Digital Health RMNCH Toolkit

An introduction to how digital health can support the Commodities Commission’s recommendations
The United Nations Commission on Life-Saving Commodities (hereafter referred to as “the Commission”) was established as part of the Every Woman, Every Child (EWEC) initiative in 2010 with the purpose of increasing access to 13 overlooked life-saving commodities. Ten recommendations and actions were identified that would help expand demand, access and use of the commodities in hard-to-reach areas over a five-year period. Focusing on the continuum of care, the commodities cover reproductive, maternal, newborn and child health (RMNCH). As part of the strategy employed the Commission, information and communication technology (ICT) such as mobile phones have been identified as a means to support achievement of the Commission’s goals. Accordingly, HealthEnabled (formerly mHELP, the Mobile Health (mHealth) Expert Learning Program) is serving as a technical advisor on digital health to the Commission.

Background

The United Nations Commission on Life-Saving Commodities (hereafter referred to as “the Commission”) was established as part of the Every Woman, Every Child (EWEC) initiative in 2010 with the purpose of increasing access to 13 overlooked life-saving commodities. Ten recommendations and actions were identified that would help expand demand, access and use of the commodities in hard-to-reach areas over a five-year period. Focusing on the continuum of care, the commodities cover reproductive, maternal, newborn and child health (RMNCH). As part of the strategy employed the Commission, information and communication technology (ICT) such as mobile phones have been identified as a means to support achievement of the Commission’s goals. Accordingly, HealthEnabled (formerly mHELP, the Mobile Health (mHealth) Expert Learning Program) is serving as a technical advisor on digital health to the Commission.

The Toolkit

Purpose

This toolkit provides general information on digital health and how it can be used to support various activities along the RMNCH continuum of care. The toolkit may be most useful to individuals unfamiliar with digital health and seeking to learn more information and take note of lessons from implementations around the globe.

Instructions

The toolkit has been organized into several sections. A general section about digital health precedes recommendation-specific applications of digital health. Following that, a separate resources section contains links to digital health tools and literature that highlight how digital health has been used (successfully) in the context of the recommendations.
What is Digital Health?

Digital health is an all-encompassing concept that brings together digital technologies and health. It is concerned with the use of mobile phones, wireless devices and other information and communication technologies (ICTs) to promote individual and population health along with health systems strengthening. One aspect of digital health is mobile health (mHealth) that focuses particularly on mobile phones and other wireless or mobile ICTs.

The application of digital health to support RMNCH programming is not new. Mobile phones and other technologies have been used to collect data, allowing for ‘real-time’ reporting and disease surveillance; provide point-of-care support for health care providers, in efforts to promote compliance to standard treatment guidelines; facilitate communications between providers, to strengthen skills and minimize unnecessary referrals; and disseminate information directly to providers and clients, to amplify trainings, counseling and awareness.

Recognizing the opportunity that digital technologies have, given increasing global mobile phone penetration rates, more affordable technologies, improved communications infrastructure and the relatively low cost but extensive reach of SMS, data and voice, the Commission will employ digital health for demand generation and other activities. The Commission’s digital health activities will build upon existing programs and as connectivity increases and basic technology becomes more sophisticated and readily available, there will be increasing opportunities to use non-traditional modes of dissemination – such as interactive voice and video (e.g., .gifs, vines), MMS, engaging websites and social platforms (e.g., WhatsApp) – and more sophisticated tools (including diagnostic plug-ins and tools on phones and tablets and other devices).

The Ten Recommendations of the United Nations Commission on Life-Saving Commodities

The Commission established ten recommendations to help improve markets, national delivery of commodities and the integration of the private sector with consumer needs. The following table outlines the recommendations and examples of how digital health can be used to support each recommendation. The sections following the table briefly explore the ways in which digital health can be used to support each recommendation. A separate resources section contains links to tools, projects, reports and literature on each digital health application. The reports and literature included are meant to provide ‘real world’ examples.

### Definitions of Digital Health Applications

**A.** Patient education and behavior change communication (BCC): Direct-to-client service that provides education and/or guides behavior change.

**B.** Sensors and diagnostics: Wireless devices or plug-ins that can be used to passively track individual health information or conduct tests.

**C.** Registries and vital events tracking: Data collection tool, registering patients into a database and/or tracking vital events (i.e., births, deaths).

**D.** Data collection and reporting: Tool or device used to collect data for public health research or clinical purposes. Data is then collated by the system, can be transmitted to and stored in a server or data warehouse. Data can also be used in ‘real-time’ for disease surveillance purposes.

**E.** Electronic health records (EHRs): Data collection tool that captures, stores and transmits individual health information (i.e., row level data). Can be linked to a health information system for data aggregation and reporting.

**F.** Electronic decision support: Used by health care providers at the point-of-care to guide patient’s treatment, disease management and care. May concurrently be used to collect data.

**G.** Communication: Permits and/or enhances communication between health care providers (e.g., referrals, remote consultation, (telemedicine), support) or between providers and their clients (e.g., telemedicine, follow-up, support), providing an important avenue for community engagement.

**H.** Provider work-planning and scheduling: Aids in scheduling appointments and pushing reminders either directly to the client for self-management or to the health care provider for patient follow-up.

**I.** Provider training and education: Distance learning for health care providers using digital technology (e.g., blended learning, mobile phone, computers).

**J.** Human resource management: Electronic management system that aids in optimizing available human and organizational resources to provide care when and where it is needed.

**K.** Supply chain management: Data collection tools coupled with electronic logistic management information systems for commodities tracking and distribution.

**L.** Financial transactions and incentives: Primarily refers to mobile-phone based payment systems used to disburse payments to health care providers or for clients to pay for health services.

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1 These definitions were derived from mTERG and the Nigeria ICT4SOML Initiative’s use of the mTERG framework.
Digital Health and the Commission’s Ten Recommendations

The table below highlights which digital health applications are relevant for each recommendation, providing a high-level and simplistic overview of the potential for digital health to support the work of the Commission and beyond. The table has been organized by the ten recommendations, and a modified version of the mHealth and ICT framework for RMNCH developed by the World Health Organization’s (WHO’s) mHealth Technical and Evidence Review Group (mTERG) was used to categorize the different types of digital health applications.

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Digital Health and the Commission’s Ten Recommendations

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Improving markets for life-saving commodities

There are 5 recommendations under improving markets for life-saving commodities: (1) shaping global markets, (2) shaping local delivery markets, (3) innovative financing, (4) quality strengthening and (5) regulatory efficiency.

Each recommendation is described below, along with what digital health applications can be used in support of the recommendation. The following feature prominently across the five recommendations in this section: A: BCC, D: data collection and reporting, G: Communication, K: supply chain management and L: financial transactions and incentives.

Recommendation 1
Shaping global markets

Effective global mechanisms such as pooled procurement and aggregated demand are in place to increase the availability of quality, life-saving commodities at an optimal price and volume.

Digital technologies, ranging from computers to mobile phones, can be used to support procurement through enhancing supply chain management; understand health system needs via access to digital registries and vital events and timely data collection and reporting; generate and maintain demand through BCC; mediate payment and incentives through bidirectional communication.

At the local level, electronic decision support – in addition to the applications noted for shaping the global market – plays a role in helping shape the market. Augmented decision support can help promote provider adherence to recommended treatment and case management guidelines. Mobile financing can be used to provide ‘real-time’ incentives to providers and clients alike, subsequently enhancing and/or reinforcing the distribution and promotion of the commodities.

Recommendation 2
Shaping local delivery markets

Local health providers and private sector actors in all Every Woman, Every Child (EWEC) countries are incentivized to increase production, distribution and appropriate promotion of the 13 commodities.

At the local level, electronic decision support – in addition to the applications noted for shaping the global market – plays a role in helping shape the market. Augmented decision support can help promote provider adherence to recommended treatment and case management guidelines. Mobile financing can be used to provide ‘real-time’ incentives to providers and clients alike, subsequently enhancing and/or reinforcing the distribution and promotion of the commodities.

Recommendation 3
Innovative financing

Innovative, results-based financing is in place to rapidly increase access to 13 commodities by those most in need and foster innovations.

Mobile finance (or mobile money) is increasing in its popularity, especially in limited resource settings. Previous populations that were not engaging in the formal financial sector now do so through secure, mobile-phone based technology. Through mobile finance, results-based financing mechanisms can be structured not only at the national or programmatic level, but also at the individual level, directly to clients and providers. For example, mobile finance has been used to provide more timely payments to health care providers for services rendered; reward individuals or entities providing high-performing, quality care; transmit vouchers for discounts on routine care and services directly to clients and function as a payment and savings mechanism for health care services. Mobile finance may also open up avenues for developing innovative business models that generate innovative financing.

Recommendation 4
Quality strengthening

At least three manufacturers per commodity are manufacturing and marketing quality-certified and affordable products.

Digital health can be leveraged to help strengthen product quality, as well as support routine monitoring on dissemination and use. Technology can be used to track quality products from the point of manufacturing to the point of sale or distribution through electronic logistic management information systems that in turn, can be linked to health information systems. Clients can be equipped with means to verify products and/or report suspected counterfeit medications through bidirectional communication. Furthermore, BCC can be an effective marketing tool, generating demand for quality products. Providers and their supervisors can use electronic health records to record and report on adverse side effects. They can also use sensors and digital diagnostic tools to diagnose ailments and monitor patient progress in-person or remotely.

Recommendation 5
Regulatory efficiency

All EWEC countries have standardized and streamlined their registration requirements and assessment processes for the 13 life-saving commodities with support from stringent regulatory authorities, the World Health Organization and regional collaboration.

A common data dictionary can be used to help standardize information collected, reported and assessed through digital health technologies across different languages, regions and programs. Making use of a common data dictionary can ease data sharing and minimize errors in the process. In the context of the commodities, a common data dictionary based on international standards and best practices could help exchange information on product data and promote consistency across regions and institutions.
Improving national delivery of life-saving commodities

There are 4 recommendations that fall under improving national delivery of life-saving commodities: (6) supply and awareness, (7) demand and utilization, (8) reaching women and children, and (9) performance and accountability. Each of the four recommendations are described below, along with what digital health applications can be used in support of the recommendation. BCC (A) and sensors and diagnostics (B) feature prominently across the national delivery recommendations.

**Recommendation 6**
Supply and awareness

All EWEC countries have improved the supply of life-saving commodities and build on information and communication technology best practices for making these improvements.

As noted under recommendation 4, electronic logistic management systems can be used to help track, manage, forecast and request commodities in ‘real-time’. Digital technology can also be used to aid in equipment maintenance. By integrating with electronic health information systems, supply chain systems can directly interface with surveillance, registration and vital events data for more accurate information. The Commission’s supply chain technical reference team (TRT) includes representatives of OpenLMIS, a global collaboration to share and integrate open-source technologies for supply chain management.

**Recommendation 7**
Demand and utilization

All EWEC countries in conjunction with the private sector and civil society have developed plans to implement at scale appropriate interventions to increase demand and utilization of health services and products, particularly among underserved populations.

Demand generation is of particular interest to the Commission and the TRTs. The focus is on generating the appropriate consumer environment for the commodities. The supply must meet the demand and the demand should adequately reflect the need for the products and services. Digital health is versatile and can be used to help assess and prime the market; it is also a feasible way to reach traditionally underserved populations (e.g., hard to reach, marginalized).

**Recommendation 8**
Reaching women & children

All EWEC countries are addressing financial barriers to ensure the poorest members of society have access to the life-saving commodities.

One of the readily available digital technologies are mobile phones. Mobile phone use is increasing as technologies become more affordable and supporting infrastructure is strengthened and extended. As noted in Recommendation 3, mobile phones can be used to support mobile finance, offering a means for savings, discounts and purchasing health services and goods. Separately, as illustrated in Recommendation 7, demand generation can be used to provide information directly to clients on products and services. The information supplied can be crafted to raise awareness, promote healthy behaviors, and provide guidance on proper use of commodities and services and more. The modes of disseminating this information, if through the phone, can be done via SMS, calling (or voice) or even the web (if users have access to web-enabled phones).

**Recommendation 9**
Performance and accountability

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

Digital technologies, such as tablets, computers, phones and other mobile or awireless technologies, can be used to amplify trainings for health care providers. Providers can use such technology to participate in distance learning, refresh their memory, test their skills and be reminded to adhere to national guidelines. In addition, communication among providers can be supported by digital technologies for remote mentorship, peer support and teleconsultation. Such activities and accountability can further reinforce performance and help circulate current best practice.

**Recommendation 10**
Product innovation

Research and development for improved life-saving commodities has been prioritized, funded and commenced.

The ‘real-time’ ability to collect and transmit data through digital technologies is one of the most rewarding aspects of integrating digital health activities within research and public health programming. The data and resulting reports can be used to provide the right information, in the appropriate format, when and where it may be needed for improved decision-making. This is applicable at all levels of the health care system.
Resources

This section contains resources that help demonstrate how digital health has been used in the context of the recommendations. The resources include links to reports, studies, current implementations and tools and platforms, and they are meant to illustrate the potential of digital health and equip the reader with general knowledge on how digital health can be applied to help support health systems strengthening, especially in the context of RMNCH.

Behavior Change Communication


- Digital Health for Demand Generation in RMNCH Toolkit. The toolkit provides implementers, public health practitioners and others with resources on digital health best practices for demand generation. Various projects, tools and content are highlighted in the toolkit. www.healthenabled.org/resources/demand_generation_rmnch.pdf

- Researchers from Johns Hopkins conducted a thorough review of programs that used mHealth for demand generation, focusing on family planning. The review provides detailed summaries of several of the articles that met the inclusion criteria and highlight notable findings. Johns Hopkins Bloomberg School of Public Health Center for Communication Programs (2010). “mHealth and Demand Generation: Review of evidence and experience related to the use of mobile media for BCC and demand generation for family planning and health.” Prepared for the Family Health International’s Urban Health Initiative – India. Available from: http://www.uhi-india.org.in/20may/Mhealth%20Literature%20Review%20Final%20May%202010%20%5B1%5D%20formatted.pdf

- A review of mobiles for behavior change communication found that most studies documented in the literature were implemented in Sub-Saharan Africa and deal with HIV/AIDS and family planning. The review outlines the approaches taken by the programs as compared to best practices, including formative research and message tailoring. While the data indicate that mobiles can successfully be used to promote behavior change, the authors conclude that more evidence is needed. Gurman et al (2012). “Effectiveness of mHealth Behavior Change Communication Interventions in Developing Countries: A Systematic Review of the Literature.” Journal of Health Communication. Available from: http://www.tandfonline.com/doi/abs/10.1080/10810730.2011.649160?url_ver=Z39.88-2003&rfr_id=ori%3Arid%3Acrossref.org&rfr_dat=cr_pub%3Dpubmed&


- Researchers that focused on youth, in particular, identified the promising nature of SMS for improved disease management in young populations. The authors believe that SMS (for activities such as medication and appointment reminders) should be integrated into routine clinical care. Militello et al (2012). “Systematic review of text-messaging interventions to promote healthy behaviors in pediatric and adolescent populations: implications for clinical practice and research.” Worldviews on Evidence-Based Nursing. Available from: http://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0049105/

- A mental health study in Afghanistan designed separate but linked patient and provider interventions. Young adults were enrolled and provided with weekly SMS messages about mental health issues – as a part of an awareness raising campaign. In parallel, providers were given a mental health decision-support program that guided them through the WHO mental health Gap Action
Registries and Vital Events

- The Millennium Villages Project (MVP) designed a vital events form that community health workers can access on mobile phones or other handheld devices. The health workers use the form to register and track births and deaths (in conjunction with verbal autopsy). A recent case study on death notification in the Senegal MVP site illustrated the utility of digital technology to facilitate more timely information for improved action. Moshabela M et al (2015). “Early detection of maternal deaths in Senegal through household-based death notification integrating verbal and social autopsy: a community-level case study.” BMC Health Services Research, 15(1). Available from: http://www.biomedcentral.com/1472-6963/15/16

Data Collection and Reporting

- In Ethiopia, a group of researchers and implementers designed and tested a smartphone application for data collection that was designed based upon the complex needs of the target audience (health care workers). The application was designed with the local language and maternal and newborn health protocols in mind. Little et al (2013). “Meeting community health worker needs for maternal health care service delivery using appropriate mobile technologies in Ethiopia.” PLoS One. Available from: http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0077563

Sensors and Diagnostics

- Proteus Digital Health developed Proteus Discover. Proteus discover involves an ingestible pill, taken with routine medication, and an external, wearable patch. Through both the ingested device and patch, the system is able to monitor an individual’s vital signs and medication adherence, among other clinical variables, and transmit the information to the patients and their physicians for enhanced, personalized care. www.proteus.com

- Attempting to bring low-cost and portable diagnostics to limited resource settings, Nanobiosym established the Nanobiosym Global Initiative. Working through public-private partnerships, Nanobiosym is using nano technology to help realize their vision for the future. http://www.nanobiosym.com/index.php/about/

- Looking to improve upon the rapid diagnostic test (RDT) for malaria – which is often used in limited resource settings to diagnose malaria but can be unreliable – Lifelens has designed a point-of-care diagnostic tool that leverages smartphone cameras to visualize blood cells and malaria parasites (from a finger prick), as well as transmit lab results to where they are needed and prompt timely and appropriate care. http://lifelensproject.com/blog/

- Optimal adherence to medication as-prescribed is often difficult to achieve, for a variety of reasons. Seeking to address adherence challenges related to forgetfulness and also provide a means for providers and researchers to monitor adherence trends, AdhereTech designed a wireless pill bottle. The pill bottle transmits data on when patients take their medication; it can also send patients medication reminder messages, and if a dose is missed, escalates the alerts to the patient and/or provider. The system has the capacity to obtain pertinent information on why patients are missing doses, which is crucial to improving their care and outcomes. http://adheretech.com/
Electronic decision support

- While mHealth initiatives for maternal and newborn health have been successful, a comprehensive review of the literature found that the sustainability and scalability of such programs remains elusive. Successful applications of mHealth have dealt with emergency medical response, point-of-care support, health promotion and data collection and management. Tamrat and Kachnowski (2012). “Special delivery: an analysis of mHealth in maternal and newborn health programs and their outcomes around the world.” Maternal and Child Health Journal. Available from: http://link.springer.com/article/10.1007%2Fs10995-011-0836-3

- An area where electronic decision support has been applied is integrated community case management (iCCM). Digital health has been used to support community health workers and other health care providers in the diagnosis, treatment and management of major childhood illnesses. Organizations implementing electronic-iCCM tools to strengthen current iCCM implementations include inSCALE and D-tree International.
  - inSCALE in Mozambique and Uganda: http://www.malariaconsortium.org/inscale/pages/innovations/mobile-technology

Electronic health records

- There are several open source tools, platforms and services that not only have data collection capability, but also have the capacity to securely store patient information in the form of electronic health records. A fundamental aspect of these tools is integration and interoperability. For integrated tools, like the MOTECH Suite, the EHR system (OpenMRS) is connected to a health information system (DHIS2) and other tools and databases that, together, provide a more comprehensive digital health approach for health systems strengthening.
  - Open Health Information Exchange (Open HIE) is a community of practice that offers services and information on how best to set-up digital health systems that allow for health information exchange, thus promoting data driven processes and improved health outcomes. https://ohie.org/
  - The MOTECH Suite of tools includes an EHR (OpenMRS), data collection and reporting tools (CommCare and Mother and Child Tracking System (MCTS) in India) and a diagnostic application (ReMeDi) that is all linked to a health information system (DHIS2). The integration of the tools allows for multiple digital health applications to be covered by one comprehensive set of tools, rather than setting up several disjointed, stand-alone applications.
    MOTECH Suite: http://motechsuite.org/index.php/overview
    OpenMRS: http://openmrs.org/
    CommCare: http://www.commcarehq.org/home/
    MCTS (India): http://nhm-mcts.nic.in/
    ReMeDi by Neurosynaptic: http://www.neurosynaptic.com/
    DHIS 2: https://www.dhis2.org/

** Existing content (not mobile ready, but can be adapted)
• AfricaAid has set-up country-wide mobile phone closed user groups in Ghana and Liberia that allow health care providers – namely doctors – to communicate with one another at no cost. The idea is that the cost of communicating via phone will not be as significant a barrier prior to the closed user group. Subsequently, doctors can more freely connect with their peers for remote support or to facilitate referrals.
http://www.africaaid.org/programs/mdnet

• An example of a globally available telemedicine platform is Tech4Life’s MDConsults. MDConsults provides web-based access, store and forward communication services and mobile-phone based applications to bridge providers and patients for diagnosis and care. Support for users of the telemedicine platform is also available.
https://mdconsults.net/

Provider work-planning and scheduling
• Digital technology can be used to directly support health care providers in managing and organizing their work schedules and caseloads. For example, the Child Health Application, a part of the ICT4mPower initiative, included a function for providers to receive reminders to conduct vaccination follow-up visits.
http://spidercenter.org/projects/project-overview/ict4mpower-ict-for-medical-community-empowerment-1.148833

Provider training and education
• A report for the Commission examined how mobile phones and other digital technologies could be used by or for frontline health workers in efforts to improve their performance including distance learning and education. The report includes a comprehensive inventory of projects. “mHealth Support Tools for Improving the Performance of Frontline Health Workers: An Inventory and Analytical Review.” mHealth Alliance: Prepared by Hima Batavia and Nadi Kaonga, March 2014. Available from:

• A systematic review of mHealth initiatives designed for community health workers found that mobile technology can be used to promote the quality of services provided by health care workers. Addressing issues related to maternal health were common among projects. Brief case studies and learnings are also provided in the review. Braun et al (2013). “Community Health Workers and Mobile Technology: A Review of the Literature.” PLoS One. Available from:
http://journals.plos.org/plosone/article?id=10.1371/journal.pone.0065772

• Another review that examined ways that mHealth was being used by community health workers identified that most documented projects used one-way messaging for behavior change, data collection and reminders. While two-way messaging exists, it is less common. The article underlined the paucity of projects at-scale or those evaluating the impact of mHealth on the quality of care and health outcomes. Kallander et al (2013). “Mobile health (mHealth) approaches and lessons for increased performance and retention of community health workers in low- and middle-income countries: a review. JMIR. Available from:
http://www.jmir.org/2013/1/e17/

Human resource management
• iHRIS, an open source human resources information system, was designed to help track health care worker training, qualifications, performance, deployment and forecast workforce needs. It is in use in 19 countries across Sub-Saharan Africa and Central America.
http://www.ihris.org/

Supply chain management
• In several countries, SMS systems have been set-up to address issues with counterfeit medications. An SMS can be sent to a server to verify whether or not a medication is fake. Such systems can help ensure clients receive quality medications.
  - Hakikisha Dawa by GSK in Tanzania:
    http://allafrica.com/stories/201306040990.html
  - mPedigree in Ghana, Nigeria, Kenya and India:
    http://mpedigree.net/articles/ghanaian-sms-start-tackles-fake-drug-scourge
  - Sproxil Mobile Product Authentication (MPA) and track and trace services:
    http://sproxil.com/
  - Open Logistic Management Information System (OpenLMIS) is a global collaboration of organizations working on and implementing open source tools (that can be integrated with one another) for supply chain management.
    http://openlmis.org/
In 2009, Novartis, in partnership with the Tanzanian government and the Roll Back Malaria Partnership, among other collaborators, started the SMS for Life project. Through SMS and web-portals, supplies of essential medicines can be tracked in order to help prevent stock-outs. The project was officially handed over to the Tanzanian government in 2013 and expanded to Cameroon, the Democratic Republic of the Congo, Ghana and Kenya.


As a part of Supply Chains for Community Case Management (SC4CCM), JSI and partners developed an ecosystem of digital health tools to help improve community supply chains and ensure the availability of essential medicines in Ethiopia, Malawi and Rwanda. The application, cSTOCK is a mobile phone-based notification and resupply system that is linked to an online dashboard. Data collected at the community level can be viewed, in aggregate, through the online dashboard and appropriate action taken to address any resupply needs or issues.

http://sc4ccm.jsi.com/emerging-lessons/cstock/

A report by the mHealth Alliance for the Commission on digital health highlights how technology can be used to support equipment maintenance. “mHealth and Neonatal Resuscitation: Opportunities to Increase Adoption and Utilization of Neonatal Resuscitation Equipment, Using Mobile Health in Tanzania.” Prepared for the United Nations Commission on Life-Saving Commodities; Neonatal Resuscitation, Newborn Health Technical Reference Team. mHealth Alliance: Prepared by Hima Batavia. March 2014. Available from:

http://www.mhealthknowledge.org/sites/default/files/3_mHealthNNRTanzania_FINAL.pdf

Financial transactions and incentives

A discussion guide on mobile finance and health was developed by the World Economic Forum and mHealth Alliance. The guide provides an overview of mobile finance, how it can be used in the context of health and highlights its potential impact and barriers.


In Madagascar, Marie Stopes implemented a mobile finance initiative to support the uptake of sexual and reproductive health services. Vouchers that provided discounts on various health services were provided using an SMS money transfer system. The SMS transfer system was advantageous to what would have been a cash-based voucher system. "Using mobile finance to reimburse sexual and reproductive health vouchers in Madagascar.” A report by Marie Stopes International, supported by USAID.


Marie Stopes has set-up a similar electronic voucher (eVoucher) system in Ethiopia. However, in Ethiopia, paper vouchers are provided if clients do not have access to a mobile phone. Preliminary data indicated that among those who reimbursed the vouchers for services, the youngest age group (16-24 years) had the most redeemed vouchers.


In Kenya, Changamka MicroHealth uses a variety of digital tools and platforms to provide health financing services, with particular interest in the working poor. Their services include a digital health savings account, eVouchers and microinsurance.

http://changamka.co.ke/

IDEO.org is working on mobile money for health insurance in Nigeria. Rather than paying for insurance in large installments, users are able to pay for insurance in small installments using mobile money platforms.


The USAID Health Finance Governance (HFG) Project is leveraging mobile money to help expand access to services, improve service delivery through incentives, increase efficiency by reducing administrative burdens and enhance security through heightened accountability.

https://www.hfgproject.org/wp-content/uploads/2013/12/Mobile-Money-for-Health-Case-Study.pdf and

https://www.hfgproject.org/mobile-money-expands-financial-access-to-health-services/
Additional Resources

- **Maturity Model**: The Maturity Model is a tool developed by Dimagi to aid implementers in identifying where their digital health programs are and how to advance their programs in scope and scale.
  http://sites.dimagi.com/maturity-model

- **African Strategies for Health**: A USAID-sponsored initiative, African Strategies for Health identifies high-impact strategies that promote the health of Africans, including mHealth. Compendiums of mHealth programs have been compiled and contain illustrative and informative case studies that adhere to best practices. Behavior change initiatives are the most common use case.
  http://www.africanstrategies4health.org/resources/1

- **Digital Health Program Repositories**: The following repositories of mHealth projects can be helpful to look through to determine who is already conducting a similar program or is conducting an implementation in your area of interest.
  - WHO eHealth Project Repository:
    http://www.who.int/ehealth/resources/repository/en/
  - GSMA mHealth Tracker:
    http://www.mobileworldlive.com/mhealth-tracker
  - mHealth Working Group Inventory of Projects:
    https://www.mhealthworkinggroup.org/projects/mhealth-working-group-inventory-projects

- **Human Centered Design Toolkit**: Related to the Greentree Principles, this toolkit provides guidance on engaging with communities to collaboratively identify and address community needs and challenges.
  http://www.ideo.com/work/human-centered-design-toolkit/

- **Development Impact and You (DIY) Toolkit**: DIY houses a repository of free, evidence-based tools that users can access at any time point during the planning and implementation phases of a community-based program.
  http://diytoolkit.org/

- **Digital Health Infrastructure**: The following three resources provide information on the status of digital health infrastructure, including mobile phone penetration rates and connectivity.
  - World Bank. Data: Mobile Cellular Subscriptions (per 100 people).
    http://data.worldbank.org/indicator/IT.CEL.SETS.P2
    http://www.broadbandcommission.org/resources/Pages/default.aspx

- **mHealth Alliance Publications on RMNCH**: There are four publications prepared by the mHealth Alliance that relate to RMNCH. The first publication provides information regarding the status of mHealth for RMNCH in limited resource settings. Sustainability and scalability are important areas of focus for the report. An accompanying report provides a framework for thinking through and engaging in mHealth for RMNCH programs. A third report focused on the evidence base for mHealth for RMNCH programs and identified weaknesses in the literature and gaps in implementations. Lastly, gender gaps and barriers impacting access to RMNCH programs were examined through the lens of mHealth.
  - Landscape and Opportunity (2012):
    http://mhealthknowledge.org/resources/leveraging-mobile-technologies-promote-maternal-newborn-health
  - Framework for Engagement (2012):
  - State of the Evidence (2013):
    http://mhealthknowledge.org/resources/state-evidence-mhealth-and-rmnch
  - Addressing Gender (2013):
    http://mhealthknowledge.org/resources/addressing-gender-womens-empowerment-mhealth-rmnch

- **Common mHealth Questions**: This document provides answers to 30 commonly asked questions about mHealth. The answers draws from the experience of experts in the field and point to numerous, useful resources for readers to learn more about how mHealth has been used, key considerations for design and development and other noteworthy information.
  http://mhelp.hingx.org/Share/Details/2196

- **mHealth Knowledge**: A comprehensive compilation of resources for those interested in mHealth. The site houses all of the mHealth Alliance’s publications, including those on RMNCH.
  http://mhealthknowledge.org/

- **mHealth Planning Guide Tools**: A K4Health guide that covers project considerations and components for mHealth implementations. The guide is applicable to other digital health technology.
  https://www.k4health.org/toolkits/mHealth-planning-guide/planning-tools

- **The Journey to Scale**: A resource commissioned by the Bill and Melinda Gates Foundation and compiled by PATH that makes the case for institutionalizing digital health tools and provides frameworks and examples of how to effectively scale such interventions.