDs have been used over the past 15 years in Nigeria as a platform for an increasing number of maternal and child health interventions, including outbreak control.

parts of India and Nigeria, workers who delivered only OPV in repeated polio campaigns questioned why so much of their working time was devoted to just one disease that was not a community priority.

Impact on program cost and population health outcomes

- There is a paucity of information, both in our interviews and in the literature, on the impact of co-delivery and collaboration of polio campaigns with other campaigns on program cost and population health outcomes (e.g., mortality and morbidity).

Co-delivery and collaboration will happen on the ground, whether or not they are planned

Campaigns are commonly delivered by community or frontline health care workers. Often, they are responsible not just for a single campaign, but for implementation of a variety of vertical programs. **When co-delivery and collaboration of these programs is not planned, local and frontline workers often informally integrate them on the ground** to make the most of the time and resource-intensive practice of going door-to-door. This is likely to result in variable program and population health outcomes, including both positive and negative unintended consequences for the programs and broader health system.

Further, **since diverse campaigns and programs are delivered by the same health workers, who often have primary roles in providing routine services, community satisfaction with one campaign or program can affect other campaigns and reflect on the overall health system.** This was true in all three study countries. Frontline workers like community health workers played a particularly critical role (13, 14). In areas where health workers were absent from their jobs at the health post (as was seen in parts of Nigeria [15]), communities did not always trust those workers when they delivered polio vaccine via campaigns. On the flipside, when polio vaccines in India were delivered by trusted Anganwadi workers, who also provide child food supplementation and childcare, it built trust in the polio vaccine.

Health workers in Ethiopia consult maps and coverage numbers during a polio campaign
Kenneth Maes, Oregon State University

…polio health workers became so familiar with communities and households while making their rounds [during campaigns], after some time they also started delivering newborn and maternal health interventions, participating in identification of children with cleft lip, and the like…they are already working by integration.
–Ethiopian health official

…what was interesting is by the time the program almost came to an end, when we were near to eradication, these Community Mobilization Coordinators [polio frontline communications workers] were covering all the health programs because ***'ye bhi karo woh bhi karo kar kar ke tum to jaa hi rahe ho' [Do this, and do that as well, because you are already going there]***
–Indian health official

Planning for rational integration and sustainability could maximize positive impacts of campaigns and limit negative externalities

Many officials in these three countries commented that they wished planning for co-delivery and collaboration had been part of planning for polio campaigns from the start. While doing so adds complexity for an individual campaign, it could improve system efficiency, especially when the same population is being targeted. In particular, they recommended

- **Investing in long-term contracts and coordinated training for campaign workers** instead of episodic, single-campaign employment
- **Using co-delivery and collaboration to reach hard-to-reach populations** with broader services beyond just one campaign intervention
- **Engaging in coordinated educational and social mobilization activities across health programs** from the very start of a new campaign, rather than developing education programs specific only to that campaign and then self-correcting midway

Further research is needed to explore this strategic approach.

Immunization coverage surveys, like the one shown here being conducted in Rajasthan, India, can be used to plan integrated campaigns.
Kayla Laserson / CDC

> *If we would have known that this program will go on for about 15 years or 20 years, we would have hired those cadres…for long-term contracts and used them, but unfortunately what happened [is] we hired only for polio programs during that period.*
> –Indian health official
>
> *In the pastoral community, people regularly seek care for their livestock and for the case of child vaccination they don't give much attention because it is preventive. So, vaccination programs are integrated with animal health services through time.*
> – Ethiopian health official

Focus on the frontline health worker

Mass campaigns for vaccine-preventable diseases rely heavily on frontline health workers who also provide routine services. Since they often work for a variety of health programs, the **workload, remuneration, and supervisory support should make sense across those programs** for each cadre of health workers.

- *Workload.* In some areas of India, repeated campaigns for a variety of vertical programs prevented frontline health workers from carrying out routine tasks. Co-delivery and collaboration may have streamlined their workload.

- *Incentives.* Situations where incentives are very low or focused only on campaigns can lead to de-motivation or a focus only on incentivized tasks. Incentives for each cadre of frontline health workers should be sufficient to constitute a living wage and should be consistent across and between programs.
- *Supervisory support.* Reporting forms, supervisory structures, and accountability mechanisms should be consistent across programs to ensure that each cadre of frontline health workers are adequately supported and to avoid uneven quality of service delivery across interventions.

Campaigns and sustainability of health systems support

Campaigns are often externally driven and backed by ample international resources. These resources could be used effectively for health system support. However, such **re-prioritization requires strong political leadership to be effective**.

Officials often have reasonable **concerns about the sustainability of re-purposing campaign resources** for health systems strengthening. For example, Ethiopia effectively used polio funding to support primary health care in the early days of its Health Extension Program, but as polio financing has winded down health officials have become increasingly concerned about the long-term impacts of utilizing polio funding to support core health system functions.

When planning for co-delivery and collaboration, caution is needed to avoid creating entirely separate structures within the health system. Such separate or parallel systems can lead to long-term health system distortions. This dynamic was of particular concern in Nigeria where, as a result of health system challenges, implementers relied increasingly on parallel structures to deliver services without adequately considering pathways for institutionalizing assets post eradication. Global Polio Eradication Initiative (GPEI) -funded personnel in Nigeria, for example, were estimated to spend 53% of their combined time on non-polio immunization activities along with additional time on sanitation, hygiene, and other program areas (16). The risk is that health system capabilities (like human resources) are developed for a campaign-based program, but those capabilities will be lost without adequate transition planning. At the same time, core health systems functions have been left without support, as campaigns have been a primary focus in some polio-endemic settings.

Considerations for Planning and Implementing Integrated Campaigns

Based on the polio experience from the three study countries, we suggest implementers consider and discuss the questions below when planning for campaign integration. In many contexts, some operational research would also be helpful in answering these questions.

Products and programs
- What health products (addressing specific health problems) are suitable for campaigns? What opportunities for integration exist in various campaign components (planning, social mobilization, set-up/preparations, management, implementation, post-campaign activities, surveillance, monitoring and evaluation)? How can co-delivery or collaboration help to improve the efficiency (cost and quality of delivery) and effectiveness of these programs?

Critical needs
- Are campaigns the only time some communities are receiving health services? If so, what are critical needs in these communities? Can co-delivery or collaboration help address any of these critical needs?

Frontline workers

- What cadres of frontline health care workers are involved in campaigns (e.g., facility-based health care provider, community health workers linked to health facilities, temporary staff, etc.)? What are their responsibilities? Does their workflow across multiple campaigns make sense for them? Does integrating campaigns improve their workflow, or does it contribute to overwork?

Existing campaign integration

- To what degree are campaigns integrated with the health system as a whole and with other campaigns? Are they pulling human or other resources from the health system, and if so, are there ways that integration can minimize negative health system impacts (for example, by reducing health worker time spent away from routine activities)?

Sustainability

- Does integration exacerbate long-term dependence on campaign funding and resources? What would be the impact of the end of funding for this campaign structure on the health care system? What is the plan for transition, if needed?

Knowledge Gaps

The Health Campaign Effectiveness Coalition has previously outlined important knowledge gaps related to strategic planning, implementation, and evaluation of integrated campaigns at the national level (1). In addition, research in the following areas would advance understanding of campaign integration:

- **Assess barriers and facilitators to co-delivery and collaboration at the global level.** What interest exists across relevant programs (e.g., neglected tropical diseases, vaccine-preventable diseases, HIV/TB/Malaria, nutrition) to work toward co-delivery and collaboration of campaigns? What barriers exist to working together, and how can they be overcome? What existing collaborations might serve as models?

- **Enumerate specific outcomes of campaign integration.** What are the impacts of planned and unplanned co-delivery and collaboration of campaigns on population health outcomes? What campaign components are feasible for collaboration among programs? What contextual factors determine the feasibility of this collaboration? On which components of campaigns does collaboration best optimize the tradeoffs between positive outcomes and negative externalities for program and health system outcomes?

- **Evaluate the impacts of national-level policy on frontline worker experiences.** How are the workflows of national health worker cadres coordinated across programs at the national level? When co-delivery and collaboration is implemented, what are the effects on frontline worker job satisfaction and workflow? What are frontline workers' priorities and ideas for improvement of co-delivery and collaboration of campaigns?

- **Focus on institutionalization and sustainability.** What are best practices in ensuring that campaign-related investments lead to sustainable health systems improvements, especially as co-delivery increases? How do these best practices differ in strong and weak health systems?

- **Examine impact of non-governmental/private health service providers.** Prior work has focused on how vertical programs impact public health systems. However, to our knowledge no research exists on the impact of campaigns on the large ecosystem of providers that are not part of government health. What are campaigns' effects, if any, on care-seeking and uptake of services outside government facilities? What opportunities for co-delivery and collaboration beyond the government health system might exist?

Contact

For further information about this brief, please contact Svea Closser at sclosser@jhu.edu. For additional information regarding the STRIPE project, please visit https://stripe.jhu.edu/ or contact Olakunle Alonge, Principal Investigator, at oalonge1@jhu.edu. For more information on the Health Campaign Effectiveness Coalition, visit www.campaigneffectiveness.org.

References

1. Bhatnagar B, Gittelman D, for the Health Campaign Effectiveness Coalition. Integration between health campaigns: intervention co-delivery and collaboration. Decatur, GA: Task Force for Global Health, 2020. (https://campaigneffectiveness.org/wp-content/uploads/2020/08/Health-Campaign-Integration_Technical-Brief_14AUG2020-1.pdf)

2. Closser S, Cox K, Parris TM, et al. The impact of polio eradication on routine immunization and primary health care: a mixed-methods study. J Infect Dis 2014;210(Suppl 1):S504-S513.

3. Alonge O, Neel AH, Kalbarczyk A, et al. Synthesis and translation of research and innovations from polio eradication (STRIPE): initial findings from a global mixed methods study. BMC Public Health 2020;20:1176.

4. Vaz RG, Mkanda P, Banda R, et al. The role of the polio program infrastructure in response to Ebola virus disease outbreak in Nigeria 2014. J Infect Dis 2016;213(Suppl 3):S140-S146.

5. Okeibunor J, Nsubuga P, Salla M, Mihigo R, Mkanda P. Coordination as a best practice from the polio eradication initiative: experiences from five member states in the African region of the World Health Organization. Vaccine 2016;34(43):5203-5207.

6. Gumede NCS, Yahaya AA, Ndihokubwayo NB, et al. Polio Eradication Initiative (PEI) contribution in strengthening public health laboratories systems in the African region. Vaccine 2016;34:5164–5169

7. Birukila G, Babale SM, Epstein H, et al. Reducing resistance to polio immunisation with free health camps and Bluetooth messaging: an update from Kaduna, Northern, Nigeria. Glob Public Health 2017;12(1):19-30.

8. Warigon C, Mkanda P, Muhammed A, et al. Demand creation for polio vaccine in persistently poor-performing communities of northern Nigeria: 2013-2014. J Infect Dis 2016;213(Suppl 3):S79-S85.

9. Kamadjeu R, Mulugeta A, Gupta D, et al. Immunizing nomadic children and livestock--experience in North East Zone of Somalia. Hum Vaccin Immunother 2015;11(11):2637-2639.

10. Schelling E, Bechir M, Ahmed MA, Wyss K, Randolph TF, Zinsstag J. Human and animal vaccination delivery to remote nomadic families, Chad. Emerg Infect Dis 2007;13(3):373-379.

11. Abimbola S, Malik AU, Mansoor GF. The final push for polio eradication: addressing the challenge of violence in Afghanistan, Pakistan, and Nigeria. PLoS Med. 2013;10(10):e1001529.

12. Schimmer B, Ihekweazu C. Polio eradication and measles immunisation in Nigeria. Lancet Infect Dis 2006;6(2):63-65.

13. Stamidis KV, Bologna L, Bisrat F, Tadesse T, Tessema F, Kang E. Trust, communication, and community networks: how the CORE Group Polio Project community volunteers led the fight against polio in Ethiopia's most at-risk areas. Am J Trop Med Hyg 2019;101(4 Suppl):59-67.

14. Losey L, Ogden E, Bisrat F, et al. The CORE Group Polio Project: an overview of its history and its contributions to the Global Polio Eradication Initiative. Am J Trop Med Hyg 2019;101(4 Suppl):4-14.

15. Renne E. The politics of polio in northern Nigeria. Bloomington and Indianapolis: Indiana University Press, 2010.

16. Initiative TGPE. Nigeria Asset Mapping Data (At-a-Glance). 2017.

Appendix

Examples of Full and Partial Integration During Polio Eradication in Ethiopia, India, and Nigeria

FULL INTEGRATION	
Campaign Element	**Example**
Door-to-Door Immunization *Delivery of OPV and other interventions outside health facilities*	Delivery of vitamin A, ITNs, and de-worming tablets as part of polio vaccination campaigns (Nigeria, Ethiopia) Polio workers conducted surveillance for vaccine preventable diseases (including measles) during door-to-door campaigns (Nigeria, Ethiopia)
Health Camps *Concentrated, temporary delivery of OPV/IPV and other integrated health services for minor illnesses*	Immunization Plus Days (Nigeria, see Box)
Surveillance *Collection, analysis, and interpretation of data related to polio and other health outcomes*	Polio surveillance infrastructure was used to establish Integrated Disease Surveillance and Response network (Ethiopia)
PARTIAL INTEGRATION	
Campaign Element	**Example**
Surveillance *Collection, analysis, and interpretation of data related to OPV and/or other health outcomes*	Polio system used to track and control Ebola (Nigeria)
Microplanning and Enumeration *Dynamic population-based planning process for the operations, supervision, and monitoring of supplementary immunization activities*	Maps and other products developed for polio campaigns through the use of GIS/GPS used by malaria and other campaigns (Nigeria)
Social Mobilization *Interdisciplinary approach to community engagement to increase demand, involvement, and awareness of OPV and other health issues*	Outreach and mobilization activities planned and implemented in collaboration with routine immunization programs (Ethiopia, Nigeria, India) Polio social mobilization networks used to promote other government programs including birth certificates and child education (Nigeria)
Infrastructure: Laboratory and Cold Chain Networks *Infrastructure needed to deliver vaccines and conduct surveillance*	Cold-chain infrastructure developed for polio campaigns used for routine vaccines and other temperature-sensitive commodities (Ethiopia, India, Nigeria) Laboratory infrastructure developed for polio surveillance used for additional health system needs (Ethiopia, Nigeria)

Information presented in this table is based on key informant interview data from two studies: The Impact of the Global Polio Eradication Initiative on Routine Immunization and Primary Health Care, conducted in 2011-2012 (2), and the Synthesis and Translation of Research and Innovations from Polio Eradication (STRIPE) study, conducted in 2018-2019 (3).