CASE STUDY

HEALTH

Catholic Relief Services: Reducing Maternal and Newborn Deaths (ReMiND)

Since 2006, India's National Health Mission (NHM, formerly the National Rural Health Mission) has recruited 825,000 Accredited Social Health Activists (ASHAs) as the first line of healthcare providers in poor communities throughout India.

PROJECT OVERVIEW

In 2011, Catholic Relief Services (CRS) collaborated with the National Heath Mission (NHM) in Uttar Pradesh, India to establish the Reducing Maternal and Newborn Deaths (ReMiND) project to improve the delivery of community-level prenatal and postnatal care and support services. CRS worked with Dimagi to develop a customized, mobile health (mHealth) application for the government's frontline health workers using Dimagi's open source mobile platform, CommCare. Since its pilot deployment, the ReMiND project has successfully matured from an initial proof of concept to a scaled mobile tool for community health workers.

At a Glance

Implemented: India, 2011-Present

Sectors: Maternal, Newborn and Child Health

Features: Case management; Data Collection; Supervision apps; Referrals; Multimedia Counselling; SMS Reminders

Number of users: 257

BACKGROUND

In India, Accredited Social Health Activists (ASHAs) are the first line of healthcare providers in rural communities. Nominated by their villages, ASHAs are female community health workers that give their time as incentivized volunteers to support improved health in their community by promoting key family practices and facilitating access to health services, including maternal, newborn, and child health services.

The Government of India works alongside many organizations to support ASHAs, including the international humanitarian agency Catholic Relief Services (CRS). One component of CRS's work in India is to strengthen ASHAs' performance, which can be impacted by numerous challenges related to a lack of training and support. A 2011 evaluation of the ASHA program identified incomplete training, limited management, and monitoring structures as major barriers to optimizing ASHA's effectiveness in contributing to improved health, especially for women and children.

In an effort to increase access to maternal and child health services in Uttar Pradesh, in 2011, CRS developed the ReMiND project to equip ASHAS with mobile job aids and monitoring tools. Comprised of four unique mobile applications, ReMiND aims to increase access to maternal and child health services for improved health outcomes in Uttar Pradesh's underserved communities.

The ReMiND project's mobile health program includes:

1) Maternal, Newborn, & Child Health (MNCH) app: Used by ASHAs and includes modules for pregnancy, postpartum mothers, newborn, routine immunization, and referrals.

2) ASHA Monitoring app: Used by project facilitators to monitor ASHAs directly. This includes technical issue identification and resolution, assessing ASHAs mobile literacy and skills, and general tracking of ASHA follow-up and client meetings.

3) Supervision app: Used by the government's new cadre of ASHA supervisors. The app digitizes existing government supportive supervision tools, including an assessment of ASHA functionality, and incorporates the mobile literacy tool from ReMiND's monitoring app. The app reports and tracks ASHA grievances, supporting their timely redressals, and helps calculate ASHA coverage in supervisors' catchment areas. This app supersedes the ASHA monitoring app.

4) Supervisor monitoring app: Used by project staff to provide follow up support for the government's ASHA supervisors.

To bring the ReMiND project from proof of concept through scale, CRS applied **Dimagi's Maturity Model** framework that helps organizations estimate their mHealth program's maturity across five levels. Dimagi's Maturity Model also helps organizations determine the best range of services to help move an mHealth program beyond the pilot phase to achieve sustainable scale.

This case study evaluates each phase of the ReMiND project and its relation to the Maturity Model, demonstrating how Dimagi and its partners can work together to bring an mHealth program to its target maturity level.

PHASE 1

INITIAL SYSTEM DESIGN & DEMONSTRATION

Over the course of four years, CRS successfully scaled the ReMiND project from a small pilot to an mHealth program reaching eight blocks (counties) in India and a total general population of over 1.5 million**.** CRS leveraged initial field and technical support from Dimagi for the first half of the project. By the second half, CRS was able to achieve internal capacity to develop and manage new mobile solutions.

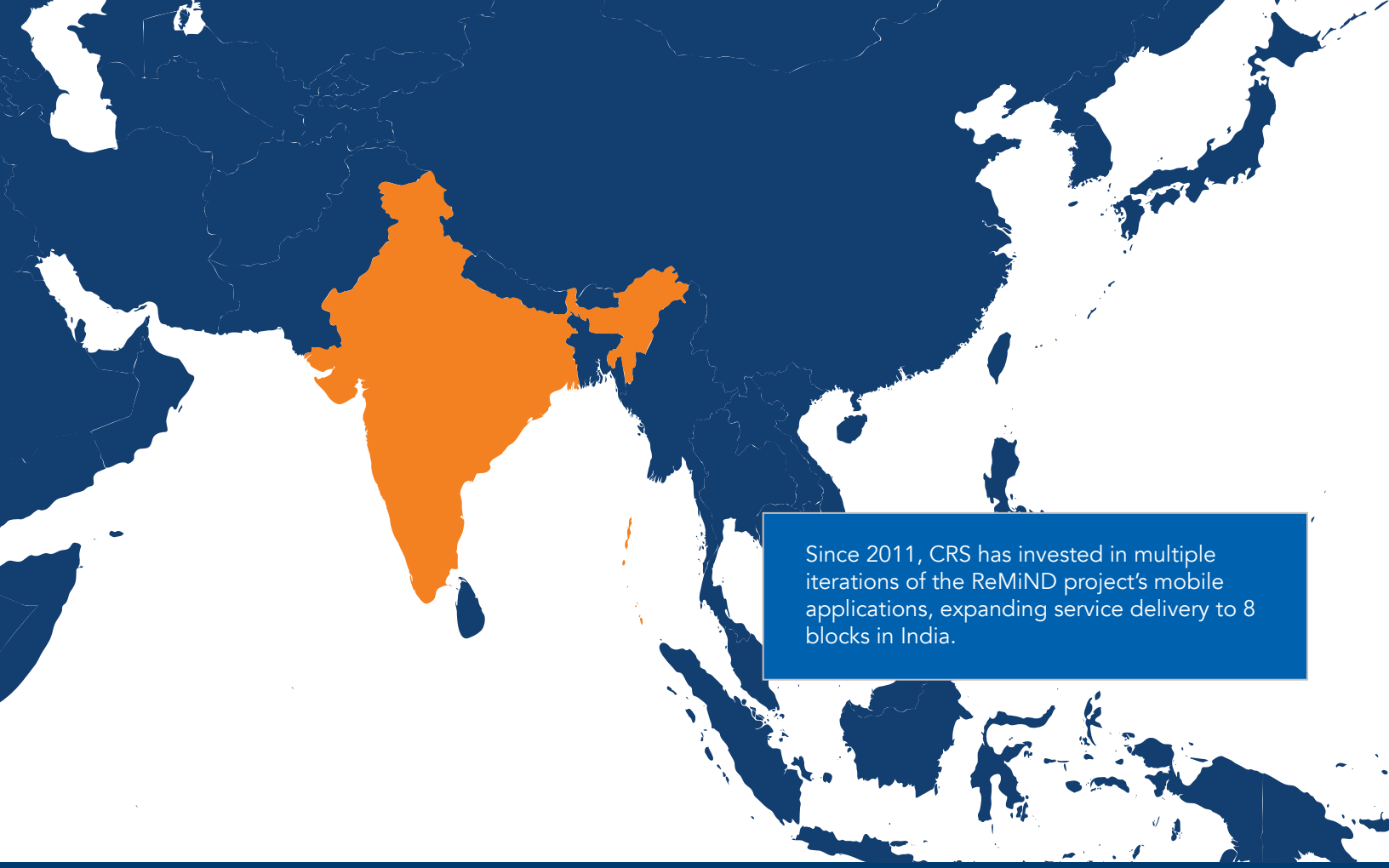
In March of 2011, CRS worked with Dimagi to build the first version of the MNCH application. Deployed on feature phones, the MNCH app enables ASHAs to assess pregnant women's health, track clients, and share interactive counselling messages. After years of evolution, the application currently spans across several maternal and newborn health benchmarks, including early registration of pregnancies, postpartum & newborn care, and immunization information for children under two years of age.

After developing the content for the application, CRS worked with Dimagi to build a prototype and incorporate feedback into initial revisions and design. From March to October 2011, Dimagi provided CRS with field-level support to implement the MNCH app with ten ASHAs, which included mobile training and support. Dimagi also worked with CRS to run a Training of Trainers for ten ReMiND project staff members to prepare for future trainings.

While developing their initial system, CRS began partnering with a local NGO, Vatsalya, to provide the necessary ground-level support for initial scale-up of the pregnancy portion of ReMiND's MNCH application to ASHAs in 2 blocks of Kaushambi District.

Vatsalya operates health and women's empowerment outreach programs in Uttar Pradesh. Both CRS and Vatsalya dedicated fulltime field staff to ReMiND, increasing the support ASHAs receive in using and troubleshooting the application.

Deployed on feature phones after a series of iterations, the pregnancy checklist enables ASHAs to assess pregnant women's health, track clients, and share interactive counselling messages.



Since 2011, CRS has invested in multiple iterations of the ReMiND project's mobile applications, expanding service delivery to 8 blocks in India.

Feature Spotlight

The CommCare ReMiND MNCH App

With CommCare, ASHAs can register clients and record information, regardless of Internet or phone connectivity. ASHAs can also receive offline guidance during home visits, including counselling messages adapted from tips that are tailored to specific stages of pregnancy. All content was field-tested and based on government protocols and evidence-based practice.

The ReMiND MNCH application collects several data points during each visit, including client attributes, duration of visits, and household attitudes and practices. Once data is collected on ASHAs' phones, project managers can view uploaded data on the website platform, CommCareHQ.org. This data transmission allows remote project managers to offer timely, targeted support to ASHAs and identify underlying performance trends.

Images and audio recordings personally pre-recorded by ASHAs reinforce counselling points, including counselling on the postpartum period and information on child immunization. ReMiND is also working to include customized SMS reminders in the app, to notify ASHAs and ASHA supervisors when a client is due or overdue for follow-up.

PHASE 2

SCALE, CAPACITY BUILDING, & SUPPORTIVE SUPERVISION

After a year of piloting the pregnancy module of ReMiND's MNCH mobile application, Dimagi, CRS, and Vatsalya developed a plan to scale to 111 ASHAs in one block of Kaushambi district.

The plan consisted of three steps: refining the initial application, developing an ASHA Monitoring application, and building internal capacity for application design with CRS.

1 Application Refinement

Guided by lessons learned from the pilot, Dimagi and CRS revised the content of the pregnancy module and began work on postpartum, newborn, routine immunization, and referral modules for the MNCH application. These changes were made based on feedback from the field, ASHAs' use of the mobile application, and data analysis.

2 ASHA Monitoring App

In order to support more mobile users, staffing and supervision changes were put in place. Vatsalya recruited Sector Facilitators (SF) to mentor and supervise up to 26 ASHAs each. SFs are based on a planned governmental structure for ASHA supervisors to be rolled out across India. To help the SFs provide supportive supervision, a second CommCare application was built. The ASHA Monitoring application used by SFs includes technical issue reporting, a mobile experience survey, the tracking of project contacts with ASHAs, meeting reports, and home visit observations of ASHAs. As they work through reported technical issues, SFs can resolve them immediately, leave the case open for follow-up by another SF, or escalate the issue to a district-level supervisor or National IT coordinator, who have received advanced app building training by Dimagi.

3 Capacity Building

Dimagi dedicated significant time and resources to building CRS's capacity by training them on CommCare application design and refinement. Dimagi worked with IT staff from state and national levels, providing training based on their unique roles and responsibilities. This training ensured that at least one person had specialized application building knowledge, protecting the project's sustainability regardless of staff turnover or organizational changes. As a result, CRS made significant strides in enhancing internal IT capacity to build and manage future CommCare applications. Reflecting this new capacity, the new ASHA Monitoring application was created primarily by CRS, with support from Dimagi during the first half of 2012.

To prepare for project scale up, Dimagi led a Training of Trainers with SFs, ReMiND's project officer, CRS, and government staff. CRS and Vatsalya staff then independently led all remaining scale up trainings for the project. These trainings introduced ASHAs to the updated MNCH app and ASHA supervisors to the ASHA Monitoring app. Six months after training, 111 ASHAs registered 8,670 pregnant women using their ReMiND pregnancy applications.

PHASE 3

MONITORING WORKER PERFORMANCE

With a growing number of ASHAs, Dimagi and CRS worked to strengthen the project's monitoring of ASHA performance in the third phase of the ReMiND project with a focus on monitoring and data use.

In refining ASHA monitoring, Dimagi trained CRS to better analyze incoming data with CommCare's online reports, including monitoring each ASHA's performance at the individual level. CRS and Vatsalya eventually incorporated worker monitoring reports into their SFs' normal responsibilities. Project staff printed these reports and shared feedback with government health authorities who shared feedback with ASHAs as part of regular monthly meetings. CRS staff also analyzed data exports on a monthly and quarterly basis to track progress towards achieving several MNCH programmatic indicators.

In addition to implementing worker monitoring reports, CRS and Dimagi are working to incorporate SMS reminders to ASHAs after missed client visits. In a separate SMS study in Tanzania external to the ReMiND project, Dimagi found that escalating SMS reminders to supervisors following a missed client visit improved worker timeliness by 86% (DeRenzi, 2012). Overdue visits decreased from an average of ten days to 1.5 days, with only a few cases ever fully escalated to their supervisor. Dimagi's tools for SMS reminders have been built upon these results that demonstrate frontline worker performance is reactive to targeted messaging.

As a result of this, CRS is working to implement SMS reminders for ASHAs to follow up with women who demonstrated high risks during the pregnancy and post-partum period.

By 2013, CRS had expanded and managed the ReMiND project for two years without significant external support from Dimagi, and taken the lead on the development of two new applications

PHASE 4

SUSTAINABLE SCALE

By 2013, CRS had expanded and managed the ReMiND project for two years without significant external support from Dimagi, and taken the lead on the development of the ASHA Monitoring application and Supervision application.

Illustrative of this growing internal capacity, from February to May 2013, CRS scaled the ReMiND project's pregnancy application to a second block in Kaushambi, equipping a total 257 ASHAs with the app. CRS also created content for advanced application modules centered on immunization, referrals, and postpartum care, with Dimagi developing more complex features for these modules on the CommCare platform. By the fall, CRS launched the routine immunization module and pregnancy portion of the referral modules.

The Government of India has long recommended a role of AS or ASHA Sanginis (which translates to ASHA Supervisor in Hindi) as part of the country's ASHA system. In late 2013, CRS began discussions with state and national health authorities about adapting new guidelines and tools for ASHA Sanginis into a mobile application. These AS fill a role similar to the SF, which CRS deployed to monitor and support ASHAs in their implementation blocks, and to test out an ASHA Sangini approach. This SF model was based on national guidelines for AS that was planned as early as 2012. Based on the existing ASHA monitoring application, CRS created a Supervisor application that incorporates content from a paper tool and forms the government developed for AS nationally. CRS designed the application's content and conducted the full development of the application independently from Dimagi's services, for an official deployment in August 2014.

After the introduction of the government's network of AS, the ReMiND project no longer needed the SF position and shifted from providing direct mentorship and support to ASHAs to supporting AS instead. As a result, CRS incorporated a complementary staffing role, Block Mentors, to provide high-level support to AS.

Block Mentors use a fourth mobile application, the Supervision Monitoring app, to help identify, troubleshoot, and resolve technical issues in the field. Additionally, ReMiND's project managers receive weekly and monthly reports generated from collected data to track the number of reported issues and highlight any trends. CRS is leading the trainings to scale the AS and Block Mentor applications without any support from Dimagi field staff. CRS has also built significant technical capacity to build applications on their own, including the AS application and internal applications for monitoring and evaluation activities.

CRS is currently scaling the ASHA Sangini application throughout Kaushambi's eight blocks, with the Kaushambi government staff and Sarathi Development Foundation helping with deployment activities in one block in Lucknow district.

TECHNICAL CERTIFICATION

Dimagi launched a CommCare Certification Program, which is a key component of the Maturity Model. The CommCare Certification Program helps organizations identify which skills different staff need in order to better use CommCare, and includes formal skill-based testing and training.

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For the ReMiND project, Dimagi worked with the Kaushambi Sector Facilitators (SFs) to provide stronger technical support to ASHAs using CommCare. These SFs mentored and supported ASHAs until the Government of India introduced the formal roles of ASHA Sanginis (supervisors) throughout the district. In their interim role as first line of support, the SFs were highly skilled in the installation, maintenance, and use of CommCare for basic feature phones. They each supported approximately 26 CommCare users, mentoring them on how to use the mobiles and troubleshooting technical issues that arose.

To increase the SFs' technical capacity until the formal AS role was fully developed, Dimagi conducted a training with the SFs to review the CommCare Technical Officer curriculum. Dimagi then administered a paper-based, technical support certification test in Hindi to all SFs. In the future, CRS and Vatsalya plan to measure new staff members' knowledge with checklists and tests, ensuring a common standard of core knowledge about CommCare throughout multiple levels of the organization.

IMPACT

MID-TERM EVALUATION

As an essential part of the ReMiND project, CRS ran a baseline survey of over 1,100 households in two blocks in 2012. The baseline provides the point from which to measure future changes in MNCH outcomes in the project areas, and was the point of comparison for a midterm evaluation (MTE) carried out in the same villages from May to June 2014.

Baseline and mid-term results demonstrate that CommCare was widely adopted by ASHAs. CommCare adoption combined with SF presence and increased ASHA support contributed to significant increases in ASHA home visit coverage, counselling, and provision of antenatal care observed in the ReMiND project area.

Home visit coverage doubled

Between the baseline (2012) and midterm (2014), the average number of visits made by ASHAs during the antenatal period nearly doubled. ReMiND has had a large impact on transforming low-coverage ASHAs into high-coverage ones, e.g. prior to ReMiND, 61 percent of ASHAs had low levels of activity, defined as visiting fewer than 40 percent of the pregnant women in their area. After 18 months of ReMiND, ASHA work in the area had transformed, and only 19 percent of ASHAs remained in the low-activity category. The number of women who were never visited by an ASHA decreased from by 15%.

Improved frequency and quality of counseling

Pregnant women received counseling on nearly twice as many topics, with the average woman being counseled on 0.77 topics at the time of baseline and 1.46 topics at the time of midterm. Counseling on pregnancy danger signs also increased from 3.8 percent to 14 percent.

Improved awareness of pregnancy danger signs

Women's knowledge of pregnancy danger signs rose substantially. At the time of the midterm evaluation, 78% more women reported that an ASHA told them about danger signs during their pregnancy. Women could recall an average of 1.23 pregnancy danger signs, while baseline recall was at an average of 0.86. The increase was most pronounced for those with lower levels of education.

Improved access to antenatal care

The average woman received 45 percent more antenatal care checkups, and 58 percent more women received the recommended number of checkups (three) at project midterm. The program was particularly successful at reaching women of lower education, with major increases for those with 5th grade education or less.

QUALITATIVE RESEARCH

In addition to the baseline and MTE comparison, qualitative findings indicate that the ReMiND's MNCH application helps ASHAs manage their caseload, improves the quality of ASHAs' counselling messages, and increases households' receptiveness to key maternal and newborn health messages. After five months of using CommCare, 34% more ASHAs encouraged clients to use a health service. Additionally, 22% more ASHAs encouraged clients to ask questions or speak during visits and 25% more ASAHs waited for clients to respond to a question.

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LESSONS LEARNED FROM THE REMIND PROJECT

ReMiND demonstrates the positive impact that improving a frontline program's maturity level can have in enhancing access to services at the communitiy level. Within India's wide landscape of mHealth and public health initiatives, ReMiND has cultivated significant support from the Government of India for the ASHA Sangini application. As a result, the ReMiND project has earned celebrated attention in India and among the global mHealth community, recently winning the 'Vodaphone Mobiles for Good' award, as well as being showcased at the December 2014 mHealth summit in Washington DC.

By identifying specific needs from its inception, CRS and Dimagi created an evolving roadmap to reach CRS' goals using the Maturity Model. Dimagi offers the Maturity Model framework to other organizations to help them plan and scale their mobile services. The Model is designed to help organizations identify and overcome barriers that prevent ICT projects from succeeding at scale, leading to improved service delivery.

For more information on Catholic Relief Services' ReMiND project or Dimagi's Maturity Model, please email information@dimagi.com.

Additional resources on the ReMiND project can also be found at www.crsprogramquality.org and http://in.pinterest.com/remindproject/.

	Description	Capacity Building Services	System Strengthening
PHASE 1 Initial System Design & Demonstration	*Create an mHealth tool and run a pilot to test the technology.*	- Training of trainers	- MNCH app developed by Dimagi
PHASE 2 Scale, Capacity Building & Supportive Supervision	*Adopt the app based on pilot feedback. Build capacity to own and maintain existing apps and develop new ones. First level of scale.*	- Introduction to Application Building - Advanced Application Building	- MNCH app revision by Dimagi and scaled to 2 blocks - App for Supportive Supervision (AS) developed by CRS, supported by Dimagi
PHASE 3 Monitoring Worker Performance & SMS Reminders	*Add additional workflows to reinforce supervision based on previous phases.*	- Training on Monitoring Worker Performance	- Addition of SMS Reminders to workflow - Supervisor App for Sector Facilitators revised by CRS
PHASE 4 Scale up	*Scale demonstrated technology. Train users on new apps and existing apps. Demonstrate capability to sustain mHealth technology and evaluate outcomes on service delivery.*	- Training on new components of MNCH app, including a postpartum mother module and newborn module	-App for Block Mentors developed by CRS -MNCH app scaling to 8 blocks

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