

mDiabetes

Donors – Aetna International, J&J, MSD India, Arogya World

Start and end dates – 2011-2013; results published in 2016

Total number of beneficiaries – One million reached and 15% of those improved their health behaviors because of the program.

Location – India – all over the country

Local partners or other organizations involved with the program - mDiabetes was designed and implemented by Arogya World in partnership with Nokia. Other partners include Emory University, Johnson & Johnson, Aetna, MSD India and Ipsos. A number of individual experts were assembled into a Behavior Change Task Force and managed by Arogya World.



mDiabetes was designed as a population-level nationwide public health intervention using mobile technology to establish health behaviors known to prevent diabetes. It was a commitment made by Arogya World at the 2011 Clinton Global Initiative (CGI) Annual Meeting.

Non-communicable diseases (NCDs), which include cardiovascular disease, diabetes, cancer, and chronic lung disease, are one of the 21st century's greatest health and development challenges. Globally, the rate of infectious diseases is decreasing and that of NCDs is increasing. NCDs cause *seven out of ten deaths today*, six times as many deaths as HIV/AIDS, TB, and malaria combined. Arogya World has focused on India specifically as the burden of NCDs, especially diabetes, there is massive and growing:

- India is home to **66 million people with diabetes**, and the International Diabetes Federation predicts that this number will reach **87 million by 2030**;
- On average, Indians develop diabetes 10 years earlier than people in Western countries. Their age of highest risk is in the middle of their prime earning years;
- Childhood diabetes rates in India have increased three-fold over the last 30 years;
- For a low-income Indian family including an adult with diabetes, as much as **25% of the family's income may be devoted to diabetes care**; and,
- World Health Organization (WHO) estimates that diabetes, heart disease and stroke will cost about **\$237 billion** in lost national income in India from 2005 to 2015.

Mobile phones are widely used in India, throughout different geographic regions and socio-economic backgrounds. There are said to be about *900 million cell phone subscribers in India*. **It is well known that**

NCDs can be mitigated by adopting healthier behaviors. According to WHO, 80% of heart disease, 80% of diabetes and 40% of cancers are preventable with three lifestyle changes: avoid tobacco, eat healthy foods and increase physical activity. These are the reasons why Arogya World wanted to test the feasibility of using a text messaging intervention to deliver diabetes prevention messages.

Arogya World developed 56 text messages, based on science and behavior change theory, with Emory University, and then consumer-tested them in simulated conditions and in the real world with 750 consumers. Arogya World then refined the messages, adapted them culturally for Indian audiences based on consumer feedback and review by its Behavior Change Task Force, and translated them into 12 Indian languages. Nokia Life provided the translation and transmission infrastructure, and transmitted the messages – more than 56 million mDiabetes text messages, twice a week for six months – to the one million consumers who opted in, both in 2012 and 2013. The one million consumers came from all over the country, North and South India, and urban and rural India, and opted-in to the mDiabetes program.



A behavior change study was conducted by Arogya World to assess effectiveness. A subset of the one million enrolled participants were randomly selected to be the intervention group and a similar number of non-Nokia consumers were selected as the Controls. The nearly 2,000 study participants were asked by telephone survey about their health behaviors before and after they received the text messages. The study scored for fruit and vegetable intake, fat food intake and exercise.

The results of the study, published in the [August 2016, Journal of Medical Internet Research](#), showed that the intervention group reported significantly greater improvement in their diabetes risk behaviors than the control group. Overall, the text messages resulted in a 15% improvement in health behaviors. **That means 150,000 people had improved their health because of the mDiabetes program.**

The success of mDiabetes validates the use of text messages to facilitate population-level behavior change in a low- and middle-income country. We know that NCDs are among this century's greatest health and development challenges, and Arogya World's mDiabetes shows promise as a cost-effective prevention intervention that can be easily deployed to large numbers of people. mDiabetes costs about \$.50 per person for message transmission and about \$3 per person to positively impact their health. That \$3 is a sound public health investment.

The impactful behavior change seen in the mDiabetes project has led Arogya World to create a campaign working with credible hospital partners to reach consumers and their families likely to opt-in. In addition to text messages, voice messages will be recorded in different languages to improve access to health messages for those with lower literacy levels. We expect to reach between 200,000 and 500,000 consumers each year with the proven messages over the next few years.