

ADVANCING THE DIALOGUE ON MOBILE FINANCE AND MOBILE HEALTH: COUNTRY CASE STUDIES



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March 2012

ACKNOWLEDGEMENTS

This white paper would not have been possible without the input of the many mHealth and MFS practitioners and experts around the world.

We would like to thank the following professionals for their contributions to the case studies: Paul Mugambi, Samuel Agutu, Peter Gross, Gunnar Camner, John Owens, Mark Smith, Judy Gold, and Malcolm Vernon.

In addition, we would like to thank the efforts of the individuals who contributed greatly to the research, writing, and review of this white paper, including Jody Ranck, Mark Smith, Margaret Schoening, Sushmita Meka, and Patricia Mechael.

Founding Partners:



TABLE OF CONTENTS

Acronyms and Abbreviations	2
Introduction	3
Summary	4
Context	6
Use Cases for Mobile Financial Services in mHealth	7
Country Case Studies	9
Ghana: Reinventing the business model and value chain of life insurance	10
Drivers in Ghana	11
Haiti: Driving efficiencies in operations to decrease costs and achieve greater distribution	12
Drivers in Haiti	13
The Philippines: Leveraging mobile financial services for a variety of mHealth initiatives, including supply chain settlement, conditional cash transfers, and co-payments for hospitals	14
Drivers in the Philippines	15
Kenya: Enabling payments and alternative financing of healthcare through mPesa	16
Drivers in Kenya	17
Key Challenges	19
Future Trends	19
A Look Ahead: Mobile Finance and Universal Health Coverage	21
Tables and Figures	22
Interviews	23
Appendix	24

ACRONYMS AND ABBREVIATIONS

eHealth	Healthcare practice that is supported by electronic processes and communication, such as electronic health records and health information systems. Mobile health, or mHealth (see below), also falls under this umbrella.
MDGs	Millennium Development Goals, a list of eight international development goals that all 193 United Nations member states and at least 23 international organizations have agreed to achieve by the year 2015. These goals include: <ol style="list-style-type: none">1. Eradicate extreme poverty and hunger2. Achieve universal primary education3. Promote gender equality and empower women4. Reduce child mortality rates5. Improve maternal health6. Combat HIV/AIDS, malaria, and other diseases7. Ensure environmental sustainability8. Develop a global partnership for development
MFS, mFinance, or mobile money	Mobile financial services or mobile money. The use of the mobile phone to access a money account which can offer financial services such as payments, savings, credit, and insurance.
mHealth	Mobile health. mHealth is loosely defined in this paper as the use of information and communication technology to provide better access to health services for practitioners and patients.
MNO	Mobile network operator. The private or public entities that cover mobile network services.
SMS	Short Message Service. A text messaging service component of phone, web, or mobile communication systems, using standardized communications protocols that allow the exchange of short text messages between fixed line or mobile phone devices.
UHC	Universal healthcare coverage. A term referring to organized health care systems built around the principle of universal coverage for all members of society, combining mechanisms for health financing and service provision.

INTRODUCTION

It has been nearly one year since the first report, “Amplifying the Impact: Examining the Intersection of Mobile Health and Mobile Finance,” was published for the mHealth Alliance and The World Economic Forum.¹ In that report the intersection points between mHealth and Mobile Financial Services (MFS) were identified and early initiatives in this space were highlighted. Since then, there has been tremendous momentum in the use of MFS, also known as mobile money, for mHealth services. Both MFS and mHealth projects continue to grow in popularity globally as donors and practitioners take advantage of the near ubiquity of cell phones to extend the reach of public health initiatives and access to health services.

In the coming years the global health community will turn more attention to the issue of universal health coverage, and new micro-savings and micro-insurance products are likely to enter developing country markets, often facilitated through the use of mobile money. The case studies of emerging business models presented in this paper could act as a launching point for a community of practice and global discussion on new business models in mHealth/MFS and the contribution they can make to enhance access to health systems and extend the reach of insurance to the poor.

The objectives of this second report are to:

1. Identify the newest MFS and mHealth intersection use cases that have been, or will be, implemented in the near term that could provide significant value to health system strengthening including those associated with the Millennium Development Goals (MDGs) of reducing child mortality rates and improving maternal health;
2. Highlight the characteristics of key markets that have the foundational prerequisites in place to reap the benefits of leveraging MFS for facilitating universal health coverage and enhanced access to health care; and
3. Identify key challenges faced and future trends that will reduce existing barriers for future implementations.

This paper aims to provide further guidance and spur implementation initiatives in emerging markets by health service providers, non-governmental organizations (NGOs), mobile money operators, and government health policy workers that seek to enhance health systems for the poor through the use of MFS.

¹ World Economic Forum, mHealth Alliance (2011). Amplifying the Impact: Examining the Intersection of Mobile Health and Mobile Finance

SUMMARY

As mobile network operators (MNOs) continue to try to reduce churn of customers, increasing switching costs by launching mHealth and MFS becomes increasingly critical. It is, therefore, little surprise that these MNOs are working with health providers and governments to integrate mobile money into health service programs.

What makes some markets more attractive to leverage MFS for healthcare than others? At the crux of every initiative is a large need that drives the effort.

In the case of Ghana, the private sector is seeking to meet the pent up consumer demand for life insurance, spurred by government education around insurance, by exploring new business models between insurers and mobile operators to bring mobile micro-life insurance to market.

In Haiti, the devastating earthquake spurred new initiative funds to jumpstart MFS systems in the private sector. Mobile operators with the advantage of creating new systems from scratch rose to the challenge to set up a financial infrastructure quickly, while also supporting the expanding cholera epidemic and other critical healthcare issues of the country. They have been working with health providers to drive efficiencies around registration and distribution of the products and services across both sectors by leveraging resources across sectors.

In markets where there is already significant MFS penetration and usage, such as Kenya and the Philippines, the mature MFS systems are being used to support better business models, higher quality of care, or increased access to health services. These initiatives have taken root in a variety of areas - from supporting government initiated health programs, as is the case in the Philippines, to providing alternative financial tools for those left out of public insurance, as seen in Kenya. In other markets such as Ghana and Haiti, MFS are less mature. As these systems evolve, there are opportunities to incorporate extremely innovative business models and operations.

Dimensions that drive mHealth and mFinance efforts

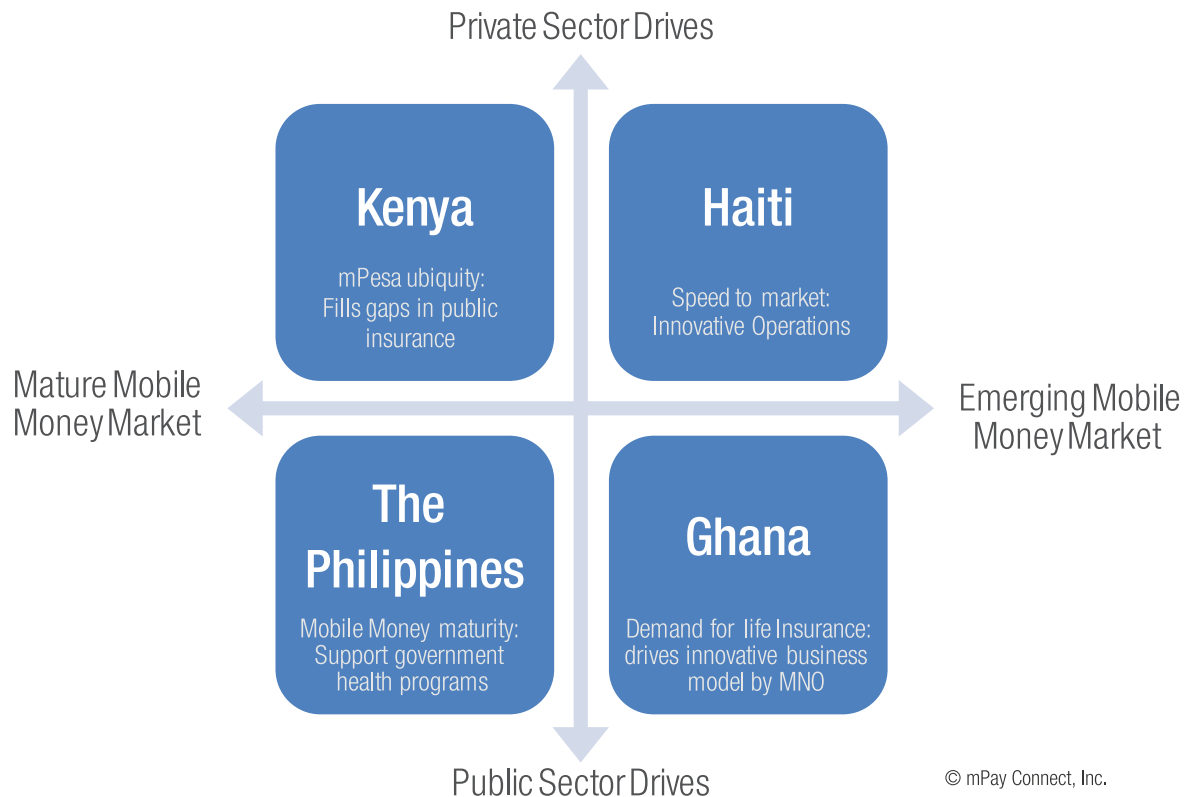


Figure 1: Dimensions that Drive mHealth and mFinance Efforts

Whether driven by government policy or private sector efforts in mature or emerging MFS markets, a few characteristics prevail in all examples. First, there was a significant health concern that needed to be met. This paper outlines that in Kenya, it is the need for savings for maternal health; in Haiti, it was the need for basic health services after the earthquake destroyed many systems; in Ghana, there is a need for life insurance, due to the high cost of funerals; and in the Philippines, it is a range of health needs that MFS facilitates, from membership dues to co-payments. Second, MFS had already launched in the markets – it was well established in Kenya and the Philippines, and more recent in Haiti and Ghana. And third, either the business model, the quality of the services, or the accessibility of critical healthcare services was suboptimal without the use of MFS. In the Philippines, the business model for remote payments is improved by the use of MFS. In Kenya, micro-savings via MFS allows for improved quality of care. In Haiti, combining MFS with healthcare allows for broader distribution of health supplies such as chlorine tablets to sanitize water supply and avoid cholera.

As opportunities to improve health services for the poor are considered, the emerging case studies illustrated can offer important insights into some future direction. By setting up the right mHealth and MFS eco-systems and technology systems, health practitioners will be better positioned to realize the objective to improve health outcomes for the poor.

CONTEXT

Of the three billion people who live on less than the equivalent of \$2 per day, one billion have no access to the healthcare system.² These same people in the poorest economic strata live without basic infrastructure including water, roads, electricity, education, and financial services. Additionally, nearly four billion (those earning between \$1.25 and \$4 a day) in emerging markets lack access to risk protection through insurance that could be provided via public-private partnerships (PPPs).³ Health insurance and payment mechanisms via mobiles is a major unmet need that the intersection of mHealth and MFS, if done properly, could help remedy in the next decade and help achieve new efficiencies and savings for health care systems.

Yet, in the midst of so little infrastructure, leapfrog innovations to serve the poor abound. From remote mobile diagnostics to mobile clinics that travel to patients, mHealth initiatives are increasing access to health services. Mobile technology is enabling those “off the grid” to reap the benefits of modern health services. However, despite such progress, healthcare financing mechanisms remains one of the biggest challenges to improving health outcomes for the poor.⁴

Efficient healthcare financing mechanisms play an important role in producing better health outcomes by: 1) Improving the quality of care and performance of health workers via effective payment mechanisms and incentive programs; 2) Providing a social safety net and access to care that enables payment for services; 3) Improving efficiencies in human resource systems by streamlining management, procurement and payment systems that can eliminate waste; and 4) Improving the viability of business models in healthcare by creating more robust ecosystems of payors for services. In the coming years it will become more evident that mHealth and eHealth services and business models are critical variables in the efforts to provide universal health coverage, or UHC, and should be considered part of the underlying business model for universal coverage.

MFS, the “off the grid” equivalent of banking, is a critical link to solving these issues for the poor. MFS enables financial services and payments accessible by mobile phone to an electronic money account that can be offered by the customer’s MNO. In this paradigm, mobile operators act as the banks for the poor. Instead of relying on ATMs and bank branches, customers deposit and withdraw cash from their local mobile money agents. Of the 630 mobile network operators in the world, approximately 124 mobile money implementations have taken place and 92 more are underway.⁵ These systems serve the 1.7 billion people who lack access to banks, but have mobile phones.⁶ These are the people also being targeted for mHealth services in emerging markets.

² Shah, A. (2011). Health Issues, <http://www.globalissues.org/issue/587/health-issues>

³ Swiss Re (2010). Micro-insurance-Risk Protection for 4 Billion People. Sigma, http://media.swissre.com/documents/sigma6_2010_en.pdf

⁴ World Health Organization (2005). Strategy on Health Care Financing for Countries of the Western Pacific and South-East Asia Regions (2006–2010)

⁵ GSMA Mobile Money Tracker, <http://www.wirelessintelligence.com/mobile-money>

USE CASES FOR MOBILE FINANCIAL SERVICES IN MHEALTH

MFS can benefit mHealth efforts along the entire continuum of care at the patient level, provider level, and administrative level. At the patient level, MFS enables patients to utilize new financial instruments such as micro-savings, micro-insurance, and micro-credit to smooth out cash flow issues or to receive remote money transfers from family members to pay for health services. These services also enable patients to pay for transportation and healthcare services using mobile money accounts. At the provider level, mobile money payments enable faster settlement of remote payments along supply chains for health products and services, as well as to settle vouchers for providers of health services. On the administrative level, mobile money enables payments to unbanked health workers, per diem payments, and expense reimbursements that are often paid in cash. It also enables electronic disbursements of performance-based funding and conditional cash transfer programs, such as those being used throughout the world to encourage facility-based deliveries for pregnant women, as seen in Figure 2.

Example: Using MFS for Maternal Continuum of Care

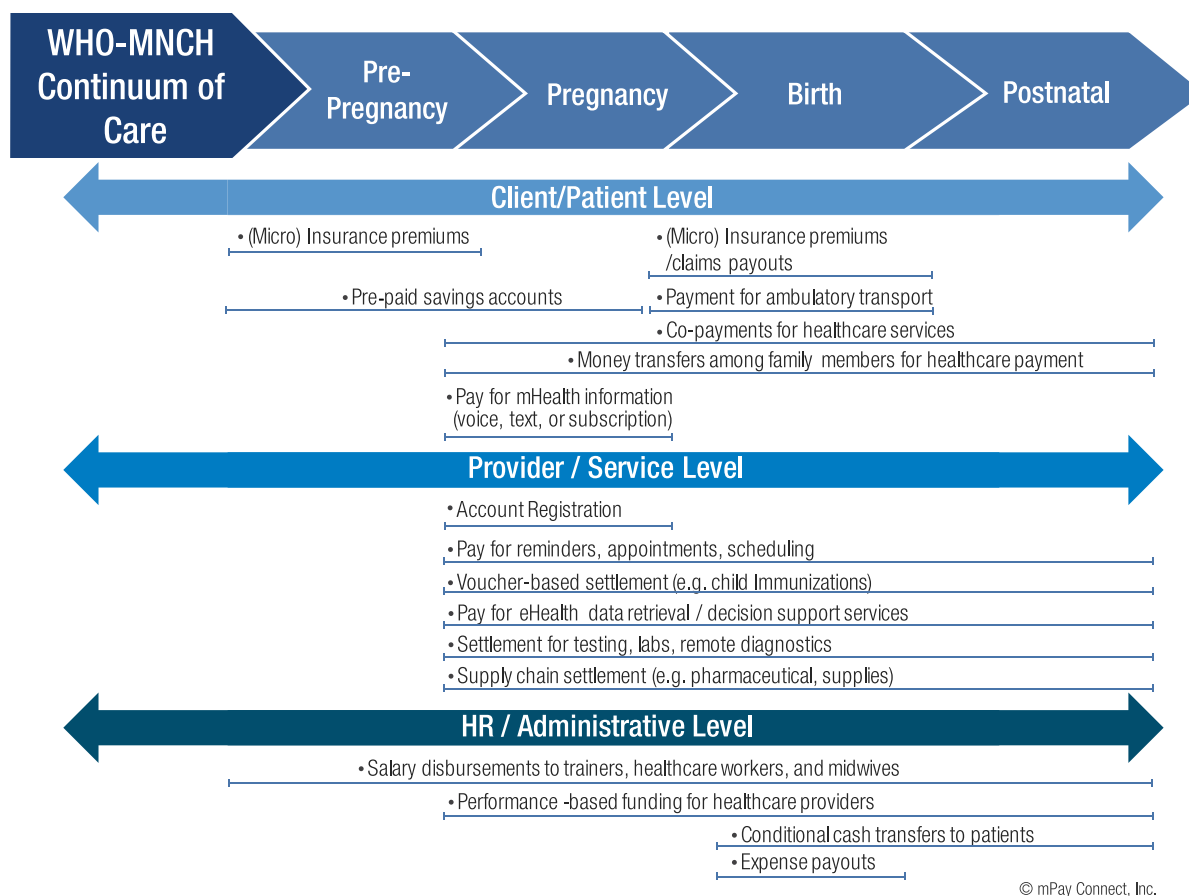


Figure 2: Using mobile financial services for maternal continuum of care

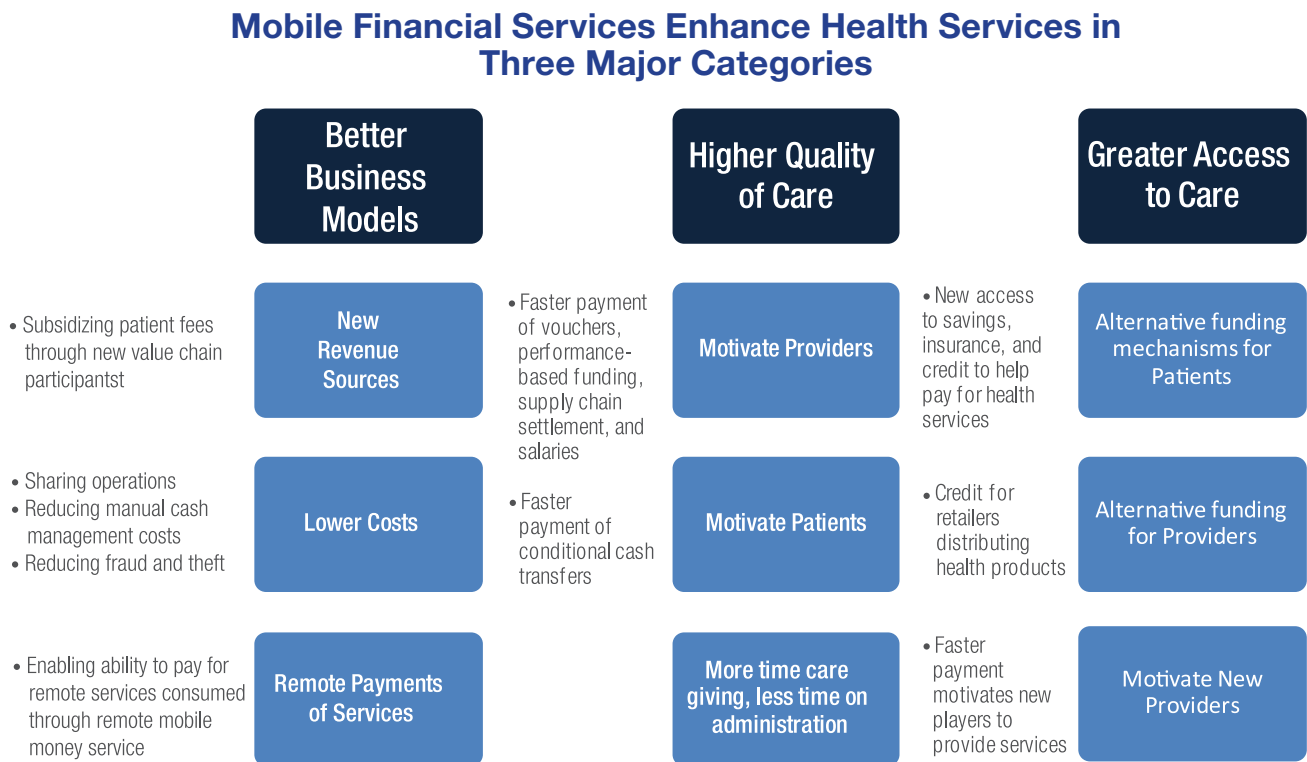
⁶CGAP, GSMA, and McKinsey analysis using data from Demirgüç-Kunt, Beck, and Honohan (2009). “To arrive at these conclusions, we conducted a forecasting exercise based on relatively conservative assumptions. We assumed that for each country, only one mobile money service would win greater than 10% uptake by users. Further, we assumed relatively modest usage by consumers and stable prices. The number of mobile money implementations is based on a comprehensive survey of MNOs and vendor.” CGAP Brief: Window on the Unbanked: Mobile Money in the Philippines. http://www.cgap.org/gm/document-1.9.41163/BR_Mobile_Money_Philippines.pdf

Benefits of using MFS include development of more sustainable business models (through efficiencies and cost savings over conventional methods), higher quality of care, and greater access to care, as seen in Figure 3. In terms of business models, MFS can increase revenue sources by subsidizing patient fees through new value chain participants; lower costs by sharing operational costs that are shared between MFS and healthcare and by reducing costs of cash management and fraud; and enable settlement of remote payments for remote diagnostics and other remote health services.

It can increase the quality of care by motivating providers and patients with faster settlement of vouchers, salaries, supply chain payments, performance-based funding, and conditional cash transfers. It can also enable providers to spend less time on management of cash and more time on delivery of healthcare services.

MFS can improve access to care by enabling alternative financial tools for patients including savings, insurance, and credit that can improve their ability to afford services. It also provides alternative funding to providers, such as credit for retailers whose low cash flows would otherwise prevent them from purchasing needed pharmaceutical inventory. Finally, it can motivate new providers to participate in the system due to faster settlement of funds to pay for their services.

Given these benefits and considering innovation in terms of national or regional ecosystems of stakeholders for mHealth and eHealth services, MFS stakeholders should be at the table to help drive innovation and build a more sustainable ecosystem for mHealth and eHealth products and services.



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Figure 3: Mobile financial services enhance health services in three major categories

It is important to note that there are also risks at this intersection as well. The recent rash of political and financial crises in the microfinancial sector, due to the relative lack of regulatory oversight combined with more profit-oriented models, have undermined the financial sustain-

ability of both poor households and microfinancial institutions.^{7, 8} These lessons will need to be learned in the health sector given the relative immaturity of mHealth policy frameworks which will need to be extended to include frameworks for managing MFS systems in a manner that both protects citizens and enables innovation to take place. In health there are also fears that controversies regarding micro-financial institutions may result in decreased trust in micro-insurance providers because in some countries micro-insurance is a new concept and people often do not grasp the fact that they may pay premiums and not receive a benefit until something untoward happens. These fears could possibly depress demand in some markets. One of the risks of electronic systems is that “bad things can happen faster” if adequate security, privacy and overall regulatory frameworks are not in place, so caution is an essential component to advancing the use of these systems.

CASE STUDIES

Within the past year, mHealth has taken great strides forward in leveraging the benefits that MFS offer. While there are numerous examples that could be highlighted, this paper will focus on a few key initiatives taking place in Ghana, Haiti, the Philippines, and Kenya. The diagram below illustrates examples of these case studies and a few others within the maternal continuum of care.

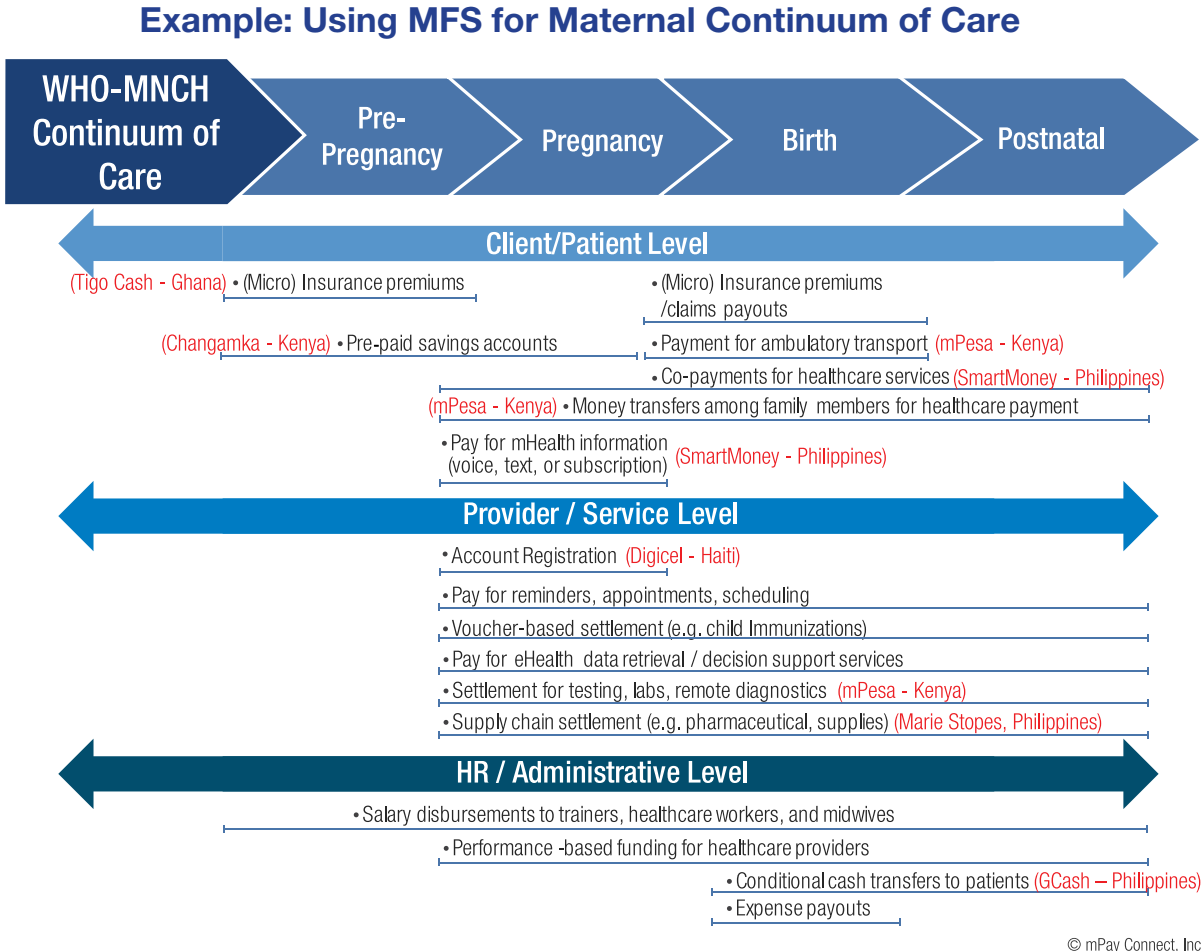


Figure 4: Using mobile financial services for maternal continuum of care with examples of deployments

⁷ Banderjee, A. (2011). Assessing the Current Crisis in Microfinance and Avoiding the Next. World Bank blog, <https://blogs.worldbank.org/files/allaboutfinance/Microfinance.pdf>

⁸ Arun, Thankom (2005). Regulating for Development: The Case of Microfinance. The Quarterly Review of Economics and Finance, Vol. 45, Issues 2-3, p. 346-357

Ghana: Reinventing the business model and value chain of life insurance

One of the main drivers of poverty and consequent poor health outcomes is the exposure to catastrophic risks that low-income households face in markets where insurance is not commonplace. Microfinance institutions learned that sudden death and the costs of burials threatened financial viability of their programs and began engaging with the micro-insurance sector in the late-1990s, particularly in areas where HIV rates were exceedingly high.⁹ The challenges for the insurance industry in emerging markets are to build a culture that is accepting of insurance and to create products that speak to the livelihoods of the poor while also sustaining business models appropriate for these contexts. Mobiles offer a way to address some of these challenges. Ghana provides an interesting case study in light of these issues.

In Ghana a broker between reinsurers and mobile network operators known as Microensure partnered with two mobile operators, MTN and Tigo (Millicom) to provide their customers with life insurance. While both mobile operators utilize MFS for claims disbursements, the two mobile operators have tried different models for premiums payments.

In one model, MTN enabled customers to pay for their premiums through MTN’s MFS. In an alternative model, Tigo has launched a unique and innovative business model that subsidizes premium payments through an airtime loyalty program. To drive loyalty and higher airtime minute usage, once a customer buys a threshold of airtime minutes, Tigo offers them “free” life insurance. In essence, Tigo subsidizes the premiums for the life insurance, but overcomes these costs with higher airtime revenues and reduced customer churn. To the customer, it appears as though he or she was rewarded for airtime usage with “free” life insurance. This system appears to be gaining significant traction with Tigo customers.

Ghana Tigo Model: Life Insurance as Airtime Rewards Benefits

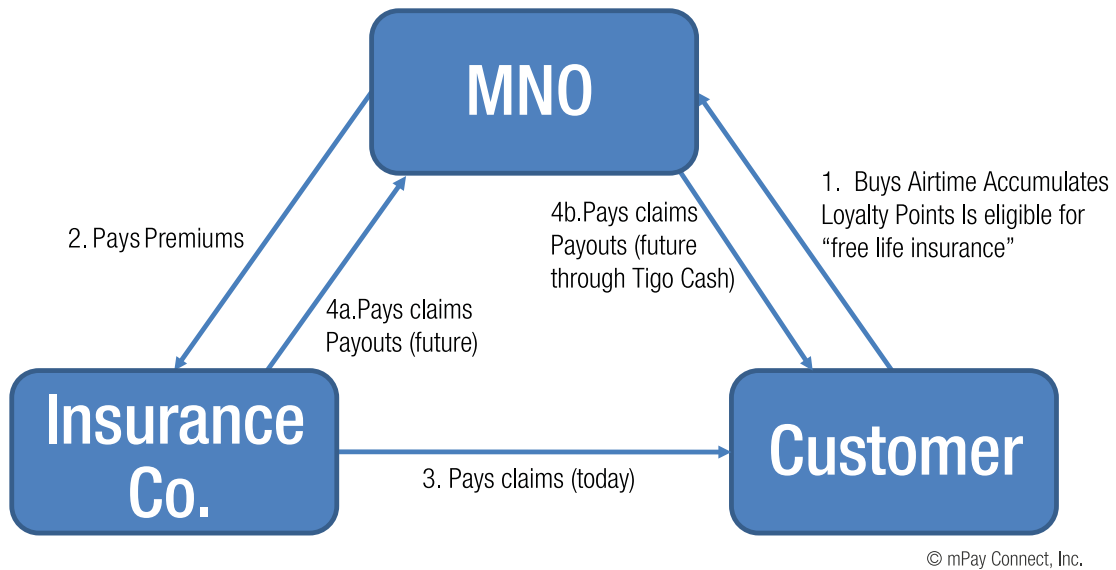


Figure 5: Ghana Tigo model: life insurance as airtime rewards benefits

⁹ USAID (n.d.). Microfinance and HIV/AIDS NOTE #3: Microinsurance for Markets Affected by HIV/AIDS. http://www.banyanglobal.com/pdf/Microfinance_and_HIVAIDS_NOTE_3_Microinsurance_for_Markets_Affected_by_HIVAIDS.pdf

Often times, when new players enter an industry, there is concern that the overall revenues of each player will diminish due to a new entrant in the value chain. Interestingly, in this example, the increase in players in the value chain (entry of the mobile operator) actually benefits the industry by creating a new business model to drive consumer adoption and increase the overall market.

Drivers in Ghana

Although Ghana does have active MFS deployments, they are not as prolific as those in Kenya or the Philippines. What has driven Ghana’s innovations in this space are government policies and consumer demand. The Ghanaian government has an extremely pro-health policy. Ghanaians receive considerable education by the government around the benefits of insurance, spurring consumer demand for insurance products. Since Ghanaians are offered public health insurance, with this initiative the private sector targeted life insurance – an area that was not addressed by the government. Finally, and perhaps most importantly, there is a very high need for life insurance in Ghana since it is the most expensive market in the world for funerals as a percentage of per capita GDP.¹⁰

Ghana: infrastructure, education, and need drive mobile micro-life insurance

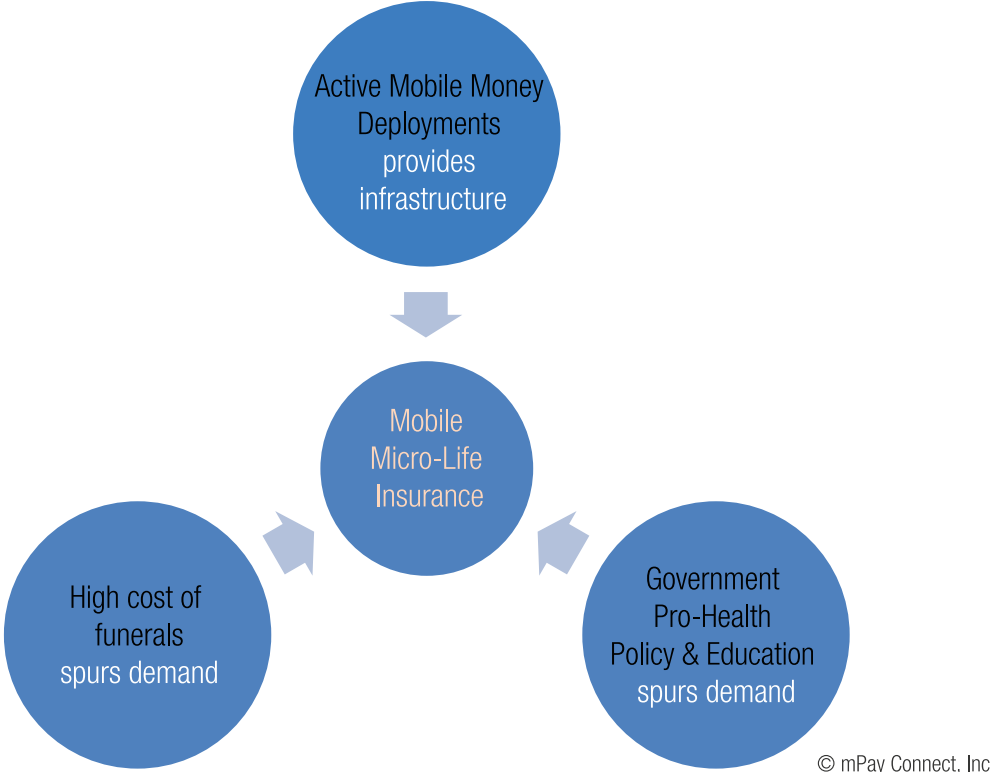


Figure 6: Ghana: infrastructure, education, and need drive mobile micro-life insurance

¹⁰MicroEnsure (n.d.). M-Insurance Goes Live in Ghana. MicroEnsure website, <http://www.microensure.com/news.asp?id=123>

For Ghana, the (1) critical need around the cost of funeral services, (2) lack of public insurance for life insurance, and (3) consumer demand for insurance spurred by pro-health government education around these services drove mobile network operators and insurance companies to seek to develop innovative business models to bring micro-life insurance to the poor. Efforts like this, in most other contexts, will likely require substantial marketing and awareness campaigns around the benefits of insurance. In many markets the demand for insurance products is low because most users will notice the premium payments for insurance products, but may not see a benefit on an annual basis. In some contexts this can result in low re-enrollment rates. Nevertheless, public-private partnerships for micro-insurance have great potential to mitigate catastrophic risks for low-income households. In countries where there is no government-run health insurance plan, health insurance may have more immediate effects where the benefits are more proximal for users in terms of access to care and lower out-of-pocket expenses for routine and emergency care.

Haiti: Driving efficiencies in operations to decrease costs and achieve greater distribution

In addition to utilizing the electronic money itself, mHealth can benefit by leveraging common business operations shared with MFS programs. Using the same resources, operations, and networks to reach the same customer reduces the cost of serving the poor considerably. For example, the same healthcare workers that serve the poor can act as agents to register them for mobile money accounts. Similarly, mobile money agents can sell and distribute health products to the poor.

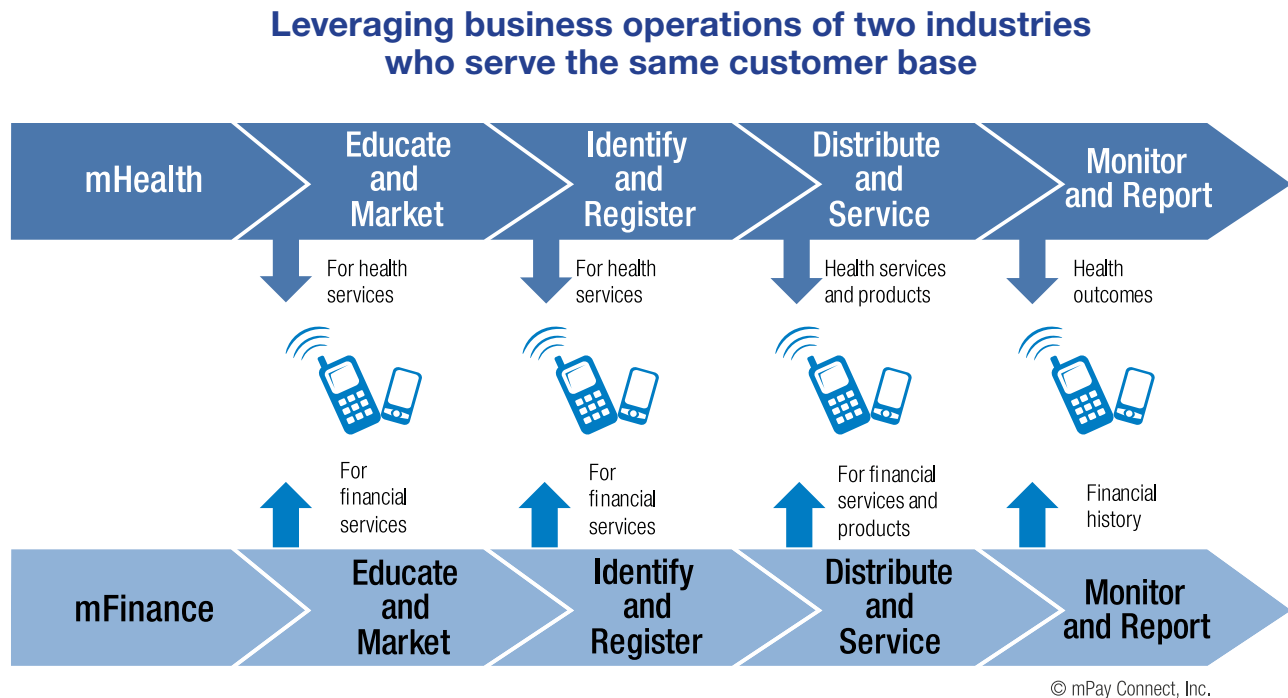


Figure 7: Leveraging business operations of two industries who serve the same customer base

In Haiti, these types of efficiencies are now being explored. Mobile network providers are working with NGOs and healthcare providers to drive down costs of operations across MFS and mHealth value chains. By leveraging the MFS agent network, NGOs will be able to distribute critical health products such as chlorine tablets to sanitize water supplies to combat the spread of cholera across Haiti. In the future, midwives and other healthcare workers visiting patients may be able to play the role of mobile money agents by registering patients for mobile money accounts and accepting and disbursing cash. These same operations could be appropriated for micro-insurance and micro-savings accounts used for health services and potentially extend the reach of insurance products to "base of the pyramid" markets by driving more efficient business models for insurance products.

Drivers in Haiti

In the case of Haiti, a catastrophic event led to (1) epidemic outbreaks that had to be addressed immediately, as well as (2) the need to create a new financial infrastructure. Grants to the private sector to solve the MFS issue led the mobile network operators to seek adjacent services such as mHealth for additional revenue opportunities and to reduce operational costs across vertical industries to sustain their business models. Because these systems are relatively new, architecture developers are more aware of the potential intersections between MFS and mHealth and build their systems accordingly.

Following the devastating earthquake in January 2010, the Gates Foundation and USAID launched a \$10 million incentive fund/competition to jumpstart financial services by mobile phone in Haiti to expedite the delivery of cash assistance to victims of the country's devastating earthquake by humanitarian agencies. The challenge would financially reward the first MNO to launch MFS (first-to-market and second-to-market awards) and a scale up award (first 100,000 transactions and tiers thereafter). In a dual-MNO market with high degree of rivalry, this competition was a great ignition to the market. The two mobile network operators Voila and Digicel launched their mobile money programs shortly after the competition was launched. The infrastructure for new MFS was planted.

While Haiti has had health concerns previously, after the earthquake, health issues reached new proportions with the cholera epidemics.¹¹ The need to reach the poor efficiently, cost effectively, and quickly to decrease further mortality rates has been critical. This case study of Haiti, ironically, reveals the opportunities for innovation that can appear when existing systems have been virtually destroyed. The urgent need around health services following the earthquake, combined with the large incentive challenge fund to the private sector, spurred mobile operators to seek more efficient methods to reach the poor. These methods included sharing the operational infrastructures of both mHealth and MFS around registration and distribution.

The analysis of the drivers of change at the intersection of mHealth and MFS are demonstrating the facilitative role of donors in laying the conditions for a robust ecosystem of MFS interventions, entrepreneurial approaches to mHealth business model development from the outset, and collaboration with the government.

¹¹ WHO (2011). Haiti Cholera Outbreak. WHO website, <http://www.cdc.gov/haiticholera/>

With the push toward universal coverage in the coming years, it can be expected that the mHealth and MFS intersection will increasingly need to be thought about as an essential building block of the business model for universal coverage. As this domain begins to expand and the evidence base for successful ventures grows in a manner that can demonstrate substantial efficiencies and cost-savings to the system, health planners will need to have a much stronger understanding of the financial systems in place to leverage this opportunity in an optimal manner. The cases of Kenya and the Philippines that follow further illustrate this point.

Haiti: Private sector + Grants + Urgent healthcare needs drive MNOs to find efficiencies for sustainable model

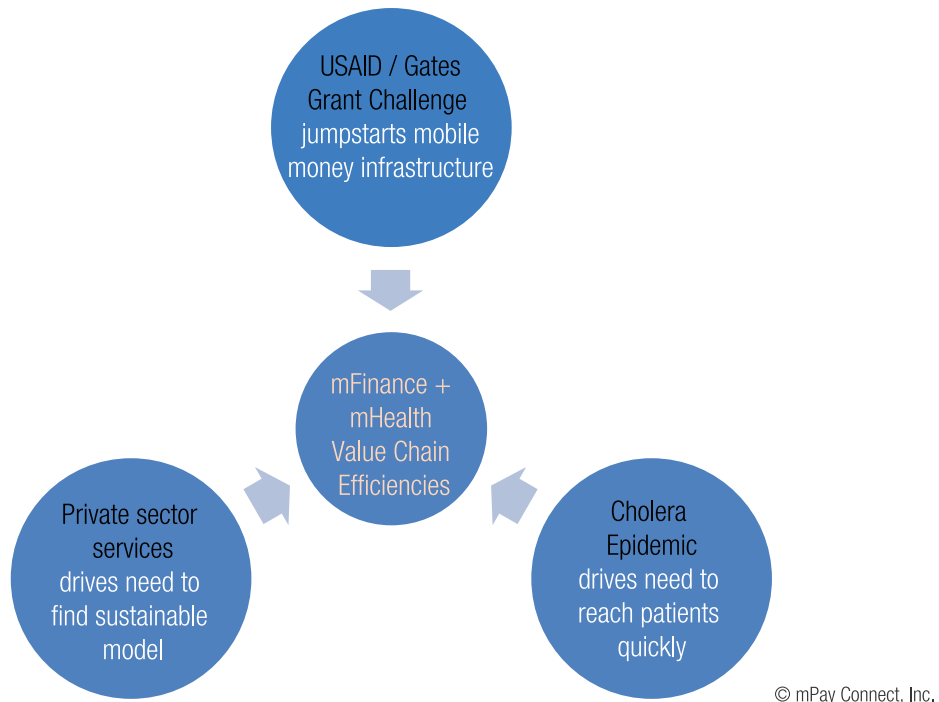


Figure 8: Haiti: Private sector, grants, urgent healthcare needs drive MNOs to find efficiencies for sustainable model

The Philippines: Leveraging MFS for a variety of mHealth initiatives, including supply chain settlement, conditional cash transfers, and co-payments for hospitals

The Philippines offers an important window into the potential opportunities at the intersection between MFS and mHealth due to the existence of a mature mobile money eco-system, universal coverage, and a Ministry of Health that has embraced mHealth as part of the overall effort to strengthen health systems. In the Philippines, mobile money is being used in a variety of ways for mHealth including membership dues and payment for stock orders in reproductive healthcare services using Smart Padala, conditional cash transfers utilizing GCash, and enabling co-payments for hospital services utilizing SmartMoney.^{12, 13}

In the case of business-to-business payments, Population Services Philippines Inc. (PSPI), part of Marie Stopes International, uses mobile money within its BlueStar social franchise program. Members of the social franchise, who are private midwives providing services under the Blue-Star brand, make payments to PSPI for stock orders that they have received, such as contraceptive supplies, and for membership dues which they pay weekly and annually.

In the case of voucher settlement for maternal and reproductive health, Marie Stopes, International launched a mobile-enabled voucher system with mobile money settlement for the providers to decrease settlement time for provider payment from weeks and months to days in Madagascar. Improving the efficiencies in health provider payment delivery time may also prove to be a driver for improving quality of care in some cases. In addition, by using electronic systems, the new voucher/mobile money program would reduce cash management and disbursement costs that represent a substantial portion of the overhead cost of the overall program. Finally, by decreasing speed of payment, the system intended to increase worker loyalty and reduce churn of the providers.

Of the 282 members, 100 use this MFS option for such payments. The Smart Padala mobile money system enables members to go to a ministore and use a store's account to transfer money to PSPI's account for a cost of 10 pesos per 500 pesos transferred. The members that use the MFS are generally those in the Mindanao region who do not live near bank branches of the two banks from which PSPI accepts payments. Thus, MFS enables PSPI to expand its reach and/or coverage of the social franchise network into areas where banking services are not easily available and to receive regular payments from these members.

Drivers in the Philippines

The Philippines is the country in which the first significant adoption of MFS systems began nearly one decade ago. Spurred by a strong mobile texting culture, a significantly high unbanked population, and a need to enable remote payments in a country that spans over 7,000 islands, 9.5 million Filipinos now use one of two mobile money systems, SmartMoney and GCash, each offered by the two mobile operators Smart Telecom and Globe Telecom's subsidiary GXI.

In addition to the strong MFS infrastructure set up by the private sector MNOs, mHealth programs have received significant support by the Government of the Philippines. With a strong focus on reaching the MDGs, the government has, for example, instituted the Formula One for Health (see Figure 1) to reduce maternal and neonatal mortality by leveraging enhanced management infrastructure and financial services.

¹² Agabin, M.H. (5 May 2011). Conditional Cash Transfer, Rural Banks, and Mobile Money Transfer: Observations and Reflections. Department of Social Welfare and Development's (DSWD) Pantawid Pamilyang Pilipino Program (4Ps) launched a 5-year program of the Philippine Government to provide conditional cash grants for the poorest families in identified municipalities as financial aid for the family's health and for children's education. Microenterprise Access to Banking Services, <http://www.rbapmabs.org/blog/2011/05/conditional-cash-transfer-rural-banks-and-mobile-money-transfer-observations-and-reflections/>

¹³ Reyes, A. L. (19 January 2011). Smart, Globe see surge in mobile money payments. The Philippine Star. Smart's affiliate company includes the largest hospital chain in the Philippines (which includes Makati Medical Center). It is expected that mobile payments will be a key enabler and enhancer of business for Smart's affiliate companies. <http://www.philstar.com/Article.aspx?articleId=649312>

The need to reduce maternal and neonatal mortality rates, the government's pro-health policies and support of the MDGs, and the significant and mature MFS infrastructure in the Philippines are characteristics that have made the Philippines particularly attractive for leveraging mobile finance for mHealth programs.

Philippines: Pervasive use of mobile finance for health spurred by mobile money adoption and pro-health government policies

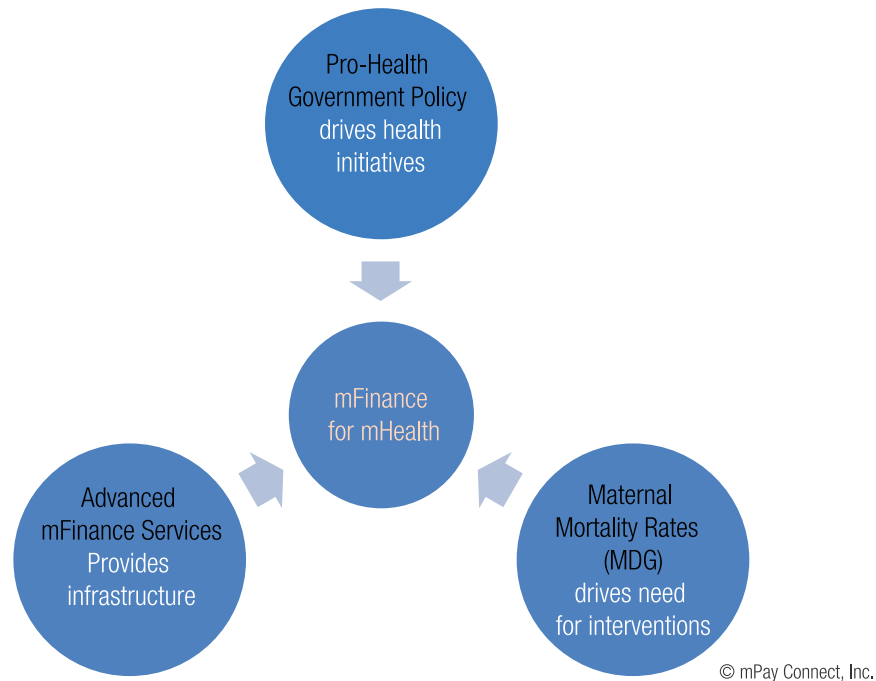


Figure 9: the Philippines: Pervasive use of Mobile Finance for Health spurred by Mobile Money Adoption and Pro-health Government Policies

Kenya: Enabling payments and alternative financing of healthcare through mPesa

Through mPesa, a mobile-phone based money transfer service for Safaricom, Kenya provides an additional view into the potential of programs that combine mHealth with MFS. Given the success of mPesa and strong governmental support for future universal health coverage, as well as a large number of mHealth programs, Kenya, like the Philippines, sees MFS are being used in a number of capacities for mHealth including:

- At the patient level, patients are using mPesa to pay their medical bills, medical services at dispensaries and hospitals, and travel to medical facilities. They also use mPesa for payment micro-insurance premiums and to deposit into micro-savings through providers such as Changamka ¹⁴
- At the provider level, the Safaricom Doctor's Network is taking mPesa payments for remote medical diagnostics provided to patients ¹⁵

¹⁴ Interview with Paul Mugami, Safaricom

¹⁵ Jidenma, N. (8 May 2011). Kenya's telecoms giants roll out e-health services. The Next Web blog, <http://thenextweb.com/africa/2011/05/08/kenyas-telecoms-giants-roll-out-e-health-services/>

- At the administrative level, mPesa is being used for government disbursement of funds to the counties and remote dispensaries; for payment of casual staff in remote hospitals; and for conditional cash transfers to mothers to motivate them to have their infants inoculated and for other health services¹⁴

Changamka was one of the first organizations to develop the mHealth and MFS connection via their micro-savings program for maternal health. Working on the assumption that it is not a lack of income that inhibits access to care, but rather lack of mechanisms for generating savings, Changamka's initial service was a Smart Card based micro-savings initiative targeting maternal health. Clients could add funds in small increments to the card via a GPRS terminal or mobile phone. The initial card was pre-loaded with KSh 500 which could cover an initial examination, lab test and treatment for one condition. A basic insurance plan was offered for approximately \$50 that covered antenatal care, delivery and postnatal care. The \$50 insurance package is considered fairly expensive by Kenyan standards, so the underlying business model was dependent on corporate sponsors in order to be acceptable to a greater number of women and couples.

While nearly 10,000 clients were using Changamka by June 2011, there were numerous challenges for scalability and sustainability of the business model due to the costs of Smart Cards, costs of GPRS terminals and lack of venture capital.¹⁶ A new mobile-based business model that connects to the government-sponsored health insurance plan is currently being developed that could address some of the shortcomings of the initial business model. The new model would deploy m-vouchers coupled with health education messages via SMS. The m-voucher would cover costs of delivering a baby in a health care facility and a pre-payment vehicle that facilitates cost-sharing of about 10 percent of delivery costs. The move from a paper voucher to the m-voucher can reduce administrative costs of the voucher program by approximately 15 to 27 percent.

In addition to the financial benefit, there is a health education component that involves outreach to community health workers on the availability of m-vouchers (to create demand), a "dial-a-doctor" aspect of the Changamka platform that enables appointment reminders, savings and health tips, and pregnancy related information to be sent to the expectant mother. A peer-to-peer component is also being developed that enables women to share information on childbirth and pregnancy with one another in a manner that can promote greater transparency around health facility status, health worker availability and general quality of care. Changamka also utilizes radio campaigns to raise awareness of the program and its benefits.¹⁷

Drivers in Kenya

Kenya launched the most adopted and ubiquitous domestic mobile money system in the world. From launch in 2007 until 3.5 years later, mPesa adoption had grown to 15 million users, representing 80 percent of the adult population.¹⁸ Despite this new and significant

¹⁶ Changamka Microhealth Limited. Center for Health Market Innovations, <http://healthmarketinnovations.org/program/changamka-microhealth-limited>

¹⁷ Interview with Samuel Agutu, Changamka (last three paragraphs)

¹⁸ Johnson, C., & Jaisinghani, P. (17 January 2012). Can Mobile Money Transform a Country? USAID Impact blog, <http://blog.usaid.gov/2012/01/can-mobile-money-transform-a-country/>

financial access and the government’s commitment toward future Universal Healthcare Coverage (UHC) coverage, over 11 million Kenyans working in the informal sector today are without insurance and lack adequate funds to pay for healthcare access. In fact, 56 percent of expectant mothers give birth at home often times due to lack of funds to pay for healthcare.¹⁹ As a result, maternal and neonatal mortality rates are high.

Because the vast majority of Kenyans actively use the mPesa system, and many are currently without insurance, there is a critical need to leverage mPesa to support alternative financing mechanisms such as micro-savings, micro-insurance, and micro-credit to increase healthcare access which has spurred current initiatives in mHealth and MFS.

Looking ahead, the innovative private sector MFS initiatives in healthcare may offer important case studies from which the government can draw insight. Leveraging the ubiquity of mPesa and combining it with the government’s future intentions toward universal health coverage, Kenya could provide a very interesting example regarding how MFS and the underlying business model for universal coverage may evolve in the coming years. The Kenyan government’s plan to extend health insurance (National Hospital Insurance Fund) to the informal sector will likely include some form of pre-payment scheme where MFS schemes could play a significant role.²⁰

Like in the Philippines, where the government has taken an active policy to drive health programs that support MDGs using MFS for conditional cash transfers and voucher settlement for reproductive and maternal healthcare, in Kenya there was already strong mobile money penetration in the market. Maternal and neonatal mortality rates have been high due to the inaccessibility of healthcare in general in Kenya, which can be mediated, in part, through insurance.²¹ In addition, the majority of Kenyans actively use the mPesa system, Safaricom has worked with health providers to develop alternative financing mechanisms for the poor who are currently left out of public insurance.

Kenya: Strong mobile money adoption and private sector, maternal mortality rates, and lagging government policies

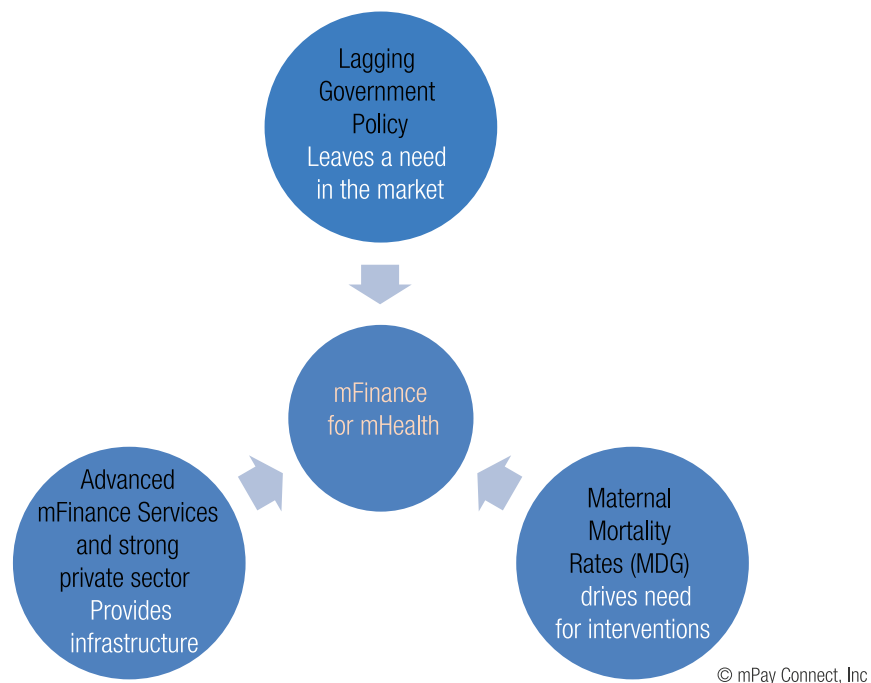


Figure 10: Kenya: Strong mobile money adoption and private sector, maternal mortality rates, and lagging government policies

KEY CHALLENGES

These case studies and other initiatives to leverage MFS for mHealth and other health initiatives are not without their challenges. As pioneers in the industry, those implementing cross-sector initiatives have encountered a number of challenges which include:

- Exclusivity of partnerships with mobile money providers leads to constraints in market coverage;
- Difficulties around scaling services that require significant amounts of detailed customer information;
- Risks associated with trying to implement cross-sector initiatives in markets with low mobile money adoption;
- Difficulties in implementing ID management systems in markets where phones are shared among family members;
- Prohibitive setup costs for implementation due to a lack of open APIs by the mobile money providers; and
- Prohibitive setup costs due to the need to integrate with multiple mobile money providers in markets where the services are fragmented.

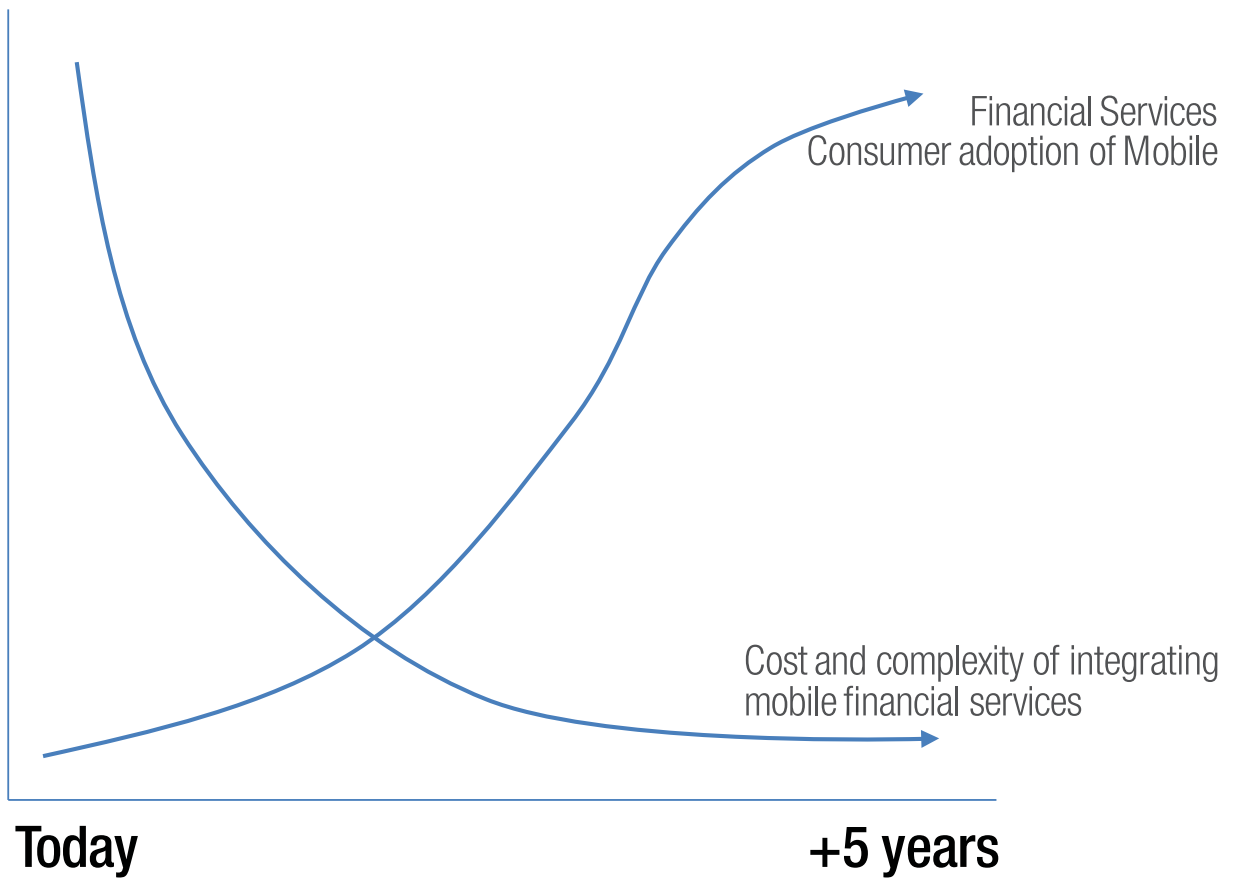
FUTURE TRENDS

As is the case with most innovative industries, many of the challenges faced today will diminish over time. Specifically, a number of notable trends will continue in the next few years which will decrease the hurdles and increase the rate of implementations of MFS for mHealth and other parts of the health sector. These include: (1) increase in the global adoption rates of MFS; and (2) reduction of the costs and complexities around integrating MFS with mHealth and broader health systems with standards defined.

¹⁹ Anyangu-Amu, S. (15 August 2010). Kenya: Medical Smart Card Extended to Maternal Care. Inter Press Service, <http://www.ipsnews.net/2010/08/kenya-medical-smart-card-extended-to-maternal-care/>

²⁰ Mathauer, I., Schmidt, J-O. & Wenyaa, M. (2008). Extending social health insurance to the informal sector in Kenya: An assessment of factors affecting demand. *International Journal Health Planning and Management*; 23: 51-68
doi: 10.1002/hpm.914 pmid: 18050152

Future Trends in Mobile Financial Services



Graph is intended as illustrative only.

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Figure 11: Future trends in mobile financial services

With respect to costs, there are several trends that will positively impact the market including:

1. Open Application Programming Interfaces (APIs) by the mobile network operators for faster integration by mHealth providers;
2. Interoperability hubs for mHealth service providers seeking a “one stop shop” for integration with all mobile money systems in a given domestic market;
3. Global service providers that provide cross-border disbursement of funds;
4. Business pricing for MFS to better fit supply chain requirements; and
5. Streamlined operations and standards for easy plug-and-play around identity management, registration, and distribution of health and MFS.

A LOOK AHEAD: MOBILE FINANCE AND UNIVERSAL HEALTH COVERAGE

The final area to address is the market for micro-insurance and the movement toward UHC that is accelerating in the global health arena in the next several years. Approaches to health financing for UHC have typically included micro-insurance, community health funds, mutual health organizations, and other types of insurance products that enable informal sector workers to insure against catastrophic risks. Some of these programs have been linked to existing micro-financial institutions that recognized the need to move beyond micro-credit-only solutions.

One of the challenges to micro-insurance schemes has been the small risk pools and over-exposure to catastrophic risks. Re-insurance can help to address this problem, but better use of technologies, such as mobiles and new partnerships to drive better data collection that can be utilized for the under-writing of insurance products could help the field address some of the critical bottlenecks at the moment. Most micro-insurance transactions are still conducted via paper rather than electronic or digital formats.²¹ In some cases smart cards are being utilized, but they can contribute significantly to the costs of insurance operations compared to better integrated mobile solutions.

Perhaps the biggest constraint for community financing and micro-insurance programs is the lack of quality data from the healthcare and financial systems for the re-insurance or underwriting of insurance products. New partnerships between the two sectors that can both improve overall information systems and contribute to the business requirements gathering of enterprise architecture could play a role in opening up new business models, but there are currently few efforts moving in this direction, at least in the backend technology development arena.

The confidence in the information systems, even in the more technologically sophisticated markets such as India, Thailand, the Philippines, and Malaysia is a major barrier to the integration of mHealth and MFS tools for micro-insurance.²² This speaks to the current state of mHealth interventions, in general, where the bulk of the emphasis has been on front-end applications to the relative neglect of the back-end enterprise architecture infrastructure. The result is that the data flows from both sectors are not being leveraged to the extent required to truly take advantage of the technology innovation that is currently available. It may serve the community of health practitioners involved with universal health coverage to begin to play a catalytic role in bringing together the MFS and eHealth sectors as well as NGOs, governments, and insurers around the current state of data systems in order to create collaborative roadmaps for future innovation on this front.

²¹ Gerelle, E. & Berende, M. (2008). Technology for Microinsurance Scoping Study. Microinsurance. Paper No. 2, Microinsurance Innovation Facility, International Labor Organization

²² Interview with David Lubinski, PATH

TABLES AND FIGURES

Figure 1	Dimensions that Drive mHealth and mFinance Efforts	5
Figure 2	Using MFS for Maternal Continuum of Care	7
Figure 3	Mobile Financial Services Enhance Health Services in Three Major Categories	8
Figure 4	Using MFS for Maternal Continuum of Care with Examples of Deployments	9
Figure 5	Ghana Tigo Model: Life Insurance as Airtime Rewards Benefits	10
Figure 6	Ghana: infrastructure, education, and need drive mobile micro-life insurance	11
Figure 7	Leveraging business operations of two industries who serve the same customer base	12
Figure 8	Haiti: Private Sector, Grants, and Urgent Healthcare Needs Drive MNOs to find Efficiencies for Sustainable Model	14
Figure 9	The Philippines: Pervasive use of Mobile Finance for Health spurred by Mobile Money Adoption and Pro-health Government Policies	16
Figure 10	Kenya: Strong Mobile Money Adoption and Private Sector, Maternal Mortality Rates, and Lagging Government Policies	18
Figure 11	Future Trends in Mobile Financial Services	20
Table 1	Comparing Four Mobile Financial Services Markets	24

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Special thank you to the following reviewers and contributors of research to this report

- Mark Smith
- Jody Ranck
- Margaret Schoening
- Sushmita Meka
- Patricia Mechael

APPENDIX

Table 1: comparing Four Mobile Financial Services Markets

Mobile Money Comparisons of Kenya, Ghana, The Philippines, and Haiti

Source: GSMA Mobile Money Tracker

Global Summary:

630 MNOs

119 live deployments of mobile money

96 planned deployments of mobile money

Region	Country	Mobile Penetration	Bank Penetration	MNOs deployed	Year Deployed	Number of Users	Mobile Money Services
Africa	Ghana	66.82	16	Tigo (Millicom)	2010		
				MTN	2009		Airtime Top Up
							Bill Payment
							M-Insurance
				Airtel (Bharti Airtel)	2010		Airtime Top Up
							Bank Transfer
							Bill Payment
							Domestic Money Transfer
							Merchant Payment
				Txtnpay	2009		Airtime Top Up
							Bill Payment
							Domestic Money Transfer
Africa	Kenya	56.39	10	Airtel (Bharti Airtel)	2009		Airtime Top Up
							Bank Transfer
							Bill Payment
							Corporate Cash Collection
							Domestic Money Transfer
							International Money Transfer
							Loan Repayment
							Manage Bank Account
							Merchant Payment
	Safaricom	2007	15,000,000	Airtime Top Up			

Region	Country	Mobile Penetration	Bank Penetration	MNOs deployed	Year Deployed	Number of Users	Mobile Money Services
							Bill Payment
							Domestic Money Transfer
							G2P
							International Money Transfer
							Linked MFI, SACCO, Bank Account
							Merchant Payment
							MFI Loan Repayment
							M-Insurance
							Salary Disbursement
				Yu (Essar Telecom)			Airtime Top Up
							Domestic Money Transfer
				Orange (Telkom Kenya)	2010		Airtime Top Up
							Bank Account Management
							Bank Transfer
							Bill Payment
							Domestic Money Transfer
							Loan Repayment
							Manage Bank Account
							Merchant Payment
							Salary Disbursement
				Tangaza	2010		Airtime Top Up
Americas	Haiti	10.79	15	Voila (Comcel)	2011		
				Digical	2010		

Region	Country	Mobile Penetration	Bank Penetration	MNOs deployed	Year Deployed	Number of Users	Mobile Money Services
Asia Pacific	Philippines	66.51	26	Globe Telecom	2004	1,000,000	Airtime Top Up
							Domestic Money Transfer
							International Money Transfer
							Merchant Payment
							MFI Loan Repayment
							M-Insurance
							Salary Disbursement
							Text-a-Deposit
							Text-a-Withdrawal
				Smart (PLDT)	2003	8,500,000	Airtime Top Up
							Bill Payment
							Domestic Money Transfer
							International Money Transfer
							Linked MFI, SACCO, Bank Account
							Loan Repayment
							Merchant Payment
							MFI Loan Disbursement
MFI Loan Repayment							

The mHealth Alliance champions the use of mobile technologies to improve health throughout the world. Working with diverse partners to integrate mHealth into multiple sectors, the Alliance serves as a convener for the mHealth community to overcome common challenges by sharing tools, knowledge, experience, and lessons learned. The mHealth Alliance advocates for more and better quality research and evaluation to advance the evidence base; seeks to build capacity among health and industry decision-makers, managers, and practitioners; promotes sustainable business models; and supports systems integration by advocating for standardization and interoperability of mHealth platforms. The mHealth Alliance also hosts HUB (www.healthunbound.org), a global online community for resource sharing and collaborative solution generation.

Hosted by the United Nations Foundation, and founded by the Rockefeller Foundation, Vodafone Foundation, and UN Foundation, the Alliance now also includes HP, the GSM Association, and Norad among its founding partners. For more information, visit www.mhealthalliance.org.



Become a member of a coalition of like-minded organizations with an interest in improving health outcomes through mobile technologies. Apply for mHealth Alliance membership at www.mhealthalliance.org/membership.

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Our thanks goes to lead author, Menekse Gencer, of mPay Connect. You can learn more about mPay Connect at <http://mpayconnect.com>.