



# Prevention of Postpartum Hemorrhage in Home Births: Misoprostol Distribution during Antenatal Care Visits in Tanzania

## Final Report in Brief

Over 7,000 women die each year due to pregnancy- and delivery-related causes in Tanzania, with postpartum hemorrhage (PPH) the leading cause. Misoprostol is a safe, effective and affordable tablet that has been proven to reduce postpartum bleeding, and current evidence supports its use where oxytocin is infeasible. FIGO/ICM jointly recommended that in home births without a skilled attendant, misoprostol may be the only available technology to control life-threatening PPH. In Tanzania, misoprostol was approved for use in the prevention and treatment of PPH in September 2007. Ninety-four percent of women receive antenatal care (ANC) from a health professional at least once during pregnancy, yet over half (53%) of deliveries take place at home.<sup>1</sup> Therefore, reaching pregnant women with misoprostol tablets at ANC could be a key strategy for increasing protection from PPH in the most vulnerable and hard-to-reach populations.

In late 2008, the Ifakara Health Institute (IHI), Venture Strategies Innovations<sup>†</sup> (VSI) and the Bixby Center for Population, Health and Sustainability at the University of California, Berkeley collaboratively initiated an operations research project in four districts (Kigoma Urban, Kilombero, Ulanga and Rufiji) to demonstrate the safety, acceptability, feasibility and program effectiveness of misoprostol distribution to expectant mothers at

ANC visits. The goal was to save mothers' lives by preventing PPH with misoprostol at home births among those who were unable to reach a facility to deliver.

### ***“Plan early for a safe delivery”***

One of two main components of the project comprised a community awareness campaign on birth preparedness; the importance of delivering in a health facility; identification (two blood-soaked

*kanga* cloths) and consequences of PPH; and the use of misoprostol for PPH prevention. Messages reinforced the importance of ANC visits throughout pregnancy and that after 32 weeks gestation, eligible women would receive misoprostol. The campaign utilized radio messages, printed materials, and one-on-one and community education sessions.

### **Focused ANC with misoprostol distribution**

The second component of the project included focused education sessions on safe delivery and PPH prevention, including information on misoprostol, delivered by trained providers when women attended ANC visits. Enrollment, informed consent and education about how to use the drug followed in one-on-one sessions. Women 32 weeks or more in gestation who were eligible took misoprostol tablets home.

### **Training of project personnel**

IHI and VSI trained the district teams and research assistants in November 2008. By mid-January 2009, project staff in all four districts were trained, totaling 293 ANC providers, 37 research assistants, 165 community resources persons (CORPs), 23 CORPs supervisors, 150 traditional birth attendants (TBAs) and 18 TBA supervisors.

## Stakeholder support and recommendations

On 8 January 2010, IHI and VSI held a meeting to share preliminary findings of this project. At this meeting, Dr. Geoffrey Kiangi, representing the Chief Medical Officer from the Ministry of Health and Social Welfare (MOHSW), officiated and supported the eventual scale-up of this project to increase protection from PPH at home births, including by distributing misoprostol in clean delivery kits (Mama Packs).



## FINAL RESULTS

Enrollment in the project began in January 2009. Of the 12,892 women who attended ANC in the four project districts during the 12-month enrollment period, providers enrolled 97% (12,511) in the project. Research assistants and ANC providers subsequently conducted postpartum interviews with 6,735 women (54% of enrolled women), either before discharge at a health facility, upon

receiving postnatal care, or through active follow-up.

### Awareness campaign successfully reached women

Ninety-six percent of postpartum interview respondents stated that they had received information on PPH. Health providers and facilities were the most frequently cited source of information about bleeding after childbirth (97%).

Posters/pamphlets (34%), radio

(22%), community health workers (21%), friend/relatives (16%), and TBAs (15%) were mentioned less frequently as sources of PPH information. Additionally, 99% of respondents received information about misoprostol, with a midwife or health facility mentioned as the most important source of misoprostol information across the four districts (Figure 1).

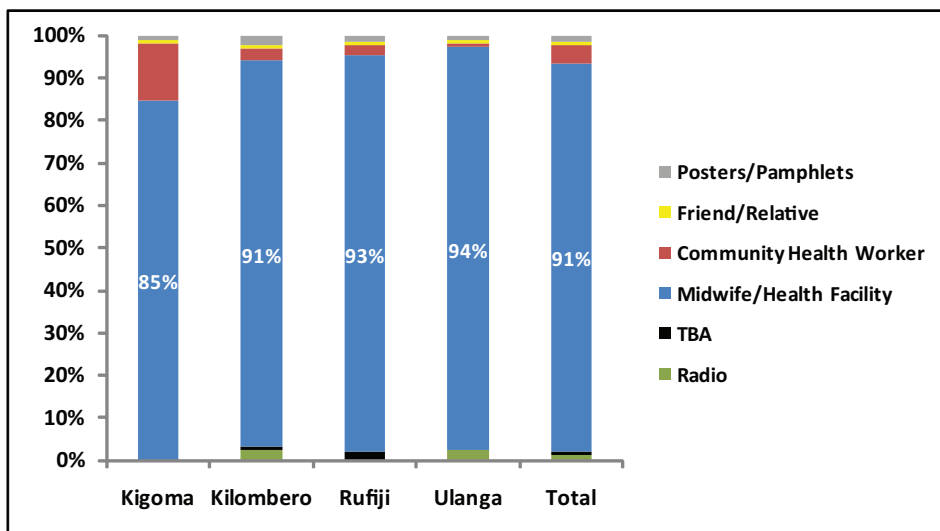
### High coverage of misoprostol distribution to eligible women

Almost all (97%; n=5,332) women who were enrolled in the project and attended ANC after 32 weeks gestation received misoprostol.

### Misoprostol distribution limited by gestational age requirement

ANC attendance at 32 weeks gestation or greater is much lower than the overall ANC attendance rate. While the ability of ANC providers to recruit women into the project was strong, their ability to distribute misoprostol was inhibited by the 32-week gestational age requirement to take the tablets home; only 44%

Figure 1: Most important source of information on misoprostol



Source: Postpartum Interview

No information for 0.1% of women

Radio <1% of women in Rufiji and Kigoma (not shown)

TBA <1% of women in Kigoma & Ulanga (not shown)

Drug vendor/pharmacist <1% of women in Kilombero, Rufiji and Ulanga; 0% of women in Kigoma (not shown)

**Table 1: Correct use of misoprostol at home births**

	Kigoma (n=345)	Kilombero (n=319)	Rufiji (n=708)	Ulanga (n=454)	Total (n=1,826)
<b>Correct dose (3 tablets)^</b>	344 (99.7%)	313 (98.1%)	706 (99.7%)	454 (100%)	1,817 (99.5%)
<b>Correct route (oral) ^^</b>	337 (97.7%)	303 (94.5%)	707 (99.9%)	445 (98.0%)	1,792 (98.1%)
<b>Correct use of misoprostol (correct dose and route) ^^^</b>	337 (97.7%)	303 (95.0%)	706 (99.7%)	445 (98.0%)	1,791 (98.1%)

Source: Postpartum Interview

^ No information for 0.5% of women who delivered at home and took misoprostol

^^ No information for 1.9% of women who delivered at home and took misoprostol

^^^ No information for 1.9% of women who delivered at home and took misoprostol

(n=5,507) of women across all four districts attended ANC after 32 weeks gestation.

### Clear understanding of campaign messages

Almost all respondents in the postpartum interview knew the function (98%), correct timing (98%), dose (three tablets) (98%) and route (oral) (98%) of misoprostol for PPH prevention. Additionally, 75% of participants knew of at least one symptom of its use; 89% recounted that PPH can cause death; and 84% recognized that excessive bleeding occurs when two or more *kangas* are soaked with blood.

### Correct and safe use of misoprostol near universal

Of women who used misoprostol at home births and responded in the postpartum interview, all reported using the correct dose and route of misoprostol administration (98%; 2% did not respond) (Table 1).

### Few postpartum symptoms among misoprostol users and non-users alike

Almost four out of five (79%) women who responded in the postpartum interview did not experience any symptoms during the postpartum period. Shivering (13%), nausea (5%)

and elevated temperature (4%) were the most commonly experienced symptoms among both misoprostol users and non-users. Misoprostol users were significantly more likely to report experiencing these three symptoms. However, symptoms self-resolved within an hour for almost all women.

### More births protected from PPH

Of those who participated in the postpartum interview, use of any uterotonic after delivery was quite high (91%). Slightly more than half of these protected births were at a health facility, with either an injection (41%) or misoprostol (23%).

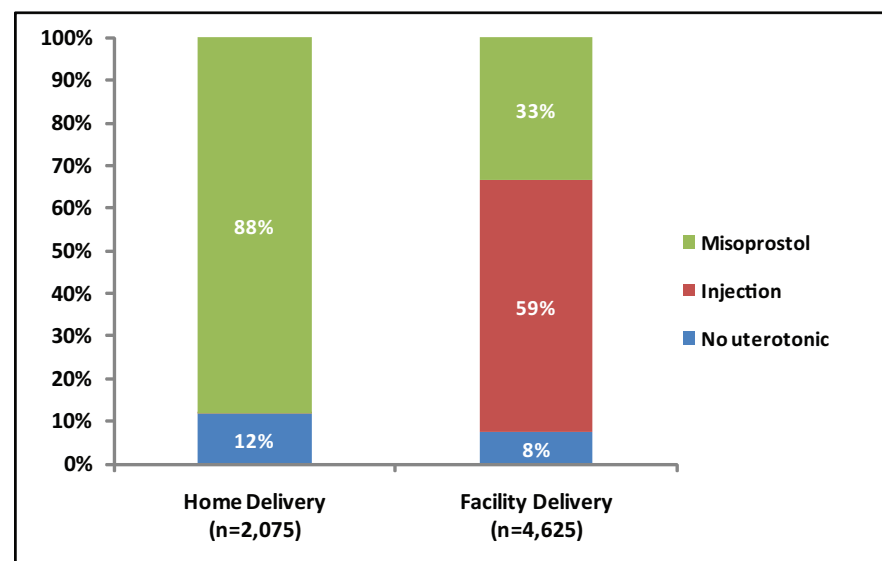
Misoprostol protected an additional

27% of deliveries that occurred at home and would not have been protected from PPH were it not for ANC distribution of the drug. As shown in Figure 2, the availability of misoprostol enabled 88% of home births to be protected from PPH, as well as 33% of facility births beyond those protected with an injectable uterotonic drug.

### Few referrals, low need for additional interventions

Fewer women who delivered at home and used misoprostol needed additional interventions for excessive bleeding compared to women who delivered at home and did not receive a uterotonic drug (<1% vs.

**Figure 2: Births protected with a uterotonic by place of delivery**



Source: Postpartum Interview

No information for 0.5% of women

p<0.01

6%, respectively). Women who delivered at home and did not use misoprostol for PPH prevention had almost nine times higher risk for additional interventions than those who used the tablets (risk ratio 8.8; 95% CI 4.0-19.4;  $p < 0.01$ ). Women who delivered at home and did not use misoprostol not only were more likely to need additional interventions, but also required a greater number of interventions.

### **Women find misoprostol highly acceptable**

Acceptability of misoprostol was high amongst users and non-users alike. Almost all women who took misoprostol would recommend it to a friend (99%), use misoprostol in a subsequent delivery (98%), or purchase the tablets (96%). While women who used misoprostol were significantly more likely to answer positively to the acceptability questions than non-users, non-users answered positively more than 90% of the time.

### **CONCLUSIONS**

The results of this operations research project demonstrate that distribution of misoprostol to expectant mothers at ANC is a feasible, safe, effective and acceptable means of protecting women from life-threatening PPH.

Findings demonstrate that distributing misoprostol during ANC visits to pregnant women increases the likelihood that women will be protected from PPH at home births, and the availability of misoprostol in facilities can also lead to increased uterotonic coverage at facility deliveries.

### **Recommendations**

Scale-up of the community awareness campaign is essential to ensuring women have information on correct use of misoprostol along with messages reinforcing the importance of attending ANC and delivering in a health facility. Training of ANC providers on the key messages should be complemented by additional community-level education efforts including CORPs, radio and printed materials that can reach greater numbers of women and their families. All ANC providers should be trained to distribute misoprostol to pregnant women during routine ANC care. We recommend lowering the gestational age restriction to at least the second trimester or removing it completely to increase coverage of misoprostol distribution to pregnant women at ANC. While facilities that conduct deliveries should be stocked with oxytocin, they should also have misoprostol to increase the likelihood that women will receive a uterotonic

at delivery and to be used as treatment for PPH when oxytocin prophylaxis fails.

*We recommend to policymakers and key stakeholders that distribution of misoprostol for PPH prevention through ANC accompanied by continued awareness campaigns be scaled up throughout Tanzania.*

### **Acknowledgements**

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<sup>1</sup>National Bureau of Statistics (NBS) Tanzania and ORC Macro. Tanzania Demographic and Health Survey 2004-05. Dar es Salaam, Tanzania: NBS and ORC Macro, 2005.

<sup>†</sup>This project was initiated under Venture Strategies for Health & Development, VSI's sister organization.

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