

# How MEval-SIFSA's MomConnect Interventions Contributed to mHealth Strategy Implementation

A Learning Agenda Assessment

January 2017

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## ABBREVIATIONS

DOH	Department of Health, South Africa
HISSM	Health Information System Strengthening Model
HIS	health information system
KII	key informant interview
MEval-SIFSA	MEASURE Evaluation–Strategic Information for South Africa
mHealth	mobile health
M&E	monitoring and evaluation
OpenHIE	open health information exchange
PEPFAR	United States President’s Emergency Plan for AIDS Relief
POPI	protection of personal information
SAG	South African Government
SMART	specific, measurable, assignable, realistic, time-bound
SMS	short message service
USAID	United States Agency for International Development

## EXECUTIVE SUMMARY

The MEASURE Evaluation–Strategic Information for South Africa project (MEval-SIFSA), in partnership with other key stakeholders, is providing technical support for the rollout of the MomConnect mobile health (mHealth) intervention. Though the project maintains a diverse portfolio of activities, supporting the implementation of the mHealth strategy (2015–2019) of South Africa’s Department of Health (DOH) is one of its major goals. Recognizing its role in both MomConnect and the mHealth strategy implementation, MEval-SIFSA designed this assessment to document the intersection of these two activities. Specifically, this assessment sought to answer the question, “How have MEval-SIFSA’s MomConnect interventions contributed to mHealth strategy implementation?” The assessment asks *how* MomConnect has contributed to, enabled, or catalysed the implementation of key aspects of the mHealth strategy.

The study is a mixed methods assessment that relies primarily upon key informant interviews (KIIs) with individual representatives of key stakeholder organizations in both the private and public sector. The assessment was designed to inform MEval-SIFSA’s learning agenda, but it also has applications outside of the project for a wide array of mHealth stakeholders in South Africa.

The assessment found that knowledge and use of the mHealth strategy is fairly limited among respondents, apart from those directly involved in its development. Although respondents see the necessity of having an mHealth strategy to articulate DOH priorities and set standards and norms, they all felt that the strategy has yet to be implemented in any significant way.

The following are specific ways MomConnect has had an impact on the mHealth environment more broadly, but not the mHealth strategy specifically: raising the visibility of mHealth, contributing to health information system (HIS) interoperability conversations, providing a case study for national scale-up of an mHealth intervention, and standing as an example of broad stakeholder engagement. Many respondents saw MomConnect as a forerunner that paved the way for future mHealth activities to be successfully implemented.

MomConnect was implemented within the unique South African context, and much of its success can be attributed to the enabling environment that was ripe for this type of intervention. Implementation efforts benefitted from significant government support and political will, sufficient funding and donor support, strong technical partnerships, individual champions, and good timing.

Noting the need to improve mHealth strategy implementation to increase the likelihood that future mHealth activities would succeed, respondents called for stronger DOH leadership, greater government transparency in planning and contracting, more practical guidelines for how to implement policies, dedicated funding for mHealth activities, and the formation of committees to ensure the success of strategy implementation. Respondents saw these activities as necessary for South Africa to have a rich and diverse mHealth environment that meets the DOH goal of improving health.

## INTRODUCTION

The MEval-SIFSA project supports the South African Government (SAG) and other United States President’s Emergency Plan for AIDS Relief (PEPFAR) implementing partners in their effort to collect, analyse, and use quality data that can inform decision making at all levels of the health system.

### The MEval-SIFSA Learning Agenda

The five-year project, supported by PEPFAR, conducted a midterm strategic review in mid-2015. One of its main recommendations was to add an additional focus area of learning and research to the project’s suite of technical areas. This learning and research technical area is designed to address two challenges: (1) the SAG’s growing desire to understand and learn from the many HIS initiatives under way (implemented by



MEval-SIFSA and other partners) and to understand the general HIS environment in South Africa; and (2) the need to understand and assess the project's HIS contribution and document what is being learned from this complex, systems-strengthening project that works in a dynamic environment.

Therefore, MEval-SIFSA's learning agenda has two objectives:

1. To document project contributions to HIS strengthening, by examining the theoretical pathways of key technical areas in the project's theory of change
2. To learn from HIS initiatives under way in South Africa and how they are influencing HIS in terms of the enabling environment, information generation, and performance

This learning agenda has a number of audiences and intended benefits. First, the SAG will have specific and actionable information on what influences HIS strengthening in selected areas. Second, as the project's funder, USAID/South Africa will have better information about how its investment is performing and contributing to HIS strengthening in South Africa. Third, MEval-SIFSA's partners can use the information to assess the contribution of the partnership to HIS strengthening and can tailor the learning to fit their needs. Fourth, MEval-SIFSA will be able to reflect on new or supporting information and develop or adapt its technical assistance interventions to what is being learned.

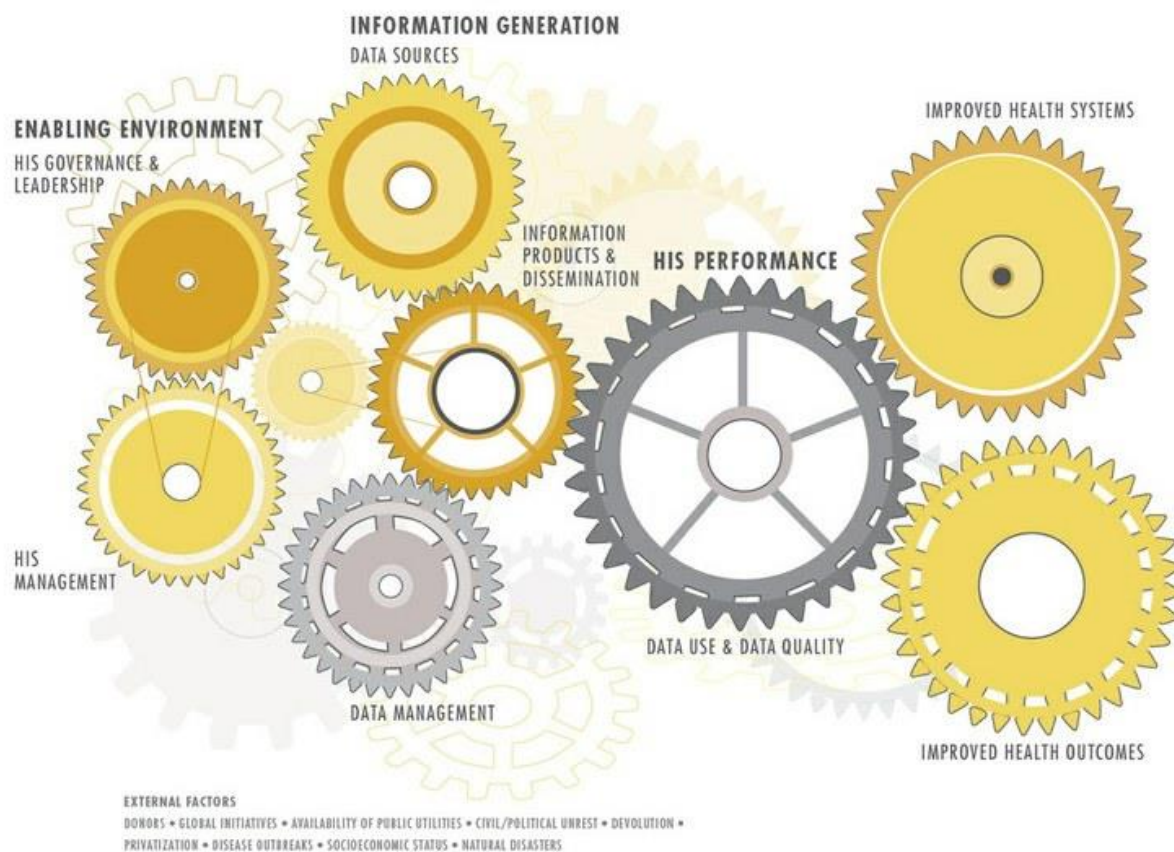
## **mHealth Strategy Implementation and the MomConnect Intervention**

The SAG mHealth strategy (2015–2019) vision is to enable a long and healthy life for all South Africans. It aims to apply mHealth as an integral part of the transformation and improvement of healthcare services in South Africa. The South African mHealth strategy was designed especially to enable delivery on medium-term plans towards achievement of the National Development Plan 2030. Its other ambitious goals are to pave the way for future public-sector mHealth requirements; lay the foundation for future integration and coordination of all mHealth initiatives; and address and meet the needs of communities, healthcare providers, and policymakers.

The strategy highlights the gap in evidence for the efficacy of mHealth interventions available to decision makers. In order to create a robust body of evidence for mHealth strategies, the SAG is eager to take on the role of coordinator. MEval-SIFSA's capacity building efforts support this strategy.

With regard to pilot projects, the strategy calls for establishment of a mechanism to support the implementation of projects that are national priorities, so that they can be scaled up effectively. One such project is MomConnect, one of the first mHealth pilot projects that is being brought to scale in South Africa. MomConnect is a ministerial mHealth initiative supported through PEPFAR special initiative funding. It employs cell phone technology to register pregnant women in South Africa (nearly all women have access to cell phones) and deliver maternal messages to them during and after delivery. The goal is to reach every pregnant woman in this way. MEval-SIFSA is supporting operations and project management, by funding seconded staff and system infrastructure improvements and providing messaging and registration support. The project is also undertaking operations research to identify and improve capacity gaps. Previously, the project supported the MomConnect help desk, which was expected to contribute to the operationalization of support for district health management information system integration into existing service desks.

**Figure 1. The MEASURE Evaluation Health Information System Strengthening Model (HISSM)**



Source: MEASURE Evaluation, available at <https://www.measureevaluation.org/resources/publications/fs-16-171>

In addition to helping to answer specific questions relevant to the MEval-SIFSA project, this study informs the theories behind MEASURE Evaluation's Health Information System Strengthening Model (HISSM). The findings of this study, along with those from USAID's other MEASURE Evaluation associate awards, in Kenya and Tanzania, will contribute to a wider global discourse about modes of strengthening HIS. It will guide ongoing learning on how HIS in low- and middle-income countries are designed, developed, and implemented over time to support health systems and improve health outcomes. There are four key areas in the HISSM: the enabling environment, information generation, performance measurement, and external factors; and this current assessment focuses on the enabling environment as it relates to mHealth in South Africa. An enabling environment is the foundation for planning, implementing, and maintaining an HIS.

## Study Objectives

The primary objective of the study is to answer one of MEval-SIFSA's Learning Agenda questions: ***How have MEval-SIFSA's MomConnect interventions contributed to the mHealth strategy implementation?*** This assessment asks *how* the MomConnect intervention has contributed to, enabled, or catalysed the implementation of key aspects of the SAG mHealth strategy. The secondary objectives are the following:

- To describe *what* changes have occurred in the implementation of the mHealth strategy
- To understand *who* has been largely responsible for these changes
- To understand *how* these changes have come about
- To make recommendations, based on the study's findings, that could be used in South Africa to further improve the implementation of the mHealth and other related HIS strategies

- To share lessons learned from the study that could inform other countries' mHealth strategy development and/or implementation
- To contribute to further refinement of the MEASURE Evaluation Phase IV HISSM

## METHODS

This assessment was designed as a mixed methods, cross-sectional study, and was conducted over a two-month period, from July to September 2016. The study was conducted in three phases and used three distinct research methods: desk review, KIIs, and a focus group discussion.

The protocol was designed in consultation with MEval-SIFSA staff based both in South Africa and the United States to ensure that direct MomConnect implementation experience was factored into the assessment design. The first phase of the assessment was a review of relevant documents related to mHealth in South Africa and MomConnect, more specifically. The following were some of the relevant documents reviewed: the mHealth Strategy 2015–2019 and implementation plan, the eHealth Strategy South Africa 2012–2016, MomConnect operations research reports from MEval-SIFSA, project presentations, case studies by USAID as well as the United Nations Foundation and the World Health Organization, MomConnect weekly and monthly reports from the DOH, the MomConnect help desk database, the scope of work for mHealth repository development, and the relevant technical briefs produced by MEval-SIFSA on mHealth.

Based on the learning achieved through the desk review, and based on assessment priorities, a semi-structured KII guide was developed. Key informants were people from MEval-SIFSA, government counterparts from both the strategy side and the MomConnect implementation side, donors, and private-sector counterparts. The respondents were identified through their involvement either in the mHealth strategy, MomConnect, or mHealth in South Africa, more broadly. When conducting interviews, we asked respondents to suggest other people who could contribute to the study, thereby creating a snowball sampling approach. We interviewed 11 people in one-on-one interviews and three MomConnect capacity-building coordinators at MEval-SIFSA together.

## RESULTS

### Knowledge and Use of the mHealth Strategy

Knowledge and use of the mHealth strategy was minimal among all respondents, apart from a select few who were directly involved in the strategy and the drafting. Several participants mentioned being asked to contribute to the mHealth strategy in its early stages, but were unaware of the document-drafting process. Though they had not been directly asked about the drafting of the strategy, several respondents commented on the process. One respondent mentioned that the process was “very unsystematic,” in that it did not “involve a robust assessment of synthesized evidence,” although it did include some DOH-sponsored research.

Those respondents who were not involved in the planning or drafting of the strategy universally mentioned “opening” or “reading” the document, and then never looking at it or referring to it again. One respondent had seen early drafts of the document, but was unaware that it had been finalized and released.

In terms of use, the private-sector respondents described studying the strategy to ensure that their work follows all strategy recommendations, but agreed that the mHealth strategy has not changed their practices. They all felt that their work was in line with the recommendations and principles of the strategy. One respondent said, “I read it to make sure we aren’t doing anything apart from it, but we were already working that way.” Another respondent said, “We haven’t changed any of our strategies based on it.”

Although we did not ask respondents their opinion of the strategy itself, several offered it. One respondent said, “My impression at the time [of reading] was that it wasn’t very substantive.” Another said, “The strategy seems quite sensible.” Yet another said that it “seems broad and vague.” Yet another suggested that it should not have much detail, because it shouldn’t limit innovation in the mHealth sector. It should be noted that these were comments from respondents who had not spent significant time studying the strategy document.

All respondents were aware of the mHealth strategy document, to some extent, but several also noted that it had not been widely advertised. “I don’t hear people talking about it, to be honest. Even at the [eHealth Alive] conference, did anybody mention it?” questioned one respondent.

## **Purpose of the mHealth Strategy**

Respondents were asked what they perceive to be the purpose of an mHealth strategy, and they answered the question in a number of ways. Some recurring themes of the responses were the following:

- To set standards and norms for mHealth
- To articulate DOH priorities
- To serve as a means of coordination
- To set the future direction of mHealth
- To provide guidance to implementers
- To link technology to health system improvement

One respondent said, “I suppose it’s the purpose of all strategies—for the department to take the lead, set standards and norms so that things can be implemented, and then monitor and evaluate activities within that framework.” Another respondent also mentioned the important role the mHealth strategy plays in collating coherent data on mHealth interventions that can improve the HIS more broadly: “In theory it’s to provide a framework to align and coordinate and articulate a set of priorities and standards. I don’t know whether it makes it happen.” This respondent highlighted the link between the document and the implementation of the strategy discussed in the next section. One respondent noted, “Broadly speaking, it needs to stop fragmentation.” The respondent discussed the multiplicity of mHealth interventions in South Africa that are not being managed by a central coordinating body, namely the DOH. Yet another noted that the strategy signalled government willingness to learn more about the mHealth environment in South Africa and continue to invest in that arena.

One private-sector respondent opined, “It should be something that all the stakeholders in the sector use to ensure that we’re pulling in the right direction.” He was primarily concerned with what the future holds for mHealth, where stakeholders should invest resources, how they can coordinate, and how they can ensure interoperability.

A couple of respondents noted the timeliness of the strategy. “It’s an important document to provide guidance in an area that is rapidly developing both in terms of the technology and the level of interest and the willingness of funders to actually fund this kind of work.” In contrast, several respondents thought the mHealth strategy was unnecessary, because an eHealth strategy preceded it. They saw mHealth as falling within eHealth and thought that it did not require a separate strategy. “If we continually see it as something different, it will remain external.”

## **Impact and Implementation of the mHealth Strategy**

All respondents felt that there has not been any notable implementation of the mHealth strategy. Across all stakeholders, and regardless of their level of involvement with the mHealth strategy, respondents did not see anything being done to realize the recommendations within the strategy. One respondent noted that the

strategy is relatively new and that impact and implementation “won’t be realized for some time.”

Several respondents advocated better implementation of the mHealth strategy in the DOH. One noted that “the document hasn’t been popularized, and there isn’t a central body to refer to.” Though respondents were unaware of any implementation efforts by the DOH, one respondent noted that the DOH is not at all transparent. This respondent suggested activities could be occurring within the DOH that are not visible from the outside.

Several respondents mentioned one activity that had been initiated without follow-through: the establishment of the Ministerial Advisory Committee on eHealth, which respondents saw as an official body that could aid implementation both of the mHealth and eHealth strategies. According to respondents, the committee was officially gazetted more than a year ago, with a call for nominations in October 2015. Several respondents nominated themselves to participate on it, but no further information was sent. One respondent said that “politics is holding it up.”

One respondent wondered whether the strategy should be implemented at all, noting that it serves its purpose as a high-level document to be referenced and to provide validation for certain activities.

## MomConnect’s Effect on the mHealth Strategy Implementation

Though all respondents had varying degrees of knowledge about MomConnect, some had more direct experience than others. All but one had sufficient knowledge to respond to a question asking whether MomConnect has had an impact on mHealth strategy implementation. Because there was general consensus that the mHealth strategy is not being implemented, no respondent was able to make a direct link between MomConnect interventions and mHealth strategy implementation. One respondent put it well when he said, “MomConnect has knocked on the door, but the door is only slightly opened. It has raised awareness that there is need for the mHealth strategy to be more coherently implemented, but it hasn’t resulted in concrete action up to now.”

Someone familiar with the design of MomConnect and the drafting of the strategy, which was published after the start of MomConnect, said, “A lot of things we knew were going to be in the mHealth strategy, we put into MomConnect. . . . We were aware of the content of the strategy before it was formally published.”

Despite the lack of a direct link with the mHealth strategy, almost all respondents were able to pinpoint specific ways in which MomConnect affected the mHealth environment in South Africa. Some of the ways MomConnect has had an impact on the mHealth environment, as reported by respondents, follow:

- Raising the visibility of mHealth
- Initiating conversations on and implementation of interoperability
- Proving that a national mHealth initiative can be taken to scale
- Showing how an initiative can be designed with broad stakeholder engagement to include entities outside the DOH

One respondent noted, “MomConnect has been helpful to be the forcing function for collaboration and turning any government vision into a reality.” Another said that MomConnect is “something tangible that we can have a conversation around; it has given us a good case study.” Yet

“In the practice of doing MomConnect, it is the project that has made many things happen. They’ve solved many problems along the way. How do we train 50,000 nurses with an electronic tool when we’ve never had to do this before? How do you design a system that works on all cell phones? How do you get facility codes when it hasn’t been done before? How do you negotiate with SMS prices? How do you set up an OpenHIE [Open Health Information Exchange]? How do you do privacy and security? It’s all health systems, and nothing to do with maternal and child health. It has been central to how this works in practice.”

another respondent said, “[MomConnect]’s a frontrunner in the game. Even if it doesn’t do all that it’s supposed to, it has paved the way for other initiatives to follow.”

## Priority Areas of the mHealth Strategy

**Strategy and leadership:** While MomConnect was a government initiative from the beginning of its implementation, one respondent recognized the increased ownership of the activities as MomConnect has progressed. One respondent said, “In the lack of a coherent governance of mHealth in the department, there is very little that is done at a strategic level.”

**Stakeholder engagement:** There were differing opinions about whether MomConnect was a good example of stakeholder engagement. One respondent from the private sector said it was “not a success from a collaboration and implementation standpoint.” Recognizing that the process may not have been as inclusive as it could have been, one respondent noted, “It’s probably created two areas: (1) people who are involved in it, and (2) people who aren’t. People who are involved probably think it has brought them together.”

The majority of respondents thought that the process had included a diverse array of actors within the mHealth environment, including multinational organizations, technology groups, and nonprofit and for-profit organizations. Respondents mentioned the task team that was set up prior to the implementation of MomConnect. One respondent said the task team “showed a way that you could bring together all the different players in a particular space and try to build a national system out of it.”

**Standards and interoperability:** MomConnect’s greatest perceived effect on the mHealth environment—the success that respondents cited most often—had to do with interoperability. Respondents noted that this was a function of the National Health Normative Standards Framework for Interoperability in eHealth in South Africa rather than the mHealth strategy. The Health Normative Standards Framework was published before MomConnect was implemented, and one respondent noted that it is “the reason that MomConnect happened” the way it did. MomConnect has been linked to other systems, such as DHIS 2, at the national level, and to other mobile applications in the public health sector in South Africa. The eHealth Alive Conference had a satellite session on the interoperability of MomConnect with other private sector products for frontline health workers. Several respondents noted the work that the Council for Scientific and Industrial Research and Jembi Health Systems have done to ensure it is “designed to be interoperable with all of the norms and strategies that eHealth has set out,” particularly with the inclusion of Protection of Personal Information (POPI) requirements in the Health Normative Standards Framework. “It has introduced an open interoperability component into the DOH that wasn’t there before with OpenHIE.”

That being said, some respondents think the interoperability capabilities have not gone far enough. One respondent said, “There is still work to be done. Ideally, everything connects together, and that’s where the benefits start to come—the master patient index, which is something we’ve never had. Obviously it would be helpful if MomConnect linked to TB [tuberculosis] stuff, HIV data, other systems all joined up to this. You start to be able to mix things around in an interesting way.”

MomConnect is reported to be a good case study of applying interoperability standards. In addition, it has been recognized to be a catalyst in creating standards around facility codes throughout the health system. Respondents described a situation pre-MomConnect where facilities were only known by their name and an alphanumeric code that was not used regularly. Through MomConnect, a six-digit facility code system was developed and is now used regularly throughout the health system. According to one respondent, “That does make a big difference.”

One respondent noted the impact MomConnect has had on the provinces. Western Cape, in particular, was mentioned for integrating MomConnect with other data systems.

**Governance and regulation:** Respondents did not recognize a link between MomConnect and improved governance and regulation of mHealth. One respondent mentioned that “the learnings may well inform other security and privacy issues,” but most of the regulatory issues were already accounted for in the Health Normative Standards Framework. In addition, another respondent said that the



technology was developed by a third-party company that set the privacy standards for MomConnect rather than the government itself.

**Investment, affordability, and sustainability:** Respondents were not familiar with the details of DOH budgeting for the mHealth strategy, but there were many opinions about the affordability of MomConnect, as well as its sustainability within the DOH. Several respondents noted the expense of the short message service (SMS) technology and questioned whether or not that is a sustainable platform for this type of push messaging.

When discussing ongoing investment in MomConnect, respondents said things such as, “We’re about to find out very soon.” With donor funding coming to an end, many respondents are eager to see how that affects DOH investment in the initiative. One respondent seemed confident that the DOH would “pick up the tab.” Yet another mentioned that the DOH relies heavily on its partners to fund these types of interventions, particularly innovative initiatives, rather than making risky investments itself. Even so, yet another respondent said that MomConnect “did affect the budget, and they are trying to invest more” in mHealth, as with the other applications that have followed MomConnect (see below).

**Benefits realisation:** Nearly all respondents independently mentioned MomConnect’s success in reaching so many women and being implemented in nearly all public facilities. One respondent who was familiar with the results of MomConnect’s implementation said, “More and more mothers are starting to use MomConnect, and they realize how efficient it is to an end user. Moms see how easy it is and are starting to look for more.”

Almost all recognized that the program’s reach gives it the potential to affect public health outcomes, but several mentioned that the actual public health impact remains to be seen. One respondent said, “Because of MomConnect, there has been a fair amount of research about the potential benefits of the intervention.” Results of the formal monitoring and evaluation (M&E) of the intervention are under way, and results should be available in late 2016.

**Capacity and workforce:** Though it may not have an impact on health workforce training and capacity building more broadly, many respondents noted the success with which MomConnect was rolled out to

“The one time I went to a clinic, I did see a bench on one side of the clinic with pregnant woman. There was a nurse taking each woman's cell phone and helping them register. It's impressive how they've been able to train nurses and the workforce to do this at a large scale. We want to move past that, because we don't want health workforce doing this, but the initial stages show incredible uptake with change management and uptake.”

health workers in all public facilities. As one respondent said, “Everyone’s been trained on MomConnect!” The training has focused on the practical skills needed to register pregnant women, but the MomConnect coordinators noted that it’s also “a technology exposure type of service.” They see the training as giving health workers at all levels (nurses, community health workers, and even caretakers) new mobile skills.

MEval-SIFSA’s MomConnect coordinators suggested that this type of training has changed standard operating procedures at the facilities and improved services. They say women are more likely to get their expected date of delivery, and nurses are more likely to collect contact details for their clients, both of which were not done as

regularly before. With the exposure of MomConnect, respondents say it makes the introduction of other initiatives, such as NurseConnect, an easier and more positive experience. Health workers “see new possibilities” as they become familiar with mHealth interventions such as MomConnect. That being said, one respondent did criticize the “top-down” approach of training, which assumes that all nurses have sufficient skills to implement MomConnect after their facility managers are trained at the district level.

**eHealth and mHealth foundations:** “Because MomConnect is now recording individual patients and targeting them individually, it’s getting a step closer to individual patient record management.” The eHealth foundations are focused on using a master patient index and improving connectivity. Several respondents recognized the potential for MomConnect to have an impact on this priority, but have not seen it realized yet. One respondent reported, “The base of the eHealth strategy is to have a patient

record management system so you can track a patient from one hospital to [the] other.” While MomConnect is not able to link to the master patient index yet, according to one respondent, “It has the potential.” Conversations on a national unique identification number are ongoing and may facilitate this linking in the future.

**Applications and tools to support healthcare delivery:** Many respondents brought up NurseConnect as being a direct result of the success of MomConnect. NurseConnect is a large-scale health worker support system. One respondent said, “The success of MC [MomConnect] has raised the appetite of certain people in the department to want to push more things out. Other apps in the unit like NurseConnect have all emanated from MomConnect.” Yet another said, “[NurseConnect] would not have been possible without MomConnect.” People saw MomConnect as an enabling factor, but recognize that interventions such as NurseConnect may have come in a different format had MomConnect not been supported by the DOH. It set a standard and a format that can be used by other areas of the health system.

One knowledgeable respondent said, “A lot of people would like to piggyback onto MomConnect. If there were unlimited finances, that would happen immediately.” In addition to NurseConnect, respondents noted the expansion of MomConnect into prevention of mother-to-child transmission messaging and linking with the adolescent B-Wise program.

**Monitoring and evaluation of the mHealth strategy:** While few respondents were able to comment on the M&E of the mHealth strategy itself, those who did said there has not been any M&E of the strategy.

## Negative Impact on the mHealth Environment

Not all respondents agreed that MomConnect has had a purely positive effect on the mHealth environment in South Africa. One respondent said there was the potential for MomConnect to become “the core” of the DOH’s mHealth work, while support for mHealth for frontline workers and a highly functional case management system risked neglect. Several respondents were also critical of the choice to use SMS messaging, because it creates a focus on one type of technology. Yet another respondent thought MomConnect has not gone far enough as a push-messaging intervention when it could have been more useful if it included an electronic pregnancy register. Another respondent was critical of the top-down design that failed to take into account the model of one-on-one registration in “the public health sphere.” This person thought batch registration might be more effective.

Last, several in the private sector worried that the hegemony of MomConnect would remove attention from other interventions (such as malaria mHealth activities) and create an mHealth environment that does not encourage innovation and competition. One respondent said, “It might be difficult for non-DOH projects to reach the same scale now, because it would be seen as being competition.” MomConnect replaced other pregnancy messaging services, and there was debate about whether their extinction is a bad or good development.

## Enabling Factors for MomConnect Successes

Respondents were asked what or who could be credited for the successes of MomConnect in its public health results, its implementation, and its effect on the mHealth environment. Common themes emerged among respondents, and respondents generally recognized the following things as contributing to MomConnect successes:

**Ministerial support and political will:** “It’s always a critical success factor if you have the right kind of stakeholder support.” Most respondents recognized the key role that the Minister of Health has played in catalysing the successful scale-up of MomConnect. Another respondent credited the DOH for support and involvement in the design, saying it pushed to add the help desk just three weeks before the launch of the product. That respondent said, “Having [the minister’s] support behind it has rolled down to other people.” The level of ministerial support was described as a



“road show” from capital city to capital city of every province of the country where the minister introduced MomConnect to district and subdistrict managers to encourage buy-in.

**Funding and donor support:** Respondents noted contributions by both the DOH itself and external donors, which enabled MomConnect to be developed and brought to scale. “One of the contributing factors was that they were able to attract funding not just from DOH, but other partners,” said one respondent. One respondent mentioned the flexibility of donor funding compared to DOH funding, asserting that outside funding allowed for things to move more efficiently.

With that external funding also comes technical support. Not only does PEPFAR provide direct funding, but it also provides support through implementing partners, such as MEval-SIFSA. One respondent said, “PEPFAR is so effective because of their process of involving partners and monitoring partners.”

**Technical implementers:** Respondents recognized that South Africa was well-suited to this type of intervention, because there is a home-grown industry that could “do the technology.”

**Individual champions:** Many respondents noted the contribution of individuals among the stakeholder groups who “were enthusiastic to make the project work.” Specific individuals at MEval-SIFSA were mentioned as playing a pivotal role as “a trusted partner.” Many individuals are also credited with encouraging the process to be collaborative, with a focus on interoperability. Clearly, this activity required a very large group of people with diverse skill sets whom one respondent described as “really nice people.”

**Timing:** One of the key components of the environment that respondents thought made it ripe for MomConnect’s successful implementation was “high cell-phone penetration.” Another factor that affected the timing was the existence of small-scale interventions similar to MomConnect that had shown success.

Other factors that were mentioned included the implementation of the MomConnect Task Team, which continues to hold regular meetings and encourages collaboration. Two respondents mentioned that the design of MomConnect took into account client needs. Others mentioned the effective training by MEval-SIFSA of health facility staff. Buy-in by nearly all provinces was also seen as being critical for effective uptake.

## **Respondent-Suggested Improvements to the mHealth Strategy Environment**

All respondents were able to identify some areas that could be improved to further mHealth strategy implementation. Many of the respondents’ suggestions fall into the following categories:

**DOH leadership:** “There needs to be some oversight of the strategy from the department. There needs to be governance.” This was a recurring theme among respondents. While leadership can mean many different things, respondents spoke to both specific examples of improvements and higher-level ideas about leadership. Several respondents noted the need for human resources to support implementation of the mHealth strategy. One said, “There is a vacuum in the department,” and another mentioned that no one in the department “says they’re responsible for the mHealth strategy and are open to discussion.” Without “a warm body,” as one respondent said, there isn’t the capacity to monitor the strategy and ensure its adherence within the mHealth environment. Respondents wanted to have a specific person they can go to and someone who responds to email messages about the strategy.

Other respondents mentioned the need for greater technological knowledge within the DOH. One suggested that there needs to be a chief information officer. This respondent suggested that the DOH currently has to rely on its partners for technological advice, and there may be some tension with external parties providing guidance. He suggested that there needs to be a neutral party within the DOH to help guide decision making on technology.

Commenting on the leadership, another respondent suggested that the mHealth environment is led by donor initiatives. “DOH should be saying what things they want, and they should be doing the procurement.”

“Start off with the benefit realization plan, which acts as the business case for why you do all this stuff. With that, identify specific projects that will get the benefits sorted out. Ask Treasury to fund those projects. Through those projects, you will implement all the things in the mHealth strategy. You also need the coordinating unit to coordinate everything. Simple.”

**Transparency:** Several people spoke of a lack of transparency within the DOH. Several respondents said of the leadership, “Everyone is protective of their little piece, because there isn’t a transparent process about how turf is distributed.” This prevents several respondents from wanting to contribute to the overall mHealth strategy implementation. The private sector, in particular, voiced the necessity for the DOH to verbalize targets and indicators on outcomes their mHealth activities must achieve in order to receive DOH support. They are seeking clear direction on what they need to produce to show that the mHealth interventions they are implementing are useful to the DOH. One respondent suggested this process engage the private technology sector. He proposed that the chief operating officer should lead a process that helps publicize the strategy, brings in stakeholders, describes the upcoming tenders, and discusses what technology needs to be developed to reach the department’s goals.

**Practical guidelines:** Related to transparency, some respondents desired clear guidance on what the strategy means for them. One mentioned this as “rules” that they need to follow, such as encryption, interoperability, and ensuring that the data belong to the DOH. As a companion to the strategy document, several respondents were interested in seeing a document containing guidelines that would make the intention of the strategy more concrete. As one respondent said, “It’s theory, and it’s hard to see the practical implementation.”

**Funding:** Also related to leadership is funding of the mHealth strategy. Several respondents described the DOH as “donor led” and said that the department will support any product that comes with external funding. One respondent said, “They aren’t making concerted efforts to lead the direction.” Investment in the mHealth strategy will represent a commitment to mHealth beyond what donors want to fund. That being said, another respondent saw it as the responsibility of the DOH to get donor buy-in for the strategy.

**eHealth advisory committee:** Several respondents mentioned the need to establish a board or committee if the eHealth Ministerial Advisory Committee already gazetted is not to be formalized. As one respondent said, “It gives authority to the implementation.”

**Provincial buy-in:** Three different provinces shared their eHealth activities at the eHealth Alive Conference. They all presented dramatically different interventions at different levels of technological advancement. While these presentations focused on eHealth rather than mHealth specifically, they showed that the provinces will determine their own course for eHealth more broadly in the absence of a strategy at the central level. One respondent said, “Provinces want to be autonomous to choose service providers, but there isn’t a clear line of command or clear guidance.” Despite their autonomy, another respondent noted, “If everyone is doing their own thing, it makes it hard to turn it into anything useful.” They see a need for the provinces to buy into national programs. One respondent suggested that the provinces will “push back” unless there is strong buy-in at all levels and leadership to ensure that buy-in.

Other suggestions that were made included doing a survey of existing mHealth activities, holding workshops in all of the main cities on the strategy, encouraging more cross-government conversations (with entities such as the Departments of Communication and Home Affairs), uploading the strategy to the DOH website, creating a repository of evidence, and assigning dates for completion of key benchmarks in the strategy.

One respondent questioned what it means to implement a strategy. She saw it as a means to “influence people’s thinking and to increase awareness and provide guidance. . . . For me, the important thing is that there is a strategy.” It represents political will and national thinking on the topic. Another respondent said,

“It has been lip service to some of the principles that sound good, but when it comes to practice . . . it has been to show that something is happening on a strategic level.”

## The Future of mHealth in South Africa

Respondents were generally optimistic about the potential for mHealth to have a positive impact on public health in South Africa in the coming years. When asked what they saw as the future of mHealth, respondents gave extremely varied replies, such as the following:

- Involvement of private insurance mHealth products in the government system
- Increasing use of smart phones, leading to more connectivity and greater use of data
- A multiplicity of interventions
- Innovations to allow people to be more empowered to care for their own health and the health of their family
- Greater use of video and voice messages

There is great room for innovation, and many respondents see the DOH playing an essential role in coordinating this sphere in the coming years.

## DISCUSSION

The mHealth strategy is an initial step in the process of identifying and recording the national government’s priorities for mHealth in South Africa. As a document, it has seen limited exposure. Although all respondents were aware of the document and most had read it, it is not regularly referenced in the everyday work of most of this assessment’s respondents. Perceptions of the strategy were mixed. Some saw it as vague and indirect, while others praised it as being a high-quality document that has sufficient detail to guide its implementation. Many did not think the mHealth strategy presented new information, expressing that it mirrored current best practices and in-country activities.

Respondents saw the utility of an mHealth strategy as a document to set standards and norms for government oversight of the mHealth environment. They saw it as a means to set priorities and the direction of interventions for mHealth. Despite the respondents’ limited exposure to the strategy, they recognized a need for the strategy at the national level as a guide to implementers.

Though they recognized the mHealth strategy’s role in establishing priorities, respondents had seen very little evidence of its impact or implementation. The strategy is relatively new, but a year since it was formally published, its impact has yet to be observed, either inside or outside of the DOH.

Because respondents were not aware of implementation efforts for the mHealth strategy, they were not able to make a direct link between MomConnect and its effects on the mHealth strategy implementation. Respondents did, however, provide many examples of how the implementation of MomConnect has affected the mHealth environment more broadly, often for the better but occasionally for the worse. Many saw MomConnect as a case study of how to implement a major mHealth initiative at scale.

MomConnect led the way in addressing systemic challenges to mHealth implementation: training health workers, ensuring interoperability, encouraging stakeholder engagement, ensuring buy-in at all levels, and designing a technology product that reaches a target audience, among others. MomConnect’s greatest successes in the mHealth strategy’s priority areas involved stakeholder engagement, standards and interoperability, and capacity and workforce. Most respondents were able to see the direct effect of MomConnect on other mHealth initiatives in South Africa, including the spinoff NurseConnect. MomConnect has also clearly had a major impact in South Africa in raising the awareness of mHealth interventions.

Some respondents see MomConnect as an example of limiting the diversity of potential interventions in South Africa. Some also worry that the DOH has prioritized this one mHealth intervention at the expense of other important interventions, such as applications for frontline workers. There is also concern among some about the technology's use of SMS—a costly means of communication.

Despite occasional criticism, there is overwhelming admiration for what MomConnect has been able to do in the mHealth environment. These successes are credited to (1) the environment in South Africa that was ripe for this type of technological intervention, (2) an exceptionally supportive DOH and involvement by the minister himself, (3) funding for the initiative both from the DOH and donors, (4) well-designed technology, and (5) individual champions who made the intervention succeed.

Though MomConnect has had a primarily positive impact on the mHealth environment in South Africa, respondents still see room for mHealth strategy implementation to be improved, to ensure that other mHealth initiatives are successful in the future. The primary suggestion was to increase and improve DOH leadership guiding the implementation of the strategy. More staff were thought to be needed, with the capacity to oversee the strategy, to ensure collaboration, to emphasize high-priority interventions, and to manage both internal and external funding of the strategy. The private sector is eager for more transparency in decision making and for more concrete guidelines on how it should apply the strategy.

## **Lessons from MomConnect Implementation for Other Countries**

No project is perfect, but this assessment shows clearly that respondents can identify many ways in which MomConnect has been successful, both as an mHealth intervention and as a facilitator of HIS improvement. When considering the MEASURE Evaluation HISSM, it is easy to see that MomConnect has had an impact on, and benefitted from, the enabling environment for mHealth. This is seen in many elements that were in place that allowed MomConnect to be successful, as follows:

- Project champions from both the private and public sectors
- Government leadership, most notably the Minister of Health
- Pervasive cell-phone ownership among beneficiaries
- Sufficient technological capability in-country, enabling private-sector partnership and high-quality product development
- Donor funding and technical support for the project
- Provincial buy-in that allowed the project to be rolled out nationally
- Routine stakeholder meetings to keep the activity on track
- Interoperability capabilities and enforcement
- A true need for this type of product
- Training partners that continue to push for high-quality implementation

All of these elements contributed to an enabling environment that was ripe for this kind of intervention. Although the MomConnect experience is specific to South Africa, these elements would be beneficial to mHealth activities elsewhere.

The assessment results also show that MomConnect has strengthened the South African HIS. As MomConnect continues to be refined, the utility of the information it collects continues to improve. Witnessing the successful uptake of the product will further encourage stakeholders to use mHealth solutions to address public health problems and HIS needs.

## Recommendations

This rich data provides an opportunity to improve the mHealth strategy implementation as well as the broader mHealth strategy environment. As the central hub of national mHealth strategy governance, most of these recommendations are relevant to the National Department of Health, but all require buy in from, and collaboration among, the mHealth and digital health stakeholders. Several recommendations that have the potential to improve the mHealth strategy implementation include the following:

- Designate a knowledgeable mHealth point person at the DOH who can respond to stakeholder queries about mHealth activities, contracts, and the broader strategy.
- Reaffirm the role of DOH as the coordinating body for mHealth in South Africa; their responsibilities should include tracking all mHealth initiatives in the country in order to prevent duplication and mushrooming of initiatives.
- Create an M&E framework for the policy that has specific, measurable, assignable, realistic, time-bound (SMART) targets and the human and physical resources to support the implementation of the mHealth strategy to reach those targets.
- Define specific DOH mHealth project priorities that can guide both nationwide and provincial mHealth initiatives—a roadmap for mHealth implementation.
- Ensure funding for priority activities through SAG financial support.
- Create a framework by which mHealth initiatives are evaluated by the DOH. This should define targets and indicators that projects must produce in order to meet DOH requirements.
- Create a “practical guide” as a companion piece to the mHealth strategy that provides technology sector partners with guidance on what they need to ensure in their products.
- Convene the eHealth Ministerial Advisory Committee, ideally with participation from other government entities.
- Publicize the mHealth strategy to include workshops in the main cities of each province, creating a web presence for the strategy, and creating a repository of evidence related to the strategy.
- Provide opportunities for knowledge sharing amongst both the private and public sector, to include the provinces.

## Conclusion

This assessment attempts to illuminate the larger mHealth context in South Africa and also MEval-SIFSA’s role within that context, particularly as it relates to MomConnect. Although it was designed to inform project learning and future needs, it has also brought to light both impressive achievements and some inadequacies within the mHealth sphere. This type of internal review and assessment should be done regularly, to increase understanding of the needs of mHealth stakeholders in South Africa and opportunities to meet those needs more effectively.

## Appendix. List of Respondents

Name	Organisation
Peter Barron	National Department of Health
Matthew Chetty	Council for Scientific and Industrial Research (CSIR)
Semaka Tshehla	MEval-SIFSA
<a href="#">Kieran Sharpey-Shaffer</a>	Dimagi
Peter Benjamin	Health Enabled
<a href="#">Annie Parsons</a>	Health Information Systems Program (HISP)
Rob Allen	MEval-SIFSA
<a href="#">Andi Friedman</a>	Mobenzi
<a href="#">Debbie Rogers</a>	Praekelt Foundation
<a href="#">Jesse Coleman</a>	Wits Reproductive Health and HIV Institute (WRHI)
Natalie Leon	Medical Research Council of South Africa (MRC)
Busiswe Shabalala, Geraldine Rasaela, Lufuno Nekhubvi	MEval-SIFSA

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