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MOBILE MONEY FOR HEALTH

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The Health Finance and Governance Project

USAID's Health Finance and Governance (HFG) project will help to improve health in developing countries by expanding people's access to health care. Led by Abt Associates, the project team will work with partner countries to increase their domestic resources for health, manage those precious resources more effectively, and make wise purchasing decisions. As a result, this five-year, \$209 million global project will increase the use of both primary and priority health services, including HIV/AIDS, tuberculosis, malaria, and reproductive health services. Designed to fundamentally strengthen health systems, HFG will support countries as they navigate the economic transitions needed to achieve universal health care.

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CONTENTS

Contents	v
Abbreviations and Acronyms	vi
1. Executive Summary	1
2. Background	3
3. Mobile Money in Context	4
3.1 Mobile Phone Prevalence	4
3.2 Mobile Money Overview	4
4. Mobile Money and Health: Potential Benefits and Challenges	7
4.1 Mobile Money at the Client Level.....	8
4.2 Mobile Money at the Provider Level.....	9
4.3 Mobile Money at the Program Level	9
4.4 Challenges in Mobile Money Use for Health	10
5. Mobile Money Relevance to mHealth	13
5.1 Subsidizing Information Services with Financial Transaction Revenues.....	13
5.2 Attracting New Corporate Sector Partners.....	14
5.3 Sharing Agent Networks	14
6. Conclusions	16
References	17
Appendix A. Case Studies	19
Case Study 1: MicroEnsure	22
Case Study 2: D-tree International	25
Case Study 3: Marie Stopes International	28
Appendix B. Additional Resources	31

List of Figures

Figure 3.1 A Typical Cash-In and Cash-Out Agent Network.....	5
Figure 3.2 GSMA Map of Mobile Money Deployment in Africa.....	6
Figure 4.1 Financial Flows in a Health System	8



ABBREVIATIONS AND ACRONYMS

2G	second generation
ANC	antenatal care
CCT	conditional cash transfers
CGAP	World Bank's Consultative Group to Assist the Poor
CHW	community health workers
GSMA	Groupe Spéciale Mobile Association (mobile operators)
HFG	USAID Global Health Financing and Governance Project
ILO	International Labour Organization
IT	information technology
mHealth	mobile phone-based health interventions
MSK	Marie Stopes Kenya
MSM	Marie Stopes Madagascar
MMU	Mobile Money for the Unbanked
NHIF	National Hospital Insurance Fund
NGO	nongovernmental organization
SIM	subscriber identity module
SMS	short message service or text messages
TB	tuberculosis
TBA	traditional birth attendant
USAID	United States Agency for International Development
USSD	unstructured supplementary service data
UTM	Union Technique de la Mutualité Malienne
ZISSP	Zambia Integrated Systems Strengthening Program

I. EXECUTIVE SUMMARY

Mobile money enables funds to be deposited, transferred, and withdrawn electronically through mobile phone accounts.

Fueled by the success of Kenya's M-Pesa mobile payment platform, mobile money is a rapidly growing alternative to cash in developing countries. Whereas mobile money services have been launched in more than 70 countries with the majority of current deployments in sub-Saharan Africa, most have not yet reached significant scale. The United States Agency for International Development (USAID) is committed to accelerating adoption and uptake of mobile money based on its potential to increase financial inclusion, root out corruption, and provide economic benefits to communities. The USAID Global Health Finance and Governance (HFG) Project seeks to promote the use of mobile money specifically to strengthen health systems.

Mobile money provides unique opportunities in the health sector. It can be integrated into existing activities—replacing cash flows—to improve efficiency, accountability, and transparency in financial transactions. It also opens up potential to improve scalability of subsidy and incentive schemes and to expand access to financial services such as credit and savings.

This paper reviews current use cases and potential applications of mobile money in health, including (a) bulk payments for salaries and per diems, (b) conditional cash transfer and pay-for-performance schemes, (c) collection of health insurance premiums, and (d) management of voucher schemes, with the overall objective of bringing attention to the benefits and challenges of using mobile money in the health sector. The three detailed case studies included in appendix A represent some of the most documented examples of mobile money and health. Although the mobile money industry is continuing to grow rapidly, use cases in the health sector are limited. This small but promising collection of use cases is expected to expand as evidence that supports the potential benefits of mobile money in the health sector continues to grow.

Health programs are exploring uses of mobile money at three levels. At the **client level**, mobile money platforms are used to save and pay for services and to receive remittances to cover high out-of-pocket health costs. In Kenya, mobile money is commonly referred to as “emergency money”—funds provided by family or friends to obtain immediate medical treatment. Changamka is a health-savings platform in Kenya that allows users to earmark funds for specific services such as maternity care, thus increasing payment options to encourage antenatal care (ANC) and institutional deliveries.

At the **provider level**, electronic-payment platforms can save providers the time and expense needed to travel to cities to cash paychecks, and they can be used to facilitate timely payment of performance-based incentives. D-tree International increased safe deliveries in Tanzania through a mobile phone-based program that empowers traditional birth attendants (TBAs) to refer women with obstetric emergencies for delivery in health care facilities. Payments received through mobile money encourage future referrals and compensate the TBAs for lost income that they would have earned attending home births.

At the **program management level**, mobile money can improve operations by reducing the risks and costs of distributing cash payments for per diems at trainings. To improve management of its voucher scheme, Marie Stopes Madagascar automated its claims settlement process using mobile money to reimburse providers. The change resulted in increasing provider willingness to participate in the voucher scheme because using mobile money reduced delays in reimbursement.



Mobile money is increasingly being integrated into broader mobile phone–based health interventions (mHealth) that offer new opportunities for sustaining mHealth applications, which remain largely dependent on donor funding. Integrating mobile money and mHealth programs may be a way to generate new sources of revenue and to attract additional financing partners. In one innovative partnership, Tanzania mobile operator Tigo and microinsurance provider MicroEnsure teamed up to provide a mobile phone–based insurance product. Tigo provided free insurance premiums to its high-use network customers, thereby generating significant demand for the insurance products. Mobile financial products for health provide strong incentives for mobile network operators to use their vast marketing resources to promote service uptake because by doing so, they build customer loyalty and generate network use.

Just as mobile money applications can provide benefits to the health sector, the health sector can serve as a catalyst for mobile money by generating the demand necessary to sustain and to develop mobile money platforms. For example, health programs can also serve as “anchor clients” that provide guaranteed users who allow the mobile operator to expand the reach of its platform and to increase agent locations. As mobile money ecosystems continue to develop, opportunities provided to the health sector can also be expected to grow, but more research on applications is needed to better understand the potential mobile money brings to the health sector.

2. BACKGROUND

Mobile phones are one of the fastest-spreading technological innovations with an unprecedented rate of adoption. Between 2000 and 2010, mobile phone subscriptions in low- and middle-income countries increased by more than 1,500 percent, from 4 to 72 subscriptions per 100 inhabitants (World Bank 2012). As access to mobile phones expands in developing markets, money transfer systems based on mobile phone technology (mobile money) are being leveraged to tackle development challenges across many different sectors, including agriculture, education, health, and finance.

The USAID-funded Global Health Finance and Governance (HFG) Project is working with partner countries to increase domestic resources for health, to strengthen governance capacity, and to improve public health management. Designed to fundamentally strengthen health systems, the core objective of the HFG project is to improve health outcomes by expanding access to priority health services. Through HFG, USAID is supporting cross-cutting activities to strengthen health systems including promotion of mobile money to improve the efficiency, security, and transparency of financial transactions in the health sector. HFG's mobile money team is facilitating sharing of knowledge, best practices, and lessons learned in implementing mobile money solutions. The team collaborates frequently with mobile money partners, including [USAID's Mobile Solutions](#) team, and with implementing partners, including the [Better than Cash Alliance](#), country-level implementers, and program managers.

Commissioned by USAID's Africa Bureau, the aim of this paper is to introduce mobile money's potential in the health sector and to highlight innovations, trends, and opportunities for public health professionals, implementers, and partners. To gather information about promising applications, HFG conducted desk research and interviews with more than 30 stakeholders active in this area, including the World Bank Consultative Group to Assist the Poor (CGAP), International Labour Organization (ILO), Microinsurance Innovation Facility, the mHealth Alliance, NetHope, Groupe Spéciale Mobile Association (GSMA), the Bill and Melinda Gates Foundation, the Rockefeller Foundation, consultants, mobile operators, mobile money platform providers, and health programs using or contemplating using mobile money.

A key learning from these interviews is that while there is tremendous momentum around mobile money, little focus has been given to date on the intersection of mobile money and health systems. Mobile money is gaining recognition as a potential vehicle for improving access to services, but it remains largely under-utilized in the health sector. Throughout the paper, reference is made to three of the most documented mobile money use cases in the health sector: Marie Stopes's voucher management system, MicroEnsure's mobile insurance products, and D-tree's incentives for health workers. In addition to these case studies (see appendix A), a number of organizations are in the early phases of planning health-related mobile money applications. This paper highlights mobile money's potential in the health sector, drawing on both actual use cases and likely applications based on observed uses in other sectors. This paper sets the stage to invite discussion about use of mobile money applications in the health sector as well as to invite contributions to the growing collection of case studies. More in-depth reports will follow over the life of the HFG project as new evidence of mobile money's effect on health is generated.

The paper is presented in five sections. Section 1 is an executive summary. Section 2, or background, summarizes the paper's objectives. Section 3 defines mobile money and briefly provides background context for its use both broadly and in the health sector. Section 4 illustrates potential benefits and challenges of using mobile money in the health sector. Section 5 explores synergies between mHealth and mobile money. The final section draws early conclusions about the use of mobile money in health while pointing to the need for additional evidence to assess benefits to the health sector.

3. MOBILE MONEY IN CONTEXT

3.1 Mobile Phone Prevalence

In 2012, there were more than 3.2 billion mobile phone subscribers worldwide. There were over 6.7 billion mobile connections, which includes the multiple devices or subscriber identity module (SIM) cards, owned by many (Kearney and GSMA 2013). Five billion of the connections are standard second-generation (2G) technology, providing voice, messaging, and low-bandwidth data connections. In the Africa and Asia Pacific regions, mobile connections are predominately prepaid with 96 percent and 82 percent, respectively, functioning on pay-as-you-go rather than on contract connections. Prepaid business models allow individuals who may not have bank accounts or other documentation necessary for entering a contract to nevertheless have access to mobile phones.

Access to mobile phones has spread both economically, or down into the market—within the reach of many poor households—and geographically—available in rural areas where landlines and even electricity may not exist. This spread in access to mobile phones has unlocked opportunities to reach underserved populations by expanding access to services, including healthcare and financial services.

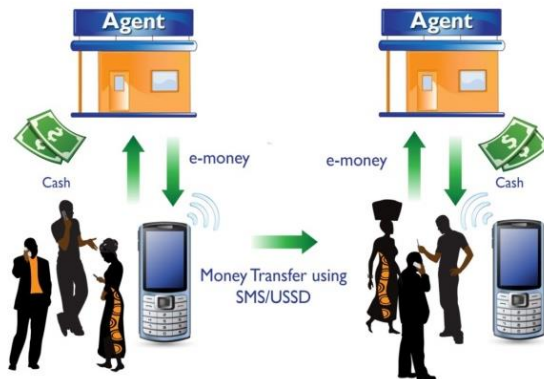
3.2 Mobile Money Overview

Mobile money systems vary across countries and between service providers (see box 3.1). The most common model establishes a network of agents—points at which users can convert between cash and e-money (see figure 3.1). Agents recruited as mobile money vendors often have other roles in the community, such as retail shop owners and airtime kiosk operators. E-money stored on a customer’s mobile account can be transferred by text messages to other users who, in turn, can store the funds in their accounts, transfer them, or cash out at an agent. Although the amount of money allowed in an account varies across systems, mobile money systems tend to be designed for smaller and more frequent transactions.

Box 3.1 Mobile Money Defined

“Mobile money” consists of financial transactions that are conducted using a mobile phone, where value is stored virtually (e-money) in an account associated with a SIM card. Individuals can deposit cash onto a mobile account, make transactions between accounts, and withdraw funds as cash. Mobile money transactions are compatible with basic phones and do not require Internet access.

Figure 3.1 A Typical Cash-In and Cash-Out Agent Network



Source: Authors

The most common types of mobile money transaction are person-to-person transactions. Kenya's M-Pesa mobile money platform achieved wide success with its "Send Money Home" marketing campaign, which was directed at income earners in urban areas with rural family members. As mobile money ecosystems grow, additional functions are often added. Other transaction types include consumer-to-business (e.g., paying a utility bill), business-to-business (e.g., settling supply costs), and government-to-consumer (e.g., social welfare payments). Health sector applications can be found in each of these categories.

As mobile phone-based financial systems develop, some grow from simple individual transactions to include more sophisticated finance and banking components. Mobile network operators have driven the growth of mobile money, including the first money transfer system—the widely popular M-Pesa program—which registered two-thirds of Kenya's adult population within five years of its 2007 launch (Buku and Meredith 2013). Mobile payment systems may also be led by banks or operated by third parties, with regulatory bodies in some countries requiring bank involvement to varying degrees. Bank-led or bank-partnered mobile money systems may allow for connection to an individual's bank account, adding function to both the bank and e-money accounts. Third-party platforms, such as bKash in Bangladesh, offer payment services on all mobile networks, helping widespread adoption of mobile money and lowering barriers to its use.

Safaricom's enormous success with M-Pesa in Kenya led the way for the launch of mobile money systems in numerous countries around the world. By October 2013, the GSMA Mobile Money for the Unbanked Deployment Tracker reported more than 200 live mobile money services and more than 100 planned deployments in developing countries around the world. Sub-Saharan Africa alone accounts for 53 percent of all live mobile money services, which are available in 36 of the 47 countries in the region (GSMA 2013). (See figure 3.2)

Figure 3.2 GSMA Map of Mobile Money Deployment in Africa



Source: GSMA: Mobile for Development Intelligence.

Mobile money services have been launched in more than 70 countries, with the majority of the current deployments in sub-Saharan Africa. In 2012, mobile money outlets outnumbered bank branches in at least 28 countries and in 40 countries that had at least two mobile money services. Although a substantial number of mobile money systems are in operation, the majority of the systems have not yet scaled to a level of Kenya's M-Pesa payment systems. In Kenya, a supportive regulatory environment, dominant mobile network operator, targeted marketing campaigns, extensive agent network, high levels of financial literacy, and a high demand for domestic transfer services are among the factors that have contributed to the rapid expansion of M-Pesa. Countries that have tried to emulate Kenya's payment system, but with less successful results, are now developing strategies to address country-specific factors. As the number, location, and size of mobile money systems continue to grow, so too will the opportunities for utilizing this new approach in the health sector.

4. MOBILE MONEY AND HEALTH: POTENTIAL BENEFITS AND CHALLENGES

Mobile money provides unique opportunities in the health sector. It can be used to replace cash flows, thus bringing efficiency to health programs by enhancing data, operations, and program management. Successful use of mobile money can increase opportunities for financial support, can scale up programs, and can pave the way for developing more complex programs that otherwise would not have been feasible. Box 4.1 lists a few examples of how mobile money is used in the health sector. Those examples are not necessarily specific to the health sector, but point more broadly to the efficiency, security, and transparency that mobile payment solutions can bring.

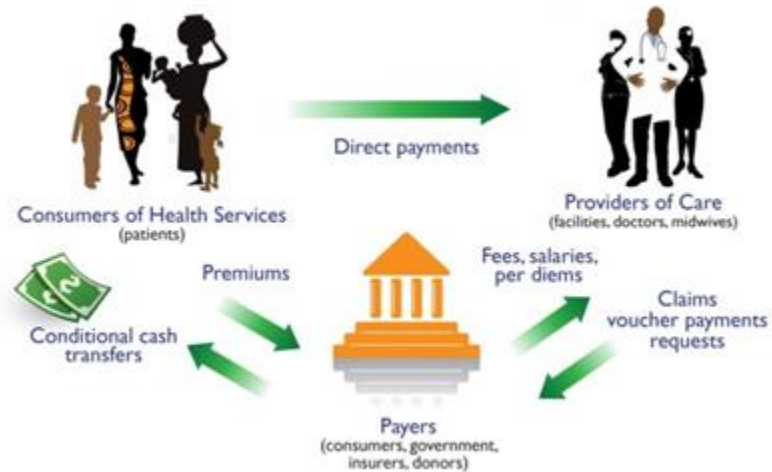
Health systems in developing countries rely on large volumes of cash transactions. This reliance on cash for financial transactions contributes to inefficiencies, enables leakage, and carries security risks. On the **patient side**, cash is often the means of payment for services at health facilities, for drugs at pharmacies, for health service vouchers and insurance premiums where available, and for the transport to treatment. On the **provider side**, cash is prevalent in transactions ranging from stock purchase, to allowances, and to voucher reimbursement. At the **program and country levels**, cash may be used for training per diems, among other applications. Thus, there are numerous points within the health sector at which mobile money can replace cash and enhance accountability, improve operational efficiency, and lower transaction costs, as demonstrated in Box 4.1.

Mobile money use in the health sector is still an emerging practice. Although increasing, the number of applications and pilot programs is still limited in size and scope. This paper highlights mobile money's potential in the health sector, drawing both on actual use cases and on likely applications that are based on observed uses in other sectors. The three detailed case studies presented in appendix A showcase the first wave of mobile money and health innovators, thereby highlighting challenges and successes and drawing lessons for others who are exploring mobile money in health to consider.

Box 4.1 Illustrative Uses of Mobile Money for Health

- ▶ Facilitates person-to-person transfers at scale, such as conditional cash transfer programs for dispersed populations to increase use of service
- ▶ Enables collection of funds from hard-to-reach locations, such as routine small payments for health insurance premiums
- ▶ Increases safety of health workforce by reducing need for cash transactions at clinics
- ▶ Allows for targeted and timely assistance in emergencies, such as taxi payments in the event of obstructed births
- ▶ Protects against catastrophic financial setbacks by offering enabling earmarked savings for health emergencies
- ▶ Provides permanent real-time records for bulk payments such as per diems or salaries

Figure 4.1 Financial Flows in a Health System



Source: authors

4.1 Mobile Money at the Client Level

Mobile money may increase access to health care in two ways. First, it can lower financial barriers by increasing access to funds at crucial times. High out-of-pocket health costs are a significant barrier to accessing health services in many countries. Safe and reliable financial services can play an important role in improving access to savings and credit and facilitating the transfer of remittances and emergency funds. In this way, the use of mobile money can lead to better financial management and, potentially, improved access to care. For example, when funds are needed for urgent care, individuals with access to mobile money can quickly receive transfers from remote friends and family. In Kenya, it is common to hear of mobile money referred to as “emergency money”—funds provided by family or friends to obtain immediate medical treatment (Haas and Nagarajan 2011). Providing conditional or direct aid through mobile money enables more accountable and secure transactions without the security risks of cash.

Second, mobile money can expand access to financial services such as insurance by facilitating premium collection and claims payments through mobile account-based enrollment in the insurance scheme. Mobile money payment platforms reduce transaction costs when compared to the prohibitive expense of face-to-face cash payments for routine premium collection. Mobile-enabled insurance services facilitate outreach and education, automate transactions processing, and expand access to insurance products for hard-to-reach populations.

New partnership models such as the one between mobile network provider Tigo and MicroEnsure, a non-governmental organization (NGO) that provides mass-market insurance products, have opened the way for design of an innovative microinsurance product that is being delivered on a large scale to Tigo clients in Tanzania and Ghana (Case Study 1 in appendix A). Claims are paid via a mobile money service, and the insurance premiums are deducted from the customer’s airtime balance. In effect, the airtime balance acts as an account that can be transformed back into funds to pay the premium. This method has enabled the service providers to secure premium payments even when users may not have sufficient funds in their accounts, thereby expanding the reach of insurance by leveraging consumer investments in airtime.

4.2 Mobile Money at the Provider Level

Inefficient mechanisms for disbursing salary payments, training fees, and financial incentives are particularly problematic for health workers in remote and hard-to-reach areas, and affect the motivation and performance of the workforce. Payments through mobile phones can save health workers the time and expense of traveling to nearby cities to find bank branches or payment centers to access their funds. Mobile money can be used to automatically pay salaries as well as to pay for additional incentives (rent, utilities, transportation) for rural health workers. This method of payment can decrease the administrative burden of cash payment as well as travel and security costs. It can also provide increased benefits for health workers as mobile payments may allow faster and more frequent distribution of funds.

Pay-for-performance schemes and financial incentives to improve health worker motivation, performance, and retention are widely used in health programs, but often face operational challenges. Mobile money services offer employers the ability to make payments to health workers that are timely and that can be audited.

D-tree International, a U.S.-based NGO, develops clinical decision-support tools on mobile devices to improve the quality of health care (Case Study 2 in appendix A). D-tree has integrated mobile money into its program to improve maternal and child health by increasing safe deliveries in Tanzania. In Zanzibar, women often deliver at home with the assistance of a traditional birth assistant (TBA). D-tree is training TBAs to screen women for high-risk conditions and obstetric emergencies using a mobile-enabled guide. TBAs refer and accompany mothers with high-risk complications to health facilities for delivery, and they provide at-home post-partum care. The attendant receives payment from D-tree via mobile money to encourage future referrals and as compensation for lost income that would have been earned attending home births. The mobile money channel is also used to fund emergency transport for the women to health facilities. D-tree has seen health facility deliveries increase from 30 to 70 percent among program beneficiaries.

4.3 Mobile Money at the Program Level

Mobile money improves transparency in cash systems and can reduce both actual as well as the appearance of financial impropriety. It also enables financial transactions to be independently verified and tracked and often lowers administrative burdens. Replacing cash transactions with electronic payments reduces the likelihood of leakage by decreasing the number of hands through which money passes. Use of mobile money for payment of workshop per diems and incidental expenses removes the financial logistics burden and any security risks that large volumes of cash may bring to the trainers. It also minimizes the number of hands through which cash is passed. In Tanzania, the NGO titled Pathfinder International transitioned from using cash payments in its programs to using mobile money at a national level after a successful pilot program. Pathfinder Tanzania has since brought mobile payments to program scale, and more than 20,000 transactions have been sent to program recipients, including community health workers, supervisors,

Box 4.2 Tools to Assess Cost Savings in Mobile Money Applications

NetHope, under a USAID cooperative agreement, has developed several tools to assess costs of mobile money applications at <http://solutionscenter.nethope.org/programs/payment-innovation>. The tools include a survey tool for organizations to map current use of cash and electronic payment methods in their program operations. A costing tool provides a reference guide for comparing costs (financial and nonfinancial) of using cash and electronic payments.

and even local government counterparts. USAID is supporting the development of tools for program managers to evaluate the financial and nonfinancial costs of using both cash and mobile payments in their programs (see box 4.2).

Electronic payment systems can also enable scalable innovations that would not otherwise be possible. Marie Stopes Madagascar (MSM, Case Study 3 in appendix A) integrated mobile money into its claims management system when it launched a new reproductive health voucher program in 2010. Service providers use text messaging to submit a unique voucher code with their claim, and receive payment from MSM via the clinic's choice of mobile money service providers (one of three major systems operating in the country). Using mobile phones to collect details of voucher redemption and to provide reimbursement to clinics has increased program efficiency. Service providers are reimbursed within a few days, rather than weeks or months. Overall, program management has been improved by data that are available immediately through the system. MSM anticipates a more general transition from paper-based systems to an electronic system for client receipt of voucher, client redemption, and provider reimbursement.

Mobile money may also provide program efficiencies and scalability in conditional cash transfer (CCT) programs. CCTs can be an effective means of increasing the use of health services and improving health outcomes (Cueto 2009). Pathfinder and government partners in Nigeria are exploring the use of mobile money as a channel to distribute CCTs to pregnant women to encourage antenatal care (ANC) and institutional delivery (Marion McNabb interview Sept. 2013).

4.4 Challenges in Mobile Money Use for Health

Mobile money services face a number of barriers to growth in many countries. The ability of health programs to use mobile money successfully will depend on how widespread mobile money is in a particular setting. Health applications in and of themselves will not ensure rapid penetration of the market, but health programs may play a role in addressing those challenges. Most important, health institutions using mobile money can serve as an anchor client with a trusted role in society that can vouch for the benefits of a new financial medium. A few of these challenges and the role that the health sector can play in addressing them are highlighted here. In addition, key lessons are shown in box 4.3.

- **Users may not understand how to use mobile money or its potential benefits.** Health programs can work with the mobile operators to encourage mutually beneficial client education. Program staff members may resist the transition to using unfamiliar services to access their hard-earned money. Trust and operational knowledge are needed, as well as support to handle questions and issues as they arise.
- **Network of mobile money agents—the cash-in and cash-out points—may not be extensive enough or available in the areas in which a program would like to work.** Additionally, available agent locations may not all belong to the same mobile money platform. Programs should stay open to working with more than one operator. Mobile operators are looking for growth in their systems, and, to the extent that the health sector can provide a reliable client in an area, additional agent locations may be put in place. Frontline health workers may also play a role in cross-training as mobile money agents, potentially providing an incentive for them to work in remote areas.
- **Fragmented mobile money systems may make it difficult to transfer money from one payment platform to another.** Lack of interoperability between platforms can limit value of the service and increase transaction fees. For example, having parallel agent networks can duplicate operating costs. Such issues must be addressed at the policy level, along with other mobile money regulations that balance the need for consumer protection with services that are easy to use. Health

sector institutions and donors can advocate for policies to promote economic transactions, especially in rural areas without access to banking resources.

- **Transaction fees charged by mobile network operators can serve as a barrier to mobile money use.** Fees charged for mobile money transactions vary by operator and often by the size of the transactions. Moreover, systems that do work together may charge higher transaction fees for transfers made to other mobile money platforms. Health programs may choose to cover the costs of transaction fees for recipients and to help educate clients about fees that may be charged.

Box 4.3 Key Lessons Learned in Implementing Mobile Money for Health

Strong Partnerships—D-tree’s experience in Tanzania (see Case Study 2 in appendix A) reinforces the importance of strong partnerships between program stakeholders. In collaboration with Zantel—the mobile money partner—D-tree delivered training on mobile money to traditional birth attendants. The organizations collaborated with the health facilities and communities to encourage local ownership and buy-in to the program. D-tree chose its mobile partners by their availability and location of agents to serve as cash-out points, by their negotiation of transaction fees, and by their comprehensiveness and how easy it was to use their back-end systems to support program needs.

Plan for Adjustments during Rollout—Originally, Marie Stopes Madagascar (MSM) intended to work with only one mobile operating partner to implement its reproductive health voucher program (see Case Study 3 in appendix A). However, because of the location of mobile money agents and their service providers, MSM found it necessary to work with all mobile network operators in Madagascar to ensure that accessible cash-out options were in place for their health service providers. Whereas getting the system up and running smoothly was a challenge at the onset, Marie Stopes International is now actively looking to build on the success of the voucher program and exploring the possibility of using mobile money to replace cash flows in its other programs.



5. MOBILE MONEY RELEVANCE TO MHEALTH

The use of mobile money in health programs is emerging as a subset of the broader category of mobile phone-based health interventions (mHealth) applications. Integration of mobile payment platforms can provide new revenue opportunities and potential partnerships to sustain mHealth interventions. mHealth covers a broad range of applications using mobile technologies to improve health outcomes (Labrique et al. 2013). Categories of mHealth include the following:

- Direct consumer services to improve access to health care, such as appointment reminders, awareness messages, personalized health information, behavior change communications, help lines, medication alerts, and resource databases
- Healthcare provider tools to improve quality of care, such as point-of-care decision support, remote consultation and supervision, peer support groups, case management software, job aids, and other training resources
- Program management applications, including registries and vital events tracking, electronic medical records, disease surveillance, data collection and analysis, and supply tracking systems to improve decision-making

Sustaining and scaling those applications has been a challenge, and most interventions remain dependent on donor funding (mHealth Alliance, 2013). The integration of mobile payments into other mobile financial services provides the potential to address the barriers to sustainable business models. Mobile money may help sustain mHealth interventions through a number of pathways including bundling services, engaging new partners, and sharing registration costs.

5.1 Subsidizing Information Services with Financial Transaction Revenues

One barrier to mHealth sustainability is the challenge of monetizing digital information, even in developed countries. In a recent study of more than a dozen commercial enterprises in Africa using mobile technology to serve the poor, only Kenya's M-Pesa mobile money service was found to be profitable (Cooper 2013). The authors note that it is rarely possible to recoup the full cost of selling information and that business models are needed to combine intangible services such as health advice (which is difficult to sell) with more concrete and immediate inputs (that people are willing to pay for). By packaging health information services with mobile financial services such as credit or insurance, the financial transactions for which consumers may be willing to pay can help to subsidize service provided through mHealth applications.

Kenya's Changamka (www.Changamka.co.ke) service offers various mobile savings accounts earmarked for outpatient and maternity care including health facility-based delivery. Subscribers use the accounts to plan, save, and pay for health care through private earmarked mobile accounts with secure ability to track deposits and payouts. Subscriber benefits include discounted prices and predictable service fees at participating providers, and providers benefit from more reliable settlement of accounts. Those and similar mobile savings accounts provide an opportunity to leverage communications channels that confirm transactions and health account balances to send health content as well. Service providers such as Changamka would financially benefit from subsidizing health advisory content to the degree that such services increase the motivation of subscribers to save through the mobile financial platform. Bundling

financial and information services would provide substantial economies of scale in formative research, marketing, registration, and billing.

In addition, acceptability of modest user fees for health information may be greater if combined with mobile savings accounts. Consumers who regularly store, transmit, and withdraw funds on their phones may be more likely to use their accounts for telemedicine services, mobile health games, or other premium mHealth applications. Mobile financial services may also facilitate the collection of mobile numbers from beneficiaries to target for health information services.

5.2 Attracting New Corporate Sector Partners

Because mobile money has the potential to accelerate commercial activity generally, it is more likely to attract private sector investment. This is demonstrated by the rapid growth in mobile money services throughout sub-Saharan Africa. Mobile operators charge small transaction fees for transmitting and withdrawing funds from mobile money accounts. Because mobile money services provide higher likelihood of profitability than health information services, mobile operators are more likely to subsidize health information services that increase the use of mobile money. Using the mobile savings account as an example, a mobile money provider would have the incentive to bundle appointment reminders or medication adherence messages to stimulate regular savings and use of the mobile money account. This motivation is different from mobile operator discounts for mHealth airtime under corporate social responsibility programs because mobile money use affects their bottom line.

The MicroEnsure–Tigo partnership (see appendix A) illustrates this dynamic. As discussed earlier, MicroEnsure introduced a mobile-based health insurance product through which subscribers registered on their phones. They paid their premiums and received their claims through mobile money accounts. Tigo provided free insurance premiums to its high-use network customers, thus generating significant demand for the insurance products. Those rewards provided mutual benefits to the operator: the rewards built customer loyalty among the most valued customers and generated additional network use by adding the mobile insurance transactions, thus covering the costs of the free subsidies. Similar motivations do not exist for mHealth information services, which may be offered free to users and subsidized by donors, government, or corporate philanthropy. Mobile financial products for health provide strong incentives for operators to use their vast marketing resources to promote service uptake.

5.3 Sharing Agent Networks

Community health workers (CHW) play a critical role in the delivery of health services. They are trusted members of the community, often serving as the first point of contact within the health care system. Whereas CHW functions are diverse and depend on country settings, typical duties often include (a) education and awareness building; (b) detection and referral of complicated health cases; and (c) data collection for client registration, case management, and disease surveillance.

Similarly, mobile money agents are also a type of frontline worker—the face of mobile network operators—serving as the first point of contact for financial transactions among the poor and unbanked populations. In the agents' roles as primary cash-in and cash-out points, they develop a clear understanding of customer preferences, are called upon for financial advice, and must become trusted members of the community. A major barrier to mobile money uptake is the lack of a well-trained agent network to serve and address the financial needs of the community, with the greatest effects felt in remote areas. One way to address this challenge is to explore synergies between CHWs and mobile money agents, thereby leveraging the trust they have built in communities as frontline workers. Training

CHWs to serve as “last mile” mobile money agents in hard-to-reach areas could extend the reach of both health services and mobile money.

In addition to a shortage of mobile money agents, rural areas also face critical shortages of health workers. Burdened with high case loads and inadequate training, CHWs may resist mobile data collection tools because the tools are perceived as increasing their workload for minimum reward. By expanding their role to include mobile money transactions, CHWs gain potential to earn revenue as a mobile money agent and can receive immediate financial incentives for surveillance and data collection responsibilities. Use cases have not surfaced yet, but several health programs are considering pilots. The additional revenue potential could be used to incentivize health workers to take up posts in remote areas. CHWs who are trained as mobile money agents would be well positioned to educate clients about the benefits of expanded access to financial services, including paying for emergency transportation to health services or enrolling in insurance. Some health programs are beginning to explore the challenges and benefits of this approach, which has potential to improve financial and health access among the hard-to-reach populations.

6. CONCLUSIONS

Mobile money is a rapidly growing alternative to cash transactions in developing countries. Health systems and mobile money are well positioned for mutual benefit.

Moreover, mobile money in health is a growing subset of mHealth applications. It provides new opportunities for revenue and potential partners to sustain and expand mHealth interventions. The health sector can serve as a catalyst for mobile money, thus generating demand necessary to sustain and to develop mobile money platforms. Health programs can also serve as anchor clients—guaranteed users that allow the mobile operator to expand the reach of its platform and increase agent locations. The three detailed case studies included in this paper illustrate just a few of the current health-sector uses of mobile money. As mobile money ecosystems continue to develop, opportunities provided to the health sector can also be expected to grow, but more research is needed to better understand the potential that mobile money brings to the health sector.

Research conducted to date on the use of mobile money has focused primarily on how it is used by the poor and on the potential economic development and financial inclusion benefits. As mobile money becomes more widely adopted in the health sector, research is needed to evaluate mobile money benefits for health. Strong evidence and in-depth documentation of experiences will increase awareness of the value of mobile payment systems to the health sector, will reduce start-up hurdles, and will open the door for more partnerships and greater innovation.

Specifically, additional evidence is needed to assess the following:

- The extent to which mobile money use increases uptake of health services, expands access to services for the poor, increases provider productivity, and improves health program financial management
- Cost savings, operational efficiencies, or reduced leakage that are realized through adoption of mobile money in health programs (see box 4.2) for a description of a few tools that have been developed to address questions around cost savings)

Finally, although mobile money use in the health sector is still an emerging practice and evidence demonstrating benefits to the health sector is limited, innovative applications, including the ones reviewed in this paper, are helping to showcase mobile money's potential as a vehicle for improving access, quality, and affordability of health services for the poor.

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APPENDIX A. CASE STUDIES

Through a desk review and over 30 interviews with key experts and stakeholders implementing mobile money solutions in health programs, the Health Finance and Governance (HFG) Mobile Money activity has identified **13 active mobile money applications in the health sector**, described in the table below. The HFG Mobile Money Activity is documenting best practices and innovations to build the evidence base on this topic. The three case studies included in this Annex are pioneers in mobile money and health and represent some of the most documented interventions that have rapidly achieved scale. The HFG Mobile Money Activity will continue to build on this collection of case studies as more is learned about other health programs that are using mobile money

The HFG mobile money team has identified 10 additional programs that are currently in the conceptual or pilot phase of developing mobile money payment applications in the health sector. This demonstrates that mobile money use in the health sector is new and emerging, and it is gaining recognition as a potential vehicle for improving access to services.

Table A.1: Identified Use Cases of Mobile Money in Health

BayadLoad (Philippines)

In July 2013, the Philippines launched a Government to Person (G2P) e-payment program, BayadLoad, that allows users to pay for government social benefits, including the national social security system and the national health insurance scheme, PhilHealth. BayadLoad facilitates subscriptions and contribution collection for more than 10 million people in the informal sector and who are likely to be unbanked. BayadLoad partners with three telecom companies – Smart, Talk-‘N Text, and SunCellular – and allows users to send payments free of charge. BayadLoad has been launched within two government agencies (housing and health) and is in its early stages of implementation.

<http://www.cgap.org/blog/innovation-person-government-payments-philippines>

CCBRT Fistula program/Freedom from fistula (Tanzania and Kenya)

Freedom from fistula (FFF) works with several of Kenya’s largest tertiary hospitals to delivery free fistula treatment. Through its work, FFF identified that transport costs present a financial access barrier that often delays or prevents women from seeking care, thereby placing women at risk and complicating fistula care. In order to improve timely access to care, FFF partnered with M-Pesa to send patients money for emergency transport. From July 2009 – November 2010, FFF sent more than \$2,300 via mobile payments for transport costs for the 230 women for whom they paid for fistula care.

http://www.fistulacare.org/pages/pdf/technical-briefs/mobile_phone_brief_updated4.5.2011.pdf

Changamka (Kenya)

A lack of a safe, cost-effective way of saving money over times makes it difficult for the poor to accumulate funds for health expenses, even for expected medical costs such as maternity and delivery care. Changamka Microhealth Limited in Kenya offers clients who may not have access to traditional banking platforms, a convenient mobile phone-based savings account to save money for outpatient or maternal health services. Payments for health services are made electronically using pre-determined price-contracted packages. Customers can add cash value to their savings accounts in small amounts over time and can transfer funds by phone to family and friends, thereby allowing customers to set aside funds incrementally for sickness or maternity care.

<http://changamka.co.ke/>

D-tree International (Tanzania)

D-tree International is a non-profit organization committed to improving the quality of healthcare with the use of innovative technology. D-tree established a program in Zanzibar, Tanzania to help frontline community health workers provide high quality maternal health care and adequately refer women with high-risk conditions and obstetric emergencies to health facilities. D-tree uses mobile money to pay traditional birth attendants (TBAs) payments to incentivize timely and appropriate referrals. D-tree also uses mobile money payments to send payments to TBAs to cover costs for emergency transport.

<http://www.d-tree.org/>

Linda Jamii (Kenya)

In 2013, Linda Jamii was launched in Kenya to provide an affordable health insurance option. It provides comprehensive coverage for inpatient and outpatient services, as well as some dental and optical services. Benefits coverage includes a hospitalization income replacement benefit as well as funeral costs, should a beneficiary pass away. Linda Jamii was developed as a partnership between Britam, Safaricom, and Population Services International. Those organizations partnered with Changamka and M-Pesa to create a mobile-based platform for clients to register and make incremental payments toward the annual premium (K Sh12, 000 per family).

<http://www.lindajamii.co.ke/>

Marie Stopes Madagascar (Madagascar)

In 2010, Marie Stopes Madagascar (MSM) launched a voucher program with support from USAID to subsidize care for family planning services, with a particular focus on reaching poor women in areas in remote and hard-to-reach areas. The program aims to help Madagascar reach its national target to increase access to reproductive health services and the use of contraceptives among women – particularly among the poor – by reducing financial access barrier to care. MSM partners with the three largest mobile phone operators in Madagascar - Telma, Orange, and Airtel- to offer mobile payment solutions for voucher claims reimbursements, which enables sending timely payments to health providers in hard-to-reach rural and urban areas of Madagascar.

<http://www.mariestopes.mg/>

MicroEnsure (Tanzania)

MicroEnsure is a social business that designs and delivers high-impact insurance products to provide financial risk-protection for poor and underserved populations. In October 2012, MicroEnsure and its partners, Tigo, Bima and Golden Crescent, piloted a health insurance product, “Pona na Tigo Bima” (Get Well with Tigo Insurance), which offers life insurance and cash for inpatient hospital care at a defined network of private and public hospitals. The product offers six tiers of life and hospitalization coverage based on the premium level (between \$0.45-\$6.00), which are paid via three monthly installments, deducted from the customer’s airtime balance. Clients receive hospital cash via Tigo’s mobile money service, “Tigo Cash.” Initially launched in Dar es Salaam, within the first year, tens of thousands of memberships were sold and the company expanded to other regions in Tanzania, making it the fastest-growing health insurance product in East Africa over the past year.

<http://www.microensure.com/>

Mutuelles (Mali)

In 2011, the Union Technique de la Mutualité Malienne (UTM) approached Orange, a leading telecom provider in Mali, to develop a mobile money solution for Mutuelle members to submit premium contributions via mobile phone. Over the course of one year, they UTM and Orange established a partnership and designed a pilot for Mutuelle members to pay incremental premium contributions. A key feature of this partnership is that Orange trained UTM staff to serve as agents to enroll their beneficiaries into Orange's mobile money program and established a server where UTM staff can directly register their members for their mobile money transfer system and to facilitate data transfer between programs. This program is in early phases of implementation.

For more information, please contact Cheickna Toure (cheickna.toure@yahoo.fr)

National Health Insurance Fund (Kenya)

The National Hospital Insurance Fund (NHIF) is the primary provider of health insurance in Kenya with a mandate to enable all Kenyans to access quality and affordable health services. With the aim of increasing coverage to informal populations, the NHIF forged a partnership with Safaricom and uses the M-Pesa program to collect premium collections via mobile phones.

<http://www.nhif.or.ke/healthinsurance/>

Pathfinder International (Tanzania)

Pathfinder International is a global NGO that delivers reproductive, maternal and child health care services in more than 100 countries. Pathfinder currently uses the M-Pesa platform to pay community health workers using mobile money in eight regions of Tanzania. Within 18 months of the launch of mobile money, Pathfinder had phased out all cash payments to its community health workers and had made more than 1.8 million mobile payment transactions.

<http://www.pathfinder.org/our-work/where-we-work/tanzania/>

Sheikhpura's District Health Society (India)

The National Rural Health Mission of India pays performance based incentives to India's community health workers in rural communities via mobile money. The program was piloted in January 2011 in the Shiekpura district of Bihar State, India, led by the Norway India Partnership Initiative (NIPI), in partnership with the Sheikpura District Health Society, the State Bank of India based in Patna, and Eko Financial Services—a branchless-banking social enterprise in India.

http://microsave.net/sites/default/files/Eko_Asha_Review.pdf

Stop TB partnership (Pakistan)

In partnership with the Stop TB Partnership and Interactive Research and Development, the Indus hospital in India developed a mobile-money incentive scheme for data on directly-observed treatment for tuberculosis (TB). The program provides cash incentives to community members, patients, and doctors for referring suspected cases of TB for testing and for supporting patient adherence to treatment.

http://whqlibdoc.who.int/publications/2012/9789241564465_eng.pdf

Zambia Integrated Systems Strengthening Program (Zambia)

The USAID-funded Zambia Integrated Systems Strengthening Program (ZISSP) works with Zambia's National Malaria Control Center and hires hundreds of spray operators to treat homes in rural and poor urban areas. To improve operations and reduce the risk of large cash transactions, in 2012 ZISSP piloted mobile money payments to cover salaries, allowances, per diem payments, and other expenses for spray operators and project staff. ZISSP pays spray operators their salary and per diems on a weekly basis through Mobile Payment Solution Ltd., a Zambian company specializing in financial transactions, in partnership with Airtel, a mobile phone operator. The MPS system allows for SMS based mobile payments to be sent to recipient mobile phones.

<http://www.akrosresearch.com/AboutUs/Projects/ZISSP.html>

CASE STUDY I: MICROENSURE

Background

MicroEnsure is a social business that designs and delivers high-impact insurance products to provide financial risk-protection for poor and underserved populations. As of June 2013, the company covered more than 4.5 million clients across 13 countries in Africa and Asia, oftentimes partnering with private and not-for-profit sectors to deliver insurance products to mass-market consumers.

In May 2010, MicroEnsure partnered with **Tigo**, a mobile network provider, to develop a life insurance product (that MicroEnsure named, “Family Care”) for the network’s subscribers in Ghana (see box A.1.1). The partnership quickly expanded to Tanzania and Senegal, reaching one million lives insured within 14 months of the formal launch in January 2011. MicroEnsure’s efforts to build awareness about the value of insurance among its rapidly expanding client network helped to create ambassadors life insurance, thereby setting the stage for *health* insurance. Following the rapid success of the Family Care Insurance Plan, Tigo Tanzania asked MicroEnsure to design a micro-insurance health product for its subscribers. In October 2012, MicroEnsure and its partners, Tigo, Bima and Golden Crescent, piloted a health insurance product, “Pona na Tigo Bima” (Get Well with Tigo Insurance), which offers life insurance and cash for inpatient hospital care at a defined network of private and public hospitals.

The product offers six tiers of life and hospitalization coverage based on the premium level (between US\$0.45 and US\$6.00), which are paid via three monthly installments that are deducted from the customer’s airtime balance. Clients receive hospital cash via Tigo’s mobile money service, “Tigo Cash.” Initially launched in Dar es Salaam, within the first year, tens of thousands of memberships were sold and the product was expanded to other regions in Tanzania, making it the fastest-growing health insurance product in East Africa over the past year.

Mobile Money

MicroEnsure uses mobile money transfers for claims payments. With Tigo Cash, they can pay claims to subscribers within minutes of claims submission and anywhere in Tanzania. By switching from paper to mobile claims payments, MicroEnsure reduced claims processing time from 11.0 to 3.2 days (a number that is expected to be further reduced over time). Claimants were surprisingly willing to register for mobile money payments and expressed interest in learning about the details of the payment process, and the timely and reliable nature of the payment has built client trust in both mobile payments and MicroEnsure’s health product.

Type of program: mobile phone-based claims payments

Date launched: 2001

Stage: scale up

Size: N/A

Countries: Kenya, Tanzania, Ghana

Key partners (in Tanzania): Tigo, Bima, Golden Crescent

Box A.1.1 MicroEnsure–Tigo Partnership

MicroEnsure designed the insurance product and the processes to manage and deliver it to consumers. On a day-to-day basis, they perform overall administration and oversight for the insurance product, including claims processing and customer service.

Tigo distributes the product and manages the technology side of delivering the insurance product to clients. Tigo works with **Bima**, a Swedish company that provides the technical platform for enrollment and that trains and manages the network of sales agents. Tigo also partners with **Golden Crescent**, a local licensed insurer that underwrites the product.

Lessons Learned

- **Establish strategic partnerships.** An essential part of establishing a successful partnership between MicroEnsure and Tigo was to clearly define the role and responsibilities of each partner. This clarity ensured that all parties agreed from the outset and benefited from the partnership arrangement.
- **Training sales agents about health product and mobile money.** MicroEnsure and its partners use a network of sales agents to educate consumers about the “Pona na Tigo Bima” program. MicroEnsure provides one-day training to all sales agents that covers both the insurance and mobile payment components of the program. MicroEnsure conducted agent trainings for the first two years of the program; today, Bima trains and manages the agent network using a variety of approaches to deploy agents, including placing agents in Tigo shops and working with call centers.
- **Design payment mechanisms for users.** Although MicroEnsure explored the possibility of using mobile phone payments for premium payments, mobile money utilization in Tanzania is still too infrequent to secure regular premiums. The company opted to use automated premium deductions (via airtime) to make premium contributions as convenient as possible for clients. Tigo clients are willing to pay for health insurance, but they face difficulties in paying standalone payments on a monthly basis – just as other mass-market consumers do. By bundling health insurance in a package of Tigo services and automatically deducting premiums, MicroEnsure established a convenient payment mechanism for its clients that ensure regular and timely contributions for premiums.

Challenges

- **Low utilization rates for mobile money.** Whereas MicroEnsure is interested in expanding its use of mobile money to other areas (e.g. premium payments), low utilization rates for mobile money in Tanzania limit opportunities for mobile payments. Mobile money potential continues to increase as familiarity grows across Tanzania, and more widely across the continent.
- **Education of clients about health insurance.** MicroEnsure and its partners intended to launch a product that was easy to understand and operate, such as its life insurance products; however, health insurance has proven to be more challenging product for clients to understand than life insurance products. The company is continuing to address this challenge in its product development, messaging and underwriting work.

Looking Forward

MicroEnsure has established itself as a clear leader in the rapidly-growing field of mobile insurance, including health. Over the next few months, MicroEnsure plans to launch new products to extend financial protection and deliver high-quality insurance coverage using mobile money payments to new markets. MicroEnsure aims to continue to build consumer trust both in insurance and in the use of mobile money as it extends the reach of its products to new populations.

Sources

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- <http://www.microensure.com/>
- <http://www.tigo.com.gh/tigo-cash/tigo-cash-3-easy-steps>

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Twitter: [@microensure](https://twitter.com/microensure)

Facebook: www.facebook.com/microensure

CASE STUDY 2: D-TREE INTERNATIONAL

Background

D-tree International is a non-profit organization committed to improving the quality of healthcare with the use of innovative technology. D-tree established a program in Zanzibar, Tanzania to help frontline community health workers provide high quality maternal health care and adequately refer women with high-risk conditions and obstetric emergencies to health facilities. The program currently has 208 trained traditional birth attendants (TBAs) and community health workers (CHWs) who serve a network of 4,500 women who have enrolled in the program.

TBAs in Zanzibar are typically paid to assist deliveries. It is therefore a financial disincentive for TBAs to refer their patients to health facilities, since this represents a loss of income.

Mobile Money

In November 2011, D-tree was awarded a grant through Grand Challenges Round I and launched a program in Zanzibar that offers mobile-enabled clinical guides to TBAs to help them treat women and identify women who should be referred to health facilities. D-tree also forged a partnership with Zantel, the largest mobile phone operator in Zanzibar, and Etisalat to incorporate an SMS-mobile money payment system into the program. Phase II started with a Round II grant in late 2012.

The mobile money payment system used by D-tree incentivizes timely and appropriate referrals. TBAs conduct home visits, screen each pregnant woman for risk factors and danger signs, identify need for referrals and accompany the woman to the health facility, and provide follow-up care for both mother and baby after delivery. D-tree uses mobile money so the TBAs are able to make prompt payment for transport for the woman to deliver in a health facility or in case of any complications for both mother and baby that require medical attention. Transfers are made from the TBAs' mobile money accounts to the drivers' accounts at pre-negotiated rates to the appropriate facility, costing an average of US\$30USD per referral. After the TBA's last follow-up visit to the family, D-tree pays each TBA US\$6 per facility delivery through mobile money as well.

As of October 2013, more than 1,720 financial transactions had been sent to TBAs to pay incentives. For emergency transport, the program performed 781 transfers from D-tree to TBAs for transport, while TBAs made more than 3,000 payments to drivers for transport to health facilities. The use of mobile money in the D-tree enables rapid referrals and contributes to increased rates of institutional deliveries among program beneficiaries, and reduced administrative costs and improved accountability and oversight for program administration.

Use of mobile money: payment of incentives to TBAs and emergency transport costs for pregnant and post-partum women

Date launched: November 2011

Scale: scale-up

Size: 208 TBAs, expected 350-400 by end of 2014

Country: Tanzania

Area of the country: Zanzibar

Funding: The Bill and Melinda Gates Foundation Grand Challenges Round I and Round 2

Key partners: The Bill and Melinda Gates Foundation, Zantel, Etisalat

Lessons Learned

- **Establish strong partnerships with local actors.** D-tree invested in building relationships with the Ministry of Health, district health officials, and local health institutions to ensure buy-in and local ownership of the program. D-tree worked with local health facilities and district staff to identify and establish a network of car owners to provide emergency transport services for the program at fair rates. D-tree also met with village leaders to sensitize them about the project and the importance of facility delivery for the women in their community.
- **Provide adequate training and follow up for mobile money.** D-tree provides a comprehensive training not only on the decision support application, but on the use of mobile money. The initial training covers basic functions of mobile money (e.g. typing letters into phones, remembering passwords, conducting transactions, and checking balances). In the subsequent months, D-tree follows up with newly trained TBAs and monitors their use of mobile payments to ensure that they have a strong understanding of the mobile payment system. This training and oversight process is essential to ensure that the TBAs have a strong enough understanding of how to transfer mobile money transfer so they can complete mobile-based payment while managing complicated emergencies.
- **Offer a cash payment option for community health workers.** There is a strong “cash culture” in Tanzania, and some TBAs initially took time to become accustomed to using mobile money instead of cash. However, in the 2 years since the initial project launched, D-tree has seen this issue disappear and the drivers and TBAs have been very comfortable using mobile money.
- **Building an agent network.** D-tree uses Zantel’s agent network, which is spread across the country, to allow drivers to cash their money out. When working with an agent network, it is important for the program to verify that all the listed agent locations are fully operational to ensure that the coverage of the agent network meets the programs’ needs. This is particularly important in rural areas, where there tend to be fewer agents, and so it is important to work with the mobile provider to ensure they can bring pay points where you need them.

Challenges

- **Integrating mobile payments with existing information technology (IT) systems.** D-tree initially had to manually reconcile its payments to TBAs using combined information from the network provider on D-tree’s corporate mobile money account and the referral forms from the phone application that showed what the TBAs should spend on each referral. This was a challenging and tedious administrative task because D-tree could only see payments sent to TBAs—not from TBAs to drivers. In 2013, D-tree established a web-based platform that synthesizes payment information in one place, thus providing a running balance for each TBA through an automated system, but with the added ability to manually edit payments if needed. It also flags duplicates, incorrect payments, and low balances so that D-tree can better control the flow of money and track the referral activity for each TBA.
- **Measuring impact specifically of mobile money.** The benefits and impacts of mobile money are difficult to quantify and to isolate from other program effects. In the case of D-tree, this difficulty is partly because mobile money consists of a bundled package of services. The costs of not using mobile money, however, would be very significant and would include costs for staff time, vehicle rental, and fuel to arrange visits to complete payment in-person for 1,000 transactions a month (at current scale) or 1,800 transactions a month (at the full expected scale). There is also a security risk associated with cash-payments that is eliminated with the use of mobile money.

Looking Forward

D-tree is successfully scaling up the use of mobile money as it expands its program. Currently, 208 TBAs are enrolled in the program, as well as 32 Community Health Workers using the same application, and this project will scale up to 350-400 users by the end of 2014. Because of the success of using mobile money in Tanzania, D-tree is seeking other opportunities to phase out cash in its programs and eliminate financial barriers to healthcare.

Sources

- <http://www.globalgiving.org/projects/safedelivery/>
- Interview with Steve Ollis, Chief Operating Officer, D-tree International. October 2013. (+1.410.443.3916, sollis@d-tree.org)

For information about D-tree International:

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CASE STUDY 3: MARIE STOPES INTERNATIONAL

Program Overview

Marie Stopes International (MSI) is a non-profit organization that is one of the leading providers of reproductive health services in the world. In 2010, **Marie Stopes Madagascar (MSM)** launched a voucher program to subsidize care for family planning services, with a particular focus on reaching poor women in remote and hard-to-reach areas. The program aims to help Madagascar reach its national target to increase access to reproductive health services and use of contraceptives among women – particularly among the poor – by reducing financial access barriers to care. MSM offers reproductive health vouchers to prospective clients through community-based delivery channels for about \$US.10USD. Each voucher has a unique code and can be redeemed at one of 118 different health facilities in 12 regions of Madagascar, in exchange for reproductive and contraceptive health care services.

Use of mobile money: voucher claims management

Date launched: 2010

Scale: Fully operational

Size: provider network of 150 facilities of which 118 are accredited to voucher program

Areas of the country: 12 regions of Madagascar

Key partners: Mobile operators (Telma, Orange, and Airtel)

The number of vouchers sold in the MSM program has increased at an impressive rate; more than 37,000 vouchers have been sold since the start of the program, and this number continues to grow. The high number of vouchers sold represents increased access to family planning services for poor women in Madagascar, which is the main objective of the MSM voucher program.

Mobile Money

MSM integrated a mobile money system in an effort to improve the efficiency of voucher management to reduce barriers to accessing family planning (FP) and further increase availability of voluntary FP across Madagascar, as well as reducing inefficiencies and risks associated with reimbursing providers with cash payments in both urban and hard-to-reach rural areas of Madagascar. Support for developing a mobile money platform for MSM's voucher reimbursement scheme initially came from USAID as part of the Strengthening Health Outcomes through the Private Sector project, followed by funding from Strengthening International Family Planning Organizations.

MSM partners with the three largest mobile phone operators in Madagascar —Telma, Orange, and Airtel—all of which have SMS-based money transfer systems and a network of mobile money agents in kiosks across the country. Health facilities register to receive and send payments with the mobile phone operator of their choice. They can then receive cash payments through their phones, and “cash out” at local kiosks the mobile network provider's agent network. When a client comes to the social franchise with a voucher, the provider counsels the client on a range of voluntary FP methods. If the client chooses to take up a method, they are provided with the method of their choice free of charge and the provider then sends in the voucher code to MSI where MSI validates it and sends a reimbursement back to the provider via SMS. To submit claims, the providers send a unique voucher code with each claim by text message and receive the reimbursement by mobile phone payment.

From a programmatic perspective, MSM has experienced improved financial and administrative efficiency due to the availability of real-time data on service provision and redemption through the mobile money

program, ultimately making more resources available for other activities. The use of mobile money in this program also provides access to current data on service provision (number and type of service), which has been very helpful for overall program management. Mobile money has also contributed to improved service delivery among providers. Service providers are reimbursed within a few days, instead of weeks or months, and their satisfaction with rapid and direct claims reimbursements has increased their motivation to comply with quality checklists around counseling and service provision in order to increase their client base.

Lessons Learned

- **Invest in program start-up.** Some key challenges faced by MSM with its use of mobile money came when setting up the payment system, fixing “bugs,” and ensuring that the SMS-based payment system was fully functioning. MSM invested time in the initial startup phase of the project and scaled up the use of mobile money slowly and systematically in order to address operational and technical issues as they arose.
- **Working with donors:** There was strong donor support for the mobile money component, to improve the operations of the MSM program which ensured voluntary and informed choice for a broad range of FP methods and appropriate care to meet reproductive health needs.
- **Ensuring timely payments to obtain buy-in from users:** The MSM accredited social franchise network providers were already familiar with FP voucher reimbursements, so the integration of mobile money only changed the payment system for the program. Providers were familiar with mobile money transactions and were very eager to work with MSM to develop a mobile money payment system for voucher reimbursements. Once developed and tested, the mobile money system was fairly easy to explain to providers, there was enthusiasm around the efficiency and quick turnaround of reimbursements for services provided. The mobile money system was accepted and advocated for wider use very quickly. While the providers initially took a bit of time to send the voucher codes for reimbursement via SMS, MSI Madagascar consistently reimbursed the provider within 7 days and once accepted, transaction efficiency improved. MSI Madagascar receives claims for reimbursement via their centralized server and a voucher manager cross checks the claims before issuing an electronic reimbursement.
- **Ensuring convenience for users.** MSM had initially planned to work with the biggest supplier of mobile money in Madagascar, Telma, but quickly realized that they needed to work with all three mobile network operators to ensure that health service providers could rapidly access their payments at locations nearer to them. MSM engaged local network providers at the inception of the program to understand their needs and develop an SMS reimbursement system that would be useful for providers. A challenge around working with multiple network providers was the variation in the rate of SMS transfers and varying network coverage across the 12 regions MSI works in. In an effort to reduce financial barriers and expand access to FP regardless of network provider or financial ability, MSI deliberately chose to collaborate with multiple providers to increase access to FP across network.

Challenges

- **Streamlining provider payments:** MSM reimburses every provider for each voucher claimed, which leads to a high volume of transactions. MSM is working with mobile operators to identify solutions for reducing the overall number of transactions to providers while still reimbursing voucher claims in a timely manner. This is particularly challenging given that there are currently 118 providers across the country that have different network coverage.

Looking Forward

MSI is currently exploring opportunities to expand the use of mobile money payments in its programs in other countries to replace cash flows. In some places, uptake of mobile money payment systems is happening organically; program staff at Marie Stopes Kenya (MSK) began using mobile money transfers to rapidly transfer money using M-Pesa to send cash advances to cover medical costs and payments for last minute travel costs. MSK is now integrating a mobile payment system to pay community health workers and youth peer educators monthly stipends and to cover costs for trainings and other activities.

Sources:

- Interview in July 2013 with Judy Gold, formerly Marie Stopes International.
- Interview in July and October 2013 with Lalaina Razafinirinasoa, Projects, Evidence and Innovations Director, Marie Stopes Madagascar (+261 (0) 20 22 403 04; lalaina.razafinirinasoa@mariestopes.mg)

For information about Marie Stopes International

Web: <http://www.mariestopes.org>

APPENDIX B. ADDITIONAL RESOURCES

Readers can find additional information on mobile money and financial inclusion for the poor at the following:

- USAID Mobile Solutions: <http://www.usaid.gov/mobile-solutions>
- Better than Cash Alliance: <http://betterthancash.org/>
- The Bill & Melinda Gates Foundation Financial Services for the Poor: <http://www.gatesfoundation.org/What-We-Do/Global-Development/Financial-Services-for-the-Poor>
- Consultative Group to Assist the Poor (CGAP): <http://www.cgap.org/>
- Bankable Frontier Associates (BFA): <http://bankablefrontier.com/>
- GSMA Mobile Money for the Unbanked: <http://www.gsma.com/mobilefordevelopment/programmes/mobile-money-for-the-unbanked/>
- Alliance for Financial Inclusion: <http://www.afi-global.org/>
- NetHope Payment Innovations: <http://solutionscenter.nethope.org/programs/payment-innovation>



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