



The Polio Communication Network Contribution to the Polio Outbreak Response in Ethiopia's Somali Region, 2013–2015

Shalini Rozario, Mohammed Diaaeldin Omer, Kathleen Gallagher, Aron Kassahun Aregay, Bukhari Shikh Aden & Sahardid Mohamoud Abdi

To cite this article: Shalini Rozario, Mohammed Diaaeldin Omer, Kathleen Gallagher, Aron Kassahun Aregay, Bukhari Shikh Aden & Sahardid Mohamoud Abdi (2016) The Polio Communication Network Contribution to the Polio Outbreak Response in Ethiopia's Somali Region, 2013–2015, *Global Health Communication*, 2:1, 39–49, DOI: [10.1080/23762004.2017.1330604](https://doi.org/10.1080/23762004.2017.1330604)

To link to this article: <https://doi.org/10.1080/23762004.2017.1330604>



Copyright © Shalini Rozario, Mohammed Diaaeldin Omer, Kathleen Gallagher, Aron Kassahun Aregay, Bukhari Shikh Aden, and Sahardid Mohamoud Abdi



Published online: 06 Jun 2017.



Submit your article to this journal [↗](#)



Article views: 667



View related articles [↗](#)



View Crossmark data [↗](#)



The Polio Communication Network Contribution to the Polio Outbreak Response in Ethiopia's Somali Region, 2013–2015

SHALINI ROZARIO¹, MOHAMMED DIAAELDIN OMER¹, KATHLEEN GALLAGHER², ARON KASSAHUN AREGAY², BUKHARI SHIKH ADEN³, and SAHARDID MOHAMOUD ABDI³

¹United Nations Children's Fund (UNICEF), Addis Ababa, Ethiopia

²Expanded Programme on Immunization, World Health Organization, Addis Ababa, Ethiopia

³United Nations Children's Fund (UNICEF), Somali Region Field Office, Jijiga, Ethiopia

This article explores the Polio Communication Network's (PCN) contribution to the polio outbreak response in the Somali Region of Ethiopia from 2013 to 2015. The PCN strategies and innovations include the establishment of a communication network of experts, development of partnerships with locally trusted and influential groups, and capacity building of local structures. Results show PCN contribution through sustained high levels of community awareness of polio rounds and low rates of noncompliance with polio vaccination in line with the national indicator (< 1%). We argue that the context-sensitive approaches made significant gains in reaching traditionally missed, hard-to-reach, pastoral communities with polio information, improved communication capacity, and expertise, and contributed to the successful outbreak closure. The PCN experience in the Somali Region, one of Ethiopia's lowest-performing regions for health indicators, provides important communication lessons for the long term relevant to polio eradication and other public health programs. Due to the focus on building capacity in areas such as monitoring and data collection, generated social data demonstrated impact of communication approaches and has contributed to a better understanding of the behavioral and environmental factors affecting the demand for, and uptake of, health services in Ethiopia's Somali Region.

Ethiopia is the second most populous country on the African continent, with a population of 90 million in 2015 (Central Statistical Agency of Ethiopia [CSA], 2015), and shares international borders with Djibouti, Eritrea, Kenya, Somalia, Sudan, and South Sudan. It is one of the fastest growing economies on the African continent (Federal Democratic Republic of Ethiopia Ministry of Health [FMOH], 2015). Only 16% of the population lives in urban areas. The majority are settled in rural areas, engaged in farming in the highlands and pastoralism in the lowlands (CSA, 2012). Administratively, the country is divided into nine regional states and two city administrations, with regions further divided into zones, woredas (districts), and kebeles (subdistricts). The Somali Region has nine administrative zones consisting of 68 woredas and 786 kebeles (Ethiopia Somali Regional State Bureau of Finance and Economic

Development [ESRSBOFED], 2013), with a population estimated at 5.1 million (Federal Democratic Republic of Ethiopia, 2013). The backbone of the health system in Ethiopia is primary health care, which—through its flagship Health Extension Programme, established by the FMOH in 2003—provides promotive, preventive, and curative community health services (FMOH, 2012).

In 2014, Ethiopia announced achievement of MDG4 (Millennium Development Goal 4), 2 years ahead of schedule—reducing the under-5 mortality rate by two-thirds between 1990 and 2012—significant progress for a country that formerly had one of the highest under-5 mortality rates in the world (United Nations Inter-agency Group for Child Mortality Estimation, 2014).

Since its inception in 1980 in Ethiopia, the Expanded Programme on Immunization (EPI) has been a major contributor to child survival and health and is one of the main strategies in the Health Sector Transformation Plan (FMOH, 2015). While improvements in EPI performance have contributed to progress for child health, challenges remain. A large share of Ethiopia's annual birth cohort (3 million children) remain unprotected against the 10 vaccine-preventable diseases¹ currently targeted (one of which is polio), with suboptimal and large variations in coverage across regions (FMOH, 2012). A national EPI coverage survey in 2012 reported national Penta-3 coverage at 66%, with only 50%

This is an Open Access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Address correspondence to Shalini Rozario, United Nations Children's Fund (UNICEF), UNECA Compound, Zambezi Building, 3rd Floor East, Box 1169, Addis Ababa, Ethiopia. E-mail: shalurozario@gmail.com

of children between 12 and 23 months of age fully immunized. In the Somali Region, Penta-3 coverage of 31% was reported, and only 12.6% of children in the region were fully immunized (FMOH, 2012).

A study of the behavioral determinants for immunization service utilization in Ethiopia in 2012 shows that communities often lack knowledge about the time, place, and importance of completing routine immunization. Other barriers include weak health worker interpersonal communication during immunization sessions, far distances to the immunization site, fear of vaccine side effects and reactions, inconvenient timing of sessions, and caregiver competing priorities (Michael et al., 2012).

In May 2013, a case of wild poliovirus (WPV) was confirmed in Somalia. The poliovirus spread quickly in Somalia, Kenya, and Ethiopia, resulting in a WPV outbreak in the Horn of Africa (HOA) region totaling 223 cases in 2013 and 2014 (Global Polio Eradication Initiative [GPEI], 2015). Between August 2013 and January 2014, a total of 10 WPV type 1 cases were confirmed in Ethiopia. All cases were confined to the Doolo zone of the Somali Region (Figure 1), a region with low routine immunization coverage where nearly 90% of the population lives a pastoralist lifestyle (ESRSBOFED, 2013). This outbreak was a setback for the GPEI, which at the time aimed to halt all WPV transmission by the end of 2014 and achieve global polio eradication certification by the end of 2018 (GPEI, 2013). At the onset of the polio outbreak, the FMOH with support from UNICEF and the World Health Organization (WHO) responded swiftly. Fifteen polio supplementary immunization activities (SIAs)² were conducted between June 2013 to June 2015.³ The last WPV case in Ethiopia reported date of onset of paralysis on January 5, 2014. In June 2015, the outbreak was declared closed. Ethiopia and other HOA countries were cautioned against the continuing risk of WPV introduction and circulation (WHO, 2015).

Communication and social mobilization play a critical role in ensuring that communities accept, demand, and are reached with the polio vaccine—particularly in an environment of repeated SIA rounds. Evidence shows that in

communities where social mobilization is optimal and local ownership of the program is achieved, the poliovirus is unlikely to survive (GPEI, 2013). The Somali Region presented a number of unique considerations including its limited infrastructure and hard-to-reach, mobile communities with low access to and utilization of health services (ESRSBOFED, 2013). Providing health information and services to these communities requires special understanding of where communities are and how to reach them. Furthermore, low education and literacy rates and limited exposure to mass media in the region contribute to a unique, highly interpersonal communication environment, which requires understanding how communities receive and process information related to polio immunization and disease. In the region, 81.8% of women and 52.3% of men have no exposure to mass media (newspaper, radio, TV) on a weekly basis (CSA, 2012); 74.9% of all women between the ages of 15 and 49 have no formal education; and fewer than 1 in every 10 women is literate (CSA, 2014).

The FMOH led communication efforts building on recommendations made by GPEI experts to implement rigorous, evidence-based strategies (Independent Monitoring Board of the Global Polio Eradication Initiative, 2013). *The National Communication and Social Mobilization Strategic Plan for the Polio Outbreak Response 2013–2015* guided the response and set indicators such as to “maintain less than 1% of children not vaccinated during polio rounds due to refusal (noncompliance).” The UNICEF Communication for Development approach was applied to address the social and environmental context to “promote positive and measurable behavior and social change” at various levels (UNICEF, 2011). Formal scale-up of locally appropriate communication technical assistance and partnerships was made through the newly established Polio Communication Network (PCN).

Our article aims to demonstrate how PCN interventions resulted in better-informed and contributed to better-vaccinated communities in Ethiopia’s Somali Region by increasing awareness, identifying and addressing resistance, and building a base of knowledge, human resource capacity, and technical expertise for improved child health.

Methods

The methodology used in this paper consists of an overview of PCN interventions employed during the polio outbreak response in Ethiopia’s Somali Region from 2013 to 2015.

Establishing the PCN

The PCN is a network of partnerships and technical assistance designed to implement a strategic communication response to the polio outbreak. It was established by UNICEF in polio priority regions in Ethiopia at the onset of the polio outbreak in 2013. The aim of the PCN is to increase positive polio knowledge and behavioral outcomes in communities by building communication capacity and commitment at local levels, engaging specialized partnerships for

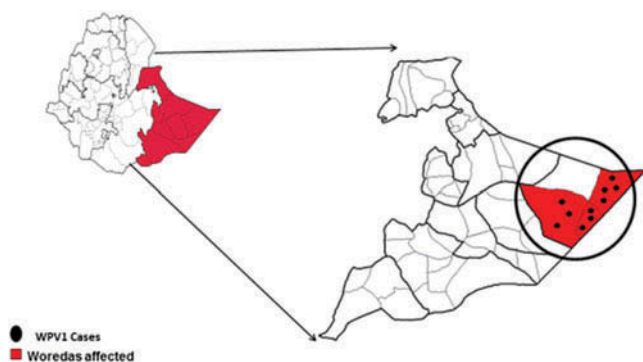


Figure 1. Map of wild poliovirus (WPV) type-1 cases in the Doolo zone (circled) in the Somali Region of Ethiopia, 2013–2015.

social mobilization (such as local, influential leaders and community groups), and using data for action. Identifying, addressing, and even preempting refusals to vaccinate, no matter how small the number, is a priority of the PCN. This strategy was based on global experience, as refusal of polio vaccination has been one of the barriers to global polio eradication (Larson & Ghinai, 2011). Also, as the majority of the PCN is deployed in the Somali Region, known for its strong tradition of oral and interpersonal communication for information exchange, the PCN was designed to meet local communication needs with local solutions.

The PCN deployed in the Somali Region works alongside regional and zonal health bureaus and offices and includes one regional communication coordinator, nine zonal communication coordinators (ZCCs), a partnership with the Islamic Affairs Supreme Council (IASC), and formal collaboration with female volunteers and local clan and kebele leaders. Two public health experts were placed in the regional capital, Jigjiga, and in the Doolo zone and STOP Teams⁴ contributed international experience to the program. UNICEF staff, both communication and health experts at national and regional levels, led the strategic response. The 10 coordinators were recruited based on their expertise in clinical or public health and supported planning, capacity building, advocacy, social mobilization, monitoring, and evaluation. They were provided vehicles to enable geographic reach of support, and quarterly reviews took place to monitor performance and build capacity.

Partnership With the IASC

Given its influential role and ability to reach every household in the Somali Region, including pastoralists, the IASC was engaged as a formal partner with UNICEF⁵ between July and December 2014. The partnership objective was to enhance community awareness of, demand for, and uptake of polio vaccination and other child and family health services while building the IASC communication capacity in a participatory, sustainable way. The IASC is a faith-based, nongovernmental, civil-society organization comprising a widespread network of more than 1,200 sheikhs, 1,000 Quranic schoolteachers (known as Mo'alims), and imams in 2,500 masjids. The IASC is led by a regional president and cabinet, with representatives at every administrative level.

Standard messages on polio and child survival were developed and reinforced by religious teachings from the Quran. Cascaded trainings were conducted on program interventions and messages. Dissemination of messages was done through masjids, Quranic schools, adult learning and religious teaching schools, community conversation sessions, and special lectures or sessions known as "Muhadaras," particularly designed to reach women as key decision makers in the vaccination process. IASC representatives participated in the planning, implementation, and evaluation of the SIAs and developed and utilized SIA monitoring formats to report numbers of missed children, to report identified and resolved

cases of refusals, and to report mobilization activities conducted including audiences or individuals reached.

Involvement of Local Leaders in Microplanning

Bottom-up microplanning was an important step in planning quality polio SIAs to determine accurate target population numbers, locations, and community characteristics to better reach missed, hard-to-reach, and mobile populations. The PCN, local teams, and partners recognized the value of intensified involvement of local leaders in microplanning to facilitate ownership, local innovation, and commitment. Prior to the 11th SIA in September 2014, microplanning tools were revised to capture more information on community and pastoralists' settlements, key markers, and reference points (i.e., health facilities, veterinary health posts, grazing areas, government schools and Quranic schools, markets, mosques, water points, food distribution centers, etc.), times for best reach, contacts, and listing of previously missed settlements. In the Doolo zone, bottom-up microplanning from round 11 onward involved kebele and clan leaders in all 42 kebeles. Clan members were assigned to vaccination teams as community mobilizers prior to and during SIAs.

Social Mobilization Committees

Social mobilization committees (SMCs) are formal structures at the woreda, kebele, or subkebele level that have the mandate to mobilize communities on a variety of issues. SMCs are usually chaired by the kebele administration, with a diverse membership of local influential persons such as kebele and religious leaders, administrators, health personnel, and women leaders. Functionality of SMCs varies throughout the Somali Region. The PCN was tasked to support engagement of these structures by monitoring functionality of the SMCs, revitalizing nonfunctional SMCs (if they had not met within the last month), or supporting establishment of new SMCs where none existed. SMCs were supported with training and capacity building, and SMC engagement in health and other topics was monitored.

Research, Monitoring, Evaluation, and Documentation

The use of data for action, for polio communication, and social mobilization has long been a priority for the global polio eradication program (Obregón & Waisbord, 2010). Prior to and throughout the polio outbreak, research, monitoring, and evaluation was used to inform and improve communication interventions. These data can be divided into three general categories: SIA data, regular reports, and special research and assessments.

SIA data include (1) the kebele communication checklist⁶—used intra- and post-SIA to measure indicators for polio and routine immunization; (2) WHO monitoring data collected as part of the independent monitoring (IM) process; and (3) the Rapid Convenience Survey (RCS), a house-to-house SIA survey conducted by the polio program and partners. The IM and RCS processes collect information on

multiple indicators on campaign performance including communication-related indicators (such as the source of information about the SIA; awareness levels; and reasons for noncompliance). In the Somali Region, IM was conducted during the last 2 days of each campaign and for 2 days after the campaign was completed.

Regular PCN reports in this article include the monthly ZCC reports instituted in 2013. ZCCs collect and report data on a monthly basis from zonal and subzonal levels on more than 30 indicators and topics to the regional and national teams, who then collate and analyze the data. The reports provide data on topics such as trainings or sensitization meetings conducted; numbers and reasons for resistance and strategies for resolution; and status of SMCs and other indicators.

Special research and assessments provided qualitative information to improve polio and health communication in a pastoralist setting. In this paper, we focus on the conducted assessments of clan structures and livestock markets and a case study of “zero-dose” children.⁷

Assessments of Clan Structures and Livestock Markets

Clan and tribal structures, and livestock markets are influential and inter-linked networks within the Somali Region. Clans form the structural base upon which life, communication networks, and even trade are built. For the large number of pastoralists in the region, the well-being of livestock (e.g., camels, cattle, goats, sheep, or donkeys) is of paramount importance, and their movements are guided by the search for water and pasture and also markets for trade. Livestock markets in every zone and woreda serve as hubs of business transaction and interpersonal interaction. In 2014 and 2015, in order to assess potential roles of these networks to optimize polio communication in the region, clan and tribe structures were mapped to document processes of information flow and reach, and livestock market assessments explored how brokers gathering on a daily basis, often coming from long distances, could be engaged as mobilizers for health.

Zero-Dose Case Studies

In partnership with Jigjiga University, the Somali Regional Health Bureau and UNICEF conducted a qualitative case study of polio “zero-dose” children in February 2014 in the region. The study aimed to uncover why children were missing out on polio vaccination despite intensive SIA efforts. Furthermore, the study aimed to document the sociocultural, religious, behavioral, service-related, and other factors that could influence polio vaccination in pastoralist communities to further guide communication interventions implemented by the PCN. The study included in-depth interviews with family members of 14 zero-dose children and 14 case controls, along with interviews and discussions with service providers, community leaders, and others.

Results

Awareness of Polio Rounds

During seven consecutive SIAs, from round 8 (implemented in May 2014) to round 14 (implemented in March–April 2015), parents’ prior awareness of the campaign remained above 77% (a high of 88.4%) except for round 13 (Figure 2). The lowest awareness rate in round 13 of 67% may be due to the continually postponed SIA dates (as further explained in the discussion section), which may have impacted successful communication of SIA dates and related community awareness. In the Doolo zone, independent monitoring (IM) data show a generally increasing trend of parents’ awareness from rounds 8 to 14 (Figure 3).

The three main reported sources of information about polio SIAs across rounds 8 to 14 in the Somali Region were megaphone, health workers, and kebele leaders. Figure 4 shows the different sources of information about the campaign reported by parents and caretakers. Other sources of information reported were religious leaders, radio, TV, SMS, and others. In the Doolo zone, IM report the top sources of information, similar to the overall Somali Region, to be

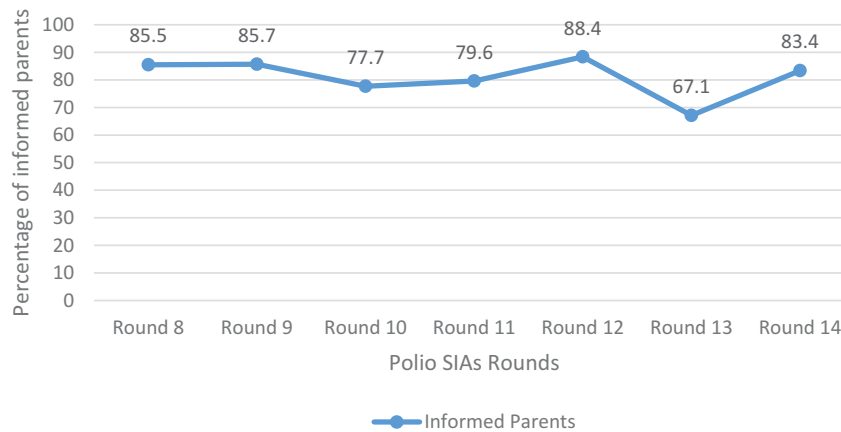


Figure 2. Percentage of reported “parents informed” about the campaign dates in the Somali Region by polio supplementary immunization activities (SIA) rounds (May 2014–April 2015), independent monitoring data.

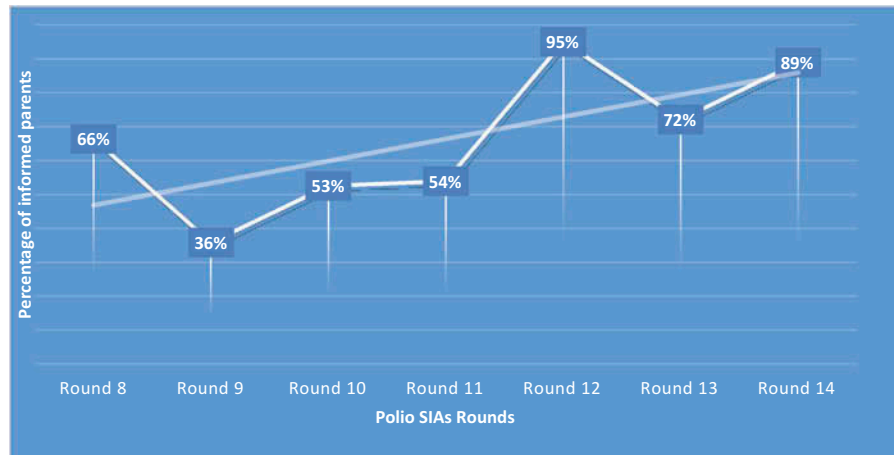


Figure 3. Percentage of reported “parents informed” about the campaign dates in the Doolo zone of the Somali Region by polio supplementary immunization activities (SIA) rounds (May 2014–April 2015), independent monitoring data.

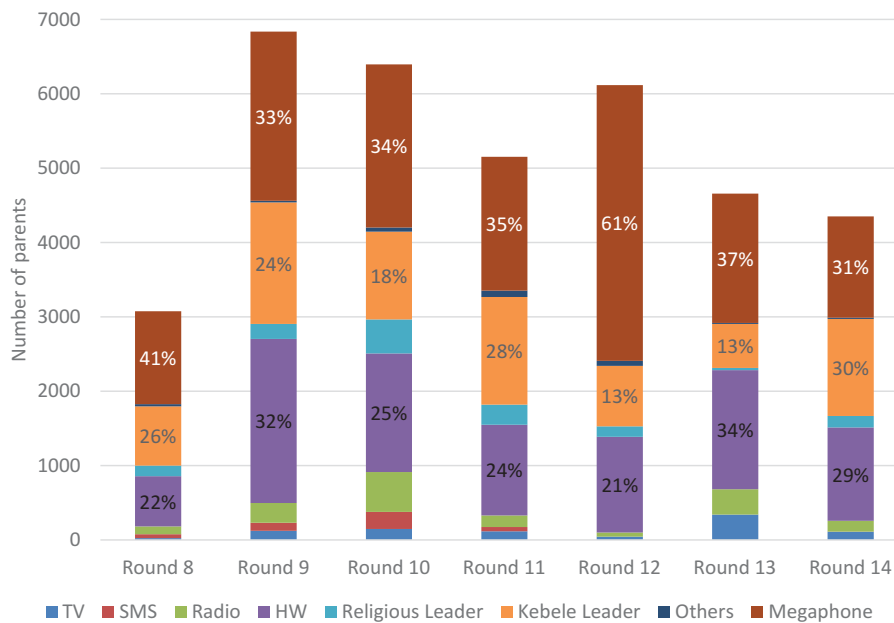


Figure 4. Reported sources of information about polio campaigns in the Somali Region, by polio supplementary immunization activities rounds (May 2014–April 2015), independent monitoring data.

megaphone announcements, kebele leaders, and health workers, but not across all the rounds. Religious leaders in the Doolo zone were the leading source of information in round 11 (35%), which reflects the first and most intensive round of engagement with the IASC through the Programme Cooperation Agreement in the region.⁸

Impact of Partnership With the IASC

In the Somali Region, between August and December 2014, more than 1.4 million people (39% female), were reached with polio, child, family health, and survival messages, aligned with Quranic teachings according to the monthly IASC monitoring reports. The messages covered polio,

routine immunization, tetanus toxoid vaccination, antenatal care, hygiene, and breastfeeding and were printed on 11,581 brochures together with 1,200 polio posters and distributed to IASC members. In all, 1,480 sheikhs, imams, and Quranic schoolteachers were trained on the polio and child survival interventions, on the dissemination of key messages, and on SIA monitoring.

Community sensitization was achieved through various channels. Through masjids, 800,650 people were reached, 28% of whom were female. Overall, 601,201 individuals were reached through Quranic schools; 28% were female. Through 138 community conversation sessions, more than 5,070 individuals were reached; 60% were female. One

hundred thirty-five Muhadaras (special mobilization sessions) with an emphasis on reaching women were conducted, and a reported 17,000 individuals were reached, of whom 41% were female. The IASC network reported 142 missed children to vaccination teams and reported resolution of 100% of the 52 cases of resistance identified cumulatively over two rounds of SIAs (rounds 11 and 12). The main reported reasons for resistance were misconception and repeated rounds. Although numbers appear small, any targeted child missing polio vaccination poses a risk to himself or herself and their community, and any form of resistance has the potential to derail immunization efforts. Table 2 summarizes the audiences reached through different IASC channels.

Noncompliance Addressed

Levels of refusals, or noncompliance, were maintained as per the national communication indicator: “maintain less than 1% of children not vaccinated during polio rounds due to refusal (non-compliance)”. Noncompliance was one of the lowest percentages of reasons for missed children during rounds following the main

reasons such as child absence, house not visited by vaccination team and others. As revealed in Figure 5, a decline is revealed in the number of non-compliance cases between rounds 8 to 14.

The PCN reported and resolved refusal cases through different strategies. As shown in Table 3, ZCCs reported 456 noncompliance cases between December 2013 and June 2015; 311 (68.2%) of them were successfully resolved (agreed to vaccination). The reported reasons behind non-compliance were religious reasons or misconception (39%), repeated vaccination (35%), child sickness (11%), need clan leader’s permission to vaccinate children (3%), and others (12%).⁹ Out of the resolved noncompliance cases, kebele leaders, religious leaders, clan leaders, and others contributed to resolve the cases, accounting for 45%, 37%, 11%, and 7% of resolution strategies respectively. The IASC also tracked and resolved refusal cases (Table 2).

Microplanning With Clan and Local Leaders

Informed by the mapping of clan structures, 84 clan and kebele leaders and community members were involved in

Table 1. Polio Supplementary Immunization Activities (SIAs), in Somali region by Polio SIA rounds (May 2014–April 2015), Target Age and Reported Administrative Coverage

Polio SIA Round	Round 8 (May 2014)	Round 9 (June 2014)	Round 10 (July 2014)	Round 11 (September/October 2014)	Round 12 (November 2014)	Round 13 (February 2015)	Round 14 (March/April 2015)
Age group targeted	0–15 years	0–59 months	0–59 months	0–59 months	0–59 months	0–59 months	0–59 months
Reported administrative coverage (%)	95.5	99.3	101.2	100.5	103.3	108.4	101.1

Table 2. Outputs of Interventions and Activities Done by IASC, August–December 2014, Somali Region, IASC Monitoring Reports

Item description	Number reached			
Community sensitization				
Channels	Number of messages/sessions	Male	Female (%)	Total
Masjids (> 2,500)	4,567	577,187	223,463 (28%)	800,650
Quranic schools	30,060	435,194	166,007 (28%)	601,201
Community conversation session	138	2,017	3,053 (60%)	5,070
Muhadaras (special sessions)	135	9,971	7,029 (41%)	17,000
Total	34,900	1,024,369	399,552 (39%)	1,423,921
Training of IASC network				
Training of sheikhs and imams of IASC network	Cascade training	Male	Female	Total
		1,480	0	1,480
IASC reported missed and resistant cases				
Category	2 SIAs	Identified	Reported/resolved	% Reported/resolved
Identified and reported missed children		142	142	100
Reported and resolved resistance		52	52	100

Note. IASC = Islamic Affairs Supreme Council; SIA = supplementary immunization activities.

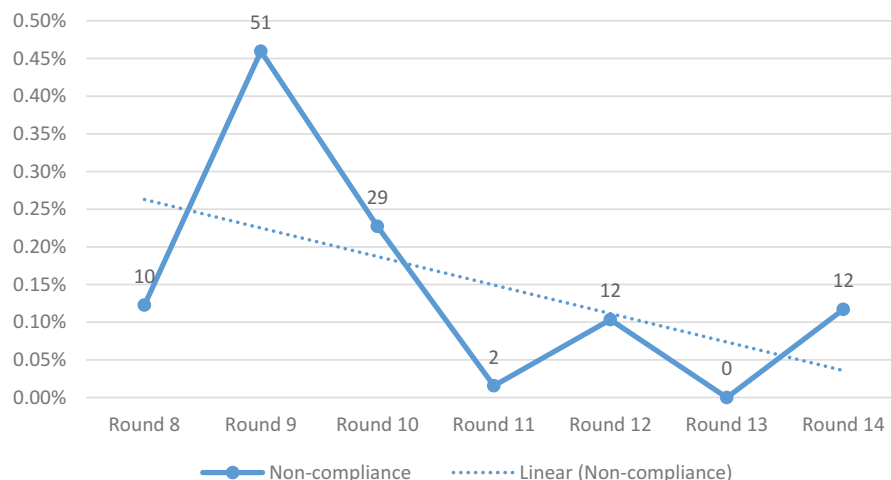


Figure 5. Trend (percentage and numbers) of reported noncompliance cases from the Somali Region by polio supplementary immunization activities rounds (May 2014–April 2015), independent monitoring data.

Table 3. Reasons Behind Reported Resistant Households and Resolved by Category, Somali Region, December 2013–June 2015, Zonal Communication Coordinator Monthly Reports

Reported reasons of noncompliance

Reasons	Repeated vaccination	Religious reasons/ misconception	Need clan leader permission	Child sick	Others	Total identified HHs with noncompliant cases
Number	157	180	13	52	54	456
(%)	(35)	(39)	(03)	(11)	(12)	(100%)

Resistant households resolved by category

Resolved by	Kebele leader	Clan leader	Religious leader	Others	Total noncompliance resolved	Percentage of noncompliance resolved
Number	139	33	118	21	311	311 (68%)

Note. HH = 456.

the completion of revised bottom-up microplan formats in the Doolo zone for the 11th round in September 2014. All kebeles (42) and subkebeles (224), in addition to 1620 new pastoral settlements, were comprehensively mapped alongside additional community resource points such as 336 schools, 82 religious institutions, 174 markets, 113 water points,¹⁰ 26 veterinarian health posts, and 23 food distribution points. Additional information included nomadic pasture and grazing points, market timings, schools and religious gatherings, means of transport required to reach identified settlements, list of settlements missed in previous rounds, and lists of clan and religious leaders, local stakeholders, and nongovernmental organizations. Old and new pastoral settlements and community resource points were clearly identified for improved SIA reach and were updated for subsequent polio SIAs. Based on the success of this strategy, a budget line (for meeting and travel costs) was included in SIA communication budgets for engagement of 84 clan leaders (2 per kebele) in the Doolo zone from round 11 onward.

According to the reported SIA administrative data for the zone, rounds 9 to 14 showed a steady increase in coverage (88.9% in round 9; 102.9% in round 11; 106.9% in round 14). While this improvement cannot be solely attributed to the microplanning, the microplanning may have contributed to this increase in coverage.

Revitalization of SMCs

The monitoring reports of ZCCs from July 2014 to April 2015 revealed that 632 events of revitalization/reestablishment¹¹ of kebele SMCs have been carried out. The total official number of kebeles in the region is 786 kebeles, and it is expected that each kebele would have a SMC. PCN impact on the functionality of SMCs can also be demonstrated by comparing ZCC SIA round monitoring reports. ZCC monitoring conducted for SIA rounds 6 through 8¹² showed that of the 353 committees monitored, 186 (53%) were functional. Compare this to the data from SIA rounds 16 through 18¹³ in which 429 committees were monitored, and

408 (95%) were reported to be functional. This shows a 42% increase in SMC functionality from 2014 to 2015.

During four SIAs (rounds 12 to 15: November 2014–June 2015), 149 SMCs were monitored (43 in November, 42 in February, 38 in April, and 26 in June) by the PCN, using the kebele communication checklist, conducted intra- and post-campaign. Health, as a discussion topic in the SMCs’ monthly meetings, was reported in 100% of the meetings held in 3 months out of the 4 months monitored (Figure 6).

Assessment of Clan Structures and Livestock Markets

The assessments of clan structures and livestock markets revealed how information is exchanged within these structures, the linkages between these structures, and how these structures could be better used for health communication. Subsequently, these strategies were incorporated into the regional communication strategies (such as the collaboration with clan leaders for improved microplanning).

Clan and tribe structures were mapped to understand the systems of information flow—from clan level (average of 500,000 households or 4–20 subclans) to subclans (made of 10 *Jilib*, comprising more than 5,000 households), down to progressively more local clusters, *Beel*, *Dudo/Qayro*, *Deer* and finally *Jees* (1–10 households). One such communication opportunity, “Safar bayimid,” meaning “somebody comes from town,” is when someone has arrived home after a journey (to sell livestock, or arrives from the town) and a systematic exchange of information takes place between the traveler and gathered members of the community. Discussion includes an orderly set of topics including the security of the area, current market price of livestock, price of food, the health status of the community, and finally any other messages or information to be

conveyed, which, upon agreement, are further communicated by community members during their travel in the bush.

Livestock brokers and sub-brokers accounted that the most important people in the community they communicate with are community, religious, and clan leaders and tradesmen. Most transmit messages by sending oral messages or send messages via travelers, and a few use telephone communication when available. The majority of brokers interviewed said they have daily contact with the community in the market and numbers of people they deal with per day vary based on the location (5 in Doolo to up to 50 in Liban and Siti). Although woreda-level markets are small (as compared to zonal or regional markets), they still play an important role in providing messages to the pastoralist and scattered communities. All interviewed brokers expressed interest in supporting community health and development initiatives and responded positively to vaccination efforts in their communities. Some of the expressed needs to be further involved in health education included, “We need to have training about mother and children vaccines. We need someone to regularly work with us. Need per diem/incentive if possible.” Some of the areas in which brokers were ready to support included, “To convey my communication about the advantage of the vaccine for both mother and child. Encourage other brokers to participate the implementation of the vaccination for mothers and children.”

Zero-Dose Case Study

The zero-dose case study identified the main reasons reported for nonvaccination, which were “family lack of knowledge about the benefit and importance of immunization” and “families not reached with the vaccine and services, due to remoteness for the service providers.” Detailed analysis

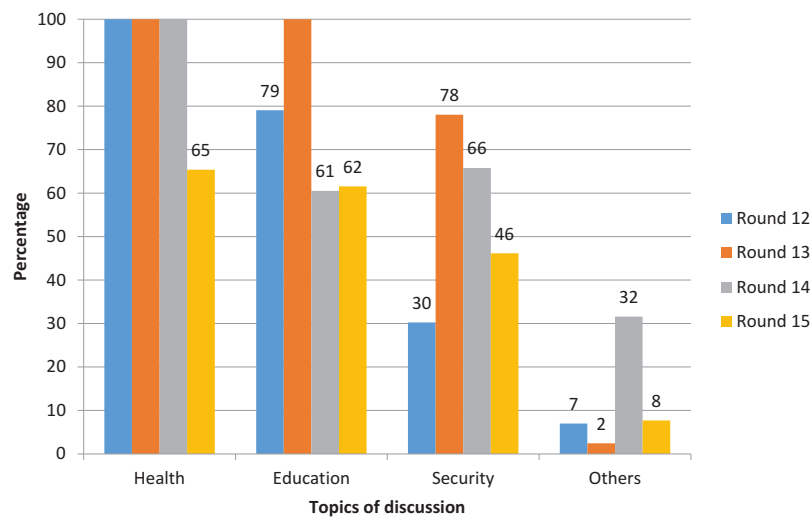


Figure 6. Topics of discussion at social mobilization committees in the Somali Region by polio supplementary immunization activities rounds (November 2014–June 2015), kebele communication checklist.

revealed some behavioral and knowledge barriers to vaccination such as misconceptions (the child was too sick or too young to be vaccinated or was already healthy and did not need vaccination), poor communication between health workers and caretakers, low prioritization of vaccination, and religious and traditional beliefs.

An uncle of a zero-dose child living in a pastoralist family in the Geladi woreda of the Doolo zone gave insight into needed adjustments for polio programs to meet local contexts: “We usually move, and follow where the clouds and the rain moves, therefore, unless your health programs and polio campaigns move also with the clouds and rain as we do you will never reach us.” The study revealed the importance of close collaboration between health workers and religious leaders, elders, and community leaders for polio program interventions (Hashi, 2014).

Discussion

This article explores the PCN contribution to interruption of the polio outbreak in the Somali Region, the likely contribution to increased SIA coverage, and significant advances in the quality of communication efforts. The results can be summarized into three categories: contribution to increased awareness; addressed resistance; and an established base of knowledge, human resource capacity, and technical expertise for improved child health.

First is the contribution to sustained high levels of community and parents’ awareness about polio SIAs across all rounds reviewed. Awareness is one of the main communication indicators measured within the GPEI. If parents and communities know about the SIA prior to the round, children are more likely to be vaccinated. We believe that the IASC partnership made a major contribution by disseminating credible polio and child survival messages to large numbers of people through a variety of channels. In the initial partnership stages, low numbers of females were being reached with messages compared to males, but this was quickly remedied, and special strategies were implemented to better reach women. Evidence shows that mothers are influential decision makers for child health, as they generally have the main responsibility to take their children for vaccination: A national study reported that 85% of immunization decision-making power in the Somali Region belonged to women (Michael et al., 2012). Another contributing factor to the high levels of SIA awareness may be the engagement and revitalization of SMCs and their broad community membership base. The power of these committees has been widely recognized, but their functionality in general and more specifically related to the polio program was undocumented prior to the PCN collaborations. In moving forward, these channels have great potential to engage on broader health issues, building on the polio experience. Finally, related to the awareness data presented in this paper, a drop in “parents informed” may be observed in round 13 (Figure 2). It is important to recognize the negative impact that postponement

of SIA dates has on social mobilization efforts. When SIA dates are set, communicated, and then postponed, this often results in parents’ confusion about the actual dates of vaccination campaigns. The SIA dates for round 13 were postponed several times at the national and regional level and ultimately may have had a negative impact on community SIA awareness.

Second, maintained low levels of noncompliance as per the national and global level indicator of < 1% were achieved. Addressing noncompliance and preempting potential noncompliance was a priority for the PCN. Although refusals never were presented in large numbers, potential for cases to rise, due to the environment of repeated rounds (SIAs taking place nearly every month) or negative community reaction to a vertical program (offering only polio, when community health and survival needs were many), presented possible scenarios for increased resistance. PCN tracking, reporting, and resolution of resistant cases allowed teams to take stock of any potentially increasing trends of resistance and address the problem strategically. Furthermore, trainings and roleplays on addressing resistance effectively were an integral part of PCN capacity-building efforts. As the presented data show, leading reasons for vaccine refusal were “misconception” or “religious reasons” which, based on GPEI historical experience, is no light matter to be ignored. Experience from Afghanistan, Nigeria, Pakistan, and India provide lessons on how refusals or misconceptions presented serious obstacles to the success of vaccination campaigns (Larson & Ghinai, 2011). The collaboration with the IASC was built on GPEI experience (in polio-endemic countries with massive vaccine resistance, at times linked erroneously with religion or politics) to focus on a broad set of mutually developed messages (not limited to polio) and was supported by Quranic teachings. This strategy was decided early on so that the community could reap broad health education benefits from the collaboration (beyond polio) and that they would have confidence in the messages coming from trusted religious leaders, backed by religious teachings. These efforts were deliberate strategies, aimed to thwart any skepticism, misconceptions, fear, resentment, or resistance that a vertical, “polio-only” approach might indirectly foster.

Third, and perhaps the most complex and most significant area of impact, is the increased communication capacity and a generated base of social data for the national polio program. The PCN helped to build health communication capacity at various levels within the Somali Region. It has been documented that availability of technical assistance and capacity on the ground are integral elements to the success of communication programs (Waisbord, Shimp, Ogden, & Morry, 2010). Regional, zonal, and local health communication capacities within the health system structures are limited, often with no dedicated staff to support health communication and social mobilization. The PCN helped to fill this gap by placing a dedicated communication staff member in every zone of the region and helped build capacities of existing health staff and community members through participation in

conducted trainings, review meetings, and formal partnerships and through involvement in program implementation, monitoring, and evaluation. Initial results from a recently conducted monitoring assessment of the PCN in 2016 shows a very positive impact that the network has made in all areas supported, with extended benefits into the broader child health agenda.

PCN emphasis on knowledge generation, quality research, monitoring, and evaluation helped to yield a wealth of social data that contribute to understanding the behavioral and environmental factors that affect family decisions to accept or seek polio and routine immunization in the region. The zero-dose case study provided information to help better understand why some children miss out on polio or routine immunization and how communication can help address this gap. The clan and livestock assessments helped guide interventions to better identify and reach communities with information and to deliver targeted messages to mobile and nomadic populations with a cost-effective, culturally acceptable approach within short period of time. As a result of the improved capacities and knowledge base for polio, the potential to further utilize identified opportunities and support other initiatives “beyond polio” is tangible, although these have yet to be further explored.

Initial challenges were faced around the collection and use of social data for impact. However, through developed capacity, routine PCN reviews, assessments and trainings, systematic data review and analysis, and strong technical assistance, the PCN has generated a system of monitoring and evaluating communication interventions and impact. In moving ahead, one of the challenges is to build on achievements of the PCN for polio, routine immunization, and child health programs. This will require consideration of the significant investment made into the PCN in terms of time and resources, which allowed the PCN to operate in challenging circumstances, related to security, access, and infrastructure.

One of the strengths of this paper is the numerous sources of information, such as the SIA data, regular reports, and special research, which corroborate the main findings of the results. In addition, this paper reviews PCN strategies implemented during the polio outbreak response that may provide key lessons for other outbreak response initiatives.

Limitations of the study include use of self-reported data, such as the ZCC monthly reports and IASC activity reports, which may introduce bias into the study results. Also, the review was limited to the PCN, while there are polio partners who also contribute to communication and social mobilization for polio such as Core Group and others. Results might not be generalizable for other settings, as this study focused exclusively on interventions in a primarily pastoralist region.

In conclusion, the communication response to the polio outbreak in the Somali Region has yielded positive impact at the community and household levels. With implementation of a strategic, context-specific, multipronged approach, children were more effectively reached. The experience and knowledge base generated by the PCN can contribute to

better understanding of the factors affecting the demand for and uptake of health services in the Somali Region. Further, the PCN experience and achievements provide important lessons on how effective communication can advance the equity agenda in its efforts to reach all populations, particularly the most vulnerable, remote, or traditionally missed, with equitable health information and services for all. Finally, this documentation provides evidence of the PCN impact for the polio program and its future potential to support other child survival programs.

Acknowledgments

The authors thank the following persons for their review of this article: Dr. Belete Tafesse, Dr. Macoura Oulare, Tesfaye Simireta, Tariku Berhanu, Dr. Tersit Assefa, Almaz Merdekios, Angela Baschieri, Dr. Muse Soyan, Asli Hassan, and Mohammed Adem. They are grateful to Abdinasir Mohamed, Yejimmawork Ayalew, and Naseem Khan for their support with the data analysis and tables. In addition, they acknowledge STOP Team consultants Ahmad Shahvez, Hope Roobol, Abhishek Gupta for their contributions. Appreciation goes to the Somali Regional and Zonal Health Bureaus, the regional and zonal communication coordinators, the Islamic Affairs Supreme Council, other communication network contributors, and UNICEF and WHO field teams. Special appreciation goes to the community members, families, and parents who shared their time, energy, and knowledge. Many thanks to Rustam Haydarov and the polio teams in the UNICEF Eastern and Southern Africa Regional Office (ESARO) and the World Health Organization Regional Office for Africa (AFRO). We extend our appreciation to the members of the Horn of Africa Technical Advisory Group (HOA TAG). The authors thank the donors who have made significant contribution to the communication and social mobilization support of the polio outbreak response: Rotary International, the Bill and Melinda Gates Foundation, Crown Prince Court, Abu Dhabi, UAE, and others. Many thanks to the Communication Initiative and the United States Agency for International Development (USAID) Maternal and Child Survival Program for their generous support. Many thanks to the team at Global Health Communication. The authors acknowledge the leadership of the Ethiopia Federal Ministry of Health and EPI Taskforce throughout the polio outbreak response. We remember those individuals affected by polio in Ethiopia and around the world. This work is dedicated to Shamala Raj Rozario, whose love and support made everything possible.

Funding

The publication of this article was made possible by the generous support of the American people through the United States Agency for International Development (USAID) under the terms of the Cooperative Agreement AID-OAA-A-14-00028. The contents are the responsibility

of the Maternal and Child Survival Program and do not necessarily reflect the views of USAID or the United States Government.

Notes

1. Diphtheria, Haemophilus influenzae type b (Hib), hepatitis B, measles, pertussis, pneumococcal, polio, rotavirus, tetanus, tuberculosis.
2. In this article, SIA refers to polio vaccination campaigns using oral polio vaccine.
3. In this article, SIAs referenced are primarily from rounds 8 to 14 (May 2014–April 2015), which provides a 1-year snapshot during the outbreak response (Table 1) and reflects the time period in which a full range of activities described were implemented.
4. The STOP Program (Stop Transmission of Polio) is a global effort that trains public health professionals from around the world and sends them to the places with the greatest need (<http://www.cdc.gov/globalhealth/immunization/stop/index.htm>).
5. The method of partnership was a Programme Cooperation Agreement signed between IASC and UNICEF Ethiopia.
6. The “Polio Communication Survey: Kebele Checklist” initiated by UNICEF and the FMOH Communication EPI Working Group in 2012/2013 provides communication information relevant to the polio and EPI programs. The checklist is implemented by communication teams or SIA supervisors along with the RCS. For each woreda visited, 3 kebeles are assessed. Twelve questions gather information on polio SIA awareness and notification, SIA visibility, SMC activity, routine immunization services, and health mobilization through religious institutions and leaders.
7. Children who had never received a single dose of the oral polio vaccine.
8. Round 11 reported the greatest percentage of religious leaders as a source of information, although in previous and subsequent rounds engagement was also reported, but not as significantly as in round 11.
9. The identified reasons for noncompliance by the PCN are in line with RCS results, which show that the main reasons for noncompliance were “too many rounds” followed by “child sick” between rounds 8 and 14 in the Somali Region; 55% and 24% of reasons were attributed to these factors, respectively, across the rounds.
10. Birka, shallow well, pond, or dam.
11. Event defined as act of revitalization or reestablishment of SMCs. The event might have occurred in one kebele more than once over the specified period of time.
12. SIA rounds 6 through 8 were conducted between January and May 2014.
13. SIA Rounds 16 through 18 were conducted between August and December 2015.

References

- Central Statistical Agency of Ethiopia. (2014). *Ethiopia mini demographic and health survey 2014*. Ethiopia, Addis Ababa: Author.
- Central Statistical Agency of Ethiopia. (2015). *News release of CSA 30 January 2015*. Retrieved from <http://www.csa.gov.et/images/banners/csa2>
- Central Statistical Agency of Ethiopia and ICF International. (2012). *Ethiopia demographic and health survey 2011*. Addis Ababa, Ethiopia and Calverton, MA: Author.
- Ethiopia Somali Regional State Bureau of Finance and Economic Development. (2013). *Progress towards GTP and MDG targets: Assessing development gaps in Somali regional state of Ethiopia, 2013*. Ethiopia, Jijiga: Author.
- Federal Democratic Republic of Ethiopia. (2013). *Central Statistical Agency population projection of Ethiopia for all regions at Woreda level from 2014–2017*. Ethiopia, Addis Ababa: Author.
- Federal Democratic Republic of Ethiopia Ministry of Health. (2015). *Health sector transformation plan, 2015/16-2019/20, (2008-2012 EFY)*. Ethiopia, Addis Ababa: Author.
- Federal Democratic Republic of Ethiopia Ministry of Health, Ethiopian Health and Nutrition Research Institute. (2012). *Ethiopian national immunization coverage survey, 2012*. Ethiopia, Jijiga: Author.
- Global Polio Eradication Initiative. (2013). *Polio eradication & endgame strategic plan 2013–2018*. Switzerland, Geneva: World Health Organization.
- Global Polio Eradication Initiative. (2015). *List of wild poliovirus by country/year 2013–2015*. Retrieved from <http://www.polioeradication.org/Dataandmonitoring.aspx>
- Hashi, A. (2014). *Socio-cultural, behavioural, health services and religious determinant factors behind OPV zero dose: A qualitative case study in Ethiopian-Somali region*. Ethiopia, Jijiga: Jijiga University, Ethiopian Somali Regional Health Bureau, UNICEF.
- Independent Monitoring Board of the Global Polio Eradication Initiative. (2013, May). *Seventh report* (p. 53). Retrieved from http://www.polioeradication.org/Portals/0/Document/Aboutus/Governance/IMB/8IMBMeeting/8IMB_Report_EN.pdf
- Larson, H. J., & Ghinai, I. (2011, May 6). Lessons from polio eradication: Ridding the world of polio requires a global initiative that tailors strategies to communities. *Nature*, 473, 446–447. doi:10.1038/473446a
- Michael, Y. H., Getachew, K., Birhanu, Z., Tadesse, T., Ababu, Y., Braka, F., & Aseffa, T. (2012). Behavioural, socio-economic and health services determinants of immunization service utilization: A community and facility-based study in Ethiopia (Unpublished manuscript), Jimma University, World Health Organization, UNICEF Ethiopia, Ethiopia, Addis Ababa.
- Obregón, R., & Waisbord, S. (2010). The complexity of social mobilization in health communication: Top-down and bottom-up experiences in polio eradication. *Journal of Health Communication: International Perspectives*, 15, 25–47. doi:10.1080/10810731003695367
- UNICEF. (2011). *Understanding Communication for Development (C4D): Integrating children's rights and social transformation perspectives in communication planning. UNICEF C4D Webinar series for programme and communication specialists*. New York, New York: UNICEF.
- United Nations Inter-agency Group for Child Mortality Estimation (UN IGME). (2014). *Levels and trends in child mortality, report 2014, estimates developed by the UN inter-agency group for child mortality estimation*. New York, New York: United Nations Children's Fund.
- Waisbord, S., Shimp, L., Ogden, E. W., & Morry, C. (2010). Communication for polio eradication: Improving the quality of communication programming through real-time monitoring and evaluation. *Journal of Health Communication*, 15(S1), 9–24. doi:10.1080/10810731003695375
- World Health Organization. (2015). *Technical advisory group on polio eradication for the horn of Africa countries*. 13th Meeting Report, 18 to 20 August 2015, Nairobi Kenya. Retrieved from http://www.polioeradication.org/Portals/0/Document/Aboutus/Governance/IMB/13IMBMeeting/6.1_13IMB.pdf