Technical Brief on SAHAYOG's 'Mera Swasthya, Meri Awaaz' (My Health, My Voice): Using Mobile Phones to Report Informal Fees in India

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AMDD, WITH SIGNIFICANT INPUT FROM SAHAYOG, INDIA

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Purpose:

The objective of this brief is to share SAHAYOG's experiences in the technical setup of the 'Mera Swasthya, Meri Awaaz' (My Health, My Voice) project. The grassroots NGO, SAHAYOG, based in India, uses mobile phone technology to gather and leverage data on illicit fees charged for maternal health care. The successes and shortcomings of the technical implementation of this project will be potentially helpful to other organizations which, like SAHAYOG, are not largely technologically oriented. This brief outlines the setup and management of the reporting system used, as well as lessons learned and recommendations for future implementation.

Background:

Information and communication technology (ICT) is increasingly perceived as a tool with the significant potential to promote global health, including maternal health. Though they are not within the reach of everyone, mobile phones are more available in poor communities in low and middle income countries (LMICs) than other technologies. On average, mobile phone penetration is about 79% in developing countries (BBC Media Action, 2013). Moreover, mobile phones are more equitably distributed in poor communities than other types of technology. For example, in rural Bihar, India, 76% of the poorest quartile of the population has a mobile phone, while only 9% has a television. In contrast, 89% of the wealthiest quartile has a mobile phone, and 25% has a television (BBC Media Action, 2013). Thus, mobile phones are one of the

best ways to reach the poorest, a priority group, as they are disproportionately affected by maternal morbidity and mortality.

SAHAYOG, a women's organization based in Uttar Pradesh, India, currently implements a mobile phone project for monitoring illicit fees, called My Health, My Voice. This project is being run in partnership with two local community based organizations in the district and a grassroots women's organization called the Mahila Swasthya Adhikar Manch (Women's Health and Rights Forum). Illicit fees are "informal fees" that patients are asked to pay for medical care, supplies, or medicines that are mandated in policy to be free. These fees pose serious financial challenges to patients, and they may deter poor families from seeking medical attention.

Uttar Pradesh is the most populous state in India, and also one of the poorest. The central and state governments have invested enormous resources in encouraging women to give birth in health facilities, by training community health workers for antenatal and postnatal care, and ensuring that care is free. Nonetheless, widespread anecdotal evidence suggested that illicit fees were being charged for essential maternal health care, particularly delivery, in Uttar Pradesh. These practices undercut the effectiveness of investment in maternal health care.

The SAHAYOG project combines mobile phones and Ushahidi, a popular platform for crowd-sourced "social good" projects. The My Health, My Voice model requires a mobile phone, and in contrast to many projects using mobile phones for reporting bribes or other events, it relies on interactive voice response (IVR) as opposed to text. Among the possible modes of mobile phone communication, IVR is significantly more accessible than text in several ways. First, many of the least expensive, and thus widely purchased, mobile phones do not support non-Roman letters (such as Hindi and Arabic), making text messaging possible only for people who can read and use Roman letters (BBC Media Action, 2103). Second, even if the phone supports texting in the local alphabet, those who are literate may have significant trouble using text messaging because they are not used to learning and using new technology. For example, a BBC Media Action survey in Bihar, India found that only 9% of community health workers (who are comparatively well-educated) had ever sent a text message (BBC Media Action, 2013). Third,

text messages are often limited to 160 characters, making it difficult to provide adequate information about an instance of corruption (Gronlund et al., 2010). Given that the 2011 female literacy rate in Uttar Pradesh stood at 52.36 percent, the IVR approach enables women who are illiterate and unable to text to register a complaint (Indian Census, 2011). In brief, My Health, My Voice's use of IVR, a widely accessible technology that allows some degree of detail to be reported, makes it particularly appropriate for reporting illicit fees especially for illiterate populations.

Details on the Mera Swasthya Meri Aawaz Technical Setup

To develop the reporting system, SAHAYOG partnered with an India-based NGO called Feminist Approach to Technology (FAT; http://www.fat-net.org/). My Health, My Voice's reporting system relies on the free Ushahidi platform, which allows users to submit reports through multiple data streams and creates a dynamic archive of events which can be tracked interactively. The system also uses Tropo, an application programming interface (API) used to integrate an interactive voice response system (IVRS) with Ushahidi to collect the information from users.

Hardware Setup:

- A toll free number has been obtained from BSNL, an Indian telecommunications company. (Toll free numbers are virtual numbers, and as such any calls made to a toll free number are forwarded to a fixed line number. The charges for such calls are paid by the owner of the toll free number, rather than the caller). The calls to this toll free number are forwarded to a broadband activated fixed line connection installed in SAHAYOG's Lucknow office.
- An Analog Telephone Adapter (ATA) was installed at SAHAYOG's Lucknow office. ATA is a device used to connect analog telephones to a digital telephone system. Digital telephone systems are preferred over analog versions because they are cheaper to support, configure and upgrade in the long term. The fixed line connection as well as the broadband connection from the router is connected to the ATA.

Software Setup:

- The setup uses Ruby on Rails (programming language), Tropo (a cloud API that adds voice and SMS support to programming language), Ushahidi (an open-source crowd sourcing platform) and Github (revision control system).
- The domain name www.meraswasthyameriaawaz.org was purchased from www.godaddy.com.
- Shared hosting has been purchased from www.hostgator.com and Ushahidi has been installed and configured. Ushahidi requires a mySQL[1] database, so a hosting package with database was selected.
- The Ushahidi interactive voice response (IVR) module (written in Ruby on Rails with Tropo integrated) and all the audio files for the IVR messages are hosted in Github. Service privileges for Tropo were donated to SAHAYOG by a group named Geeks Without Bounds (www.gwob.org), which is in turn sponsored by Tropo. Installation of software and configuration of the devices was done by Geeks Without Bounds with assistance from FAT.
- Ushahidi allows for the creation of new pages, text and images. It offers the option of categorizing reports either automatically or manually, and makes it possible to add RSS feeds from other sites on topics of interest. SAHAYOG currently uses automatic categorization of reports and its Ushahidi platform is managed using an admin API which requires a username and password for login.

How the System Works

Women call the hotline to report being asked to pay illicit fees in the districts covered by the project. Each hospital in these districts is assigned a 4 digit code starting from 0000. The GPS co-ordinates (longitude and latitude) of each of these hospitals were collected. Before the commencement of the technical setup, SAHAYOG conducted baseline focus group discussions with women to ascertain the various types of out- of- pocket expenses incurred when accessing

[1] Widely used open-source relational database management system.

'free' maternal health services in public facilities. Based on the responses of the women, SAHAYOG created categories of reports. SAHAYOG then assigned each of these categories a number. For example, callers might press 1 if demands were made for money to cover medicines, 2 if it were for a 'tip', and so on. The IVRS also enable women to report how much money they were asked to pay – greater or less than 500 rupees – for each item. Callers are finally also asked to punch in the 4 digit code of the hospital where the demand was made. The entire recorded message is in the local language.

This is how the IVRS works:

1. ***IVRS - Welcome Message****: Welcome to the toll-free corruption reporting helpline by SAHAYOG.*

   1.1 IVRS *- Please enter four digit code of the health centre where corruption incident happened.*

   1.1.a User Response *– XXXX (Valid values – If present in the original database) or Invalid / No Response*

   1.1.i Action – If *Four digits are entered correctly and corresponds to a valid health center in database* ***Then*** *Move to 1.2 (IVRS moves to next level)*

   Else (if invalid code is entered)

   Redirect to ***1.1*** *(IVRS taken again to the question to enter code of health center, If unable to capture in three attempts then move to* ***End message II****)*

1.2 IVRS *- You have entered XXXX which corresponds to 'abcd' health center of 'pqrs' district. To confirm this please press 1 else to re-enter press 2 (this is to ensure correct health center is captured)*

1.2.a User Response *– 1 or 2 or other/No response*

1.2.i Action

If user presses *1* ***then*** *Move to 2.1 (this confirms that correct health center is captured)*

Else

If *2* ***then*** *Move to 1.1 (IVRS taken again to the question to enter code of health center)*

Else

If *Invalid / No response for third time* ***then*** *Move to 0.3* ***Else*** *Move to 1.2*

(IVRS asks the question again if Invalid or No response, but moves to ***End Message II*** *if not correctly entered in three attempts)*

2.1 *Please listen to following options carefully and choose any to report the type of incident*

(IVRS asks what the type of corruption is being reported)

- *Please press 0 if this is a situation which might result in death of the woman/child and no action is being taken by the staff*
- *Were you charged money for medicines, examination, gloves and soap? If yes press 1, if no press 2*
- *Were you charged money for blood or a caesarean operation? If yes press 1, if no press 2*
- *Were you charged money to use the hospital ambulance in the event of a referral? If yes press 1, if no press 2*
- *Were you charged money for the free food and free drop back facilities[2] if you delivered in a hospital covered under the JSSK[3] scheme? If yes press 1, if no press 2*
- *Were you charged money after the delivery or while the JSY check was being released? If yes press 1, if no press 2*

2.1.a User Response – *(valid values: 0,1,2) or Invalid / No Response*

2.1.i Action – If *Response is 1,2* ***Then*** *Move to 3.1 (IVRS captures the type of service and goes to capture the amount of money)*

Else

If *Response is 0* ***Then*** *connect to the emergency number provided (which enables the caller to talk to the head of the local CBO who implements the programme in the two districts)*

Else

If *Invalid / No Response for the third time* ***Then*** *Move to 2.1*

3.1 IVRS *– To capture the Amount of Money demanded / Money Spent on 'free' maternal health services*

3.1.a *Please press 1 if you have spent less than Rs. 500 during delivery or Please press 2 if you have spent more than Rs. 500 during delivery*

3.1.i Action – If *user presses 1 or 2* ***Then*** *Move to 4.1 (IVRS Captures the amount of corruption)*

Else

If *Invalid / No Response for the third time* ***Then*** *Move to to 3.1 (in case of Invalid / No Response IVRS asks to type again, but moves to* ***End Message II*** *if not entered for the third time)*

[2] Women are entitled to free transportation from their homes to health institutions

[3] The JSSK initiative provides free and cashless services to including medications, food and transportation

4.1 IVRS –*You have reported that at 'abcd' health center of 'pqrs' district, for the service 'z' you have been asked to pay a total value Rs. YYYYY. Please press 1 to submit your report, or 2 to correct / change, or 3 to add to the report.* ***(SUMMARY for confirmation)***

4.1. a User Response *1 or 2 or 3 Invalid / No Response*

4.1.i Action- bIf user presses 1, then capture report and move to end message 1 *(user has confirmed, it moves to* ***End Message I****)*

Else

If user presses *2 or 3* ***then*** *Move to 2.1 (If user wants to change the report, add to the report, IVRS moves to the question of service type)*

Else

If *Invalid / No Response for third time* ***Then*** *Move to end message 2 (in case of Invalid / No Response moves to* ***End Message II*** *if not entered for the third time)*

IVRS End Message I: *Thank you for calling SAHAYOG team. We wish the best health to you and your community.* ***End Call***

IVRS End Message II: *You have not entered a valid choice. Please call us again to register a fresh request. Thank you for calling SAHAYOG team. We wish the best health to you and your community.* ***End Call***

Emergency: 'Press 0'

Users of the system also had the option to select '0' if they were experiencing an emergency and were being denied services. When '0' was selected by the user, they would be connected directly to SAHAYOG who would then contact the CBO representative of their district who would contact the District Medical Officer to alert him/her of the problem.

Adjustments made midway through implementation

Halfway through the project, based on feedback from MSAM women to simplify the IVRS, the number of options for 'type of incident' was reduced from nine to five and a yes/no option was added to the script (as seen above).

Mapping and Tracking Reports

When the toll free number is activated, the calls are diverted to the fixed line installed at the SAHAYOG Lucknow office. The ATA device transfers the calls from the fixed line to Tropo using the broadband connection. Tropo answers the phone and plays the audio files based on the inputs received. It has a lookup table for the hospitals and a lookup table for the English text that are used for the Ushahidi reports. Ushahidi receives this information from Tropo, stores and maps the information on a Google map.

When the calls are completed, the Mera Swasthya, Meri Aawaz site displays the reports instantaneously on a map as shown in image 1. It includes the date of the report, the location of the incident, whether or not the request exceeded 500 rupees ($8.03), what the request was for and so on.

To avoid concerns about false complaints the health care provider in question is never identified. In other words, Mera Swasthya, Meri Aawaz does not ask about who requested illicit fees; only the facility where the event occurred is recorded. Additionally, to protect the privacy of the women making the call and to shield her from any adverse consequences of her report, all calls are anonymous. The caller does not reveal his or her identity. In this sense, the hotline functions as a way of collecting data about illicit fee frequency, rather than as a way of tracking and addressing individual complaints.

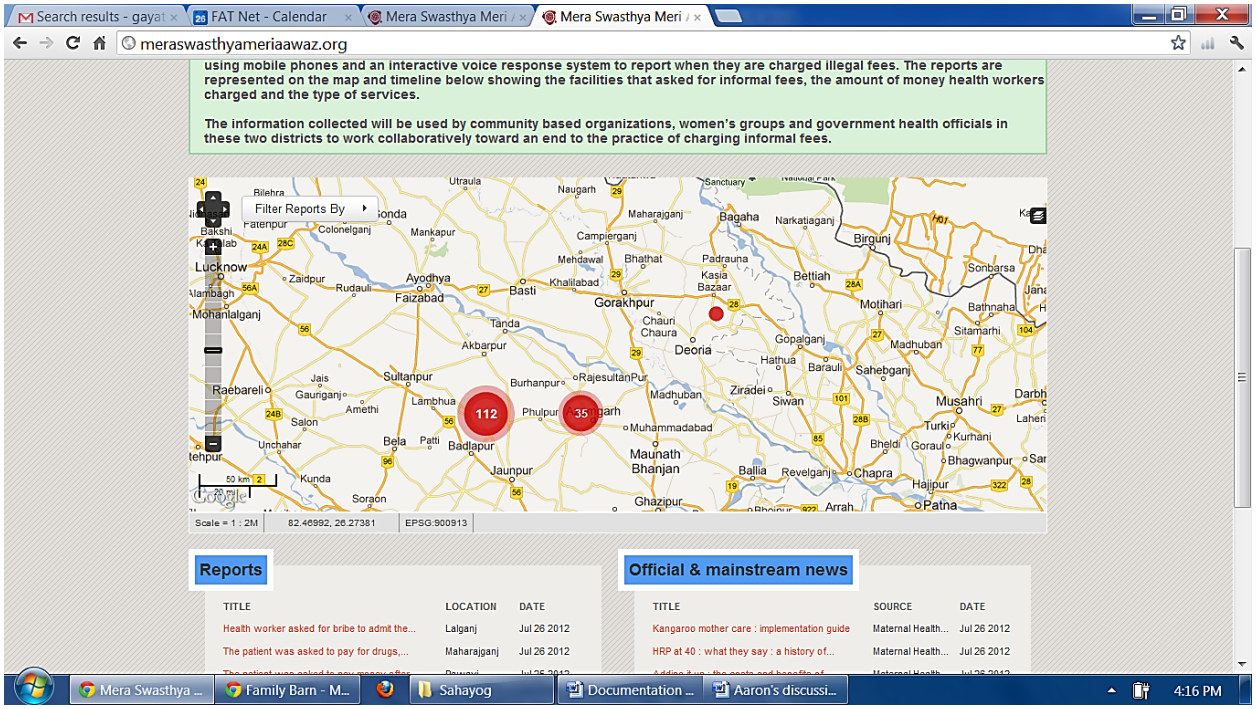

Image 1: Map showing reports received and displayed on the project's website

Lessons Learned:

- Besides the technical setup, there are additional costs to be incurred in the implementation of the mobile reporting system, including training, awareness-raising, and support to users. The entire first year of the project, including all of the staff time, training, and equipment purchases, added up to approximately $55,000. The cost of the software, hardware and technical assistance for the setup and maintenance of the hotline and Ushahidi platform was approximately $10,000.
- For the smooth functioning of the helpline, efficient technologies such as noiseless fixed lines, as well as fast and stable broadband connections are necessary. After the pilot period, SAHAYOG realized that additional phone lines were required, to ensure that callers were always able to get through.
- Despite the voice-based nature of the system, some women still have trouble using it because of their unfamiliarity with mobile technology. This issue is being addressed with

the involvement of members from partner community-based organizations (CBO), who are usually on hand to help women navigate the system. Other organizations have overcome this problem by using a more expensive but user-friendly method of recording complaints: callers record voice messages, which are then manually entered in Ushahidi by staff in a central location.

- While there are a good number of in-country personnel with the expertise to set up the IVRS, they tend to be expensive. As such, an outside technical resource person was hired to set up the system at a fairly cheap rate. However, this did not build the capacity of FAT or SAHAYOG to program the IVRS in the future. Local staff also cited difficulties coordinating communication between local and international teams. To avoid such hiccups in future, it is recommended that adequate time be allocated for training and familiarization with Ushahidi and the IVRS, using in situ technical support where possible.
- Prior to the setup, interviews and focus group discussions were conducted with women, health providers and officials to assess the nature and prevalence of illicit fees. For future implementation, it is recommended that Accredited Social Health Activists (ASHAs) also be engaged in the initial fact-finding stage. These frontline workers often accompany women during their deliveries and may have firsthand experience with the charging of informal fees. Additionally, if projects are well-resourced, it might be instructive to do a formal baseline assessment of illicit fee prevalence, several years of implementation, and then subsequently, an endline.
- Technological innovations in the field of grievance reporting alone are not sufficient to promote greater accountability. SAHAYOG's experience has shown that the presence of motivated individuals (CBO partners) and an empowered citizens group (MSAM: Mahila Swasthya Adhikar Manch[4]) are critical to such innovations being used.

[4] MSAM is a grassroots women's organization comprising of over 12,000 rural and marginalized women spread across 12 districts of the state of Uttar Pradesh which monitors government health programs and advocates for women's reproductive health and rights

Further Enquiries

For more information on the technical setup of the 'Mera Swasthya, Meri Awaaz' (My Health, My Voice) project, please contact: Pravesh Verma (pravesh@sahayogindia.org).

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