**Tools For Community Health Workers**

This report provides a foundation for the use of mobile health tools to support the performance and accountability of Frontline Health Workers in low- and middle-income countries.

This report focuses on three approaches that include:

1. Establishing a database of existing mHealth tools related to FLHW performance and accountability

2. Conducting a literature review on the evidence base of using mHealth tools to improve FLHW performance and accountability

3. Developing a framework to guide the adaptation of paper-based content into mobile-friendly content.

In general, the majority of mHealth tools identified were being implemented in India and East Africa and focused on supporting patient monitoring, reinforcing learning, and strengthening counseling efforts during home visits, through pre-loaded java-based applications.

Overall, the mHealth tools are related to human resource management, including work planning and scheduling, performance management and compensation.

Platforms, such as CommCare and FrontlineSMS, provide the infrastructure and tools which reduces the cost and technical expertise require developing a mHealth tool.

In this report United Nations Commission on life saving commodities for women and children Recommendation 9 is broadly taken into the account.

Recommendation 9. Performance and accountability:

By end 2013, all EWEC countries have proven mechanisms such as checklists in place to ensure that health-care providers are knowledgeable about the latest national guidelines.

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| Types of mHealth Tool | Definitions |
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| Patient Registration | Registering patients into a project specific or centralized database  over the mobile phone; this often includes creating or using unique  identifier numbers |
| Patient assessment | Data collection and/or survey administration for patient identification of a disease using a mobile phone |
| Patient monitoring entry of ongoing | Supporting the entry of ongoing patient medical data on a mobile phone for monitoring and data analysis |
| Work Planning | Mobile tool supporting frontline health workers to prioritize daily, weekly and/or monthly patient load, in addition to the messages emphasized during an appointment, based on data from patient registration and assessment |
| Counseling | Supporting frontline health workers to deliver messages on health practices using mobile phone features |
| Social Networking | Mobile-based platform to facilitate collaboration and/or communication amongst frontline health workers |
| Clinical Decision Making | Intelligent step-by-step guide for frontline health workers to assess a  patient’s condition and/or inform treatment decisions; this often includes questions for a frontline health worker to ask a patient, data inputs based on the patients answers to the |
| Checklists | Mobile-based lists to guide sub-activities to be performed by frontline health workers to ensure optimal quality (e.g., list for sub-activities during a  home visit) |
| Mobile Learning | Mobile-based platform to enable frontline health workers to learn health concepts, treatment guidelines, role expectations etc.; this may also include options for assessment and certification |
| Care Coordination | Coordination between frontline health workers and patients, frontline health workers and other health professionals, and for referrals, using the features of a mobile phone |
| Compensation | Mobile-platform to enable faster delivery of frontline health worker salary, performance incentives and/or resources for transportation or supplies |
| Performance Tracking | Mobile-based data input of completed activities by frontline health workers to monitor performance and/or calculate salary/incentive pay |

Mobile Health for Frontline Health Workers

FLHWs tend to play in rural health systems in Low Middle Income Countries; they often receive limited training and supervision, inadequate pay and few opportunities for professional development. As a result, an FLHW’s ability to support the adoption of life-saving health commodities to improve health outcomes for women and children is often compromised.

Some application can be use (mobile technology) to support the performance and accountability of FLHWs in delivering high-quality care by improving access to information and tools across the continuum of care for women and children. This includes the use of mobile technology to:

Support end to- end patient management, including registration, assessment and monitoring;

Improve productivity using tools to organize daily work plans;

Reinforce training and health behavior messages for FLHWs and patients through learning modules;

Provide more standardized and quality care through checklists and clinical decision support; and

Reduce the time to distribute compensation, performance incentives and/or travel reimbursements to FLHWs.

Overall Findings

The most common platforms supporting the development of mHealth tools found:

CommCare, MOTECH, Open Medical Record System (OpenMRS), Open Logistic Management Information System (Open- LMIS), INSTEDD, FrontlineSMS, IQSMS and IQGEO.

Mobile health tools are built on top of these platforms, each providing access to various types of mobile features, such as Short Messaging Service (SMS), Interactive Voice Response (IVR), forms for data collection, and application architecture, to create custom solutions using different content.

In 2013, with the support of the Grameen Foundation and the Bill and Melinda Gates Foundation, a consortium of platform partners, called MOTECH Suite, which includes CommCare, MOTECH and OpenMRS amongst others, was established to provide developers, NGOs, governments and/or private companies with a comprehensive set of services under a single umbrella, in the form of an integrated information system.

The MOTECH Suite supports five key functional mHealth areas including: behavior change and demand generation, managing patient data, improving worker performance, last mile supply chain and patient adherence.

Further, as mHealth tools for FLHWs continue to advance in features and functionality, the next stage of integration will be with national health information systems and electronic medical records, of which the research shows early signs on in India and Tanzania

They have organized the 12 types of mobile tools in the database into six categories:

1. Patient Management:

Registering, assessing and monitoring patients on treatment to alleviate a disease, those at risk of a disease, and/or women during a pregnancy cycle.

IVR was the least used technology to support patient management mHealth tools, in comparison to pre-loaded applications, data-supported applications, and SMS, which were all highly represented.

1. Work Planning and Scheduling

To organize and prioritize daily patient load and provide guidance on specific content that should be delivered to a patient, depending on factors such as pregnancy semester, existing health conditions or age of child.

1. Education and Awareness

To refresh their knowledge on health practices (“mLearning”), and/or support FLHWs communications and influence the adoption of health practices during counseling sessions with patients and their families.

1. Clinical Support and Quality Care

Utilize algorithms to assist in clinical decision making, provide checklists to support standardized and recommended care and provide directories to coordinate with other health professionals for referrals and advice.

1. Performance Management and Compensation

A supervisory structure that offers feedback and coaching, in addition to providing FLHWs with timely and consistent compensation, incentives and/or subsides are important functions that mHealth tools can enable.

6. Information Systems

It is concerned with the linkages across data collection, storage, processing and use. Information systems include the mHealth tool and complementary components (e.g., data warehouse).

Furthermore, the data can be linked to a national health information system and used to support disease surveillance, management and distribution of health services and products, and policy development.

Framework for Mobile Content Adaptation

It outlines the process for adapting paper-based content into mobile phone-friendly content in a way that takes the end-user’s needs, literacy, technological feasibility and human resource capacity into account.

**Phase 1** outlines the research required to understand the end-user to select the most appropriate mobile communication medium to deliver the content (e.g., SMS, IVR) and to craft the language of the content in a way that aligns with the workflow, beliefs, knowledge gaps, and terminology of the end-user.

**Phase 2** is a guide to select the communication medium in a way that aligns the technology with the needs and preferences of the end-user, and the capacity and resources of the implementing organization.

**Phase 3** outlines the content creation process, which includes using a reference guideline as the foundation for development, supported by a multi-stakeholder review committee, and multiple rounds of pre-testing and iteration with the end-user.