Two-way radio
Using radio and mobile phones to engage with Somali women and youth

By Africa’s Voices Foundation for UNICEF Somalia
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Report prepared in March 2016 by Claudia Lopes, Rainbow Wilcox, and Sharath Srinivasan.

Many thanks to the Free Press Unlimited project team, especially Abdilaziz Musa.

Cover photo: Mother and her child in Somalia. Credit: UNICEF.
During 2015 and early 2016, Africa’s Voices Foundation, a spin-off from Cambridge University’s Centre of Governance and Human Rights, worked with UNICEF Somalia on an innovative citizen engagement and social data pilot. Eight interactive, or two-way, radio shows, implemented by project partner Free Press Unlimited, engaged Somalis across South Central and Puntland, with over 8,400 raising their voice and sending free SMS messages to UNICEF’s RapidPro platform. These messages, along with follow-up messages answering a range of questions, were analysed by Africa’s Voices’ expert researchers, and visualised for UNICEF using interactive online dashboards, reports and presentations. Five key insights from the pilot are worth highlighting:

**Africa’s Voices engagement strategies reached a large, diverse cross-section of Somalis**
We heard from Somalis from all provinces of Puntland and South Central Somalia. Of those who participated in the radio shows, 44% were women, 86.4% were 15-29 years old and 54.9% of participants were parents.

**This unique social data analytics method can deliver rich insights**
The pilot, for example, focused on vaccinations and maternal and child health and revealed that participants tend to associate reduced risk of polio with ideas of cleanliness - hygiene and spiritual. Participants perceive lower risk of getting polio for people who live in rural areas who have access to clean air and more sun. The word used for polio (‘dabayl’ which means wind in Somali) contributes to reinforcing the idea that polio is not a virus but a disease spread by the wind and possible to be cured spiritually. Perceived risk of polio is the most important factor impacting vaccination uptake.

**Citizen data matters, but we must value voices**
This innovative pilot is a timely call to amplify Somali voices as UNICEF Somalia drives the Data Revolution forward. Valuing Somali voices occurs at all stages of using data for evidence-based policy: from gathering hard to reach citizen views in social spaces that Somalis value, to using sensitive, language-based approaches to analysing and interpreting voices, to presenting and visualising voices in unique and not only aggregated forms.

**The power of an engagement and analysis platform**
Africa’s Voices platform combines methods for citizen data analysis with grounded channels for inclusive citizen engagement. Focusing on engagement with citizens, rather than extraction, is not only more ethically sound, but leads to virtuous spirals: richer and more sustained engagement drives more accurate and cost-effective analysis, which can then inform more targeted engagement strategies. The opportunities for communication-driven development programming, remote monitoring, real-time citizen feedback, situational and programmatic assessments, and a range of other programming priorities, are clear.

**Innovation partnership and innovation leadership**
The pilot provided a glimpse of a much bigger prize. A more sustained and strategic partnership between Africa’s Voices and UNICEF Somalia can deliver focused and tailored engagement, and analysis calibrated to programmatic priorities and decision-making within UNICEF teams. In so doing, UNICEF Somalia can lead innovation in the Somali development and governance aid community as well as contribute to UNICEF’s regional and global data innovation agenda.
There is increasing recognition that programmes seeking to improve the lives of those in need must be evidence-based and informed by robust, varied and quality data if they are to be effective. Especially crucial is data that reveals the priorities, ideas and concerns of citizens, enabling organisations to hear local voices and respond appropriately. Following the United Nations, UNICEF has launched its own Data Revolution Initiative to bolster its approach towards the collection, analysis, and usage of data. The value of citizen data is especially felt in fragile states, where reliable information can be critical for supporting vulnerable and marginalised populations, yet is usually difficult and dangerous to obtain. In these environments citizens are hard to reach and engage, leading to a dearth of data from and about the most in need. UNICEF Somalia faces this challenge as it moves with the global direction towards strengthening its data approaches while operating in a country with insecure, volatile, and inaccessible regions.

(Data) challenges in Somalia

Somalia is a harsh environment for children to grow up in. In the past two decades, consecutive droughts and conflicts have led to widespread crises in health, nutrition, and education. Since 2012, there have been positive steps taken in terms of politics, humanitarian access, and food security - yet many risks remain. Women and children are especially affected, and are often difficult to reach by UNICEF. Of the 12 million people in Somalia, half are either nomadic or live in rural areas, while one in 10 is internally displaced¹.

A core focus of UNICEF Somalia’s programmes is child immunisation and maternal newborn and child health. The current situation is acute, and among the worst in the world²:

- Every two hours a woman dies due to pregnancy related causes.
- In 2014 there were over 10,000 cases of measles.

¹. UNFPA 2014; Population Estimation Survey Somalia (PESS)
². Figures from UNICEF Somalia Annual Report 2014
• Only 43% of children received the DPT3 vaccination in 2014 (diptheria, pertussis, and tetanus). Figures drop to 7% in Puntland and 11% in Somaliland.
• One in seven Somali children die before their fifth birthday.

Fortunately there are signs of progress - supported by UNICEF’s efforts. 51% of pregnant women attended three antenatal appointments in 2014, up from 30% the previous year. The number of reported polio cases dropped from 194 in 2013 to 5 in 2014, and to 0 in 2015.

To maintain and accelerate progress in Somalia, scalable innovations for collecting and analysing citizen data will be key. Of particular importance are data that reveal knowledge levels, practices, and beliefs regarding immunisation and maternal, newborn, and child health - vital for the development and implementation of campaigns that reflect the socio-cultural realities of Somalis.

New opportunities for gathering data
The evolving landscape of information and communication technologies (ICTs), particularly the widespread use of mobile telephones in Somalia (50.9% of population in Somalia have access to mobile phones), present novel opportunities to gather vast quantities of citizen data.

However, any such efforts must remain focused on the quality of the data collected - crucial to the richness, granularity, and impact of subsequent insights. This includes employing citizen engagement strategies that amplify voices and are grounded in local realities and technologies that are appropriate for the context.

Africa’s Voices approach
With UNICEF Somalia, Africa’s Voices Foundation (AVF) launched a pilot project to explore the potential of interactive radio for gathering data on Somali people’s views on polio and measles immunisation and maternal, neonatal, and child health.

Radio remains the most important and prevalent media in Somalia, with at least sixty radio stations across the country (many with several outlets). Interactive radio, when the audience can call or text in, is increasingly popular and highly engaging. In these local language forums, citizens are spontaneously motivated to express their views in a social space they value and that reflects their cultural norms.

Africa’s Voices Foundation is a non-profit organisation, spun out from research at the University of Cambridge’s Centre for Governance and Human Rights (CGHR). Our approach overcomes the challenge of reaching and engaging citizens by leveraging existing, already popular channels such as radio. On interactive radio, two-way SMS correspondence with audiences is within a social context that the individual has already demonstrated their willingness to participate in. This contributes to meaningful, authentic engagement that maximizes response rates and richness of data collected.

As well as identifying the ingredients for successful citizen engagement, Africa’s Voices has developed and tested robust methods for analysing large volumes of unstructured, conversational, and local language SMS data that is linked to socio-demographics. Our analysis techniques combine data science, social science, and contextual knowledge to reveal insights that go beyond ‘what’ and ‘who’ (as captured in more traditional surveys) and into ‘why’ and ‘who specifically’. In this pilot study, the ‘why’ potentially includes socio-cultural obstacles to getting children vaccinated or seeking maternal health treatment. ‘Who specifically’ may include where there are gaps in knowledge or access to health facilities and vaccination.

As well as gathering crucial insights, the radio discussions also contribute to sparking discussions which can actively shape beliefs and challenge misconceptions. In this manner, Africa’s Voices’ approach provides value, and entertainment, to participants and the wider radio listenership during data collection. Informed by thorough consideration of the ethics of citizen data and respect for participants, we focus on engaging with citizens, on their own terms, to amplify their voices.

3. UNICEF, Multiple Indicator Cluster Survey (MICS4)
4 UNICEF Somalia Annual Report 2014
5. International Telecommunication Union, 2014
02 Pilot project

Objectives
1. To amplify local voices and generate rich evidence-based insights
   • to inform UNICEF Somalia’s situation analysis (SitAn) and and UNICEF Somalia programming between 2017-2022, including vulnerability mapping.
   • for the formative research and evaluation stages of UNICEF Somalia’s polio and routine vaccination, and maternal, neo-natal and child health programmes, directed at improving interventions.

2. To evaluate Africa’s Voices approach
   • as a dynamic citizen engagement and robust feedback tool that gathers rich social data and insights
   • as a cost-effective Remote Monitoring Tool (RMT)
   • as a scalable and versatile innovation

Method
The two-way radio project focuses on answering the following questions:

What are the differences between parents who vaccinate their children and those who do not?

What are the differences between parents who seek appropriate healthcare during pregnancy and for their babies, and parents who do not?

The project employs an ex-post facto design that tests hypotheses about cause-effect relationships in a weak sense (only with a true experiment can causality be established). The focus is on understanding the social and cultural determinants of behaviour and practices related to polio and measles immunisation and maternal and neo-natal child health (MNCH).

Africa’s Voices began by working closely with UNICEF Somalia to understand their objectives, priorities of the health programmes and regions of work. The project was tailored around this understanding.

Select radio stations
Africa’s Voices established a successful partnership with Free Press Unlimited (FPU), a non-profit organisation with strong working relationships with radio stations across Somalia and prior experience of encouraging audience engagement via SMS. Together, we selected twenty radio stations for the project spread across Puntland and South Central, based upon Africa’s Voices established criteria (e.g. local reputation and popularity, ICT equipment and skills).

Set-up SMS platform, RapidPro
To open a two-way channel of SMS communication with radio audiences, we set-up and tested an SMS flow on RapidPro, UNICEF’s SMS platform. Africa’s Voices designed the SMS flow to automatically
send SMS surveys to people who had texted into the radio programmes. The surveys asked for socio-demographic information (location, age and gender), if they are a parent, and questions about health practices.

To adhere to our data privacy guidelines, access to the platform and incoming data was restricted to UNICEF and Africa’s Voices Head of Research, and SMS data was securely stored. All SMS communication, both to receive and send, was free to participants.

Create engaging and inclusive radio scripts
Africa’s Voices developed eight radio scripts, informed by UNICEF Somalia and FPU. The series of radio programmes was named ‘health worker’ in Somali. Each episode was based on a different topic and asked the audience a related question (see Table 1, below).

Programmes were designed with inclusivity.

<table>
<thead>
<tr>
<th>Questions asked on radio programmes</th>
<th>SMS survey question (sent after socio-demographic questions)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Do you think that children in your community are at risk of polio? Yes or No? Why?</td>
<td>[If parent] Did your children receive polio vaccination? [If not parent] Did you receive polio vaccination?</td>
</tr>
<tr>
<td>2. In your opinion, what are the diseases that children should be vaccinated against?</td>
<td>[If parent] Did your children receive measles vaccination? [If not parent] Did you receive measles vaccination?</td>
</tr>
<tr>
<td>3. Do you think a woman should visit a health facility during pregnancy and give birth there? Yes or No? Why?</td>
<td>[If parent] Did you (or wife) visit a health facility in your (her) last pregnancy?</td>
</tr>
<tr>
<td>4. Do you think rural (nomadic) children have an increased risk of getting polio? Yes or No? Why?</td>
<td>How do you prefer to access information on health issues/concerns?</td>
</tr>
<tr>
<td>5. Would you use traditional medicine to prevent or cure a child of polio? Yes or No? Why?</td>
<td>In your opinion, what is the best way to prevent polio?</td>
</tr>
<tr>
<td>6. Have you heard of any side effects of polio vaccinations? If yes, which ones?</td>
<td>[If parent] Did your children receive polio vaccination? [If not parent] Did you receive polio vaccination?</td>
</tr>
<tr>
<td>7. Do you think that babies should only be breastfed for the first six months? Yes or No? Why?</td>
<td>[If parent] For how long did you (your wife) breastfeed your last child?</td>
</tr>
<tr>
<td>8. Do you think babies should be taken to health facilities when they present danger signs? Yes/No? Why?</td>
<td>[If parent] Where do you first go for treatment for your baby?</td>
</tr>
</tbody>
</table>
engagement and entertainment in mind, and featured expert guests (including a doctor and a sheik), music and the reading of audience messages. Scripts were designed to encourage participation from all demographic groups. For example, as interactive radio discussions are usually dominated by men, at least half of the audience messages read out were from women to encourage female participation.

To advertise the radio shows and boost listenership, short promos were broadcast on the radio stations three days before the programme, and region-specific posters were distributed by UNICEF staff.

Broadcast interactive radio programmes

Free Press Unlimited produced and recorded 30-minute programmes each week. In each programme, they incorporated the latest audience text messages that were received during the preceding radio promos. Recordings were distributed to the twenty radio stations and broadcast on the same day at different times. Africa’s Voices and FPU managed the project, including monitoring radio broadcasts and SMS communications.

Quality of data
However well targeted our engagement strategy, the audience will be self-selected to a certain degree (the bias in self-selection will be clearly identified in our results section). The data gathered during radio shows is skewed, reflecting the reality of voices. Men, younger and more educated people are more likely to engage in radio discussions through mobile phones. Participants’ voices echo the reality of radio discussions, and they are influential to a larger group of people that listen to radio shows. The most disadvantaged, without access to phones or radios, or not literate enough to text, may not be reached.

Data analysis
The richness of voice is immensely valued in our analysis, at the expense of statistical generalisations. Because we analyse the full data from participants (often big, messy and unstructured data) representativeness is not the main criterion to assess the validity of our findings. The lack of reliable population statistics (including census data) and sampling frames makes unfeasible to carry out methodological sound surveys in Somalia. In order to add robustness to our conclusions, the quantitative results were triangulated with the KAP survey to Support Polio Eradication (Harvard Opinion Programme, 2014) that was carried in 3 districts of South Central and Puntland regions of Somalia.

Africa’s Voices analysed the SMS data using in-house tools and frameworks that reveal the beliefs and attitudes of different segments of the population. Opinions on topics covered during the radio programmes were grouped by demographic data. The data was analysed using qualitative and quantitative techniques, including grounded theory, thematic analysis, word co-occurrence networks and binary logistic regression. The semantic analysis of messages was carried out with support of native speakers.

Africa’s Voices created an interactive dashboard for UNICEF to explore the quantitative data. Go to: https://goo.gl/Nn8uTN
An eight-week series of interactive radio shows sought to engage, entertain and inform all sections of the population in Puntland and South Central Somalia. Each show sparked a new discussion about a health-related topic and featured guests such as medical doctors and one sheik. The radio shows asked the audience a different question each week. These included questions related to routine immunizations (polio and measles) and babies and maternal health.

Who participated?
The radio shows proved very popular and participation was high. Over 8,400 people raised their voice and answered the question broadcast on radio, via SMS, and then answered follow-up questions sent by SMS. After filtering out repeated and one-word messages, we analysed 19,392 messages from 7,633 participants.

Multiple messages from the same number were common with 72.3% of participants sending more than one message. The maximum number of messages from the same number was 13 over eight weeks. Interestingly, the level of engagement increased over time.

The radio show attracted new participants every week, reaching its peak of participation in the last three shows. In the last show, on the 1st of January 2016, 1,932 people sent their opinion to the show’s question (“Do you think babies should be taken to health facilities when they present danger signs?”).

When an SMS answer to the radio question was received in the RapidPro platform, it triggered an automatic survey in reply that asked for the participant’s location (Where do you live?), age
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(What's your age?), gender (Are you a male or a female?) and a question about health practices related to the topic of the show (e.g. Did you vaccinate your children for polio?).

The response rate for the follow-up survey questions was high with 81.7% replying to the location question, 73.5% to age and 70.9% to gender. The typical participant in the radio shows is young (20-29 years old), either male or female, a parent, and living in an urban area.

- 86.4% of those who responded to the radio shows are 15-29 years old (48.6% are 15-19 years old and 37.8% are 20-29 years old). Considering that our target population is 15 years and older, we would expect 53.7% of respondents to be in the age group 15-29 years if this figure was in line with the population. Clearly there is a bias towards younger respondents who are the ones with more access to mobile phones. It is worth noting that 46% of the Somali population are 15 or younger which means that this age bias

86.4% are 15-29 years old compared to 53.7% in population

44% are women compared to 49.3% in the population

54.9% are parents
in participation is expected to be narrower in future years (if all conditions are kept equal.

- As Map 1 shows, people from all regions of Somalia participated, with the most SMS received from Banaadir (5,281), Galgudguud (1,887), Middle Shebelle (1,250) and Bari (1,110). These districts represent different populations, being composed mainly of urban (Banaadir and Bari), nomadic (Galgudguud) and rural populations (Middle Shebelle).
- 80.6% live in urban areas (compared to 42% in the population); 10.8% are nomads (26% in the population); and 8.6% live in rural areas (23% in the population). The sample is clearly biased towards the urban population, especially living in Banaadir (with the capital Mogadishu, the most populated urban centre in Somalia).
- 54.9% were parents, who, once identified, we directed questions to about their children's health and vaccination status.
- 44.4% of participants were women (compared to 49.3% in the population), which is remarkable because interactive radio discussions are often heavily dominated by men.

Results from the radio shows
Combining the radio audience opinions with socio-demographics and practices, we identified the beliefs that underlie different health behaviours (e.g., vaccinating children, delivering in the hospital, taking a baby to a health facility when presenting danger signs) and how they vary according to gender, age group and location.

The answers to the radio shows are mainly binary (Yes/No?) with justifications (Why?). Table 1 depicts the percentages of people who answered 'Yes' to the radio show questions, by demographic group. Some important results related to the radio show questions are highlighted below with the explanations that participants gave for their answers.

Perceived risk of polio
Do you think that children in your community are at risk of polio? (weeks 1 and 4)

The association between risk of polio and area of residence is statistically significant \(X^2(2)=8.7, p<.01\). The perceived risk of polio is lowest in rural areas (only 51.9% perceive the risk) compared to urban areas (68.5%) and nomads (70.0%). Most of the justifications for a low risk of polio link the disease to cleanliness - hygiene, clean air and spiritual purity. As such, it was often said that in rural communities people would not be at risk of polio because they have good air, sun, clean water and fresh camel's milk. A few participants also believe that the polio virus does not spread easily and it does not exist in rural areas. But the same arguments do not hold for nomadic communities who live in open areas.

People who live in rural areas believe more than others that nomadic children are at risk of polio (84.2% of rural participants), compared with 76.2% of nomads and 74.5% of urban participants. Low access to healthcare and lack of sanitation are recognised as conditions that expose nomadic communities to polio. The disease is perceived as being associated with non-Muslims and those who lack faith. The virus that causes polio is rare in rural areas. There is good sanitation in rural areas. There is a lot of sun in rural areas. The incidence of the disease recorded in rural areas is very small and that is a logical reason.

No - it a disease that has been sent by Allah and he can infect it with whoever he wants. It cannot be stopped and prevent whatever effort is made.

This is a fake disease. Westerners have many faces. Leave alone, the children are fine.

Because children in our community have been vaccinated and I am confident that it will not happen to us.

1. The KAP survey (Harvard Opinion Research Programme (2014) revealed that between 59.0±5% (Baidoa) and 75.0±5% (Mogadishu) are concerned about their children get sick with polio that year.
Participants who perceive a high-level of risk of polio are concerned about the severe health complications of polio (disability and death) as well as the high likelihood of their children contracting the disease. A main concern is that others in their communities are not vaccinating their own children. Reasons given for others not vaccinating their children included ignorance, negative attitudes towards vaccination, and the idea that polio is a ‘haunted wind’ (polio is referred to as ‘debeyl/dabeysha’ in Somali, which also means ‘wind’).

Both men and women talked about risks related to poor sanitation and hygiene, pollution and dirty streets, as well as weather conditions such as rainfall which causes mud where children play. Lack of health facilities, medical staff and monitoring of children’s vaccination status are also seen as barriers for polio-free communities. Someone mentioned chemical waste in the sea as the cause for polio, another mentioned a lack of security.

I have seen many people who refuse to vaccinate their children against the disease

Yes because as Somalis we only clean the indoors of our houses, but it is difficult for us to clean the toilets, garbage and the outside of the house - Galguduud

Yes, they are at risk of polio because of lack of sanitation, society’s ignorance and vaccination staff who are not honest about working for the society - Male, Middle Shabelle

Knowledge about routine immunisation
In your opinion, what are the diseases children should be vaccinated against? (week 2)

Nearly half (47.5%) of participants mentioned polio as one of the diseases children should be vaccinated against, which is not surprising as it was the topic of the radio shows, followed by measles (34.8%), and malaria (10.0%).

There is however variation in terms of location. More participants from urban areas answered polio (51.6%), compared to 40.9% of participants from rural and 46.2% of nomads. Measles was mentioned more by nomads (46.2% of nomads) and participants living in rural areas (40.9%) and malaria was mentioned more by participants living in urban areas (13.6% of those) compared to participants living in rural areas (6.3%).

Other diseases that children should be vaccinated against, which only very few participants (<3%) mentioned include tuberculosis (2.4%), whooping cough (1.8%), cholera (1.1%), tetanus (1.1%), diarrhea (0.8%), diabetes (0.3%) and AIDS (0.3%).

Perceived effectiveness of vaccinations
Would you use traditional medicine to prevent or cure a child of polio? (week 5)

Less than half of the participants (41.2%) believe in the effectiveness of traditional medicine to cure polio.3 There is little demographical variation in the perceived effectiveness of polio vaccination versus traditional medicine, although nomads tend to believe slightly more than other groups in the benefits of traditional medicine (43.8% of nomads). The age group 25-29 years are the most skeptical (37.0% of those believe in the benefits 3. The KAP survey (Harvard Opinion Research Programme (2014) revealed that only 4.0±5% (Baidoa) and 0±5% (Afgoye) said that traditional medicine is effective to prevent polio and between 8.0±5% (Mogadishu) and 17.3±5% (Baidoa) said that praying is effective for children not to get polio.

3 The KAP survey (Harvard Opinion Research Programme (2014) revealed that only 4.0±5% (Baidoa) and 0±5% (Afgoye) said that traditional medicine is effective to prevent polio and between 8.0±5% (Mogadishu) and 17.3±5% (Baidoa) said that praying is effective for children not to get polio.
of traditional medicine), although there is no statistical differences among socio-demographic groups.

Traditional medicine includes local herbs and plants, but also reading the Koran to patients which is believed to be effective in curing the disease. There are some voices pointing out that there are side effects of using traditional herbs, they are not scientifically proven, the doses may not be correct, they are not endorsed by medical professionals, and more effective medicines have been found.

Yes because polio is a kind of spirit, so traditional medicine and the Koran can be used to treat it  
- Male, 15-19, Bari

Yes, traditional medicine is better than modern one because it is based on plants that grow in our country and other natural things found in our country - Female, Lower Juba

There are a lot of benefits from herbal medicine because our religion praised and pointed out the benefits that one can get from their use  
- Female, Banaadir

I may encounter side effects as a result. I would prefer to use medicine prescribed by the doctor  
- Male, Banaadir

Misconceptions about side effects of vaccinations  
Have you heard of any side effects of polio vaccination? (week 6)

There is a significant association between hearing about side effects of vaccinations and age [$\chi^2$(3)=11.93, p<.01]. Participants in the age group 25-29 have heard more about side effects (60.6% of those) compared to younger age groups. Men (46.0%) said slightly more than women (38.6%) that they have heard about side effects of vaccinations, although this difference is not statistically significant.

Nomadic respondents (43.2%) have heard more about side effects of vaccinations compared to respondents from rural (32.1%) and urban areas (32.8%). Some of the side effects mentioned are fever and swelling after having received the vaccine and being infected with polio that, in some cases, led to death. Other participants mentioned infertility, cancer, HIV, diphtheria and measles as side effects of the polio vaccination.4

Polio vaccination has side effects and we have seen many times, for example when the vaccine is thrown into the streets and the wind carries them to the children and this causes problems for the children - Female, 15-19, Banaadir

It is used to reduce fertility among Africans, It is Western conspiracy, as I believe. Two of my children developed nerve [disease] after I vaccinated them. Even though it is Allah who causes such disease. It is also circulated that it [vaccination] is a spy program that is used to spy on people’s homes so that the people could be known, as already happened in Pakistan - Lower Shabelle

Beliefs about effectiveness and quality of health services for pregnant women  
Do you think a woman should visit a health facility during pregnancy and give birth there? (week 3)

Most of participants (86.2%) think that a woman should visit a health facility and give birth there, with little variation among socio-demographic groups. The justification for not delivering in the hospital are mainly religious. Nearly all the participants between 20-29 years old agree that women should deliver in the hospital.

The reasons given for mothers delivering in the hospital are to have appropriate assistance and monitoring, especially for complications such as haemorrhage, anaemia and to avoid transmission of diseases (such as HIV) from the mother to the baby. Although not as frequently mentioned, protecting the baby’s health is also a reason to deliver in the hospital so, for example, they can be given vitamins.

No because as Somalis, we have culture and religion. Mothers used to give birth while on journey without trouble, because they used to be connected to Allah. I encourage that mothers be connected to Allah and Sharia - Male, Lower Juba

4 The KAP survey (Harvard Opinion Research Programme (2014) revealed that negative rumours are present among a minority: less than 40±5% of population believe that polio vaccination can give children fever, and less than 20±5% believe that vaccination is associated with infertility.
The answer is no, because during pregnancy the mother includes two lives that depend on each other. Until delivery, this is the most difficult time in her life. She is between life and death. As we all know, she is always in the hands of Allah. Therefore, I believe that there is no benefit in visiting health centre for the mother. Her life cannot be compromised. Allah is the one who cures people. And you should tell all women to respect religion - Male, 30+, Bari

Knowledge about best practices of MNCH
Do you think that babies should only be breastfed for the first six months? (week 7)

The nomads agree slightly more (77.4%) than participants from urban (76.9%) and rural (70.7%) areas that babies should be breastfed exclusively for the first six months, although these differences are statistically negligible. Nomads believe that babies should also be given fresh (camel) milk as it is healthy and contains nutrients that contribute to children's good health and immunity.

Yes, because nomadic people drink fresh milk and that helps the health of their body, bones, heart and stomach and they do not get infected with polio - Male

Participants who said no to the question did so because they thought (1) babies should be breastfed for longer than six months, and (2) babies should not (or can not) be exclusively breastfed, especially if the mother is not having an adequate diet. Many mentioned two years as the ideal length for breastfeeding, as suggested in the Koran.

Some people said that babies should also be given water, potatoes and biscuits to receive other nutrients and that a baby cannot survive only drinking breastmilk. The use of bottle seems to be controversial: while some people said that it can help if the mother is not able to breastfeed and to prevent babies to become 'addicted' to breastfeeding, others said that bottles should be avoided because they are not aligned with Somali traditions.

No, it is possible that the mother's nutrition may not enable her to breast-feed, so it is good that the child should sometimes be breast-fed and other times given normal milk - Middle Shabelle

Beliefs about effectiveness and quality of health services for pregnant mothers
Do you think babies should be taken to health facilities when they present danger signs? (week 8)

Most women (89.3%) and men (87.5%) think that babies should be taken to health facilities when presenting danger signs to get treatment from medical professionals which will help to stop worsening of the symptoms and death.

People from urban areas (92.4% of those) agree more than rural areas (80.6% of those) than babies should be taken to health facilities for treatment [$X^2$\(2)=6.63, p<.05\].

Many participants who think that babies should not be taken to the hospital have strong religious beliefs (i.e. only Allah can cure them), and also express distrust towards medical staff and the quality of medicine. Some people think that doctors cannot help in serious situations as it is too late for treatment, or because they do not understand the nature of the diseases and do not conduct proper consultations. Others point to the lack of medical facilities in their region.

No because children in rural areas are healthier than those who live in urban areas who have access to health facility. Doctors may not have enough experience and the medicine may have expired - Bari

Results can be explored in an online interactive dashboard. Go to: https://goo.gl/Nn8uTN
Table 2: Results from radio show questions by socio-demographic

<table>
<thead>
<tr>
<th>Gender</th>
<th>Location</th>
<th>Age groups</th>
<th>Question</th>
<th>Total</th>
<th>Female</th>
<th>Male</th>
<th>Nomad</th>
<th>Rural</th>
<th>Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2222</td>
<td>358</td>
<td>699</td>
<td>138</td>
<td>1299</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Do you think children in your community are at risk of polio?</td>
<td>8</td>
<td>YES</td>
<td>827</td>
<td>62.8%</td>
<td>65.3%</td>
<td>70.0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>In your opinion, what are the diseases children should be vaccinated against?</td>
<td>379</td>
<td>Polio</td>
<td>45.5%</td>
<td>52.5%</td>
<td>46.2%</td>
<td>40.9%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Do you think nomadic children have an increased risk of getting polio?</td>
<td>503</td>
<td>YES</td>
<td>73.8%</td>
<td>70.9%</td>
<td>76.2%</td>
<td>84.2%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Would you use traditional medicine to prevent or cure a child of polio?</td>
<td>495</td>
<td>YES</td>
<td>42.1%</td>
<td>36.4%</td>
<td>43.8%</td>
<td>31.2%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Have you heard of any side effects of polio vaccination?</td>
<td>1157</td>
<td>YES</td>
<td>38.6%</td>
<td>46.0%</td>
<td>43.2%</td>
<td>32.1%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Did your children receive polio vaccination?</td>
<td>1211</td>
<td>YES</td>
<td>73.8%</td>
<td>73.8%</td>
<td>71.1%</td>
<td>71.1%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Did your children receive measles vaccination?</td>
<td>543</td>
<td>YES</td>
<td>73.8%</td>
<td>73.8%</td>
<td>70.3%</td>
<td>51.9%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Do you think babies should be breastfed only for 6 months?</td>
<td>1697</td>
<td>YES</td>
<td>75.9%</td>
<td>62.8%</td>
<td>77.4%</td>
<td>70.7%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Where do you first go for treatment of your baby?</td>
<td>1368</td>
<td>YES</td>
<td>87.3%</td>
<td>87.2%</td>
<td>85.4%</td>
<td>92.9%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Do you think babies should be breastfed up to 2 years?</td>
<td>1697</td>
<td>YES</td>
<td>87.3%</td>
<td>87.2%</td>
<td>85.4%</td>
<td>92.9%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Do you think healthy children when they present danger signs should be taken to health facilities?</td>
<td>1157</td>
<td>YES</td>
<td>38.6%</td>
<td>46.0%</td>
<td>43.2%</td>
<td>32.1%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
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<td>85.4%</td>
<td>92.9%</td>
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<tr>
<td></td>
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<td>87.3%</td>
<td>87.2%</td>
<td>85.4%</td>
<td>92.9%</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Do you think breast feeding is the best way to prevent diseases?</td>
<td>889</td>
<td>YES</td>
<td>87.3%</td>
<td>87.2%</td>
<td>85.4%</td>
<td>92.9%</td>
</tr>
</tbody>
</table>

To see the complete results of the survey in an interactive dashboard go to: https://goo.gl/Nn8uTN
Insights about Polio and routine immunisation

What are the main differences between parents who vaccinate and who do not vaccinate their children?

There is a statistically significant association between vaccinating children for polio and age group [$X^2(3)=10.83, p=.01$]. Younger parents (15-19) are less likely to vaccinate their children (64.2% of those had vaccinated their children) as compared to older parents. Parents living in urban areas tend slightly more to vaccinate their children (73.2% of those), as compared to parents who live in rural areas (68.9%).

Having both the measles and polio vaccination is very common: 80.9% of parents who had their children vaccinated for polio also had their children vaccinated for measles (85.6% in urban areas and 66.7% in rural areas). For those who did not vaccinate their children for polio, only 22.8% received measles vaccination [$X^2(1)=21.59, p<.001$].

When comparing the different factors associated with polio vaccination - perception of risk of polio among children in the community, knowledge about vaccination, perception of effectiveness of vaccination vs traditional remedies, side effects of vaccinations - the perception of risk of polio is the most associated with children receiving polio vaccination. Results from binary logistic regressions showed that parents who think that children in their communities are at risk of polio are twice as likely (odds ratio=1.999)\(^1\) to vaccinate their children for polio compared to parents who think that children in their communities are not at risk of polio. This suggests that changing perceptions of risk among those who answered 'no risk', especially parents who live in rural areas, could considerably increase the uptake of vaccination.

Perceiving a high risk of polio is an important factor for parents to vaccinate their children. The belief that clean air and sun and spirituality prevent polio is a barrier to perceiving risk. The word used for polio ('dabayel' which means wind in Somali) contributes to reinforcing the idea that polio is not a virus but a disease carried by the wind and possible to be cured spiritually. These beliefs are more common in rural areas and among nomads, but are also prevalent among urban populations.

Insights about Maternal and Neo-natal Child Health (MNCH)

What are the main differences between parents who seek appropriate healthcare during pregnancy and for their babies, and parents who do not?

There is a statistically significant association

\(^1\) These results are controlled for age and gender.
between age and seeking medical care for babies \(X^2(3)=10.47, p=.01\). Parents in age group 25-29 years tend more to seek medical health for their babies (90.6% of those age group) as compared to other age groups, especially parents in age group 20-24 years (75.8% of those). Seeking medical treatment comprises going to a MCH clinic, hospital, pharmacy or a medical doctor.

The great majority of parents who said they do not seek medical care for the treatment of their babies, said they seek treatment only through religion (91.7% of those who do not seek medical care). That includes going to a sheik, reading the Koran, or praying to Allah. There is no statistical association between parents who live in urban and rural areas in terms of likelihood of seeking treatment through religion.

The main substantive insights from this pilot are:

(1) As well as raising awareness of the symptoms and transmission of polio, interventions should also help parents to understand the likelihood (risk) of their unvaccinated children contracting polio. This is an efficient way to improve the levels of vaccination uptake, especially in rural areas. Getting their children vaccinated against polio is related to a general positive attitude towards vaccination for other diseases, e.g. measles.

(2) There are two clear groups of parents: those who seek medical treatment for their babies and those who seek treatment through religion. These reflect two distinctive paths of action when responding to illnesses. These paths are not always incompatible as certain religious beliefs, for example related to breastfeeding, promote positive healthy behaviours. Therefore, certain religious beliefs can be promoted to support healthy practices.
Is Africa’s Voices approach a valuable remote monitoring tool?

Africa’s Voices, this pilot showed, offers UNICEF a new tool to connect with Somalis and build knowledge of their everyday realities. The Africa’s Voices engagement and analysis platform can support UNICEF to deliver effective, accountable and culturally sensitive programming.

The interactive radio pilot had an impressive reach, and gathered voices from a wide range of demographics and regions. Hearing from 8,400 Somalis in a short pilot illustrated the vibrant and engaging nature of carefully designed radio discussions. The wide reach is quite an achievement considering the relatively low investment of time (the project took six months in total, with eight weeks data gathering phase) and cost.

Importantly, the data gathered was of high quality and led to rich and deep insights. A common assumption is that remote, technology-based research methods harvest shallower insights than more traditional, face-to-face research. This pilot study demonstrates that this need not be the case. The crucial factor is in the design, implementation and approach to the research. Africa’s Voices recognises the importance of media forums as social spaces for the expression of local views and collective beliefs. Our refined techniques tap into and reveal this wealth of insights. As such, Africa’s Voices method is an opportunity for UNICEF in Somalia, and across the continent (indeed, the world), to reach, engage and gather high-quality data from inaccessible and marginalised communities, especially when it is difficult and dangerous to conduct on-the-ground research by UNICEF staff.

Returning to the issue of cost-effectiveness, the entire project cost UNICEF-Somalia $100,995. Radio production, airtime in the twenty stations, and FPU costs totalled $61,995. The remainder was for Africa’s Voices fees (Cambridge-trained researchers, Somali translators, project management and design, data cleaning and analysis, insight generation and reporting). To evaluate cost-effectiveness, we might consider that it cost $12 per participant ($100,995/8,400), many of whom sent several text messages throughout the eight weeks.

However, this is just considering the audience members who text-in. There will have been many more who listened to the programmes and were exposed to information and opinions about child vaccinations and maternal health, which will have informed and shaped their own beliefs on the topics. Accurate figures are difficult to obtain, but conservative estimates suggest that 5-10% of a radio listening audience participate. Therefore, 84,000-168,000 people are estimated to have listened to the radio programmes.
these figures, it cost $0.60-1.00 per beneficiary.

Is it possible to scale Africa’s Voices approach and what are the benefits of doing so?

Africa’s Voices citizen engagement tool is easy to scale, and there are exponential benefits to UNICEF if our approach is expanded to other programming areas (e.g. education, nutrition, sanitation), other regions (e.g. Somaliland) and over time. These benefits include:

• **A richer database** (anonymised and consensual), as participant numbers grow as well as the range of data per participant. Currently, the database has 7,633 people with their (masked) phone numbers, socio-demographic information, whether they are a parent and several health markers. The database is already full of potential for future campaigns - SMS and otherwise - tailored for and targeted to particular sections of the population. It is also a launchpad for follow-up research. Growing the database will multiply this potential.

• **Engagement improves over time.** We found that engagement consistently grew over the eight weeks, with the most popular radio episode, in terms of text messages received, being the last. This is an encouraging lesson that engagement builds over time and that future radio series should run for much longer than eights weeks. Using Africa’s Voices approach, UNICEF can build its reputation as an organisation that actively listens to Somalis, and have the rich numbers to prove it.

• **Improved efficiency and cost.** Scaling up Africa’s Voices approach rapidly improves the efficiency of the process, the amount of people reached, and therefore the cost-effectiveness of the approach. Indeed, this was a pilot for Africa’s Voices too, in our start-up phase. Key assets and know-how - from the partnership with Free Press Unlimited to our language analysis resources (see below) - have now been developed that can be deployed for future projects.

• **More accurate analysis.** Because we employ automated data and language analysis, and because we use machine learning techniques to improve our algorithms, our analysis techniques build upon themselves, and get more accurate and are able to handle greater volumes of data over time. Moreover, the more we engage with Somali native speakers during the analysis phase, the more their work helps to ‘train’ our computer-based analytical techniques. For future work in Somalia we will already be equipped with a set of tested textual analysis tools for the Somali language, though of course expanding and refining our tools is an ongoing process.

**Future collaboration**

For future projects, Africa’s Voices recognises that the greater the collaboration with and involvement from UNICEF Somalia staff, the sharper will be the focus of our work on UNICEF’s strategic priorities, key measures and decision points. Working closely with UNICEF Somalia allows for tailored investigation and research designed to meet UNICEF’s goals and objectives. Collaborative work also strengthens the long-term impact of insights on UNICEF’s programmes and working practices. For insights to be absorbed by UNICEF, we need to work together to explore the nuances and potential of the data collected, and to seek out opportunities to amplify the voices gathered.

Africa's Voices hopes to work with UNICEF Somalia to innovate for strengthening its approaches to collecting, analysing and using data. In a fast moving digital and communications landscape, there will be new opportunities to reach and engage in Somalia in the coming months and years. We are already developing tools to analyse social media data from various channels, for example, and will continue to innovate ahead of the curve.

Africa’s Voices believes it can work with UNICEF Somalia to truly set the agenda in terms of innovative citizen engagement that seizes the data revolution in new ways. This is as important to helping push the Somali assistance community (donors, UN agencies, INGOs etc) to do more and better, as it is to UNICEF Somalia contributing ideas and experiences to other country programs in the region and beyond with novel and pathbreaking approaches.
Feedback from radio audiences

“I listened to all the radio programmes. This is a special programme because it’s about health. I like it because I get good information about vaccination and other health issues. I hope it will be continued.” - Female, Mogadishu

“I want to thank you for this programme. I am Galkayo Hospital Staff. I like it how you present this programme, but unfortunately it is only once a week I can tell you once a week is not enough for this programme.” - Female, Galkayo

“I like the questions and answers. In two programmes I got the chance to hear my comments read on air. Also I liked how the doctors answer the questions. My advice is to increase the time we can listen.” - Male, Baidoa

“I remember the malnutrition program I heard the voice of my neighbour. I was impressed with how she was talking the problems of malnutrition. Please continue the radio programmes.” - Female, Jowhar