



Community-based Prevention of Postpartum Hemorrhage with Misoprostol in Mozambique

Final Report in Brief

In Mozambique, maternal mortality continues to be high at a rate of 599 maternal deaths per 100,000 live-births.¹ Bleeding during and after delivery is estimated to account for more than 30% of maternal deaths in Africa, a statistic that holds for Mozambique.² Targeting maternal health interventions at women who have limited access to health care services is a high priority in Mozambique, where only a third of births to rural women are attended by a skilled birth attendant.³ Misoprostol tablets are safe, affordable, and effective in preventing postpartum hemorrhage (PPH), and recommended jointly by FIGO/ICM as the only available technology to control life-threatening PPH during home births without a skilled attendant. In Mozambique, despite high home delivery rates, 85% of women attend at least one antenatal care (ANC) visit.³ Thus, ANC represents a key opportunity to reach women with misoprostol and educate them on its use. However, because ANC attendance varies by region and district, additional community-based strategies – such as utilizing traditional birth attendants (TBAs) – are needed to reach women during pregnancy with health promotion messages and maternal health interventions such as misoprostol.

In November 2009, the Ministry of Health, Mozambique, and Associação Moçambicana de Obstetras e Ginecologistas (AMOG), in collaboration with Venture Strategies Innovations (VSI), PSI and the Bixby Center for Population, Health and Sustainability at the University of California, Berkeley initiated an operational research to demonstrate that distribution of

misoprostol through both ANC and at delivery with TBAs, complemented by a community awareness campaign on birth preparedness and PPH prevention, is an appropriate strategy for increasing uterotonic protection in the context of the Mozambican health care system.

The operational research took place in three sites: Chokwé, Namacurra,

and Nacala-Porto/ Nacala-a-Velha (Figure 1). The goal of the operational research was to reduce maternal deaths due to PPH by educating women on birth preparedness and distributing misoprostol for use at home births.

Community awareness campaign on birth preparedness and PPH prevention

In conjunction with the education that women received at ANC visits, the operational research included a community awareness campaign on birth preparedness and PPH prevention to reinforce safe delivery messages. At the beginning of the project, the principal investigators (PIs) conducted formative research to identify a culturally-appropriate, context-specific method for measuring postpartum blood loss.

Figure 1: Project sites in Mozambique

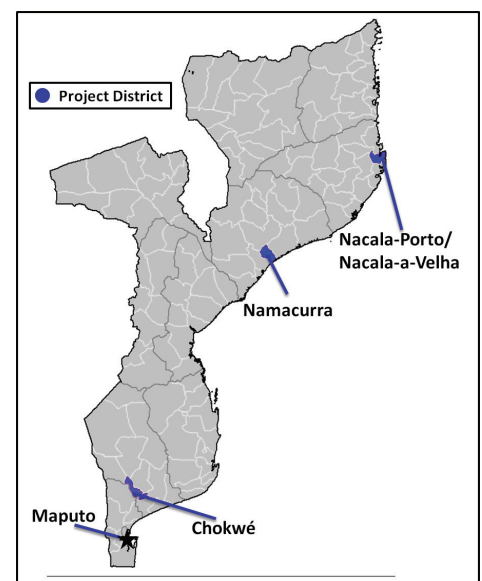
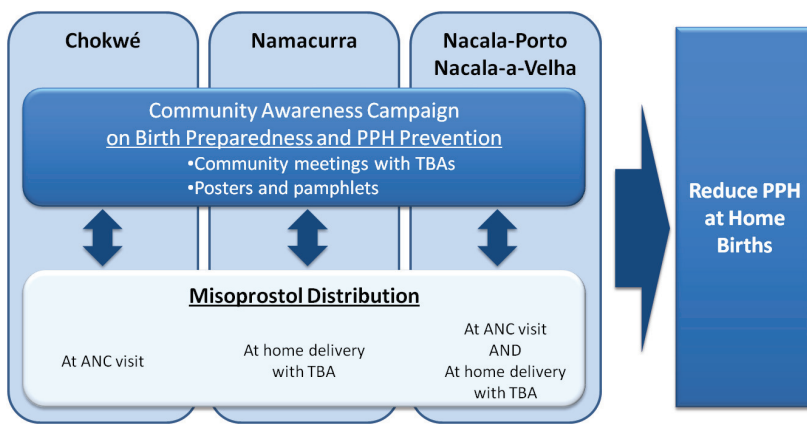


Figure 2: Operational research components of the implementation



TBAs reported in a focus group discussion that they use *capulanas* (pieces of cotton cloth) routinely during delivery to collect and measure postpartum blood loss; the PIs then determined that the liquid volume held by one *capulana* is never below 500 ml. Therefore, pregnant women attending ANC and TBAs participating in this operational research were educated to use the *capulana* to measure postpartum blood loss, and that one *capulana* soaked with blood indicated the need for immediate referral for additional interventions.

The community awareness campaign included four key messages:

1. Importance of delivering at a health facility;
2. Birth preparedness and planning early for a safe delivery;
3. PPH identification, consequences, and recognition using the *capulana*; and
4. Misoprostol for the prevention of PPH and its availability at ANC clinics to pregnant women 28 weeks

[†] Women were eligible if they were expected to have an uncomplicated vaginal delivery, were not expected to undergo a cesarean section, and did not have a chronic disease (e.g. high blood pressure, diabetes, cardiac diseases, or other chronic conditions).

gestation or greater and/or at the time of delivery with a TBA (depending on the site). The community awareness campaign included print materials with pictorial instructions and awareness-generating activities such as educational sessions at ANC, community meetings, and one-on-one sessions with women.

Misoprostol distribution

Given the diversity of health care access and utilization across Mozambique, each site employed a different misoprostol distribution strategy:

1. *High ANC Coverage Site (Chokwé)*: Misoprostol was distributed to eligible women[†] once they had reached at least 28 weeks gestation.
2. *Low ANC Coverage Site (Namacurra)*: Misoprostol was distributed at delivery by a TBA trained in operational research protocols.

3. *Average ANC Coverage Site (Nacala-Porto/ Nacala-a-Velha)*: Misoprostol was distributed at ANC visits by a health provider once the woman had reached 28 weeks gestation and distributed by trained TBAs at delivery.

Figure 2 presents the components of the implementation in each operational research site.

FINAL RESULTS

ANC providers and TBAs collected data on all women in the operational research at the time of enrollment and/or misoprostol distribution from November 2009 through October 2010. Overall, the operational research included 11,927 women. Of these women, this analysis includes only women with completed data collection forms who gave their informed consent (Table 1).

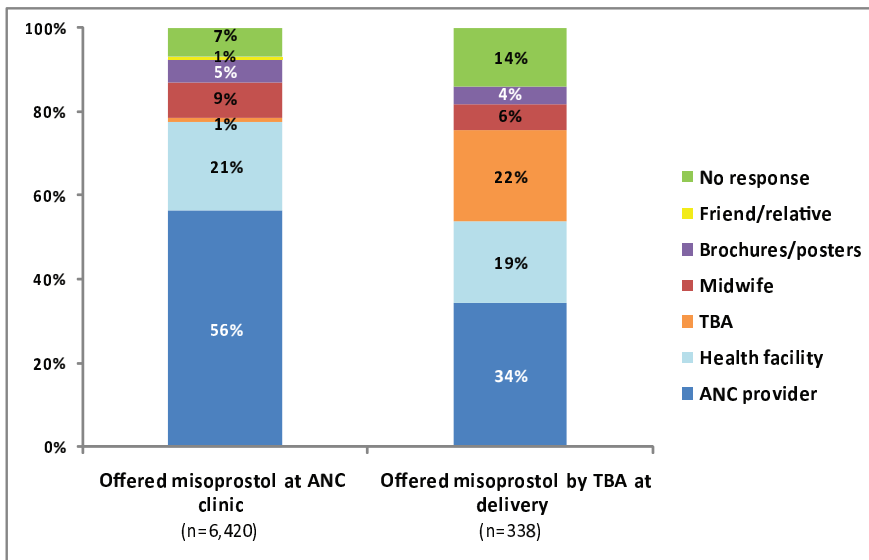
High level of community awareness of misoprostol and PPH

Recall of community awareness messages about excessive bleeding and misoprostol was quite high among all women. When asked about PPH, most women interviewed volunteered that they identified PPH using the *capulana*, demonstrating it is a feasible and acceptable tool for assessing blood loss at the community level in Mozambique. Regardless of where the woman was

Table 1: Data for analysis (November 2009 through October 2010)

	Chokwé	Nacala-Porto/Velha	Namacurra	Total
Misoprostol Addendum	1,958	3,813	n/a	5,771
TBA Delivery Form	n/a	2,070	2,441	4,511
Postpartum Interview Questionnaire	2,218	4,434	106	6,758

Figure 3: Most important source of misoprostol information



Source: Postpartum Interview

offered misoprostol, ANC providers and facilities were mentioned most often as the most important source of information about PPH and misoprostol (77% of those offered misoprostol at ANC and 53% by TBA) (Figure 3). However, TBAs also were also mentioned as an important source by women who had received the tablets from them (22%).

High coverage of misoprostol distribution at ANC visits

Over 92% of women enrolled in the operational research at ANC in Chokwé and over 97% in Nacala-Porto/ Nacala-a-Velha took misoprostol home. In Nacala-Porto/ Nacala-a-Velha, 91% of women delivering with TBAs used misoprostol tablets they received at ANC.

Misoprostol distribution increases births protected from PPH

Both distribution of misoprostol at ANC and by TBAs resulted in protected births at virtually all deliveries in the postpartum

interview sample, both at home and at health facilities. Overall, 99% of births to women interviewed in Chokwé and Nacala-Porto/ Nacala-a-Velha received a uterotonic at delivery (Figure 4). Furthermore, nearly all women delivering at home were protected from PPH.

Ninety-nine percent of the women delivering at home in Chokwé used misoprostol they received at ANC. TBAs used misoprostol in all of the deliveries they attended in Namacurra. In Nacala-Porto/ Nacala-a-Velha, ANC distribution was

complemented by TBA distribution of misoprostol, protecting 99% of home births in the postpartum sample from PPH because TBAs gave misoprostol at delivery to the 5% of women who did not receive misoprostol at ANC.

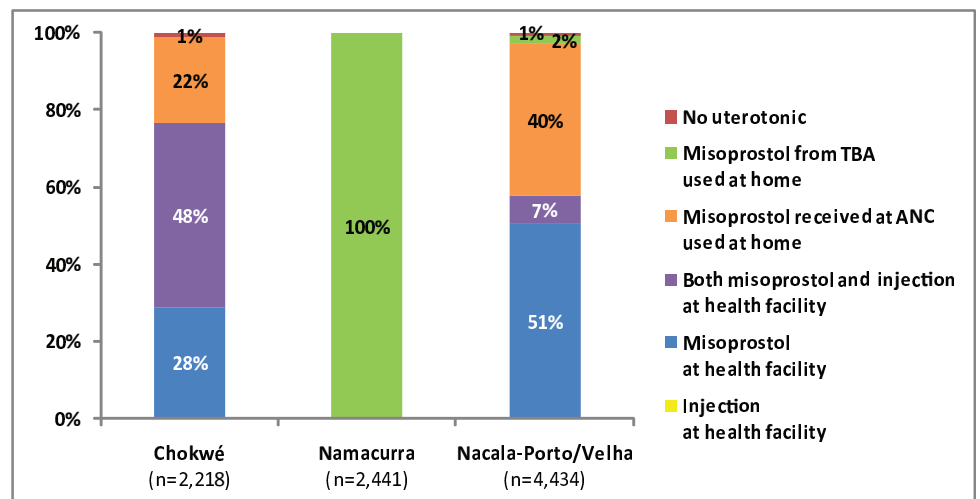
Misoprostol use at home births is safe

Of the 6,833 women who used misoprostol at home, over 99% took the correct dose and route (three tablets orally) of misoprostol. There were no reports of women taking misoprostol before delivery of the baby. There were no bleeding-related referrals, nor were there any referrals due to use of misoprostol in the postpartum interview sample. There were no maternal deaths reported in the operational research.

Women find misoprostol acceptable

Acceptability of misoprostol was very high among both misoprostol users and non-users across all three operational research sites (Table 2). Over 96% of all women who used

Figure 4: Births protected from PPH with a uterotonic at delivery



Source: TBA Delivery Form (Namacurra) and Postpartum Interview (Chokwé and Nacala-Porto/ Nacala-a-Velha)

Table 2: Acceptability of misoprostol by users and non-users from all sites

	Used misoprostol (n=6,681)	Did not use misoprostol (n=77)
Would recommend misoprostol to a friend*	6,538 (97.9%)	59 (76.6%)
Would use misoprostol in a subsequent delivery*	6,471 (96.9%)	63 (81.8%)
Would purchase misoprostol*	4,803 (71.9%)	45 (58.4%)
Average amount willing to pay in meticals (min;max)	70.2 (1; 1500)	98.9 (1; 500)

Source: Postpartum Interview
*p<0.01

misoprostol reported that they would recommend it to a friend or use it in a subsequent delivery. Further, women who had used misoprostol were significantly more likely to say that they would purchase the tablets compared to women who had not used misoprostol.

CONCLUSIONS

The findings from this report demonstrate that distributing misoprostol to women through ANC visits and at delivery with TBAs has the potential to increase the number of women who receive a uterotonic drug for prevention of PPH at delivery. Distribution of misoprostol at ANC and by TBAs resulted in protected births at nearly all home deliveries in the postpartum interview sample. Furthermore, in Nacala-Porto/ Nacala-a-Velha, TBAs reached the women who had not attended ANC with this life-saving drug. Misoprostol for home births is a safe and effective intervention that is acceptable to women in Mozambique.

Recommendations

All ANC providers should be trained to distribute misoprostol to pregnant women during routine ANC care. TBAs serve a critical role in distributing misoprostol to women who do not deliver in a health facility and should be trained to provide misoprostol at deliveries. Community awareness and education on the importance of delivering in facilities, birth preparedness, and the availability and use of misoprostol should continue, as they are integral to community acceptance and utilization of services. All facilities where deliveries take place should be consistently stocked with oxytocin and misoprostol to increase the likelihood that all women will receive a uterotonic drug at delivery.

We recommend to policymakers and key stakeholders that distribution of misoprostol for PPH prevention through ANC visits, as well as through TBAs for home deliveries, be scaled up throughout Mozambique.

Acknowledgements

This operational research could not have been completed without the expert staff and colleagues at the Ministry of Health, Mozambique, and *Associação Moçambicana de Obstetras e Ginecologistas* whose dedication to this pilot and invaluable contributions to its development led to its successful implementation. In addition, the district health directorates of Nacala-Porto, Nacala-a-Velha, Namacurra and Chokwé provided important oversight of the operational research. PSI also deserves recognition for key contributions to the operational research. Finally, we wish to extend a special thank you to the district supervisors, ANC providers, postnatal care providers, and TBAs, because without their support and participation this operational research would have never been possible.



Traditional birth attendant with pictorial educational materials

¹Hogan MC, Foreman KJ, Naghavi M *et al.* Maternal mortality for 181 countries, 1980–2008: a systematic analysis of progress towards Millennium Development Goal 5. *Lancet* 2010;**375** (9726):1609-23.

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