

Preventing Postpartum Hemorrhage: A Community-Based Approach Proves Effective in Rural Indonesia

Program Brief

A recent study conducted by JHPIEGO's Maternal and Neonatal Health (MNH) Program and its collaborators in Indonesia, with funding from USAID, offers compelling evidence of the effectiveness of a community-based intervention to prevent postpartum hemorrhage (PPH). In the study, trained community volunteers provided women with information about prevention of PPH and the drug misoprostol (which controls bleeding following childbirth), distributed the medication to the women, and provided followup support. The community-based approach was found to be safe and acceptable to the women studied, contributing to their willingness and ability to use the drug appropriately.

The community-based intervention, and use of the drug misoprostol immediately after home birth, lowered the risk of hospitalization due to PPH among the study population of women in rural West Java, offering promise for the prevention of PPH in areas where skilled care is not used or not available. PPH is a leading cause of maternal mortality worldwide and is particularly high in Indonesia, where many women give birth at home, without the care of a skilled provider.

The USAID-funded study—"Safety, Acceptability, Feasibility and Program Effectiveness (SAFE) Demonstration Project of Community-Based Distribution of Misoprostol for Prevention of Postpartum Hemorrhage in Rural Indonesia"—was conducted in West Java in collaboration with Indonesia's Ministry of Health (MOH), the Indonesia Association of Obstetricians and

Gynecologists (POGI), and the World Health Organization (WHO). It concluded in July 2003. Based on the study's results, the Indonesian MOH issued a government resolution incorporating the prevention of PPH into the national health strategy. The government has also implemented plans to scale up education related to the prevention of PPH and community-based distribution of misoprostol as an effective strategy for reducing the risk of PPH when skilled care is not available.

The community-based intervention and use of the drug misoprostol immediately after home birth offer promise for the prevention of PPH in areas where skilled care is not used or not available.

PPH and Active Management of the Third Stage of Labor

Postpartum hemorrhage is the single most important cause of maternal mortality worldwide, accounting for an estimated 25 percent of all maternal deaths. In Indonesia, where many women give birth at home without the care of a skilled provider, the impact of PPH is even greater—it is estimated to be the cause of 45 percent of maternal deaths (Central Bureau of Statistics et al. 1998; Central Bureau of Statistics 1991).

The most effective means of preventing PPH is active management of the third stage of labor, a series of interventions performed by a skilled provider. Active management includes three key steps: (1) administering a uterotonic drug, usually oxytocin, immediately after the birth of the baby and before delivery of the placenta; (2) providing controlled cord traction to speed the delivery of the placenta; and (3) rubbing the uterus to keep it contracted after the delivery of the placenta.

Misoprostol: An Alternative for Reducing PPH

Administering a uterotonic drug, which helps the uterus contract and become firm and controls bleeding, is the most critical intervention in the prevention of PPH (Goldberg, Greenberg, and Darney 2001). Oxytocin, the most commonly used uterotonic drug, must be given by injection by a midwife or physician, and must be continuously refrigerated to maintain its potency. It cannot, therefore, be used effectively in remote areas or where women give birth without a skilled provider.

Misoprostol is a prostaglandin E₁ analogue that acts like a uterotonic drug by causing the muscles of the uterus to contract. It can be administered orally and can be stored at room temperature. It was first developed for the treatment of stomach ulcers, but has since become an important drug in obstetric

Use of Misoprostol: Research on Safety and Efficacy

The safety and efficacy of misoprostol as an alternative to oxytocin is well documented, and the MNH Program's endorsement of misoprostol (when oxytocin or a skilled provider is unavailable) is based on extensive research (McCormick et al. 2002). A recent study in a university teaching hospital in England demonstrated that giving misoprostol to women immediately after childbirth resulted in significantly lower rates of PPH than when the third stage of labor was managed only through controlled cord traction and rubbing the uterus (El-Refaey et al. 2000). Several other studies have also demonstrated that orally or rectally administered misoprostol is effective in reducing PPH when oxytocin is not available. Although a WHO multicenter trial concluded that, in hospital settings, oxytocin is preferable to misoprostol in active management of third stage of labor, a meta-analysis of related studies concluded that 18 percent of women would experience PPH if the placenta were delivered on its own, 2.7 percent if oxytocin were used, and 3.6 percent if misoprostol were used (Gulmezoglu et al. 2001; Prendiville et al. 1988).

Studies also demonstrate that misoprostol is safe when women take it immediately after giving birth (El-Refaey et al. 1997; Ng et al. 2001). Several researchers concluded in a 2001 review that, when oxytocin is not available, use of misoprostol to prevent PPH is acceptable, and the United States Pharmacopoeia Expert Advisory Panel recommended that prevention of PPH be included as an "accepted" indication in the U.S. Drug Information monograph on misoprostol (Carpenter 2001).

practice due to its uterotonic properties (Goldberg, Greenberg, and Darney 2001). Its potential use in reducing the risk of postpartum hemorrhage in areas where women do not have access to skilled care has been the subject of much interest among health researchers and program planners.

The SAFE Study: Testing an Alternative Approach

The MNH Program promotes the use of skilled providers at birth as the first line of defense against PPH and other complications. However, only 66 percent of women in Indonesia and 48 percent of women in West Java give birth with a skilled provider (Statistics Indonesia and ORC Macro 2003). The Program recognizes that strategies are also needed to prevent PPH among women who give birth at home without a skilled provider present.

To address this need, the MNH Program and its collaborators in Indonesia developed the SAFE study to assess whether informed, community-based distribution of misoprostol during the antenatal period, and use of the drug immediately after home birth, would lower the incidence of PPH, would be safe and acceptable to women and families, and would be programmatically feasible. The safety and acceptability of the drug—and the feasibility of community-based education and distribution—were considered key to the successful use of misoprostol to prevent PPH.

The study was implemented using the existing healthcare infrastructure and community resources in Indonesia, including a network of community volunteers. The study team, which included a study manager, a field epidemiologist, three trainer midwives, and two obstetrician physicians, recruited a field team (52 community volunteers, 19 interviewers, and 31 health center midwives) from the study area. The study team first selected and trained 10 field supervisors, using training modules and

counseling materials (including a pictorial flip book illustrating the safe use of misoprostol) developed by MNH Program field staff in Bandung and based on the study protocol and implementation strategy. The field supervisors then assisted with the 5-day training of the community volunteers and interviewers.

After orientation and training, members of the field team were responsible for counseling study participants about the prevention of PPH and the safe use of misoprostol. Women participating in the study and their support persons received information on two occasions during their pregnancies, once from *bidan* (midwives) in antenatal clinics, and once from *kader* (trained community volunteers) during home visits. Community volunteers also collected relevant information from participants, using a series of standardized questionnaires developed for the study.

Women were asked by the community volunteers to correctly recount the information they had been given before receiving the medication and safety reminder cards. Women and their support persons were instructed to keep the medication in a safe place with all other items needed for childbirth, and to take the misoprostol immediately after the birth of the baby—especially if a skilled provider would not be present.

Results and Conclusions: Successful Counseling, Safe Use, and Fewer PPH Referrals

Data collected from 1,360 women in the intervention area were compared with data from 495 women in a comparison area. Women in the intervention area were 24 percent less likely than women in the control area to perceive excessive bleeding. They were 31 percent less likely to need any emergency referral and 47 percent less likely to need an emergency referral for PPH.

As a result of the counseling provided by the community midwives and volunteers, women reported in focus group discussions and in-depth interviews that they were adequately prepared to cope with any minor discomforts following their use of misoprostol. A large proportion of the women reported that they would be willing to use misoprostol in their next pregnancies, pay for it themselves, and recommend it to friends.

Based on these results, the SAFE study concluded that trained and supervised personnel are able to successfully provide PPH prevention counseling and information and then safely distribute misoprostol to women who are unlikely to receive care from a skilled provider during childbirth. The women could understand the information provided, act on it appropriately, and safely take misoprostol at the correct time.

The study also found evidence that having access to medication that prevents PPH does not make women more inclined toward giving birth at home. In fact, there was an increase in midwife-assisted births among women in the intervention area. Twenty-eight percent reported delivering at the midwife's home clinic in their previous birth, and 38 percent reported delivering at the midwife's home clinic during their most recent birth. Home births declined from 55 percent to 47 percent among study participants.

Next Steps to Prevent PPH in Indonesia

Recognizing that PPH is a major cause of maternal mortality in Indonesia, and that this intervention demonstrates a safe PPH prevention strategy, the national safe motherhood steering committee and the MOH in Indonesia have incorporated PPH prevention into the national healthcare strategy. They have allotted significant funds to disseminate the SAFE study results widely in Indonesia and to finalize and distribute program implementation

guidelines and training, counseling, and monitoring materials. In addition, they have initiated field team training in three provinces, including districts in West Java, Banten, and South Sumatra, as the Indonesian National Prevention of Postpartum Hemorrhage Program is scaled up.

The MNH Program believes that a combination of interventions, including active management of the third stage of labor by a skilled provider, the use of misoprostol by the woman if a skilled provider is not present at a home birth, and raising awareness of the importance of birth preparedness and complication readiness, has the greatest potential for expanding the prevention of postpartum hemorrhage. In addition to the SAFE study, the MNH Program in Indonesia is engaged in several ongoing initiatives to reduce maternal mortality from PPH, including:

- › Promoting the practice of active management of the third stage of labor through preservice education and inservice training of skilled providers, as part of a national effort to improve basic care during childbirth; and
- › Supporting birth preparedness and complication readiness through the SIAGA (“alert”) campaign, which employs complementary mass media and community mobilization activities to encourage couples, community members, and midwives to be prepared for emergencies like PPH.

Summary

The MNH Program supports and strongly recommends active management of the third stage of labor, including administration of oxytocin by a skilled provider. However, the SAFE study shows that, for women who do not have a skilled provider present at birth, a community-based approach to

educating women about the prevention of PPH and providing misoprostol to them for use immediately after home birth can be effective in preventing PPH. When a woman must give birth at home, without assistance from a skilled provider, she now has a safe and effective alternative for preventing PPH.

References

- Carpenter JP. 2001. *Misoprostol for prevention of postpartum hemorrhage: An evidence-based review by the U.S. Pharmacopeia*. U.S. Pharmacopeia, Global Assistance Initiative: Rockville, MD.
- Central Bureau of Statistics (CBS) [Indonesia] et al. 1998. *Indonesia Demographic and Health Survey 1997*. CBS and Macro International: Calverton, MD.
- Central Bureau of Statistics (CBS) [Indonesia]. 1991. *Household Health Survey (Survei Kesehatan Rumah Tangga), 1991*. Badan Pusat Statistik, Departemen Kesehatan (BPS-Ministry of Health): Jakarta, Indonesia.
- El-Refaey H et al. 2000. The misoprostol third stage of labor study: A randomised controlled comparison trial between orally administered misoprostol and standard management. *The British Journal of Obstetrics and Gynaecology*: 107: 1104–1110.
- El-Refaey H et al. 1997. Use of misoprostol in prevention of postpartum hemorrhage. *The British Journal of Obstetrics and Gynaecology*: 104: 336–339.
- Goldberg AB, MB Greenberg, and PD Darney. 2001. Misoprostol and pregnancy. *New England Journal of Medicine* 344(1): 38–47.
- Gulmezoglu AM et al. 2001. WHO multicentre randomised trial of misoprostol in the management of the third stage of labour. *Lancet* 358(9283): 689–695.
- McCormick ML et al. 2002. Preventing postpartum hemorrhage in low-resource settings. *International Journal of Obstetrics and Gynecology* 77(3): 267–275.
- Ng PS et al. 2001. A multicentre randomized controlled trial of oral misoprostol and i.m. syntometrine in the management of the third stage of labour. *Human Reproduction* 16(1): 31–35.
- Prendiville WJ et al. 1988. The Bristol third stage trial: Active versus physiological management of third stage of labour. *British Medical Journal* 297(6659): 1295–1300.
- Statistics Indonesia (Badan Pusat Statistik) and ORC Macro. 2003. *Indonesia Demographic and Health Survey 2002–2003*. BPS and ORC Macro: Calverton, MD.

For more information about the MNH Program, visit our website:
www.mnh.jhpiego.org

This publication was made possible through support provided by the Maternal and Child Health Division, Office of Health, Infectious Diseases and Nutrition, Bureau for Global Programs, U.S. Agency for International Development, under the terms of Award No. HRN-A-00-98-00043-00. The opinions expressed herein are those of the author(s) and do not necessarily reflect the views of the U.S. Agency for International Development.