

**MAKING "SAFE MOTHERHOOD" A REALITY:**  
**REPORT ON YEAR 3**

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## EXECUTIVE SUMMARY

The crucial fact about maternal mortality is that most life-threatening obstetric complications cannot be predicted or prevented, but they can be treated. The core of the Averting Death and Disability (AMDD) program, generously supported by the Bill & Melinda Gates Foundation, is the improvement of the availability, quality, and utilization of emergency obstetric care (EmOC). Working through existing systems and partnering with organizations adept at community and government mobilization, this program aims to improve the delivery of EmOC through projects that are accessible, low-cost and sustainable. The ultimate goal is to have good-quality EmOC available to all women 24 hours a day, seven days a week. While this is truly challenging, we believe it can be accomplished in many circumstances. In fact, AMDD projects are already providing examples of how this goal can be reached.

Providing quality EmOC involves much more than medical training and equipment. We also need to understand and address the context in which services are (or are not) being provided. Thus, our program is about changing systems – in facilities, health systems, and international organizations. To move this agenda forward, we have developed a program with multiple and interwoven components. In this report, we describe the many activities that have been completed or are underway at the end of the third year of AMDD.

A great deal has been accomplished to date, but much more needs to be done over the next several years to fully demonstrate the essential contribution of EmOC to reducing maternal death and disability in resource-poor countries. As was stated in the original proposal, this is a ten-year effort, albeit with decreasing levels of funding in the later years of the program, as governments and other donors take over the on-going costs of AMDD-supported projects. The following is a summary of our progress to date:

Strengthening and Expanding Partnerships: We have a strong set of project partners and an expanding set of technical partnerships with both organizations and individuals. In addition, we collaborate with a growing number of organizations on specific issues and the diffusion of information. While the benefits of working in collaboration with multiple partners is difficult to quantify, the rewards are clear and include a common agenda, leveraging of resources, access to technical skills and knowledge, and improving efficiency. Moreover, there is a growing perception among our partners and other agencies that EmOC is a good entry point for addressing broader structural issues, including deficiencies in health systems and human rights.

Implementing Field Projects: AMDD is supporting 55 projects to improve EmOC in 39 countries. The major field projects are with UNICEF (6), UNFPA (4), CARE (5), Save the Children (2), and the Regional Program on Maternal Mortality in Africa (20). Ensuring access to and delivery of high-quality EmOC services is an on-going process involving: needs assessments, project development, renovating and equipping facilities, training staff and improving management, monitoring and evaluation, and quality of care. At the midpoint of the first phase of the program, AMDD is pleased to report that most projects are starting to show demonstrable results.

Expanding Treatment of Disabilities: UNFPA, FIGO and AMDD are working in concert to take action against obstetric fistula. The tragically high prevalence of fistula among young women would be dramatically reduced by access to EmOC, particularly timely cesarean sections. In the meantime, however, AMDD is supporting centers for fistula

repair in Nigeria, Kenya and Ethiopia both to provide services and to train health providers in other countries. It is AMDD's hope that partnering with these organizations and others will alleviate the suffering of many women affected by fistula.

Applying Human Rights Principles: AMDD is going beyond the use of human rights as an advocacy tool. We are developing ways to employ human rights principles to support and strengthen services – to improve their quality, effectiveness and sustainability. Examples of activities related to human rights include: a series of projects to demonstrate the supportive role of civil society organizations; the addition of lawyers and journalists to the country teams that make up RPMM in Africa; integrating human rights in the EmOC training tools and curricula; and, working with the UN treaty monitoring bodies.

Tracking Progress: The “UN Process Indicators”, which were developed by Columbia University staff in collaboration with UNICEF and WHO, are used both for the initial needs assessment and for ongoing project monitoring. The monitoring and evaluation capacity of the AMDD/NY office was strengthened this year and a well-defined and systematic country project reporting system is in place. Country projects provide data every six months; the data indicate whether coverage and utilization are increasing. These increases, however, are only now beginning to be realized. The first half of the current 5 year grant period focused on program planning and the initiation and implementation of program activities. Substantial changes are anticipated as the projects mature.

Promoting Leadership: We are working to strengthen leadership in safe motherhood through a variety of activities, including our “Leadership Fund” which gives grants to small NGOs that provide life-saving care to pregnant women in underserved areas. The Fund is financed through the interest on the balance of the Gates grant. We also support a series of “Distinguished Community Service Awards” through FIGO and the International Confederation of Midwives. Finally, we foster leadership in future generations of public health professionals through our teaching.

Fostering a Global Network: AMDD is developing a global network of decision-makers and program managers who are focused on EmOC. To that end, we have held two workshops that brought together our technical team, project partners, NGO and government counterparts. More than 200 participants, united in a common purpose, gathered in Bangkok in February 2002 to discuss challenges, experiences and plans. In addition, AMDD collaborates with other safe motherhood initiatives.

Leveraging Resources: The plethora of examples of how AMDD is leveraging resources is impressive for this early stage in the program. Our primary partners (including UNICEF, UNFPA, CARE and Save the Children) are already incorporating EmOC into their maternal health programs. AMDD-supported projects are attracting resources from both public and private sectors, and some funding agencies have begun new projects utilizing the AMDD approach. In many project countries, policy change at the district and national level is underway.

Developing Tools:To facilitate the implementation of EmOC, the following tools have been developed in collaboration with key technical partners: a distance learning course; quality improvement manual and toolbox; infection prevention booklet for EmOC; a criterion-based audit chartbook; EmOC curriculum; anesthesia curriculum; appreciative inquiry; translation to French of a WHO reference manual.

Distributing Information: AMDD distributes information about EmOC and our projects through the AMDD website; the AMDD newsletter; a special section in the International Journal of Gynecology and Obstetrics (IJGO); presentations and lectures; and journal articles.

In summary, a sizeable number of field projects to improve EmOC — the core of the program — are beginning to demonstrate results and serve as models for replication. AMDD has developed substantive tools and disseminated information to facilitate implementation and sustainability. The program is leveraging resources to attract public and private funding and promoting an EmOC focus among its partners and other organizations. In addition, we are moving forward with the components of our program that promote systems change.

## 1. INTRODUCTION

Of all the commonly used indicators of health, the greatest disparity between developed and developing countries is in maternal mortality. The lifetime risk of maternal death is one woman in 16 in Africa, compared to one in 5,000 in Southern Europe.<sup>1</sup> This simple fact is terrible enough, but what is worse is that we have had the technology to prevent nearly all of these deaths for more than 50 years.

Improving access to this technology (which we call emergency obstetric care or EmOC) is the goal of the Averting Maternal Death and Disability (AMDD) Program at Columbia University's Mailman School of Public Health. AMDD was founded in 1999, with a generous grant from the Bill and Melinda Gates Foundation, to help fulfill the promise of the Safe Motherhood Initiative (SMI). From the outset, it was assumed that at least ten years are required to fully realize progress in this ambitious goal. Even so, we have just passed the midpoint of the first five-year phase of this program and already have many successes to report.

At the midpoint, we created a number of opportunities to review and reflect on our progress – ranging from small meetings with senior staff and advisors, to our annual “project workshop” in Bangkok which brought together over 200 participants. These reviews showed that the design of the program is sound and activities are moving ahead at a good pace. In fact, in a number of key areas, we are seeing the influence of the program much earlier than expected. In addition, we have learned a crucial lesson: the field projects (of which there are more than 55) form the foundation for the higher-level program and policy changes.

In the past we (and others) have written about the slow progress of the first dozen years of the Safe Motherhood Initiative. For example, in a commentary in the American Journal of Public Health that was published in April 1999 (the month we were awarded this grant), we wrote that one of the major reasons for the lack of progress in this field was “the absence of a clear strategic focus...”<sup>2</sup>

We believe that the AMDD Program is helping to remedy this problem (as later sections of this report will show). In addition, however, experience is demonstrating that another serious shortcoming with the SMI was the lack of field projects. This was problematic not only because it has meant that too few lives of women in developing countries have actually been saved as a result of this initiative, but also because field experience fosters the kinds of systemic changes that are needed.

In the AMDD Program, our heavy investment in field projects has resulted in unexpectedly fast progress in the kinds of systemic changes that will lead to sustainable progress in reducing maternal mortality. The ways in which the field projects catalyze larger changes include the following:

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<sup>1</sup> World Health Organization, United Nations Children's Fund, United Nations Population Fund. Maternal Mortality in 1995: Estimates developed by WHO, UNICEF, UNFPA. World Health Organization, 2001.

<sup>2</sup> Maine, D. & Rosenfield, A. The Safe Motherhood Initiative: Why Has it Stalled? American Journal of Public Health, 1999, 89:480-482.

- Quality field projects serve as models for replication.
- Field projects focus the attention of government policymakers on the specific barriers to EmOC services that need to be removed (for example the inability to appropriately delegate clinical responsibilities to various categories of personnel other than physicians in resource-poor settings).
- They help the project partners (e.g., UNICEF, UNFPA, Save the Children, CARE, RPM) to make their own policies more focused and action-oriented (as evidenced by recent statements on the central importance of EmOC from both UNFPA and UNICEF).
- Intensive involvement with the field projects facilitates the application of human rights principles to concrete activities, such as ensuring the availability of anesthesia and blood in rural hospitals.
- The project activities show us what kinds of tools need to be developed. For example, discussions among project teams in South Asia and AMDD staff led to the development of a regional curriculum for improving the EmOC skills of existing medical providers.
- Providing training in EmOC for doctors, midwives and anesthetists at colleges of medicine and teaching hospitals educates not only the medical personnel from the AMDD-funded projects, but generations of future medical personnel.

In this report, we discuss our progress in the various program areas and highlight our plans for the remaining years of this phase of AMDD.

## **2. STRENGTHENING AND EXPANDING PARTNERSHIPS**

The Bill and Melinda Gates Foundation report, *Developing Successful Global Health Alliances*, discusses the potential strengths and weaknesses of various models of alliances. The AMDD Program is used to illustrate the “general contractor” model of alliance, in which “one partner is the clear leader, decision maker, and controller of funds – and its staff operate the alliance.”<sup>3</sup> There are indeed differences between AMDD and some other alliances discussed in the report. The most crucial of these is our role in keeping the focus on our stated primary goal, namely improving emergency obstetric care. Achieving this goal means working in health facilities (especially district hospitals) which is a new challenge for many of our partners. The need to preserve this focus makes our structural model appropriate to this phase of the work.

On the other hand, the label “general contractor” does not convey the degree of flexibility and collaboration in our relationships with our project partners. While the focus on EmOC is a requirement of AMDD, the shape and content of the projects reflect their agencies’ character and experience. In other words, we do not give our partners blueprints. For example, when we approached CARE about collaboration, staff in Atlanta polled the field staff about their interest in developing projects to improve EmOC. A substantial number of field offices submitted project ideas, from which the current five projects were selected during discussions between CARE and AMDD staff. With AMDD financial and technical support, the field offices conducted needs assessments, and designed their projects based on the assessments and incorporating CARE’s community-based experience with local issues.

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<sup>3</sup> The Bill and Melinda Gates Foundation, *Developing Successful Global Health Alliances*, 2002, p. 4

While the Gates report points out that the benefits of partnership are difficult to quantify, it also states that it is worthwhile to attempt to specify them. Below is our first attempt to identify the top 10 benefits of partnership in the AMDD Program. Partnership:

1. Creates a common agenda focused on access to EmOC that unites the partners.
2. Leverages funding by attracting contributions from other donors to augment services and replicate projects. (See section 9.)
3. Influences policy change by creating collective pressure on governments to adopt beneficial changes in policies. (See section 9.)
4. Promotes diffusion of innovation and knowledge – EmOC is becoming a part of the partner’s agendas. (See section 9.)
5. Provides rapid access to specialized knowledge and skills through publications, training, technical assistance and promotes sharing of knowledge and resources between partners to improve effectiveness. (See section 10 and 11.)
6. Creates a pool of expertise for technical assistance to help establish or expand projects. Examples: AMDD is providing technical assistance to UNICEF in Afghanistan to develop EmOC services; the Tibet Poverty Alleviation Fund has requested and received materials to assist them to develop a safe motherhood strategy for Tibet; the World Bank and the Japan International Cooperation Agency (JICA ) have requested AMDD guidance in developing a program in China; RPM has over 80 multidisciplinary experts in Africa.
7. Reduces duplication of efforts and improves efficiency. Example: In India UNFPA and UNICEF collaborate to reach different districts within the same state of Rajasthan.
8. Creates a network of international agencies and governments with common technical language and experience. This will prove valuable as the international community strives to reach Goal 5 of the UN Millennium Development Goals: Improve maternal health. (See section 5 for further discussion.)
9. Provides a forum for EmOC to educate public, private and civil sectors thus increasing awareness and demand for EmOC.
10. Serves as an entry point for addressing broader structural deficiencies in health systems, eg., decentralization in Nepal and Morocco.

One of the reasons for deciding to rely heavily on partnerships was sustainability. AMDD will be deemed successful if at the end of ten years our partners have incorporated EmOC into their own programs. We are already seeing indications that this type of diffusion has begun. For example: UNFPA utilized its own funds to carry out needs assessments and leveraged funds to develop EmOC projects in two francophone countries. Save the Children has incorporated EmOC into their safe motherhood plans for four additional countries and JSI field reports indicate that work on EmOC has been initiated in 11 countries not covered by AMDD.

It is this dynamic alliance of partners and the potential to establish EmOC as the center piece in maternal health programs that forms the basis of AMDD’s strategy. We are pleased that our list of partners continues to expand. Our core project partners are UNICEF, UNFPA, CARE, Save the Children, the Regional Prevention of Maternal Mortality (RPMM) Network, and the Reproductive Health for Refugees (RHR) Consortium. We have technical partnerships with individuals and agencies that have expertise in important areas, such as monitoring and evaluation, management issues, training, and project documentation. Individual partners include Nadia Hijab, an independent consultant to AMDD, and Barbara Kwast, who serves as one of our senior advisors. We also work in partnership with a number of organizations, including: Family Health International (FHI) where key colleagues are Judith Fortney, Jason Smith, Patsy Bailey, Irina Yacobson, and Jaikishan Desai; Leila Bisharat at John Snow International (JSI); Dileep Mavalankar at the Indian Institute of Management in Ahmedabad (IIMA); Karen Beattie, Amy Shire, and Mary Nell Wegner at EngenderHealth; and the Johns Hopkins Program for International Education in Gynecology and Obstetrics (JHPIEGO).

Furthermore, as AMDD expands its global network, we collaborate with organizations for specific activities. These include: the Hesperian Foundation, the International Federation of Gynecologists and Obstetricians (FIGO), the International Confederation of Midwives (ICM), the African Medical and Research Foundation (AMREF), and the Addis Ababa Fistula Hospital.

### 3. IMPLEMENTING FIELD PROJECTS

To date, 55 AMDD-supported projects have started in 39 countries, as Table 1 shows. (For more detailed descriptions of each project, please refer to Appendix 13, “AMDD Project Snapshots”.)

**Table 1: Country Projects and Partners**

<u>Country</u>	<u>Partner Organization</u>	<u>Country</u>	<u>Partner Organization</u>
Angola	RPMM	Mauritania	UNFPA*
Bangladesh	UNICEF Leadership Fund**	Morocco	UNFPA
Benin	RPMM	Mozambique	UNFPA
Bhutan	UNICEF	Nepal	UNICEF Leadership Fund
Bosnia	RHR	Nicaragua	UNFPA
Burkina Faso	RPMM	Niger	UNFPA*
Cameroon	Leadership Fund UNFPA*	Nigeria	RPMM
		Pakistan	RHR UNICEF Leadership Fund
Chad	RPMM	Peru	CARE
Congo- Brazzaville	RHR	Rwanda	CARE
Cote d'Ivoire	RPMM UNFPA*	Senegal	RPMM UNFPA*
Ethiopia	CARE	Sierra Leone	RHR

Ghana	RPMM	Sri Lanka	RPMM
Guinea	RPMM	Tajikistan	UNICEF
India	UNFPA		CARE
	UNICEF		
	Leadership Fund		
Kenya	RHR	Tanzania	CARE
	RPMM	Thailand	RHR
Lesotho	RPMM	Togo	RPMM
Liberia	RHR (2)	Uganda	RPMM
	RPMM		
Mali	RPMM	Vietnam	Save the Children
	Save the Children	Zambia	RPMM
		Zimbabwe	RPMM

\* National Needs Assessments

\*\* Leadership Grants are explained in the Promoting Leadership section on page 22.

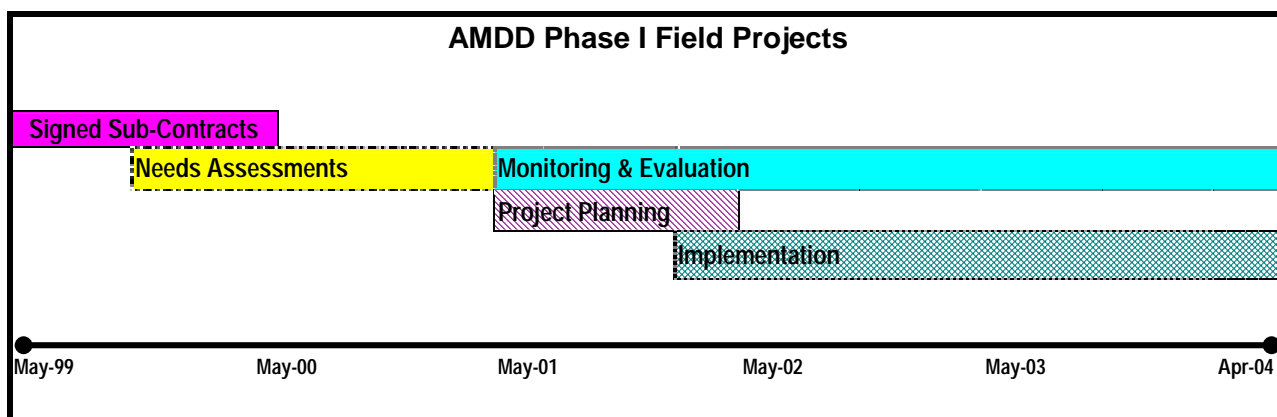
As a result of the partnership with the AMDD Program, most of our partner agencies are working in technical areas that are new to them. While some partners have expertise concentrated at the community level, and others have worked in health posts or even health centers, few have worked in hospitals. Therefore, one of the main roles of the AMDD staff is to provide technical assistance and guidance to partners and their projects on how to best work with government-run facilities. We do this in a variety of ways, including periodic field visits, meetings, and publication of a range of technical tools.

Each of the major projects is assigned a Project Monitor from our technical team. The monitor keeps in touch with the partner agency and makes periodic field visits during which s/he provides technical assistance and identifies special needs. (See Appendix 4 for a list of field visits made during the report period.) The monitor also works with the partner agency to complete a short project progress report every six months. (See Appendix 5 for a copy of the semi-annual reporting sheet.)

While the projects vary by setting and partner agency, there are common elements. The projects begin with a needs assessment. The design of the project is shaped from the findings of the assessment. Most of the projects include training of personnel, purchasing some equipment, making minor or major renovations to the facilities, management interventions, promoting community involvement, data collection and monitoring.

The table on the next page demonstrates the continuum of overlapping elements over time that comprise phase one of the AMDD program. These stages begin with contract negotiation and continue through project needs assessments, developing a project, establishing monitoring and evaluation systems, and result in implementation. In particular, this table shows that since most projects began implementation less than a year ago, they are only now beginning to show results in coverage and utilization, which are the goals of implementation.

**Table 2: AMDD Phase I**



Implementation activities have been divided into two broad stages: preparation and service delivery. The preparatory stage is further broken down to focus on the facilities and the staff. Following the preparatory stage, the service delivery stage is designed to help projects to monitor, assess and assist with issues of functioning, quality and utilization. Appendix 8 shows the EmOC Implementation table used by project managers and monitors to track project progress during field visits and project meetings. The two implementation stages are described in more detail below.

### 3.1 Preparation

The needs assessment, conducted at the beginning of each project, identifies the renovations and equipment that government hospitals and health centers require in order to function efficiently. Renovations range from the repair of a leaky pipe, to building bathrooms for women, to renovating an operating theater. One of the areas of renovation that has proved most successful is the reconfiguration of existing rooms to allow for improved flow of traffic, ventilation, privacy, and infection prevention. Such low-cost solutions serve as models for replication to other government facilities. For example, a recent report from the large AMDD/UNFPA project in Rajasthan, India, showed that the average cost per facility for renovation was \$7,000.

Many projects require some supplementary equipment and supplies in order to provide quality EmOC. The great advantage of partnering with organizations that are well established within countries is that they have an ongoing rapport with governments and can facilitate the purchase of government supplies and customs clearance for the supplies that come from outside the country. The Government of Bangladesh, for example, has developed a standardized list of EmOC equipment and supplies, thus ensuring uniformity and enhancing availability.

Once the renovations are completed and the equipment and supplies have arrived, the facilities are set up room-by-room to ensure that each room is ready at any time to meet the requirements of an obstetric emergency. The relevant rooms include: waiting area,

emergency-evaluation area, labor and delivery rooms, change/scrub room, operating room, ward, pharmacy, lab, blood bank, staff lounge, autoclave, and housekeeping. This process requires planning for regular maintenance of facilities and equipment and continual vigilance on the part of staff. The result is ongoing readiness.

It is not enough to renovate and supply a facility. In order to improve the utilization and quality of care, a system to monitor and evaluate activities is required. AMDD-supported projects review and upgrade data collection instruments at the beginning of their project. They utilize existing hospital registries and government systems and, where possible, endeavor to simplify data collection methods by reducing the number of registries in a hospital and simply adding a column to record complications. As mentioned earlier, AMDD collects information from each project every six months.

At the same time that the facility is being prepared for EmOC services, attention also must be given to the staff, in the form of training, placement and team building. In terms of training, most AMDD projects provide training or re-training to physicians, midwives and anesthetists to improve their ability to recognize complications, perform non-surgical EmOC procedures (such as manual removal of placenta and assisted vaginal delivery), as well as perform surgical procedures, the most important of which is cesarean section. Recently, at the request of our partners in South Asia, AMDD collaborated with JHPIEGO to develop a standard curriculum for EmOC teams (physician, anesthetist and midwife). Establishing training centers and training of trainers for six South Asian countries will begin shortly. To this end, another collaborative effort was the development of an addendum to EngenderHealth's reference manual on infection prevention to address infection prevention specifically related to EmOC.

Appropriate placement of trained medical personnel so that rural as well as urban hospitals have sufficient staff to meet obstetric emergencies is another issue that has to be addressed in preparing for EmOC services. This includes advocacy for transfers and posting to project facilities, as well as promotion of training of non-specialists in order to increase the availability of qualified personnel. In Bangladesh, the government has adopted a policy of posting personnel for a minimum of three years. In Pakistan, service providers are asked to sign an agreement that they will return to their assigned area following training in EmOC. In terms of training of non-specialists, Surgical Technicians are trained and employed in Mozambique, and Nurse-Anesthetists have been trained in Bhutan, Nepal and Ethiopia. The training of non-specialists often requires policy change, which is discussed in further detail in Section 9.

Policy change is an issue that is perhaps the single most important challenge to this initiative. For effective provision of EmOC services, it is essential that services be provided 24 hours per day, seven days a week. This will not occur in many rural settings if the systems require that only obstetricians or physicians, more generally, can provide clinical services such as a C-section, completion of an unsafe abortion, and anesthesia. The experience in Mozambique is of particular importance as a model for all resource-poor countries, as this effort was designed by the former Minister of Health who is now the country's president and the current Minister of Health. Of particular relevance (and surprise) is that both are leading obstetrician-gynecologists.

The last aspect of preparing the staff is team building, which occurs in tandem with the facility setup process mentioned above. Team building includes the development of Facility and Emergency Response Teams; the identification, clarification and delegation of roles and responsibilities of team members; and the development of day-to-day

management plans. Zafar Gill, AMDD Associate Director for Program Implementation, conducted training on team-building in Nepal, Pakistan, Bangladesh, Peru, and Mozambique. The team-building concepts have also been shared with several other projects during field visits in the last year. Furthermore, RPMM strongly supports team building throughout their twenty projects.

### 3.2 Service Delivery

One of the AMDD monitors recently wrote from Afghanistan, "It's not enough to provide drugs, equipment, and clinical training. There also needs to be management training (hospital director, blood bank director), and training in infection control". It is all these pieces working together - training, renovation, data collection, and management - that leads to sustainable access to and the delivery of high quality EmOC services.

Once facilities and staff are prepared to provide EmOC services, it is important to focus on the functioning of those services. The skills acquired during the facility setup and team building should translate into a state of on-going readiness to provide EmOC when a woman with complications arrives at the facility. As seen in the EmOC Implementation table (Appendix 8), on-going readiness can be assessed through the activities of managers and supervisors that work to maintain this readiness among staff, supplies and equipment. Ultimately, readiness means that Emergency Obstetric Care is available 24 hours a day, seven days a week (24/7). It is thus both an objective and an important consideration in assessing and maintaining the functioning of EmOC services.

We are supporting a number of approaches to improve the quality of EmOC services. Some of the tools that AMDD is developing in collaboration with other organizations are listed below and further explained in Section 10:

- *Emergency Obstetric Care: Leadership Manual for Improving the Quality of Services* and the companion *Toolbook for Improving the Quality of Services* developed in collaboration with EngenderHealth can be found on the AMDD website and will be finalized in 2002.
- UNICEF has initiated a whole site appreciative inquiry (AI) approach in Bangladesh, India, Pakistan, Bhutan and Nepal.
- A chartbook for developing Criterion-Based Audits for EmOC has been drafted by AMDD monitors and staff, and is being implemented in several projects.

These tools assist managers and supervisors to develop working teams and improve quality of care. They are processes that analyze and identify what needs to be done and establish systems to manage the change over time. Once established, the team approach helps to create a continuum of vigilance by all staff involved in providing EmOC services, leading to an improvement in the availability and quality of services. Also, at the community level, word spreads quickly about improved access to care.

Another means of maintaining quality is through external observation and review provided by experienced clinicians and managers from within the countries and from abroad. Now that many of our projects are in the service delivery phase, we are working with our partners on this critical component of the program. Included among our partners are highly respected clinicians who periodically visit projects and work with

management and clinical staff to review technical aspects of care and provide on-the-spot refresher training.

The final aspect of the EmOC implementation process is whether the women who suffer from emergency obstetric complications actually use the services in place. Improvement in utilization is measured using the UN process indicators and is defined as:

- an increase in the proportion of births in EmOC facilities,
- or an increase in met need,
- or an increase in indicated and needed Cesarean sections,
- or a combination of the above indicators.

The UN process indicators and a discussion of increases in coverage (number of facilities per population) and utilization are found in Section 6, tracking progress.

#### **4. EXPANDING TREATMENT OF DISABILITIES**

UNFPA, FIGO, and AMDD are working together to improve access to fistula repair<sup>4</sup> in SubSaharan Africa. This condition is without question the most devastating of obstetrical complications, usually leaving a woman as a total outcast (forsaken by both her husband and her own family), because of the constant odor of urine and/or feces.

The cost of fistula repair (on average \$400) is often prohibitive to poor women, and services are usually not available in rural areas. Consequently, thousands of women live with the pain and shame of this disability. The overarching objectives of the multi-agency initiative, according to Dr. France Donnay of UNFPA, are to improve access to quality care for afflicted women and to facilitate the social integration of women who have received treatment as well as for those who remain affected.

Over the next two years, AMDD will provide direct support to the Addis Ababa Fistula Hospital and to AMREF. The group in Addis Ababa will collaborate with local health delivery systems on user fees, raising funds to offer free or subsidized fistula repairs, and establishing partnerships with organizations such as the Department for International Development (DfID), and the American College of Obstetricians and Gynecologists (ACOG).

In Ethiopia, where 3 out of every 1,000 pregnant women are estimated to develop fistula, the Addis Ababa Fistula Hospital staff operate on about 1,200 women yearly. Despite these numbers, there remain long waiting lists for services. The grant will help the Hospital to extend services by setting up four part-time satellite facilities, each covering an under-served area in the north, east, central, and south-west of Ethiopia. A mobile team from Addis Ababa will visit these sites at least once a year, and will stay for 10 days to perform repairs while training local specialists in the procedure.

AMDD is also supporting fistula repair training at the Bugando Medical Centre in Tanzania through the CARE project. A team from Bugando was sent to the Fistula Hospital in Addis Ababa for training.

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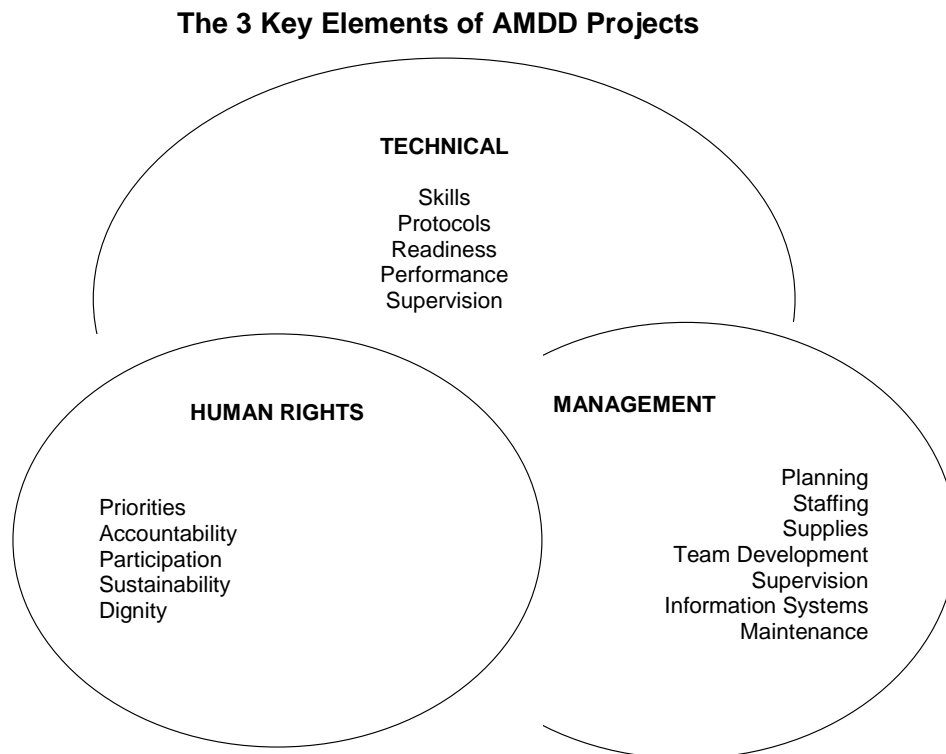
<sup>4</sup> A fistula is an abnormal passage between cavities (vagina/bladder, vagina/rectum or vagina/bladder and rectum).

Furthermore, AMDD is supporting efforts to make fistula repair accessible to more women in East Africa through AMREF, a leading organization in obstetric fistula repair. AMREF provides surgery to women afflicted with fistula and at the same time trains indigenous health workers and specialists in these procedures. Information on how to prevent and support women with obstetric fistulae also is shared. This approach helps to promote cost-effectiveness and sustainability.

In addition, AMDD will join advocacy efforts to educate governments and donors as to the urgent need to expand access to such services in all parts of Africa where the complication is most prevalent, as well as in other parts of the developing world.

## 5. APPLYING HUMAN RIGHTS PRINCIPLES

In the AMDD Program, there are three substantive areas on which we concentrate: medical, management, and human rights. As the figure below shows, we see these as connected to one another in substantial ways. Some of the activities supported by AMDD to improve technical and management areas have been discussed above. In this section we discuss the human rights component of our program.



AMDD goes beyond the use of human rights as an advocacy tool for denouncing situations of wrongdoing. We are developing ways to employ human rights principles to support and strengthen projects – to improve their quality, effectiveness and sustainability – and to ensure that they move effectively toward the fulfillment of the right not to die an avoidable death in pregnancy or childbirth. Some current examples include:

- In July 2001, AMDD co-sponsored a conference on maternal mortality in Peru with Flora Tristan, a Peruvian women's group, and several other organizations. AMDD staff member Martha de la Fuente was instrumental in organizing this conference which presented perspectives from both the public health and human rights fields. Alicia Yamin, another AMDD staff member, presented a paper at the conference. The AMDD-CARE project in Ayacucho was used as a case study for examining different approaches to the reduction of maternal death, including the role of human rights initiatives. The conference promoted an interchange between the Peruvian NGO community, Ministry of Health officials, and the AMDD project.
- In July 2001, Martha de la Fuente and Lynne Freedman coordinated a meeting in New York of representatives from activist women's/human rights groups to discuss NGO approaches to maternal mortality, develop specific NGO projects to address EmOC, and consider development of indicators for use in assessing human rights work in maternal mortality. The projects in Ecuador (SENDAS) and the Philippines (Likhaan) plan to begin activities in February/March 2002.

The projects prepared by these groups will demonstrate the supportive role that civil society organizations, working from outside the government health system and using human rights principles and methodology, can play in promoting expanded availability, access and utilization of EmOC. The Women's Group also met during the AMDD Bangkok workshop in February 2002 to discuss the details of these projects and create workplans for project implementation.

- In April 2002, AMDD's partner, the Regional Prevention of Maternal Mortality (RPMM) network held a regional workshop in the Ivory Coast entitled "Preventing Maternal Deaths as a Human Rights Issue: Enhancing Advocacy Skills." RPMM recently added advocates (usually lawyers) and journalists to each country team. Lynn Freedman's presentation in the opening plenary gave an overview of AMDD's approach to using human rights in maternal mortality (MM) programs. It emphasized three strategic uses of human rights: (1) to raise MM as a public issue and a political/social issue (rather than just as a biological or medical issue); (2) to prioritize and focus on the actions that save lives; (3) to develop constructive accountability throughout the health system and, ultimately, in the broader society. Lynn also led a working group entitled "Identifying Violations of Women's Rights to EmOC." Martha led a workshop on "Addressing Violations: Strategies and Resource Mobilization."
- We are working to integrate human rights into various technical assistance tools: the EmOC curriculum, the criterion-based audit chartbook, and the quality improvement manual and toolbook. (See Section 10 on Developing Tools.)
- We also are critically examining health systems and policies through a human rights lens. In a paper pending publication in JAMWA (Summer, 2002), Lynn Freedman suggests that this approach "demands a fundamental shift in vision for both health policymakers and human rights advocates from an individual, ethics-based, clinical perspective to a structural, rights-based, public health perspective." Furthermore, she states that there is an impetus to move beyond using broad human rights declarations to address public health issues and focus more intently on using rights principles to address specific situations.

From the perspective of the AMDD Program, one key challenge is to find the specific issues within the range of possible human rights initiatives that will work synergistically with the management and technical aspects of AMDD projects to generate change in any given country project or any given facility.

One of these issues is human resources development; many AMDD projects grapple with this ubiquitous problem. For example, as already described, the Mozambique experience in training non-physician surgical specialists is of extraordinary importance. In many developing countries the lack of anesthetists is a problem of wide scope and great concern. In an attempt to meet this challenge, countries such as Bhutan, Ethiopia, Mozambique, and Nepal have trained nurses and technicians to administer anesthesia for life-saving obstetrical procedures. However, other countries limit provision of anesthesia to anesthesiologists. This barrier to EmOC was the subject of a plenary session at our annual workshop in Bangkok this year. A number of senior government officials returned to their countries and began to work on reforms that would make anesthesia more available in district hospitals (e.g. training general physicians to provide anesthesia for EmOC in India).

In the AMDD Program, we not only help identify what “appropriate actions” for reducing maternal mortality are and are not available, we also work to encourage the United Nations treaty monitoring bodies to assess “progressive realization” using indicators that measure the availability, utilization and quality of emergency obstetric care. This work will primarily be undertaken with UNFPA (which is expected to adopt a rights-based approach to programming) and UNICEF. As UN agencies, they both have a duty to supply information to treaty bodies. In addition, Allan Rosenfield has been asked by Kofi Annan’s office to be the coordinator for the section on maternal and child health for the UN Millenium Report currently being prepared.

## **6. TRACKING PROGRESS**

### **6.1 Background**

During the early years of the Safe Motherhood Initiative, it became clear that it would not be feasible to use the maternal mortality ratio (MMR) to measure progress. The primary reason for this is technical difficulties, such as:

- the need for huge sample sizes since maternal death is a relatively rare event,
- significant underreporting of maternal deaths in vital registration systems, when they exist, and
- wide confidence intervals making it difficult to measure change.

Another problem with measures of maternal mortality (“impact” indicators) is that they do not show what is working well in programs and where additional efforts are required.

In 1991, UNICEF asked Columbia’s School of Public Health to develop indicators to use in evaluating progress in maternal mortality programs. We developed, in collaboration with colleagues at UNICEF and WHO, what are known as the “UN Process Indicators”. They were first published in 1992 by UNICEF, and issued jointly in 1997 by UNICEF,

UNFPA and WHO.<sup>5 6</sup> (See Appendix 7.) These indicators address the following questions:

- Are there enough facilities providing EmOC?
- Are they well distributed?
- Are enough women using these facilities?
- Are the right women using these facilities?
- Are enough critical services being provided?
- Is the quality of the services adequate?

The answers to these questions clearly point the way to action. Moreover, these data are useful at the local level, as well as at the national and international levels. Finally, progress can be measured using these process indicators because changes in the availability and use of EmOC services can register in a short period of time (e.g., 2-3 years).

## 6.2 AMDD Program

In AMDD-supported field projects, the UN Process Indicators are used for both the initial needs assessment and for ongoing monitoring. In addition, part of our collaboration with UNFPA is support for national needs assessments in 8 countries – four each in West Africa and Central America. The West African studies have been completed; the Central American studies are in the planning phase.

In order to add to the meager body of literature documenting the state of obstetric care of maternal mortality, AMDD has promoted publication of needs assessments in FIGO's *International Journal of Gynecology and Obstetrics (IJGO)*, where we sponsor a special section. In the February and April 2002 issues, six AMDD countries were highlighted: Mozambique, Senegal, Nepal and then Bhutan, Cameroon and India (Rajasthan). Data from Pakistan, Peru and Vietnam will be featured in the fall issue. Furthermore, in the March 2002 edition of IJGO, Patricia Bailey, Columbia Senior Lecturer, and Anne Paxton, Senior Program Officer for Monitoring and Evaluation, co-authored an article entitled, *Program note: Using UN Process Indicators to assess needs in emergency obstetric services*.

AMDD strengthened its monitoring and evaluation (M&E) efforts, in the past year by creating an M&E unit. In October of 2001, AMDD hired Anne Paxton a faculty member in Columbia University's Department of Epidemiology with experience in Africa and Asia. In addition, Samantha Lobis, a recent MPH graduate, was brought on in April to work with Anne. These two not only increase attention to the monitoring of country programs but also provide critical technical assistance. For example, Anne and Samantha traveled to Morocco to evaluate the national data collection and analysis process. Samantha returned to Morocco and assisted in the preparation of data for a national forum on emergency obstetric services in this country.

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<sup>5</sup> D. Maine, J. McCarthy and V.M. Ward. Guidelines for Monitoring Progress in the Reduction of Maternal Mortality: A Work in Progress. UNICEF, New York, October 1992.

<sup>6</sup> D. Maine, T.M. Wardlaw, V.M. Ward, J. McCarthy, A. Birnbaum, M.Z. Akalin, and J.E. Brown. Guidelines for Monitoring the Availability and Use of Obstetric Services UNICEF/WHO/UNFPA, New York, September 1997.

AMDD has implemented a well-defined and systematic country project reporting process. Each country project provides data on a six-month basis. The first reports covered a period of July – December 2001 and will continue to be collected on a regular basis. The next set of country project data is expected in July of this year, covering the period from January – June 2002.

Projects have progressed from needs assessments, to project development, to renovation, equipment and training and are now focusing on services. It is truly exciting to hear the stories of the impact that the transformation of a hospital to a comprehensive facility can make to a region.

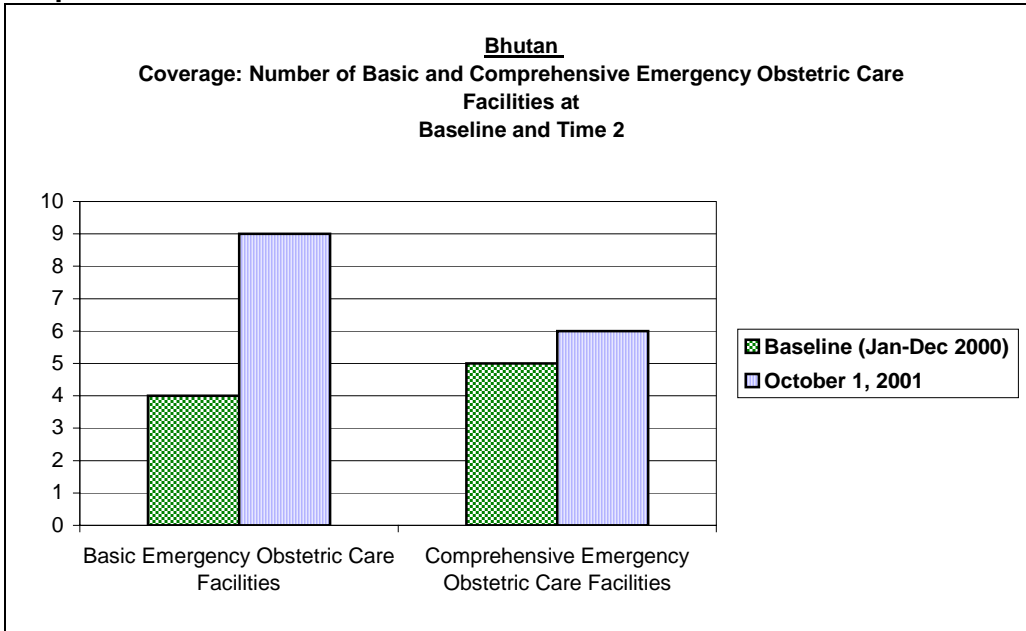
Since completion of their AMDD-sponsored needs assessment in March 2000, the project in Bhutan, which covers the entire country, has more than doubled the number of basic EmOC facilities available from four to nine. (Please refer to Appendix 7 for definitions of basic and comprehensive EmOC facilities.) In addition, Bhutan is now able to provide comprehensive EmOC services in six facilities distributed throughout the country (please refer to Graph 1 below).

Just last week, AMDD received the picture of the first baby born by cesarean section in the hospital in Gelemso, Ethiopia. When our project began, there was only one small health facility in this district, which provided minimal services. In 2000, a district hospital was built but did not function because of staffing and management problems. Site visits by CARE and AMDD technical staff focused on resolving the problems, working with hospital staff and the ministry of health. The first cesarean section signifies that it is now a functioning, comprehensive facility – the only one for a population of 1.6 million with about 72,000 births every year.

The district hospital in Panchthar, Nepal, is the only facility available to a population of 205,000 and, with the arrival of a trained physician, is now officially capable of all EmOC functions. Not only have cesarean sections recently been performed, but also the community and hospital staff have mobilized to volunteer services and goods. In fact, one of the sweepers from the hospital donated the blood for the second cesarean section and the community fund provided the loan for the services.

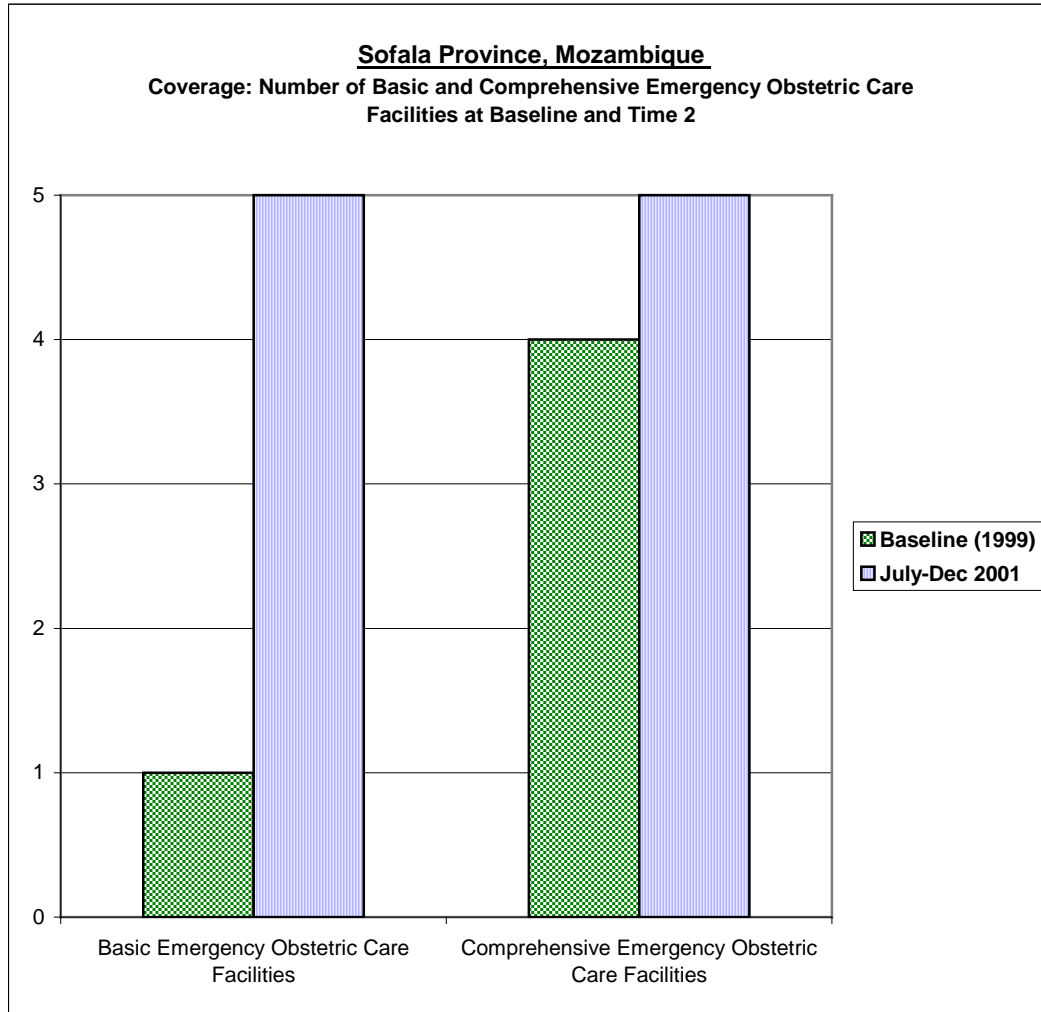
Thus far, as the examples above illustrate, projects have been very successful in increasing the number of life-saving services available for women with life-threatening obstetric complications.

**Graph 1:**



Mozambique also has made great progress in improving the availability of EmOC services in Sofala Province (the location of the AMDD project). Since 1999, the number of facilities offering basic EmOC services increased from one to five and the number of comprehensive EmOC facilities increased from four to five (please refer to Graph 2 below).

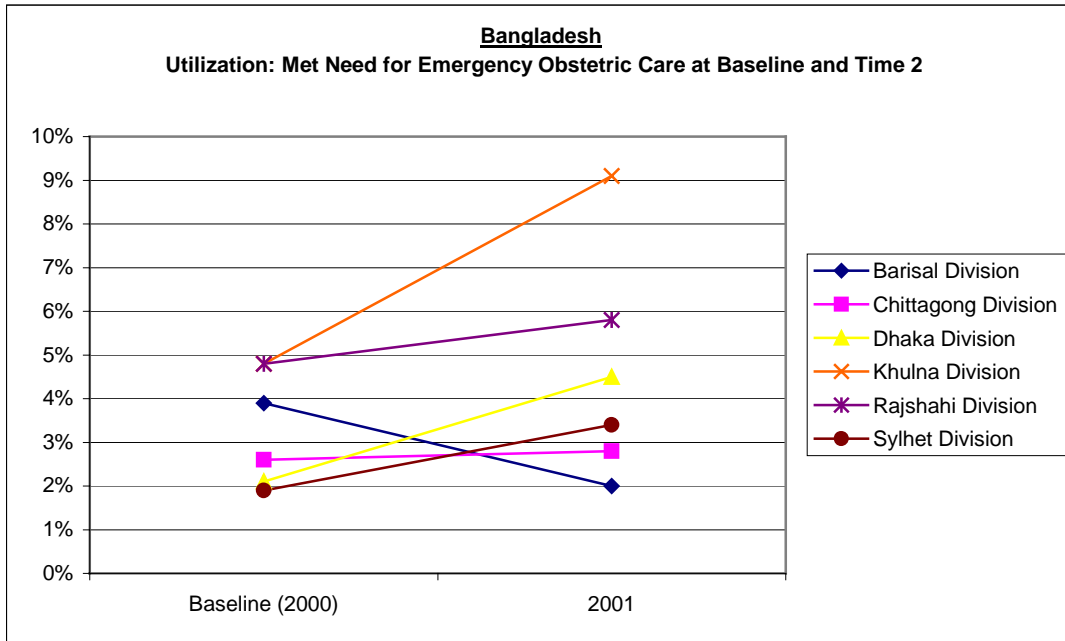
**Graph 2:**



We expect that as quality EmOC services become more available and the women in need and their families become aware of them, utilization of these services will increase. Even at this early stage, utilization has increased in many of the projects in which we are working. Although we are still in the thick of the implementation process in year three, our data indicate that projects are moving in the right direction. For example, in Bangladesh, all but one of the country's six divisions has shown increases in the proportion of women with obstetric complications who are treated in BMOC facilities ("met need" for BMOC) (please see Graph 3 on the next page).<sup>7</sup>

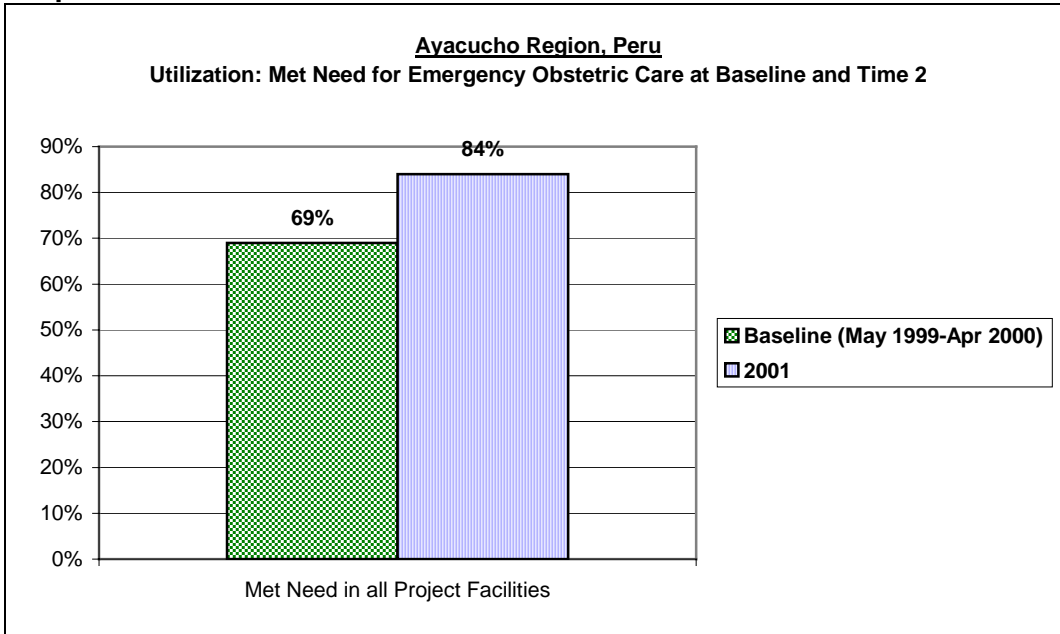
<sup>7</sup> However, it must also be noted that these data represent only a subset of all facilities in the country and therefore, women with complications who are treated in non-project facilities are not captured in this data set.

**Graph 3:**



The AMDD project in the Ayacucho region of Peru also shows an increase in utilization. Since the Ayacucho region in Peru completed their needs assessment in June 2000, many more women have sought out and received treatment for their obstetric complications (please refer to Graph 4).

**Graph 4:**



## 7. PROMOTING LEADERSHIP

With the intention of moving the whole safe motherhood field forward, we have implemented a number of activities to encourage and reward leadership. We believe that recognizing leadership highlights individuals and models throughout the developing world and thus serves an important purpose.

### 7.1 The Leadership Fund

In many developing countries, hospitals run by NGOs or religious groups are the only hospitals providing good care to a sizable (and usually marginalized) population. While our program strategy emphasizes collaboration with large, international agencies, we feel that it is important to support these invaluable institutions. Therefore, AMDD established the Leadership Fund to provide financial assistance in the form of one-time grants of approximately \$40,000 to such groups. To some, the size of such grants may appear insubstantial. However, for these groups, the Leadership Grants are what finally enable them to focus on the improvement and implementation of EmOC services. Once services are initiated, they leverage the initiative to develop further funding and support from the community, government, and other funding resources. There are two main criteria for selection: a history of providing services in under-served areas with a substantial target population, and the capacity to improve access to or quality of EmOC. The Fund is financed through the interest on the funds from the Gates grant.

To date, seven Leadership Grants have been awarded. In the third year of the program, we presented Leadership Grants to three dedicated groups in the field:

<u>Organization</u>	<u>Amount</u>
Shimantik Urban Primary Health Care Projects Dhaka, Bangladesh	\$40,000
Kunri Christian Hospital – Sindh, Pakistan	\$38,638
Prevention of Maternal Mortality (PMM) Team Sokoto, Northern Nigeria	\$40,000

These groups work under extremely challenging circumstances to prevent maternal deaths in their communities. For example, the Shimantik Urban Primary Health Care Projects (SUPHCP) offers services to the lower middle class in Dhaka, Bangladesh. It has four clinics, each with a full-time doctor and paramedics providing 24-hour service. With the AMDD Leadership Grant, SUPHCP will be upgraded to provide comprehensive EmOC. Funds will be used for renovations (operating theater, recovery room, counseling room), purchase of instruments/equipment and training (obstetrics/gynecology, anesthesia, and nursing).

The Kunri Christian Hospital (KCH) in Pakistan serves more than a hundred small villages. It receives complicated cases from the Rural Health Centers as well as small clinics. KCH, through an AMDD Leadership Grant, will be upgraded to provide comprehensive EmOC. Funds will be used to purchase instruments/equipment (instruments for cesarean sections, ultrasound, autoclave, etc.). In addition, workshops on EmOC are planned for doctors and midwives, and there will be some training for TBAs.

AMDD also has awarded a Leadership Grant to the Prevention of Maternal Mortality (PMM) team in Sokoto, located in rural Northern Nigeria. The main objective of the project, led by Dr. Dora Shehu, is to reduce delays in providing life-saving services for women. Specific proposed activities include: a training program – upgrading staff skills; improving emergency care delivery systems; implementing a system of rotating physicians from better staffed institutions; community mobilization and sensitization efforts to improve awareness and attitudes toward reproductive health. These activities will be carried out in collaboration with various facilities, community organizations, and local governments.

## 7.2 FIGO Community Service Awards

FIGO and AMDD offer the annual award for “Distinguished Community Service for Emergency Obstetric Care” through a collaborative effort. It is designed to honor those individuals who have exhibited exceptional performance in the provision of emergency obstetric care in their local community.

Award winners for 2001 are:

- Prakash Bhatt & Dr. Asha Bhatt – Joint Award (India)
- Etienne Bek Odimba (Mauritania)
- Christopher Okojie (Nigeria)
- Lilith Poghossian (Armenia)
- Hamish McGlashan (Australia)

The recipients will receive their award at the FIGO World Congress of Gynecology and Obstetrics, scheduled to take place in 2003 in Santiago, Chile. In addition to the award, a grant of US \$5,000 will be made to the local institution with which the awardee is affiliated, to further the valuable work undertaken. If there is a national Ob/Gyn society in the country, a grant also is offered to arrange for a social event in recognition of the award to provide the recipient with an opportunity to deliver a lecture on his/her work. One of the recipients from the first set of award winners is Grace Kodindo from Chad who now works with AMDD as a technical expert.

## 7.3 International Confederation of Midwives – AMDD Award

Based on the FIGO Distinguished Community Service Awards, the International Confederation of Midwives (ICM) award was established this past year and will be presented to individuals on an annual basis to recognize and honor exceptional efforts made to improve women’s access to high-quality emergency obstetric care.

These awards will be presented every year, 2002 – 2004. The recipients of the award will be announced at the International Council meetings held triennially in 2002 and 2005. The Selection Committee consists of representatives from both ICM and AMDD.

These awards provide a \$5,000 grant to enable leadership and advocacy training or any other activity that would strengthen the effectiveness of the midwives' association. A local celebration will be given to honor the award recipient and draw attention to their work.

The first “Averting Maternal Death and Disability” awards were presented by Barbara Kwast to three midwives to honor their valuable work in EmOC on April 14, at the 2002 triennial ICM Congress opening ceremony in Vienna, Austria.

The 2002 awards were presented to:

- Martha Bokosi of Malawi
- Phan Thi Hanh of Vietnam
- Venus Mark of Trinidad and Tobago

The award winners intend to use their grants for activities that include: working with NGOs to leverage resources for EmOC; fostering teamwork among midwives, especially in rural areas; and organizing workshops on professional/clinical skills building and leadership.

#### 7.4 Developing Future Leaders: Public Health Students

One of the benefits of the AMDD Program being based in Columbia University is that teaching graduate students is a regular part of our activities. As a result, each year more than 30 students in the School of Public Health learn about maternal mortality and what is being done to address the problem.

A smaller number of students (3-5 per year) have extensive exposure to the program by working as Graduate Research Assistants (GRAs) with AMDD. These students benefit from contact with our technical partners and staff of the various country projects, as well as, access to new publications and cutting edge research.

Another way in which we support the development of future public health leaders is by supporting internships. In the summer of 2001, two students gained valuable field experience by working as interns with AMDD-supported projects. For example, one Columbia student worked with a Leadership Grant recipient in Orissa, India, and another collaborated with RPMM staff on recording obstetric complications in hospital registers in Ghana. The internships proved to be a rewarding experience for both the students and facility staff.

Finally, the staff of AMDD gives guest lectures on the subject of maternal mortality. The students in these classes are eager to hear about our strategy and program, and it is not uncommon for them to contact us later to learn more.

After graduation, these students span the globe, taking jobs with their governments, with international agencies or with NGOs, carrying with them their understanding of this key issue, and their appreciation for the importance of basing programs on sound evidence. In fact, a recent graduate from Johns Hopkins’ Bloomberg School of Public Health, Milly Kayongo, who participated in Deborah Maine’s class at Johns Hopkins, has just joined CARE as Technical Officer to the CARE/AMDD project.

## **8. FOSTERING A GLOBAL NETWORK**

In order for our efforts to succeed and endure on a wide scale, a global network focused on access to emergency obstetric care is required. We are actively working toward this goal.

### 8.1 Annual Workshop

In February 2002, AMDD country teams met at the second annual Project Workshop held in Bangkok, Thailand. The Bangkok Workshop was twice the size of the first workshop, held last February in Morocco, evidence of the growing number of partners dedicated to this effort. For many of the 200 participants, this international meeting provided a sense of common purpose, dedication and global cooperation. There were many opportunities for exchanging experiences and learning.

The workshop included formal plenary and panel presentations, workgroup sessions, project poster sessions, country team and project meetings, and informal discussions. Given that our program is in its third year, implementation was the central theme. Workshop sessions addressed such issues as service delivery, facility management, supplies and equipment, renovation, quality improvement, human rights, infection prevention, medical audits, and training.

The workgroup sessions encouraged the participants to discuss with each other important technical issues in the areas mentioned above. When possible, the schedule was arranged so that country project teams could work together with AMDD technical staff on the various topics and have the opportunity to solve problems as a group. AMDD project monitors held individual country team meetings which were opportunities to identify obstacles to progress and technical assistance needs and plan for the upcoming year.

During coffee breaks, participants perused the poster displays presented by each country team, which offered a closer look at maps, photos, hospital registers, and statistics pertinent to each project. In addition, AMDD held a book fair in which publications from the AMDD New York, project country offices, and partner agencies (such as UNFPA and Hesperian) were available.

The energy and excitement generated was evident in the lively exchanges among policy makers and health service providers from places such as Ayacucho Province in the central highlands of Peru to Tajikistan, and from Afghanistan to Sofala Province in Mozambique. A more detailed report on the Bangkok workshop is presented in Appendix 9.

This year, the focus was on the components of implementing maternal mortality projects. The next workshop will feature the project teams reports on their activities and results.

### 8.2 Annual Workshop: Additional Meetings

In Bangkok, several partner agencies - UNFPA, UNICEF and CARE - took advantage of the fact that project teams had traveled to the workshop from many parts of the world to review the status of their AMDD-sponsored projects.

UNICEF Regional Office in South Asia (ROSA) held their mid-term review of the AMDD-sponsored Women's Right to Life and Health Project in Bangkok just before the AMDD Workshop convened. The UNICEF project involves government departments and UNICEF offices in six South Asian countries (Bangladesh, Bhutan, India, Nepal, Pakistan and Sri Lanka). The 50 participants in the mid-term review also included teams from Afghanistan and Iraq.

UNFPA teams in Bangkok met prior to the workshop to discuss the status of their country projects. Individual team meetings during the course of the workshop followed up the meeting and addressed specific aspects of each project. Representatives from UNFPA regional offices in Kathmandu and Bangkok also attended the UNFPA meeting.

CARE held a two-day meeting after the Bangkok Workshop, which brought together CARE staff and government counterparts from Peru, Ethiopia, Rwanda, Tanzania, and Tajikistan.

Allan Rosenfield and Deborah Maine convened a series of meetings with senior health providers and government officials. The purpose was to promote policy discussions about access to quality emergency obstetric care. The groups were very supportive of the innovative approaches to the delivery of care outlined by the Minister of Health of Mozambique, Dr. Francisco Songane, on the successful training and use of surgical technicians to provide comprehensive EmOC. They also were interested in the presentation by Professor Tipu Sultan, Dean of the Faculty of Anaesthesiology at the College of Physicians and Surgeons in Pakistan, on the use of nurses to provide limited anesthesia services.

### 8.3 On-going Focus

During the year, a number of meetings were held to discuss technical assistance to the projects. In November 2001, AMDD gathered all of the technical team members in Amsterdam for three days to discuss the projects, identify gaps and issues to explore, and plan for the next year. Also, a one-day technical meeting of the same group was held in February 2002 following the AMDD Workshop in Bangkok.

A small group of AMDD senior staff and advisors convened in New York for two days in January 2002 to review and discuss the focus, direction, and overall program priorities of AMDD. The main focus of the two-day discussions was on program, since the project level had been discussed in detail at the technical meeting in Amsterdam in November 2001. AMDD invited Leila Bisharat, a senior level systems consultant on leave from UNICEF and working with JSI/USA, to analyze and submit a review of the overall AMDD program and make suggestions for future directions and activities. It was determined that AMDD needs to place more emphasis on documenting key country experiences, fundamental issues, and diffusion in the field. Furthermore, it also was agreed that AMDD must decide on what can realistically be accomplished in the remaining two years of the current Gates grant.

In addition to our technical team, staff from our partner organizations visit the projects periodically. We work with them to coordinate approaches to technical issues and to develop tools to use in providing assistance. Zafar Gill of AMDD leads a working group on technical issues for this purpose. The group had the opportunity to meet during the Project Workshop in Bangkok in February 2002. AMDD also arranges joint field visits with partners' staff whenever possible.

#### 8.4 Collaboration with other Safe Motherhood Programs

AMDD actively works towards fostering a global network focused on access to emergency obstetric care. Working collaboratively with other safe motherhood programs not only promotes the focus on EmOC but also serves to ensure that AMDD staff understand the goals of other programs and work to improve collaborative efforts. On-going efforts include:

- Sharing information with the Initiative for Maternal Mortality Programme Assessment (IMMPACT) at the University of Aberdeen. Anne Paxton, Senior Monitoring and Evaluation Officer, serves on the Research Committee for IMMPACT; AMDD staff provide technical information and advise in response to e-mail requests, and; representatives from IMMPACT participated in the recent AMDD project workshop in Bangkok.
- Participating in Save the Children staff retreats. AMDD staff recently joined a global staff retreat where the AMDD approach and tools were presented and activities for expanding country programs and identifying new areas for collaboration were discussed. One possible initiative is a combined effort between the Saving Newborn Lives initiative and the AMDD-sponsored project in Vietnam.
- Exploring the feasibility of partnering with Program for Appropriate Technology in Health (PATH) on an initiative to field test the use of oxytocin in uniject™ devices.
- Attending Safe Motherhood Inter-Agency Group (IAG) meetings. The purpose is not only demonstrating AMDD's solidarity in the Safe Motherhood movement but also to be part of the on-going discussion of the IAG's transition to a new coalition.

Also of note, over the past funding year, AMDD staff and partners:

- Co-hosted a reception at the Global Health Conference in Washington DC in May 2002 entitled, Saving Women's Lives, Saving Newborn Lives. The reception celebrated efforts to improve women's reproductive health and rights, and newborn survival in developing countries. The co-hosts were the Safe Motherhood Initiative, the Healthy Newborn Partnership, Family Care International, Save the Children, and the Communications Consortium Media Center.
- Participated in the White Ribbon Alliance workshop, seminars, and awards ceremony at the Global Health Conference in Washington, DC, May 2002.
- Sponsored a session on EmOC and presented four additional papers on different aspects of the program at the annual American Public Health Association (APHA) conference in Atlanta, Georgia, October 2001. Also of note, at the conference Deborah Maine received the prestigious Carl Schultz award sponsored by the Population, Family Health and Reproductive Health Section of APHA. She joined an impressive honor roll of awardees from the field of reproductive health in the U.S.A. and around the world, including Allan Rosenfield in 1995.

- RPMM hosted the First Ladies Conference on Maternal and Neonatal Mortality in West and Central Africa in collaboration with the Government of Mali and UNICEF
- Representatives from RPMM attended a WHO-AFRO partnership meeting on “making pregnancy safer” in October 2001 and presented the UN process indicators at a WHO regional meeting on developing reproductive health indicators in Accra Ghana in November 2001.

## **9. LEVERAGING RESOURCES**

One of the more exciting outcomes of the AMDD projects to date is the plethora of examples which demonstrate how the program is leveraging resources. AMDD is leveraging input (projects, assessments, technical assistance, documents) and attracting new funding to expand and develop services; creating momentum for policy change; diffusing knowledge within partner organizations, and developing new partnerships focused on EmOC.

### 9.1 Diffusion of Knowledge

AMDD will be considered truly successful when the “sunset clause” takes effect – that is to say when EmOC becomes an integral part of maternal health care programs instituted by our partners and other organizations and governments. Evidence of diffusion of knowledge is already clear at the partner level.

#### UNICEF

The UNICEF Regional Representative for South Asia, who has since become Special UN Deputy Representative to Afghanistan, was instrumental in establishing EmOC as one of the three health priorities for the UNICEF program for the country. The Representative worked closely with AMDD from its inception. The program in Afghanistan is now a part of the UNICEF EmOC program in Asia and Judith Fortney recently provided technical assistance to the project.

UNICEF also is demonstrating global commitment to EmOC. In March 2002, Carol Bellamy issued a call to reduce maternal mortality world-wide. She stated that “Unicef’s efforts to reduce maternal mortality in the [South Asia] region are currently focused on ensuring that every woman has access to emergency obstetric care services.” These South Asia projects are funded by AMDD.

#### UNFPA

UNFPA has contributed to the diffusion of EmOC information by: producing a distance learning course on reducing maternal deaths; developing a series of web pages promoting EmOC and the UN Process Indicators with impressive hyperlinks; coordinating a report and meeting on obstetrical fistula; and mentioning EmOC projects in the UNFPA executive report for 2001. Three regional UNFPA centers have requested distance learning training modules for EmOC training - Thailand, Botswana and Uganda, and the AMDD/UNFPA project in Mozambique has translated Module 2 "Using Indicators to Assess Progress in Reducing Maternal Deaths" of the Distance Learning Course into Portuguese for distribution to all lusophone countries. In addition, AMDD is one of 12 partner institutions collaborating with UNFPA and the Development Gateway Foundation on the POP/RH Portal, an internet initiative focusing on population and reproductive health.

## CARE

In 1998, CARE's maternal and newborn health (MNH) program identified the need to improve access to emergency obstetric services as one of its five weak areas. In April 2000, CARE became a partner of the AMDD program. Because of this affiliation and others, CARE is building the capacity of their partners to provide quality maternal and newborn health services, particularly EmOC services.

## Save the Children

Save the Children's experience with the AMDD project has broadened their thinking on Safe Motherhood to include EmOC. This experience also has led to enhancing program planning in the countries where they work. Save the Children is now replicating SM/EmOC in new sites in Mali and Vietnam where their AMDD-funded projects are, and is starting new EmOC programs in Pakistan and Guinea. They also are working with field offices to disseminate the success of their projects to policy and program setting bodies.

## 9.2 Public and Civil Sector Examples of Diffusion of Knowledge

In addition to AMDD partners, evidence of diffusion of our approach is appearing in other civil and public organizations.

In Pakistan, the Women's Health Project, launched in January 2002, incorporates the AMDD model for EmOC into the design of their program. The project is a \$75 million project, with \$47 million from the Asian Development Bank, \$10 million from OPEC, and the rest from the government. Also, two of the AMDD targeted facilities in Pakistan have started schools of midwifery by mobilizing resources from private sector and donations.

In Vietnam, we have witnessed a multiplier effect from EmOC training at the Hanoi Medical School and the Hue Medical School. By upgrading the skills of the EmOC trainers at those institutions, we not only get better quality training for providers participating in our project, but we also improve training for all providers passing through those institutions. The two institutions provide training for two-thirds (North and Central) of the country.

In India, an AMDD supported training workshop for District Level Officers on Criteria Based Audit/Review has generated demand from medical college professors to have similar training so that they can incorporate this methodology in their hospitals and in the curricula for training graduates.

Health Ministers in the Southern Africa Development Community (SADC) have incorporated the RPMM/AMDD 3-delay model into the region's reproductive health program.

John Snow International (JSI) - field reports from late 2000 indicate 11 countries, without AMDD projects, that are involved in providing EmOC services.

## 9.3 Policy Changes

Policy change at national and district levels is critical to sustainable access to emergency obstetric services. Although effecting policy change within a government bureaucracy takes time, even at year three, AMDD's activities are beginning to show results.

The Government of Bhutan had a policy that only physicians could administer anesthesia. This meant that populations in rural areas, where no doctor wants to be posted, had little access to emergency services. Acting on suggestions that had been voiced at AMDD conferences and meetings, the Bhutanese government initiated an in-country training program for nurse anesthetists. After training, nurses were paired with an anesthetist for a year and now deliver anesthesia in rural hospitals. In addition, policy clearance was given to extend blood-grouping facilities to peripheral health centers. The combination of competent technical staff and a blood supply enables provincial health centers to treat obstetric emergencies in isolated areas.

In Ethiopia, Dr. Solomon Tesfaye, CARE/Ethiopia Project Director, was appointed to membership in the National Reproductive Health Task Force and is contributing substantially to national level approaches to EmOC with the government and other agencies.

In Bangladesh, an AMDD-supported UNICEF initiative created sufficient visibility to necessitate a change in policy regarding procurement practices. There now is a standardized national list and logistical system for supplies and equipment for EmOC services. Having a standard list means that supplies and equipment will be ordered and distributed on a regular basis, thus reducing expenses and avoiding shortages

In the State of Rajasthan, India UNFPA/AMDD project advocacy and discussions with the Health Secretary of the State resulted in a provision in this year's budget to support emergency obstetric and surgical services in all sub-district hospitals in Rajasthan's 32 districts (the UNFPA/AMDD project covers 7 districts).

The CARE country office director in Tajikistan reports that the positive experience generated by the AMDD project has been instrumental in improving relations between CARE and the Government of Tajikistan. Furthermore, the government has become much more interested in the area of maternal health as a result of these interactions.

In an unintended side effect of program participation, the Government of Bhutan appreciated the AMDD needs assessment process so much that they have instituted a similar assessment and planning project in other ministries.

#### 9.4 Project Development

AMDD-funded projects are attracting resources from both public and private sectors. Examples include:

The project site in Peru where CARE works also has received contributions from the Netherlands Government in the amount of \$150,000 to improve infrastructure and provide office materials for the health centers and hospitals that work with dispersed populations and communities.

In the State of Rajasthan, India, AMDD, and UNFPA staff worked with local government, hospital doctors, and the district health team to establish a public/private partnership to solve a pre-existing management problem related to hospital renovation. Team problem-solving sessions involving all stakeholders led to creative solutions as well as substantial local financial support. The maternity ward, operating theater (OT), and related areas of the hospital will be ready for in-patient and emergency services in June 2002.

AMDD-supported national needs assessments, conducted by UNFPA, led to contributions towards developing projects and improving EmOC services in Mauritania and Senegal. It also led to the initiation of additional needs assessments in Gabon, Guinea Bissau, and Guinea, funded by UNFPA.

The Government of Sri Lanka convinced the Asian Development Bank to provide approximately \$20,000 to conduct an EmOC needs assessment in newly accessible former conflict areas, following the recent peace accords.

In Ethiopia, the AMDD/CARE life-saving skills training has brought attention to the importance of this type of training, and was reported recently in the press and on television. This in turn created a demand for life-skills training in other hospitals. The Netherlands Government also has expressed interest in replicating the training in a project they fund in another area of Ethiopia.

In Tanzania, UNICEF will provide ambulances for the AMDD/CARE project. This complements the installation of radio communication between health centers and the referral hospital in two districts and promotes access to emergency services in remote areas.

In Nepal, during the course of the AMDD project, important partnerships have been formed between UNICEF, the Nepal Safe Motherhood Project, and UNFPA. The DfID-supported Nepal Safer Motherhood Project and the UNICEF-supported Women's Right to Life & Health Project are the only projects working on strengthening EmOC services. The two projects are working together to identify opportunities for joint programming.

Local Ministries of Health and Defense worked with the PMM Team in Guinea to mobilize resources to build and equip a new operating theater and health center; the Ministry of Defense contributed an ambulance.

Communities in PMM project areas in Burkina Faso purchased an ambulance with levies and a Spanish NGO donated an ambulance to one of the PMM Team sites in Senegal.

## **10. DEVELOPING TOOLS**

An important part of the technical side of the AMDD Program is the identification and development of tools that facilitate the implementation of EmOC at the project level. Projects have voiced their needs for various tools through the AMDD monitors and also through participation at the annual AMDD workshops. In order to meet these needs, several tools have been developed in year 3 or are in the planning stages. These tools are listed below.

### 10.1 Distance Learning Course

At the suggestion of UNFPA staff, the production of a distance learning course on EmOC and the Process Indicators was included in our agreement. This course is part of a series on reproductive health produced by the UN Staff College in Turin, Italy, for UNFPA. Nadia Hijab, a consultant on documentation to AMDD, wrote the text. The final version in English has been pilot tested and distributed. It was recently translated into Arabic, French, and Spanish, in order to reach an even wider audience. The module is

designed to be used independently, as well as part of a distance learning course with tutors. This tool will be made available on our website and UNFPA's.

### 10.2 Quality Improvement

AMDD collaborated with EngenderHealth to develop tools for quality improvement of EmOC. *Emergency Obstetric Care: Leadership Manual for Improving the Quality of Services* and the companion *Toolbook for Improving the Quality of Services* can be found on the AMDD website. Field testing and final editing will be carried out in 2002.

### 10.3 Infection Prevention for EmOC

AMDD and EngenderHealth also have collaborated on developing an addendum to EngenderHealth's reference manual on infection prevention that addresses infection prevention for EmOC. The final version of the addendum will be available in August 2002.

### 10.4 Criterion-Based Audit Chartbook

The user-friendly chartbook was developed by AMDD monitors and staff as a resource for health professionals committed to improve the quality of emergency obstetric care by identifying weaknesses and acting on recommendations. It is designed for a facility-based audit but also can be applied at the district and national level.

### 10.5 Translation of Key Reference.

AMDD has provided support for the translation and production of a French version of the manual entitled *Managing Complications in Pregnancy and Childbirth* (MCPC). The manual is produced by WHO and JHPIEGO. It is expected to be printed in 2002. AMDD will receive 300 copies of the French MCPC manuals for distribution to the field.

### 10.6 EmOC Curriculum

In collaboration with JHPIEGO, a standard EmOC Curriculum has been developed to train EmOC teams. The curriculum is especially geared for use by health professionals who are not specialists in the field. The first EmOC Curriculum training program is scheduled for 2002. One team from each of six countries in Asia will undergo a 20-day program. Upon completion of the program, the teams will continue EmOC instruction in their respective countries. Training centers will be instituted in each country and provided with EmOC Curriculum materials and training aids. Additional EmOC Curriculum training programs are planned and will be extended to other regions.

### 10.7 Anesthesia Curriculum

Along with the standard EmOC curriculum, a curriculum for anesthesia in EmOC is being developed and will be ready in time for the training in South Asia in August. This curriculum is also geared for use by non-specialists.

### 10.8 Appreciative Inquiry

UNICEF initiated a whole-site appreciative inquiry approach in Bangladesh, India, Pakistan, Bhutan, and Nepal. A review of the early results was conducted at the end of

2001. The review indicated a growing commitment of leadership, enthusiasm for and commitment to achieving 24-hour quality EmOC in their hospitals; a belief in their capacity to bring about meaningful change; open dialogue for women's right to life; and greater confidence in the power of the appreciative approach to generate action. The process for building in-country capacity for facilitation was also initiated.

## **11. DISTRIBUTING INFORMATION**

### 11.1 AMDD Website

The AMDD website <http://www.amdd.hs.columbia.edu> currently contains information about the AMDD Program, our strategy, partners and projects, core AMDD staff, key publications, as well as materials from and about the Project Workshops held in Bangkok and Marrakech. New material and features will be added regularly.

### 11.2 AMDD Newsletter

Another method for sharing information is our newsletter entitled *AMDD Notebook*. While the main audience is the AMDD country teams around the world, it also is of interest to the broader international health and development communities. Through *Notebook*, we aim to:

- support information-sharing among country teams,
- provide useful information on projects and publications,
- recognize innovation and commitment, and
- demonstrate the AMDD approach, strategies, and techniques.

The *AMDD Notebook* is produced three times a year. In order to better serve the project teams it is translated into Spanish and French. All languages are available on our website. Copies of the most recent issues are included as Appendix 10.

### 11.3 International Journal of Gynecology and Obstetrics (IJGO)

As mentioned previously, we have arranged with FIGO for the International Journal of Gynecology and Obstetrics (IJGO) to publish a special section 3-4 times a year, amounting to a total of 100 pages. Judith Fortney, one of the foremost researchers in this field and a member of the AMDD technical team, edits this section. Articles are peer-reviewed and discuss initiatives in developing countries to improve the availability and quality of EmOC, whether in AMDD-supported programs or elsewhere. The first issue was published in August 2001, and there have been three subsequent issues. (Please refer to Appendix 11 for our most recent issues.)

To address the problem of the expense of subscriptions to the IJGO, we devised two solutions. First, we purchased 150 4-year subscriptions, most of which go to our projects overseas. Second, we agreed with IJGO that this section of the journal will go on the internet, full text, as soon as it is published.

### 11.4 AMDD Publications & Presentations

AMDD core staff are often called upon to share information about the Program and its approach through lectures, conference addresses, and presentations around the world. Over the course of the past year, AMDD staff members have done sixteen

presentations. (Please refer to Appendix 3.) Many more presentations were delivered by project and technical partners.

### 11.5 AMDD Illustrated Report

AMDD asked consultants Nadia Hijab and Czikus Carriere to travel to Bangladesh, Morocco, Mozambique, and Peru to conduct Documentation and Communication workshops with project staff and to collect pertinent stories and photos for an illustrated report. We intend to share this report on our Program with colleagues and organizations in our field with an aim to broaden our scope of influence and highlight our unique approach to reducing maternal mortality. This publication will be published in the fall of 2002.

### 11.6 Human Rights

AMDD's advisor on human rights, Lynn Freedman, previously developed a presentation entitled "Using Human Rights in the AMDD Program: From Analysis to Strategy" which resonated with many of our country projects. The presentation became the basis for her article published in the *International Journal of Gynecology & Obstetrics* later in the year (special AMDD section). This article and the notion of maternal mortality as a human rights issue were picked up by the President of the International Federation of Gynecology and Obstetrics (FIGO) and featured in his cover article for the Fall 2001 FIGO newsletter, which reaches OB/GYNs around the world.

### 11.7 (Almost) Everything You Want to Know about Using the UN Process Indicators of Emergency Obstetric Services: Questions and Answers

This informative document, written by Anne Paxton, Deborah Maine, and Nadia Hijab, addresses questions about the Process Indicators. It was distributed at the AMDD annual workshop in draft form and a revised version will soon be made available on the website. The publication was translated into Spanish and will soon be translated into French.

## **12. CONCLUSION**

Implementing global health alliances are a challenge; one that is just beginning to be documented. We at AMDD are proud of the accomplishments that we have made in only three short years. The number of projects established and the impressive number of examples of leveraging of resources and diffusion of knowledge are creating a momentum that will carry forth the goal of the AMDD program. Our goal: to dramatically reduce maternal deaths among women in developing countries by improving access to life-saving treatment for millions of women with serious obstetric complications.

To fully accomplish this goal, however, as intimated in the original proposal, will take more than the five years. Working through partners in order to create a forum of advocacy and awareness takes time. Data collection and cost analysis can only be carried out once projects have begun for a reasonable period of time. Policy change at the national and regional level comes through modeling small changes and providing hard evidence through clinical data and operational research, and perseverance. The second phase will capitalize on project facilitation through partners, and continue to

develop the forum focused on saving women's lives through access to emergency services.

### **13. FINANCIAL REPORT**

As the following analysis of the expenditures to date shows, overall we are exactly on target: in the first three years of our five-year grant period, we have spent 60% of our funds (\$29.7 million). In terms of budget lines, however, the situation is a bit more complicated. As was the case last year, we are underspent in nearly all categories except subcontracts, in which we are ahead of projections (with 75% of the budget expended).

The over-arching reason that our expenditures diverge sharply from our projections is that we have invested even more heavily than expected in partnerships. Consequently, the vast majority of the funds spent to date have been on subgrants (81% of actual direct costs as compared to 65% of projected costs). Over the past three years, \$22.6 million has been spent on initiating projects in the field and an additional \$400,351 was spent on subcontracts with our technical partners.

In addition to increasing the proportion of funds spent on subgrants, our emphasis on partnership affects other budget lines as well. The amounts spent on salaries, supplies, travel, etc. are reduced, in part, because some of these expense are built into subgrants. In the forthcoming year, we plan to discuss with the Gates Foundation the reallocation of funds from other budget lines in order to augment the subcontract category.

Table A is an analysis of the expenditures in Year 3 as well as the cumulative amounts for the first three years of the grant (please see next page for Table A). In this table, we have adjusted the University's categories to reflect our activities. Table B is the University's official financial report.

**Table A.****Analysis of Expenditures (Years 1 - 3)**

Category	Budget	Expenditures		% Spent
	Years 1-5	Year 3	Years 1-3	Years 1-3
Salaries & Fringe Benefits	7,500,000	1,371,060	2,875,606	38%
Supplies	250,000	19,247	27,766	11%
Travel	3,500,000	1,003,937 <sup>a, b</sup>	1,705,657	49%
Consultants	4,000,000	122,609 <sup>c</sup>	172,677	4%
Communications	250,000	28,941	99,203	40%
General Services	750,000	425,112 <sup>d</sup>	496,114	66%
Subcontracts	31,000,000	8,135,576	23,097,959	75%
Tuition		27,028	53,517	
Equipment	750,000	18,843	73,995	10%
Total Direct Costs	48,000,000	11,152,353	28,602,494	60%
Indirect Costs	2,000,000	464,607	1,191,580	60%
Total	50,000,000	11,616,960	29,794,074	60%

<sup>a</sup> Includes \$46,006 per diem costs (from General Services)

<sup>b</sup> Includes \$255,779 hotel charges for the AMDD Workshop (from General Services)

<sup>c</sup> Includes \$53,609 professional service fees (from General Services)

<sup>d</sup> Adjusted according to notes a-c

### 13.1 Salary and fringe benefits:

We had budgeted \$7.5 million for salaries and fringe benefits. By the end of Year 3, a total of \$2,875,606 was spent on salaries and benefits, which represents 38% of the salary budget. During the past year, we increased the AMDD core staff somewhat to meet the demands for additional expertise in areas of monitoring & evaluations and program management.

### 13.2 Supplies:

The cumulative sum of \$27,766 represents 11% budgeted over the five-year period. AMDD plans to rebudget this category and put additional funds in the subcontract category.

### 13.3 Travel:

\$1,705,657 (or 49% budgeted for the five years) was spent on travel. This covered travel and per diem costs by AMDD core and overseas staff as they visited project sites to follow through on progress and provide technical assistance.

Also included in this category are the expenses (hotel charges as well as the travel costs and per diems for 200 participants) for the annual AMDD Project Workshops held in Bangkok and Marrakech.

### 13.4 Consultants:

\$172,677 (4% of the amount budgeted) was spent towards consultants. Many of our consultants have cost-reimbursement subcontracts and therefore appear in the subcontract category. This year, one obstetrician and one primary care physician with training in epidemiology joined in our efforts to provide clinical expertise to AMDD project sites in Sub-Saharan Africa. AMDD plans to rebudget this category and put additional funds in the subcontract category.

### 13.5 Communications:

We have spent \$99,203 or 40% budgeted over the five-year period. The bulk of these expenditures are for disseminating materials (newsletters, manuals, publications, etc.) to the field.

### 13.6 General Services:

The expenditures in this category (\$496,114 or 66% of the amount budgeted over five years) covered a broad range of activities.

Specifically in year 3:

- 63% of the General Services expenditures supported small projects. This included the collaboration with WHO on the French translation and production the MCPC manual; special workshops through FIGO, UNICEF and RPMM; the EmOC curriculum outline developed by JHPIEGO; the support of articles published in the JAMWA and IJGO relating to EmOC and additional technical assistance from FHI.
- 15% covered costs for the French and Spanish translations of AMDD materials (the AMDD newsletters, program orientation overview, handouts, etc.) and for simultaneous translation at the AMDD Project Workshop in Bangkok.

- 8% were printing costs. A number of publications (“Guidelines for Monitoring the Availability and Use of Obstetric Services”, “The Design and Evaluation of Maternal Mortality Programs”) in French & English, the AMDD newsletters (4,000 copies in French, Spanish & English), AMDD brochures, etc. were printed for dissemination to the field.
- 7% supported the annual AMDD technical meeting and visits by consultants, project and technical partners to the AMDD office in NYC, etc.
- 7% supported miscellaneous expenses (phone, internet, photocopying, small item materials, etc.) incurred by AMDD core and overseas staff as they visited project sites. Also included in this category are costs for overseas health insurance, bank charges, misc. services, etc.

#### 13.7 Subcontracts:

Over the course of three years, we spent \$23,097,959 (or 75% of the amount budgeted for 5 years) on subcontracts with our project and technical partners as well as the Leadership Grant program. Of this, \$22,697,608 was for our project partners (UNICEF, UNFPA, CARE, Save the children, RHR, RPM) and \$400,351 for our technical partners. (FHI, JSI, Engender Health, IIMA).

#### 13.8 Tuition:

We have continued to support our graduate research assistants (GRAs). A total of \$53,517 was spent on nine GRA’s over the three years.

#### 13.9 Equipment:

We have spent \$73,995 (or 10% of the amount budgeted for five years). This past year we up-graded our computer systems and purchased additional laptops for use in the field.

#### 13.10 Interest Earned:

\$1,186,135 was earned over the three-year period. These funds will support many additional project activities, as well as the Leadership Grant program.

#### 13.11 Direct Costs:

The total expenditures for Years 1-3 are \$28,602,494.