



IMPLEMENTING THE PRINCIPLES FOR DIGITAL DEVELOPMENT

The ReMiND Project: Reducing Maternal and Newborn Deaths

This case study is submitted to illustrate how CRS and partners have been implementing the Principles for Digital Development since 2011 in The ReMiND Project in the Kaushambi district of Uttar Pradesh, India.
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Introduction

OVERVIEW

The ReMiND project was formed in April 2011 in response to poor health indicators in Uttar Pradesh (UP) and the unrealized potential of the ASHA (Accredited Social Health Activists) program.

- The goal of the project is to contribute to increased and sustainable improvements in maternal, newborn and child survival (MNCH). It has the following objectives:
- Increase ASHAs' coverage (i.e., increase the number of pregnant women who are visited at least once by an ASHA).
- Increase ASHAs' frequency and quality of counselling to their pregnant clients.
- Increase client knowledge of danger signs during and after pregnancy.
- Increase the adoption of key maternal, newborn and child health and nutrition practices of clients during and after pregnancy (e.g. number of antenatal care visits, Tetanus Toxoid injections, care seeking for danger signs, and appropriate breastfeeding).

CONTENT

ReMiND has a number of key intersecting components that work together to strengthen community-level systems around maternal and newborn health:

- **The ASHA app:** A phonebased counselling job aid to support the ASHA to mobilize the beneficiary to access health services.
- **The Sangini app:** An app that helps the ASHA supervisor supervise and support the ASHA's work, according to a 10indicator list.
- **Meeting platforms:** Existing meeting platforms are reworked to ensure they are an opportunity for problem solving, support and learning. There are meetings for ASHAs, Sanginis and one for Block Health Education Officers.
- **A training program**—to build interpersonal counselling skills and phone literacy.

ASHAs in the project use basic mobile phones operating Dimagi's open-source CommCare software, which equips them with multi-media job aids to support client assessment, counseling, and early identification, treatment and/or rapid referral of pregnancy, postpartum and newborn complications, and tracking of childhood immunizations. The content was developed in consultation with partners, district and

state government, ASHAs and the women they serve. Pregnant women are registered and tracked through pregnancy, delivery and the postpartum period with continued tracking of newborns and young children through their second year of life. Once a birth is reported, SMS reminders repeatedly prompt the ASHA to conduct scheduled postpartum visits until that visit is recorded in the system. The system also alerts ASHA supervisors via SMS if ASHAs miss postpartum home visits.

The ReMiND project is featured in “mHealth Basics” course available on USAID’s Global Health eLearning Center:

<https://www.globalhealthlearning.org/course/mhealth>

Implementing the principles for digital development

Following we illustrate how the ReMiND project is implementing each of the Principles for Digital Development. We also rate the project from 1 to 5 in its application of each Principle, with 1 being the lowest and 5 being the highest.

PRINCIPLE ONE: DESIGN WITH THE USER

We rate the design of this project a 5 because it meets all five objectives of the first Principle.

The project has benefitted from an iterative approach that includes ongoing user feedback, research, analysis and reflection, to identify what is working and where there is room for improvement, and refining the app accordingly.

The design and implementation of the ReMiND project is described below in six steps, following the guidelines in **The Organizational Guide to ICT4D** :

| STEP | DETAILS |
|------|--|
| 1 | <p>Initiate: The ReMiND project started as a testing ground for Dimagi’s beta version of their CommCare app. NGOs CRS and Vatsalya provided project structure and asked Dimagi to build the ReMiND team’s capacity in mHealth from the outset.</p> |
| 2 | <p>Develop Requirements and Architect solutions: The ReMiND project worked with different stakeholders to understand system constraints and user needs, clearly defining the requirements for a phone-based solution. The CommCare ASHA counselling app provided a solution to systems bottlenecks by supporting improved, structured interpersonal communication between ASHAs and beneficiaries, and subsequently between ASHAs and their supervisors—the Sanginis.</p> |
| 3 | <p>Design: The ReMiND team engages in ongoing iteration based on user experience, feedback and emerging needs.</p> |
| 4 | <p>Deploy: One of the key ways the ReMiND project catalyzes system transformation is through building capacity. This includes training and follow up hand-holding and supervision.</p> |
| 5 | <p>Operate, Maintain and Improve: The ReMiND project is unique in that there is constant and ongoing effort to understand the needs of ASHAs and Sanginis, and reiterate the solution design accordingly.</p> |
| 6 | <p>Capture Results and Share: ReMiND has a comprehensive monitoring and evaluation system based on a theory of change, results framework and indicator tracking table. The ReMiND Project is unique in its commitment to learning and building the mHealth knowledge base, mobilizing resources and building relationships with research partners to support additional studies and assessments to understand what works in terms of ICTs and community health workers.</p> |

Since many ASHAs were found to be illiterate, the app was redesigned to use pictures to help describe questions, and borders of pictures were color-coded to better identify the nature of the question. In addition, the app plays an audio recording of a native speaker reading the question aloud. The mobile application carries voice and pictorial interfaces for the ASHA and other semi-literate or even illiterate women like her to operate. Training on the app has been segregated into two different programs: one for literate ASHAs and one for illiterate ASHAs.

PRINCIPLE TWO: UNDERSTAND THE ECOSYSTEM

We rate this project a 5 in terms of implementing the second Principle. The project is part of a larger network of ASHAs and Sanginis and may be replicated across the entire state of UP. Additionally, it is aligned to GOI technological, legal and regulatory policies.

Selected by her village and trained through the NRHM, an ASHA is a community health worker who is an incentivized volunteer who supports improved health in her community by promoting key family practices and facilitating access to health services. A 2011 NRHM evaluation of the ASHA program identified incomplete training, limited management and monitoring structures as major barriers to optimizing ASHAs' effectiveness in contributing to improved health, especially for women and children, in their communities.

A project baseline study was conducted by CRS from December 2012 to January 2013 to 1) establish baseline levels of ReMiND's strategic objective indicators; 2) assess baseline levels of knowledge and supplemental indicators; and 3) explore household level attitudes around maternal, newborn, and child health (MNCH), including local perceptions and beliefs on the wanted-ness of girls. The baseline study collected both quantitative and qualitative data in Manjhanpur and Mooratganj blocks (i.e., counties) of Kaushambi where ReMiND is implemented. Quantitative data was collected through a Knowledge, Practice and Coverage survey of 1,103 women (495 Manjhanpur, 608 Mooratganj) who had a live birth less than six months prior to the baseline. Qualitative data was collected through semi-structured interviews with mothers, mothers-in-law, and fathers. Qualitative research encompassed practices, beliefs and household decision-making surrounding prenatal care-seeking, delivery, postpartum care, and the wanted-ness of girl children. Ethical approval for the baseline was given by the Institutional Review Board at Maulana Azad Medical College in New Delhi.

PRINCIPLE THREE: DESIGN FOR SCALE AND PRINCIPLE FOUR: BUILD FOR SUSTAINABILITY

We have chosen to combine these two principles since, in the case of this project, they are very intertwined. Considering the objectives of Principles 3 and 4, we rate this project a 5.

Using government guidelines as a starting point for intervention design, as well as close consultation with government stakeholders, meant that the intervention was always in

line with government priorities, and interoperable with the government system. *This is an important precondition of scale*, and is key to the support that the ReMiND project engendered at all levels of the health system.

Based on progress of the CommCare beta test with 10 ASHAs in Kaushambi District, CRS earmarked private funds for 2012 to support the start-up of the ReMiND Project with all ASHAs in Manjhanpur block of Kaushambi. Additional USAID funding awarded to Dimagi helped support scale-up of ReMiND to a second block, Mooratganj, of the district in 2013.

In addition to the mobile phone-based job aid for ASHAs, the ReMiND project developed a CommCare-based monitoring application used by project staff. The National Rural Health Mission in Uttar Pradesh (UP-NRHM) in July 2013 requested CRS to re-craft the monitoring application for use by the government's soon-to-be-introduced cadre of ASHA Facilitators i.e., supervisors (Sanginis), and deployed across all 8 blocks of Kaushambi district. UP-NRHM further requested that CRS pilot the ASHA Facilitator application in Mohanlalganj block of the state capital of Lucknow so that state health authorities could be directly involved in implementation/piloting. If successful, UP-NRHM plans to potentially scale the Sangini application across all 75 districts of the state. The rollout of the Sangini app has helped clarify and demonstrate what effective supervision might look like.

The Sangini app design suits the systems context in Uttar Pradesh well. While it would be too expensive for the state government to give every ASHA a mobile phone, giving one to every ASHA supervisor (1 per 20 ASHAs) is feasible. It provides reach to all the ASHAs, but at a lower cost. The ASHA supervisor is an efficient touchpoint for intervention to make quality improvements to the ASHA cadre, and an excellent entry point for future ICT interventions. For this reason, it has strong advocates at the state and national levels.

The project not only includes the app, but also improved meeting platforms to make sure the data from the app is utilized in program support. Previously, ASHA meetings were very large, with all the ASHAs in a block gathering at a block Primary Health Centre or Community Health Centre and government officials telling them about policy updates: communication was mostly oneway. ASHAs typically did not share problems they were facing or ask questions, and they did not get the support they needed. Furthermore, there were simply too many ASHAs (typically more than 100) to allow any problem solving or quality interaction. The team created smaller ASHA meetings in clusters of about 10, and used the activity reports from ReMiND as a review tool.

In March 2014, based on then-recent developments with UP-NRHM, the ReMiND team and key stakeholders were called together for a 4-day workshop in Lucknow to plan for *project sustainability and further strategize scaling-up* for the ASHA Facilitator app. The overall purpose of the workshop was to ensure a common vision for project sustainability and scaling-up with realistic strategies and actions for successful achievement of the same.

The workshop's scaling-up planning was guided by the World Health Organization and ExpandNet scaling-up resources. The key scaling-up questions that were considered

during the workshop were drawn from the planning worksheets that accompany the document, Nine steps for developing a scaling-up strategy: http://apps.who.int/iris/bitstream/10665/44432/1/9789241500319_eng.pdf

The project design and content all adhered closely to government guidelines, so the project was completely interoperable with existing systems. Even the level of supervisory contact the ReMiND Sector Facilitators had with the ASHAs was according to government guidelines, so this is doable with the available resources. *This is key to the sustainability and scalability of the project.* The main difference is the ethic of support and mentorship.

The project cites the following sources and statistics in terms of its financial sustainability and cost-effectiveness:

Cost analysis of implementing an mHealth intervention for MNCH through CHWs

Prinja et al, 2016

Journal article (unpublished)

- Cost is estimated at US\$20 per registered beneficiary, or from a “societal” perspective, US\$37.50 per beneficiary
- Total program costs are projected to be 6 percent of the annual RCH budget – and the program is therefore *financially sustainable*.

Costeffectiveness of mHealth intervention by Community Health Workers

Prinja et al, 2016

Journal article (unpublished)

- Implementation of ReMiND intervention in UP would result in a reduction of 16,553 918 maternal and 117119,064 646 neonatal deaths during the 10year period: a reduction of 16.4 percent maternal and 5.2 percent neonatal deaths.
- Overall, ReMiND incurs an incremental cost of 637 rupees (US\$10) per DALY (Disability-Adjusted Life Year) averted and 18,516 rupees (US\$292) per death averted.

Regarding scaling up, in 2016 ReMiND was invited to present at the National Health Systems Resource Centre annual meeting focused on community processes. This event, attended by government officers from all states, is an opportunity to share innovations and best practices from all over the country. A number of states took an interest in ReMiND and these officers were invited to Lucknow and Kaushambi to see for themselves the successes and possibilities of the ReMiND project and the Sangini app. This visit occurred in March 2016.

One of the states that took an interest in ReMiND was Meghalaya. One of the key challenges with the health system in Meghalaya is the disconnect between the community and the health system at large. Most data is facilitybased, and in Meghalaya the facility is not necessarily where people receive care. Data about the ASHAs’ work is simply not being captured. If data from the field were available, it would enable better planning and improved outreach. The Mother and Child Tracking System is



there (an information system that tracks pregnant women and newborns), but has been challenging to roll out because there are too many communication gaps between different levels of the health system.

This is where the ReMiND project would be helpful—capturing villagewise data. This data also helps identify training and refresher training needs and can identify when would be a good time to expand the program scope (for example, to train the ASHAs in NCD (Non-Communicable Disease) prevention). The app will help ensure that training best meets their needs and maintains their motivation and commitment. The ReMiND project particularly suits the context in Meghalaya, because it accommodates community health workers with limited literacy.

Meghalaya's plan for ReMiND is to implement it on a pilot basis with 100 ASHA facilitators first. It will then be assessed to see if it can be scaled up with the payment system integrated, and a link to the Mother and Child Tracking System. Right now, Meghalaya has submitted their Program Implementation Plan to the central government, and once it is approved they will roll out the project. The Meghalaya team suggested that the scalability and adaptability of the app would be enhanced if it could align with the Mother and Child Tracking System and the ASHA payment system.

PRINCIPLE FIVE: BE DATA DRIVEN

We rate this project a 5 in implementing this Principle.

The ReMiND application uses audio and visual prompts to help ASHAs systematically assess and counsel during routine home visits. ASHAs use the app to register each pregnant woman, newborn and child under 2 years of age, entering client data right into the mobile phone. On each subsequent visit, the application walks ASHAs through checklists and prompts to identify current issues, determine if prior treatment was followed, and share new counseling points based on the stage of pregnancy or the number of days after birth. The app also guides ASHAs in early identification of any health problems and treatment or rapid referral of women and newborns with complications to appropriate care. During each visit, ASHAs enter assessment data into the application, including each woman's current health and childcare practices, any signs of maternal or newborn health problems, and the woman and child's use of recommended health services. The application transmits this data in real time to Dimagi's cloud-based server, CommCareHQ. This allows project supervisors and government health professionals to monitor ASHAs' activities in even the remotest of areas and provide timely, effective guidance.

ASHAs also use the mobile application to share accurate health information with women and their families, as well as to track immunizations to ensure children are vaccinated on time. A range of interpersonal communication modules present behavior-change messages through use of images and related audio, which are fully aligned with government guidance for ASHA home visits to women and children.

Measuring the quality of messages and frequency of their delivery by ASHAs and how this has impacted behaviors of the women they have visited pre- and post-partum has been continuously monitored with the project being adjusted, as in the creation of an app for Sanginis, as the need arises.

The Sangini app assesses ASHAs' performance according to a 10indicator checklist, on the basis of which Sanginis can see whose performance is weak and whose is strong, and can give feedback in real time, building ASHAs' skills, confidence and knowledge.

The app also discourages false reporting and helps maintain the quality of the work and data collected. The app builds trust by creating very clear and achievable expectations; an ASHA knows her targets and the supervisor can clearly see if she has achieved them. **This trust and confidence built between the ASHA and the supervisor through the app is visible—and is at the heart of the project's success.**

The Expected Beneficiary Calculation Form is perhaps the most useful component of the app. It helps the Sangini know if all cases are being covered by the ASHA or not. This way, she can identify reasons for the ASHA's lowcoverage – whether it is unwillingness to work, reluctance from the community or some other problem. Sanginis also use this data to help mobilize any families who are resistant to accessing health services.

The app is unique in the field of mHealth as supervisors are often overlooked in mHealth project design and yet are in a unique position to impact health worker performance.

According to the following sources, below are results reported from the project:

ReMiND Project Mid-term Evaluation Report—Reducing Maternal and Newborn Deaths CRS, 2014

Research report

- ASHA coverage has increased
- Helped improve performance of low-performing ASHAs
- Number of topics discussed during counseling doubled
- Knowledge of danger signs improved
- Boosted confidence and increased acceptance
- Illiterate ASHAs knew how to use app, but needed training and support

Impact of mHealth application used by community health workers for improving utilization of maternal, newborn and child health care (MNCH) services in a rural area of Uttar Pradesh, India

Prinja et al, 2016

Research report (unpublished)

- Statistically significant improvements in IFA consumption, abdominal examination, identification and selfreporting of pregnancy complications

Mhealth-enabled community health worker strengthening: A midterm evaluation of a program to improve MNH in India

Murless & Weaver, 2014

Conference presentation

- Improvement in coverage and counseling practice
- Equity effects of ReMiND—those with less education benefitted most
- Improvements in health behaviors: ANC (ante-natal checkup) care seeking, tetanus toxoid injections, care seeking for complications, colostrum feeding

Exploring the relationship between social networks and health workers in India, 2015

Journal article (unpublished)

- Social networks matter to ASHA performance
- Having a positive relationship with high-performing ASHAs, more experienced ASHAs and supervisors can help ASHAs in their work

ASHA Facilitation Model

CRS, 2014

Policy brief

- Requirement for full-time female ASHA supervisors, supported by development partners
- Technology can be an enabler

The impact of the project has been felt at different levels of the health system – the beneficiaries, their families, ASHAs, facilities, and the systems level. One of the most visible impacts has been to help the ASHA cadre achieve its potential in terms of increasing coverage and counselling performance. These benefits have accrued where the need is greatest, with the percentage of low-performing ASHAs dropping dramatically. Projections find that over a 10-year period, implementation of ReMiND would result in preventing 16,918 maternal (16.4 percent) and 119,646 infant (5.2 percent) deaths across Uttar Pradesh (Prinja 2016 b). Perhaps one of the strongest indicators of success is that the Sangini app is being considered for replication in the state of Meghalaya.

The lessons learned from ReMiND have been used not only for internal quality improvement. Experience from this project also has helped CRS, Dimagi, the Ministry of Health in Uttar Pradesh, and other partners understand how to implement mHealth projects in different contexts, both within Uttar Pradesh and globally. ReMiND was unique in its commitment to learning and building the global mHealth knowledge base. All along, it mobilized resources and built relationships with research partners to support additional studies and assessments to understand what worked in terms of ICTs and community health workers. For example, USAID funded an impact evaluation carried out by the Post Graduate Institute of Medical Education and Research, Chandigarh (Prinja 2016). Another example is a study on how phones are used outside of work (Schwartz 2013). Case studies of ReMiND have been included in a number of toolkits and frameworks, such as Keisling’s The mHealth Field Guide for Newborn Health, and the WHO’s The MAPS Toolkit: mHealth Assessment and Planning for Scale. **Through this research and documentation, the ReMiND project has established itself as a benchmark for mHealth success in the field of maternal and child health, and its lessons learned applied all over the world.**

PRINCIPLE SIX: USE OPEN DATA, OPEN STANDARDS, OPEN SOURCE, OPEN INNOVATION

We rate this project a 5 for implementing this Principle.

The ReMiND project uses Dimagi’s open-source CommCare software as its platform for both the project’s M&E and ASHA-related ICT4D solutions. Coinciding with the 4th annual mHealth Summit in 2012, Dimagi announced the CommCare Exchange to allow organizations across the world to create, share and download mobile health applications and multimedia on the CommCare platform, part of the MOTECH Suite. The CommCare Exchange is available on Dimagi’s open source cloud-hosted mHealth

platform CommCareHQ (www.commcarehq.org). The CommCare Exchange was built with funding from United States Agency for International Development (USAID) Development Innovation Ventures fund (DIV) program and is the first collaborative, open-licensed 'app store' for the rapidly growing mobile health field. CommCare content has been shared with mPowering Frontline Health Workers, a partnership created by USAID and the mHealth Alliance (<http://www.mhealthalliance.org/our-work/partnerships/mpowering-frontline-health>). The partnership aims to harness the power of mobile technology to improve the performance and skills of frontline health workers. Partners crowdsource and share innovative multimedia health content, create a virtual content repository, and expand the use of mHealth applications by frontline health workers around the world.

CommCare comprises a mobile phone app and web interface designed for low-resource settings and made available to remote health facilities, including non-governmental organizations, public health organizations, research institutions and governments. It contains checklists and educational prompts to help health workers promote healthy behaviors that have been shown to reduce mortality and disease in low-income populations. The project also uses Dimagi's cloud infrastructure (CommCare HQ) for data compilation and management, building applications, managing mobile workers and web-users.

PRINCIPLE SEVEN: REUSE AND IMPROVE

We rate this project a 5 for this implementing this Principle. Based on behaviors of ASHAs and the women they serve, existing tools, platforms and frameworks have been not only adapted but also created. The project has benefitted from an iterative approach that included ongoing user feedback, research, analysis and reflection, to identify what was working and where there was room for improvement, and refining the app accordingly.

CRS/India led all of the app design and development for the ReMiND baseline study. Existing paper-based KPC2000+ tools were initially adapted to meet the project's data collection needs. This Word-based document was then adapted into an Excel-based definition file for the baseline application. The app was then built on CommCare HQ by CRS/India's IT Director. Any technology issues that came up during the app build that CRS could not resolve were addressed to Dimagi staff in India or to the web-based CommCare users group. A similar CRS-led process was followed for the development of the project's monitoring tool app.

The CommCare based job aids used by ASHAs were developed with more direct involvement from Dimagi. CRS led content development for the ASHAs' pregnancy app with Dimagi doing the app build. For a new postpartum app, CRS led content development and shared app development responsibilities with Dimagi.

The required staff support to develop this ICT4D solution (baseline app) included staff with strong health and M&E expertise to develop the content and logic for the app.



Staff with IT expertise were needed to first identify the best available ICT hardware for baseline data collection and then to build the application.

Separate data-entry staff were not required since survey data was uploaded directly from the enumerators' tablets to CommCare HQ. CRS/India survey supervisors conducted daily quality checks of survey data via CommCare HQ. CRS' Senior Technical Advisor (STA) for M&E ensured analysis of survey data that was exported in an Excel file from CommCare HQ. Analysis was then done using STATA. Survey write-up was done by the RTA for M&E and PQ Manager for Health.

Usually in any program or project, there is an initial formative research phase, a planning phase and an implementation phase. **The ReMiND project has made a constant and ongoing effort to understand the needs of ASHAs and Sanginis and revise the solution design accordingly.** At every step, the team regularly stops to reflect on and learn what is working and what is not working, to seek various stakeholder inputs and make necessary course adjustments. After every training, there is an immediate debrief to address any challenges right away. This happened even during the scaleup phase where some components were dropped to streamline the scaleup process.

PRINCIPLE EIGHT: ADDRESS PRIVACY AND SECURITY

We rate this project a 5 in terms of implementing this principle. This project, like all CRS-supported projects, is very sensitive to the cultural context of the society in which it is operating. Data collected and stored by the application is encrypted.

- ReMiND is hosted on a platform (CommCare) that is HIPAA compliant- the Health Insurance Portability and Accountability Act, which sets the standard for protecting sensitive patient data. Any company that deals with protected health information (PHI) must ensure that all the required physical, network, and process security measures are in place and followed.
- Access to ReMiND data is managed by user-credentials. Therefore, only an authenticated user has access to the data.
- De-Identified data is only shared with external parties, and thus the participant's privacy is secured.

PRINCIPLE NINE: BE COLLABORATIVE

We rate this project a 5 in terms of this Principle. The ReMiND project is a partnership among Catholic Relief Services; Vatsalya, a state-level NGO working in the area of mother and child health; Dimagi, a social business focused on creating affordable technologies for resource-constrained environments; government Community Health Workers called Accredited Social Health Activists (ASHAs) and their supervisors, called Sangini¹; block mentors; and the women this project serves. The Sangini app has been implemented with the support of Sarathi Development Foundation, a state-level NGO focused on children, adolescent and women-centered development. In addition, the project has worked very closely with the government through the National Rural Health Mission (NRHM). The project has benefitted from this strong partnership, each organization bringing different strengths to bear to achieve project success.

¹ Sangini means "friend" in Hindi

Appendix 1: Summary of ReMiND Midterm Evaluation Data

KEY LESSONS LEARNED

One of the major successes of ReMiND has been increasing ASHAs' coverage of pregnant women in their communities. This proved especially effective at reducing the number of low-coverage ASHAs to less than 20% of the total, down from over 60%. This is likely due to support from Sector Facilitators – ASHA supervisors (Sanginis) hired by the project.

Only 44% of women received an ASHA visit with a counseling component prior to the intervention, but 72% received a counseling visit from their ASHA at the time of the mid-term evaluation (MTE) survey. The mobile job aid is likely responsible for this massive increase in the amount of counseling per visit.

Pride, honor and community recognition that the ASHA gets in the community is a source of motivation for her. Information from social networks was also considered alongside ASHAs' counseling messages regarding institutional deliveries, and may have undermined project impact in this area.

While knowledge of danger signs increased, care-seeking for complications did not increase. It is likely that information about danger signs was difficult for women to act upon.

INTRODUCTION

Using mobile phone-based health technology (mHealth), ReMiND aims to increase the adoption of key maternal newborn and child health and nutrition practices by improving the presentation and content of health information provided by ASHAs, as well as strengthening support and supervision structures for the ASHA through the ASHA supervisor called the ASHA Facilitator (AF).

The project objectives are to increase the following:

- Coverage of the ASHA (i.e., increase the number of pregnant women who are visited at least once by an ASHA)
- Frequency and quality of counseling by ASHAs to their pregnant clients.
- Client knowledge of danger signs in pregnancy and postpartum.
- Adoption of key MNCH and nutrition practices of clients during pregnancy and postpartum (e.g. number of antenatal care (ANC) visits, Tetanus Toxoid (TT) injections, care seeking for danger signs, and appropriate breastfeeding.

The ReMiND project completed a baseline study in January 2013 that included a qualitative study and a quantitative knowledge, practice and coverage (KPC) survey covering 1,100 households. The KPC established baseline measures for the project's strategic objective (SO) and targeted output-level indicators. The midterm evaluation in August 2014 employed the same methodology with 2200 households.

BACKGROUND

Uttar Pradesh (UP) contains a fifth of India's population, but lags far behind national averages in maternal, newborn and child health (MNCH), threatening achievement of national and global commitments (such as the Sustainable Development Goals). Kaushambi district, one of UP's 75 districts, exhibits some of the worst health statistics, with neonatal, maternal and child mortalities far greater than the national averages (at 84%, 92 % and 103 % higher).²

In 2006, the Government of India (GoI) formed a network of community health workers known as Accredited Social Health Activists (ASHAs) in an attempt to promote improved health practices in rural communities. ASHAs act as the critical cornerstone between rural households and the health system, and are the main source of essential health information to families. A 2011 evaluation highlighted several challenges to ASHAs' provision of effective community health services, due to limited training and job aids, weak supervision structures, and ASHAs' low literacy.³

THE REMIND SOLUTION

In April 2011, Catholic Relief Services together with private sector technology leader Dimagi and local partner Vatsalya partnered to form the Reducing Maternal and Newborn Deaths (ReMiND) Project.

The government's ASHAs are supported through basic mobile phones (Nokia C2-01) operating Dimagi's open-source CommCare software, which equips ASHAs with multi-media job aids that can be used to support their outreach to pregnant and recently delivered women (RDW). ASHAs are supported by Sector Facilitators –project staff who accompany the ASHAs on home visits, help them with the phone and provide ongoing supportive supervision. All real time data is transmitted from the applications to CommCareHQ, Dimagi's cloud-based server, where project supervisors and government health professionals can monitor and support ASHA activities, and produce reports using CommCare's health data.

Lessons learnt from these project-supported SFs contributed to recommendations shared with the government for a new cadre of state-sponsored supervisors for ASHAs (called Sanginis) under the UP National Rural Health Mission (UP-NRHM).

ReMiND has a comprehensive monitoring and evaluation system. The project team compiles monthly and quarterly reports against indicators for sharing with the team, health managers, government counterparts and partners, and guides focused project management and timely allocation of resources towards low performing program areas. The results framework was revised in December 2013 to reflect the project's evolving support to Sangini's and to explicitly include sustainability and scaling-up as cross-cutting themes in ReMiND.

METHODOLOGY

The Mid Term Evaluation included both quantitative and qualitative components, using a non-experimental pre- and post-study design. The quantitative component used two rounds of "knowledge, practice and coverage" (KPC) surveys, with data collected using Dimagi's CommCare on tablets. Data was analyzed using Stata 13.

² State of the World's Children 2012; 2010/2011 Annual Health Survey data

³ EVALUATION of ASHA PROGRAM 2010-11, National Rural Health Mission. India

The qualitative data collection consisted of key informant interviews and focus group discussions. Full ethical permission was obtained, and informed consent was collected from each participant. Interviews were conducted in Hindi and recorded by a note-taker. Data was analyzed according to key themes.

SUMMARY OF FINDINGS

The greatest successes of the project have been in increasing the linkages between women and the health system. Uptake of phones running CommCare was rapid, and within three months of program rollout, 60% of pregnant women were being visited by an ASHA using CommCare. In general, this improved antenatal care access, but did not translate into notable improvement in other areas of care seeking, such as institutional delivery.

TABLE A1: PROGRESS ON KEY PROGRAM COVERAGE INDICATORS

| | BASELINE | MIDLINE | DIFFERENCE |
|--|--------------------|--------------------|--------------------|
| Percent of Women Ever Visited by an ASHA | 61% [0.58,0.64] | 76% [0.73,0.78] | +15% [<.001]*** |
| Percent of Women Receiving Counseling from their ASHA | 44% [0.41,0.47] | 72% [0.69,0.74] | +28% [<.001]*** |
| 95% confidence intervals listed below the points estimates, with p-values listed under the differences | | | |

ASHA COVERAGE

As a result of ReMiND, ASHAs carried out far more visits with pregnant women, both due to support from project supported ReMiND SFs and increased confidence of ASHAs from the mobile phone job aid. Only 44% of women received an **ASHA visit with a counseling component** prior to the intervention, but 72% received a counseling visit from their ASHA at the time of the midterm survey. Most of the improvement came from an increase in counseling on nutrition and rest during pregnancy, for which there was a module in CommCare.

EQUITY EFFECTS

The program was particularly successful with low-performing ASHAs: the number of ASHAs who counseled less than 40% of the pregnant women in their village dropped from 61% to 19%. This in turn led to a large improvement in the amount of antenatal care that women received, especially among less educated or wealthy households.

At baseline, less educated women received slightly fewer visits than those with medium level of education, but not much lower. In fact, wealthier households received also fewer visits from ASHAs, likely due to lack of demand from those who can afford

more high quality services. ReMiND increased ASHA visits across all levels of women's education, suggesting that more marginalized groups benefit most from the program.

DANGER SIGNS

Women also received much more counseling on nutrition and health danger signs, and were able to name nearly twice as many pregnancy danger signs. Recall of counseling on danger signs increased from 3.8% to 14% of women, while that on nutrition showed a massive increase, from 17.8% to 55%. Most of this increase came among poorer households, such that after ReMiND, they named nearly as many danger signs as wealthier households. However, the absolute number of danger signs that they could name was still too low (1.23) to expect it to translate into health outcomes. One of the main areas of interest was whether women were more likely to seek care upon experiencing danger signs. Results were inconsistent, with improvement in care seeking for some danger signs but not others. The lack of change in infant danger signs knowledge is somewhat discouraging. In general, it is unclear whether the program has given caregivers actionable or memorable knowledge.

ANC CARE

The program appears to have had a major success in antenatal care. The average woman accessed 41% more ANC sessions after the program, with 58% more women receiving the recommended number of three or more antenatal care checkups (moved from 18.9% of women to 30.2%). Most importantly, the effects were concentrated among lower socio-economic status households. While women with between 1-9 years of education had much lower ANC access during baseline, average ANC care approached that of more educated beneficiaries during MTE.

The quality of antenatal care remained steady over time. Yet as a result of the increase in number of ANC sessions accessed, the percent of women experiencing a given component of quality ANC increased. At mid-term, 59% more women reported receiving an abdominal exam, while more women also had their blood pressure taken (increase from 32% to 39%), or gave blood or urine samples (both increased from 28% to 33%). This is encouraging, but forty percent of women still did not receive any antenatal care at the time of the MTE survey.

INSTITUTIONAL DELIVERY

While these findings are encouraging, there was little change on many important outcomes of interest. Most importantly, institutional delivery rates did not increase over this time period, which is surprising given the large increase in contact between ASHAs and women in the village.

OVERCOMING TRADITIONAL BARRIERS

ASHAs are affected by problems similar to those of their beneficiaries, such as illiteracy, proscriptions on women's behavior and decision-making. They also observe similar social practices, such as use of traditional medicine and observance of the caste

system. A couple of instances of ASHA visitation being constrained by caste rules were mentioned by community members and SFs, as depicted in the quotes below. SFs, who in the absence of a government supervisory cadre, have served as ASHAs' de facto supervisors and mentors, play a role in mediating the impact of these social practices on provision of services.

“She was not allowed by her family to visit lower caste home, as she belongs to an upper caste. So, when I get to know this, I visited her house and tried to convince their family members and also motivated her to visit the same. Later she started visiting the lower caste beneficiary’s house as well.”

(Participant 41)

PATHWAYS TO CHANGE

A major finding in this area was that use of mobile phones and CommCare saw significant impact on ASHAs' work, through a number of modalities, namely through increasing:

- ASHAs' efficiency and productivity by compiling and organizing beneficiary information and counseling content.
- ASHAs' confidence in their own work, as well as improved overall performance, according to SFs and health administrators.
- Community members' engagement with ASHA counseling, as well as their overall evaluations of ASHAs.

CommCare was particularly valued by ASHAs and SFs for the increase in efficiency and productivity that it afforded. Several ASHAs described using their mobile phone registers instead of paper registers, cutting down on paperwork and saving time. ASHAs had easy access to stored digital information about their beneficiaries, and they mentioned that their mobile phone registers were more reliable than paper registers.

ASHAs' increased self-efficacy was also due to increased engagement among community members, and the community's confidence in the ASHAs. ASHAs reported that some beneficiary families engaged their services primarily to view the multi-media content on their mobile phones. This is important; ASHAs identified community recognition as an important motivating factor, source of job satisfaction, and indicator of their success.

All participant groups mentioned that illiteracy of some ASHAs was an obstacle for implementing CommCare, but not an insurmountable one. ASHAs identified SFs as being extremely helpful in providing support with CommCare, including instruction in use of the app and tech trouble-shooting.

TARGETING MESSAGES TO KEY DECISION MAKERS

Results demonstrated that ASHAs target decision-makers within the household during home visits to ensure that the counseling they provide is acted upon. Although the



primary target audience for ASHAs' counseling and messaging is expectant and post-partum mothers, ASHAs understand that the primary household decision-makers, including for health decisions involving young mothers, are often mothers-in-law and/ or women's husbands. Furthermore, the responses of mothers and mothers-in-law show that there is no single decision-maker within a family. Rather, various family members, both within and outside of a household, may participate in or influence decision-making surrounding health care and delivery.

“During the counseling I ensure one of the family members are also present when counseling is provided, especially if the mother-in-law is present then it is effective, because once the mother in law is motivated they have bigger role in any decision of the family.”

(ASHA, Mooratganj)

Discussion

ASHA COVERAGE

One of the major successes of ReMiND has been increasing ASHAs' coverage of pregnant women in their community. This proved especially effective at reducing the number of low coverage ASHAs to less than 20% of the total, down from over 60%. The next step is to identify whether this is due to the presence of the mobile job aid, that of the SFs, or some other third factor. Discussions with ReMiND staff strongly point to the presence of the SFs as the main reason. As part of their job, SFs visited pregnant women alongside the ASHA and carefully monitored ASHA activities, making it difficult for ASHAs to not visit pregnant women in their area. Building on this success, future efforts to improve ASHA coverage rates should consider increased monitoring and supervision of ASHA activities.

Although this is promising, nearly a quarter of pregnant women did not receive a home visit. In general, there are many constraints that prevent ASHAs from bringing in more women; targeting and eliminating these constraints must be a major focus of future work.

Only 44% of women received an ASHA visit with a counseling component prior to the intervention, but 72% received a counseling visit from their ASHA at the time of the MTE survey. While the mobile job aid is likely not responsible for the improved coverage, it is likely responsible for this massive increase in the amount of counseling per visit.

KEY MOTIVATING FACTORS

Pride, honor and community recognition that an ASHA gets in the community is a source of motivation for her and hence she continues her work despite challenges in the community, such as restrictions on women's mobility.

INSTITUTIONAL DELIVERY

One of the areas where ASHAs did not achieve expected outcomes was in the area of institutional delivery, where there was no statistically significant increase (60% to 63%). The qualitative study shed light on some barriers to institutional delivery. ASHAs named several reasons for lower numbers of institutional deliveries, including limited education and awareness, personal or household preference for home deliveries, financial costs, and limited geographic accessibility in terms of transportation. Community women mentioned being motivated by the incentive scheme for institutional delivery and both mothers and mothers-in-law demonstrated an understanding of the benefits of institutional delivery. Findings demonstrated the importance of social networks, personal experiences, peer behaviors, and informal support systems in decision-making about delivery.

In general, there are many constraints that prevent ASHAs from bringing in more women; targeting and eliminating these constraints must be a major focus of future work.

DANGER SIGNS

Another disappointing finding was that there was no change in health seeking behavior due to complications, despite an increase in knowledge around danger signs. It is likely this is because information about danger signs is not easily conveyed or remembered by the women.

RECOMMENDATIONS

Institutional Delivery: Identify reasons why women are not delivering in institutions and focus messages on overcoming these barriers.

The mHealth Knowledge Base: Adopt a stronger evaluation design. The field needs stronger data, and by not having a comparison group, this field is not providing that. Additionally, collecting information from other household decision makers would add additional insight useful for programming.

Supervision makes a positive difference: The program's greatest success has clearly been in increasing ASHAs' coverage of pregnant women in their area. Much of this was due to the presence and support of the project's SFs, demonstrating that supervision really works. Lessons learned should be incorporated into the guidelines for the Sanginis.



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