



# Prevention of Postpartum Hemorrhage Project in Five Rural Districts in Zambia

## Evaluation in Brief

Zambia has a maternal mortality rate of 591 per 100,000 live births. Postpartum hemorrhage (PPH), or excessive bleeding after childbirth, is a significant contributor to these deaths. PPH is mostly unpredictable; up to 90% of women who develop PPH have no identifiable risk factors and it can be rapidly fatal if treatment is not given immediately. Unfortunately, most of the maternal deaths due to PPH in Zambia—as is the case elsewhere in the region—occur in places where there are few skilled birth attendants or a lack of skills or resources to manage the bleeding and shock. Moreover, 52% of women deliver at home in Zambia, with even higher numbers in rural areas. Misoprostol is a proven uterotonic increasingly used to control postpartum bleeding. In 2006, FIGO/ICM jointly recommended that in home births without a skilled attendant, misoprostol may be the only available technology to control life-threatening PPH.

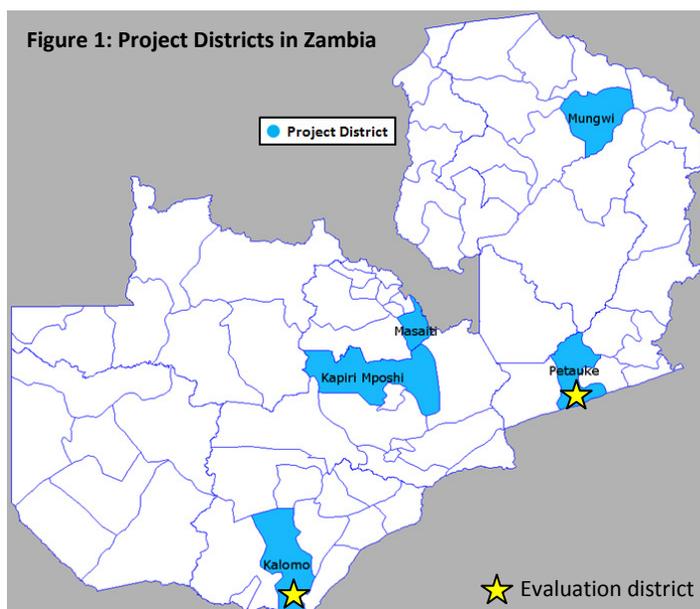
In 2009, the Ministry of Health of Zambia, with support from Venture Strategies Innovations (VSI), initiated a project with the aim of demonstrating that antenatal care (ANC) visits are an important point of contact to distribute misoprostol tablets to pregnant women for the prevention of PPH, especially for those who may not return to the health facility to deliver. The project was undertaken in response to the Ministry of Health's request for local evidence on the distribution of misoprostol at ANC in Zambia so that the level of access to the

drug could be expanded. The project involved two phases: intervention and evaluation.

## Intervention design

The intervention was implemented in five rural districts (Kalomo, Kapiri Mposhi, Masaiti, Mungwi, Petauke) (Figure 1) from January 2009 to March 2010. The project sought to demonstrate the feasibility of distributing misoprostol through ANC visits, in conjunction with community awareness activities on birth preparedness and PPH prevention.

At the outset of the project, providers from participating District Health Management Teams were trained as trainers and subsequently trained ANC providers in the project protocol, including on management of PPH with misoprostol, screening of



pregnant women for eligibility, and distribution of misoprostol. Community-level Safe Motherhood Action Groups (SMAGs) were oriented on the project protocol and sensitized to promote the PPH and safe delivery awareness campaign.

The community awareness campaign used radio, posters and pamphlets, as well as one-on-one interaction with women by participating ANC providers and SMAGs. Key messages included the importance of delivering in a facility, planning early for a safe delivery, PPH identification (two soaked *chitenge* cloths) and consequences, and misoprostol as a means of preventing PPH.

Between January 2009 and March 2010, 5,574 women were educated on the use of misoprostol at ANC, and 94% of these women received the tablets at any ANC visit.

### Evaluation design

In March and April 2010, VSI and the Bixby Center for Population, Health and Sustainability at the University of California, Berkeley completed an evaluation of the intervention through a survey. Populations in the catchment areas of health centers in the intervention areas as well as in similar control areas in two districts (Petauke and Kalomo) were selected to determine whether the project met its

intended goals. The evaluation assessed the safety, acceptability, feasibility and program effectiveness of the intervention. Women who had delivered in between January 2009 and March 2010 were interviewed. The evaluation surveyed 1,989 women, nearly evenly divided between the intervention and control areas.

### Awareness campaign reached communities with messages about safe delivery

Most (85%) women interviewed in the intervention areas reported knowing about misoprostol. The majority of women (78%) in the intervention areas identified health facilities or ANC providers as a source of information about misoprostol, and 33% identified SMAGs as a source of such information. These results indicate the importance of multiple strategies for community awareness about safe delivery, PPH and misoprostol.



*Participating mother who delivered at a health facility*

### High comprehension of campaign messages about misoprostol

Women surveyed in intervention areas reported high knowledge about PPH and misoprostol. Almost twice as many women in the intervention area knew that PPH could cause death compared to women in the control areas (74% vs. 45%, respectively). The majority of women interviewed in the intervention areas knew misoprostol reduces bleeding (80%), the correct timing (82%), and route (77%) of misoprostol for PPH prevention (Table 1). Few women in the control areas knew about misoprostol.

**Table 1: Knowledge of correct use of misoprostol**

	Intervention (N=1,047)	Control (N=942)
<b>Misoprostol prevents, stops or reduces the chances of bleeding after childbirth*</b>	835 (79.8%)	35 (3.7%)
<b>Correct timing (immediately after baby is born)*</b>	861 (82.2%)	32 (3.4%)
<b>Correct dose (3 tablets)*</b>	773 (73.8%)	26 (2.8%)
<b>Correct route (oral)*</b>	810 (77.4%)	32 (3.4%)

\*p<0.01

## More women in intervention area delivered at facility

ANC attendance was high in both groups, with near universal attendance of at least one visit and most women (83% in intervention and 86% in control) attending three or more visits. However, women in the intervention areas were significantly more likely to deliver in a health facility. Of the women interviewed in the intervention areas, more than half delivered in a health facility (54%), compared to 40% of women surveyed from the control areas (Figure 2).

## More births protected against PPH

The evaluation found that misoprostol increased protection from PPH in the intervention communities, both for home births and facility births. Nearly half (49%) of women in the intervention area who delivered at home were protected with a uterotonic drug compared to fewer than 1% in control areas. Moreover, over

Table 2: Protection from PPH with a uterotonic drug

	Intervention (N=1,047)	Control (N=942)	Total (N=1,989)
<b>Uterotonic for PPH prevention</b>			
Injection only*	250 (23.9%)	172 (18.3%)	422 (21.2%)
Both misoprostol and injection**	6 (0.6%)	1 (0.1%)	7 (0.4%)
Misoprostol at health facility*	199 (19.0%)	10 (1.1%)	209 (10.5%)
Misoprostol at home*	233 (22.3%)	5 (0.5%)	238 (12.0%)
No uterotonic* <sup>‡</sup>	358 (34.2%)	754 (80.0%)	1,112 (55.9%)
<b>Births protected from PPH<sup>1*</sup></b>	<b>689<sup>^</sup> (65.8%)</b>	<b>188 (20.0%)</b>	<b>877 (44.1%)</b>

\*p<0.01; \*\*p<0.05

<sup>‡</sup>Includes 7 women not included in previous table because of missing location of delivery

<sup>1</sup>Any uterotonic given for PPH prevention

<sup>^</sup>Includes 1 client with unknown delivery location who used misoprostol

66% of births in the intervention areas (home and facility births) were protected by a uterotonic at delivery vs. 20% of births in control areas, demonstrating the program's effectiveness in increasing overall protection against PPH (Table 2).

## Majority of women safely used misoprostol

Among women who took misoprostol at home in the intervention areas, 80% reported correctly taking three tablets, and 88% reported correct route (oral) and timing. Nearly half of the women in the intervention (48%)

and control (42%) areas did not experience any symptoms after delivery. Among those who did experience symptoms, shivering, dizziness, high temperature and nausea were most common.

## Women found misoprostol highly acceptable

Acceptability among the intervention communities was extremely high with 90% of women reporting they would use misoprostol after their next delivery; 88% would recommend it to others; and 80% would purchase the drug. Among women in the control

### Provider perspectives

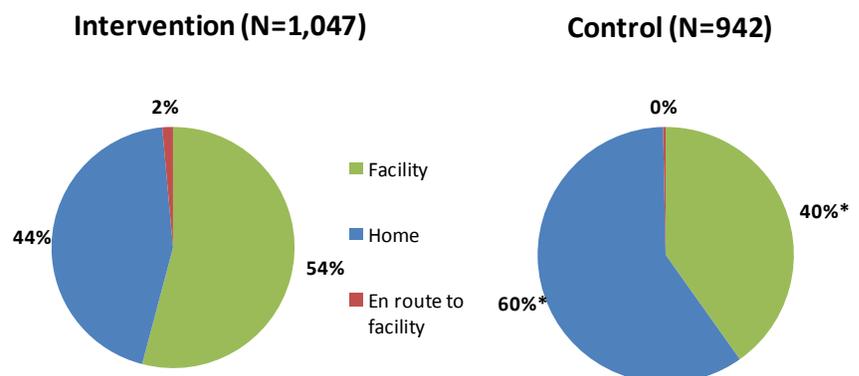
*"Misoprostol reduces the need for referral to other health facilities and reduces the risk of maternal death due to bleeding."*

- ANC provider, Mapatizya Health Center

*"I give misoprostol when oxytocin is out of stock."*

- ANC provider, Naluja Health Center

Figure 2: Place of delivery



\*p<0.01

<sup>^</sup>No response in 5 clients in intervention areas and 3 clients in control areas

areas who learned about misoprostol during the evaluation, 75% would use the drug in their next delivery and 69% would be willing to pay for the tablets (Table 3). During the project misoprostol was made available for free with support from a partner organization, Society for Family Health.

## Conclusions

Misoprostol distribution at ANC visits is a safe, acceptable, feasible and effective intervention for prevention of PPH. ANC is a key point of contact to reach pregnant women with misoprostol tablets, and community-level sensitization agents successfully reinforced messages about proper use of the drug. Not only was awareness of misoprostol and the risk of bleeding high, method compliance was very high among the women surveyed who used misoprostol at a home birth. Moreover, misoprostol was extremely acceptable to women in the project communities, as well as to those who only learned about it during the evaluation. Additionally, the rate of facility delivery was higher among women in the intervention areas than in the control areas; and distribution of misoprostol did not deter women from continuing to attend ANC after receiving the tablets.

**Table 3: Acceptability and willingness to pay for misoprostol**

	Intervention (N=1,047)	Control (N=942)
<b>Would use misoprostol at next delivery<sup>^*</sup></b>	939 (89.7% )	702 (74.5%)
<b>Would recommend misoprostol to others<sup>^^*</sup></b>	922 (88.1%)	649 (68.9%)
<b>Willing to pay for misoprostol<sup>^^^*</sup></b>	839 (80.1%)	652 (69.2%)

\*p<0.01; \*\*p<0.05

<sup>^</sup>No response in 43 clients in intervention areas and 29 clients in control areas

<sup>^^</sup>No response in 13 clients in intervention areas and 11 clients in control areas

<sup>^^^</sup>No response in 32 clients in intervention areas and 31 clients in control areas

Misoprostol protected 41% of births in the intervention areas that would otherwise not have been protected from PPH.

This intervention has the potential to save many mothers' lives throughout Zambia, especially in rural areas where 67% of women deliver at home (DHS, 2007). While efforts to increase skilled delivery attendance should continue, the results of this evaluation provide evidence to support the expansion of ANC distribution of misoprostol to increase protection against PPH, including among women who do not deliver at a facility, for whatever reason.

## Recommendations

The results of this intervention and evaluation strongly support misoprostol being made available in all facilities where deliveries are conducted, as well as directly to expectant mothers at ANC in the event they cannot make it to a health facility to deliver. In conjunction with

misoprostol distribution, education through ANC and community-level agents such as SMAGs is necessary to ensure continued emphasis on delivering in a health facility and correct use of misoprostol at home births if women do not reach a facility to deliver.

## Acknowledgements

The partners are grateful for the community-level cooperation and support of the initiative; the participating ANC providers, the Safe Motherhood Coordinator, the Safe Motherhood Action Groups and participating traditional birth attendants for their commitment and team work; and the women of the five districts who participated in the intervention and evaluation. The Evaluation Team benefited from the tremendous logistical support of the Ministry of Health, Zambia. Society for Family Health also deserves recognition for contributing the misoprostol tablets used in the project.