

## Lessons from the Integrated Campaign of Monovalent Oral Polio Vaccine Type 2 and Vitamin A Supplementation in the Context of Covid-19 Pandemic in Ghana in 2020

**UNICEF Ghana and the Ghana Health Service  
Health Campaign Effectiveness Coalition at The Task Force for Global Health**

### Key Messages

In 2019, Ghana confirmed an outbreak of circulating vaccine-derived poliovirus type 2 (cVDPV2) in eleven regions, necessitating an urgent vaccination campaign. This effort was challenged by the COVID-19 pandemic, which also resulted in decreased vitamin A supplementation coverage in the country. There was a need to integrate these two campaigns to address both the polio outbreak and support ongoing nutrition interventions during the pandemic. The following lessons learned were uncovered during this case study.

1. Collaborative planning improves integration by establishing a common purpose across stakeholders, enhancing resource mobilization through aligned efforts of donors and partners, and actively involving partners in vaccine management and accountability.
2. Political will and commitment of decision-makers to mobilize funds enables collaborative pre-planning, planning and implementation of the integrated campaign.
3. The decision to integrate campaigns must be made early enough to allow for harmonization of information, education, and communication (IEC) efforts and logistics to give equal weight to each intervention.
4. The campaign planning process must include contingency plans for unexpected occurrences (e.g., heavy rainfall, security concerns).
5. Mothers and caregivers should be involved in campaign design and communication efforts, such as through community information sessions.
6. When utilizing community information centers for IEC, program implementers should pay attention to variations in messaging across localities and languages.
7. District specific reports from independent monitoring done by academia should be available for district-level use for decision making. In Ghana, this information was not available for real time use at district level, resulting in delayed feedback. These reports should be shared in a timely way, and communication and feedback across stakeholders strengthened.

### Abstract

An outbreak of circulating vaccine-derived poliovirus type 2 (cVDPV2) was detected in 11 regions in Ghana, resulting in 30 cases of acute flaccid paralysis from July 2019 to August 2020. In response to the

outbreak, a monovalent oral polio vaccine type 2 (mOPV2) campaign targeting different geographical regions was implemented from September 2019 to February 2020. However, vaccination activities were suspended with the onset of COVID-19 pandemic in March 2020.

During this period, Ghana also experienced a reduction in uptake of health and nutrition interventions. Vitamin A supplementation (VAS) coverage for children 6-59 months was already declining from 2018, due to the shift from campaign to routine delivery approach; the pandemic further decreased VAS coverage in the period of January to June 2020 (28% compared to 48.9% in 2018 and 30.5% in 2019.)

A collaborative campaign became urgent not only to address the outbreak of cVDPV2 but also to increase uptake of VAS. The decision was made by the national government to integrate VAS into the second round of mass immunization in October 2020. Motivating factors for integration included accelerating delivery of both interventions to children aged 0-59 months in the context of COVID-19; utilizing the same cadre of health workers; targeting the same beneficiaries; and achieving cost and time savings.

This case study documents lessons learned from the integration of mOPV2 and vitamin A campaigns in Ghana. Data was gathered from campaign reports as well as from key informant interviews and stakeholder discussions with health managers, providers, government agencies, civil society organizations, regional and community leaders. The discussions focused on respondents' experiences and lessons during the pre-planning, planning, implementation, post implementation, and monitoring and supervision stages of the integrated campaign.

An inter-sectoral planning and coordination committee, chaired by the Director of Public Health of the Ghana Health Service, was responsible for campaign planning and coordination, implementation, and resource mobilization at the national level.

Approximately 4.67 million children aged 0-59 months received mOPV2 (102.3%, over 100% coverage was attributed to population movement across regions and districts). 3.65 million children aged 6-59 months received VAS (88.8%). The national emergency operations center (EOC) facilitated identification and response to threats and supported campaign monitoring by producing daily situation reports.

The strengths of the collaborative planning process that improved the overall success of integration included unity of purpose across stakeholders, which resulted in efficient resource mobilization and active partner involvement in the management of vaccines and vaccine accountability.

Challenges encountered during the integrated campaign included IEC and logistics challenges that resulted from the late-stage decision to integrate; community misperceptions about the services offered;

weather and security issues; delayed funding disbursements; confusion about eligibility based on age for the two interventions; and missed areas of coverage.

Promising practices identified during the course of the collaborative planning process and implementation of the campaign were to:

1. Assess preparedness for campaign integration at the national, regional and district levels across thematic areas (e.g., financing, monitoring, social mobilization).
2. Form an inter-sectoral planning and coordination committee at the national level to oversee campaign integration.
3. Establish coordinating bodies at the regional and local levels to coordinate activities and schedules.
4. Integrate communication tools and messages early in the planning process; place equal emphasis on messages for all interventions.
5. Use messaging technology for supervision and monitoring, and to regularly share campaign messages with communities.
6. Establish an Emergency Operations Center to support real-time monitoring, data analysis, and response.
7. Involve community leaders early to improve collaborative planning, increase accountability, and strengthen community engagement.
8. Involve community stakeholders in the development of strategies to reduce the number of missed children.
9. Harmonize and align field tools to capture essential information on the interventions.

## **Background**

In 2019, Ghana confirmed and isolated circulating vaccine-derived poliovirus type 2 (cVDPV2) in a stool sample. An outbreak spread to 11 out of the 16 regions (68.8%) in the country. The 11 regions confirmed at least a case or an event of cVDPV2. In all, 30 cVDPV2 cases were confirmed from acute flaccid paralysis cases from July 2019 to August 2020. Nine out of the 16 regions (56.3%) reported cases. In addition, cases of cVDPV2 were also confirmed from 115 environmental isolates from eight environmental surveillance sites. In response to the outbreak, a mass polio vaccination exercise was initiated in August 2019 to break transmission within the shortest possible time. A monovalent oral polio vaccine type 2 (mOPV2) campaign targeting different geographical regions was implemented from September 2019 to February 2020. However, mass vaccination activities were suspended with the onset of COVID-19 pandemic in March 2020.

During this period, Ghana also experienced a reduction in uptake of health and nutrition interventions. According to the Ghana Health Service (GHS), outpatient attendance dropped by 15.3%, while neonatal deaths increased by 42.3% from February 2020 to March 2020. In addition, antenatal clinic attendance

decreased from 74.9% in February to 66.4% in March 2020. Immunization coverage was reduced in the first quarter of 2020 by 4% points compared to the same period in 2019. From January to June 2020, VAS coverage was only 28% compared to 48.9% in 2018 and 30.5% in 2019<sup>1</sup>.

In September 2020, the National Expanded Program on Immunization (EPI) resumed implementation of polio outbreak response activities in order to prevent further spread of the poliovirus. Subsequently, the decision was made by the Government of Ghana through the GHS to integrate VAS into the second round of mass immunization in October 2020 based on the following rationale:

- The urgency to address the outbreak of cVDPV2 and the need to reach many children with life-saving interventions quickly.
- Availability of the same cadre of health workers (community health nurses, nutritionists, and public health nurses) to provide both interventions to the same target beneficiaries (children aged 0-59 months and 6-59 months for mOPV2 and VAS, respectively).
- Potential cost savings—COVID-19 precautions required additional cost for personal protective equipment (PPE) for health workers and social distancing.
- Time efficiency—the ability to reach children with two interventions with one visit, which also minimizes health worker/child contact in the COVID-19 context.
- The existence of mechanisms for intersectoral collaboration, i.e., EPI leadership, the Coordination Program Working Group, and the Micronutrient Task Force.

The decision to integrate the mOPV and VAS campaign was communicated to stakeholders. The government determined resources required and available, and health partners and other stakeholders offered support, including funding, logistics, communication technical knowledge, monitoring and supervision.

## Objectives and Methods

Objectives of this case study were to:

- Document the lessons learned from the planning/preparations through campaign implementation and monitoring.
- Review effectiveness of the campaign messages and strategies for social mobilization.
- Review the coverage of mOPV2 and VAS.
- Assess possible missed opportunities for reaching the target population with mOPV2 and VAS.
- Make recommendations to improve coverage for subsequent integrated campaigns.

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<sup>1</sup> VAS coverage for children 6-59 months was already declining from 2018 to 2019 due to the shift from campaign to routine delivery approach.

The study used mixed methods, consisting of desk reviews of documents and qualitative data collection using key informant interviews (KIIs). Ethical clearance for the study was received from the Ethics Review Committee of the Ghana Health Service (GHS-ERC 023/06/21).

Through document review, preparedness was assessed using checklists on five thematic areas: planning, coordination and financing, training of supplemental immunization activities (SIAs), monitoring and supervision, vaccine, cold chain and logistics, and advocacy, social mobilization, and communication. Documents reviewed included campaign reports and tools on the planning, preparation, and implementation of the integrated campaign for VAS and mOPV2 in 2020. The document review provided information on the scope of activities carried out during the pre-planning, planning, implementation, and post-implementation stages.

Coverage of the vaccine and vitamin A interventions was assessed in two ways: using administrative data on coverage, and from independent verification data collected by monitors who randomly assessed households and compared the number of targeted children against those with an indelible ink mark on a finger, received by a health worker.

A total of 18 KIIs were conducted with individuals from government agencies, health partners, civil society organizations, and representatives from regions and districts. The interview guides asked about the levels of key informants' involvement prior to, during, and after the campaign. Topics included what worked well, what did not, experiences, and lessons learned in the different stages of the campaign including decision-making process, pre-planning, planning, implementation, and monitoring and supervision. KIIs were also conducted with mothers, caregivers, and community members during the implementation of the campaign. Supervisors randomly selected and interviewed these individuals to ascertain their perspective and awareness about the campaign.

Interviews were transcribed and coded manually. A thematic analysis approach was used to analyze the data. A codebook was developed using the interview guide in addition to codes identified from the interview transcripts. Based on the codes, broad themes were developed and reviewed against the data sets by checking for missing issues, how the themes represented the data, and making the necessary revisions to refine themes.

## Results

### *Pre-planning and planning processes*

The main activities during the pre-planning and planning processes were:

- Formation of working groups and subcommittees with scheduled duties and timelines (shown in Table 2) for logistics, social mobilization, and data and coordination
- Harmonization and alignment of field tools such as tally sheets and monitoring tools

- Conducting joint training sessions for volunteers and health workers
- Developing integrated messaging for social mobilization
- Leveraging transport opportunities to distribute campaign materials

**Table 1. Stakeholders involved and their roles in the integrated campaign.**

<b>Stakeholders</b>	<b>Role in the integrated Campaign</b>
<b><i>Government Agencies</i></b>	
Ministry of Health (MOH)	Overall leadership and coordination
Ghana Health Service (GHS), Family Health Division, Nutrition Department, EPI, Health Promotion Division	Coordination; planning; training; implementation; social mobilization; behavior change communication; data management; reporting and feedback; dissemination; review meeting
Ministry of Children, Gender and Social Protection	Monitoring and supervision
Ministry of Information, Information Service Department	Social mobilization; behavior change communication
<b><i>Health Partners</i></b>	
UNICEF	Funding support; technical support; monitoring and supervision
WHO	
CDC	
<b><i>Civil Society Organizations</i></b>	
Coalition of NGOs in Health	Social mobilization; behavior change communication
Ghana Polio Plus Committee of Rotary	Monitoring and supervision
Red Cross Society	
<b><i>Implementing Regions</i></b>	
Regional Health Administration	Coordination; training; monitoring and supervision
Regional/District Coordinating Council Regional/District Coordination Council ( <i>continued</i> )	Financial and logistics support (transportation, fuel, PPE); social mobilization; behavior change communication; monitoring and supervision

District Health Administration	Implementation of campaign; social mobilization; monitoring and supervision
Subdistrict Health Administration	
Community leaders/members	Social mobilization: behavior change communication; logistics support (e.g., food, water, handwashing facilities for vaccination teams)

Planning meetings were facilitated by the Government through the MOH and EPI. At the national level, an intersectoral planning and coordination committee, chaired by the Director of Public Health of the GHS, was responsible for campaign planning and coordination, implementation, and resource mobilization. The committee comprised representatives from the government, partners, donors, and civil society organizations listed in Table 1. The planning and coordination committee had responsibility to supervise regional committees and provide oversight to activities of five national subcommittees, described in Table 2.

**Table 2. Five national subcommittees and responsibilities.**

Subcommittee	Responsibilities
Communication and Social Mobilization	Development of IEC materials and key messages, media relations, launching programmes, community mobilization press briefings
Training	Coordination of training materials and training sessions at all levels
Vaccines and Logistics	Vaccine and logistics estimation, distribution, and accountability
Monitoring and Evaluation	Development and adaptation of data tools, independent monitoring and lot quality assurance surveys
Safety Monitoring	Adverse event following immunization monitoring, reporting, and management

#### *Emergency Operations Centers*

The national emergency operations center (EOC) prepared daily situational reports from review meetings, field reports, and real time analysis of data. These situation reports were circulated widely amongst stakeholders and implementers at all levels. The national EOC generated two daily reports, one depicting regional performance across the country, and the second showing district-level performance by region. Implementers were able to review their performance alongside their peers, and develop strategies to address underperformance.

All regions and districts reactivated their respective EOCs, which provided a subnational platform to meet and monitor the campaign daily, and identify gaps and corrective measures. Partners assigned to

the regions and districts actively participated in the EOC discussions and made relevant contributions to enhance the campaign.

#### *Training and Preparedness Assessment*

All participants received one to two days' training for their respective roles. These included regional/district/subdistrict health teams, health partners, vaccine accountability monitors, independent monitors, lot quality assurance survey teams, volunteers, and vaccinators. Training occurred both in person in small groups and virtually to adhere to COVID-19 precautions.

An assessment of preparedness was conducted using a self-administered checklist at the national level, and in eight regions and 175 districts. Preparedness was assessed using checklists on five thematic areas: planning, coordination and financing, training on supplemental immunization activities (SIAs), monitoring and supervision, vaccine, cold chain and logistics, and advocacy, social mobilization, and communication.

A day before the integrated campaign, the national level preparedness was measured at 100%; the regional level was measured at 99%, because some regions fell short in training for SIAs, advocacy, social mobilization, and communication.

#### *Coverage results*

A total of 4,674,448 children aged 0-59 months (102.3% of the estimated target population) received mOPV2, while 3,648,550 children aged 6-59 months (88.8%) received VAS. Vaccine coverage over 100% was attributed to population movement across regions and districts, affecting the denominator of the coverage indicator. Lower coverage of vitamin A was due to challenges in confirming children's eligibility; only children that had not received vitamin A in the last six months were eligible, and health providers had to confirm eligibility using child welfare records or use their discretion.

#### *IEC*

The use of multiple channels of communication improved awareness, including use of bulk SMS as a reminder to community members. These messages, developed by the Health Promotion Division of the GHS, regularly sent mass phone reminders with messages such as "Protect your child against polio," "If you missed the vaccination team's visit to your home, please ensure you have your child vaccinated," and "Get vitamin A supplement [for your child]." Household monitoring determined that about 88% of caregivers were aware of the campaign. Community information centers<sup>2</sup> were reported as a common information source in many regions. This was corroborated with feedback from mothers.

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<sup>2</sup> Community information centers are shared information and communication facilities usually found in rural and isolated areas. They range from a one-room facility providing a narrow range of services to facilities that provide training and development-oriented services. Community announcements or notices in local languages are usually transmitted via these facilities.



Social mobilization enabled campaign implementers to address community concerns, including the misperception that mOPV2 and vitamin A could be COVID-19 vaccine, which resulted in some refusals. This was mitigated through intensified social mobilization and communication activities involving key community persons.

In some communities, early engagement helped to mobilize local resources to support the campaign. When funds were delayed, some community members volunteered to support the campaign using local resources. For example, local radio stations offered free adverts for the campaign, and in some districts, campaign teams were given food, water, transport, and fuel.

### *Monitoring*

Use of WhatsApp and SMS allowed quick resolution of emerging challenges across field teams, supervisors and EOCs. WhatsApp groups were created where district teams posted daily progress and documentation, including pictures and videos, from the campaign at the end of each day. Each team provided a summary of activities undertaken, weaknesses, challenges and actions taken to address challenges. This information was discussed in the regional and district EOCs. Examples of challenges reported and addressed included stock out of supplies and access issues due to insecurity.

Supervisors utilized an app called ODK, which included a tracker which assisted in selecting locations for household monitoring. Independent monitors found a total of 10,236 (95.3%) children showed evidence of having received mOPV2, while 504 children had been missed. Reasons for non-vaccination included the child's absence from home during the campaign (32.3%); the house was not visited (28%); child reported to be vaccinated but no ink fingermark as evidence of vaccination (20.8%); refusal/noncompliance (4.2%).

### *Enabling factors*

The following factors were found to support the collaborative pre-planning, planning, and implementation of the integrated campaign:

- Strong partnership and collaboration among stakeholders; unity of purpose and aligned efforts.
- Political will and commitment of decision-makers to mobilize funds (e.g., GAVI, UN agencies, civil society organizations and government institutions).
- Activation of working groups and subcommittees with scheduled duties and timelines.
- Establishment of EOCs in almost all directorates to support real-time monitoring and response.
- Use of virtual platforms (Zoom, Microsoft Teams) to hold bi-weekly meetings, which facilitated communication across operational levels; all health districts were provided with video-conference equipment to support their participation.
- Dedicated health staff and support from affiliated institutions.
- Joint training sessions for volunteers and health workers.
- Harmonization and alignment of field tools such as tally sheets and monitoring tools.

- Leveraging transport opportunities to distribute campaign materials.
- Integration of campaign messaging, disseminating information in local languages, and involving key community members in awareness creation.

### *Challenges and Mitigation*

The implementers determined that the following factors posed a challenge to campaign integration:

- The late decision to integrate campaigns in October 2020 following the initial launch of the mOPV2 campaign affected the dissemination of key messages and logistics management:
  - IEC messages and materials did not include VAS; therefore, mOPV messages overshadowed VAS.
  - Disbursement of funds were delayed to some district levels, affecting training and social mobilization.
  - Some areas experienced sporadic shortages of vitamin A supplements and supplies.
- The slight difference in the ages of target groups for the two interventions (0-59 months for mOPV2, 6-59 months for VAS) resulted in confusion.
- Heavy rainfall disrupted the campaign in many districts.
- Limited funding was available to execute the integrated campaign during the COVID-19 pandemic.
- The inability to meet face-to-face due to the COVID-19 pandemic caused coordination challenges.
- Children were missed in some areas because they were absent, asleep, refused, or no vaccination team visited the area.
- Security concerns were in some areas.

Some of these challenges were discovered through daily data monitoring via EOC meetings at all levels. For example, a regional EOC daily review meeting revealed a volatile security challenge in one district that was performing poorly; this resulted in a security escort and an additional regional team being provided to support the district.

### **Promising Practices**

The study team identified the following promising practices that should be consistently applied to collaborative approaches to campaign integration:

1. **Assess preparedness for campaign integration** at the national regional and district levels across thematic areas, such as planning, coordination and financing, training on SIAs, monitoring and supervision, vaccine, cold chain and logistics, and advocacy, social mobilization, and communication.

2. **Form an inter-sectoral planning and coordination committee at the national level** to oversee campaign planning and coordination, implementation, and resource mobilization.
3. **Form working groups and subcommittees at the regional and local levels** to coordinate and schedule activities associated with logistics, social mobilization, and data management.
4. **Integrate communication tools and messages** early in the planning process; place equal emphasis on messages for all interventions.
5. **Use bulk SMS and WhatsApp** to regularly share campaign messages with communities and enable teams to interact and address emerging challenges in real time, and post daily progress to regularly share campaign messages with communities.
6. **Establish an Emergency Operations Center** to support real-time monitoring and response by preparing daily situational reports from review meetings, field reports and real time analysis of data. In Ghana, implementers were able to use the EOC reports to review their performance alongside their peers and develop strategies to address underperformance.
7. **Involve community leaders at an early stage** to improve the process of pre-planning and collaborative planning, increase accountability during micro-planning, and strengthen community engagement.
8. **Develop strategies to reduce the number of missed children**, e.g., use community information services, actively involve caregivers and other key community stakeholders, provide health services in markets and other public places.
9. **Harmonize and align field tools** (e.g., tally sheets, monitoring tools) to be used in an integrated campaign.
10. **The use of virtual meetings in the pre-planning phase**, which resulted from COVID-19 precautions, opened up new ways for teams to interact and make progress even when it was impossible to meet in person. Virtual meetings also resulted in time and cost savings.
11. **Establishing subnational EOCs** was a critical practice that facilitated the identification of and response to real time challenges.
12. **The use of multiple channels of communication**, including bulk SMS and community information centers, improved awareness of the campaign amongst communities.
13. **Technology such as WhatsApp** enabled interactions with field teams, supervisors, and EOCs, and supported quick identification and resolution of emerging challenges.

## Lessons Learned

The following lessons learned were developed as a result of unexpected findings and/or challenges encountered during this study.

1. **Collaborative planning improved the success of integration** by establishing a common purpose across all stakeholder groups, enhancing resource mobilization through the joint and aligned efforts of different donors and partners, and actively involving partners in the management of vaccine and vaccine accountability through monitoring of performance metrics.

2. **Political will and commitment of decision-makers** (e.g., GAVI, UN agencies, civil society organizations and government institutions) to mobilize funds enables collaborative pre-planning, planning, and implementation of the integrated campaign.
3. **The decision to integrate campaigns must be made early enough to allow for harmonization of IEC efforts and logistics** to give equal weight to each intervention. In this case study, pre-campaign messages did not include vitamin A, therefore mOPV messages overshadowed vitamin A.
4. **The campaign planning process must include contingency plans for unexpected occurrences** (e.g., heavy rainfall, security concerns).
5. **Caregivers should be involved in campaign design and communication efforts**, such as through community information sessions.
6. When utilizing community information centers for IEC, **program implementers should pay attention to variations in messaging** across localities and languages.
7. **District specific reports from independent monitoring done by academia should be available for district-level use** for decision making. In Ghana, this information was not available for real time use at the district level, resulting in delayed feedback. These reports should be shared in a timely way, and communication and feedback across stakeholders strengthened.

## Conclusion

Integration of mOPV2 and VAS in Ghana resulted in positive perceptions of the collaborative process and campaign integration among campaign managers, implementers and other stakeholders. Communities were reached with multiple interventions at a single point of time and contact, which lessened the time burden on communities and frontline workers.

Campaign planners were able to leverage available resources and mobilize additional financial, human, and material resources to implement the intervention in a short time frame. Conducting joint social mobilization and training and harmonizing monitoring and supervision tools also contributed to the campaign's success.

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## References

1. Bauman, A., Armstrong, T., Davies, J., Owen, N., Brown, W., Bellew, B., & Vita, P. (2003). Trends in physical activity participation and the impact of integrated campaigns among Australian adults, 1997–99. *Australian and New Zealand journal of public health*, 27(1), 76-79.
2. Bhatnagar, B., & Gittelman, D. (2020). Integration Between Health Campaigns: Intervention Co-delivery and Collaboration.
3. Ismail, A., Tabu, C., Onuekwusi, I., Otieno, S. K., Ademba, P., Kamau, P., Davis, R. (2017). Micro-planning in a wide age range measles rubella (MR) campaign using mobile phone app, a case of Kenya, 2016. *The Pan African Medical Journal*, 27(Supp 3), 16.  
<https://doi.org/10.11604/pamj.supp.2017.27.3.11939>
4. Jackson, S. F., Perkins, F., Khandor, E., Cordwell, L., Hamann, S., & Buasai, S. (2006). Integrated health promotion strategies: a contribution to tackling current and future health challenges. *Health Promotion International*, 21 Suppl 1(January), 75–83.  
<https://doi.org/10.1093/heapro/dal054>
5. John McCleod. (2003). Integrated health promotion resource kit.
6. Johns, B., Opumi-akuamo, M., & Walker, D. (n.d.). Assessing the costs and cost-effectiveness of rapid- scale up for the maternal , neonatal , and child health : The economic component of the impact evaluation strategy for the Catalytic Initiative Table of Contents.
7. Kahn, J. G., Muraguri, N., Harris, B., Lugada, E., Clasen, T., Grabowsky, M., ... Shariff, S. (2012). Integrated HIV testing, malaria, and diarrhea prevention campaign in Kenya: Modeled health impact and cost-effectiveness. *PLoS ONE*, 7(2). <https://doi.org/10.1371/journal.pone.0031316>
8. Means AR, Jacobson J, Mosher AW, Walson JL (2016) Integrated Healthcare Delivery: A Qualitative Research Approach to Identifying and Harmonizing Perspectives of Integrated Neglected Tropical Disease Programs. *PLOS Neglected Tropical Diseases* 10(10): e0005085. <https://doi.org/10.1371/journal.pntd.0005085>
9. WHO/UNICEF. (2009). Microplanning for Immunization Service Delivery Using the Reaching Every District ( RED ) Strategy A WHO-UNICEF document.
10. 5 Implementing Integrated Health Programs (2005). 2005. *Integrated Employee Health: A model Program for NASA*. Institute of Medicine. Washington, DC: The National Academics Press. doi: 10.17226/11290”
11. Habib, M. A., Soofi, S., Cousens, S., Anwar, S., ul Haque, N., Ahmed, I., ... & Bhutta, Z. A. (2017). Community engagement and integrated health and polio immunisation campaigns in conflict-affected areas of Pakistan: a cluster randomised controlled trial. *The Lancet Global Health*, 5(6), e593-e603.
12. Ju, I., Ohs, J., Park, T., & Hinsley, A. (2021). Harnessing an Integrated Health Communication (IHC) Framework for Campaigns: A Case of Prescription Drug Decision Making. *Health Communication*, 1-12.

13. De Nazelle, A., Nieuwenhuijsen, M. J., Antó, J. M., Brauer, M., Briggs, D., Braun-Fahrlander, C., ... & Lebet, E. (2011). Improving health through policies that promote active travel: a review of evidence to support integrated health impact assessment. *Environment international*, 37(4), 766-777.
14. Skarbinski, J., Massaga, J. J., Rowe, A. K., & Kachur, S. P. (2007). Distribution of free untreated bednets bundled with insecticide via an integrated child health campaign in Lindi Region, Tanzania: lessons for future campaigns. *The American journal of tropical medicine and hygiene*, 76(6), 1100-1106.
15. Marseille, E., Jiwani, A., Raut, A., Verguet, S., Walson, J., & Kahn, J. G. (2014). Scaling up integrated prevention campaigns for global health: costs and cost-effectiveness in 70 countries. *BMJ open*, 4(6), e003987.