

**Safe Motherhood at the District Level:
The Mufindi Experience**

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This report reflects the findings of a review of the Safe Motherhood Programme in Mufindi District, Iringa Region, United Republic of Tanzania. The review was conducted from January to March 1999 by the Reproductive and Child Health Unit (RCHU) of the Ministry of Health and Family Care International (FCI), in close collaboration with UNICEF/Tanzania. UNICEF provided funding for the review. The main objective of the review was to document the implementation of a safe motherhood pilot project in Mufindi district, which can serve as an example to other districts in Tanzania and to other countries in the region.

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Executive Summary

Maternal mortality is a particularly urgent problem in the United Republic of Tanzania. An estimated one out of every 18 Tanzanian women dies from complications related to pregnancy and childbirth X a figure comparable to other countries in sub-Saharan Africa, which are among the highest in the world. Following the launch of the Safe Motherhood Initiative in 1987, Tanzania was one of the first countries to adopt a National Safe Motherhood Strategy, striving to cut maternal mortality in half by the year 2001.

In line with the Government's policy on maternal and child health, UNICEF has been supporting a safe motherhood pilot project in Mufindi District, Iringa Region, since 1991. In the context of the 1997-2001 UNICEF/GOT Country Programme, UNICEF commissioned a consultant to review the pilot project. The main objective of the review was to document the Mufindi experience by assessing the current status of the safe motherhood programme at the community level and in health facilities. The findings of the review will be used both in Mufindi and in other districts to help prioritize programme interventions and develop practical and effective safe motherhood strategies.

When designing the pilot project, UNICEF and the Ministry of Health decided upon a two-pronged strategy of mobilising the community and upgrading health services. The project included the following activities: community education and mobilisation; training community-based health workers; introducing a community-based pregnancy monitoring system; training facility-based health personnel; providing vehicles to strengthen the referral system; providing supplies and equipment to health facilities in the district; and monitoring and supervising facility-based and community-based health workers.

Key lessons learned from the Mufindi experience include:

- < Continuous efforts to create awareness is essential for ensuring that safe motherhood remains a priority for all stakeholders and participants involved.
- < Safe motherhood is a multi-sectoral issue, and its goals can best be achieved through multi-sectoral collaboration.
- < To be successful, safe motherhood programs and services must be developed according to community needs and with community involvement.
- < Trained traditional birth attendants (TBAs) and village health workers (VHWs) perform most effectively when they receive routine supervision and regular refresher courses.
- < A community-based pregnancy monitoring system can provide an excellent information base for monitoring the impact of a programme. However, constant support, supervision and motivation of village health workers is critical for maintaining the system.
- < A major pathway to decreasing maternal mortality is the availability of functioning communication and transportation systems.
- < To ensure high quality maternity care, continuous attention needs to be given to the training of health personnel, particularly in the areas of midwifery skills, family planning and record-keeping.
- < Supervision is the single most important factor in people's work motivation at all levels, particularly when conditions of work are challenging.

In addition, experience from safe motherhood programmes around the world suggests that:

- < Every pregnant woman can develop life-threatening complications. Maternal health programmes must aim to assure that women and their families recognise signs of complications during pregnancy and delivery, and that all women have access to essential obstetric care.
- < The single most effective way to reduce maternal mortality is to ensure that a trained health professional with skills to conduct a normal delivery safely and to manage complications is present during childbirth.
- < Unwanted pregnancies and unsafe abortion can be reduced significantly by ensuring access to family planning services.
- < Abortion-related maternal mortality and morbidity can be reduced through the provision of postabortion care, including treatment for abortion complications, postabortion family planning counselling and services, and links to other reproductive health services.
- < Encouraging and empowering women to make fully informed choices enables them to understand and articulate their reproductive health needs, as well as to seek services.

1. Introduction

1.1 *The Global Safe Motherhood Initiative*

In 1987, when the Safe Motherhood Initiative (SMI) was launched in Nairobi, Kenya, maternal mortality was a serious and seriously neglected problem. The Initiative has made great progress in the last decade toward its twin goals of raising awareness about the issues and stimulating national action to improve maternal health. Partners from more than 100 countries have begun assessing needs, identifying priorities and taking action on maternal health. They have implemented and evaluated pilot projects, and conducted operations research on strategies to reduce maternal mortality/morbidity in a variety of settings around the world.

As the Safe Motherhood Initiative marks the end of its first decade, the most effective and cost-effective strategies for safe motherhood X including appropriate management of pregnancy and delivery at first referral levels; life-saving essential obstetric care when complications arise; and the prevention and management of unsafe abortion X have been systematically identified and evaluated in a variety of settings. These *Abest* strategies are being disseminated to decision-makers around the world to aid them with their national efforts. Technical assistance and multilateral agencies, including UNICEF and UNFPA, as well as other intergovernmental agencies and NGOs, are now sharing these lessons with their partners within countries. This knowledge is essential given the scarcity of resources available for health in most countries. It should be particularly useful in Tanzania, one of the first countries to adopt the Safe Motherhood Initiative after its launch in 1987.

1.2 *Safe Motherhood in Tanzania*

Maternal mortality is an urgent problem in the United Republic of Tanzania. An estimated one out of every 18 Tanzanian women dies from complications related to pregnancy and childbirth X a figure comparable to other countries in sub-Saharan Africa, which are among the highest in the world (UNICEF, 1996). The 1996 Demographic and Health Survey (DHS) has estimated the maternal mortality ratio to be 529 per 100,000 live births X 8,700 maternal deaths per annum. There is a marked regional variation, however, and these figures are almost certainly underestimates, as many maternal deaths occur outside health facilities and many women die without others even knowing about their pregnancy (especially in the case of unsafe abortion). Community studies show an under reporting of maternal deaths of up to 60% (Ministry of Health, 1997).

The majority of maternal mortality studies worldwide indicate that approximately 80% of deaths are due to direct obstetric causes, and 20% are due to indirect causes. Until recently, Tanzania was no exception to this pattern; most maternal deaths were due to haemorrhage, abortion complications, sepsis, ruptured uterus, and hypertensive disorders of pregnancy. Recent data from Tanzania, however, shows that a much higher proportion of maternal deaths (40-50%) are attributable to indirect causes, reflecting a dramatic increase in deaths from anaemia, malaria, and HIV/AIDS (Kwast and Vickery, 1998).

For each maternal death there are a far larger number of women who suffer debilitating pregnancy-related health problems, such as anaemia, breast abscesses, reproductive tract infections, infertility, and vesicovaginal fistulas. UNICEF and WHO (1996) estimate that globally, for every woman who dies, approximately 30 more incur injuries, infections and disabilities which are usually untreated and unmentioned, and which are often humiliating and painful, debilitating and lifelong. It can be estimated, therefore, that in addition to 8,700 maternal deaths in Tanzania each year, 261,000 women are left with chronic conditions that will have a profound effect on their lives.

Although few specifics are known about the state of women's overall reproductive health in Tanzania, statistics collected by the Ministry of Health and through the Demographic and Health Survey (DHS) offer some indication of the magnitude of women's health problems. Early marriage and childbearing are the norm; the mean age at marriage for women is 18.2 years, and 60% of women are pregnant or have given birth by age 19. According to the data from the Tanzania DHS, 16% of all women in Tanzania are currently using a contraceptive method and 12% of these are using modern methods. Eighteen percent of women have undergone female genital mutilation. There is a marked regional variance in the prevalence of FGM, with highest rates in Arusha (81%), Dodoma (68%) and Mara (44%) regions (TDHS, 1996).

The Tanzania DHS (1996) revealed that 97% of women receive antenatal care at least once during their pregnancy. Sixty percent of women start antenatal care before 6 months gestation, 34% between 6 and 7 months and only 1.7% at 8 months or later. Seventy percent of women come for more than 4 visits and 23% for 2-3 visits. Overall, 47% of births are delivered in a health facility, while 53% are home deliveries. Women are asked to come for postpartum care six weeks after delivery, which coincides with the first immunisation of the baby. However, women rarely receive a postpartum check-up, and no statistics are available from the DHS about postpartum attendance.

The National AIDS Control Programme (1998) estimates the 1996 national HIV prevalence at 8.2%, ranging from 2.3% in Dodoma to 25% in Dar es Salaam. Reported HIV prevalence from antenatal clinic sentinel site testing throughout Tanzania in 1997 varied between 7.3% and 44.4% in rural areas and between 22% and 36% in urban populations (MOH, 1998). HIV/AIDS is now the leading cause of death in women aged 15-59 in three districts in Tanzania (Dar es Salaam, Hai and Morogoro Rural) (MOH, 1997).

An important determinant of reproductive health is gender inequity. From earliest age, girls in Tanzania do less well than boys. Though enrolment rates at primary schools are approximately equivalent for boys and girls, enrolment rates for girls progressively fall until they are less than half by age 21-22. Women account for only 17% of university students (World Bank, 1993).

Women's low status is also reflected in their lack of control over decision-making, even in matters relating to their own health. In a study of avoidable factors that led to maternal deaths in Dar es Salaam, it was found that when complications arose during labour, the decision regarding where the woman was treated was taken by the woman's mother in 30% of the cases and by the husband in 29% of the cases. Only in 5% of the cases did the deceased woman make her own decision (Urassa et al, 1997).

2. Documenting a Pilot Project

In line with the Government's policy on maternal and child health, UNICEF has been supporting a safe motherhood pilot project in Mufindi District, Iringa Region, since 1991. In the context of the 1997-2001 UNICEF/GOT Country Programme, UNICEF commissioned a consultant to review the pilot project.

2.1 Objectives

The main objective of the review was to document the Mufindi experience by assessing the current status of the safe motherhood programme at the community level and in health facilities, including the role and the involvement of the village leaders, traditional birth attendants (TBAs) and village health workers (VHWs). The findings of the review will be used both in Mufindi and in other districts to help prioritize programme interventions and develop practical and effective district-level safe motherhood strategies.

2.2 Implementing partners

The Ministry of Health

The key department of the Ministry of Health responsible for planning and coordination of the national reproductive health programme, including safe motherhood, is the Reproductive and Child Health (RCH) Unit. Members of the regional health management team (RHMT) of Iringa and the district health management team (DHMT) in Mufindi were responsible for implementing the safe motherhood programme and participated in the planning and data collection with the national review team.

UNICEF/Tanzania

UNICEF/Tanzania has been supporting primary health care initiatives, including safe motherhood, since it formalized its cooperation with Tanzania in 1961. The health component of the 1997-2001 Country Programme assists government health programmes aimed at reducing maternal and child mortality, with an emphasis on improving the provision and utilisation of antenatal, delivery and postpartum care.

2.3 Methodology

To document the Mufindi experience, the national team collected information through a review of reports on both the safe motherhood pilot project and health management information collected at the district level, as well as interviews (structured and unstructured) with the district health management team, other district-level officials and staff at the health facilities visited. This review was not intended to evaluate the Mufindi project; rather the emphasis was on documenting the process and the activities undertaken. Selected results will be included in this report to illustrate the effect of the project on maternal health indicators.

The review team sent the DHMT a questionnaire before the field visit and requested it to collect information before the team's arrival. During the two field visits in January and March 1999, the review team visited Mafinga District Hospital, Lugoda Hospital at the Brook Bond Estate, three government health centres and three dispensaries. It conducted focus group discussions in four villages

Lessons Learned

While certain elements of the Mufindi project are related to specific circumstances in the district, most findings of the review are applicable to other districts in Tanzania. The lessons learned outlined in this chapter are therefore deemed to be relevant to all districts in Tanzania. The aim of documenting the Mufindi experience was to provide an example for other districts, to help them choose the most effective strategies and interventions for lowering maternal mortality and morbidity.

While the first section will focus on lessons learned in Mufindi, the second section will highlight international lessons learned that are relevant for implementing safe motherhood programmes at the district level in Tanzania. These recommendations are based on safe motherhood programmes implemented around the world since 1987 --- the year in which the global Safe Motherhood Initiative was launched. The essential services identified and the important lessons learned by all safe motherhood partner organisations are described in publications from the Safe Motherhood Inter-Agency Group, Family Care International and other international organisations working in reproductive health.

While the information on Mufindi provides guidance on choosing interventions in other districts, specific district-level planning requires conducting comprehensive safe motherhood baseline surveys. Both UNICEF and UNFPA have recently supported the Ministry of Health in conducting these surveys, and at present at least 68 of Tanzania's 110 districts have been surveyed. The District Health Management Teams in these districts, with technical support from the regional level and the Reproductive and Child Health Unit, should take the lead in developing and implementing plans of action to improve district-level maternity services. Districts that have not yet conducted a district-level baseline survey are encouraged to do so, again with the support of the Reproductive and Child Health Unit.

6.1 Lessons Learned from the Mufindi Pilot Project

The following lessons learned are based on the recommendations from the Mufindi DHMT and other district-level staff. They focus on what the district team identified as the most striking lessons learned, supplemented by observations from the review team. Strategies aimed at improving maternal health should stress the importance of:

- ***Sustained commitment.*** Sustained commitment is the most crucial element for the success of any programme, and the project implementors; district, ward and village leaders; and facility-based service providers play a key role in sustaining commitment to the project at all levels and particularly among volunteers, such as the village health workers. Involving district and other community leaders from the onset was critical for securing their initial commitment and support of the project. However, they need reminders on a regular basis of the importance of the project and their critical role in keeping attention on safe motherhood throughout the district.

Continuous efforts to create awareness. The 1999 review of the Mufindi Safe Motherhood Project found that additional and ongoing efforts are needed to create awareness about safe motherhood and to keep the issue at the forefront of communities' priorities. Continuous awareness creation requires using different messages and different ways to present these messages to keep leaders and community members interested. The messages have to correspond with changing needs and take into account the knowledge people already have.

Using a multi-sectoral approach. Because maternal mortality and morbidity are caused by a range of factors — from women's lack of education, poor socio-economic status and heavy workload to their poor overall health status — safe motherhood can only be achieved through a multi-sectoral approach. Moreover, the involvement of leaders from various sectors can be a key factor in broadening general awareness about safe motherhood and sustaining the commitment of actors from outside the health sector.

Involving the community. With support from the district, communities were able to play a key role in identifying urgent problems and in defining and implementing appropriate action plans. Focus group discussions in communities that were involved in the project from the start clearly revealed that they felt ownership over the project and responsibility for ensuring that no woman died from complications during pregnancy and delivery.

Improving referral of obstetric emergencies. Equipping the hospital and the health centres with vehicles played an important role in the referral system and making services accessible to women when complications arose. Using the Suzuki was found to be at least five times cheaper than public transport. In addition, having the Suzukis stationed at health centres helped communities avoid long delays in finding transport for the referral of emergency cases.

Creating linkages between formal and informal health workers. Community-based health workers, such as the village health workers and traditional birth attendants, can benefit greatly from supportive linkages and relationships with facility-based health staff. Experience from Mufindi clearly showed that when there is no longer a regular contact between health workers and community-based volunteers, motivation and performance declined.

Supportive supervision. The Mufindi experience showed that supportive and regular supervision is critical — not only for the community-level health workers but for all levels of health personnel and management, including the DHMT. Early on in the project, the DHMT received regular support and supervision from the national and regional levels, but this support has declined in recent years. In addition, recent fuel, transportation and funding shortages have resulted in fewer supervisory visits, which seriously affects the motivation of the health workers.

6.2 International Lessons Learned

Since the global Safe Motherhood Initiative was launched in 1987, a range of strategies have been tested and evaluated, which offer salient lessons for all districts in Tanzania and for Mufindi District in particular. These include:

A. *Re-examine the Emphasis on Risk Screening*

Until recently, many countries, including Tanzania, based their antenatal care on screening women with risk factors. However, these parameters have been found to only correctly identify between 30 to 40 percent of all pregnant women who develop an obstetric complication (FCI and the Safe Motherhood TAG, 1998). Therefore, all pregnant women should be counselled that they are all at risk for developing a complication. Moreover, it is recommended that district level health education efforts be focussed on educating women, men and family members about danger signs during pregnancy and delivery, and the importance of promptly seeking maternal health services if complications arise.

Improving access to emergency obstetric care is critical for reducing maternal mortality and morbidity, and requires efforts to address a range of barriers, including poor quality of care, distance, cost, constraints on women's time, poverty and women's lack of decision-making power. The Mutindi project sought to address several of these factors, including the lack of and high cost of emergency transport, women's workload and women's lack of income. However, additional attention should be given to improving communication between facilities using appropriate and locally available technologies such as radios. It is advisable to further explore the possibilities of using existing radio systems, by strengthening the awareness creation of the organisations that have radio systems.

Three of the four Suzuki's provided to the health centres in Mutindi are currently out of order. Alternative strategies should be developed to ensure swift referral in case of emergencies. Key to improving the community's response is for village leaders to have a plan for emergencies. If different transportation options have been identified before the actual emergency arises, and all people involved know what to do, a quicker emergency response can be provided. Village governments should also be encouraged to set up emergency funds or to provide loans to families in need of funds for emergency transportation.

In addition to these community-level interventions, health facilities — the district hospital in particular — should be encouraged to provide feedback to the lower level facilities and communities on the referred cases they receive. This information will allow the health facilities and communities to further streamline their referral procedures and provide follow-up care as needed.

2. *Ensure Skilled Attendance at Delivery*

Skilled birth attendants are defined by the World Health Organisation as trained midwives, nurse/midwives or doctors who have completed a set course of study and are registered or legally licensed to practice. Traditional birth attendants (TBAs), including those who have been trained, are not defined by the World Health Organisation as skilled attendants. Most trained TBAs are not trained to deal with complications. Studies in Africa and Asia have found that training TBAs *in the absence of skilled backup support* did not decrease women's risks of dying in childbirth.

Given these findings, it is imperative to work toward increasing the proportion of births that are attended by skilled attendants while ensuring that TBAs are linked with formal health facilities and supervised on a regular basis. Experience in countries, such as Malaysia and Sri Lanka, has shown

that the shift from the utilisation of TBAs to midwives can take about 20 years to complete (Ross, 1998). In countries, such as Tanzania where a large percentage of births are attended by TBAs, it is generally agreed that it is beneficial in the short-term to:

- train TBAs to avoid harmful practices during delivery, recognise danger signs and refer complicated cases to higher-level care;
- establish or strengthen linkages between TBAs and the formal health care system to encourage adequate supervision and monitoring; and
- ensure that health centres and hospitals will accept referrals from TBAs.

Experience from Mufindi showed that while TBAs have been trained, linkages with the health facilities have not been maintained and supervision has been neglected. It is recommended that TBAs be included in the chain of supervision from the district level through the facilities to the community. Renewed efforts should be undertaken to encourage TBAs to come to the dispensaries to observe and assist MCH Aides in performing deliveries as a means of on the job training and skills maintenance. The supervision of TBAs should also be used as a means of regular refresher training. In tandem with these efforts, long-term investments must be made to train sufficient numbers of skilled attendants — primarily midwives — who can appropriately manage obstetric complications.

3. Improve the Quality of Maternal Health Care

Improving the quality of services does not necessitate the construction of sophisticated health facilities. Rather it can be achieved by improving the technical competence and interpersonal skills of providers; ensuring the availability of basic supplies and equipment; improving the physical facilities and infrastructure, and strengthening referral systems and linkages throughout the health system.

The review of the Mufindi Safe Motherhood Pilot Project suggested that while important steps had been taken to improve the quality of maternal health services, several health facilities still lacked basic equipment for conducting deliveries and providing essential obstetric care. In addition, a number of facilities were understaffed and/or were staffed by health workers who were underqualified. More than one quarter of the dispensaries in the district did not have any staff who had received any refresher training in midwifery and family planning during the past five years.

It is imperative for the Mufindi DHMT to work towards fully equipping the facilities and training at least one staff member per facility in midwifery skills and family planning. It is recommended that priority be given to the training of the staff of those facilities that have not benefited from training in the past few years. The two-pronged approach which forms the basis of the Mufindi project — targeting the community and the health facilities — should continue to ensure that women visiting health facilities receive quality maternal health services.

D. Improve Access to Family Planning

Improving access to family planning is an important means to reducing unwanted pregnancies and unsafe abortion. It is extremely difficult to assess the magnitude of unsafe abortion in Tanzania, due to the illegal nature of induced abortion. The classification of abortion deaths under sepsis or haemorrhage makes the serious problem of maternal deaths from unsafe abortion invisible. Making it more visible would focus attention on the unmet need for family planning and lead to increased commitment to family planning education and service delivery.

Because people's needs for contraception vary from time to time and at different stages of the life-span, it is important that family planning services be coordinated between the health centre and the community. Short-term contraceptive needs for birth spacing can usually best be met through non-clinical methods that can be supplied through community-based distributors (CBD) or stores. Experiences from Mufindi showed that the presence of CBD agents made a big difference in the family planning acceptance rate. However, CBD agents, as do all community-based health workers need supervision and support to maintain their performance and motivation.

Focus group discussions in Mufindi revealed many misconceptions about family planning methods and their effect on fertility. A priority role for CBD agents and health workers is to provide information to correct these myths and advice about contraceptive options, their side effects and complications, and emphasize the importance of barrier methods in the prevention of sexually transmitted diseases.

E. Introduce Postabortion Care

In recent years there is increasing international agreement that regardless of legal, cultural or religious restrictions on abortion, high-quality services for treating and managing complications of unsafe and spontaneous abortion should be accessible to all women. The term "postabortion care" refers to a specific combination of integrated services that can significantly reduce abortion-related maternal morbidity and mortality and help break the cycle of unwanted pregnancy and unsafe abortion. These services include: emergency treatment of abortion complications; postabortion family planning counselling and services; and links to comprehensive reproductive health services.

One of the most frequent complications of unsafe abortion is incomplete abortion — the retention of products of conception in the uterus. Extensive research has shown that early, incomplete abortion can be safely and effectively treated at lower levels of the health system using manual vacuum aspiration (MVA). Unlike dilatation and curettage (D&C), which is available in most district and regional hospitals in Tanzania, MVA can be safely performed without general anaesthesia by non-physician health workers and MVA can therefore play a critical role in increasing the accessibility of emergency abortion care and ensuring that treatment of abortion complications is within the reach of women who need it. However, MVA is currently only provided in a limited number of facilities in three regions.

Efforts should be made to train facility-based health workers in Mufindi to manage incomplete abortion with MVA, as well as to provide postabortion family planning counselling and services.

Because ovulation can occur within two weeks following pregnancy termination, women who have had an abortion are at immediate risk of a subsequent pregnancy, and the provision of contraceptive counselling and services can play a key role in breaking the cycle of repeat unwanted pregnancy and unsafe abortion.

F. Monitor Progress

In order to develop, implement and evaluate policy and programme efforts, understanding why women are dying from pregnancy and childbirth is more important than establishing the level of maternal mortality. A variety of assessment tools have been formulated to help in the formulation, monitoring and evaluation of national strategies to improve maternal health. The indicators in these tools can identify weaknesses and suggest programmatic priorities so that maternal deaths can be better prevented in the future.

The Mufindi project illuminated the need to establish and continuously update a comprehensive picture of the maternal health situation at the district level. Although a health management information system is in place, recording-keeping is not consistent, and data needed to assess district progress toward improving maternal health are not systematically collected and analysed.

In addition, as mentioned above, the compliance with the community-based pregnancy monitoring system needs to be re-emphasised so the district can calculate process indicators for safe motherhood, including essential obstetric care. With technical assistance from the RCH Unit, Mufindi and other districts are encouraged to start collecting additional information to monitor progress in safe motherhood in accordance with the indicators suggested in Annex 3.

In addition to creating and maintaining management information and record-keeping systems, opportunities for operations research and small-scale pilot projects should be explored. This may include testing new service delivery systems (for example, integrating screening for sexually transmitted diseases as part of routine MCH services), innovative community IEC campaigns, emergency transport and referral systems, and other safe motherhood interventions, as appropriate.

G. Empower Women

Women in Tanzania, as in other countries in sub-Saharan Africa, face multiple barriers to attaining good health. These include:

1. Limited information and options: As a result, many women do not recognise danger signs during pregnancy and do not know when and where to seek medical services.
2. Unequal power relations that constrain women's decision-making ability, physical mobility and access to material resources: In many settings, the decision to deliver at home is taken by the husband, or another family member. Women's lack of economic resources constrains their ability to make independent health-related choices, and to gain access to health and other services.
3. Poor quality of interaction with health care providers: Women are often reluctant to use health services because they perceive health care providers to be rude, patronizing and insensitive to the context in which they live.

Although the awareness creation and health education activities in Mufindi included key messages on women's disadvantaged position in society and her heavy workload, focus group discussions revealed that many men have not yet changed their behaviour towards helping their wives, particularly during pregnancy. Renewed attention should be given to women's socio-economic position in awareness creation activities at all levels. This is an important area for multi-sectoral collaboration, as empowering women in the area of health requires more than simply health-related interventions; it requires social, economic and cultural conditions in which women can overcome the barriers to safe motherhood.

Traditional Birth Attendants

From the start, the Safe Motherhood Programme in Mufindi placed a strong emphasis on TBA training. In 1992, it developed a TBA training manual, which relies upon participatory training techniques and uses the experience of the TBAs as the basis for the training. The Ministry of Health adopted the manual, and it became the standard document for TBA training in Tanzania. In Mufindi, 369 TBAs were trained between 1992 and 1998. Although TBA training initially was conducted by regional and district-level staff, in recent years dispensary staff have taken over this responsibility.

The TBAs in Mufindi are trained as close to their homes as possible. As a result, they do not receive a per diem during the training, other than a small amount (500 TSH/day) to cover the costs of transportation to the training venue (dispensary). The training is designed to be conducted on a part-time basis, so that the one-month training course extends over a period of two months.

Apart from the basic TBA training, the Mufindi Project also carried out an orientation on safe motherhood for TBAs, VHWs, and traditional healers. The orientation lasted three days and aimed to introduce the concept of safe motherhood and to explore the role of the community-based health volunteers in improving maternal health. The orientation did not follow a standard curriculum; rather it was based on the practical experiences of the participants and leaned heavily on participatory approaches to encourage their involvement. Not all TBAs who participated in the safe motherhood orientation sessions had undergone the basic Ministry of Health training. Therefore, untrained TBAs who participated in the safe motherhood orientation were given priority in subsequent training.

The Mufindi Project also sought to strengthen the link between the TBAs and the formal health system. Initially, trained TBAs were supervised by health centre and dispensary staff on a regular basis during the monthly village health days. The TBAs remained in close contact with the VHWs and reported on the pregnant women they had monitored and the deliveries they had conducted. They also visited the nearest dispensary on a regular basis and provided assistance to the dispensary staff. In recent years, however, with the decline in overall supervision rates in the district due to fuel shortages and lack of transportation and in the absence of regularly-held village health days, the TBAs are rarely supervised. During interviews with the review team in 1999, the TBAs expressed the hope that supervision would become more regular, and additional training would be conducted. They also expressed the need to train younger TBAs to take over their responsibilities.

The focus group discussions during the 1999 review suggested that their training has empowered TBAs and improved their performance. However, because no one has supervised TBAs on a regular basis, nor observed their current practices, this report cannot draw any conclusions about TBA performance in Mufindi. Moreover, as noted above, national and international experience has shown that continuous supervision and training of TBAs is crucial for maintaining skills and improving performance. Currently, TBAs in Mufindi are rarely supervised and generally do not receive any refresher training.

Data indicate that trained TBAs have been conducting an increasing number of deliveries in Mufindi in recent years, from 689 in 1992 to 3,248 in 1998. However, much of this apparent increase may be due

to better record-keeping systems and population growth, rather than a higher percentage of TBA supervised births.

3. Community-Based Pregnancy Monitoring

The community-based pregnancy monitoring system has been one of the crucial elements of Mufindi's Safe Motherhood Programme. As a result, Mufindi is one of the few districts in Tanzania that has relatively complete and reliable information about the number of pregnancies and deliveries in the community. This information provides critical data for calculating various process indicators and monitoring trends over the years.

The VHWs are the key actors in the pregnancy monitoring system. They collect information from pregnant women and complete a form for each (see Annex 2). The data collected include information about the woman and her family, and, more specifically, about the current pregnancy and identified risk factors. VHWs and TBAs refer women with risk factors to the health facilities. If a woman or her family can not be convinced about the need to deliver in a facility, the VHW will alert the village government leaders, who

will then try to convince them. After a home delivery, the TBA will report the birth to the VHW who will register basic information (such as sex and birth weight) on the pregnancy monitoring form. Every three months, each VHW summarizes the collected information in a quarterly report, which is sent to the district for record-keeping and analysis.

It became evident during the review that the pregnancy monitoring system itself needs constant monitoring and attention. At the start of the project, the VHWs were continually reminded about the importance of completing the monitoring forms and were asked to submit their reports during the village health days. However, because of the now sporadic nature of village health days and because VHWs are rarely supervised, many now lack motivation to comply. As a result, compliance with the pregnancy monitoring reports has declined in recent years. For example, during the period 1992-1995, between 70% and 80% of villages submitted their pregnancy monitoring reports on a quarterly basis. During the last quarter of 1998, however, only 19% of villages submitted their reports. Because the pregnancy monitoring system forms the basis of all data collection in the district, it is crucial that renewed attention be given to the issue of compliance.

4.2 Health Sector Interventions

Health sector interventions in the Mufindi project included: (1) training of health workers; (2) upgrading and assuring availability of facilities and equipment; and (3) improving the referral system. These activities were implemented in conjunction with the community-based activities so that the facilities could respond to the changing needs of the population they serve. For example, because TBA and VHWs increased emphasis on risk screening led to higher numbers of women referred to the health facilities for delivery, it was imperative that the facilities be prepared to receive them and to provide high quality services. As outlined below, these areas of interventions X training and supervision of health workers, upgrading of facilities, and improving the referral system X were all aimed at enhancing the accessibility, availability and quality of maternal health services for women in Mufindi.

The following sections describe each type of intervention and highlight problems identified with each in the review process.

A. Training and Supervision of Health Workers

An essential aspect of providing high quality maternal health services is ensuring that facilities are adequately staffed with well-trained and motivated health personnel. The DHMT members and other district officials interviewed during the 1999 review reported that the staffing situation of the health facilities is generally acceptable. However, at several facilities, those in-charge cited under staffing or underqualified staff as problems. Moreover, in assessing the level of training of available staff X particularly in essential skills, such as midwifery, family planning, and communication/counselling X the review team found some deficiencies. Eleven of the 42 dispensaries did not have any staff who had received refresher training in midwifery and family planning during the past five years. Since the Ministry of Health=s policy aims at training at least one staff member per facility, conducting training at these dispensaries should be prioritized in the coming years.

In the context of the Mufindi Project, two safe motherhood training manuals were developed for health workers, one for the health centres and dispensaries and the other for the district hospital. The training courses in which the manuals were used lasted seven days and focussed on both updating health workers on the Safe Motherhood Initiative and introducing the partograph. Topics addressed in the manuals include maternal mortality in Tanzania, maternal nutrition, high risk pregnancies, intrapartum care and the use of the partograph, obstetric emergencies, neonatal care and breast feeding, postpartum care, family planning, aseptic techniques, data collection and supervision. Although these manuals were developed for the Mufindi project, they are being used nation-wide. Since 1992, a total of 86 health workers from health centres and dispensaries and 45 hospital-based health personnel in Mufindi have been trained using these training manuals.

Of a total of 206 health staff in government health facilities in Mufindi, 71 (34%) have been trained in midwifery skills, 25 (12%) in family planning and 57 (28%) in interpersonal communication/counselling, using the regular Ministry of Health curriculum. Participation of Mufindi health workers was funded under the UNICEF-supported programme. About half of the health centres and dispensaries in the district have one staff member trained in integrated reproductive health.

In the early stages of the Mufindi Project, organizers placed considerable emphasis on regular supervision. In addition to quarterly visits to the health facilities, quarterly meetings were held at the village, ward and district levels to discuss progress and resolve problems, if any. In recent years, however, overall supervision rates have declined. There is now an urgent need to redress this decline in supervision, including supervision of TBAs and VHWs, at all levels. Staff at all health facilities visited by the review team expressed the desire for more frequent supervision and opportunities for on-

the-job training. In addition, they stressed the importance of receiving feedback on the cases they refer to higher levels of care, as this information will allow them to improve their performance, streamline their referral procedures and provide follow-up care as needed.

Due to shortages in both fuel and funds for supervision, there is a need for creative planning and integration of different activities. For example, it would be useful to combine supervision with delivering supplies and to initiate joint supervision with other sectors, like education and community development. The matrix of supervision, which recently has been introduced throughout Tanzania and establishes fixed routes for delivery of supplies and supervision of facilities, should be used in flexible way to allow health staff to follow-up on cases of maternal complications or deaths.

B. Upgrading and Assuring the Availability of Facilities and Equipment

Apart from training and supervision, another strategy the DHMT employed for improving the quality of maternal health care in Mufindi was to increase the availability of equipment and supplies. Health facilities at all levels received essential equipment for maternal and child health in accordance with the Ministry of Health's guidelines.

After receiving eight years of UNICEF support, the DHMT reported that health facilities in the district were satisfactorily equipped. However, some of the facilities visited during the 1999 review reported that they continue to experience equipment shortages and it appeared that the DHMT did not always distribute equipment received in a speedy manner. While most facilities visited during the review reported that they

now have most of the required equipment, they also indicated that what they have is minimal. Ifwagi Health Centre was one of the few facilities visited that reported a lack of equipment for deliveries; it has only one delivery bed and no episiotomy scissors.

C. Improving the Referral System

The Mufindi Project included a component to improve the referral system by providing the district hospital with an ambulance and three health centres and one dispensary with Suzukis for the transportation of emergency cases. Dispensaries were equipped with bicycles.

Despite these measures, many women still experience major difficulties when trying to reach a health facility in cases of emergency. The first obstacle is the distance from the village to the health facility, which has to be covered by foot, bicycle, or public transport. Malangali Health Centre, for example, serves nine villages, the nearest of which is 5 km from the Health Centre and the farthest is 25 km

away. Referral from a dispensary or health centre to the district hospital also requires travelling large distances; Mangunguli dispensary, for example, is located 126 km from Mafinga Hospital.

Two additional barriers to referral cited in all focus group discussions are: the anticipated costs of health care and inadequate transportation to the health facility. Although Ministry of Health policies stipulate that health care for pregnant women and children under five is free, in practice women and their families often have to pay for drugs prescribed during antenatal care and consumable supplies needed during the delivery X particularly in cases of complications. Concerns about these costs X whether justified or not X cause many families to decide in favour of home delivery or to delay the decision to seek care.

High transportation costs also pose a significant barrier to care when complications arise. In isolated villages that are not served by public transport, renting a private vehicle and paying for fuel is very expensive. In Igowole X relatively close to Mafinga Hospital at 42 km X costs for vehicle rental and fuel can cost as much as 25,000 Tsh. However, if the Suzuki from nearby Kasanga Health Centre is available for use, the same trip costs only 5,000 Tsh for fuel. Many villages have developed a system whereby community members and the village government contribute to the transportation costs in case of an emergency referral. In some villages community members can borrow transportation funds from the village government and pay back this loan in monthly installments.

Another important strategy for improving referral is the availability of a communication system. The Mufindi project did not provide the government health facilities with a radio system, fearing problems of maintenance and sustainability. However, several voluntary agency facilities and the dispensaries at Brook Bond Estate are equipped with radios. The DHMT undertook sensitisation activities to increase awareness among education officials in the Mufindi Education Trust (MET) to enable health facilities to use the radios placed at MET-run secondary schools. Malangali health centre, for example, is based across the street from a MET school. Communication with Mafinga would be greatly enhanced if the Malangali health centre staff could use the radio at the school.

5. Selected Results

In recent years, the key agencies involved in the global Safe Motherhood Initiative have sought to develop indicators that can be used to monitor progress in reducing maternal mortality. Although a range of indicators have been proposed, there is not yet a standard, universally-accepted list. Moreover, some of the suggested indicators not only require data that is extremely difficult to gather, but provide information that is difficult to interpret. UNICEF and other partners in the Safe Motherhood Initiative have therefore recommended the use of *process indicators*: on the availability, accessibility and utilisation of obstetric care. The seven basic indicators for essential obstetric care (EOC) will be discussed in the last section of this chapter. The first sections will focus on programme progress by presenting indicators and data that the Mufindi DHMT has collected on antenatal care, delivery care, family planning, maternal mortality and community-based indicators.

Annex 3 provides a list of selected maternal health indicators that could be used as a basis for developing process indicators for maternal health in Tanzania. In selecting indicators, emphasis was placed on those that could be calculated with data collected through the health management information system or those that are routinely collected at the district level.

5.1 Antenatal Care

In Mufindi, antenatal care is being offered at all levels in the health system. From the start of the project, health education activities stressed the importance of antenatal care early in pregnancy. Currently, about 50% of pregnant women register for their first antenatal visit before 20 weeks. TBAs, VHWs and village leaders play an important role in encouraging women to go for antenatal care. During antenatal care consultations, women undergo a physical examination and receive vaccinations and health education. Tetanus toxoid coverage in Mufindi is 68%; however, syphilis screening, which is only conducted in Lugoda Hospital, is very low.

Health personnel at all levels rely heavily on risk screening as a means of identifying women who should deliver at a health facility.¹ Over the years an increasing number of women have been referred to higher-level facilities (see Table 1). Marked increases in the number of women referred in 1992 and 1996 can be attributed to a series of training courses in those years that emphasized risk screening.

¹ Although risk screening initially appeared to be a logical tool for rationalising service delivery and ensuring that those in greatest need received special attention, international research has found that the majority of women who experience complications during pregnancy and delivery do not exhibit any risk factors. It is therefore suggested that all pregnant women should be counselled on the risks associated with pregnancy and childbearing and the signs of complications, and should be guaranteed access to essential obstetric care.

Table 1: Reasons for Referral to the Nearest Health Facility

Reason for referral	1992	1993	1994	1995	1996	1997	Total
Hypertension	21	29	24	32	34	50	190
Anaemia	19	14	11	6	38	22	110
Grand Multipara	1,895	1,530	1,521	1,528	1,217	1,334	9,025
Below 16 years of age	50	84	96	91	112	58	491
Above 35 years of age	391	350	215	189	594	763	2,502
EPH-gestosis	12	18	2	9	4	3	48
Other risk factors*	119	100	72	77	559	651	1,578
Antepartum	9	23	3	2	12	2	51
Postpartum	23	11	7	2	29	24	96
Retained placenta	6	5	11	1	5	7	35
Total	2,545	2,164	1,962	1,937	2,604	2,914	14,126

* Other risk factors include: previous C-section, repeated abortion, previous vacuum extraction, diabetes

5.2 Attendance at Delivery

The number of deliveries in health facilities increased from 3,336 in 1990 to 4,049 in 1998, or 56% of all deliveries in the district. This places Mufindi well above the national average of 47% institutional deliveries. Because the number of deliveries at the district hospital remained relatively constant, it appears that the majority of institutional deliveries over this period are at health centres and/or dispensaries.

In this regard, we should note an important pattern with regard to the number and location of deliveries: in areas served by a health centre, the centre conducts more deliveries than do TBAs; in areas served by a dispensary, however, TBAs attend more deliveries than health centres. In Kasunga, for example, TBAs conducted 81 deliveries in 1998, compared to 120 health centre deliveries. In Ifwagi, during the same year, TBAs conducted 59 deliveries and the health centre 132. In Igowole dispensary, by contrast, the staff conducted between 7-9 deliveries per month in 1998, while the TBAs conducted between 14 and 20. In Sadani dispensary, the staff conducted 2-3 deliveries per month in 1998, while the TBAs did an average of 15. A possible explanation of this pattern could be the fact that women expect a higher quality of care in a health centre as compared to a dispensary, and therefore, if available, prefer to go to the former for delivery. More detailed interviews with clients could determine the underlying reasons for this pattern. The availability of this information seems crucial in designing strategies to increase the rate of institutional deliveries.

Although the number of women referred to a higher-level facility due to *risk factors* for complications increased over the years (see Table 1), the number of women referred to the district hospital with *actual complications* during pregnancy and delivery stayed relatively constant at around 300 per year X with a low of 269 in 1994 and a high of 365 in 1996 X from 1992 to 1997. During the same period, the number of complicated deliveries at the hospital decreased, while the number of normal deliveries increased slightly.

Table 2: Normal and Complicated Deliveries in Mafinga District Hospital 1993-1997

Type of delivery	1993	1994	1995	1996	1997	Total
Normal deliveries	964	916	943	1,062	1,039	4,924
Complicated deliveries	529	510	383	493	379	2,294
C-section	141	145	132	171	178	767
Vacuum extraction	64	77	53	27	13	234
Twins delivery	24	30	28	27	21	130
Decapitation delivery	-	-	-	2	-	2
Face to pubis delivery	8	7	5	9	7	36
Antepartum haemorrhage	13	8	2	7	3	31
Postpartum haemorrhage	7	16	1	18	16	58
Premature delivery	81	50	29	60	47	267
B.B.A	20	21	18	30	13	100
E.P.H. gestosis	10	9	10	5	1	35
Cord prolapse	11	13	4	9	4	41
Arm prolapse	5	4	8	3	4	24
Breech delivery	48	38	32	31	34	183
Neonatal death	23	21	12	29	3	88
Fresh still birth	30	24	18	31	16	119
Macerated still birth	33	43	28	44	32	180
Maternal death	9	5	6	5	2	27

5.3 Family Planning

Since 1994, community-based distribution (CBD) agents have been providing family planning information and contraceptives at the village level in Mufindi.² Contraceptive prevalence rates have increased dramatically during the past few years, and particularly since the introduction of the CBD agents. Contraceptive prevalence rates were 5% in 1989 and 5% in 1992, but increased to 17% in 1994, 23% in 1995, 40% in 1997, and 50% in 1998.

Information from the FGD revealed that many women and teenage girls continue to experience unplanned pregnancies in Mufindi. All female participants in the FGD knew of women who attempted to end an unplanned pregnancy. Although the nurse in charge of the female ward in Mafinga district hospital

² The CBD component is not part of the UNICEF-funded safe motherhood programme. However, since family planning use contributes to lowering maternal mortality (of up to 30%) we considered it important to address this component.

indicated that abortion and its complications do not constitute a problem in Mufindi, hospital records reveal that in 1997, 76 women were treated in 1997 with complications of abortion (10% of the total number of women admitted), by far the most frequent cause of admission for gynecological problems in that year. For example, only 4% of cases involved pelvic inflammatory disease (PID) and 2% ectopic pregnancy; other rates (including cysts, sepsis, and malaria in pregnancy) were all below 1%. In 1998, 70 women with complications of unsafe abortion were admitted, which consisted of 7% of the total admittance (3% PID and 1% ectopic pregnancies). Between 1992 and 1998, every year about 50 women X with a high 76 in 1997 X were admitted to Lugoda hospital with complications of unsafe abortion.

5.4 *Maternal Mortality*

When the Mufindi pilot project was launched in 1991, obstetric complications were the fourth leading cause of death in Mufindi. The causes of maternal deaths in the district were identical to those identified in studies of maternal mortality all over the developing world (sepsis, ruptured uterus, haemorrhage, abortion, anaemia and eclampsia). However, in the 1990-1992 period, the death rate from obstetric causes measured at the district hospital decreased from 800 to 300 per 100,000 live births, presumably due to the doubling of the number of C-sections (96 in 1990 versus 180 in 1992), as well as the five-fold increase in the number of complications (27% over two years) referred to the district hospital. The improved referral rate can be attributed both to improved diagnosis at the first referral level and the availability of transport. The rate of obstetric deaths at the dispensaries and the village health posts was reported to average between 300 and 400 per 100,000 births respectively.³ These deaths could perhaps have been avoided if diagnosed and referred for treatment to a higher level of care. It was estimated that during that period 70% of all deliveries continued to be at home, attended by untrained TBAs.

Since 1992, the overall maternal mortality ratio for the district (including maternal deaths in both facilities and in the communities) decreased even further, and reached 200 per 100,000 live births in 1997. Table 3, however, shows that some of the other indicators did not continue to improve, such as the number of C-sections. After an initial decline, C-sections were at the same level in 1997 as in 1992. Since the absolute number of deliveries increased over the years, a relatively constant number of C-sections means that the C-section rate actually went down.

³ Given the difficulty of calculating maternal mortality ratios, these figures should be used with some caution. International experience suggests using process indicators as a way to measure progress in improving women's health. These will be discussed below.

Table 3: Indicators collected at health facilities

	1992	1993	1994	1995	1996
Total Population	255,335	252,420	269,505	276,243	282,702
Women of child-bearing age	51,087	52,484	53,901	55,249	56,740
Estimated pregnant women	10,214	10,497	10,780	11,050	11,348
Total deliveries	5,936	5,890	6,319	7,652	7,921
Total live births	5,850	5,801	6,218	7,589	7,859
Total still births	86	89	103	83	106
Fresh SB	18	40	32	24	42
Macerated SB	68	49	71	59	64
Total neonatal deaths	17	34	35	27	34
Within 7 days	15	33	14	14	19
Within 28 days	2	1	21	13	15
Maternal deaths in HF	4	8	7	4	7
Pregnant women referred to DH	301	302	289	330	365
C-sections in DH	180	150	145	132	171
C-sections in District	338	254	191	196	313
C-section outcome live birth	334	253	189	193	313

5.5 Community-Level Indicators

Throughout the course of the project, the number of villages with an active village health committee responsible for initiating and monitoring maternal and child health activities at the village level X1 steadily increased. Despite this important achievement, it appears that the timely submission of quarterly pregnancy monitoring reports has declined, making it difficult, if not impossible, to monitor effectiveness of the Mufindi programme. For example, as shown in Table 4, the number of TI deliveries appears to have decreased from 1996 to 1997; however, this lower figure is most likely due to the fact that fewer villages submitted their reports during 1997. Similarly, although the number of maternal deaths in the community appears to have declined, this apparent downward trend may be due to the result of lower compliance with the pregnancy monitoring system than a decline in actual numbers. Thus, the importance of maintaining this system cannot be overemphasized.

In reviewing the community-level data that showed an apparent increase in the number of TI deliveries in 1993 and 1996, the DHMT explained the increase as the result of large numbers of TBAs trained during those years. However, this does not explain why these high rates were not sustained during the interim years.

Table 4: Indicators collected in the community

	1992	1993	1994	1995	1996	1997
Villages with active VH Committee	94	104	125	116	102	125
Villages with prog. mon. system	130	130	130	131	131	131
Villages submitting quart. Report						
First quarter	115	109	124	105	70	79
Second quarter	75	80	116	116	80	103
Third quarter	98	103	92	107	54	98
Fourth quarter	108	84	100	110	124	92
No. of pregnant women registered	6,475	5,272	4,545	6,757	5,304	5,111
Pregnant women with risk factors	2,495	2,107	1,840	1,913	2,554	na
Women delivered by trained TBAs	688	2,402	1,542	1,200	4,259	3,811
Total still births	20	34	22	83	58	23
Fresh SB	0	0	0	24	53	0
Macerated SB	20	34	22	59	na	23
Total neonatal deaths	0	48	38	14	55	46
Within 7 days	0	0	0	1	41	0
Within 28 days	0	48	38	13	14	46
Maternal deaths in community	15	15	14	9	11	7

5.6 Essential Obstetric Care

One of the major pathways to reducing maternal mortality is through improved access, utilisation, and quality of obstetric services. As noted in the introduction of this chapter, a series of process indicators has been developed that focuses specifically on these issues, and uses data that can be collected and analysed at the health facility level rather than those that require large-scale population-based enquiries.

The process indicator series provides information on Essential Obstetric Care (EOC) coverage and the performance of EOC facilities. The following is a list of the indicators and the minimum acceptable level for each:

EOC Coverage:

1. *Quantity of EOC services:* One facility providing comprehensive EOC and four facilities providing basic EOC should be available for every 500,000 people.
2. *Geographic distribution of EOC facilities:* One facility providing comprehensive EOC and four facilities providing basic EOC within an acceptable geographical area should be available.
3. *Proportion of all births in basic and comprehensive EOC facilities:* A minimum of 15% of all births in the population should take place in an EOC facility.
4. *Met need for EOC:* 100% of all women with obstetric complications should be treated in basic and comprehensive EOC facilities.

Performance of EOC facilities:

5. **Caesarean deliveries as a proportion of all births:** Because it is often recorded and therefore easier to gather data on, the rate of Caesarean delivery is used to assess whether or not facilities are providing life saving obstetrical services. Experience indicates that 5% of all births in a population may need Caesarean delivery in order to avoid maternal and infant morbidity and mortality. Because Caesarean delivery has been overused in some regions, and like any other surgery carries a risk of injury and even death, an upper limit of 15% is suggested.
6. **Case fatality rates:** The case fatality rate refers to the number of maternal deaths as a proportion of total obstetrical complications in a given facility that provides comprehensive EOC. The case fatality rate for women with obstetric complications should not exceed 1% when attended in an EOC facility.

Signal functions used to identify Basic and Comprehensive EOC	
Basic EOC services	Comprehensive EOC services
1. Administer parenteral* antibiotics.	1-6. All of those included in Basic EOC
2. Administer parenteral oxytocic drugs	7. Perform surgery (Caesarean section)
3. Administer parenteral anticonvulsants for pre-eclampsia and eclampsia.	8. Perform blood transfusion
4. Perform manual removal of the placenta	
5. Perform removal of retained products (e.g. manual vacuum aspiration (MVA))	
6. Perform assisted vaginal delivery	
* by means of injection or intravenous infusion.	
A Basic EOC facility is one that performs all of the functions 1-6.	
A comprehensive EOC facility is one that performs all of functions 1-8.	

The EOC process indicators for Mufindi were calculated based on the data collected by the pregnancy monitors and the district hospital. With regard to the quantity of Basic EOC (BEOC) and Comprehensive EOC (CEOC) facilities, we should note that currently only the district hospital and Lugoda hospital provide both BEOC and CEOC. Although the health centres provide most of the BEOC functions, they do not perform manual vacuum aspiration (MVA) or some forms of assisted delivery. Both hospitals use dilatation and curettage (D&C) to treat abortion complications, rather than MVA. Nonetheless, with two CEOC facilities for a population of roughly 300,000, Mufindi district can be considered to have a good EOC coverage.

Table 5. EOC Process Indicators

EOC Process Indicators	1993	1994	1995	1996	1997	5-year average
Proportion of births in EOC facilities	25%	23%	17%	20%	19%	21%
Met need for EOC*	60%	54%	33%	41%	33%	44%
CS as a proportion of all births	4.3%	3.0%	2.5%	3.9%	4.4%	3.6%
Case fatality rate	1.7%	0.9%	1.6%	1.0%	0.5%	1.1%

* Met need (1993) = total complications in facilities 529 / expected complications (total deliveries 5890 x 0.15) x 100 = 60%

The indicators reveal a downward trend in the proportion of births taking place in EOC facilities. This decline may be the result of two developments: an increase in the total number of deliveries in the district (from 5,890 in 1993 to 7,665 in 1997), and a relatively constant number of deliveries in EOC facilities (1,493 in 1993; 1,555 in 1996; and 1,418 in 1997).

Because these statistics are based only on the deliveries conducted in Mafinga District Hospital, and not the deliveries conducted in Lugoda Hospital, the met need for EOC is likely to be underestimated. Moreover, the downward trend in met need for EOC is affected by the increased number of births, compared to the relatively constant rate of institutional deliveries. The case fatality rate also only refers to Mafinga District Hospital. However, it is encouraging to note a decline in case fatality rate for this hospital, which reached 0.5% in 1997 Xwell below the 1% norm for this indicator.

The indicator for C-sections as a proportion of all births includes all C-sections performed in the district in both hospitals. It is encouraging to see the percentage go up again after a slight downward trend in 1994 and 1995. If this rate is continued, Mufindi district should be able to reach the 5% norm within one or two years.

6. Lessons Learned

As stated in Chapter 2, the aim of documenting the Mufindi experience was to provide an example for other districts to help them choose the most effective strategies and interventions for lowering maternal mortality and morbidity. While certain elements of the Mufindi project are relevant only to specific circumstances in the district, most of the review's findings are applicable to other districts in Tanzania. The lessons outlined in this chapter are therefore relevant to all districts in Tanzania.

While the first section (6.1) will focus on lessons learned in Mufindi, the second section (6.2) will highlight lessons learned from other international experiences since 1987 that are relevant for implementing safe motherhood programmes at the district level in Tanzania. The essential services identified and the major lessons learned by Safe Motherhood partner organisations are described in publications of the Safe Motherhood Inter-Agency Group, Family Care International, as well as other international reproductive health organisations (see Bibliography).

While the information on Mufindi provides general guidance on choosing interventions in other districts, specific district-level planning requires conducting comprehensive safe motherhood baseline surveys. Both UNICEF and UNFPA have recently supported the Ministry of Health in conducting these surveys, and at present at least 68 of Tanzania's 110 districts have been surveyed. The District Health Management Teams in these districts, with technical support from the regional level and the Reproductive and Child Health Unit, should now take the lead in developing and implementing plans of action to improve district-level maternity services. Districts that have not yet conducted a district-level baseline survey are encouraged to do so, again with the support of the Reproductive and Child Health Unit.

6.1 Lessons Learned from the Mufindi Pilot Project

The DHMT and other district-level staff have identified the most significant lessons learned from the Mufindi Pilot Project. According to their assessment, strategies aimed at improving maternal health should stress the importance of:

- ☐ **Sustained commitment.** Sustained commitment is the most crucial element for the success of any programme. The project implementors, district, ward and village leaders, and facility-based service providers play a key role in sustaining commitment to the project at all levels, and particularly among volunteers, such as the village health workers. Involving district and other community leaders from the onset was critical for securing their initial commitment and support of the project. However, they need regular reminders both of the importance of the project and their critical role in keeping attention focussed on safe motherhood throughout the district.
- ☐ **Continuous efforts to create awareness.** The 1999 review of the Mufindi Safe Motherhood Project found that additional and ongoing efforts are needed to create awareness about safe motherhood and to keep the issue at the forefront of communities' priorities. Ongoing efforts to create awareness requires using different messages and different ways of presenting these

- ☐ messages to maintain the interest of leaders and community members. These messages have to correspond with changing needs and take into account knowledge people already have.
- ☐ **Using a multi-sectoral approach.** Because maternal mortality and morbidity are caused by a range of factors X from women's lack of education, poor socio-economic status and heavy workload to their poor overall health status X safe motherhood can only be achieved through a multi-sectoral approach. Moreover, the involvement of leaders from various sectors can be a key factor in broadening general awareness about safe motherhood and sustaining the commitment of actors from outside the health sector.
- ☐ **Involving the community.** With support from the district, communities were able to play a key role in identifying urgent problems and in defining and implementing appropriate action plans. Focus group discussions in communities that were involved in the project from the start clearly revealed that they felt ownership over the project and responsibility for ensuring that no woman died from complications during pregnancy and delivery.
- ☐ **Improving referral of obstetric emergencies.** Equipping the hospital and the health centres with vehicles played an important role in the referral system and making services accessible to women when complications arose. Using a Suzuki was found to be at least five times cheaper than public transport. In addition, having the Suzukis stationed at health centres helped avoid long delays in finding transport for the referral of emergency cases.
- ☐ **Creating linkages between formal and informal health workers.** Community-based health workers, such as the village health workers and traditional birth attendants, can benefit greatly from supportive linkages and relationships with facility-based health staff. Experience from Mufindi clearly showed that when there ceases to be regular contact between health workers and community-based volunteers, motivation and performance declined.
- ☐ **Maintaining Supportive supervision.** The Mufindi experience showed that supportive and regular supervision is critical X not only for community-level health workers but for all levels of health personnel and management, including the DHMT. Early in the project, the DHMT received regular support and supervision from the national and regional levels, but this support has declined in recent years. In addition, recent fuel, transportation and funding shortages have resulted in fewer supervisory visits, which seriously affects the motivation of the health workers.

6.2 *International Lessons Learned*

Since the global Safe Motherhood Initiative was launched in 1987, a range of strategies have been tested and evaluated. These offer salient lessons for all districts in Tanzania, and for Mufindi District in particular. These strategies and lessons include:

A. Re-examining the Emphasis on Risk Screening

Until recently, many countries, including Tanzania, based their antenatal care on screening women with risk factors. However, these parameters have been found to correctly identify only between 30 to 40 percent of all pregnant women who develop an obstetric complication (FCI and the Safe Motherhood IAG, 1998). Therefore, all pregnant women should be counselled that they are all at risk for developing a complication. Moreover, it is recommended that district level health education efforts be focussed on both educating women, men and family members about danger signs during pregnancy and delivery, and on the importance of promptly seeking maternal health services if complications arise.

Improving access to emergency obstetric care is critical for reducing maternal mortality and morbidity. To improve access, a series of barriers must be addressed, including poor quality of care, distance, cost, constraints on women's time, poverty, and women's lack of decision-making power. The Mufindi project sought to address several of these factors, including both the lack and high cost of emergency transport, women's workload and women's lack of income. However, additional attention should be given to improving communication between facilities using appropriate and locally available technologies such as radios. It is advisable to further explore the possibilities of using existing radio systems by generating awareness among organisations that have radio systems.

Three of the four Suzuki's provided to the health centres in Mufindi are currently out of order. Alternative strategies should be developed to ensure swift referral in case of emergencies. Key to improving the community's response is for village leaders to have a plan for emergencies. If different transportation options have been identified before the actual emergency arises, and all people involved know what to do, a quicker emergency response can be implemented. Village governments should also be encouraged to set up emergency funds or to provide loans to families in need of funds for emergency transportation.

In addition to these community-level interventions, health facilities X the district hospital in particular X should be encouraged to provide feedback to the lower level facilities and communities on the referred cases they receive. This information will allow the health facilities and communities to further streamline their referral procedures and provide follow-up care as needed.

2. Ensuring Skilled Attendance at Delivery

Skilled birth attendants are defined by the World Health Organisation as trained midwives, nurse/midwives or doctors who have completed a set course of study and are registered or legally licensed to practice. Traditional birth attendants (TBAs), including those who have been trained, are not defined by the World Health Organisation as skilled attendants. Most trained TBAs are not trained to deal with complications. Studies in Africa and Asia have found that training TBAs *in the absence of skilled backup support* did not decrease women's risks of dying in childbirth.

Given these findings, it is imperative to work toward increasing the proportion of births that are attended by skilled attendants while ensuring that TBAs are linked with formal health facilities and supervised on a regular basis. Experience in countries, such as Malaysia and Sri Lanka, has shown

that the shift from the utilisation of TBAs to midwives can take about 20 years to complete (Ross, 1998). In countries such

as Tanzania, where a large percentage of births are attended by TBAs, it is generally agreed that it is beneficial in the short-term to:

- ☐ train TBAs to avoid harmful practices during delivery, to recognise danger signs, and to refer complicated cases to higher-level care;
- ☐ establish or strengthen linkages between TBAs and the formal health care system to encourage adequate supervision and monitoring; and
- ☐ ensure that health centres and hospitals will accept referrals from TBAs.

Experience from Mufindi showed that while TBAs have been trained, linkages with the health facilities have not been maintained and supervision has been neglected. It is recommended that TBAs be included in the chain of supervision from the district level through the facilities to the community. Renewed efforts should be undertaken to encourage TBAs to come to the dispensaries to observe and assist Maternal and Child Health (MCH) Aides in performing deliveries as a means of on-the-job training and skills maintenance. The supervision of TBAs should also be used as a means of regular refresher training. In tandem with these efforts, long-term investments must be made to train sufficient numbers of skilled attendants X primarily midwives X who can appropriately manage obstetric complications.

C. Improving the Quality of Maternal Health Care

Improving the quality of services does not necessitate the construction of sophisticated health facilities. Rather it can be achieved by improving the technical competence and interpersonal skills of providers; ensuring the availability of basic supplies and equipment; improving the physical facilities and infrastructure; and strengthening referral systems and linkages throughout the health system.

The review of the Mufindi Safe Motherhood Pilot Project suggested that while important steps had been taken to improve the quality of maternal health services, several health facilities still lacked basic equipment for conducting deliveries and providing essential obstetric care. In addition, a number of facilities were understaffed and/or were staffed by health workers who were underqualified. More than one quarter of the dispensaries in the district did not have any staff who had received refresher training in midwifery and family planning during the past five years.

It is critically important for the Mufindi DHMT to work towards fully equipping the facilities and training at least one staff member per facility in midwifery skills and family planning. It is recommended that priority be given to the training of the staff of those facilities that have not benefited from training in the past few years.

D. Improving Access to Family Planning

Improving access to family planning is an important means of reducing unwanted pregnancies and unsafe abortion. It is extremely difficult to assess the magnitude of unsafe abortion in Tanzania, due to the illegal nature of induced abortion. The classification of abortion deaths under sepsis or haemorrhage makes the serious problem of maternal deaths from unsafe abortion invisible. Making it more visible would focus attention on the unmet need for family planning and might lead to an increased commitment to family planning education and service delivery.

Because people's needs for contraception change over the course of their lives, it is important that family planning services are linked to both the health centre and the community. Short-term contraceptive needs for birth spacing can usually best be met through non-clinical methods that can be supplied through community-based distributors (CBD) or over-the-counter in stores. Experiences from Mufindi showed that the presence of CBD agents made a big difference in the family planning acceptance rate. However, as with all community-based health workers, CBD agents need supervision and support to maintain their performance and motivation.

Focus group discussions in Mufindi revealed many misconceptions about family planning methods and their effect on fertility. A priority for CBD agents and health workers is therefore to provide information to correct these myths, and to offer advice about contraceptive options, as well as their side effects and complications, and emphasize the importance of barrier methods in the prevention of sexually transmitted diseases.

E. Introducing Postabortion Care

In recent years an international consensus has been emerging around the notion that, regardless of legal, cultural or religious restrictions on abortion, high-quality services for treating and managing complications of unsafe and spontaneous abortion should be accessible to all women. The term *postabortion care* refers to a specific combination of integrated services that can significantly reduce abortion-related maternal morbidity and mortality and help break the cycle of unwanted pregnancy and unsafe abortion. These services include: emergency treatment of abortion complications; postabortion family planning counselling and services; and links to comprehensive reproductive health services.

One of the most frequent complications of unsafe abortion is incomplete abortion X the retention of products of conception in the uterus. Extensive research has shown that early, incomplete abortion can be safely and effectively treated at lower levels of the health system using manual vacuum aspiration (MVA). Unlike dilatation and curettage (D&C), which is available in most district and regional hospitals in Tanzania, MVA can be performed safely without general anaesthesia by non-physician health workers. It can therefore play a critical role in increasing the accessibility of emergency abortion care

and ensuring that treatment of abortion complications is within the reach of women who need it. However, MVA is currently provided only in a limited number of facilities in three regions.

Efforts should be made to train facility-based health workers in Mufindi to manage incomplete abortion with MVA, as well as to provide postabortion family planning counselling and services. Because ovulation can occur within two weeks following pregnancy termination, women who have had an abortion are at immediate risk of a subsequent pregnancy. For this reason, and the provision of contraceptive counselling and services can play a key role in breaking the cycle of repeat unwanted pregnancy and unsafe abortion.

F. Monitoring Progress

In order to develop, implement and evaluate policy and programme efforts, understanding why women are dying from pregnancy and childbirth is more important than determining the rate of maternal mortality. Researchers have developed a variety of assessment tools to help in the formulation, monitoring and evaluation of national strategies to improve maternal health. The indicators in these tools can identify weaknesses and suggest programmatic priorities to better prevent maternal deaths in the future.

The Mufindi project highlighted the need to formulate and continuously update a comprehensive picture of the maternal health situation at the district level. Although a health management information system is in place, record-keeping is not consistent, and data needed to assess district progress toward improving maternal health are not systematically collected and analysed.

In addition, as mentioned above, compliance with the community-based pregnancy monitoring system needs to be strengthened so the district can calculate process indicators for safe motherhood, including essential obstetric care. With technical assistance from the RCH Unit, Mufindi and other districts are encouraged to start collecting additional information to monitor progress with regard to safe motherhood in accordance with the indicators suggested in Annex 3.

In addition to creating and maintaining management information and record-keeping systems, opportunities for operations research and small-scale pilot projects should be explored. These may include new service delivery systems (for example, integrating screening for sexually transmitted diseases as part of routine MCH services), innovative community IEC campaigns, emergency transport and referral systems, and other safe motherhood interventions, as appropriate.

G. Empowering Women

Women in Tanzania, as in other countries in sub-Saharan Africa, face multiple barriers to attaining good health. These include:

1. **Limited information and options.** As a result, many women do not recognise danger signs during pregnancy and do not know when and where to seek medical services.

2. Unequal power relations that constrain women=s decision-making ability, physical mobility and access to material resources. In many settings, the decision to deliver at home is taken by the husband or another family member. Women=s lack of economic resources constrains their ability to make independent health-related choices, and to gain access to health and other services.
3. Poor quality of interaction with health care providers. Women are often reluctant to use health services because they perceive health care providers to be rude, patronizing and insensitive to the context in which they live.

Although the awareness creation and health education activities in Mufindi included key messages on women=s disadvantaged position in society and their heavy workload, focus group discussions revealed that many men have not yet changed their behaviour in terms of helping their wives, not even during pregnancy. Renewed attention should be given to women=s socio-economic position in awareness-raising efforts at all levels. This is an important area for multi-sectoral collaboration, as empowering women in the area of health requires more than simply health-related interventions; it requires creating social, economic and cultural conditions in which women can overcome the barriers to safe motherhood.

7. Conclusion

Tanzania was one of the first countries to adopt a safe motherhood strategy and has since made encouraging progress in addressing and advancing the health needs of women and children. Recently however, progress has slowed, and indicators suggest that current socio-economic conditions and the HIV/AIDS epidemic are negatively affecting women's health status. Maternal health remains one of the most serious health concerns in Tanzania X one that requires increased and sustained action.

There are encouraging signs of new opportunities to consolidate and expand efforts to improve maternal health in Tanzania. Signalling its commitment to reducing maternal mortality and morbidity, the Ministry of Health has recognised safe motherhood as one of the major elements in its 1997-2001 reproductive health strategy. In addition, a number of effective strategies have been identified, both at the national level and international levels, for achieving safe motherhood.

Experience from Mufindi suggests that community mobilisation, in conjunction with efforts to upgrade health services, can bring about substantial decreases in maternal mortality. Multi-sectoral collaboration, continuous efforts to create awareness, and ongoing supportive supervision can ensure the sustained commitment of the community- and district-level to avoid maternal deaths. The Mufindi experience also demonstrates that improving the quality of maternal health care does not necessitate the construction of sophisticated health facilities; if supported by an effective referral system to higher-level facilities where complications can be managed, lower-level health facilities can provide basic, good quality services and can play a key role in improving maternal health outcomes.

The lessons learned from the Mufindi project offer clear pathways for DHMTs all over Tanzania to develop action plans for safe motherhood. National and regional support is essential to assist the DHMTs in adapting the lessons learned from Mufindi District and in implementing appropriate strategies in their own districts. Multi-sectoral collaboration and partnerships for safe motherhood can make lasting changes in the quality of life of Tanzanian women, their children and their families.

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Annex 1

Main Collaborators and Facilities Visited

The review team consisting of representatives from the Reproductive and Child Health Unit, UNICEF and Family Care International, made two field visits to Mufindi District in January and March 1999. During these visits the team worked in close collaboration with the DHMT and other sectors involved in the UNICEF supported CSPD Programme. The core collaborators were:

Mrs Teresa Mmbando, District Executive Director, Mufindi District
Dr Omari Lushino, Regional Medical Officer, Iringa Region
Dr Felix Kinyaga, District Medical Officer, Mufindi
Mr Mangula, District Planning Officer
Mr Mwangeni, Assistant District Planning Officer
Mr George Lupembe, District Trade Officer
Mr Makombe, District Transport Officer
Mrs Christina Mlewa, District Community Development Officer
Mrs Anna Liganga, District Nursing Officer
Mrs Rehema Kingiro, District MCH Officer
Mr Joseph Mzima, District Village Health Worker Coordinator

The following facilities were visited:

Mafinga District Hospital
Lagoda Hospital (Brook Bond Estate)

Kasanga Health Centre
Malangali Health Centre
Ifwagi Health Centre

Igowole Dispensary
Nyololo Dispensary
Sadani Dispensary

The following villages were visited for community-level focus group discussions:

Ugute
Ikongosi
Kasanga
Malangali

Annex 2 Pregnancy-monitoring Form

Regista ya Mama Mjamzito Kijijini

Kijiji: _____ Kata: _____ Wilaya: _____
 Jina la Mama: _____ Kazi yake: _____ Umri wa Mama: _____
 Jini la Mume: _____ Kazi yake: _____ Umri wa Mume: _____
 Idadi ya Mimba: _____
 Watoto walio hai: _____
 Watoto walio fariki: _____ Tarehe ya Matarajio ya Kujifungua: _____
 Mimba zilizoharibika: _____

	Mahudhurlo ya					
	Kwanza	Pili	Tatu	Nne	Tano	Sita
Tarehe aliyohudhuria Kliniki						
Umri wa Mimba						
Uzito						
Kidokezo cha Hatari						
Ampata ushauri ndiyo/hapana						
Kamati imefuatilia ndiyo/hapana						

Matokeo ya Mimba

Mimba imeharibika Kabla ya majuma 28 ()	Hali ya mtoto baada ya kujifungua	Hali ya mama baada ya kujifungua
Tarehe ya kujifungua:	Hai/Mfu	Amejifungua Kawaida ()
Amejifungua Kliniki/ Nyumbani	Uzito wa Mtoto wa Wakati wa kuzaliwa gms	Amejifungua kwa matatizo
Kama anaelewa uzazi wa mpango Ndiyo/Hapana	Mtoto amefariki Kabla ya siku 7 Baada ya kuzaliwa ()	Matatizo wakati/ baada ya kujifungua
	Ameferiki katika ya Siku 8 na 30 ()	Mama amefariki kabla ya kujifungua/kutoa mimba
	Sababu ya kifo	Sababu ya kifo

Vidokezo vya hatari kwa mama mjamzito

1. Kutoongezeka au kupungua uzito vipindi vya kupiwa viwili au zaidi mfululizo.
2. Kutokwa kwa damu ukoni.
3. Upungufu wa damu.
4. Kuwa na magonjwa kama kisukari, moyo, pumu n.k.
5. Umri chini ya miaka 18 na zaidi ya 35.
6. Mlalo mbaya wa mtoto tumboni.
7. Kuvimba miguu, mikono au uso.
8. Mimba yenye zaidi ya mtoto mmoja.
9. Kupasuliwa au kuzalishwa kwa vacuum uzazi utiotangulia.

Andika namba ya kidokezo kinachohusika

Annex 3

Selected Indicators for Monitoring Safe Motherhood Programmes

The indicators presented in this annex are based on a short list of national and global reproductive health indicators proposed by the World Health Organization (1997). The second column lists the indicators while the first column describes what the indicator measures, for example the quality of care or program impact.

Safe Motherhood - General

Policy	Existence and implementation of a safe pregnancy strategic or operational plan
Provision	Provisions for: (I) enquiries into maternal deaths (II) special measures to reduce maternal mortality
Quality of Care (QoC)	% of maternal deaths investigated
QoC	% of women receiving maternal services expressing satisfaction with antenatal, delivery and postpartum services
Impact	Number of maternal deaths
Impact	Lifetime risk
Impact	Maternal deaths as proportion of all deaths among women of reproductive age

Antenatal Care

Provision	Proportion (%) of antenatal clinic clients immunized against tetanus
QoC	% of pregnant women attending antenatal clinic who receive iron/folate
QoC	Proportion of women attended at least once during pregnancy by trained health personnel for reasons related to pregnancy
Output	% of first antenatal clinic visit before quickening/1st trimester/before 16 weeks gestation

Intrapartum Care

Inputs	% trained TBAs recently refreshed
Inputs	% trained TBAs regularly supervised
Inputs	Number of institution personnel refreshed in the past 12 months
Direct Outputs	% of women who were in prolonged labour (> 24 hrs) before arrival in hospital
Access	Proportion of all hospital deliveries that are births on the way to the hospital
Access	Alarm and transport systems in place
QoC	% of labours which were induced/augmented
QoC	% of labours in which partograph was used correctly
QoC	% of women with obstetric complications treated within 2 hrs of presentation at the health facility
QoC	Number of referrals to a higher centre
Utilisation	% of births attended by trained health personnel (including TBAs)
Utilisation	% of births attended by trained health personnel (excluding TBAs)

Basic and Comprehensive EOC

Provision	Availability of in-service training programmes on life saving skills for midwives, nurses and paramedics
Availability	# health centres per 500,000 population able to provide basic essential obstetric care
Availability	# district hospitals per 500,000 population able to provide comprehensive essential obstetric care
QoC	% of women who receive blood transfusion
Intermediate Output	Proportion of women estimated to have direct obstetric complications that are seen in EOC facilities
Utilisation	Proportion of all births that occur in facilities with EOC
Utilisation	% of district hospital deliveries considered high risk
Utilisation	Cesarean sections as proportion of all live births in the population
Impact	

	Case fatality rates for direct obstetric complications (facility-based)
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Postpartum care

Utilisation	Proportion of women attended at least once after delivery by trained health personnel for reasons related to pregnancy and delivery
Provision	% of service providers trained to use family planning delivery protocol for breast feeding women