Scores of pregnant women across South Africa don’t have adequate knowledge on the do’s and don’ts of their pregnancy. This lack of information is linked to an increase in maternal deaths, many of which can be easily prevented with the right information.

In August 2014, the Minister of Health, Dr Aaron Motsoaledi, launched MomConnect in a bid to change this. Initiated by the South African Department of Health and supported by a large number of partner organisations, the initiative is currently South Africa’s first and only large-scale public mobile health project addressing maternal health.

Since its inception, MomConnect’s stage-based text messages containing crucial pregnancy, childbirth and child-care related information have started to change women’s lives and how they are experiencing their pregnancies.

“Knowledge around pregnancies and child care is crucial to empower women to get all instructions necessary for them to ensure a healthy pregnancy and deliver a healthy, vibrant baby,” said Motsoaledi in his 2015 Budget Vote speech.

South African women seem to share Motsoaledi’s viewpoints: over 500 000 women have joined MomConnect in the year since its launch. That amounts to over 60 women per hour.

This is a significant achievement, also on a global scale. Up until recently, Bangladesh was the world’s leader in terms of registering pregnant women on a mHealth system (100 000 women signed up in 18 months).

In addition to providing pregnancy and child care related information, MomConnect seeks to capture data on all pregnant women in South Africa. The data feeds into the National Pregnancy Register. This has the potential to allow national, provincial and district health authorities to track what happens to pregnant women and their children. The register will also help ensure that these patients are tracked and treated appropriately over time, across all levels of the health service. This will be a first for South Africa.

Aiming to reach all pregnant women, MomConnect has to be as inclusive as possible. Currently available in six languages, by the end of September 2015, mothers will able to choose to receive the messages in any of the 11 official languages.

MomConnect also gives women the power to ask health related questions and report on the quality of services they receive by sending a free SMS to a helpdesk. This feedback is used to improve maternal and child health services.

Soon nurses and health care providers will also receive text messages, to give them the necessary tools to deliver better services to improve the well-being of mothers, mothers-to-be, and their children.
The global context

The year 2000 witnessed the adoption of the Millennium Development Goals (MDGs), a global drive to tackle eight of the most pressing human development challenges.

In 2000, over 529,000 mothers died globally as a result of childbirth and pregnancy complications, of which Africa accounted for 251,000. Recognizing this challenge, quite a few of the MDG targets indirectly and directly deal with maternal health.

MDG5 aimed to reduce the global Maternal Mortality Ratio (the number of women per 100,000 live births dying due to pregnancy and childbirth) by 75% between 1990-2015, and achieve universal reproductive health care by 2015. MDG3 sought to improve gender equality. MDG4 aimed to reduce child mortality, and MDG6 focused on reducing HIV/TB prevalence, of which women tend to bear the brunt.

There has been global progress in terms of maternal mortality. Data from the World Health Organisation (WHO) shows that maternal mortality has decreased by 45%. However, this is not enough to meet the MDG5 target.

Maternal health in SA

The WHO’s 2000 Maternal Mortality Report shows that in 2000 maternal mortality in South Africa stood at 230 per 100,000 live births. Based on the targets outlined in MDG5, this figure should have been 38 or less by 2015. Infant mortality should be 18 per 1000 and under-5 mortality should be at 20 per 1000 live births.

Whilst there has been progress, it has been slow. By 2014, maternal mortality had been reduced to 140 deaths per

“The MomConnect initiative is a result of a great partnership. Working with all these organisations to realise MomConnect is one of our biggest achievements. Our country is home to 1.2 million pregnant women. We have to make sure that all of them are registered”

Dr Aaron Motsoaledi, South African National Minister of Health
100,000 live births and infant mortality and under-5 mortality were down to 33 per 1,000 and 45 per 1,000 respectively.

There is some good news: over 90% of pregnant women currently have access to antenatal care, and South Africa has a relatively high contraceptive prevalence rate (60%). In addition, the prevention of mother-to-child transmission (PMTCT) of HIV, a critical component in strategies to reduce maternal and child mortality and morbidity, has improved. Between 2009 and 2012, South Africa showed a 63% decline in transmission of HIV from mother to child. This is largely due to pregnant women being tested for HIV in pregnancy; for those who test positive, well over 90% are taking ARVs.

**mHealth can make a difference**

Many maternal, infant, and under-5 deaths can be prevented by increasing and improving mothers’ attendance to antenatal clinics, boosting their knowledge around pregnancy and child care, as well as improving the quality of maternal health care services women receive.

Various studies in Africa have shown that mHealth (the use of mobile devices and other digital technologies for health) can play a significant role.

For example, research in Kenya on adherence to Anti-Retroviral medication (ARVs) has shown that the group who received SMSs on their phones to motivate them to stick to their treatment had an improved viral load suppression after 1 year, compared to the group who didn’t receive messages.

When it comes to maternal health, mobile phones in Kenya have been effectively used to identify women with signs of obstetric complications, and an mHealth intervention in Zanzibar “significantly increased the proportion of women receiving the recommended four antenatal care visits during pregnancy.” Quality of care improved too on the island, with more women receiving preventive health services.

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**South Africa’s Maternal Health Obligations**

The constitution protects pregnant women’s and babies’ right to access to health services, stressing that “the State must take reasonable legislative and other measures to achieve the progressive realisation of these rights”, and ensure that “no one may be refused emergency medical treatment”, and that every child has the right to access “to basic health care services.” The National Health Act adds that the State “must provide pregnant and lactating women and children below the age of six years, who are not members or beneficiaries of medical aid schemes, with free health services.”

Further, South Africa is a signatory of the Campaign for Accelerated Reduction of Maternal Mortality in Africa (CARMMA) by the African Union. South Africa included child mortality reduction in its campaign. It aims to strengthen among other things family planning mechanisms and maternity services, as well as training more midwives, and expanding immunisation coverage.
MomConnect was developed against this backdrop. The initiative was launched by the National Department of Health (NDOH) and over 20 partner organisations in August 2014 as South Africa’s first large-scale mHealth project for the purpose of reducing maternal, infant and child mortality, whilst also improving maternal health care.

MomConnect sends out personalised SMSs to subscribers, relevant to their stage of pregnancy, with the objective of getting them to visit an antenatal clinic as soon they become pregnant. The messages that are sent out are free of charge, provide recipients with vital information about their pregnancy, birth and child care, and explain to them why visiting a clinic is important for their and their child’s health.

MomConnect, as a first in South Africa, also allows pregnant women and mothers to engage directly with the public health system (compliments and complaints) to improve maternal and child health services. To this end, nurses and health care workers will soon be sent messages too, providing them with necessary information to improve their work. Last but not least, MomConnect registrations are used to populate the National Pregnancy Register.

The MomConnect system consists of a patient-facing component (the messages sent to mothers), a point-of-care component (where nurses meet their patient and help them subscribe), and the back end component (the technical side which ultimately will link data around pregnancies from the National Pregnancy Register with other data sources).

In the first year of operations, over 500 000 women joined MomConnect. That equals nearly 1 400 women per day, and 60 per hour.

How It All Began

MomConnect was launched on 21 August 2014 by the South African Health Minister, Aaron Motsoaledi, at KT Motubatse clinic near Pretoria.

“We are looking at several interventions [to achieving the 2015 MDGs], and this is one of them. I can assure you that if we had started this program in the year 2000, we’d have come very, very far by now. Unfortunately, we just started only last year, as you know, but better late than never.”

Dr Aaron Motsoaledi, South African National Health Minister
The launch was the culmination of a long process led by the national Department of Health, under Dr Yogan Pillay (Deputy Director General of the HIV/AIDS, TB and Maternal, Child and Women’s Health) and involving a large number of stakeholders in the mHealth sector. Some were involved in messaging services, developing back-end systems, and mobile data collection, whilst others had experience training nurses through cellphones.

“There were various mHealth projects in existence at that time, focusing on preventing HIV, urging people to take their Tuberculosis (TB) medication, and supporting people in their quest to stop smoking,” says HealthEnabled Director Peter Benjamin, who was involved in the early meetings.

Most of these programmes were small and localised. The South African government however, wanted something which would reach all pregnant women across the country.

Key partners

Apart from the national and provincial health authorities, the realisation of MomConnect has included involvement of over 20 partner organisations. These include various technical partners, Non Profit Organisations, academic institutions, Mobile Network Operators and funders, particularly PEPFAR, Johnson & Johnson, the ELMA Foundation, the Discovery Foundation and UNICEF.

“Last night, I got a message suggesting I hold my baby close against my skin to calm it down. The nurses at the clinic had told me about the Kangaroo technique before, but I forgot. The reminder on my phone was very nice. I also liked MomConnect because the messages gave me the feeling that someone was concerned about me.”

Lucille Desmina Botha, mother of daughter Lea-Yaney (born 23 July 2015 at Mitchell’s Plain MOU in Cape Town)
Empowering moms

One of MomConnect’s main objectives is to empower mothers with information on pregnancy, child birth and child care. To achieve this, MomConnect sends out weekly stage-based text messages - free of charge - from the moment a woman signs up until her child’s first birthday.

There are four registration steps:

1. A nurse confirms the pregnancy.
2. The recipient dials *134*550# from her cell phone.
3. She answers a few questions about her pregnancy, including the due date.
4. She is linked to MomConnect.

The messages contain “hard” information around medical issues, such as unexpected bleeding and sudden headaches, as well as “soft” behavioural content, dealing with bonding with the baby, nutrition, exercise, drinking, smoking and drugs, and the need for safe sex during pregnancy.

Empowering nurses

A second objective of MomConnect is to empower nurses, midwives and health care workers with information, knowledge and feedback. They too will soon receive text messages. Increasing the demand for better services amongst the public requires empowering those who are delivering that particular service. This requires giving them the necessary knowledge around their work and things that come to play, for which there is a great demand. “One can’t have a situation in which mothers expect something that can’t be provided for by those who deliver the service, in this case nurses, midwives and healthcare workers,” says Peter Barron, public health specialist and technical assistant at the NDOH.

This part of MomConnect is particularly important in a country like South Africa, where the health care system is severely overburdened.

“If women know more about what is going on with themselves and their baby, they might not want to go to the clinic for every little thing. I recently spoke to a woman whose child was crying and crying,” said Alida Mallum, Operations Manager at Mitchell’s Plain maternity unit. “She intended on bringing her child to the clinic the next day. Then she received a text message about teething, and that crying was one of the symptoms, and that she could do various things to alleviate the pain. The mother ended up not going to the clinic because she knew what the problem was. MomConnect contributes to fewer unnecessary clinic visits, and decreases the workload of health workers and nurses so they can focus on priority cases.”

Boosting maternal health services in South Africa

In addition to empowering mothers, pregnant women, and nurses, MomConnect also seeks to improve South Africa’s maternal health care system. The programme gives women the opportunity to SMS complaints and compliments to the MomConnect Helpdesk. These messages are then sent on to the relevant district and provincial health authorities.

“This is what Minister Motsoaledi wanted, and it is taken very seriously by the NDOH,” Benjamin says. “Previously, women could only complain at their clinic, by actually going there. Now they can use their cellphone. The complaints are sent on the district managers and relevant health authorities so they can be dealt with. It gives us and the NDOH an idea of which facilities are doing well, and which ones aren’t.”
Because of the new complaints and compliments functionality, people at the highest levels of the South African health care system are made aware of what pregnant women and mothers are saying about the services they receive, and what they need. This has already led to improvements in some facilities.

The feedback system also gives the health authorities an insight into which facilities are doing a good job, and which ones are not, and which districts and provinces are underperforming. This can open doors to solutions and interventions.

“I want to thank MomConnect for teaching me many things about my pregnancy, because at the clinic they don’t tell us everything.” - 20 July 2015 (Dilokong Gateway Clinic, Greater Sekhukhune District, Limpopo)

“Thank you to MomConnect. I had a healthy baby boy. Please continue to give other pregnant women information.” - 20 July 2015 (Eshowe Gateway clinic, UThungulu District, KwaZulu-Natal)


“Thank you very much. You have helped me a lot. Please help others like you helped me.” - 20 July 2015 (Ramaphosa Clinic, Ekurhuleni, Gauteng)

“Excellent service by sister Mashego at Jim Brown Clinic.” - 20 July 2015 (Jim Brown Clinic, Ehlanzeni District, Mpumalanga)

“At the moment we are getting about 1000 queries a day. At the moment, the compliments outweigh the complaints by 5 to 1. The complaints are really helping. In one particular clinic, women have complained about a shortage of chairs. This has now been taken care of. In a hospital in Limpopo, there was no proper cutlery. This too was solved as a result of MomConnect”

Jane Sebidi, MomConnect Helpdesk Manager
Whilst MomConnect is not the first mHealth project in SA, or even the first focused on pregnant women, it can in many ways be considered a trailblazer.

SA’s first large-scale mHealth project

MomConnect is the first large scale mHealth intervention that is supported by the national and provincial health authorities. “Most mHealth projects in South Africa are small and localised. The national Health minister Aaron Motsoaledi really drives it,” says Peter Benjamin.

From an international perspective MomConnect can also be considered an example of good practice. Benjamin says, “There are other mHealth projects around the world that incorporate one or more, and even all three, of the components of empowering mothers, empowering nurses and strengthening maternal health services. There is only one other project that does all of them at national scale. That is Ananya in India.”

Power to moms to report good and bad service

MomConnect, as a first in South Africa, is giving mothers and pregnant women the power to directly and effectively report on the services they receive, whether good or bad, via their cellphone. The service is free of charge.

Interestingly enough, MomConnect has received many more compliments than complaints. Since the project started, MomConnect has received more than 450 complaints and over 2600 compliments. That is more than five times as many compliments as complaints.

These words of thanks from the patients are circulated to encourage nurses and health care staff who are going the extra mile, ensuring them that there are people who are concerned about them and valuing their hard work.

In addition to handling compliments and complaints the Helpdesk also

“MomConnect is good for me too, as a nurse. I just want my patients to be happy, and receive the information they really need. We tell them plenty of things during our talks, but pregnant women are often tired. They are not always absorbing everything we tell them. These messages are reinforcing the information we already gave them.”

Alida Mallum, Operational Manager at Mitchell’s Plain MOU.
receives messages with questions and comments. The three help desk staff are currently dealing with between 600 and 1000 messages per day.

Eleven languages

South Africa is a very diverse country, boasting eleven different languages. When a woman signs up, she chooses which of six languages she wants to receive her messages in. To target as many women as possible, thus to be as inclusive as possible, the service will be made available in September in all eleven official languages.

Translating content that includes health terminology and is constrained to 160 characters, the length of a standard SMS, is challenging. No effort has been spared to ensure that all pregnant women can access the service.

The language inclusivity, the fact that it is a free service and the fact that the messages can be received on even the cheapest cellphone, makes MomConnect one of the most inclusive government-driven health initiatives in SA.

Pregnancy Register

MomConnect serves as the backbone of the National Pregnancy Register – another first for South Africa. “The authorities have huge amounts of data on pregnancies, child births, the number of people on Anti-Retroviral drugs, and other issues. This data is however aggregated information, or numbers collected from public health care facilities and then added up. Whilst this gives an overview of pregnancies in South Africa, it does not tell much about what happens at patient level,” Benjamin says. “There is, for instance, no patient-level data around which women went to which clinics, and for what pregnancy-related issue. MomConnect has the potential to allow the NDOH to gather such information, for the first time.”

Reaching Moms, Nurses and Clinics

Since its launch in August 2014, MomConnect has spread its wings across the country, reaching hundreds of thousands of women in every one of SA’s nine provinces. In addition, tens of thousands of health care workers have been trained on the system and how to subscribe their patients. Most public health facilities are currently covered, and MomConnect is sending out over 3 million SMSs per month.

Within the first year, over 500 000 women received SMSs sent out by MomConnect.

Within the first year of its inception, 33 945 nurses, community health workers, and other health workers have been trained in using the MomConnect system. The bulk of staff trained are in the provinces of KwaZulu-Natal (3 399 nurses and 2 831 CHWs), North West (1 574 nurses and 1 243 CHWs) and Gauteng (1 749 nurses and 774 CHWs).

Furthermore, 3 538 public health care facilities have MomConnect coverage (94% of all facilities). In seven provinces MomConnect is incorporated into more than 90% of facilities (KwaZulu-Natal, Limpopo, Mpumalanga and the Free State, Gauteng, Northern Cape and Eastern Cape).
Celebrating and Learning

The first year was an exciting one for MomConnect. It was a year of achievements as well as some tough lessons learnt. Combined these have created many opportunities to improve the system, make it more robust, and ultimately ensure that more women get the information they need to survive and thrive in their pregnancy.

Victories

There are a lot of victories to celebrate after the first year of operations:

• The fact that MomConnect was up and running in a less than a year at national scale. There was no pilot as such. Alida Mallum (Nurse): “We at Mitchell’s Plain MOU alone see 30 first-timers per day. We register them all on MomConnect. On top of them, we register mothers who have been here before and who are not yet connected to the system. Sometimes, we even register mothers in the labour ward. The system will send them messages until their child is one year old. This is an important time of a child’s life. Apart from improving mothers’ wellbeing, MomConnect aims to improve their babies’ wellbeing too.”

• The fact that all stakeholders, from NGOs and government to tech companies, worked together like a well-oiled machine; not for themselves but for the greater good. David Woods (Maternal Health Specialist): “We had to deal with cellphone providers, IT companies, the provincial and national Department of Health, academics, NGOs, and others. There were however no issues in terms of collaboration, and there were no egos involved. Everyone did it for the greater good, not for personal gain.”

• The fact that MomConnect had a strong team of technical partners. Debbie Rogers (Praekelt Foundation): “It was wonderful to work with Jembi and the other technical partners, and combine our forces to make MomConnect happen. We worked well together. It was wonderful. Hats off to the Department!”

• The fact that hundreds of thousands of women like the service, and are using it because they need it. Jesse Coleman (WRHI): “We have reached half a million recipients in less than a year. People are receptive towards MomConnect. This shows that there is a great need for information on being pregnant.”

“The main objective is to get mothers to seek antenatal care as early in their pregnancy as possible. Many women in South Africa first visit a clinic when they are pregnant for months. This increases the chance of complications later on. Booking at an antenatal clinic is the most important public health message we want to push.”

David Woods (Maternal Health Specialist)
• The fact that the complaints system has resulted in various improvements already. Peter Barron (NDOH): “Women had been complaining about iron tablets stock-outs in some facilities. This has been remedied as a result.”

• The fact that MomConnect, a seemingly simply system, is actually quite complex and advanced technology-wise. Chris Seebregts (Jembi Health Systems): “It is a major technical feat. People were sceptical at first but actually everything proved to work, and highly effectively so.”

• The fact that MomConnect is accessible and inclusive, and not just because the service is free of charge. Whilst more South Africans have access to smartphones, 40% of adults still use basic or feature phones. The messages MomConnect sends out, can be received by even the most basic device (as well as fancy smartphones).

Lessons learnt

There are also an enormous number of lessons that have been learnt:

• There is a demand for mHealth among pregnant women in South Africa. Within the first year, over 500 000 pregnant women joined. That’s one registration every minute. Jane Sebidi (Helpdesk): “Pregnant women and mothers in South Africa need basic knowledge around their pregnancy and child care. They need more support and a place where they can ask questions in the privacy of their own home. Not every women feels confident asking questions at a clinic.”

• Most stakeholders agree that the partnerships and collaboration between the government, various users groups, experts, academics and other stakeholders has been one of the most crucial components to MomConnect’s success. Debbie Rogers (Praekelt Foundation): “A programme of this magnitude needs support from many different partners. You can’t do this on your own. It is such a complex project.”

• mHealth is a dynamic field, which is changing all the time, for instance due to improving technology. Peter Barron (NDOH): “mHealth programmes need to be dynamic and be able to move along with the times. That is what we intend to do.”

• Where there is a will, there is a way. Chris Seebregts (Jembi Health Systems): “MomConnect shows you what can be done when there is a will to make a difference and to make it work. This is truly a best practice example, in Africa and globally.”

“We are proud that we have been part of a project that has implemented very advanced technology for the purpose of improving maternal health in South Africa. It is a reusable concept in the sense that the initiative’s architecture can be used for different objectives, in different countries”

Chris Seebrechts, CEO Jembi Health Systems
Future opportunities

Looking to the future there are a large number of opportunities for MomConnect to become stronger and better, including:

- Expanding from simple texts to data channels (like instant messaging), as smartphones and mobile data are getting cheaper and more accessible.

- Asking recipients about what they like and don’t like about the MomConnect service specifically, and improve the service accordingly.

- Improving the messages and their content to meet the (changing) needs of (more) women and increase focus on specific challenges, such as PMTCT.

- Ongoing engagement with nurses and health workers who are delivering maternal health services is crucial if one wants to improve the health system and women’s health.

- The MomConnect concept and basic infrastructure can also potentially be used to reach other groups with targeted health messages, such as people living with HIV and TB, the elderly, cancer patients, and others.

- The helpdesk will be expanded in terms of staff and operating hours. The idea is to turn it into a 24/7 facility that is integrated into one single NDOH helpdesk with one single telephone number.

- Lengthening the period of time when patients receive messages. The intention is ultimately to send out messages until the recipient’s child is five years old, aiming to combat under-5 mortality.

“A programme of this size and complexity needs the involvement of a wide range of partners, experts in their respective fields. We had a great team of technical partners. In that sense, MomConnect has been one of the most complex projects I have worked on. In many ways, it is a first of its kind programme.”

Debbie Rogers, Lead Strategist at the Praekelt Foundation
It is clear that mHealth initiatives like MomConnect can make a significant difference in the lives of patients and health service providers. This is particularly the case in developing countries, where lifesaving information around basic health practices is not readily available. Taking knowledge to the people who need it the most – in this case pregnant women and mothers of infants – may not only save lives, it also strengthens the public health system. It is a win-win situation.

One of the great advantages of MomConnect is that the system’s framework can relatively easily be duplicated and altered to serve other groups of patients, or adapted for roll out beyond South Africa.

The most important ingredients that are required are rock-solid partnerships between the various stakeholders, with strong government leadership, and the sheer determination to make it work, no matter what obstacles arise.

Like late president Nelson Mandela said: “It always seems impossible until it’s done.”

“MomConnect helped me to prepare for the birth of my son, and explained to me what was happening during my pregnancy. I was more aware of the changes, because the messages explained to me why I felt certain things. You are always worried when you are pregnant. I am very happy.”

Nolubabalo Fudumele, mother of Ampiwe (born 3 July 2015 at Mitchells’ Plain MOU, Cape Town)
“We should help each other, and not reinvent the wheel. If this program is successful, we’d like them [those interested in setting up a similar mHealth initiative] to come here and see. We’ll invite them and help them to achieve what we’ve achieved because we’ll have gone through it”

Dr Aaron Motsoaledi, South African National Minister of Health

MomConnect Partners

Funding partners
- PEPFAR
- Johnson & Johnson
- ELMA Foundation
- Discovery Foundation
- UNICEF

Mobile Network Operators (discounted services)
- Cell C
- MTN
- Telkom Mobile
- Vodacom

Technical partners
- Baby Center
- CSIR
- HealthEnabled
- HISP
- Jembi
- MEASURE Evaluation SIFSA
- Praekelt Foundation
- Soul City
- University of Stellenbosch
- University of the Western Cape

Training Partners
- Africare
- Anova
- Aurum
- Beyond Zero
- Broad Reach Healthcare
- Health Systems Trust
- K”Thempilo
- Path
- Wits RHI
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HealthEnabled is an Africa-based organisation that helps national Health Ministries in low- and middle-income countries as they create, implement, and sustain innovative digital health programmes to strengthen health systems and save lives.

To achieve our mission of stronger health outcomes by 2020, HealthEnabled is currently partnering with USAID PEPFAR, Johnson & Johnson and Knowledge for Health to support the elimination of mother-to-child transmission (EMTCT) in South Africa and other African countries.

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