



Health Campaign Integration: A Scoping Review Neglected Tropical Diseases

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Key Messages

Health campaign integration can result in social and economic benefits; however, to date there has been no examination of the peer-reviewed literature to summarize this evidence. This scoping review seeks to fill this gap by retrieving and summarizing the available literature on the benefits and harms resulting from health campaign integration. Due to the large number of studies retrieved for all campaign integration, this review focuses on integrated campaigns that include strategies to prevent and control neglected tropical diseases (NTDs), which affect over 1 billion people globally every year. Findings from the review:

- Strong evidence of infection reduction and cost effectiveness supports campaign integration.
- Strong evidence indicates there are no severe adverse events (i.e., mortality or systemic allergic reactions) following the administration of the multiple drugs delivered in integrated campaigns; however, qualitative data suggests participant perception of adverse events including, but not limited to, stomach aches, and vomiting may interfere with chemoprophylaxis uptake.
- The inclusion of health education as a component of program implementation contributes to improved uptake and is supported by moderate evidence.
- Consideration of local context improves cost-effectiveness and is supported by strong evidence.
- Future research can be conducted to add quantitative data to the existing qualitative data on participant cost and time savings and elucidate campaign volunteer experience with and perceptions of per diem across campaigns.

Introduction and Background

Health campaigns are time-bound, intermittent activities that address specific epidemiological challenges, expediently fill delivery gaps, and/or provide surge coverage for health interventions.(1) Campaigns are an important strategy to address high priority diseases (e.g., neglected tropical diseases (NTDs), malaria, polio and other vaccine preventable diseases, and malnutrition (e.g., vitamin A supplementation) across different geographic areas. Organizations like the World Health Organization (WHO), UNICEF, Gavi the Vaccine Alliance, and the Global Polio Eradication Initiative have all published guidance on shifting health campaign delivery away from single-disease, or single approach programs to integrated campaign approaches that optimize resources, reduce inequities, and improve collaboration across projects and programs. (2-8)

Between 2019 and 2022, the precautions necessary to slow the spread of the COVID-19 pandemic resulted in delays of the delivery of hundreds of health campaigns globally.(9) This pause can be leveraged as a unique opportunity to strategically implement the guidance of leading global health organizations. There is a general sense that the benefits of integrated campaigns are greater than those of vertical or siloed campaigns. However, it is necessary to understand the landscape of evidence on the full value—or social and economic benefit—of health campaign integration. In economic terms, the concept of full value or social benefit is often described as the total benefit to society of producing or consuming a particular good or service. In the context of health campaign integration, the concept of full value or social benefit can be used to describe the total benefits of campaign integration (whether full or partial) to all stakeholders (e.g., community members, health care and front-line workers, campaign managers, primary health care systems, campaign funders, etc.) (10). If integrated health campaigns do yield a greater total value or social benefits, these findings can be used to inform messaging and advocacy efforts aimed at promoting health campaign integration.

NTDs are a diverse array of diseases that are associated with low mortality, but can have devastating health, social, and economic consequences (5). These conditions affect more than a billion people who primarily live in warmer climates and particularly affect poor and marginalized populations. It is for these reasons that they are neglected. WHO recognized the inequity of neglecting a high morbidity disease that disproportionately affects the poorest communities in the world and has set a target for elimination of NTDs by 2030. (11) Achieving this goal requires cross-cutting approaches that include health campaign integration. Preventive chemotherapy (PC) to combat NTDs is delivered via mass drug administration (MDA) campaigns. While this is not the only NTD elimination strategy, it is the most widespread mode of preventing and controlling the five most common NTDs including onchocerciasis, trachoma, schistosomiasis, soil-transmitted helminths (STH), and lymphatic filariasis (LF). MDA campaigns to prevent and control PC-NTDs can be combined with other MDA campaigns, campaigns with other health goals, or into healthcare systems; however, the full benefit of these campaign integrations has not been elucidated.

Objective

The objective of this scoping review is to identify and aggregate the available evidence retrieved from the peer-reviewed literature to answer the research question: “What is the balance of economic and social benefits and harms resulting from health campaign integration into other health programs or into country healthcare systems in low- and middle-income countries?” The resulting evidence can be used to develop promising

practices that can be implemented by governments, policy makers, and programs. Because the scope of this project is broad, the aim of this review is to focus on the evidence for a mature topic of integration and summarize the best available evidence on the economic and social benefits and harms of PC NTD-related health campaign integration.

Methods

Methods followed the Preferred Reporting Items for Systematic Reviews and Meta-analysis Protocols (PRISMAP). Subject matter experts at Emory University and the Task Force for Global Health were consulted to develop a robust list of search terms on healthcare integration. Search terms were detailed and included numerous populations and types of health campaigns; multiple types of economic, private, social, external, system, program, and health benefits and harms; delivery channels; and settings (Appendix, Table 1). These terms were then incorporated into customized search strategies by the informationist at Emory University (Appendix, Table 2), who performed these searches in nine databases (Medline (OVID), Business Sources Complete (EBSCOhost), CINAHL (EBSCOhost), Cochrane Reviews and Cochrane Trials Web of Science Core Collection, Global Health, Scopus, EconLit (EBSCOhost), and EMBASE), which were searched from 2000 to present. 2000 was selected as a search start date to account for the shift in global health campaign funding that occurred during this time. (12)

Authors screened the titles and abstracts and full texts of selected articles using Covidence, an online systematic review management tool. Authors then conducted brief extractions and aggregated the overall strength and direction of the evidence for the relevant outcomes. Evidence was classified as Strong, Moderate, Emerging, or Insufficient depending on the strength and directionality of results (Appendix, Section A.4.). The strength and direction of the retrieved outcomes was reviewed in an evidence to decision making summary which was used as the foundation for the promising practices (13). A detailed methods section, including study inclusion diagram, search strategies, and evidence summaries can be found in the Appendix.

Results

Overall, the scoping search yielded 139 articles relevant to the economic or social benefits of health care integration across campaign types (Figure 1, Appendix). Thirty-nine of these studies(14-47) reported economic or social outcomes for the co-delivery of interventions and the integration of health campaigns into other health campaigns, and/or into the public health system, to prevent or control PC NTDs (48-52). These health campaign interventions included water, sanitation, and hygiene; dog vaccination; livestock MDA; child health days; multiple environmental and agricultural interventions, and other NTD MDA. Most of these studies were conducted in Sub-Saharan Africa, and if data was comparative, these studies examined similar populations in a region or nation state. The overall summary of outcomes and themes from these studies can be seen in Table 1.

Cost-Effectiveness

Strong evidence from sixteen studies indicated that campaign integration involving NTD campaigns is cost-effective (16, 17, 20-23, 28, 30, 32, 40, 44, 46, 47, 50, 51, 53). Studies reported heterogeneous outcome measures including economic assessments (44), programmatic costs (20, 23, 40), cost per individual reached (17, 22, 32, 46, 47, 51), cost per DALYs (21, 33, 50), and cost saving (28). Five of these studies reported that combined school and community distribution channels were more cost-effective than school-based distribution alone (22,

23, 28, 51, 53). Interestingly, one additional cross-sectional study conducted in China, reported on the implementation of multiple environmental and agricultural interventions to prevent schistosomiasis, and reported a reduction in disease and increasing trend in economic development output values over the course of the study period (44).

Infectious Outcomes and Adverse Events

Strong evidence from fourteen studies (22, 24, 26, 29, 31, 34-36, 38, 39, 41, 43-45) indicates a decrease in the prevalence or intensity of the NTD infection targeted by the integrated campaign. Strong evidence from six studies (14, 19, 25, 29, 31, 42, 49) indicates no severe adverse events resulted from the combinations of drugs co-administered during integrated campaigns. Severe adverse events typically included mortality, hospitalization, or systemic allergic reactions. The reported adverse events were categorized by researchers as rare and mild (42, 49) and able to be treated at community health centers (19). Combinations of co-administered drugs were heterogeneous across studies and included praziquantel, ivermectin, diethylcarbamazine, albendazole, and azithromycin.

Participant Perspectives on Adverse Events

It’s important to highlight that, emerging evidence from five studies (15, 27, 29, 37, 52) reported qualitative themes on patient perspectives and fears. One important theme found in these studies is the participant perceptions and fears of adverse events. Adverse events, or side effects, such as vomiting, stomach aches, or diarrhea, while transient, may be extremely concerning to participants and may impede personal uptake or the permission granted by parents to children to participate (15, 27, 29, 37, 52). Conversely, one qualitative (4) and one cross sectional study (25) reported participants felt better or more energetic and active after receiving study drugs, however it is unclear how soon after administration participants felt this way.

Importantly, one ethnographic study conducted in Uganda (27) reported participants stating two opposing perspectives on side effects in two subsequent interviews. In one interview, the participants were concerned that without strong side effects, the drugs weren’t working, and in another, the participant stated the side effects interfered with uptake. This suggests the possibility of reporting bias from participants telling interviewers what they think they want to hear. Implementing health education before the deployment of an NTD health campaign to prepare participants was emphasized to increase uptake; however, this will require additional staff time and resources (15).

Table 1: Evidence to Decision-Making Summary for Campaign Integration

Outcome	Strength [Evidence]	Direction	Integration Results	Conclusion
Cost Effectiveness	Strong 16 studies(16, 17, 20-23, 28, 30, 32, 35, 40, 46, 47, 50, 51, 53)	Consistent	Studies reporting MDA integrated with other health interventions were more cost-effective than single campaigns alone. MDA only campaigns were more cost effective in the community or in combined community and school delivery channels compared to school alone.	Supports integration and the importance of local context when implementing health interventions

Outcome	Strength [Evidence]	Direction	Integration Results	Conclusion
NTD Infection	Strong 14 studies(22, 24, 26, 29, 31, 34-36, 38, 39, 41, 43-45)	Consistent	Most studies demonstrated a decrease in the prevalence at least one NTD	Supports integration
Drug-related Adverse Events	Strong 6 studies(14, 19, 25, 29, 31, 42, 49)	Consistent	No severe adverse events were reported, and reported adverse events were described as mild or transient and varied across studies.	Supports integration and health education
Participant Perspectives on Adverse Events	Emerging 5 studies(15, 27, 29, 37, 52)	Inconsistent	Participant fears associated with adverse events prevent uptake or alternately, raise concerns of efficacy if absent.	Supports integration and emphasizing health education
Health Education	Moderate 5 studies(15, 18, 27, 51, 52)	Consistent	Health education of participants increases MDA uptake and improves perceptions of adverse events.	Supports incorporating health education into integration
Participant Time Benefits	Emerging 4 studies(18, 21, 28, 40)	Consistent	Suggested time savings, however this was not quantified.	Supports integration
Participant Economic Benefits	Emerging 3 studies(15, 18, 25)	Consistent	Suggested cost savings	Supports integration
Equity	Emerging 2 studies(28, 37)	Consistent	Suggested reductions in coverage disparities between villages.	Supports integration
Volunteer Compensation	Emerging 5 studies (27, 37, 38, 40, 48)	Inconsistent	Staff desire for reimbursement or reimbursement amount and subsequent retention strategies were different in different contexts. Lack of uniform compensation may have interfered with retention.	Supports creative solutions to retention or standardized per diem
Volunteer Experience	Insufficient 1 study(12)	--	Suggested increase in satisfaction with increased experience	Insufficient
Relationship Building	Emerging 2 studies(15, 28)	Consistent	Suggested strengthening of intersectoral and community relationships with leaders, not quantified	Supports integration and involvement of local leaders
Personnel Redundancies	Insufficient 1 study(40)	--	Suggested reduction in health system personnel redundancies which benefits program and increases coverage	Insufficient

Health Education

Moderate evidence suggests health education contributes to improving participant involvement in six studies (15, 18, 27, 51, 52). One cross-sectional study in Uganda(27) attributed low integrated campaign MDA coverage to a lack of health education and community mobilization, and conversely, studies in Tanzania(18) and Yemen (51) cited political and religious leadership involvement increased health education and improved coverage. Studies noted health education can address issues of fears from co-administration with animal interventions, and with understanding the temporal nature of most adverse events to increase participant uptake of PC (15, 18, 52). This review did not retrieve quantitative evidence reporting economic benefit to participants, however emerging

evidence from four studies reported qualitative themes of cost and time savings for participants. Four studies conducted in Africa (18, 21, 28, 40) cited time savings to parents, and three of these (18, 21, 28) indicated campaign integration also resulted in parent and community member cost savings.

Equity

Two studies reported qualitative themes of a reduction in inequities associated with integrating NTD campaigns (28, 37). Both studies reported community based or community driven integrated campaigns reach more children, especially those in hard-to-reach communities when compared to school campaigns. Finally, the qualitative study reported a decrease in disparities between villages with increased coverage via school or the community in Tanzania (38).

Program Benefit Themes

The emerging evidence on program benefit was related to relationship building and program streamlining. Two qualitative studies (15, 28) suggested improved horizontal relationships between the health system staff and the community (15), or between different government sectors (28) following health campaign integration. However vertical communication on project improvement may be inhibited due to fears that funders will withdraw funding and materials (52). Interestingly, in one cross-sectional study (40) the integration of child survival interventions removed repeated healthcare worker supervision and indicated that this did not result in a loss of coverage. This study did not specify whether this meant the removal of redundant responsibilities from healthcare personnel or if this meant the removal of healthcare personnel occupying redundant roles. Regardless, this study did not explore the impact of this on healthcare personnel themselves.

Personnel Perspectives

The evidence for personnel perspectives is emerging and inconsistent. Six studies reported qualitative data on campaign volunteer perspectives (15, 27, 37, 40, 48, 52). These data fell into four main themes: experience, reimbursement, ability to work in other campaigns, and equality. First, when a health campaign is integrated into a health system, volunteers receive new or improved skills, are more empowered and prepared, and are taken more seriously which increases job satisfaction (15).

Next, five studies reported conflicting themes related to compensation (27, 37, 38, 40, 48). Two studies reported staff desire compensation, among other motivating factors (37, 48). A third study reported staff felt “too poor” to work without compensation, however these staff were able to work in other campaigns without affecting the coverage in the integrated campaign. A cross sectional study (27) reported volunteers were disappointed in the compensation given by the MDA campaign, and instead expected compensation in line with what they received from a Polio campaign. Finally, the Tanzanian Ministry of Health presented a different solution to staff reimbursement and retention as reported in a cross-sectional study (40). The Ministry required different workdays for different distributors to ensure equitable benefit and increase retention.

Key Findings

- 1) NTD health campaigns, particularly mass drug administration campaigns, should be integrated with other health campaigns, or into the health system.

- a. This is supported by strong evidence of both infection reduction in participant populations and cost effectiveness for governments and programs with the integration of health campaigns. This is further supported by moderate and emerging yet consistent qualitative evidence of time and economic benefits for participants, relationship strengthening, and increases in equitable distribution.
- 2) Programs should incorporate health education in the development and delivery of these campaigns.
 - a. This is supported by moderate and emerging evidence on the importance of health education in the uptake of integrated NTD MDA programs and understanding of the adverse events and side effects that accompany the drugs. The importance of health education was supported by health campaign personnel and participants.
- 3) Programs should consider local context when selecting the delivery channel for PC NTD health campaigns.
 - a. This is supported by strong cost effectiveness data indicating MDA only campaigns were more cost effective when delivered via community or combined community and school delivery channels compared to school alone.

Lessons Learned

This scoping review was conducted to assess the landscape of evidence, and thus, there are numerous outcomes and populations included in the question guiding this search. This resulted in many relevant studies. In future scoping reviews, workflow may be improved by strategically segmenting the data to streamline analysis. This could include tagging and bucketing studies at the title and abstract or full text review phases. This will serve to organize and streamline the later phases of work.

Implications for Policy, Practice and Future Research

These findings may support the current global goals of integrating health campaigns. It is important to note that the results of some studies in this review may not be generalizable due to the importance of local context and the compartment of each organization or agency involved in integration. This further underscores the importance of the local context and the involvement of community leaders in the development of program goals to achieve the desired outcomes when integrating campaigns. This context can further guide national health policy and organizational decisions on implementation strategies for integrated campaigns.

This search identified gaps in quantitative economic benefits seen at the participant scale, and social benefits seen at all scales of programming. While this scoping search did not retrieve studies examining participant resiliency, mental health, lost productivity, school attendance, lost employment, or educational attainment; these outcomes may be published in the primary literature on the vertical NTD health campaigns. An important finding is the reliance of campaigns on volunteers and the absence of standardized compensation structure for volunteers across campaigns. The difference in compensation (e.g., reimbursement, or per diem) between campaigns could contribute to a loss of morale among volunteers or challenges staffing campaigns. Future research can address these gaps to better understand the full benefit of integration for participants, staff, programs, governments, and funders.

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Note: Appendix of tools/instruments is a separate document.

For more information on this topic or to discuss further with the Health Campaign Effectiveness team, please visit www.campaigneffectiveness.org or contact the program directly at: campaigneffectiveness@taskforce.org

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