# CHAPTER 1

# INTRODUCTION

Maternal mortality is a serious public health concern in Nepal. According to official estimates the current level of maternal mortality is 515 per 100,000 live births (Malla and Pradhan, 1994). This is about 100 times higher than the level of maternal mortality in developed countries. From clinical literature about 75% of maternal deaths result from direct obstetric causes which are hemorrhage, unsafe abortion, toxemia, infection, obstructed labor (WHO, 1986).

Maternal mortality is an important indicator not only to assess the health status of a woman but reflects many things such as quality of obstetric care as well as the socio-economic status in an area. For every 1 maternal death there are at least 15 women suffering from such complications as hemorrhage, infections, hypertension and birth trauma (UNICEF, 1993). It is only the tip of the iceberg. These, quite apart from injuries of various kinds to the genito-urinary tract, impair the woman's physical and social state. When not fatal, these conditions lead to prolonged ill health.

There is now an international agreement about a concept that prompt treatment of serious obstetric complications is the key to reducing maternal mortality in developing countries (Adamson, 1996). This is the critical premises of this thesis.

Emergency obstetric care (EmOC) is an important measure in management of obstetric complications for the reduction of maternal mortality. This entails not only making facilities available but a more realistic approach should be taken, that is facility should be provided as well as should be accessible physically, economically and behaviorally.

The Ministry of Health of Nepal is in the process of finding ways to face the challenges of the changing environment, demands and health care system. Its goal by the year 2001($9^{th}$ plan period) is to have functioning EmOC services in 30 districts and to reduce maternal mortality rate by 20 percents (from 515 per 100,000 to 400 per 100,000 live births) (Malla & Pradhan, 1994). This study can contribute to identify certain key factors to prepare for the change for improvement, and is a part of research and development activity encouraged by the Ministry of Health and Overseas Development Agency (ODA) to find out basis for priority setting and resource allocation. Ministry of woman and social welfare of Nepal is in process of empowering the women and is trying to increase the awareness of maternal health in women of rural areas in Nepal, thus this thesis would be beneficial for improvement in maternal health and decrease the disability and discomfort caused by obstetric complications.

The central fact is that most life threatening obstetric complications cannot be predicted or prevented, but they can be treated successfully (Maine,1993) and at

least 15% of pregnant women develop serious complications, even if they are in good health and receive antenatal care (WHO, 1993). Therefore, working to ensure prompt access to adequate care for complications is fundamental to this thesis, which is built on the idea that, when a woman has an obstetric complication, the key to her survival is how long it takes for her to receive adequate emergency obstetric care (EmOC). The Three Delays Model, discussed in the essay in chapter two, has been useful tool in identifying the points at which delay can occur: 1) delay in deciding to seek EmOC 2) delay in reaching an EmOC facility 3) delay in actually receiving care after arriving at the EmOC facility (Thaddeus & Maine, 1990). Using this model, I have tried to design and implement activities to address delays at each level and have found it critical to address the last delay first. Only after health facility nearby the community are capable of treating complications does it make sense to address community level barriers, such as lack of information or mistrust of health services.

The World Health Organization addressed this issue in a publication entitled "Emergency Obstetric Function at First Referral Level to Reduce Maternal Mortality". The First Referral is defined as "The district or sub-district hospitals or health center to which a women is usually sent when she is in serious difficulty" (Maine, 1993). Unfortunately in Nepal these functions can be performed only at the Teaching hospitals, Central hospitals, Zonal hospitals and few District hospitals, to which most women do not have access.

Even if it is not possible for the primary health center (PHC) to carry out the comprehensive obstetric functions, there is still much that could be accomplished at this level. Most importantly Health Centers could provide basic EmOC. This care could include such measures as starting antibiotics for women with obstructed labor or premature rupture of the membrane; starting a drip of plasma expander and oxytocic drugs for women with hemorrhage; and administering sedatives for women with eclampsia. These relatively simple measures would mean that women would reach the hospital in better condition and thus have improved chances of survival.

From the situation analysis discussed in the essay it has been found that the PHC in Morang district of Koshi Zone which lies in the Eastern region of Nepal lacks basic EmOC facility. Data exercise done for need assessment compels that basic EmOC service has to be provided in PHCs in Morang district.

In the PHCs of Morang district basic EmOC facility can be introduced with the utilization of existing resources and providing basic training to the staffs, who are already working there. Unlike hilly region of Nepal, Morang district has very good transportation infrastructure hence delay in reaching the facility can be minimized. Literacy has significant impact on health behavior of a person. The literacy rate in Eastern Development Region for both sexes is 39.6 which is a bit higher than national average (Regional Health Service, 1996). Education level of Morang district which is in the Eastern region of Nepal is better than in the hilly region, hence delay in

deciding to seek care can also be minimized with minimum effort by the community participation.

It is assumed that implementing EmOC in primary health center in Morang is not possible and that it is too costly, too difficult, or emphasizing the importance of medical services means neglecting community involvement. But in this thesis I have tried to show that these assumptions are wrong. From literature review on cost effective study of various approaches to reduce maternal mortality, it has been stated that interventions to implement EmOC in Primary Health Center is not costly. By using existing resources, developing creative solutions to local problems, and paying attention to management issues I have demonstrated ways to provide EmOC at primary health center in Morang district in Nepal. In addition, providing EmOC at primary health center may encourage people to seek care more promptly, which will also improve their chances of survival.

A health center is also a good point at which to organize transportation to the hospital. Since 90 percent of women in Nepal deliver at home and 93% of people live in rural area (HMG/WHO, 1986), PHC is the closest facility in the community where obstetric emergency can be tackled, stabilized and referred to district hospitals. It is estimated that first level (i.e. PHC) obstetric care could result in a reduction of 80-85 percent in maternal mortality (Marilyn, 1996). Safe motherhood initiative and Child Survival Revolution emphasize on mortality reduction and have stimulated the shifts in the delivery of health care from tertiary to primary levels. Availability of good

quality EmOC services can prevent many deaths once maternal health complications have arisen (Wendy et al., 1996).

The main objective of this thesis is to propose implementation of basic EmOC in the PHC of Morang District and incorporate evaluation as an ongoing process in the delivery of basic EmOC service after six months. Then to disseminate the result of this study and to share the information, experiences and application of the research results.

The specific objectives of this thesis are to provide the components needed for the establishment of basic EmOC i.e. inventories of staff, facility , supplies and record keeping; guidelines for referral of cases to district hospitals; training for the staffs of health center in the management of emergency obstetric cases; evaluate input, process and output indicators after six months of implementation; and take corrective actions if the indicators do not satisfy the international standard recommended.

Maternal mortality has traditionally been measured using "impact" indicators, such as maternal mortality rates and ratios (UNICEF/WHO, 1996). But the data needed to calculate these indicators are difficult to collect. Furthermore, in a relatively small project, the number of deaths would be too small to assess change. Hence a number of indicators such as input, process and output indicators to evaluate interventions aimed at reducing maternal mortality has been discussed. For example, if the number of women receiving treatment for serious obstetric complications

increases, and the proportion of these women who die goes down., then it can be inferred that progress is being made in preventing maternal deaths. Using these indicators is not only feasible, but it also yields valuable information about the types of action that are needed.

The objective of the data exercise discussed in chapter four is to observe EmOC service and to test the evaluation model in Panathnikom district, in Chonburi Province of Thailand. This evaluation model is planned to be utilized in the evaluation of EmOC in Morang district.

Panatnikom district was chosen mainly because EmOC facility already exists and maternal mortality rate of Thailand is very low (27 per 100,000) as compared to that of Nepal and other developing countries. In addition, the terrain of this district, that is plane land, is somewhat similar to Morang district. Thus the confounders such as the geographical barrier, time to reach facility, transportation has been controlled.This will provide me the opportunity to learn how Thailand as being a developing country has been able to achieve such a low maternal mortality rate. To evaluate the EmOC in Panatnikom District an input-process-output framework is utilized. Based on it and the indicators provided by WHO and UNICEF primary as well as secondary data was collected. In essence, data exercise may be viewed as a pilot test for pre testing not only the study instruments but the entire study design. Any result and lesson learned from the pilot test will be used to correct and strengthen the evaluation study instrument and design.

From the need assessment and data exercise it is clear that we need a better record keeping system to evaluate EmOC. Hence, a record keeping system has been provided which will facilitate the EmOC provider the capability to record the events in the health facilities.

This proposal strengthens the capacity of the Ministry of Health in Nepal to design, implement EmOC in Primary health center and evaluate the ongoing process; informs the decision makers about the importance of maternal mortality and shares information on the most effective strategy to reduce it.