There is no single, standalone component of the program that increased facility delivery and postpartum attendance rates. The combined counseling, permission-seeking, and escorting aspects—all supported by mHealth—served to motivate, comfort, and even convince families when needed.

mHEALTH for Safer Deliveries

IMPLEMENTATION DATE: October 2011 to December 2014

An integrated intervention to improve the quality of care during delivery in Zanzibar

In Tanzania, despite high rates of antenatal care and relatively good access to health facilities, maternal and neonatal mortality remain high at 310/100,000 live births and 28/1,000 live births, respectively, and almost half of all deliveries are performed at home without a skilled attendant.[1,2] Through commitment to Millennium Development Goals (MDGs) 4 and 5, as well as the government strategy for growth and reduction of poverty, the Revolutionary Government of Zanzibar has made a strong commitment to prioritizing this issue.[3] However, significant reduction in mortality will not be achieved without increasing skilled care at birth. Hence, the Ministry of Health (MOH) has set specific targets to increase facility delivery from approximately half of deliveries up to 80 percent. D-tree International has been partnering with the MOH at the central and district levels since 2011 to help achieve this target.

In Zanzibar, through the mHealth for Safer Deliveries project, D-tree and the MOH seek to reduce all of the "three delays" to receiving quality care at birth: (1) the decision to seek care; (2) reaching skilled care; and (3) the provision of adequate care at the health facility.[4] The project ensures that mothers and their newborns reach care when they need it by engaging community health workers (CHWs) at the lowest levels and arming them with the knowledge, tools, and motivation to serve families at home.

About mHealth for Safer Deliveries

CHWs are trained to use a simple phone with a decision-support application so that with a single device the CHW can:

- develop a birth plan with each woman based on medical and obstetrical history;
- counsel the mother and family on healthy behaviors and recognizing danger signs;
- record permissions from husband and family members agreeing to a facility-based delivery;
- screen women (and their babies) for complications from pregnancy up to a week after delivery and refer them as needed to the health facility;

- use mobile banking instead of cash to pay for transportation to the health facility when the woman is in labor or in case of complications;

- use text or voice communication to notify a health facility that a woman is in transit to ensure the facility is prepared.

The phone also provides an electronic record for the mother and infant that can be viewed both by CHWs on the phone and by supervisors or government officials on an online dashboard. D-tree worked with local leaders and health facilities to enroll drivers into the program and prenegotiate fair rates for transport. D-tree also worked with local telecom company Zantel to expand pay points and reporting for the CHWs' mobile banking accounts and developed a real-time online tracking system to trace account activity. After an initial pilot in two districts in 2011, Phase 2 (2012–14) supported 223 CHWs in six districts, including 112 wards recognized as having particularly low facility delivery rates and significant transport challenges.

Evaluation and Results

The mHealth for Safer Deliveries project now reaches over half the rural population of Zanzibar. The facility delivery rate has reached 75 percent compared to an average of 35 percent.[2] Among women who had given birth at home for their previous delivery, a subset considered most "at-risk" of home delivery, 63 percent delivered in a health facility. The impact on postnatal care attendance is also striking, with 88 percent within 10 days compared to only 10.9 percent within a week during the year prior to project implementation.[5]

In total, CHWs registered 13,690 pregnant women during the project. They conducted 38,608 screenings on 12,882 women and made 27,011 postpartum visits. They made 14,940 referrals and overall, the program initiated close to 40,000 mobile money transactions for CHW transport and incentives. The data yielded a number of unexpected, new insights, including the very high number who have serious risk factors or danger signs both before and after delivery. Almost half of the women in the program had a danger sign pre- or post-delivery that required an additional visit to the health facility.

Qualitative investigation increased knowledge of the causes of home deliveries when they did happen, including religious barriers, modesty norms, rumors of witchcraft, the desire of relatives to stay close to the mother, and hidden costs at health facilities. Interviews also revealed that there is no single, standalone component of the program that increased facility delivery and postpartum attendance rates. Despite the importance of transport being available, it was by no means the sole determinant of a woman getting to a facility. Indeed, the combined counseling, permission-seeking, and escorting aspects—

all supported by mHealth—served to motivate, comfort, and even convince families when needed.

Lessons Learned

- When possible, provide a vertical integration of various mobile services, such as decision-support and mobile money, to enhance program impact.

- mHealth interventions should be tailored to the cultural setting and be used as a tool to enhance other evidence-based approaches, such as behavior change interventions.

- mHealth program models should be scalable and sustainable, creating incentive and/or revenue for all parties involved.

- Data obtained as a byproduct of many mHealth interventions should both dictate and be dictated by a rigorous monitoring and evaluation plan.

- Multiple levels of government should be involved in shaping the intervention from the beginning and be included in all phases of planning and implementation.

- Building rigorous tracking systems to reconcile the mobile money (financial) and mobile health (programmatic) data, while time consuming, can greatly facilitate scale-up and increase accountability.

Conclusion

The success of the Safer Deliveries program came from integrating novel mHealth health approaches—including decision-support, data storage, mobile banking, and communications—into a community intervention that effectively linked the institutional and community levels to overcome barriers to hospital deliveries within Zanzibar. It was this combination that has spurred the beginning of a "culture shift" in delivery practices in Zanzibar and shows a great potential of improving maternal health outcomes and reaching MDG 5 within Zanzibar, across Africa, and around the world. ■

Geographic Coverage: Unguja and Pemba, Zanzibar

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