

In Conversation with Women

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Key messages

- > MomConnect is the mobile-phone-based maternal health program of the National Department of Health in South Africa.
- > MomConnect has been linked to improved health behaviors among women, and is characterized by constant technical innovation driven by the changing needs and habits of its users.
- > A multidisciplinary team of service designers, data scientists and engineers use human-centered design processes to manage the program's expansion and growth.

South Africa's national maternal health program MomConnect turned five in August 2019. Its design evolved from a searchable mobile web prototype to weekly SMS push messages and a Helpdesk, and then to a conversational WhatsApp service. Each step in this technical evolution was driven by the hunger for health information of the 2.7 million women who have used the service: through pregnancy, up to baby's first birthday, then the second birthday. MomConnect shows how a product rooted in human-centered design can – and must – remain as curious and flexible as the population it was built to support.

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In partnership with Praekelt, the National Department of Health led a consortium of academics, funders, stakeholders,¹ nongovernmental organizations and maternal health experts to



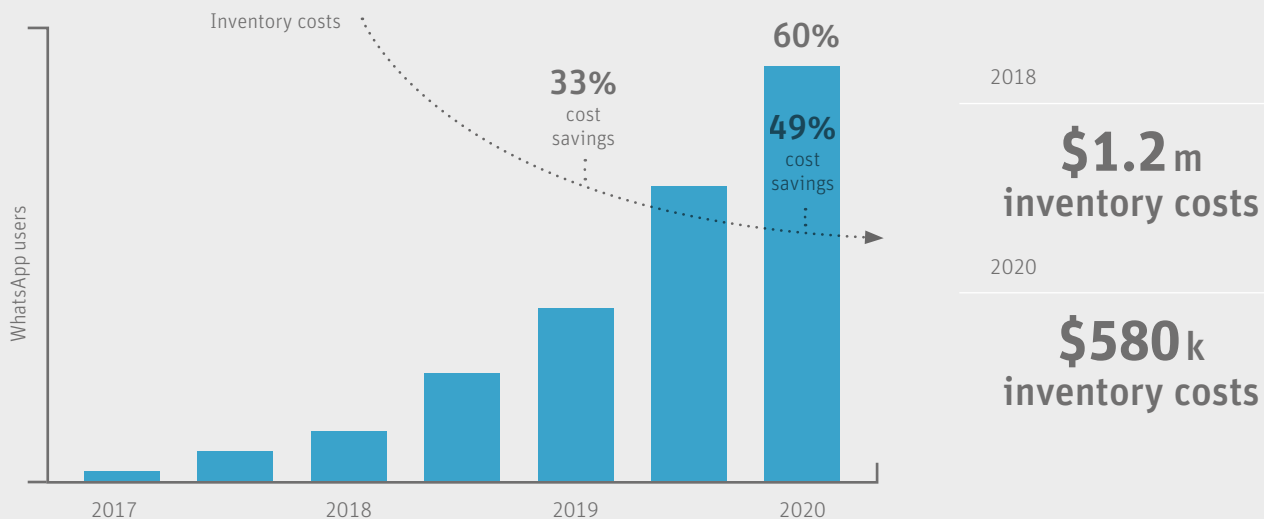
Mothers consult MomConnect messages during a postnatal checkup at a health facility in Khayelitsha, Cape Town

launch MomConnect in 2014, which delivered 2–3 weekly SMS messages at no cost to its users. Free access has been a consistent aspect of MomConnect, as the South African mothers who use it live on less than US\$5 per day.

MomConnect was built on evidence-based insights, and messages were based on those developed in 2013 for its predecessor, AskMAMA South Africa – a mobile website that demonstrated improved health-seeking behavior² and attracted 170,000 new users during the first 6 weeks.³ High-comment volumes on AskMAMA's localized articles on HIV, intimate partner violence and single parenting revealed key insights into content localization, and a weekly live chat was popular. This 'talkback' aspect of AskMAMA was incorporated into MomConnect's design with the addition of a Helpdesk service, so that users could ask questions as well as receive essential health information.

MomConnect follows a stage-based design and delivers time-sensitive health prompts and clinic visit reminders. It rephrases the health system's 'doctor's orders' into helpful advice that boosts a woman's confidence and makes her feel cared for. MomConnect 'speaks' all of South Africa's 11 official languages, using the relatable persona and friendly voice of a clinic nurse. It was designed for low-end feature phones as well as high-end smartphones. Messages follow each woman's specific pregnancy stage and reflect the lived context of a range of women – from high-density urban townships where mothers might have two smartphones, to rural villages where a basic feature phone

FIGURE 1: As mothers switch to WhatsApp as their health-messaging channel of choice, so program costs decrease over time



might be shared by a family and getting a network signal might require hiking up a hill.

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Feedback from the women who use MomConnect has guided a series of service improvements. Mothers say they feel empowered by their messages.⁴ An HIV-positive user said that messag-

es helped her to start tough conversations about HIV prevention with her husband: “When the messages for [this service] comes I read them to him ... I explain to him saying, ‘You see, they say even you as the father must also test so that we do not infect the child ...’” A user from KwaZulu-Natal said: “I’d like to encourage the MomConnect program – it needs to go further because it will help many more people.”

MomConnect did go further: weekly message delivery now extends to babies’ first 1,000 days, and there are plans to increase this to cover the first 5 years in due course. Going further still took service designers right into the health system’s busy clinics and hospitals where patient queues snake out of the door. Here we found that helping mothers meant helping their helpers. We learned that healthcare workers and nurses are vulnerable to stress, exhaustion and mental health challenges. Feedback gathered during workshops with nurses revealed their interest in practical information on self-care. One nurse said: “Nurses are strong people, but there are some times we can’t cope.” To address this, a sister program for the National Department of Health, called NurseConnect, was launched in 2016, which has a strong psychosocial thrust.

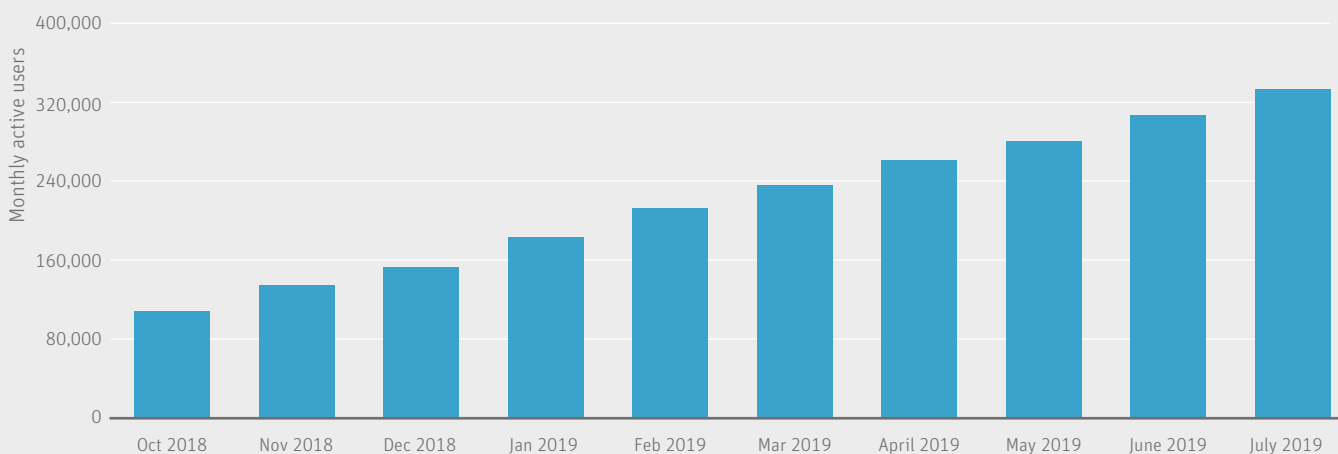
Then, towards the end of 2017, the cost of sending weekly SMS messages to almost 1 million MomConnect moms became prohibitive. Praekelt had just negotiated access to the WhatsApp Business Application Programming Interface, which allows our technology to communicate directly with WhatsApp infrastructure. Because 83 percent of South Africans use WhatsApp (compared with 51 percent on SMS),⁵ we decided to turn this challenge into an opportunity. We realized we could test users’ willingness to use their data to share costs with the program, while also probing their interest in richer content (Figure 1).



A health worker stands among patients queuing for postnatal care at a health facility in Khayelitsha, Cape Town

FIGURE 2: Forty-nine percent of MomConnect users are on WhatsApp, and they are responsible for 90 percent of the interactions with the Helpdesk

Now mothers are **10x more** likely to reach out to the MomConnect Helpdesk with their questions and there is **14% more** monthly engagement than with SMS



We conducted research to understand the WhatsApp landscape in South Africa. We conducted primary qualitative research with 20 mothers to thoroughly understand their perceptions of WhatsApp and how they use it, and drew on rich insights about mothers' contexts and health behaviors from previous primary research with 900 mothers, 40 health workers and 12 maternal health experts.

We verified the desirability of WhatsApp, particularly among younger mothers. Older mothers perceived WhatsApp as unreliable, complaining that without data “you don't get your messages.” Even though we knew that 56 percent of our existing audience had registered for WhatsApp, this insight meant we couldn't switch mothers over automatically. We did not anticipate learning that mothers would want to have the ability to switch back to SMS from WhatsApp if they ran out of data midway through the month. Learning this, we knew it was essential that we build a self-service functionality into the overall design of the service so that users could switch between channels. We then designed a new registration process that allowed mothers to choose whether to receive their messages via SMS or WhatsApp. Next, we needed to understand how this worked in clinics.

Hundreds of mothers at 11 selected high-volume clinics were involved in A/B testing variations of the new registration process, and we conducted ethnographies in these clinics. Many

mothers responded, like Khutso Senyatsi, mother of two: “I love the WhatsApp messages from [the service], especially because it's very easy to identify it and since I spend time on WhatsApp and on my phone, I love the convenience it comes with.”

Sam Dyantyi had recently given birth to a baby boy. She said: “The nurses registered me on WhatsApp and that's how I get MomConnect messages. I take them personal. They are for me, for my baby, so it's pretty cool. I prefer WhatsApp more than [SMS] messages.”

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These trials revealed the extent of the women's appetite for information: engagement spiked at 4.6 messages sent by each WhatsApp user, compared with 1.8 messages sent by SMS users. To date, 49 percent of users are signed up to WhatsApp as their preferred channel. Their feedback alone now represents 90 percent of the conversations between mothers and the Helpdesk.

However, we had to understand how the increased volume of messages affected the productivity of the Helpdesk operators. After interviews and observations with the operators, we realized that if we went ahead with WhatsApp, we would need to explore how automation could better support them to handle this increased volume. More questions from mothers mean better training for the tools to support the Helpdesk operators, and we are currently working on a new product targeted at using machine learning to increase operator efficiency.

The engagement on the Helpdesk (Figure 2) is exactly what we were hoping for. Irene, a mother who has HIV, is now also a clinic lead and loves helping with the registration of mothers on WhatsApp. She said: “WhatsApp is great for [the service] because I’m able to send messages, ask questions, and I get the feedback from [the service]. It’s very much easier for us rather than sending an SMS ... You can ... ask more questions and get more answers.”

“It is our responsibility to ensure that the service continues to engage ever-more users while remaining financially sustainable”

To adapt the phrase to service design terminology: with scale comes great responsibility. As our maternal health platform now reaches 2.9 million mothers, it is our responsibility to ensure that the service continues to engage ever-more users while remaining financially sustainable. We were able to design a simple design solution for mothers who prefer WhatsApp and continue to deliver essential messages to the hardest-to-reach mothers using SMS. Not only was this a user-driven endeavor: the service

design process was implemented by a multidisciplinary team of service designers, content designers, data scientists, engineers and project managers. Our collaboration has brought about a significantly improved service and has a far greater impact on mothers and their families. It is through conversation with these women that we help them to solve their challenges.

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Gontse Mbelu (center, Praekelt.org service design lead at the time this photograph was taken) discusses new features developed to support operators of the MomConnect Helpdesk at the National Department of Health offices, Pretoria

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