Memo: Vitamin A Contact Point at 6 Months SMS Lessons Learned

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The purpose of this memo is to provide lessons learned to other HKI country offices on the pilot SMS strategy introduced in Senegal in early 2013. The introduction of the pilot was set between the bi-annual mass campaigns, and sought to test the impact of a package of strategies on the introduction of a 6 month contact point in the routine vaccination calendar. The study was structured as a randomized control trial that worked in three different settings: urban, semi-rural and rural.

In this memo, the following major themes will be discussed.

1. Introduction to the package of strategies introduced
2. Timeline for planning and implementation.
3. Application of SMS communication
4. Value of SMS communication
5. Lessons learned from the field.

I. INTRODUCTION TO THE PACKAGE OF STRATEGIES INTRODUCED

The pilot in Senegal targeted *supply* and *demand* sides of the intervention to promote the adoption of the 6 month contact point.

Demand

- Social mobilizations were planned for each health post
- Communication tools including brochures and posters were distributed.
- A new child health card, developed in partnership with MoH, was distributed free of charge to facilitate the notification of the 6 month contact point.
- **SMS reminders were programmed to contact each targeted child from the age of 6 months. Community health workers were trained to send reports for each child concerned in the census.**

Supply

- Stock was made available to every intervention health post, based on the estimated number of children in their zone.
- A project guide with stock monitoring sheets was provided to each health post. This guide also included a complete step-by-step walk through of the SMS strategy, to serve as a reference for the report formula.

- **A weekly SMS stock surveillance report was developed, to facilitate reliable monitoring of stock levels for both health cards and vitamin A capsules.**
- If an alert stock level was reached, the district was mobilized to resupply stock to avoid outages.

It is important to take note that an SMS strategy was introduced to ***support*** both sides of the intervention. No SMS strategy should be piloted as the unique communication strategy. In this pilot, interpersonal communication was found to be more effective in raising awareness with beneficiaries.

II. APPLICATIONS OF SMS COMMUNICATIONS

This section will refer exclusively to applications of SMS communications. Other strategies, often based on Android phones, have the capability to do advanced capacities, like survey collection or real-time data control.

SMS communications are any communications sent using a text message. In the case of the Senegal pilot, a structured formula was developed for reporting that used a pound sign (#) to separate pieces of information, allowing numerous variables to be collected in a single message. Text messages were useful for reporting on cases of supplementation and stock levels. They were also used to add children missed by the initial census, and to provide free form feedback using a key word.

Other potential applications include: reimbursing cell phone credit, communication to improve management at the district level, setting up targeted awareness messages, creating a subscription service for health workers or beneficiaries, building a channel for mass shared communication across a fixed group.

III. TIMELINE FOR PLANNING AND IMPLEMENTATION

The implementation of a mobile health pilot is a design process that requires several phases field testing, to improve the product before deploying in the field. No less than 2 months of planning should be invested before a project implementation. A common misconception about “mHealth pilotitis” is that moving out of a test phase is easy, this work requires iteration. It must incorporate previous experiences for each phase of testing, to work towards an “inching up” model, that moves a step-wise towards gradual expansion. It is important to have defined a clear strategy to collect phone number contacts. A census approach, used in Senegal, provided an initial, although static, perspective on the target population. This data needs to go through data-entry and cleaning when using a paper based approach. These steps can take another 4-8 weeks depending on the scale of the project. No phone numbers, means no text messages can be sent.

Secondly, all pilots need to “pre-test” message content prior to the implementation of the project. It is critical to pre-test these messages with beneficiaries, health workers, and head of health posts. Skill levels and local contexts will vary significantly. Each will have their own opinion, and all of their opinions need to be taken into account. Furthermore, every project needs a logic circuit to establish the SMS servers timing logic, and perhaps **most importantly a method to collect and provide feedback**. SMS

communications allow project implementers to overcome unidirectional data collection, and engage with the project actors throughout the pilot's duration.

Finally, it is important to use the planning phase of the project to establish partnerships. There are three major groups of partnerships that should be explored: 1) Ministry of Health partners, 2) telecommunications providers, 3) NGO's or organizations doing similar work in the country. Points of resource for this type of project are invaluable. First, it is important to have a solid working agreement established with the Ministry of Health early on. Their assistance in the field brings legitimacy to trainings, supervisions and the coordination of project activities. They are the ideal strategic partner because they can ensure that the project is compliant with national protocols; motivate commitment from community health workers; provide introductions to existing mHealth projects; help emphasize the priority of Vitamin A activities amidst an often hectic schedule of other projects; and assist with the selection of well matched control districts. A durable partnership is critical to the sustainability of these projects. Second, understanding the telecommunications landscape in a country is critical to strategizing for a mHealth project. It is important to know what operators are present, where they have good coverage, and how dominant each operator is on a region by region level. Additionally, a formal partnership could reduce costs, although this is often hard to accomplish, requires advanced planning, and a lot of energy. Third, mHealth is in its youth. It is important to know who has done what, where before you go into the field. Most organizations who have worked in this domain will be willing to discuss their experiences and better yet tell you about their current activities. The best way to understand the local context of mobile technology is to find people who are already in the domain.

IV. VALUE ADDED OF SMS COMMUNICATION

SMS communications offer "real-time" monitoring of both patients and stock levels. This technology provides unprecedented levels of transparency into work at the community level. The data collected should be used in partnership with district, regional and national level partners to engage interest in the platform. Ideally, the SMS platform would be user-friendly to allow even low-end users to understand the status of project activities. Remember that the data collected, is only useful if it is actionable.

When starting any mobile health project, it is important to establish short, medium and long term objectives for the "value-added" of a mobile health pilot. Mobile health will not yield the desired results in isolation; therefore creating realistic objectives from the outset is a critical planning exercise. For example a short term objective could be to train 100 community health workers to send supplementation reports. A medium term objective could be to reduce stock outages in all intervention sites through surveillance monitoring. A long term objective could be to integrate SMS reminders within the vaccine calendar to improve the impact of this communication strategy. The success of short-term objectives will help keep the team motivated through the supervision stages of the project.

V. LESSONS LEARNED FROM THE FIELD

Communications using simple mobile phones: The conception of SMS communications with Telerivet was chosen in large part because of the system's ability to communicate using any basic mobile phone.

This capacity allowed all of the health workers enrolled in the project to actively participate in SMS communications. In practice the Telerivet system works, and the data transmission is reliable. However, the management of messages is highly manual and requires nearly full-time support to stay up-to-date with incoming messages. Furthermore, the feedback loops and thank you messages for successful reports were considered valuable, but were difficult to implement in a timely and reliable manner on the part of team amidst other project activities.

Literacy: Varying levels of literacy pose a major barrier to understanding text messages. Often illiteracy will limit knowledge of cell phone manipulation, including how to access or view messages. It is important to "keep it simple." Make message understandable for people with low levels of literacy. Feedback from community health workers suggests that messages were often confused as messages from telephone operators. Other women did not know how to access the messages on their phone. Ultimately, even if a beneficiary has a phone, they will be more familiar with the "call" features of the phone. One strategy that can improve comprehension is to encourage women to ask a literate community member to explain the message.

Language Barriers: The pilot used messages exclusively in French. The logic behind this decision was that several local languages exist in Senegal, none of which is taught in schools. If someone is literate, then they will have learned to read and write in French, rather than per say Wolof. Community health workers insist that local language text messages would not improve text messages, as spelling and written explanations would vary and be less reliable across regions.

Timing of reminders: A major question for SMS reminders is when to send the message. This project design set out with the principle that a reminder at 6 months of age, would allow children to be supplemented near their 6 month anniversary. In practice, many health posts would mobilize community health workers ahead of this 6 month contact point to establish a rendez-vous at the health post. One unexpected outcome was that children would sometimes receive their reminder after they had been supplemented (i.e. they were given their dose at 8 am and received a message at 11 am). It is important to take into consideration the schedule of the beneficiary you are trying to mobilize. She will need to arrange her daily routine to create time for a visit to a health post. For this reason, the majority of feedback suggested that it would be best to send the reminder the night before the 6 month contact. Furthermore, many other health workers suggested a two reminder approach (the original logic circuit put these two reminders 7 days apart) that would send a message the night before and the morning of to reinforce the planning of this consultation.

Community Health Worker Follow-Up: SMS reminders did not mobilize targeted children in the time frame set out by the project (about 90% of the time). This resulted in a heavy work load from CHWs you were tasked to do household visits to follow-up with the mother who was enrolled. The most common reaction, displayed in 100% of participating health posts was to call the mother on the primary contact. This was an inadvertent consequence of listing the child's phone contact on the register. This became the "go-to" method for following up with children. Feedback from CHWs suggests that the phone was highly useful, even if it was outside of the SMS strategy.

Phone Numbers (out of service, incorrect number): The reliability of phone number contacts posed another major challenge to follow-ups. Problems with phone numbers were encountered in the collection of numbers during the census, data entry of phone numbers allowed more errors to be introduced. Furthermore, many phone numbers are lost, stolen, or out of service several months after

the data was collected. In other cases, the phone number may have been shared, and been taken on a trip by another family member. A key take-home, is that phone numbers need to be confirmed during data collection, ideally by beeping the phone number. It is also valuable to explain the project objective to each person with a phone number collected (in the case of second contacts) so that they are aware of what to do when the reminder message arrives. This experience strongly suggests that a census approach is to be avoided. It would be better to equip each health post with a phone that allows an active census, which would also permit enrolling children beyond 6 months to include children (7-59 months) to program follow-ups at 12, 18, 24, 30 … months.

Primary contacts (mother, father, head of household): A strong emphasis should be put on collecting phone numbers with individuals directly engaged with the care of the child. The most indicated person is the child's mother. If the mother does not have a phone number, using the child's father or head of household is a strong alternative.

Secondary contacts (sister, aunt, grandfather, neighbor): The census conducted in Senegal collected two phone numbers. The original logic circuit planned to use these phone numbers in the case of secondary reminders. This became impossible to program with the Telerivet system. After deliberation during focus groups, it seems that it would be worthwhile to use both the primary and secondary contact on the initial reminder.

Tracking cases outside of zone: The targeted children in our study were prone to displacement. Often children whose contact information was collected during the census would move out of the intervention zone, and would be notified by a "non-confirmed" supplementation report, that specified that the children was now a "non-resident" and have moved to "X" location. This was part of the initial design, and became a useful way to follow-up with mobile populations. In a longer pilot study, this would surely have had a more significant effect, as seasonal migration is prominent in the country. Another common challenge was children who received their dose in a health post other than their "home" post. This became a logistical headache, as children would often receive treatment at a higher level facility (health center) then their local facility (health post). Case management using the Telerivet system was highly manual. Using a dynamic census, where all children in a district can be found using a search feature would improve case reporting and reduce the doubling of records for children.

Managing telephone credit on the server: The Telerivet system is established with an application installed on an Android phone. The SIM cards were chosen based on the operators that are strongly represented in the district based on the census data (more than 30% coverage). As such, two telephones were set up for each intervention district to take advantage of lower SMS rates. A text message between operator A and B costs 75 francs ($0.18), while a text message between two phones on operator A costs 20 francs ($0.04). This also allowed community health workers to send text messages at the lower rate, as often the local workers would use secondary operators that had the best coverage in their area. In order for the cell phone "server" to reliably send text messages, credit must be available on the phone. When the credit drops below 20 francs, an "error SMS" message will be generated and each scheduled message will be counted as a "failed message." This message can be resent later once credit is added. To complicate matters, credit has a nasty habit of expiring, sometimes in as little as 7 days, especially problematic with Sonatel (Orange). It is important to know the rules that each operator has concerning credit. Also, buying credit in greater quantities can extend the "life" of your credit. One strategy that became useful was to buy large sums of credit such as 10,000 francs ($20.00) and then using a credit

transfer to assure that the “server phones” would not run low, especially for weekends and weeks where the team was in the field. An important consideration, each phone will use credit depending on the SMS messages scheduled by district. In large districts, credit is used up faster than in small districts. Some months one phone (operator B) may be significantly more active, pre-financing phones is not a highly reliable solution.

Managing telephone credit in the field: The concept of reimbursing text messages for community health workers was one of the initial constructs of this pilot. The principle was to remove the cost barrier to improve engagement with the system. In theory, this is great. In practice, this became a difficult challenge to manage. Initially, the system was set to calculate how many text messages had been received in a month, and to reimburse that number times 20 francs. But, due to problems with expiration of credit, it was unlikely for the month of credit to be used in the short period before the credit transfer would expire. Ultimately, it became more practical to reimburse the credit in cash at the end of the project. We settled on the sum of 1000 francs ($2.00) per month, which would in theory reimburse 50 messages to the same operator, or 13 messages between operators.

CONCLUSIONS AND RECOMMENDATIONS

All in all, the use of basic cell phones was largely a success. Both community health workers (volunteers) and head of health posts (certified health workers) were able to successfully complete valid and timely reports. Nonetheless, it has to be said that the Telerivet system is highly manual. Other systems, such as Dimagi offer advanced capacities that would be helpful at the level of the health post. Looking forward, a more advanced system, that includes data analysis features, is necessary to grow such and include more districts.

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