USAID Pakistan
Health Communication Component (HCC)
Maternal and Child Health (MCH) Program

Working together for a brighter future

Report and Recommendations for the Scale-Up of the Roshan Mustaqbil (Bright Future) mHealth Pilot Intervention
January 2018

Submitted by:
Johns Hopkins Center for Communication Programs
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Executive Summary

The Johns Hopkins Center for Communication Programs (CCP) is the lead for the Health Communication Component (HCC) of USAID’s Maternal and Child Health (MCH) Program in Pakistan. The HCC works with the Lady Health Worker Programme (LHWP) to promote primary healthcare directly in ten districts and to provide support (technical and print material) to MCHIP-Jhpiego for the same in an additional five districts in Sindh Province. In Sindh, some 22,500 Lady Health Workers (LHWs) serve a population of 23 million people, playing a vital role in the community and in improving health seeking behaviors. LHWs serve as the primary liaison between the formal health system and the community, serving about 150-200 households each. Recognizing that LHWs are a critical component of an overburdened health system, the Sindh government in Pakistan showed interest in innovative ways to support their continued education. As a result, the HCC program developed the Roshan Mustaqbil (Bright Future) toolkit and mHealth application as a communication-focused capacity strengthening intervention aimed at enhancing the communication skills and interpersonal effectiveness of LHWs as they provide Reproductive, Maternal, Newborn and Child Health (RMNCH) counseling services to clients.

Studies have shown that while LHWs have sufficient technical knowledge regarding MCH practices, their ability to effectively transfer this knowledge to their target audience – married women of reproductive age and their families- needs improvement. Therefore, an interpersonal communication (IPC) approach was developed by HCC to strengthen the interpersonal communication skills of Lady Health Workers both for one-on-one and group counseling. Using a three-step problem solving technique, the approach ensures that health workers carefully listen to and understand the problem, and then work with the family to find an appropriate solution for their health needs.

The first of its kind for Pakistani LHWs, the Roshan Mustaqbil IPC toolkit was designed to meet the LHWs information needs and empower them to better serve their communities. Further to the IPC toolkit, HCC developed the Roshan Mustaqbil mHealth Application that has two components— mCounseling (digitalized version of IPC toolkit) and mLearning—specially designed to assist LHWs to improve their interpersonal communication and counseling skills. HCC used a participatory process to design and develop the Roshan Mustaqbil mHealth Application (hereafter referred to as “the App”). Once developed, HCC provided training and troubleshooting to the LHWs and Community Health Workers (CHW) on how to use and apply the App.

In 2017, HCC completed several rounds of assessment to gauge the usability of the application. The questionnaire assessed the perception of LHWs regarding the effect of the App on their role and performance. Participants rated their perceptions of the App in response to 1) time required to complete work; 2) quantity of work completed; 3) knowledge gained; 4) ability to perform specific communication and information-sharing activities; 5) interpersonal communication skills and ease of discussions, and resourcefulness (namely, LHW’s ability to respond to client questions and recommend services).

Results from field testing of both the mLearning and mCounseling components showed that a rural sample of community-based health workers, many of whom had basic education skills, were capable of using the App effectively to deliver quality services to clients. Users perceived that using both components of the App enhanced their knowledge, skills, and overall role performance. By the end of the mCounseling trial, all the participants agreed that their overall effectiveness as a LHW was enhanced from the resource. Specifically, with the use of Roshan Mustaqbil, LHWs perceived improvements in the way they performed their tasks, namely their ability to work faster, provide comprehensive information, and interact easily with clients. The App usage was not perceived to change what the LHWs were
capable of doing, but was perceived to influence their confidence as well as how fast, productive, and efficient they were in completing their work.

Recognizing that LHWs are a critical component of an overburdened health system, HCC recommends that the Sindh government in Pakistan should continue to invest in effective methods of LHW capacity building. The Roshan Mustaqbil mHealth Application presents a singular opportunity to support a capacity strengthening intervention that has enhanced the communication skills and interpersonal communication of LHWs as they provide RMNCH counseling services to clients.
Background

The Johns Hopkins Center for Communication Programs (CCP) is the lead for the Health Communication Component (HCC) of USAID’s Maternal and Child Health (MCH) Program in Pakistan. Other components of the MCH Program include: Family Planning and Reproductive Health; Maternal, Newborn and Child Health; Health Commodities and Supply Chain; Health Policy Plus; and, Health Systems Strengthening.

Under HCC, CCP is working towards a Pakistan where individuals, families and communities advocate for their own health, practice positive health behaviors, and engage with a responsive health care system. Through strategic communication, HCC is addressing knowledge and practices around reproductive, maternal, newborn and child health, such as timely antenatal care checkups, birth spacing, nutrition, immunization and preventable diseases in ten districts of Sindh Province, namely; Matiari, Mirpur Khas, Umerkot, Sukkur, Sanghar, Jacobabad, Naushahro Feroze, Ghotki, Shikarpur and Larkano. To achieve this, HCC is working closely with the Lady Health Worker Programme.

The Lady Health Worker Programme

In the face of persistently high-risk behaviors and adverse maternal, newborn and child health outcomes, the LHW cadre and program was initiated and implemented by the Pakistan Ministry of Health in 1994 as part of a national strategy to reduce poverty and improve health of women and families. Recognized as one of the most successful community health worker programs in the world, the Lady Health Worker Programme is mandated to promote primary healthcare by providing high quality integrated health services at the doorsteps of communities across the Sindh Province. In Sindh, some 22,500 LHWs serve a population of 23 million people, playing a vital role in the community and in improving health seeking behaviors. LHWs serve as the primary liaison between the formal health system and the community, serving about 150-200 households each.

LHWs are a key component of Sindh’s strategy to strengthen its primary health care system and achieve universal health coverage by shrinking the urban-rural gap in access to and use of health services. Operating at the community level, the LHWs are agents of change who provide integrated preventative and curative health services to communities. They serve as liaisons between the formal health system and the community providing information on a range of topics from awareness of reproductive health and nutrition, registration of births and deaths, family planning (FP), and childhood immunization, among others, in addition to making referrals to needed health services.

Rationale for mHealth

LHWs face several challenges that have potential to impact their performance. Studies have shown that while LHWs have sufficient technical knowledge regarding MCH practices, their ability to effectively transfer this knowledge to their target audience – married women of reproductive age and their families - needs improvement. Specifically, LHWs often have inadequate resources and job aids necessary to communicate effectively with families especially on the topic of FP. Studies have suggested that communicating FP information with their clients was commonly perceived by LHWs to be a difficult activity. Consequently, capacity building to enhance interpersonal communication (IPC) skills was
needed to improve the LHW performance and outcomes. Therefore, an IPC approach was developed by HCC to improve the communication skills of LHWs. The Roshan Mustaqbil IPC Toolkit, designed through a consultative process, uses a three-step problem solving technique. This approach ensures that health workers carefully listen to and understand the problem, as well as work with the family to find an appropriate solution for their health needs.

HCC originally developed counseling cards as part of the Roshan Mustaqbil IPC Toolkit to help the LHWs better counsel clients. However, there were two concerns with the counseling cards that needed to be addressed: 1) The paper-based materials are expensive, difficult to carry and cannot be updated swiftly; 2) Similarly, the training cascade and process for usage of paper-based materials is cumbersome, costly, time consuming and likely to be marred with quality issues.

Further, frontline health workers (FLHWs) at health facilities or community settings deliver IPC and counseling. However, as noted above, there is room for improvement in relation to household counseling sessions. LHWs have the potential to work more effectively, expand their current skill set, increase their knowledge level and counsel with greater levels of confidence. Clients should be able to easily engage with LHWs on health issues and share the health information they’ve gained within a tight knit social network of close family and friends.

To help accomplish these goals, social and behavior change (SBC) programs have started tapping into mobile technology in order to reach harder to access populations. Mobile health (mHealth) technology is the use of mobile phones and wireless communication techniques to improve health goals. With the expansion of mobile phones in low-and-middle income countries, communication technology has expanded in its scope and uses. Increased global use of mobile phones increases the potential of using SMS for social and behavior change communication (SBCC), mobile first websites as job aids, automated call lines for decision-support to health workers and even Global Positioning Satellites (GPS) to enhance data collection. Worldwide, mHealth technology is helping governments and public health practitioners optimize delivery of high quality maternal, neonatal, and child health information and improve access to services.

There is evidence to support the use of mHealth for behavior change as several studies have demonstrated the benefits of mHealth strategies in community health interventions. A randomized trial\(^1\) demonstrated how nurse midwives could use video on mobile phones to support patient education in a maternal and child health project in rural India. Results showed that the midwives accepted the use of mobile video as part of the workflow for postnatal care examinations, and the technology enabled them to adopt effective multi-tasking skills. In another study, Gyan Jyoti\(^2\), a self-learning and client counseling tool for ASHAs (frontline health workers) in India, was shown to impact both workers and their clients; the tool accelerated the uptake of birth spacing methods among young couples and enhanced motivation and skills among the participating health workers. Similarly, a randomized controlled trial in rural India used a smartphone-based Information Communication Technology (ICT) tool to facilitate health worker interactions with household members on MNCH topics.

Pakistan, as the fifth largest mobile phone market in Asia, presents a prime opportunity to utilize mobile phones for more effective health promotion in urban and rural areas. In the context of HCC’s work in Sindh, the combination of the LHW’s educational needs and the positive trends in mobile phone penetration provided opportunities to use mobile devices as a vehicle for providing LHWs with much needed job resources, as well as a channel for health outreach for behavior change within communities.

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\(^2\) https://www.thehealthcompass.org/sbcc-spotlights/gyan-jyoti-generating-fp-demand-mobile-phones
Overview of the Roshan Mustaqbil (Bright Future) Application

After successful launch of the paper based Roshan Mustaqbil (Bright Future) IPC Toolkit in 2015, HCC set out to develop an innovative mHealth application designed to build on the strengths of the LHW Programme and augment the LHW’s customary workflow while enhancing their ability to counsel clients on RMNCH. The first mobile application of its kind for LHWs, Roshan Mustaqbil was designed to meet the LHWs educational needs and empower them to better serve the RMNCH needs of their communities.

Process for Development for the mHealth Application

To develop the application, the HCC conducted a series of workshops with key stakeholders, including representatives from the LHWP, DOH government, non-government organizations, UN agencies and development partners. Each component was developed separately given the differences in objectives. To design and develop the mCounseling component, the HCC held a 10-day design period to assess LHWs’ existing workflows, specific capacity development needs and aptitude toward the technology. The mHealth approach was designed to meet both basic functional needs of the technology (i.e. Android based) and user requirements (i.e. limited text, entertaining content).

Next, the mLearning component of the App was developed during a two-day design workshop. This workshop allowed for a deeper understanding of the existing training curriculum and the current practices of LHWs. This information was used to develop adult learning theory-based IPC content that highlights key skills necessary for effective counseling during the three-step IPC approach. In addition, LHWs highlighted small group meetings as a potential area of growth. As a result, HCC developed additional content to provide guidance for counseling small groups (vs. one-on-one household counseling).

HCC piloted both the mCounseling and mLearning components to gauge the usability of the application. The assessment looked at the perception of LHWs regarding the effect of the App on their role and performance. Participants rated their perceptions of the App in response to: time required to complete work; quantity of work completed; knowledge gained and ability to perform specific communication and information-sharing activities; interpersonal communication skills and ease of discussions, and resourcefulness. Summary results from the assessment can be found on page 11.

Structure of the mHealth Application

Working from an Android based application format, the App was built on the OppiaMobile platform, which has now been validated as a solution for multiple CCP country teams (e.g. India, Nigeria, Nepal, and Pakistan) as it is able to deliver content to achieve both educational and counseling objectives to frontline workers. In each of the four country adaptations, this user-friendly distance education platform
has been tailored to meet the specific communication needs of different cadres of FLHWs across the four countries.

**What is Oppia Mobile?**

OppiaMobile, the technology supporting *Roshan Mustaqqbil*, is an open source mobile learning platform integrated with the Learning Management System known as “Moodle”. The core OppiaMobile functionality allows for systematic delivery, reliable access to content and easy management of health promotion content, video and quizzes. The initial deployment onto Android based tablets or phones can either occur over Wi-Fi, computer cable connection or via Bluetooth. Once loaded onto the Android smartphone, this content can be accessed offline and used when no internet connection is available. If and when a connection becomes available usage data, such as quiz scores, are sent back to the server for near real-time monitoring by program managers. In addition, frontline health workers (FLHWs) can earn points and badges within the App by completing App activities. The points, together with the usage statistics, provide regular feedback illustrating how the App is being used by the FLHW. These analytics are posted and stored on a dynamic dashboard which helps to improve programmatic decision-making.

The *Roshan Mustaqqbil* Application for Pakistan added value to the existing platform in that it was designed to serve a dual purpose: self-learning and client counseling on maternal and child health. The Pakistan self-learning component was built on the foundation of a mobile-learning (mLearning) structure developed for the Indian version of the App, while adapting it to better apply adult learning theories and to develop a learning pathway for Pakistani health workers.

The final *Roshan Mustaqqbil* application contains two complementary components: mCounseling and mLearning. mCounseling (digitalized version of the Roshan Mustaqqbil IPC Toolkit) combines the three-step IPC approach (Listen, Understand, Jointly Problem Solve) endorsed by the LHW Programme, with interactive audiovisual materials on maternal child health. Through mLearning, LHWs also benefit from engaging entertainment-education videos, quizzes and other educational resources designed to encourage introspection and skills-building.

**Details for each of the two components, mCounseling and mLearning, are described below:**

<table>
<thead>
<tr>
<th>mCounseling</th>
<th>mLearning</th>
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<tr>
<td>• Incorporates key elements of the initial paper-based <em>Roshan Mustaqqbil</em> IPC toolkit developed by HCC, including three step counseling, motivational messaging, positive deviance, etc.</td>
<td>• A self-learning tool that provides opportunities for refresher trainings for LHWs to supplement existing training activities.</td>
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<td>• LHWs are trained to use the engaging and educational resources to stimulate conversation.</td>
<td>• Content focuses on enhancing the IPC skills of LHWs, and improving the knowledge of community-based workers.</td>
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<td>• Includes consistent and accurate information for the 22 Department of Health (DOH) approved technical health messages for FP and MNCH:</td>
<td>• Content builds on previous IPC trainings and acts as a next level training by presenting advanced components of the IPC toolkit, including effective IPC and small group facilitation.</td>
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<td>• Applies adult learning theories (Gagne) to</td>
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- *mCounseling* contains 44 short entertainment-education videos that reflect positive and negative FP/ MNCH behaviors on 22 technical contents.
- *mCounseling* content enables the LHWs to enhance her community based health education services in a more effective way by presenting technical health content in an engaging format.

<table>
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<th>assist LHWs with IPC and counseling skills.</th>
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<td>• Includes over 20 short entertainment-education videos which use peer modeling to highlight effective IPC techniques and build on existing knowledge in an engaging, friendly and informative matter</td>
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<td>• Contains quizzes and text-based sections which are used to highlight key IPC skills each LHW can practice with clients.</td>
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Roshan Mustaqbil Assessment Results

Following several months of deployment, HCC conducted a usability assessment with those LHWs using the App to evaluate two dimensions: usability testing and perceived effectiveness among LHWs. The usability testing aimed to assess the functional and technical performance of the App. This component of the evaluation also included information about user experiences related to functionality, technical performance, and perceived usefulness of the App, and was assessed by a quantitative questionnaire.

The assessment also included questions related to perceived effectiveness on role performance, including topics such as attitudes towards their work, confidence level, efficacy to communicate, and quality of interpersonal client interactions. This component of the evaluation also included questions on perceived effectiveness, LHWs beliefs, quality of information and attitudes towards job and quality of interpersonal client interactions.

Methodology

The evaluation design used to evaluate the trial of the mLearning and mCounseling components of Roshan Mustaqbil was a cross-sectional prospective panel of LHWs residing in communities in Matiari District in Sindh Province. The sample size included 58 LHWs who were selected on the basis of overlap in their coverage areas.

The use and effectiveness of each component was assessed through two separate questionnaires. Each questionnaire was designed in two parts:

- Part A of the questionnaire assessed the technical functionality and perceived usefulness;
- Part B of the questionnaire assessed perceived effectiveness on role and performance.

Using a Likert Scale to obtain user ratings, the evaluation focused on attitudes and perceptions.

During implementation, HCC provided participating LHWs with Android smartphones pre-loaded with Roshan Mustaqbil. LHWs were oriented on the purpose and use of the App and its various components. Three waves of data collection were planned according to the following timeline:

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<th>Wave 1: Baseline</th>
<th>Part B of questionnaire was completed prior to starting the training workshop. Part A of questionnaire was completed at the end of the training workshop.</th>
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<tr>
<td>Wave 2: Midline</td>
<td>Participants completed both parts of the questionnaire.</td>
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<tr>
<td>Wave 3: Endline</td>
<td>Participants completed both parts of the questionnaire.</td>
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The mCounseling component was trialed over a four-month period between February and May of 2017. Three waves of data were collected; the first wave of data collection occurred in February prior to use of mCounseling and served as the baseline estimates prior to the intervention. The second wave of data collection occurred in April, and the third in May, 2017.

The mLearning component was trialed over a two-month period; the first wave of data was collected in August, 2017 prior to the use of mLearning, and the second wave of data were collected in November, 2017. Data was collected electronically on mobile phones that were provided to LHWs. The decision was made not to conduct three waves of data for mLearning based on analysis of the mCounseling data that showed little or no change between midline and endline results.
Key Results

The following section highlights key results organized by five important areas related to LHWs: app design, ease of use, knowledge building, effectiveness as a job aide and productivity.

App Design

mCounseling: At the start of the trial, almost all participants (98%) agreed that the mCounseling component was visually appealing and that the organization of information on the App screen was clear (96%), flowed logically (98%) as it was presented, and that clicking on specific embedded links routed users to the information that they were searching for and expecting (96%). Participants also rated how well they could hear and understand what was being said through the audio feature. At baseline, substantially more participants (71%) agreed that they could hear and understand the audio, however, this decreased to 41% by the end of the endline.

mLearning: Although 97% to 100% of participants perceived that the graphics used in the mLearning were pleasing, by the end of the trial, fewer participants (91%) agreed that the screen size was optimal. Participants rated how well they could hear and understand what was being said through the audio feature. At baseline, about two-thirds of the participants agreed that they could hear and understand the audio clearly, however, at the end of the trial, less than half (43%) of the participants agreed.

Ease of Use

mCounseling: Immediately after receiving training on mCounseling, over 80% of participants reported that it was ‘very easy’ to learn to use. By endline, perceptions of overall use being ‘fairly easy’ or ‘very easy’ was 92%. Almost all participants (98%) across all waves of data collection agreed that it was easy to navigate mCounseling, and this was validated by 99% of participants who also agreed that it was easy to find the information that they were looking for in the content.

mLearning: 97% of participants perceived that it was easy to learn how to use mLearning at the baseline, however by the end of the test, this proportion had decreased to 91% of participants. Consistent with this finding, baseline estimates showed that almost all the participants (99%) agreed that using the mLearning was not difficult, however this proportion decreased slightly to 96% at the end of the trial. 86% of participants agreed that the self-training through modules were better than the classroom approach to training. At endline 81% of participants agreed that the content was reliable and the software did not freeze or stop when in use (decreased from 83% at baseline).

Knowledge Building

mCounseling: Participants considered mCounseling to be an effective learning tool and resource and by the end of the trial 98% agreed or strongly agreed that it comprehensively covered FP and MNCH topics and content. At the end of the trial, 98% of participants perceived also that they had ‘good’ or ‘very good’ ability to provide complete FP information to clients. In addition, increases at endline to 100% were observed for:

• Managing pregnancy complications (up from 98% at baseline);
• Assisting households to plan for maternal emergencies (up from 96% at baseline); and,
• Recognizing danger signs of fever/cough and facilitating referrals (up from 96% at baseline).

The proportion of LHWs reporting ‘good’ or ‘very good’ ratings for perceived ability to perform the following role tasks remained relatively unchanged for baseline and endline: Ability to:

• Provide full information on vaccinations and facilitate referrals (100% at baseline, and 98% at endline);
• Recognize danger signs of pregnancy (98% at both instances);
• Treat diarrhea (99% at baseline, and 98.5% at endline); and,
• Communicate the benefits of exclusive breastfeeding for six months (100% at baseline, and 98% at endline).

**mLearning**: Participants appeared to approve of the learning content and the majority perceived that mLearning would enhance their knowledge of RMNCH-related issues. The majority of participants, 96% at endline, agreed that the training modules had helped to refresh their knowledge, while 96% at endline agreed that compared to baseline, the training modules had resulted in a knowledge increase. A similar proportion (96%) agreed also that the training modules had helped to address their training needs (up from 90% at baseline), 71% of LHWs strongly agreed that the training they had received via mLearning increased their overall ability to provide information and counsel clients on maternal health issues.

**Effectiveness as a Job Aid**

**mCounseling**: mCounseling was perceived to have a positive effect on interpersonal communication skills. The proportion of participants who rated their ease in discussing FP and MNCH issues with clients as ‘good’ and ‘very good’ increased from 95% at baseline to 97% at the end of the trial. However, the mCounseling had a minor influence on participants’ perceptions about their ability to easily start a counseling discussion on FP and MNCH topics. All participants, i.e., 100%, perceived that they had ‘good’ or ‘very good’ ability to initiate discussions about FP and MNCH with ease, prior to the use of the mCounseling, and this perception was unchanged with the use of the mCounseling. The results also showed that mCounseling had little influence on participant perceptions about their ability to initiate discussions with different audiences. LHWs who perceived they had ‘good’ or ‘very good’ ability to discuss RMNCH issues with youth (98% at baseline, and 96% at endline), male community members (96% at both baseline, and endline) or older clients (98% at baseline, and 95% at endline) remained relatively stable for all waves of data collection.

A much-needed feature of the mCounseling component was its bank of resources on 22 health topics covered by the LHW program. At endline, a substantial proportion of the participants (98%), perceived that their use of resources to counsel clients was ‘very good’ or ‘good’ (up from 88% at baseline). Use of the mCounseling was perceived to have a positive effect on LHW’s resourcefulness and ability to provide information to clients on a variety of RMNCH topics.

**mLearning**: Participants’ perceptions about the usefulness and relevance of mLearning were largely positive and consistent. Specifically, 97% of participants at endline agreed that mLearning provided an advantage over traditional methods, and the proportion that agreed that the modules were beneficial to frontline workers increased from 89% at baseline to 97% at the end of the study.
Participants had positive perceptions about the effect of the *mLearning* on their ability to deliver services. The proportion of participants who agreed that *mLearning* would enhance their role effectiveness increased from 97% at baseline to 100% at endline. In addition, 99% of participants agreed that the *mLearning* would increase the quality of their work in the community. 98.6% of the participants also agreed that the *mLearning* content increased their use of FP and MNCH resources to counsel clients, representing an appreciable increase from the baseline estimate of 90%. In the area of counseling skills, the proportion of participants who agreed that *mLearning* would increase their overall ability to provide information and counseling on FP, maternal health, and child health issues, increased for each from 94% at baseline to 100% at endline.

Further, 99% of participants agreed that *mLearning* increased their overall ability to provide information and counsel clients on health topics (maintained throughout the study).

**Productivity**

*mCounseling:* Although an increased proportion of participants had positive perceptions about time efficiency with the use of the *mCounseling*, the proportion of participants perceiving that the *mCounseling* enhanced their productivity decreased by the end of the trial. Baseline data showed that about 67% of the participants perceived their level of productivity each week using the traditional tool-kit to be ‘very good’ and another 12% rated it as ‘average’. At the end of the trial, all participants rated their productivity while using mCounseling as either ‘very good’ (54%) or ‘good’ (46%).

*mLearning:* Participants perceived work-related benefits from using *mLearning*, and 100% of the proportion of participants that agreed that using *mLearning* had increased their productivity increased from 90% at baseline to 100% at endline.
Planning for the Future

HCC recommends that the Sindh government in Pakistan should continue to invest in proven methods of LHW capacity building. As noted in the previous section, HCC’s initial assessment findings support the use of Roshan Mustaqbil mHealth Application for 80+ LHWs in Sindhi Province. The results from field testing of Roshan Mustaqbil’s mLearning and mCounseling components demonstrate that a rural sample of LHWs, many of whom had basic education skills, were capable of using the App effectively. LHWs reported that both components of the App enhanced their knowledge, skills, and overall performance. By the end of the trial, all the participants agreed that their overall effectiveness as an LHW was enhanced by the resource. Specifically, with the use of Roshan Mustaqbil mHealth Application, LHWs perceived improvements in the way they performed their tasks, namely their ability to work faster, provide comprehensive information, interact easily with clients, and all with increased confidence and resourcefulness. The App usage was not perceived to change what the LHWs were capable of doing, but was perceived to influence how fast, productive, and efficient they were in completing their work.

Given the increasing population and growing need for high functioning LHWs in Sindh, the Roshan Mustaqbil mHealth Application presents a singular opportunity: a proven mHealth tool that has enhanced the interpersonal communication skills and improved the efficiency of LHWs in Sindh Province. Using this model, LHWs easily access learning activities, videos and quizzes on their Android smart phones. Thus, in its present state the App presents many advantages for adoption at scale, including:

**Easy Availability and Adaptability**
In the context of Pakistan, especially for LHWs, there are distinct advantages to developing a mHealth application in this manner. mHealth interventions can be accessible on-demand, which enables time for practical, self-directed usage and learning. In the case of Roshan Mustaqbil, mCounseling or mLearning can take place over time, which provides time for reflection of and application to real-life experiences for both the LHW and her client. Further, Roshan Mustaqbil was designed to be a relevancy-oriented platform where LHWs are encouraged to explore their particular interests. From a programmatic standpoint, Roshan Mustaqbil content can be adapted to align with ongoing LHW priorities, new health topics or for additional content. Notifications are automatically shared if and when content updates are available.

**Quality Assurance for Training Content**
Often, mHealth interventions can offer a greater degree of control over dissemination compared to training or trainers (ToTs) or paper-based content. Trainers may vary in style and delivery. Paper-based trainings may not enable programs to check for understanding. Roshan Mustaqbil afforded HCC the ability to streamline and standardize delivery of high quality training content. Should the LHW Programme (LHWP) seek to expand to a larger number of users, Roshan Mustaqbil will still maintain the same quality as it was received by those in the initial group of App users. This will address the current challenges surrounding quality trainings, and will also save the costs invested on trainings conducted at multiple locations at multiple times – with the opportunity to fully address the high costs and reach of refresher trainings.

**Limited Maintenance**
Compared to a custom-built app, the current version of Roshan Mustaqbil requires relatively low maintenance. This is largely because the App is open-source and runs on the core OppiaMobile platform (meaning no customizations have been made to the App’s code). There are no licensing requirements. Further, the App will continue to benefit from any updates that Oppia Mobile does to the underlying platform. This does not mean the App requires no maintenance. If the App is to go to scale, an in-country technical team should be formed including at least one program lead (content issues) and one IT
lead (technology issues). Together, this team would be responsible for managing and troubleshooting the field implementation of the App. As technology challenges are hard to foresee, this team would need to deal with different technical glitches in a timely manner to make use of mHealth application easier for LHWs.

Looking forward, the following section presents additional considerations for the scale-up of Roshan Mustaqbil based on lessons learned during the HCC’s design, development, implementation and assessment of the App.

- **Work with Lady Health Workers and Lady Health Supervisors**
  Involving LHWPs early in the design process allowed for a quicker feedback loop and more informed design. If additional components are to be added (or current components expanded) it is critical to include LHWP into the design.

- **Invest in Quality Hardware**
  The App requires reliable hardware to function optimally. This may require purchasing Android smart phones with a generous screen size, high quality audio speakers and extended battery life. This insight came during the assessments where several LHWs found the audio and screen size less than desirable after using the app for some time. It was not the functionality of these components (they were in working order), but the interaction and interface with the user that was an issue with LHWs. When a couple LHWs (or more) are closely huddled over the smartphone and watching a mCounseling or mLearning video, it may be difficult for the health worker to see what is being shown on the App. This has the potential to disengage the health worker from the counseling process. In addition, if the App was in use outside rather than in a quiet place inside a building, it is possible that external background noises made it difficult to hear and understand the audio of the App. To combat this, future trainings on the App should highlight the importance of counseling in a quiet area.

- **Work Within the Constraints of the Existing App and Content Management System (Moodle)**
  It is feasible to expand Roshan Mustaqbil to other health areas providing an easy means for integration across multiple health areas. To expand, program managers will need to understand Moodle, the content management system that backs the App. Any additional content will need to be developed, vetted and then placed on Moodle. During that process, it is important to remember that mobile content delivery involves a set of specific requirements (limited text, short videos, specific file formats, etc.). Further, as HCC learned during the mCounseling assessment, not all health areas are mutually conducive to mobile counseling. During the assessment, vaccination surfaced as an area that did not improve during the course of the assessment study (participants perceiving they had ‘good’ or ‘very good’ ability to provide information and counseling on vaccinations remained unchanged at 95% for all waves of data collection). This finding may be related to how vaccination services are delivered (with limited discussion between client and LHW or reduced time spent at the point of care). Given that not all health areas or health behaviors have similar needs, content design should reflect the nuances of both the health area/ behavior and the medium (mobile phone).

The LHW Programme should also consider how best to use local languages (e.g. Sindhi) on the App given that these are often less widely used scripts/languages. HCC invested a great deal of effort incorporating Sindhi language into the App given its limited use internationally. The end result is a dual-language App that still presents display malfunctions at times. Compatibility with Android mobile phones with 5.0 or above version of operating system may work for displaying
the dual languages compared to previous versions of the Android operating system. The LHW Program will need to make sure that Android mobile phones with this compatibility are purchased and handed over to all LHWs at the time of expansion.

• **Monitor Use of the App to Inform App Design and Development**

The LHW Programme should also consider establishing a process to monitor how LHWs use the mHealth application for counseling women during household visits and community support group meetings. To accomplish this, the LHWP will need to incorporate a process to monitor mHealth Application usage into their existing monitoring and evaluation system.

Routine monitoring may also aid LHWP in identifying opportunities for technical support or in understanding variations in LHW learning styles which may require more time to become familiar with all aspects the App. These insights may even lead to targeted technical assistance or a demonstration section for special functions that are performed less often or on an as needed basis.

• **Expanding use of mHealth Application in Phased Manner**

HCC trained eighty LHWs in Mitiari districts on mHealth Application and have provided smart phones to all of them. In first phase, lasting about one year, LHW Program should expand use of mHealth Application to the whole district of Mitiari with the support of partners. After assessment results and learning from the experience one-year usage, LHW Programme should expand the use of the mHealth application to the entire province in Phase-II. In Phase-III, LHW Program can also include other components of the mHealth like mMonitoring, real time data transfer and mReporting etc.
Annex: Case Study

The following is a case study which provides a glimpse into how LHWs use the Roshan Mustaqlbil application with community members.

Khairunnisa (36), has six children of school going age and is a resident of village Sher Khan Dakkan, union council Sekhat, Taluka Matiari, District Matiari. Her village has mixed school for girls and boys till primary and with the higher secondary school for boys only. The nearest health facility is the Basic Health Unit Sekhat which is a five-minute drive from her village.

Khairunnisa has been serving her community as a Lady Health Worker (LHW) for more than 15 years now. She has an assigned population of 1,270 which is settled into small neighborhoods. She says, “Since I was recruited to until recently, we had been using a pictorial toolkit, called Sehat Ki Dastak, to deliver health messages and to counsel women and households on maternal, neonatal and child health.” Almost two years ago, she received training on a new inter-personal communication toolkit, called Roshan Mustaqlbil Counseling Cards. It was an 8 days training and the new approach used in this new toolkit was totally different than the old one. Its approach is problem solving and not just knowledge delivery.

Later, she was called for another training on a mobile application, Roshan Mustaqlbil (Bright Future), and was given a smartphone to learn and counsel the women and households through a mobile device. Khairunnisa says, “The use of mobile in the community for counseling has made my work 10 times easier. The videos explain things in a very clear and engaging way and it gets the attention of audience which otherwise is often compromised when we use paper based tools.” She adds that learning through this application is also interesting and that she has taken all courses at least a dozen times.

Shabana, a community woman, who regularly participates in the community support group meetings conducted by Khairunnisa is one among many women who are happy to learn through mHealth mobile application. She describes the Roshan Mustaqlbil application as very good information delivery and counseling tool when compared to paper based toolkits. She says, “Videos are the most appealing part of the application, the enactment makes it easier to remember the message.”