

**Preventing Postpartum Hemorrhage Special Initiative
Baseline Assessment Report**

Benin, Mali, Ethiopia, Zambia

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Background

Postpartum hemorrhage (PPH) is the single most significant cause of maternal death worldwide, accounting for half of all maternal deaths that occur after childbirth and 24% of maternal mortality overall, approximately 130,000 maternal deaths every year. Half of the women who suffer from PPH have no risk factors, and 99% of women who die from PPH are in developing countries. Preventing PPH could significantly reduce maternal mortality and morbidity.

Most cases of PPH occur during the third stage of labor, after the baby has been delivered. Active management of the third stage of labor (AMTSL) has been identified by WHO and in several studies¹ as significantly reducing PPH. AMTSL has three main components: 1) administration of a uterotonic drug within one minute of birth of the newborn to induce a strong contraction, 2) controlled cord traction of the umbilical cord with counter-traction to the uterus, and 3) massage of the uterine fundus through the abdomen. This procedure shortens the time it takes to deliver the placenta and leads to a decrease in uterine atony, thus decreasing PPH (uterine atony is associated with about 90% of PPH).

In order to successfully integrate AMTSL in routine delivery care, it is necessary to:

- Ensure the supply of oxytocic drugs and related supplies, by improving all drug management practice, including the capacity to maintain appropriate storage conditions.
- Create a supportive policy environment at both the site and national levels.
- Provide information to the community in order to increase the number of women being attended during birth by trained providers performing to standard (>= 80%) was also calculated.
- Train providers in AMTSL and related skills.
- Strengthen the ability of health facilities to provide and insure high quality services.

Additional interventions to prevent postpartum hemorrhage are implemented during antenatal care, through discovering high-risk variables and preparing or treating for them, and assisting in the development of a birth plan.

C. Global Partnering

1. Formation and role of the technical working group

In September 2002, USAID requested assistance from its cooperating agencies to support national efforts to improve maternal health through a “Special Initiative to Reduce Post-Partum Hemorrhage” in Benin, Mali, Ethiopia and Zambia. The cooperating agencies

¹ WHO, *Managing Complications in Pregnancy and Childbirth: A Guide for Midwives and Doctors* (2000); Prendiville et al, *British Medical Journal* 297:1295-1300 (1988); Rogers et al, *Lancet* 351:693-699 (1998); and others

selected to implement the initiative are the PRIME II project at IntraHealth, the Maternal and Neonatal Health (MNH) program at JHPIEGO, the Rational Pharmaceutical Management (RPM) Plus program at Management Sciences for Health, and the American College of Nurse-Midwives (ACNM). In addition, USAID has coordinated with other international groups that influence the scope, practice, and technical guidance for preventing PPH such as World Health Organization (WHO), UNICEF, the International Federation of Ob-Gyns (FIGO), the Ob-Gyn Society of the West African Region (SAGO), and the International Confederation of Midwives (ICM).

Representatives of the cooperating agencies listed above are also included in the technical working group for this initiative. PRIME coordinates this group to ensure streamlined partnership of program management, monitoring and evaluation tools and planning, reference materials, curriculum development and reporting and partner communication mechanisms.

Using the strengths and technical capacity of each organization, the working group jointly developed the following activities and interventions for the initiative:

Activities/Intervention	CA
Coordination of Team/Meetings	PRIME
Reference Documentation	PRIME
Curricula Development	ACNM, JHPIEGO, PRIME, RPM Plus
M&E strategy and tools,	ACNM, JHPIEGO, PRIME, RPM Plus
Baseline assessment, monitoring plan and actions and final evaluation	JHPIEGO, PRIME, RPM Plus
Clinical Training and TOT	ACNM, JHPIEGO, PRIME
Supportive Supervision Systems	PRIME RPM Plus
Procurement systems	RPM Plus

2. Description of partners

PRIME II

The PRIME II Project is a partnership combining leading global health care organizations dedicated to improving the quality and accessibility of family planning and reproductive health care services throughout the world. PRIME focuses on strengthening the performance of primary care providers as they work to improve services in their communities. To accomplish its goals, PRIME applies innovative training and learning and performance improvement approaches in collaboration with host-country colleagues to support national reproductive health goals and priorities to ensure access to quality family planning services, prevent unplanned pregnancies, promote safe motherhood,

increase the availability of postabortion care, and combat HIV/AIDS and other sexually transmitted infections. In the Preventing Postpartum Hemorrhage Initiative, PRIME II brings to bear this technical leadership, as well as its broad geographic presence and knowledge.

JHPIEGO

JHPIEGO works to improve the health of women and their families throughout the world. JHPIEGO has a long and distinguished track record as a leader and innovator within the area of reproductive health. In addition to its 30 years of experience providing high-quality training in health care in over 30 countries, JHPIEGO was chosen to be involved in the initiative because of its established expertise in its successful experience integrating policy, community, facility strengthening, and reproductive health skills training activities. Its training uses a competency-based approach within a framework of performance improvement to build sustainable capacity in low-resource settings.

The JHPIEGO PPH Initiative is housed within the MNH Program, USAID's flagship program in maternal and newborn health. The MNH Program has implemented activities in PPH prevention and management throughout its global program, and including its work both in Indonesia and in Zambia. Within the PPH Initiative, MNH is focused on the development specifically of Zambia program activities. Pre-PPH Initiative activities have included policy and education in the Active Management of the Third Stage of Labor (AMTSL).

ACNM

With roots dating to 1929, the American College of Nurse-Midwives (ACNM) is the oldest women's health care organization in the U.S. ACNM provides research, accredits midwifery education programs, administers and promotes continuing education programs, establishes clinical practice standards and creates liaisons with state and federal agencies and members of Congress.

The mission of ACNM is to promote the health and well-being of women and infants within their families and communities through the development and support of the profession of midwifery as practiced by certified nurse-midwives, and certified midwives. The philosophy inherent in the profession states that nurse-midwives believe every individual has the right to safe, satisfying health care with respect for human dignity and cultural variations.

RPM Plus

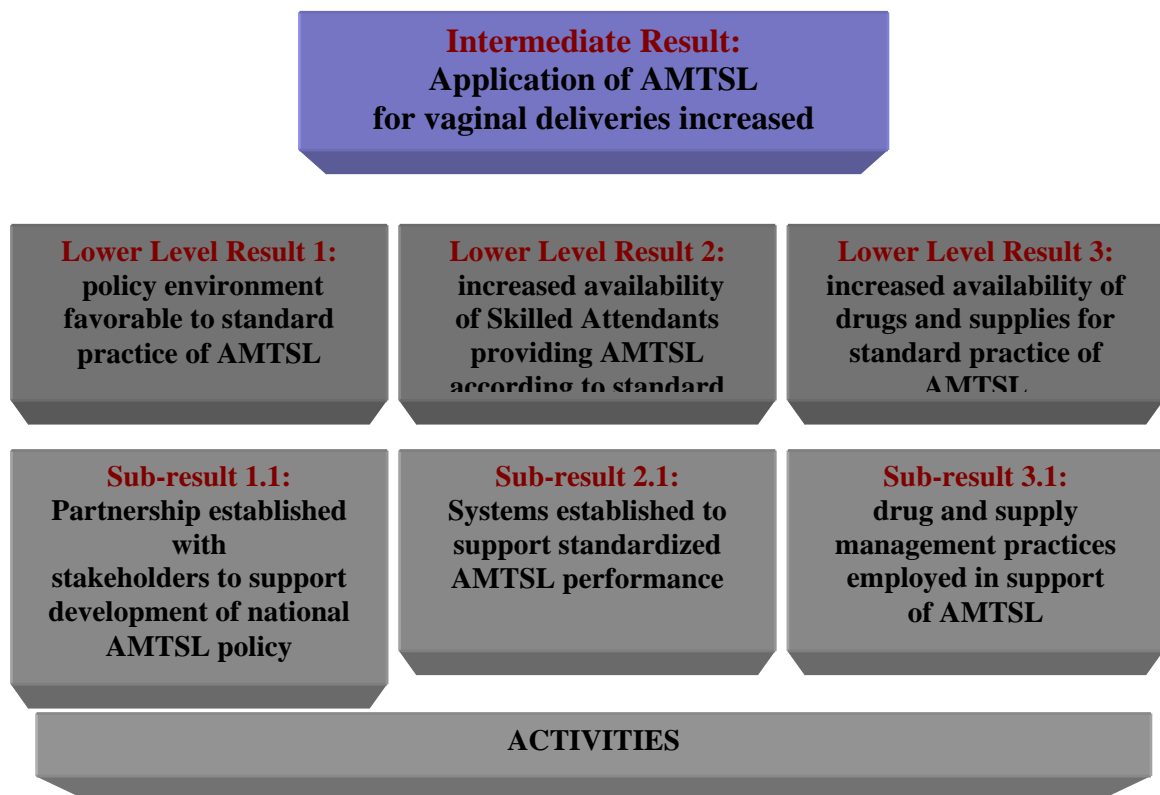
The Rational Pharmaceutical Management Plus (RPM Plus) Program addresses the enormous gaps in the developing world between the demand for essential drugs and health commodities and their availability, and between their availability and appropriate use by both providers and consumers. Effective pharmaceutical management is especially crucial in developing countries, due to the impact of widespread disease and poverty.

As a partner in this special initiative, RPM Plus provides technical leadership in drug and commodity management issues related to the delivery of services to prevent PPH. RPM Plus has worked together with these partners to develop standard assessment and baseline measurement tools, which include variables to assess pharmaceutical management.

D. Global Design

The strategy for intervention development and monitoring and evaluation was formulated and finalized by the technical working group during various meetings, conference calls and emails throughout the past 11 months. The products of these efforts include a results framework, sub-result activities, a performance monitoring plan, and instruments for a baseline assessment.

1. Results Framework



2. Activities as categorized by sub-result

Sub Result 1.1: Partnership established with stakeholders to support development of national AMTSL policy

- Review of existing policies and guidelines

- Policy dialogue
- Stakeholders' meetings (to include MOH, skilled attendants, professional organizations, academia and others.)
- Provisional guidelines developed/adapted
- Advocacy for AMTSL inclusion in national policy and curricula
- Community aspects (where relevant) included in policies and guidelines

Sub Result 2.1: Systems developed to establish the support of standardized AMTSL performance.

- Development of training/supervision plans
- Training curricula/material developed/adapted
- Supervision tools/job-aids developed/adapted
- Clinical training/record-keeping in AMTSL
- Training in supportive supervision
- Strengthening of community-based monitoring and reporting/local MIS
- Working with local/international NGOs to assist women/communities to develop Birth Preparedness Plans

Sub Result 3.1: Drug and supply management practices employed in support of AMTSL

- Development of training/supervision plans
- Training curricula/materials developed/adapted
- Training in drug management (store keepers and pharmacists)
- Advocacy for AMTSL-related resources
- Establishment of cold chain management

Drug and supply management issues emerged as important in early discussions in delivery of AMSTL. RPM Plus places emphasis on working within already existing systems to strengthen supply management and thus service delivery rather than develop parallel systems which tend to be expensive to maintain and difficult to sustain. Drug management is approached as a cycle, with the four major components being drug selection, procurement, storage and distribution and use by the end user.

The management of drugs and supplies is supported by the policy and regulatory environment in the national setting, and the information management systems in use by the health system. Though drug management is often seen as a task that is not integral to service delivery, but rather supportive, the tendency is often to address drug and supply issues outside of the service delivery system in which they are needed. Under this PPH initiative, we have placed an emphasis on integrating activities, such as health worker training, to include the information that each cadre needs to know in order to effectively manage drugs required for the delivery of AMSTL. In addition, we advocate working

within the current supply systems to reflect the need for sustainability of the given supply system. Thus, issues of drug and supply management are addressed throughout.

Indicators to measure progress towards these sub results are:

- Number/percentage of facilities with a formulary that includes national formulary drugs required for standard practice of AMTSL.
- Number/percentage of facilities with up-to-date job aid for pharmaceutical management associated with uterotonic management
- Average percentage of time out of stock of a complete set of unexpired drugs and supplies required for standard practice of AMTSL
- Number/percentage of facilities that have sufficient stock on hand of a complete set of unexpired drugs and supplies required for standard practice of AMTSL
- Number/percentage of facilities where stock records correspond to physical counts for individual drugs and supplies required for standard practice of AMTSL.
- Number/percent of facilities correctly storing drugs and supplies for standard practice of AMTSL.

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METHODOLOGY

Site selection

As a special initiative, designed to demonstrate that AMTSL can reduce maternal mortality by preventing PPH, all demonstration sites were included in the assessment. Sites were selected for inclusion in the demonstration phase of this initiative because of the relatively high level of deliveries at each of these facilities. As such, RPM Plus did not play an active role in selection of facilities to be included, as the clinical specialist of our partner CAs in each country determined which sites would most likely yield meaningful results.

In addition to these service delivery sites included in the special initiative introduction, RPM Plus instructed data collectors to visit storage and handling facilities, and those offices with responsibility for procurement and other drug management functions outside of service delivery. These included central, regional and district warehouses. Data collectors visited the Central warehouse in all cases. Only those regional and district warehouses which supply the facilities selected for inclusion in the initiative were visited.

Respondents

The key informant contacted at the central, national and/or program level was the central level warehouse manager. For the regional level, the regional warehouse manager was interviewed. At the district level, the person with drug management responsibilities – district health officer, supplies officer, or the district warehouse manager, and service

providers – were identified. At the facility level, the pharmacist or equivalent, and service providers with drug management responsibilities were interviewed. Drug management includes the administration of the drug to the patient.

The Instrument (see Appendix A)

RPM Plus, in collaboration with CA and national partners, developed a standard data collection instrument consisting of a series of structured questions to be administered at each site. The information generated from data collected was used to determine the baseline status of the various drug management indicators to be used to monitor and measure intervention progress.

Though a standard instrument, there are certain local conditions that might necessitate modification of questions, such as the types of drugs that are available, in order to administer the instrument effectively. Therefore, in each country, the instrument was reviewed by the data collection teams, revised if needed, and then field tested prior to the administration of the survey at demonstration facilities. If necessary, the instrument was modified after the field test.

Data collection

Data related to pharmaceutical management was collected at the same visit as that of the facility and provider assessment in three of the four countries. The exception to this was Zambia, where data collectors did not understand the purpose of the drug management assessment and did not visit warehouses. The drug management component of the instrument was re-administered by a single team of data collectors at later date at all service delivery points and warehouses which supply them.

Each country fielded their own data collectors, with some being pharmacists, but this was not a requirement. OB-GYNs, nurses and nurse-midwives also participated in the teams. On average, the process took about 10 days, depending on the number of sites visited. In each country, all demonstration sites and warehouses that serve them were included in the baseline assessment.

**Number of sites included in baseline assessment
(service delivery points and warehousing points)**

Type of Facility	Benin	Ethiopia	Mali	Zambia
SDP	7	24	8	19
Storage/Management Only	2	1	1	5
Total	9	25	9	24

Data analysis

Data analysis for the pharmaceutical management component of the survey instrument was undertaken by RPM Plus in their Arlington offices.

Data were summarized using an Excel spread sheet. The following information was summarized for each country:

Number of facilities:

- with formulary that includes drugs needed for AMSTL
- with stock on hand on the day of the visit, by drug
- that keep bin cards for each drug
- with at least 2 months supply on hand
- able to correctly record inventory data and calculate months of stock on hand.
- with stock outs, their frequency and duration, by drug.
- that had discrepancies between physical inventory and stock records.
- that had cold chain equipment
- that have and used cold chain monitoring equipment

The information gathered was used to establish baseline levels of drug management performance. Interventions are being designed to address those issues which most compromise drug supply in each of the four countries.

General Baseline Findings/Global Trends

This special initiative was designed to study of maternal mortality as a resulting from PPH across four countries in Africa. While the study results are representative of each individual country and can be viewed as a sample taken from Africa, generalizations are constrained by the vast differences in country context.

Table I describes the samples taken for the study in each country. Individual country reports can be found as appendices: Benin, Appendix C: Ethiopia, Appendix D: Mali, Appendix E: Zambia, Appendix F.

Table I: Providers sample sizes by cadre and country						
	Physician/OB -GYN	Pharmacists/ Pharmacy Techs	Nurse Midwives	Nurses	# Service Delivery Sites	Total
Benin	1	4	62	0	7	63
Ethiopia	25	17	30	49	24	104
Mali	17	11	76	1	8	94
Zambia	1	0	35		19	36

It is notable that, in these countries, most providers of delivery care are midlevel midwives and nurses, rather than physicians. In addition, pharmaceutical management

functions were often performed by a non-pharmacist, such as a nurse and/or midwife, or accountants.

Active Management of Third Stage Labor (AMTSL)

Providers were observed and scored based on their performance of AMTSL (see Table II). This score was broken down into five main areas of skill including record keeping, infection prevention, and administration of oxytocin, controlled cord traction and uterine massage in order to specifically target needs in skill augmentation. An overall score was calculated using all of the skills required in the practice of AMTSL. Based on monitoring and evaluation indicator #5 (see Appendix A) the average number of providers performing to standard ($\geq 80\%$) was also calculated.

On average, providers scored well in recording AMTSL into the facility logbook following delivery. However, the average score in Benin was 98% (n=63) which is very inconsistent with Mali and Ethiopia at 54% (n=67) and 57% (n=84) respectively. Zambian providers observed scored the best of all four countries with every provider recording their practice into the logbooks.

Preventing infection during AMTSL involves hand washing as well as wearing and disposing properly of sterile gloves, apron, glasses and shoes and using and disposing properly of needles. Although providers demonstrated this skill accurately, performance within this skill set in all cases was varied across countries with Benin, Mali, Ethiopia and Zambia at 26% (n=29), 63% (n=67), 87% (n=84) and 55% (n=29) respectively. However, shortage of supplies contributed to many providers inability to practice effective infection prevention, with many facilities not having gloves or plastic aprons in stock on the day of the visit. It is also common to have supplies, but not in sufficient quantity for all the uses required.

Overall, correct administration of oxytocin in Benin, Mali, and Ethiopia was low with an average of 48% although Zambian providers did score higher, 61% on average (n=31). This difference could be due to a smaller sample size, or previous training in AMTSL (48% of Zambian providers sampled had been trained in AMTSL in the last 12 months).

Zambian and Ethiopian providers scored very high in performing controlled cord traction. Out of the 98 providers surveyed, 88% performed this set of skills correctly. Only 20% (n=147) of the providers in Benin and Mali successfully performed controlled cord traction.

Correct performance of uterine massage is another component of AMTSL that is not widely practiced. The 67 providers observed in Ethiopia scored the highest with an average of 61% and the remaining 178 providers in Mali, Benin and Zambia averaged 26%. This reflects past, but not recent, training in AMTSL for the Ethiopian providers, although the AMTSL procedure they learned was not set by WHO standards.

The average score for AMTSL performed by providers across the four countries was 65% (n=245), leaving a performance gap of 35%. Ethiopian providers surveyed scored, on average, 80%. (n=67) confirming that for this country, training is available, albeit not to WHO standards. Zambian providers averaged 61% (n=31) indicating an approximate 20% gap to close before performing to standard.

Data that analyzed the application of AMTSL overall to standard indicated that only 19% of providers (need Zambia) are compliant with a score of 80% or better. Of all the providers performing to standard all (67%) are from Ethiopia. Therefore, a need exists for 81% of providers to improve their performance.

Knowledge of AMTSL was evaluated based on the provider's ability to cite all four prongs of this clinical skill. None of the providers in Benin and Mali were able to cite the full definition of AMTSL. Twelve percent of Ethiopian providers and 21% of Zambian providers were able to cite the four prongs of AMTSL. Differences between Ethiopia and Zambia could be due to a difference sample size, 104 and 38 respectively.

To assess the training of AMTSL among providers interviewed in the four countries, providers were asked if they had been trained in AMTSL in the past 12 months. The study found that overall, 4% of providers in Benin, Ethiopia, and Mali received training. Of the 38 Zambian providers, 45% received training in the previous 12 months.

The study also surveyed providers to determine if they had been trained in the supervision of providers in AMTSL. None of the 282 providers in Benin, Ethiopia and Mali received supervisory training in this procedure. Twenty-two percent of 38 Zambian supervisors had received AMTSL training.

Table II: Active Management of Third Stage of Labor Observation Percent of providers successfully executing skill.												
	Benin			Ethiopia			Mali			Zambia		
	n=	%	#	n=	%	#	n=	%	#	n=	%	#
Record Keeping	63	98%	62	67	54%	36	84	57%	48	31	100	31
Infection Prevention	63	26%	16	67	63%	42	84	87%	73	29	55%	16
Administration of oxytocin	63	21%	13	67	25%	17	84	15%	13	31	61%	19
Controlled cord traction	63	21%	13	67	85%	56			0	31	94%	29
Uterine Massage	63	29%	18	67	61%	41	84	23%	19	31	29%	9
AMTSL overall	63	39%	25	67	80%	54	84	29%	23	31	61%	19
AMTSL overall to standard (>80%)	63	0	0	67	61%	41	84	0	0			
AMTSL knowledge	84	0	0	104	12%	12	94	0	0	38	21%	14
Trained in AMTSL	84	0	0	104	1%	1	94	2%	2	38	45%	17
Supervisors trained in AMTSL	84	0	0	104	0%	0	94	0	0	38	22%	8
AMTSL used for all vaginal	84	1%	1	104	25%	26	94	16%	15	38	75%	29

deliveries												
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AMTSL and the Management of Complications

Complications during the management of AMTSL proved to be obstacles for those providers surveyed, as shown in Table III. However, providers observed at sites in Ethiopia performed extremely well in cases of non-descending placenta and retained placenta. For the five Zambian providers who experienced complications due to retained placenta fragments and non-descending placenta, 16% were able to respond correctly. Of note to Ethiopia data is that Ethiopian providers are typically trained in AMTSL.

Table III: Managing Complications by Type during AMTSL Observation Percent of providers experiencing specific complication during TSL who responded accurately.												
	Benin			Ethiopia			Mali			Zambia		
	n=	%	#	n=	%	#	n=	%	#	n=	%	#
Retained placenta fragments	35	57%	20	9	100%	9	69	44%	30	5	16%	1
Continuous bleeding	38	34%	13	6	46%	6	77	48%	37			
Case where placenta does not descend	41	7%	3	13	100%	13	84	8%	7	5	16%	1
Inverted Uterus	4	25%	1	67	58%*	39	49	8%	4			

**There was no observation of this complication among providers in Ethiopia. This data reflects the percentage of providers who responded correctly to an interview question. Providers were observed during antenatal care sessions with clients to determine skill levels for specific tasks. Tasks were grouped into areas of skill such as infection prevention, client interaction, physical and pelvic examination, identifying problems, counseling, birth preparedness planning, and client follow-up. A composite average was also calculated to synthesize performance in ANC service delivery.*

Antenatal Care

Providers were observed during antenatal care (ANC) sessions to determine skill levels for specific tasks. Tasks were grouped into areas of skill such as infection prevention, client interaction, physical and pelvic examination, identifying problems, counseling, birth preparedness planning, and client follow-up. A composite average was also calculated to synthesize performance of ANC service delivery.

Of the skills assessed to calculate an overall score for ANC, specific skill sets are considered essential in the prevention of PPH (see Table IV). Although all aspects of the

ANC visit are important skills in provider performance for the purpose of preventing PPH the identification of problems, counseling and birth preparedness planning are three areas of skill where providers can partner most with the client to reduce future risk of PPH during delivery.

Providers observed in Zambia averaged the highest score of the four countries for identification of problems. In this case, 37 providers averaged 95% in successfully identification of client needs based on antenatal history and/or physical exam. Although not as successful as those providers in Zambia, providers in Benin, Mali and Ethiopia scored on average, 24% (n=29), 75% (n=100) and 68% (n=59) respectively. Counseling the client on potential complications, action in the case of a complication, nutrition, general care during pregnancy, and breastfeeding were lower than the average scores in the identification of problems. On average, providers observed in all four countries scored 25% (n=221). Scores in birth preparedness planning for providers across all four countries averaged 7% (n=226). This score demonstrates an overall deficit among providers in developing a plan with clients where they identify where they will deliver, who their provider will be, how to contact the provider, who should make decisions for the woman in the case of complication, where to go if there is a complication during pregnancy or labor as well as accessing money and transportation in the case of an emergency.

**Table IV: Antenatal Care
Percent of providers accurately performing skills.**

	Benin			Ethiopia			Mali			Zambia		
	n=	%	#	n=	%	#	n=	%	#	n=	%	#
Infection Prevention	29			100	16%	16	59	48%	28	34	90%	31
Client Interaction	29			100	70%	70	59	65%	38	36	86%	31
Physical Examination	29	0%	0	100	57%	57	59	70%	41	33	41%	14
Pelvic Examination				22	16%	4	59	40%	24			
Identification of Problems	29	24%	7	100	75%	75	59	68%	40	37	95%	35
Counseling	29	3%	1	100	31%	31	59	15%	9	33	41%	14
Birth Preparedness Planning	29	14%	4	100	5%	5	59	10%	6	34	0	0
Client Follow-up	29	48%	14	100	57%	57	59	10%	6	30	89%	27
ANC Overall				100	53%	53	59	49%	29	23	72%	17

Facility Information

Various information was collected in an attempt to determine baseline figures for the monitoring and evaluation plan. The data presented in Table V serves as a baseline figure for the percentage of women delivering vaginally at a facility who received AMTSL in the past 12 months (indicator #1), number of new post-partum hemorrhage cases over

time (indicator #2), and % of community health workers (CHWs) reporting selected data in a given reporting period (indicator #11).

This data was collected via record reviews and facility audits which included interviews with key staff as needed specifically to collect information concerning community linkages and the presence of CHWs.

Percent of facility-based births was taken from each country's most recent DHS publication. The highest percentage of facility based births among the four countries is Benin (78%) followed by Zambia (44%), Mali (29%) and finally Ethiopia (5%). This information is useful in understanding limitations to treating women with AMTSL. In Ethiopia especially, a challenge will be preventing PPH will be challenging since so few women come to the health facility to deliver. In order to increase the use of AMSTL, means will be explored to determine if oxytocics can be administered outside a health facility by skilled providers.

Collection of data on number and percentage of women who delivered vaginally receiving AMTSL in the past 12 months indicated that in Benin and Mali, there were either no such cases or no recorded cases. Ethiopia was the only country able to report numbers on this indicator. Of 17,929 deliveries recorded, AMTSL was practiced and recorded in 16%. The number of PPH cases at baseline was only collected in Benin and Ethiopia. Among the seven sites assessed in Benin, 938 cases of PPH were recorded. This was much higher than Ethiopia where 181 cases were recorded across 24 sites. There were no cases recorded according to data collected at sites in Mali. Data on these indicators across countries was limited due to lack of availability and accessibility of complete records.

The coordination between health facilities and CHWs is viewed as an important opportunity to increase facility based-births as well as ANC care and birth preparedness planning for pregnant women. However, only 28% (n=39) of all sites within Benin, Ethiopia and Mali reported having CHWs affiliated with their facility. There were no CHWs reporting to facilities at the study sites in Zambia.

Table V: Facility Records and Information												
	Benin			Ethiopia			Mali			Zambia		
	n=	%	#	n=	%	#	n=	%	#	n=	%	#
% of Facility Based Births		78%	5		5%	1		29%	2		44%	8
% of women who delivered vaginally and received AMTSL (in past 12 months)	7	0	0	17929	16%	152	8	0	0	+		
# if PPH cases at baseline (in past 12 months)	7		938	24		181	8		0	+		
% of facilities with Community Workers reporting to a health facility (if applicable)	7	29%	2	24	29%	7	8	25%	2	19	0%	0

*Benin DHS 2001, **Ethiopia DHS 2000, ***Mali DHS 2001, ****Zambia DHS 2003, +data deemed unreliable

Performance Factors

Performance factors assess a broad range of influences on provider performance and encompass skills and knowledge, organizational support, environment and tools, feedback, motivation, and supervision (see Table VI). This set of factors impacts all individuals working in the healthcare system, whose clinical performance influences the treatment of PPH and links to maternal health outcomes across community, organization and population levels. Thus from a social ecological perspective, individual provider performance is a component of the changeability of the risk factors and conditions associated with PPH.

Although direct observation of providers performing AMTSL determines gaps in training and skill, other factors that affect a provider's ability to perform to standard must be acknowledged and taken into account. Providers in all four countries were asked questions related to performance factors in order to gain an understanding of other mechanisms or issues that may be contributing to low performance scores.

Proper and adequate equipment and materials are essential to insure the success of a provider. Overall, only 26% (n=320) of all providers reported having adequate equipment and materials. In Ethiopia, only 14% of providers reported having adequate equipment and materials to support them in their work. In some cases this included the absence of an oxytocic drug either at the time of the visit or as reported in the past three months. For example, in Mali, 4 of the 9 (44%) facilities visited had no oxytocin on the day of the visit, and 3 of the 9 (33%) had no ergometrine on the day of the visit. In addition, though stock was on hand, levels were very low, with less than one month of supply on hand. In Benin, the situation is of greater concern, with half of facilities which normally stock a

particular oxytocic not having the item on hand on the day of the visit. The Zambian data collection is not of a quality that will allow this level of analysis.

Oversupply in some facilities was identified to be a problem, as this can lead to expiry of stock, and thus result in wastage. This matter of oversupply can be addressed through the improvement of supply management practice, which is discussed below.

Needles and syringes were found at almost every facility in all countries.

Cold chain practices were variable, with all countries needing to upgrade the practice of maintaining a cold chain. This was found to be true both in the stores where drugs are kept, and in the wards where drugs are administered.

The presence or absence of a job description for all cadres of health providers interviewed was assessed as part of this study. Forty-two percent of providers aggregated across the four countries have a written job description. Of 84 providers in Benin, 27% responded positively to this question. Fifty-nine percent of 104 Ethiopian providers confirmed the presence of a job description. In Mali and Zambia, 33% (n=94) and 54% (n=38) respectively have a job description. This factor is important and indicates whether providers receive written direction on their roles and responsibilities in the practice of AMTSL. Interestingly, in all four countries a large percent, 88% (n=320) of providers reported “knowledge of tasks assigned.” Although this knowledge is not specific to AMTSL, it is indicative to the fact that providers do have informal or formal methods other than a job description in order to understand their roles and responsibilities.

Satisfaction in organization of work is an important indicator for organizational support as it influences a provider’s ability to perform to standard. Although the question asked of the respondents was broad and subjective, it allowed the providers to think about and assess their individual situations and the factors in their work that affect them the most. Of the 94 providers interviewed in Mali, 70% reported feeling satisfied with the way their work is organized. The 226 providers in Benin, Ethiopia and Zambia satisfied with the organization of their work were less-- only 43% (n=226) answered positively.

Monetary and non-monetary incentives are an important factor in sustaining provider commitment and productivity as well as encouraging providers to perform above standard and take on more work or responsibility. Only 3% of the 104 Ethiopian providers interviewed reported receiving monetary incentives, such as bonuses and/or raises, as a reward for good performance. The highest percentage of providers receiving monetary incentives were the Malians, 42% (n=94). Another form of provider encouragement is non-monetary incentive, which includes certificates of appreciation, spoken positive acknowledgement, and posted recognition. Again, the highest number of providers reporting non-monetary incentives were the Malians at 33% (n=94) and the lowest percentage were the Ethiopian providers, only 3% (n=104) noted such acknowledgement.

Fifty-two percent of respondents in Benin stated having protocols (n=84) and 71% of respondents in Zambia reported having access to guidelines. Although these figures appear to be good, these “written materials” were not specific to AMTSL. Benin and Ethiopia, as compared to Zambia and Mali, reportedly have more access to written materials such as protocols, guidelines and job aids to assist them with their work. A low percentage for Mali and Ethiopia therefore suggests that providers may not have clear, written steps to assist them in the practice of AMTSL.

Over half of providers reported having an immediate supervisor, however when asked if they had received supervision in the last six months, slightly less than half (48% of 320) had not received any supervision. In Benin alone, 87% (n=84) reported having not received any supervision in the last six months. However, in all countries 62% (n=320) of providers reported receiving feedback. Although of a clear understanding of “supervision” and “feedback” among providers could be one reason for such discrepancy in figures, supervision in general is inconsistent and low across all four countries.

Table VI: Performance Factors												
Presence of specific performance factors as reported by providers interviewed												
Performance Factor (presence)	Benin			Ethiopia			Mali			Zambia		
	n=	%	#	n=	%	#	n=	%	#	n=	%	#
Equipment and materials	84	29%	24	104	14%	15	94	34%	32	38	30%	11
Job Description	84	27%	23	104	59%	61	94	33%	31	38	54%	21
Satisfied with way work is organized	84	49%	41	104	39%	41	94	70%	6	38	42%	16
Bonuses or raises given as reward for good performance	84	14%	12	104	3%	3	94	42%	39	38	17%	6
Non-monetary incentives given as reward for good performance	84	26%	22	104	3%	3	94	33%	31			
Knowledge of tasks assigned	84	96%	81	104	91%	95	94	97%	91	38	83%	32
Written materials available to assist in work												
Guidelines	84	35%	29	104	12%	12	94	38%	36	38	71%	27
Protocols	84	52%	44	104	33%	34	94	48%	45	38	45%	17
Job Aids	84	31%	26	104	16%	17	94	19%	18	38	29%	11
Ever received feedback	84	56%	47	104	53%	55	94	79%	74	38	61%	23
Providers with	84	94%	79	104	63%	66	94	87%	82	38	97%	37

immediate supervisor													
Received supervision in last six months													
0 times	84	87%	73	104	24%	25	94	48%	45	38	15%	5	
1-3 times	84	8%	7	104	47%	49	94	38%	36	38	26%	9	
4-6 times	84	1%	1	104	8%	8	94	7%	7	38	12%	4	
6+ times	84	4%	3	104	20%	21	94	7%	7	38	47%	16	

Recommendations

Based on the lack of provider performance skill and knowledge in AMTSL, clinical training in the procedure is essential for improving performance. The following clinical components of AMSTL greatly need emphasis:

- Performing abdominal palpation before injecting oxytocin (*All*)
- Administering oxytocin within one minute after birth (*All*)
- Controlled umbilical cord traction (*Mali, Benin*)
- Massaging the uterus every 15 minutes for the 2 hours following delivery while ensuring that the uterus does not become flaccid between massages (*Mali, Benin, Zambia*)
- Practicing infection prevention *consistently* and comprehensively by washing of hands with soap and water before and after delivery, and wearing of disinfected gloves and protective clothing. (*Mali, Benin, Ethiopia*)
- At the facility level, those with responsibilities related to managing drug supply – storage, dispensing, recording, quantifying, and ordering – need support in skills develop to improve the quality of record-keeping and supply management overall (all)

Providers also need to be further trained and confident in managing more complicated cases of AMSTL, such as non-descending placenta, retained placenta, ruptured membranes, incomplete placenta, uterine inversion and pulled off umbilical cord.

In addition, to fully support the provider in training and enable the provider to take advantage of opportunities he or she may have outside the delivery room to prevent PPH, the following interventions are also recommended:

- Supportive supervision: train providers in the supervision of AMTSL, including supervision of drug management tasks.
- Job descriptions for providers to include roles and responsibilities in AMTSL and pharmaceutical management
- Organization of work within facilities
- Training to improve ANC service delivery specifically in the areas of infection prevention and birth preparedness planning
- Intensive training in counseling and interpersonal communication

- Tools to assist the provider in counseling for birth preparedness planning
- Monitoring of provider success in AMTSL through consistent and accurate record keeping systems.
- Job aids to assist providers and others with drug management responsibilities to help them monitor temperature, level of supply, and ordering needs.

Providers need more than clinical skills, they also need organizational support in order to maintain good performance standards and strive for excellence. Insufficient resources are a universal shortfall. The materials/equipment needed for clean and safe deliveries are not readily available in the study sites. Service protocols and memory aids for AMSTL and emergency obstetric care are also inadequate. Monetary and/or non-monetary incentives and continuous feedback are other performance factors that are lacking across all four countries.

Due to a low percentage of women delivering at a facility, the development of a community level intervention, such as a community health worker (CHW) cadre or utilization of existing CHWs, would be beneficial in reaching out to women to provide education on signs of emergencies and complications during pregnancy and to encourage facility-based delivery. The education and involvement of husbands and community leaders would also help promote antenatal care, institutional delivery, and address cases of women in need of emergency referral and transportation.

Supporting providers and facilities in organizational and clinical processes will assist the MOH, in country NGOs, USAID missions, PRIME II and partners to measure and increase the use of AMTSL and subsequently decrease the number of PPH cases over time. One area of unexplored potential is differentials between public and private organizational and clinical processes, referenced in Mali report (Appendix E) and Ethiopia (Appendix D) for example. PRIME II recommends that more assessment be done to examine these differences. In order to scale up AMTSL practice in these four pilot countries and other African contexts, integration of provider performance across public and private domains should be consistent.

Next Steps

1. Provide infection prevention refresher training or other refresher activity.
2. Identify those entities (Central Stores, NGOs, others) with responsibility for delivering drugs and supplies to the intervention sites. With them, identify system weaknesses and identifying appropriate interventions (e.g., training, job aids, redesign of forms and formats) to help ensure a more secure supply system..
3. Working with local partners (e.g., UNICEF, EPI, other donors, existing supply system, identify ways in which the cold chain can be better maintained so that drug quality is improved.

4. Provide training in AMTSL, including instructions for notation in the register/logbook
5. Provide supervision and other performance factor training and assistance in system development or improvement
6. Emphasize the universal application of AMTSL for normal vaginal births in trainings, supervision, publications policies, standards and protocols..
7. Provide refresher training or educational materials to providers on treatment of emergency obstetric complications
8. Provide antenatal care training, refresher course, and/or system strengthening, including counseling and birth plan preparation
9. Employ community level interventions such as work with community health workers and community groups, as well as targeted IEC materials and events, to increase the proportion of women giving birth in a health facility. This is especially important in Ethiopia.
10. Develop protocols, guidelines and job aids, and ensure that they are disseminated effectively and nationally.

Appendix A: Draft Site Assessment Tool

Instructions to assessor: Please complete this form through discussions with the in-charges and through visiting various areas of the facility. You may need to see delivery records, Admission/Discharge Registers, Mortality Registers, monthly reports, and/or Log Books for the past 12 months or a 12 month period, i.e. October 2001 through October 2002. Feel free to make notes on this form about any additional relevant information that is collected during the course of this facility assessment and any comments you may have.

Date of Assessment: Month _____ Year _____
 Assessment Conducted by _____
 Name of Facility _____
 Location _____

TOOL A: Antenatal / Postnatal Clinic Site

Infrastructure			
	Quantity	Adequacy	Comments
Infrastructure			
Toilet facilities or latrine			
Water supply			
Examination room or area providing client			
Table or stool for gynaecological			
Refrigerator			
Telephone or radio transmitter			
Ambulance or vehicle to refer an obstetric emergency			
Clinical management guidelines			
At this facility how many full-time and part-time occupied posts are there for:		Enter number of posts occupied	
		Full-time	Part-time
Enrolled midwives			
Registered midwives			
Enrolled nurses			
Registered nurses			
Doctors (GPs)			
Doctors (Ob/Gyns)			
Anaesthesiologists			
Pharmacists			

Students

In the following table, indicate the maximum number of *each cadre of students* who may be receiving training at this facility at any one time. Also, indicate whether or not these students may overlap with other students or interns

Cadre of Student/Interns	Number	Overlap	Comments	
Nursing student				
Midwifery student				
Medical student				
Theatre student				
In-service				
Other				
Other activities				
Are other activities going on at this facility which may interfere with project activities?			Yes <input type="checkbox"/>	No <input type="checkbox"/>
Please elaborate:				
Antenatal and Postnatal Services				
Is antenatal care provided every day that this facility is open? If not, how often: _____			Yes <input type="checkbox"/>	No <input type="checkbox"/>
How many outpatient antenatal clients did you have: Enter number		In the past month:		
		In the past 12 months:		
Of the antenatal clients you had, how many were coming for the 4th visit? Enter number		In the past month:		
		In the past 12 months:		
Of the antenatal clients you had, how many prepared a birth preparedness plan? Enter number		In the past month:		
		In the past 12 months:		
Of the antenatal clients who came, how many gave birth? Enter number		In the past month:		
		In the past 12 months:		
Of the antenatal clients who gave birth, how many give birth with a skilled attendant? Enter number		In the past month:		
		In the past 12 months:		
Is postnatal care provided every day that this facility is open? If not, how often: _____			Yes <input type="checkbox"/>	No <input type="checkbox"/>
Of the postnatal clients you had, how many had severe anaemia? Enter number		In the past month:		
		In the past 12 months:		
Of the postnatal clients you had, how many delivered with a skilled provider? Enter number		In the past month:		
		In the past 12 months:		
Of the postnatal clients who delivered with a skilled provider, how many had active		In the past month:		

management of third stage? Enter number	In the past 12 months:		
Of the postnatal clients who delivered with a skilled provider, how many had a postpartum haemorrhage? Enter number	In the past month:		
	In the past 12 months:		
Of the postnatal clients who delivered with a skilled provider, how many had retained placenta? Enter number	In the past month:		
	In the past 12 months:		
Of the postnatal clients you had, how many required a blood transfusion? Enter number	In the past month:		
	In the past 12 months:		
Emergency Services			
Are on-call services for complications available at night at weekends?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Once you decide to refer an obstetric emergency case, about how long does it take for her to arrive at the referral facility and receive care?			
How far is the nearest referral facility, in kilometres?			
General Conditions			
	Adequate	Below Adequate	Comments
General cleanliness			
Privacy for patient			

Site Assessment Tool:

Date of Assessment: Month _____ Year _____
 Assessment Conducted by _____
 Name of Facility _____
 Location _____

TOOL B: Labour and Delivery

Infrastructure			
	Quantity	Adequacy	Comments
Infrastructure			
Toilet facilities or latrine			
Water supply			
Examination room or area providing client			
Table or stool for gynaecological			
Delivery or labour room with bed and lighting			
Wall Clocks with second hand			
Refrigerator in the pharmacy			
Refrigerator in the labour and delivery ward			
Telephone or radio transmitter			
Ambulance or vehicle to refer an obstetric emergency			
Clinical management guidelines			
Delivery register or log book			
Personnel			
At this facility how many full-time and part-time occupied posts are there for:		Enter number of posts occupied	
		Full-time	Part-time
Enrolled midwives			
Registered midwives			
Enrolled nurses			
Registered nurses			
Doctors (GPs)			
Doctors (Ob/Gyns)			
Anaesthesiologists			
Pharmacists			
Others:			
Students			
In the following table, indicate the maximum number of <i>each cadre of students</i> who may be receiving training at this facility at any one time. Also, indicate whether or not these students may overlap with other students or interns			

Cadre of Student/Interns	Number	Overlap	Comments	
Nursing student				
Midwifery student				
Medical student				
Theatre student				
In-service				
Other				
Other activities				
Are other activities going on at this facility which may interfere with project activities?			Yes <input type="checkbox"/>	No <input type="checkbox"/>
Please elaborate:				
Active Management				
How is postpartum haemorrhage defined?				
Is active management practiced for women who have had a vaginal birth?			Yes <input type="checkbox"/>	No <input type="checkbox"/>
If active management is practiced, is it routinely practiced for all women who have had a vaginal birth?				
If not practiced routinely, please specify for which women active management is practiced:				
Which of the following complications have occurred and have been managed at this facility within the past six months?				
Tally information on the number of cases of various conditions:			In the past month	In the past 12 months
Vaginal births				
Vaginal births for which active management was practiced				
Post-partum haemorrhage				
Retained placenta				
Ruptured uterus				
Inverted uterus				
Blood transfusion for newly postpartum women				

Severe anaemia in postpartum women			
Maternal deaths (Total)			
Haemorrhage			
Obstructed labour			
Sepsis			
Eclampsia			
Abortion			
Early neonatal deaths related to maternal deaths:			
Emergency Services			
Are on-call services available at night at weekends?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Are on-call services available for care of complicated deliveries available at night and at weekends?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Are on-call services available for caesarean operation available at night and at weekends?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Once you decide to refer an obstetric emergency case, about how long does it take for her to arrive at the referral facility and receive care?			
How far is the nearest referral facility, in kilometres?			
Are blood transfusions available?		Yes <input type="checkbox"/>	No <input type="checkbox"/>
Oxytocics			
OXYTOCIN	Price of purchase:		
	Sale price:		
	Storage conditions in the main pharmacy (describe):		
	Storage conditions on the labour and delivery ward (describe):		
	Is the date when the oxytocic was taken from the pharmacy listed on the vial?		
	What is the presentation (e.g. 5 ui/ampoule, 10 ui/ampoule, etc...)?		
	How many ampoules were used:	In the last month:	
	In the last 12 months:		

	Which providers are legally able to use this oxytocic?	
ERGOMETRINE	Price of purchase:	
	Sale price:	
	Storage conditions in the main pharmacy (describe):	
	Storage conditions on the labour and delivery ward (describe):	
	Is the date when the oxytocic was taken from the pharmacy listed on the vial?	
	What is the presentation (e.g. 0,5 mg/1 ml, etc.)?	
	How many ampoules were used:	In the last month:
		In the last 12 months:
	Which providers are legally able to use this oxytocic?	
SYNTOMETRINE	Price of purchase:	
	Sale price:	
	Storage conditions in the main pharmacy (describe):	

	Storage conditions on the labour and delivery ward (describe):	
	Is the date when the oxytocic was taken from the pharmacy listed on the vial?	
	What is the presentation (e.g. 1 ml/ampoule, etc.)?	
	How many ampoules were used:	In the last month:
		In the last 12 months:
	Which providers are legally able to use this oxytocic?	
MISOPROSTOL	Price of purchase:	
	Sale price:	
	Storage conditions in the main pharmacy (describe):	
	Storage conditions on the labour and delivery ward (describe):	
	Is the date when the oxytocic was taken from the pharmacy listed on the vial?	
	What is the presentation (e.g. 0,25 mg/ampoule, etc.)?	
	How many ampoules were used:	In the last month:
		In the last 12 months:
Which providers are legally able to use this oxytocic?		

Comments:		
OBSERVATION OF SINGLE-USE NEEDLES AND OTHER SHARP OBJECTS		
1. Needles and other sharp objects are disposed of immediately after use	Yes <input type="checkbox"/>	No <input type="checkbox"/> N/A <input type="checkbox"/>
2. Needles and other sharp objects are disposed of in a puncture-proof container	Yes <input type="checkbox"/>	No <input type="checkbox"/> N/A <input type="checkbox"/>
Any other comments or observations?		
Any problems with implementation?		
DECONTAMINATION AND CLEANING		
1. Waste items are disposed of according to guidelines	Yes <input type="checkbox"/>	No <input type="checkbox"/> N/A <input type="checkbox"/>
2. Placenta is disposed of according to guidelines	Yes <input type="checkbox"/>	No <input type="checkbox"/> N/A <input type="checkbox"/>
3. Blood spills are flooded with disinfectant and then wiped up	Yes <input type="checkbox"/>	No <input type="checkbox"/> N/A <input type="checkbox"/>
4. Beds are decontaminated in a 0.5% chlorine solution between patients	Yes <input type="checkbox"/>	No <input type="checkbox"/> N/A <input type="checkbox"/>
5. Instruments are decontaminated in a 0.5% chlorine solution immediately after use	Yes <input type="checkbox"/>	No <input type="checkbox"/> N/A <input type="checkbox"/>

6. Instruments are thoroughly cleaned and rinsed before sterilization or HLD	Yes <input type="checkbox"/>	No <input type="checkbox"/>	N/A <input type="checkbox"/>
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