Community-Based Distribution of Misoprostol for Prevention of Postpartum Hemorrhage

A Continuum of Care Model in Ghana

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I. Introduction

Postpartum hemorrhage is the biggest cause of maternal mortality in Ghana, responsible for approximately one quarter of the estimated 2,700 maternal deaths each year.\(^1,2\) One promising approach to address this situation is taking an inexpensive, heat-stable pill—misoprostol—just after delivery to prevent postpartum hemorrhage. Misoprostol can save lives if made accessible to women when and where they are giving birth, which in Ghana is often at home.

To test the potential of misoprostol in Ghana for reducing maternal death due to postpartum hemorrhage, the MacArthur Foundation supported the Earth Institute to pilot an innovative approach to community-based distribution of misoprostol through the Millennium Village Project in the Ashanti region of Ghana. The model trains community health extension workers and traditional birth attendants to reach women in their communities with information about misoprostol and encouragement to attend antenatal services. At the antenatal visit, trained midwives distribute misoprostol to women during their third trimester for use at home in the event that access to facility delivery is not possible. This collaborative model between skilled providers and community-based agents is proving highly effective in encouraging women to either deliver at facilities with the assistance of skilled providers or have access to misoprostol for use after delivering at home, thereby preventing maternal deaths.

The MacArthur Foundation commissioned a process evaluation of this work to better understand the factors that have led to success, barriers encountered in implementing the project, and opportunities for expansion of the model. This case study describes the findings of that evaluation, including the successes and challenges encountered while implementing the project, the landscape of other misoprostol work in Ghana, and the current opportunities for scaling up improved access to misoprostol at the community level in Ghana.

II. The Evaluation Process

In 2014 the MacArthur Foundation commissioned the Public Health Institute to conduct a process evaluation of the Earth Institute project to expand access to community-based distribution of misoprostol through the Millennium Village Project in Ghana. The purpose of the evaluation was to better understand the factors that have influenced project implementation, including barriers encountered and challenges faced in overcoming them, as well as factors affecting scale up. A team of experts conducted a desk review of literature and grantee reports, interviewed global experts and local key stakeholders (see Appendix A), and visited the project sites. The interviews and observations were complemented by focus group discussions with women who had used misoprostol as well as with community health extension workers who had delivered the services. A total of 6 focus group discussions were conducted: 3 with women beneficiaries and 3 with various health workers from the Bonsaaso project area. The evaluation took place from June to November 2014.
III. Background

The extent of the problem

Postpartum hemorrhage, defined as blood loss of 500 ml or greater within 24 hours of delivery, is the leading cause of maternal mortality in the developing world, accounting for 27% of maternal deaths. It is the leading cause of maternal deaths in Ghana and is recognized as a serious problem throughout the country; health workers and community members alike are acutely aware of the effects of postpartum hemorrhage, having lost patients, sisters, wives, and neighbors to uncontrolled bleeding after giving birth.

The problem of hemorrhage is particularly severe in rural areas of Ghana because women cannot always reach healthcare facilities where they could receive skilled care, including a medication that prevents bleeding. Although 67% of women in Ghana now deliver in facilities, the rate in rural areas is much lower; in the Amansie West district where the project is located, facility delivery is only 30%. Transportation challenges, including undeveloped roads, long distances, and flooding during rainy season, are only one part of a myriad of challenges that limit clients’ access to healthcare at the time of delivery. In the words of project beneficiaries:

[Postpartum hemorrhage] was very common and brought us a lot of problems.
People lost their lives during deliveries because we didn’t have health facilities.

The promise of misoprostol

One promising approach to preventing postpartum hemorrhage in areas where women have limited access to healthcare facilities is to give pregnant women misoprostol—an inexpensive pill that, when taken immediately after delivery, can reduce the risk of postpartum hemorrhage by between 24 to 47%. Misoprostol was originally used to treat gastric ulcers but, since the late 1980s, has increasingly been used as a uterotonic (an agent used to induce contraction or stimulate muscle tone of the uterus). Misoprostol has multiple indications, including the prevention and treatment of postpartum hemorrhage, induction of labor, termination of pregnancy, and treatment of incomplete abortion.

Misoprostol is an important alternative to another uterotonic—oxytocin—which is commonly used in healthcare facilities to prevent postpartum hemorrhage. Oxytocin is considered by the World Health Organization to be the uterotonic of choice for postpartum hemorrhage prevention due to its higher effectiveness in clinical trials and reduced side effect profile compared to misoprostol. However, because oxytocin is given by injection or intravenously and must be refrigerated to protect potency, it is most practical for use in healthcare facilities. In contrast, misoprostol is easy to administer and heat stable, making it a useful backup to oxytocin in healthcare facilities (in cases of stockouts or when potency has been compromised by heat exposure). Misoprostol also provides a practical solution for increasing uterotonic coverage for home births.

Distributing misoprostol in communities is an effective strategy that has emerged over the past decade to reach women who for whatever reason—distance to a local clinic, finances, or personal or cultural preferences—give birth at home. Models of community-based distribution of misoprostol include:
Advance distribution. This model involves giving a pregnant woman a supply of misoprostol tablets before her anticipated due date so she can take the medication immediately after delivery (either at home, at a facility that lacks oxytocin, or in transit to a facility). Tablets are typically distributed during antenatal care visits or during home visits by a community health extension worker (CHEW) or other community agent;

Distribution during home birth. In this model, a woman giving birth at home is attended by a community health extension worker or traditional birth attendant (TBA) who administers misoprostol immediately after delivery;

Hybrid models. These involve a combination of the advance distribution and distribution during home birth models.

All of these models focus on trying to reach women who give birth at home and who, as a result, are at high risk of dying from postpartum hemorrhage. Increasingly, governments in countries like Ghana—where in some areas rates of institutional deliveries are low and maternal deaths are very high—are taking measures to register misoprostol in their countries and exploring how best to use it to reduce the postpartum hemorrhage in their rural communities.

IV. The Project—A Continuum of Care Model

The MacArthur Foundation funded the Earth Institute, in partnership with the University of Illinois, to pilot the “Continuum of Care for the Prevention of Postpartum Hemorrhage” project in the Bonsaaso Millennium Village, located in Ghana’s Amansie West district (see map).

Implemented from 2008 to 2012 (with services still ongoing), the project assessed the feasibility, safety, and acceptability of a community-based model for expanding access to misoprostol for postpartum hemorrhage prevention. The project operates through seven primary health clinics serving a population of 30,000. A follow-on grant approved in May 2014 expands the reach of the pilot project to the entire Amansie West district and replicate it in three districts in the Millennium Villages Project Savannah Accelerated Development Authority (SADA) region of Northern Ghana (Mamprusi West, Builsa, and Mamprugu Moagduri districts). A goal of these projects is to lay the groundwork for eventual scale up of the model to rural areas throughout Ghana (see box, Planning for Scale Up).
The project model

The community-based project model involved garnering support from key stakeholders at the national, regional, and local levels; community sensitization; training midwives, community health extension workers, and traditional birth attendants; and advance distribution of misoprostol by midwives during third trimester antenatal care visits. The model expanded the Ghana Health Service’s continuum of care approach for prevention and treatment of postpartum hemorrhage by linking pregnant women with healthcare services and extending care into the home when facility delivery was not possible.

Planning for Scale Up

A significant challenge for any national healthcare system is scaling up interventions that are proven successful in small pilot projects so that they become integrated parts of ongoing national health services. While it is often assumed that scale up will easily follow a successful pilot, the realities surrounding pilot project implementation (significant funding, strengthened infrastructure in the pilot project site) are very different from the realities faced by health systems managers as they try to expand the model (limited funding, competing health priorities). The average time for taking a successful pilot to national scale is 15 years.\(^\text{17}\)

Scale up is more likely to be successful if the intervention addresses a compelling need, is supported by evidence, and planned for from the outset. Other important factors leading to successful scale up include: being endorsed by credible sources; observable so that potential users can see the results in practice; easy to transfer and adopt; compatible with the system’s established values, norms, and facilities; and able to be tested for feasibility before committing the potential user to full scale up. Community-based distribution of misoprostol to prevent postpartum hemorrhage clearly meets this profile: numerous studies have demonstrated its safety and efficacy; it is endorsed by the World Health Organization; it results in a dramatic reduction in postpartum bleeding and death; it can be provided within existing systems; and it addresses the strong community value of safe motherhood.

Even when the intervention to be scaled up is the “perfect solution” to a compelling problem, efforts to expand its use on a widespread basis require careful planning from the outset. Key steps in the process of scale up include:\(^\text{17, 18}\)

- Legitimizing the approach
- Constituency building
- Realigning and mobilizing resources
- Modifying organizational structures
- Coordinating action
- Performance monitoring
The home-based aspects of the continuum of care included the advance distribution of misoprostol for potential home use and home birth attendance by community health extension workers and traditional birth attendants to facilitate delivery, monitor blood loss, and arrange emergency referrals. The figure above provides an overview of the model used; the project setting, including key maternal health indicators at the time of project inception and challenges that were preventing women from delivering safely; and the key findings of the evaluation.

During an initial planning phase, project leaders from Earth Institute and the University of Illinois engaged key stakeholders within the Ghana Health Service to gain their support for the community-based distribution model. Project leaders initially proposed having community health extension workers bring misoprostol to women in their homes but the Ghana Health Service expressed concern about having untrained workers handling the misoprostol (which is a controlled medication in Ghana). Taking advantage of the fact that 96% of pregnant women in Ghana attend antenatal care at least once, they eventually settled on a plan in which midwives would educate women about safe delivery at the third trimester antenatal care visit—including the recommendation to deliver in a facility and how to use misoprostol if it was impossible to get to a facility—and give women a package of misoprostol to take home. The resulting project design integrated misoprostol into existing health services and positioned
it as one part of the continuum of care for postpartum hemorrhage (with the other components being emphasis on attended delivery, early identification of hemorrhage, referral, ambulance transport, and facility-based treatment services).

The first phase of the project took place between July 2009 and January 2011 and focused on collecting baseline data and preparing for misoprostol distribution. Specific activities included: community sensitization about safe motherhood and the importance of delivering with a skilled attendant; training health workers (nurses and midwives), community health extension workers, and traditional birth attendants in safe delivery practices, including the use of misoprostol; and training community health extension workers and traditional birth attendants in the use of a blood collection drape. (The blood collection drape, a plastic sheet designed to measure excessive blood loss after delivery, was used in the project for research purposes.)

During the second phase of the project, which took place from January 2011 to September 2012, education and distribution of misoprostol were incorporated into the home visiting and antenatal services of the existing Ghana Health Services. Community health extension workers visited women to educate and counsel them about safe delivery measures and the usefulness of misoprostol, encouraging them to seek antenatal care (including during the third trimester, when they could receive misoprostol). During antenatal visits, midwives educated women about safe delivery, including both the recommendation for facility delivery and how to use misoprostol, and provided them with three pills of 200 µg each of misoprostol to take home. Women were encouraged to summon a health extension worker or traditional birth attendant to assist with home birth should they not make it to a facility to deliver and were also encouraged to self-administer the drug if they delivered alone. Health extension workers and traditional birth attendants also used the blood collection drape to monitor for excessive bleeding and facilitated referrals to the health centers when needed.

The project obtained misoprostol (brand name Misotac) through the Ghana Health Service. The product flowed through the Central Medical Stores to the district pharmacist and then to the project pharmacist. Because the product was not packaged as a single dose, the pharmacist cut up the foil blister packs and repackaged three tablets in a clear plastic pouch with a tracking code (see photo). The project pharmacist distributed the misoprostol packets to midwives during biweekly visits to the project health centers. [Note: Misotac was recalled due to poor quality in September 2011 and the project was able to continue distributing misoprostol in December 2011 using a different brand of misoprostol (Cytotec)].

Throughout the pilot project, each misoprostol packet was carefully tracked to ensure that any unused product was returned (this was done partly for research purposes and also because health officials were apprehensive that unused misoprostol might be used for abortion at the community level—see discussion below in
Findings section). To encourage the return of unused misoprostol, women were required to get a guarantor before receiving misoprostol (project staff anticipated that women would return unused misoprostol to protect their guarantor). Project staff made home visits to retrieve misoprostol that was not used or returned.

Project outputs

Key outputs of the first phase of the project include:

- Trained 54 health providers and 60 traditional birth attendants on the use of the blood collection drapes;
- Conducted community sensitization workshops in 30 communities;
- Gathered baseline data regarding drape use, delivery attendance, blood loss, and referral for 275 home births.

Key outputs of the second phase of the project include:

- Trained 94 healthcare providers and 54 traditional birth attendants;
- Distributed 654 misoprostol doses to women by midwives;
- 529 women who received misoprostol (80.9%) delivered at a facility and did not use the pills they had been given in advance;
- 96 women (14.7%) used misoprostol at home and all but one used it correctly;
- 7 women (1.1%) brought the misoprostol they had been given to the facility and used it during a facility delivery;
- No maternal death was recorded during implementation of the project;
- Almost all (98%) unused misoprostol was returned and there was no reported or observed use of misoprostol for abortion.

Since the completion of the project in September 2012, project sites have continued to distribute misoprostol at antenatal visits.

Results of the project were shared at a stakeholder meeting in Kumasi in October 2012 where participants pledged to form a “National Misoprostol Scale Up Team” to plan for scale up. To set the stage for expansion of the project in the Amansie West district and SADA region, an additional stakeholder meeting was held in Kumasi in November 2014.
V. Evaluation Findings

The project successfully demonstrated that the community-based model of advance distribution of misoprostol for home use is feasible, safe, and acceptable. In particular, the evaluation found that:

- Community stakeholders and policy makers had a high level of acceptance of the model;
- Misoprostol was well integrated into the continuum of care for postpartum hemorrhage;
- The inclusion of community health extension workers and traditional birth attendants for misoprostol outreach and education was feasible and successful; and
- Distributing misoprostol to women in advance was an effective strategy to provide uterotonic coverage to those women who do not deliver in a health facility.

The evaluation also identified numerous challenges that have the potential to significantly slow progress and limit the overall scope of scale up in Ghana.

Community stakeholders and policy makers support the model

Responses from all levels of the evaluation, especially focus group discussions with women beneficiaries, revealed that the community-based distribution model implemented by the Earth Institute in Ghana is viewed as acceptable and effective. As implementation of the project progressed, support for the intervention increased as policy makers and community leaders recognized the crucial role that misoprostol was playing in saving women’s lives. The women expressed a newfound confidence that they could give birth without dying thanks to misoprostol. Health workers noted that misoprostol hastens the third stage of labor and its use prevented most cases of postpartum hemorrhage in their district. And, the Regional Director of Health Services of the Ashanti region emphasized that maternal mortality has been drastically reduced in the Amansie West District, noting:

_We are happy to purchase and supply the drug to clients because it prevents postpartum hemorrhage._

Simply put, community members and health workers stressed:

_We love the drug, it is life-saving._

Government buy-in of the model manifested in the form of specific government policies that support the use of misoprostol; the drug was included in the 2010 Ghana Essential Medicines List and Ghana Health Service officials reported that the cost of the drug will eventually be covered by the National Health Insurance Scheme. A misoprostol policy is currently being drafted and in January 2014, the Ghana Health Service launched a National Postpartum Hemorrhage Strategy that includes a limited scale up of misoprostol, targeting rural areas where home births are most common (about 30% of the country). At present, the only concrete plans for expansion of the Earth Institute model appear to be the follow-on work in Amansie West, Buiisa, Mamprusi, and Mampurgo Moaduri (also funded by the MacArthur Foundation), although a meeting with Ghana Health Service representatives is being planned for northern, western, and eastern regions to discuss possible expansion into those regions as well.
Misoprostol was well integrated into the continuum of care

The project successfully integrated misoprostol into the existing Ghana Health Service project as one element of the continuum of care for postpartum hemorrhage prevention and treatment. Other elements of the continuum include: antenatal care (with education about safe delivery); facility delivery (with active management of the third stage of labor, including oxytocin); community health extension worker and traditional birth attendant presence at home births (to assist with delivery, monitor blood loss, and refer, as necessary); and emergency referral for treatment of complications. By adding community-based distribution of misoprostol, the model addressed a “missing link” in the continuum of care—women’s potential lack of access to facilities during labor and delivery.

Linking misoprostol distribution to the antenatal care visit appears to have motivated some women to attend antenatal visits in order to get this life-saving drug. As one midwife put it:

*Whenever I forget to give a client miso, she tells me, madam, the CHEW said I should come and get the miso.*

This aspect of the model also appears to have strengthened the connection between pregnant women and health center staff, perhaps explaining the higher facility delivery rates seen at the conclusion of the project; the percent of women in the catchment area who delivered at a facility with skilled attendants increased from 30% to 69% over the course of the project.\(^{16}\) It may also explain why 80% of the women who were given misoprostol in advance did not use the pills (see key project outputs above).

Community health extension workers and traditional birth attendants successfully reached women with information and delivery care

The project’s use of community health extension workers and traditional birth attendants to do outreach and education to pregnant women, as well as attend home births when feasible, successfully generated demand for and understanding of misoprostol by women. Focus group discussions revealed that, as new and positive testimonies concerning misoprostol spread among the community, women began asking community health extension workers about the drug at first contact. Work by both cadres also helped to relieve the workload of midwives. The critical role of community health extension workers came up frequently in focus group discussions, with various calls from women beneficiaries, midwives, and health extension workers who had been trained by the project to recruit and train new community health extension workers about how to carry out responsibilities related to misoprostol. The critical role of the community health extension worker was well captured by a midwife who said:

*When the CHEWs are around, every woman who goes into labor calls the CHEW and the CHEW will call us and we will call the ambulance.*

Likewise, although traditional birth attendants are not officially part of the Ghana Health Service, they are often a women’s first point of contact when she goes into labor and partnering with them in the Bonsaaso project contributed to the success of the project. As part of the project, traditional birth attendants received training on safe delivery, including the use of misoprostol, and midwives working closely alongside cited their helpfulness in cases when several women were in labor at the same time or when the midwife was not able to be present.
Distributing misoprostol to women in advance helped address access issues

*Postpartum hemorrhage is a bother to our community especially because of lack of transportation.* —A project beneficiary

The program’s model of providing misoprostol in advance and advising women to carry it with them when they were nearing their due date (including when on their way to deliver at a facility) provided a practical solution to the biggest challenge pregnant women face in rural areas—reaching facilities at the time of delivery. The evaluation found that access to reliable transportation is a significant problem, preventing women from reaching facilities for delivery and impeding emergency referrals. One midwife described the repeated challenges she faced in referring a patient to a hospital—she made four attempts to obtain an ambulance and was unsuccessful for four different reasons: flat tire, no diesel, no driver, and no vehicle available. (Of the two ambulances dedicated to the project area, only one was functional at the time the evaluation team visited.) Women in the focus groups also stressed the difficulties they had accessing transportation, pointing out that even when ready to pay for private transport, the terrain and poor nature of the road (mountainous and often muddy) made it impossible for most vehicles to serve the community. The most common means of transport employed by health centers is motor bikes, which, they emphatically pointed out, are not practical for laboring mothers:

*The only means of transport available in my community is motorbike. And, my sister, you can bet that it is not an easy task for a pregnant woman to sit on a motor bike. It takes a very long time to access a vehicle for transportation and that is why most of us give birth at home.* —A project beneficiary

Policy makers are concerned about “misuse” of misoprostol for abortion

A major fear expressed by project implementers and national and regional level policy makers in the Ghana Health Service is that misoprostol provided for postpartum hemorrhage prevention would be diverted at the community level and used for abortion. Although abortion is legal in Ghana and services are provided through the Ghana Health Service (and medical abortion products containing mifepristone and misoprostol are readily available in pharmacies), health officials stressed that the government did not want to be perceived as contributing in any way to the use of misoprostol for abortion. This fear of “misuse” ultimately influenced the design of the project; women were required to get a guarantor before they could obtain the misoprostol and were required to return the drug if they did not end up using it. Key informant interviews and focus group respondents cited no evidence that misoprostol distributed for postpartum hemorrhage was being used for abortion. Nevertheless, going into the next phase of scale up, the concern about use of misoprostol for abortion is still very strong and policy makers are urging a very cautious approach, especially in Northern Ghana where family planning and abortion are particularly frowned upon.

Resources for training and drug procurement are limited

During key stakeholder interviews, national and regional representatives of the Ghana Health Service identified scarce availability of resources for training and drug procurement as one factor that is currently limiting scale up of the model to additional rural areas. The model relies on training multiple cadres of workers—midwives, community health extension workers, and traditional birth attendants—which can be time consuming and costly, particularly given high staff turnover. The model also relies on
a government commitment to procure misoprostol and the ability to distribute it consistently through the national commodities distribution system. The mechanisms for ensuring a consistent supply of misoprostol through the Ghana Health Service supply pipeline were not fully explored through the pilot project making it difficult to assess potential challenges in this area (product was provided by project staff directly to the implementation areas). Although women expressed their willingness to purchase misoprostol at a minimal cost if they have to, the Ghana Health Service cannot introduce a cost component in scale up efforts because maternal and child health services in the country are rendered free. At present, the recently funded grant from MacArthur for the follow on project in the Amansie West and SADA region is the only planned effort to provide the drug, with no clear plan for how future expansion of the project model and misoprostol distribution will be funded.

Reliance on midwives for misoprostol access has limitations

The evaluation identified two potential problems with relying on midwives who are proving antenatal services as the gatekeepers to women’s access to misoprostol. First, midwives already have a heavy workload and the counseling and administrative duties associated with distributing misoprostol just add to that. National level government stakeholders expressed concern that the time needed for misoprostol counseling and paperwork would slow down services, even if providing the service extended each visit by only a few minutes. Second, interviews and focus groups with midwives and community health extension workers revealed that some midwives may be refusing to provide women with misoprostol during antenatal visits because of their proximity to the health facilities; according to these midwives, women who live close to a health facility have no need for misoprostol as they will be coming to the facilities to deliver. This unofficial practice will undoubtedly reduce the impact of the project.

Pilot service delivery environment is not representative

Although the model was very successful when piloted in the Bonsaaso Millennium Village, it is unclear if other rural areas in Ghana will have the resources and healthcare infrastructure to replicate it. Because Millennium Villages are sites of intensive development aid—with interventions to address the challenges of extreme poverty in many overlapping areas, including agriculture, education, health, infrastructure, gender equality, and business development—they have a strengthened infrastructure relative to other similarly rural areas in Ghana. For example, in Amansie West, the Millennium Village Project provided and strengthened the health centers and staffing throughout the region where the misoprostol project operated (as well as the road system and electrical grid that supported services in the project area). In the seven primary healthcare clinics involved in the pilot, each clinic had a midwife, a community health nurse/officer, and at least one community health extension worker. Even in this well-supported environment, midwives reported that educating women about misoprostol and distributing the tablets during the antenatal visits added to their already heavy responsibilities. In fact, the position of community health extension workers is not standard in the Ghana Health Service, with rural areas mainly staffed by Community Health Officers who perform many of the same duties over a large catchment area in addition to overseeing rural facilities. Some areas have community health volunteers, but these volunteers are not recruited or remunerated by the Ghana Health Service. In sum, other rural areas in Ghana that have not been part of the Millennium Villages Project or other capacity-building interventions are unlikely to have as many facilities or ones that are as well-staffed, and access to what services there are is likely to be even more challenging.
VI. Recommendations

The continuum of care model funded by the MacArthur Foundation for community-based distribution of misoprostol in Ghana is well-positioned for scale up. This is due in large part to the fact that project leaders incorporated proven strategies for bringing an intervention to scale during project design and implementation, including those highlighted in the following table.

<table>
<thead>
<tr>
<th>Recommended Strategies to Achieve Scale</th>
<th>Project Approach</th>
</tr>
</thead>
<tbody>
<tr>
<td>Build constituencies</td>
<td>Meetings with all levels of policy and community stakeholders (national, regional, district, Queen Mother) as well as community sensitization outreach</td>
</tr>
<tr>
<td>Integrate with existing systems</td>
<td>Misoprostol integrated into existing Ghana Health Service antenatal care project as one aspect of the continuum of care for postpartum hemorrhage; plan to incorporate into existing antenatal service delivery package and cover through National Health Insurance Scheme</td>
</tr>
<tr>
<td>Adapt approach to meet local needs</td>
<td>Misoprostol provided in advance to address the transportation challenges women face in reaching facilities; plan to provide at 28 weeks in northern regions in response to antenatal care visit patterns</td>
</tr>
<tr>
<td>Document evidence</td>
<td>Research was focus of pilot project, documented lessons learned</td>
</tr>
<tr>
<td>Disseminate lessons</td>
<td>Stakeholder meetings shared lessons learned and plan for scale up</td>
</tr>
</tbody>
</table>

Despite these successes, a significant amount of work still remains to take the intervention from a successful project model within the Millennium Village Project’s service sites to a fully integrated component of the Ghana Health Service. The expansion of the model to the Millennium Villages Project locations in the remainder of the Amansie West district and the SADA region that is now underway is a cautious first step toward scale up, but additional efforts to reach other rural areas in Ghana are needed for the approach to realize a significant impact. Recommendations for modifying the model and facilitating scale up within the Ghana Health Service are outlined below.

**Recommended modifications to the model**

Three aspects of the pilot project design bear modification as the Ghana model transitions from a research-oriented pilot project to more widespread implementation:

- **Delink the blood collection drape from misoprostol services.** The blood collection drape should be clearly de-linked from the provision of misoprostol for postpartum hemorrhage prevention. The drape was a research tool for the pilot project and is not a necessary part of providing misoprostol in communities. In fact, the focus groups revealed that cost and supply of the drapes were significant issues and that they were often not used.
- **Eliminate the drug guarantor and retrieval requirements.** The pilot project’s requirement that a woman obtain a guarantor before receiving misoprostol also should be eliminated as it adds an unnecessary burden to women seeking maternal health services. Likewise, the careful tracking and retrieval of every pill, while helpful during the research phase, is not recommended as the model scales up. Treating misoprostol differently from other drugs by requiring a guarantor and/or requiring its return if not used both sets up a cumbersome and time-consuming administrative process that will not be sustainable during scale up and sends the message that this drug is more dangerous than other drugs. If removing unused product from circulation continues to be a priority, encouraging women to return unused tablets (but without tracking them) is an alternate approach that would eliminate the administrative burden of tracking each tablet.

- **Streamline the data collection requirements.** As pilot projects move toward scale up they must distinguish between data collection to demonstrate the effectiveness of an approach and essential data that will be needed as part of ongoing monitoring and evaluation of the service. Many of the data points collected during the research phase may no longer be needed during scale up implementation and continuing to collect them may place an undue burden on staff. The scale up partners can jointly define data priorities to make the most judicious use of staff resources.

The follow on project to expand services in Amansie West and the SADA region presents an important opportunity to test some of these modifications. Testing could involve using a simple operations research approach in a separate project area. For example, to test whether a voluntary product return system could still result in a high product return rate while saving health workers time, the project could track return of unused product in one region and institute a voluntary return project in another, comparing the outcomes. The goal of such tests would be to eliminate barriers to access with the aim of refining the project model in anticipation of national scale up.

**Recommended actions to facilitate scale up within the Ghana Health Service**

The recommendations below suggest possible ways to facilitate the process of scaling up the model in Ghana to help meet the clear need for access to misoprostol in rural areas.

- **Incorporate misoprostol in training within Ghana Health Service and in pre-service education.** As misoprostol becomes more widely used, all healthcare providers and health education workers could benefit from receiving training and information about its correct use. Although the pilot project educated providers through a separate stand-alone training, to ensure sustainability in scale up, misoprostol information should be incorporated into the existing Ghana Health Service training curricula, as well as into pre-service curricula. Ideally, training should include appropriate information for various levels of providers about all of misoprostol’s indications (prevention and treatment of postpartum hemorrhage, treatment of incomplete abortion, induced abortion, treatment of intrauterine fetal death, and labor induction). Providing accurate information about all indications can help to prevent incorrect use (as has been happening in some countries with labor induction) and equip providers to fully utilize all of the lifesaving potential of misoprostol, including for treatment of postpartum hemorrhage.
Update policies to allow use of misoprostol to treat postpartum hemorrhage at lower level facilities. At the facility level, the approved protocol for midwives to treat postpartum hemorrhage is to apply two doses of oxytocin followed by a dose of ergometrine if bleeding persists, with the final option being to refer clients to the nearest emergency care facility. However, the evaluation found that the quality of these drugs is often compromised due to interruptions in cold storage. Key informants noted frequent power outages of up to five days and problems with drug potency (a finding that is consistent with field assessments of drug quality in Ghana that indicate significant quality problems with oxytocin in the Ghana supply chain).19 In one example, a midwife administered oxytocin multiple times to treat a case of postpartum hemorrhage with no effect. Fortunately, she ultimately obtained permission through the pilot project leader to use misoprostol to treat the hemorrhage; the bleeding stopped immediately. A change in policy to allow midwives to use misoprostol for treatment of postpartum hemorrhage at lower level facilities would provide an additional tool to stop bleeding and create a safety net in the event that transportation to emergency care is delayed or not available.

Distribute misoprostol through CHPS compounds. Community-based Health Planning and Services (CHPS) compounds—health centers which are intended to increase primary healthcare coverage and improve maternal and child health—could represent a critical avenue for distributing misoprostol for postpartum hemorrhage prevention. When the CHPS system was introduced in Ghana, it was estimated that 6,400 CHPS zones would be required to achieve primary healthcare coverage. Although the country is far from achieving this goal (with only 500 functional CHPS zones currently established) the government of Ghana plans to build more CHPS centers in communities.20 As CHPS compounds become more widespread, they could be a potentially powerful vehicle for community-based distribution of misoprostol. The viability of this approach has already been demonstrated in a pilot project implemented by Venture Strategies Innovations (see Appendix B: Work by Other Organizations) in which CHPS compounds were used successfully to distribute misoprostol, accounting for about 23% of the total clients enrolled in the pilot.21

Incorporate misoprostol into the Ghana Health Service commodities distribution system. Because misoprostol was supplied directly to the targeted intervention sites, the pilot project did not establish or test a mechanism for stocking and distributing misoprostol through the Ghana Health Service commodities distribution system. Doing so will be necessary to facilitate more widespread scale up. Efforts to incorporate misoprostol into the national supply chain will require mechanisms for forecasting, procurement, storage, requisition, and drug distribution. A number of existing tools may provide helpful guidance in this area.22, 23

Consider using a misoprostol product packaged for single use to facilitate supply. As noted above, the current practice of cutting up blister packs of misoprostol tablets and repackaging them into three-packs for postpartum hemorrhage prevention is labor intensive and does not seem efficient or sustainable for scale up. As Ghana moves to expand the advance-provision model, a single-dose product (a packet containing three 200 µg tablets, instructions for postpartum hemorrhage prevention, and product expiration information) could reduce the burden on pharmacy staff and facilitate distribution through the Ghana Health Service’s
regular commodities distribution system. Having misoprostol packaged in the correct dosage for postpartum hemorrhage may also help to alleviate concerns about its use for abortion (which requires many more tablets). Single-dose misoprostol products for postpartum hemorrhage have been successfully registered and introduced in a number of countries (Burundi, Madagascar, Nigeria, Rwanda, Pakistan, and Senegal all have three-tablet packs available). As with any decision, however, the potentially higher product costs of this approach would need to be weighed against its perceived benefits.

- **Consider social marketing as a way of achieving broader accessibility of misoprostol.** Another approach to expanding access to misoprostol at the community level would be to distribute a single-dose product through Ghana’s successful private sector social marketing projects. For instance, DKT International/Ghana has a vast distribution network that supplies contraceptives and medical abortion pills to pharmacies and drug stores throughout the country. Having a dual system of drug availability for misoprostol—through both the Ghana Health Service and the private sector—would help to ensure a consistent source of supply at the community level (midwives indicated they frequently refer clients to DKT outlets for supplies when misoprostol is not in stock at government facilities).

**Recommended actions at the global level**

- **Share successes of the project internationally.** The World Health Organization is expected to soon make a recommendation regarding the advance provision of misoprostol for postpartum hemorrhage prevention and treatment. Sharing the experiences and results of this successful model with the international community will add to the growing evidence that advance provision of misoprostol can both increase uterotonic coverage for women living in underserved areas while simultaneously increasing their trust in and reliance on health service providers.

- **Continue efforts to improve misoprostol product quality.** Poor quality misoprostol resulted in a product recall during the project implementation period. Stakeholders involved with global procurement of misoprostol confirmed that this issue is not unique to Ghana; product quality is a significant challenge worldwide and it is not uncommon to find degraded products with only partial potency. Both the way the tablets are manufactured and their limited shelf-life (two years) contribute to the challenge of ensuring a steady supply of high-quality misoprostol at the community level. Current efforts to ensure product quality, such as the work of the Reproductive Health Supplies Coalition and United Nations Population Fund to establish pre-qualified vendors for misoprostol, are making headway on this issue and should be continued.
VII. Conclusion

As a result of the successful collaboration between the Ghana Health Service and the Earth Institute, as well as similar work by Venture Strategies Innovations (see Appendix B), Ghana is well poised to expand community-based misoprostol services to women in other rural communities where access to facility delivery is still limited. The model’s three key elements—integration with the health system’s continuum of care; use of community health extension workers and traditional birth attendants to do outreach, education, and delivery assistance; and advance distribution of tablets—were instrumental to its success in helping women have safe births, whether in a facility or at home. Women, health workers, and policy makers who have participated in this successful demonstration pilot all recognize the life-saving potential of misoprostol and see the need to make it more widely available in Ghana, particularly in rural areas.

Yet, despite this evidence of a feasible and successful model, scale up to other rural areas is proceeding slowly. Although limited resources may be one factor impeding scale up, based on discussions with key informants, the slow pace in moving forward is also driven by the concern that the misoprostol distributed for postpartum hemorrhage prevention may be used for abortion. The fact that the abortion landscape in Ghana is rapidly changing—DKT International reported exponential growth in sales of its medical abortion product since its introduction a year and a half ago—may eventually help to alleviate this concern as abortion becomes more common and less stigmatized.

In the meantime, as misoprostol for postpartum hemorrhage becomes more available in the Amansie West and SADA regions, it is likely that word will travel about the life saving potential of misoprostol and that women—and healthcare providers—will begin to demand “why don’t we have that here?” By being proactive and timely in scaling up this lifesaving intervention in all rural areas, the Ghana Health Service can garner praise for its innovation rather than face criticism for having acted too slowly to protect women’s lives.

* A drug as important as miso should be accessible by all and not just in specific communities. We want scale up now because the drug saves lives.

—Queen Mother Amansie West District
### Appendix A. Ghana Contacts List

<table>
<thead>
<tr>
<th>Organization</th>
<th>Person Contacted</th>
<th>Position</th>
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<tbody>
<tr>
<td><strong>Project Stakeholders</strong></td>
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<tr>
<td>Ghana Health Service–Accra</td>
<td>Dr. Gloria J. Quansah Asare</td>
<td>Deputy Director General</td>
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<td></td>
<td>Dr. Patrick Aboagye</td>
<td>Acting Director of Family Health</td>
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<td></td>
<td>Dr. Gladys Brew</td>
<td>Safe Motherhood Coordinator</td>
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<td>Ghana Health Service–Ashanti</td>
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<td>Regional Director of Health Services</td>
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<td></td>
<td>Dr. Joseph Oduro</td>
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<td></td>
<td>Dr. Fred Adomako-Boateng</td>
<td>Deputy Director Clinical Care</td>
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<tr>
<td></td>
<td>Rita Anafo</td>
<td>Deputy Director Nursing Services</td>
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<tr>
<td>Community</td>
<td>Nana Nyaako Aburaa</td>
<td>Queen Mother</td>
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<td></td>
<td>Alex Osie Bonsu</td>
<td>District Chief Executive</td>
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<tr>
<td><strong>Grantees</strong></td>
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<td>Dr. Joseph Mensah Homiah</td>
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<td>Eric Akosah</td>
<td>Health Coordinator</td>
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<tr>
<td></td>
<td>Lydia Owusu Ansah</td>
<td>Regional Coordinator</td>
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<tr>
<td></td>
<td>Ruth Agyemang</td>
<td>Pharmacist</td>
</tr>
<tr>
<td>Earth Institute at Columbia University</td>
<td>Sara Lizo</td>
<td>Project Manager</td>
</tr>
<tr>
<td></td>
<td>Joyce Chen</td>
<td>Project Manager</td>
</tr>
<tr>
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<td>Dr. Stacie Geller</td>
<td>Professor of Obstetrics and Gynecology, Director Center for Research on Women and Gender</td>
</tr>
<tr>
<td><strong>Other Key Informants</strong></td>
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<td>DKT International–Ghana Ipas</td>
<td>Kevin Hudson</td>
<td>Country Director</td>
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<tr>
<td></td>
<td>J. C. Mills</td>
<td>Senior Health Systems Advisor</td>
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<td></td>
<td>Dr. Komas S. Jehu-Appiah</td>
<td>Country Director</td>
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<td></td>
<td>Dr. Pearl Allotey</td>
<td>Project Manager</td>
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<td>MacArthur Foundation</td>
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<td>Erin Sines</td>
<td>Acting Director, Population and Reproductive Health</td>
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<td>Population Council</td>
<td>Dr. Placide Tapsoba</td>
<td>Country Director</td>
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<tr>
<td>United States Agency for International Development</td>
<td>Deborah Armbruster</td>
<td>Sr. Maternal and Newborn Health Advisor</td>
</tr>
<tr>
<td>Venture Strategies Innovations</td>
<td>Bibiana Bangpuori</td>
<td>Former Project Coordinator</td>
</tr>
</tbody>
</table>
Appendix B. Work by Other Organizations

Venture Strategies Innovations (VSI) also collaborated with the Ghana Health Service to introduce misoprostol at the community level in four districts: Birim South, Komenda-Edina-Eguafo-Abirem (KEEA), Sene, and Upper Manya Krobo (with a combined population of over 400,000). The project ran from May 2009 through January 2012 and served women accessing antenatal care at 48 facilities. Like the Earth Institute model, the VSI project included community sensitization, education, and advance distribution of misoprostol to pregnant women at antenatal care visits, as well as a tracking system to ensure the use or return of misoprostol tablets. A key difference of the VSI model was the timing of misoprostol distribution, which could be given during the woman’s first contact with antenatal care. Also, the VSI model did not incorporate the blood collection drape as a method of detecting hemorrhage and did not emphasize the role of community health extension workers and traditional birth attendants as elements of the continuum of care for postpartum hemorrhage (through their attendance at births and participation in referring complications).

In all, 5,345 women (nearly half of all women registering for antenatal care) received misoprostol education and tablets through the VSI project. Some 37.5% of these women delivered at home and 93% of those used misoprostol after delivery. Most women who delivered in facilities received oxytocin, except in the Sene district, where 30% of women received misoprostol because the ward assistants were not authorized to administer oxytocin. Overall, the project was highly successful at achieving a high level of misoprostol coverage during home deliveries and demonstrating that women can successfully use misoprostol at home.

Key recommendations from the VSI pilot were to gradually scale up the intervention throughout Ghana, involve a lower cadre of worker in distributing misoprostol to women at the community level to relieve the burden on midwives, continue to educate TBAs about misoprostol so that they can help women use it correctly during home deliveries, and register misoprostol for the postpartum hemorrhage indication.

Although the success of the VSI model made it well positioned for scale up to other districts in Ghana, the Ghana Health Service decided to instead expand implementation of the Earth Institute model to the remainder of the Amansie West district and to the Millennium Village locations in the SADA region. A key factor in this decision appears to have been the availability of funding for this expansion through the MacArthur Foundation. VSI no longer has a presence in Ghana and VSI has ceased operations entirely.

A number of other organizations are currently working in Ghana to introduce misoprostol with mifepristone for comprehensive abortion care, including DKT International, Ipas, Marie Stopes International, and Pathfinder International. Because abortion work is typically funded separately from efforts to address maternal health, projects involving misoprostol for different indications are not well integrated at the service provider level (most notably in training). As a result, providers may have access to misoprostol for one indication, but be unaware of how it can be safely used for other indications. For instance, stakeholders identified the incorrect use of misoprostol for labor induction and augmentation as a potentially dangerous practice.
References


22. USAID and MCHIP. Selecting a Rational Mix of Uterotonic Drugs for Prevention and Treatment of Postpartum Hemorrhage (PPH)—Workbook for policymakers, pharmacy managers and Ministries of Health.


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