

**Determinants of maternal mortality in Ragh district
of Afghanistan**

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Afghanistan**

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Development Policy & Practice/
Vrije Universiteit Amsterdam

Determinants of maternal mortality in Ragh district of Afghanistan

A thesis submitted in partial fulfilment of the requirement for the degree of Master of Public Health

by

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Declaration:

Where other people's work has been used (either from a printed source, internet or any other source) this has been carefully acknowledged and referenced in accordance with departmental requirements.

The thesis "Determinants of maternal mortality in Ragh district of Afghanistan" is my own work.

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LIST OF ABBREVIATIONS

ADB	Asian Development Bank
AIHRC	Afghanistan Independent Human's Rights Commission
ANC	Antenatal Care
AREU	Afghanistan Research and Evaluation Unit
BEmOC	Basic Emergency Obstetric Care
BHC	Basic Health Centre
BMJ	British Medical Journal
BPHS	Basic Package of Health Services
CDC	Centre For Disease Control
CHC	Comprehensive Health Centre
CHWs	Community Health Workers
CIA	Central Intelligence Agency
CPD	Cephalo-Pelvice Disproportion
CPR	Contraceptives Prevalence Rate
CSO	Central Statistics Office
DH	District Hospital
DOTS	Directly Observed Treatment Short Course
EmOC	Emergency Obstetric Care
EPHS	Essential Package of Hospital Services
EPI	Expanded Programme on Immunisation
FFSDP	Fully Functional Service Delivery Points
FHI	Family Health International
FIGO	International Federation of Gynaecology and Obstetrics
FP	Family Planning
GDP	Gross Domestic Product
Hb	Haemoglobin
HMIS	Health Management Information System
HP	Health Post
ICD	International Classification of Diseases
ICM	International Confederation of Midwives
ICPD	International Conference on Population and Development
ICS	Intrapartum Care Strategies
IEC	Information Education Communication
IMCI	Integrated Management of Childhood Illnesses
IMF	International Monetary Fund
IMR	Infant Mortality Rate
IUDs	Intrauterine Devices
KAP	Knowledge, Attitude and Practices
KIT	Royal Tropical Institute
LB	Live Births

LE	Life Expectancy
MCH	Maternal and Child Health
MDGs	Millennium Development Goals
MMR	Maternal Mortality Ratio
MOPH	Ministry of Public Health
MSH	Management Sciences for Health
NGOs	Non-Governmental Organizations
PHO	Provincial Health Office
PNC	Postnatal Care
PPC	Postpartum care
PPH	Postpartum Haemorrhage
PHCC	Provincial Health Coordination Committee
SBAs	Skilled Birth Attendants
STI	Sexually Transmitted Infections
SRH	Sexual and Reproductive Health
TB	Tuberculosis
TBA	Trained Birth Attendants
TFR	Total Fertility Rate
UN	United Nations
UNDP	United Nations Development Programme
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
UNIFEM	United Nations Development Fund for Women
USAID	United States Agency for International Development
WFP	World Food Programme
WHO	World Health Organization
WRA	Women of Reproductive Age

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GLOSARRY OF TERMS¹

Maternal Mortality

The death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of the pregnancy, from any cause related to or aggravated by the pregnancy or its management, but not from accidental or incidental causes (ICD-10)

Maternal mortality ratio (MMR)

Number of maternal deaths during given time period per 100,000 LB during same time period

Maternal morbidity

Refers to the serious disease, disability or physical damage such as fistula and uterine prolapse, caused by pregnancy-related complications. Maternal morbidity is widespread but not accurately reported.

Maternal mortality rate

Number of maternal deaths in given time period per 100.000 women of reproductive age, or woman-years of risk exposure, in the same time period.

Lifetime risk of maternal death

Probability of maternal death during a woman's reproductive life, usually expressed in terms of odds

Proportionate mortality ratio

Maternal deaths as proportion of all female deaths of those of reproductive age (usually defined as 15–49 years) in a given time period

Skilled birth attendant

A skilled attendant is an accredited health professional (such as midwife, doctor or nurse) who has been educated and trained to proficiency in the skills needed to manage normal (uncomplicated) pregnancies, childbirth, and the immediate postnatal period, and in the identification, management and referral of complications in women and newborns.

¹ All of the operational definitions have been sourced from WHO (ICD-10), UNFPA website and Lancet series on maternal survival 2006; vol. 368: pp 1189-1200

Skilled care

Skilled care refers to the care provided to a woman and her newborn during pregnancy, childbirth, and immediately after birth by an accredited and competent health care provider who has at her disposal the necessary equipment and the support of functioning health system including transport and referral facilities for emergency obstetric care.

Traditional birth attendant (TBA)

A community based provider of care during pregnancy and childbirth. TBAs are not trained to proficiency in the skills necessary to manage or refer obstetric complications. TBAs are not usually salaried, accredited members of the health system. Although usually they are highly esteemed community members and are often the sole providers of delivery care for many women, they are not included in the definition of a skilled attendant.

Abortion

Abortion is the premature exit of the products of conception (the fetus, fetal membranes, and placenta) from the uterus. It is the loss of a pregnancy and does not refer to why that pregnancy was lost.

Stillbirth

A stillbirth occurs when a fetus which has died, in the uterus or during labour or delivery, exits a woman's body. The term is often used in distinction to live birth or miscarriages. Most stillbirths occur in full term pregnancies.

Miscarriage

Spontaneous abortion (SAB), or miscarriage, is the term used for a pregnancy that ends on its own, within the first 20 weeks of gestation.

ABSTRACT

The maternal mortality ratio in Ragh district is estimated at 6500/100.000 LB, the highest ratio ever recorded in the world. The lifetime risk of maternal deaths is estimated at 1 in 3 compared to a ratio of 1 in 30.000 in northern Europe. Despite some achievements in meeting health sector reform targets, since 2001, the maternal health indicators show little improvement. Various socioeconomic, sociocultural, and health system factors are assumed to contribute to the crisis. However, there is no operational research to generate sound evidence on the causes of maternal mortality in Ragh district, thus an urgent need to identify key determinants and related gaps in intervention strategies, in order to save women's and mother's lives in future.

This paper uses secondary data sources and anecdotal evidence to explore what may be the key determinants of maternal mortality in the district and the gaps in the current intervention strategies. Most notably, the district has no access to essential maternal health services such as emergency obstetric care and skilled attendance at births. Findings point to influences of poverty, low status of women in the family and society, early age marriage, female illiteracy, high fertility rates as major socio cultural events that influence the chances of a woman surviving during their reproductive lifetime. Other factors that are linked to access to healthcare include, poor infrastructure and transport, and unavailability of health services are contributing factors to high maternal mortality in Ragh district.

Key words

Maternal mortality, Determinants, Afghanistan, intervention strategies, status of women

INTRODUCTION

Afghanistan is probably one of the few places in the world where giving birth is almost equivalent to death. The maternal mortality ratio (MMR) was estimated at 1600/100,000 live births (LB) in 2002. In Ragh, one of the 29 districts of Badakhshan province the MMR was estimated 6500/100.000 LB in 2002, the highest currently recorded in the world. Maternal mortality is not the only outcome of pregnancy. The non-fatal outcomes of pregnancy and child birth also have negative effects on surviving mothers and new born babies.

After the fall of the Taliban regime in 2001, the international community committed to assist Afghanistan to rebuild its infrastructures, particularly the health and education sectors. Though the MOPH and its stakeholders have had substantial achievements in respect to health sector reform, and expansion of the BPHS coverage, the developments have not reached the rural and remote areas of the country such as Ragh district. For instance the women in Ragh district have no access to EmOC centres with limited basic and referral health service provision. It is when we have the appropriate knowledge, proven intervention strategies, and successful examples from developing countries that they have made substantial achievements in reducing maternal mortality.

When I started my work as a field health officer with Management Sciences for Health (MSH) in 2005 in Kabul and Ghazni² provinces of Afghanistan, I realized that Ragh is not the only district with poor health resources. I observed many districts in Ghazni province with no access to EmOC and only limited access to some primary health care services.

After joining the MPH course in the Royal Tropical Institute (KIT) in the Netherlands, I realized that contributing factors for high maternal mortality in rural and remote areas have not been studied sufficiently in Afghanistan. Therefore I decided to devote my thesis to the study of "Determinants of maternal mortality in Ragh district". I am sure that our understanding of the contributing factors to high maternal mortality in Ragh district will help to promote the design of better intervention strategies to reduce maternal mortality in many rural and remote districts of Afghanistan.

² A province in central Afghanistan

The findings of the thesis will be shared with the Ministry of Public Health (MOPH), Badakhshan provincial health directorate, and other stakeholders involved in the provision of maternal health services in the district. I hope that the thesis findings help the Provincial Health Office (PHO), the MOPH, and NGOs in designing their intervention strategies to reduce maternal mortality in Ragh district and areas similar to Ragh district.

CHAPTER 1

BACKGROUND

1.1 Afghanistan history at a glance

Afghanistan is located in south-central Asia, and due to its geostrategic location, the country has seen many invaders and conquerors during its long history and has hence been subjected to foreign invasions, wars, civil conflicts and humanitarian crises (Wikipedia, 2009).

The Soviet Union's invasion of Afghanistan led the country into political turmoil and long lasting civil conflicts. The Soviet Union withdrew in 1988, but the civil war continued, which led to Taliban rule from 1996 to 2001. (AREU, 2009)

The new era in the history of Afghanistan began after the fall of the Taliban regime. The UN-brokered Bonn agreement in 2001 established a political process in which almost all parties involved in the conflict in Afghanistan agreed to adopt a new constitution, hold a presidential election and a national assembly election, and the interim government was sworn in on the 22nd December 2001. The international community committed to guarantee Afghanistan's security and help to rebuild its infrastructures. Since then, Afghanistan has had substantial achievements in developmental sectors; the GDP growth rate in the first four years grew rapidly, but the Taliban's re-emergence has challenged the stability and economic growth in the country.

1.2 Geography of Afghanistan

Afghanistan is a landlocked country, and is thus dependent on neighbour's seaports which constrain economic activity. It is bordered in the north by Tajikistan, Uzbekistan, and Turkmenistan, on the north east by China, on the east and south by Pakistan, and by Iran on the west. Its total surface area is 647,500 sq km (CIA world fact book, 2009)

Almost two thirds of its surface area is covered by mountains and only 12.13% its lands are arable. The climate is generally dry with cold winters and hot summers.

The population of Afghanistan is estimated at 24.5 million with the annual population growth rate of 3.9% (CSO, 2007). The settled population is estimated to be around 23 million and the nomadic

population, 1.5 million. The total fertility rate (TFR) is estimated to be 6.9. Afghanistan is one of the few countries with a lower life expectancy (LE) at birth for women (45 years) than man (47 years). The crude birth and death rates are estimated 48 per 1,000 and 19.6 per 1000 population, respectively (MOPH, 2008). Almost 76% of the populations live in rural areas and 24% in cities (CSO, 2007). Forty three percent (43%) of the population is below 14 years of age, 54% between 15 to 64 and only 3% is over 65 years of age. Women make up 48.4% of the total population. Women of reproductive age are almost 23% of the total population.

Figure 1.1 Afghanistan map



Source: <http://www.afghanstation.com/afqmap.htm>

1.3 Socio Cultural context

Afghanistan's population is composed of ethnic minorities: Pashtuns 42%, Tajiks 27%, Uzbeks 9%, Hazaras 9%, Aimak (a Persian-speaking nomadic group) 4%, Turkmen 3% and Baloch 2%. Hindus and Sikhs make up a small proportion of Afghanistan's population, and their population has decreased in number after the Soviet Invasion of Afghanistan (CSO, 2007). The official languages are Persian (Dari)³

³ Dari is a dialect of Persian language, spoken in Afghanistan

and Pashto. Persian is spoken by more than 50% of the population and Pashto by 35% of the population (CIA world fact book, 2009). Turkic languages (Uzbek & Turkmen) are spoken by 11% of people. Persian (Dari) is the main language of communication between different ethnic minorities and spoken by the majority of non Persian speakers as a second language. According to UNICEF (2009), 28% of adult Afghans are literate. The male literacy rate is 43% while the female literacy rate is only 13%.

1.4 Socio economic context

Afghanistan is among the low income countries. In 2008, the GDP was US\$388 per capita and the GDP growth rate was estimated to be 3.4%, which shows a sharp decline in comparison to 16.1% in 2006, which is attributed to global economic crisis, growing insecurity, and drought (ADB, 2009; IMF, 2009). Thirty six percent (36%) of Afghanistan's GDP is generated through agricultural activities, and only 22% of the population has access to improved water sources (WHO, 2009; UNICEF, 2009).

The government of Afghanistan spends only 3% of its GDP on health, which is much lower than the 15% recommended in the Abuja declaration (WHO, 2009). (See Annex 2)

1.5 Ragh District of Badakhshan Province

Ragh is one of the 29 districts of Badakhshan province in Afghanistan. The district is located in the heart of Hindu-Kush mountains and the only connecting road is closed almost six months a year, due to heavy snowfall in winter and landslides or the destruction of woody bridges in the rainy seasons of the year. The population of the district is estimated to be 37,000 (CSO, 2007). The people are Tajik and speak Persian (Dari), with Sunni Muslim as the dominant religion. This district is one of the most underserved and neglected areas in the country. Agriculture is the main source of income. (See figure 1.2 below for the map of Badakhshan and Ragh district).

Before 2003, there was no health centre in Ragh district, and after the implementation of BPHS, a CHC was established in the centre of the district to provide primary health care services. The CHC is still understaffed and not accessible to remote villages. For hospital

services people still need to go to the Faizabad⁴ provincial hospital, which takes 10 days by horseback or on foot.

Figure 1.2 Badakhshan province map and its boarder provinces



Source: Adopted from the Lancet 2005 series; 365: p 865

Bartlett et al (2005), during a maternal mortality survey in Afghanistan found a MMR of 6500/100.000 LB in Ragh, the highest ever recorded in the world. The results of the survey were surprising to the MOPH, since there are many districts in north, central, and east Afghanistan that are similar to Ragh in terms of remoteness, mountainous context and hard accessibility. The findings may suggest that the maternal mortality, infant mortality and under five mortality, and other health indicators are similar to Ragh district.

1.6 Health system in Afghanistan

In 2002, shortly after the fall of the Taliban regime and establishment of the new government, Afghanistan's Ministry of Public Health and its stake holders developed the basic package of health services (BPHS) as part of the health sector reform. National MMR was 1600/100.000 LB, infant mortality rate (IMR) of 165/1000 LB, and under five mortality rate of 257/1000 LB (Sabri et al, 2007).

The goal in developing the BPHS was to provide a standardized package of services that would form the basis for the service delivery in primary health care. BPHS (2005) was developed within the framework of the following specific objectives:

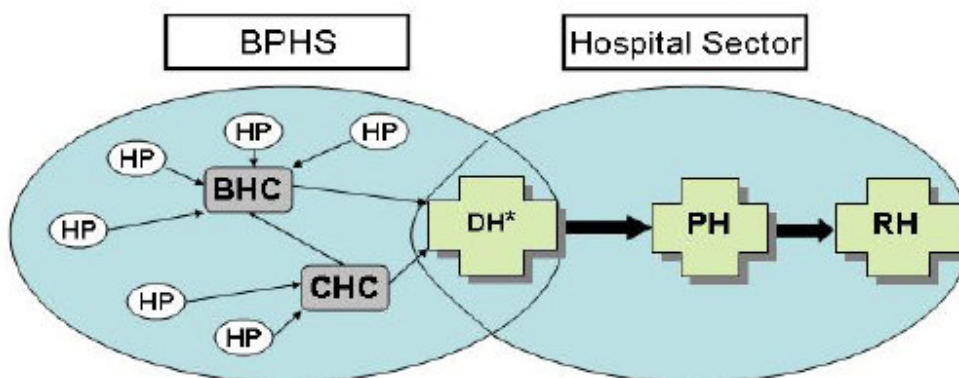
⁴ Faizabad is the capital city of Badakhshan province

1. To include basic services which would have the greatest impact on the major health problems
2. To address the quality of the services
3. To ensure cost-effectiveness
4. To extend the coverage of the services
5. To provide a foundation for the new health system

In March 2003, BPHS was published by the MOPH followed by implementation. The Health services were contracted in the form of contracting out supported by EC, World Bank and USAID. BPHS has seven components with MCH as the first priority component. The BPHS coverage since its introduction in 2002, has increased from 9% to 77% in mid 2005 and to 83% in by the end of 2007 (MOPH, 2008; Sabri et al, 2007).

Figure 1.3 Links between the BPHS and Hospital Sector

Link between the BPHS and Hospital Sector



* Where there is no district hospital, the provincial hospital provides services to fill this role.

Key:
BPHS: HP: Health Post; BHC: Basic Health Center; CHC: Comprehensive Health Center
Hospitals: DH: District Hospital; PH: Provincial Hospital; RH: Regional Hospital

Source: Adopted from the BPHS (2005)

Health posts (HP)

This level of service delivery is located in the community and community health workers (CHWs) provide health services for an average of 100-150 households. Two CHWs are assigned per health post; one female and one male.

Basic Health Centre (BHC)

BHCs serve a population of 15,000 to 30,000 and provide a wide variety of health services to the populations in their catchment areas. Services include, ANC delivery, PNC, non permanent family planning methods, EPI, IMCI, treatment of malaria and TB including DOTS. Recently, identification, referral, and follow up of mental health was introduced. In addition the BHC in charge is responsible to supervise the CHWs in the catchment areas. BHCs have five technical staff: physician, midwife, two vaccinators, and one community health supervisor.

Comprehensive Health Centres (CHCs)

CHCs cover a population of 30.000 to 60.000. (BPHS, 2005), and offer a wider range of services than the BHCs. In respect to maternal health services CHCs can handle some delivery complications and assisting normal deliveries. The staff includes a male doctor, a female doctor, two midwives, a male nurse, a female nurse, two vaccinators, a lab technician, and a community health supervisor.

District Hospitals (DH)

District hospitals cover a population of 100,000 to 300,000, and provide all services provided by the CHCs, including complicated cases. Referred cases are generally surgery under general anaesthesia, x-ray, comprehensive EmOC, and male and female sterilization.

Essential Package of Hospital Services (EPHS)

In 2005, the Ministry of Public Health introduced the EPHS as a complementary package to BPHS. EPHS (2005) defines the type of hospitals and hospital services that should be in place.

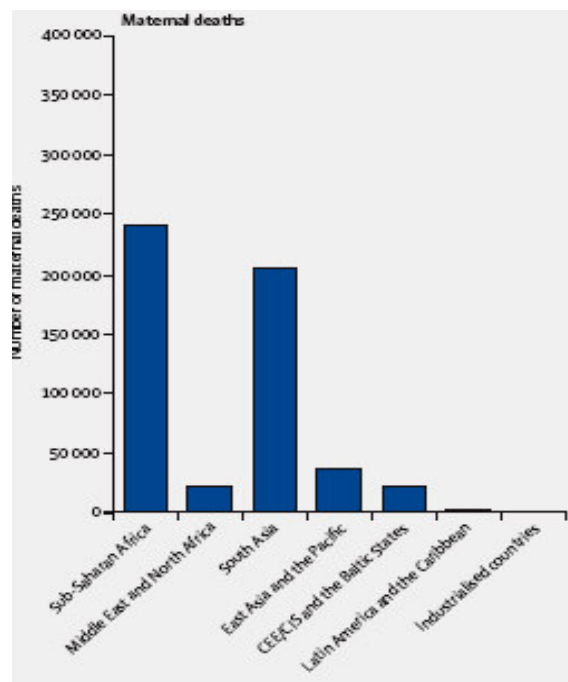
CHAPTER 2

PROBLEM STATEMENT AND STUDY OBJECTIVES

2.1 PROBLEM STATEMENT

Every year, an estimated 536,000 women die around the world due to complications of pregnancy and childbirth. Almost 99 % (533,000) of maternal deaths take place in developing countries. More than 50% (270,000) of maternal deaths occur in sub Saharan Africa, and 45% (241,000) in Asia (WHO, 2007).

Figure 2.1 Distribution of maternal deaths throughout the world



Source: Adopted from the Lancet 2006 series; 368: p 1190

Due to such inequities, high burden of maternal deaths in developing countries, and seriousness of the problem, 189 countries signed the millennium declaration with a commitment to decrease maternal mortality by 75% between 1990 and 2015. According to WHO estimates, the maternal mortality has had an annual reduction of less than 1% between 1990 and 2005, far below the 5.5% annual decline necessary to achieve MDG5 (WHO, 2007).

It is very difficult to obtain accurate measures of the maternal mortality and morbidity due to weak health management information system (HMIS) in Afghanistan. There is a huge disparity between rural and urban settings, currently Kabul reports an MMR of 400/100.000 LB (95% CI 200-600), while in Ragh district of Badakhshan province the MMR is estimated 6500/100.000 LB (95% CI 5000-8000). In Kabul the proportion of women who died due to maternal causes was estimated 16% while in Ragh district 64% of women died due to pregnancy complications. The MDG report (2008) states that most of the maternal deaths are due to pregnancy related complications and are avoidable if appropriate and timely obstetric care is provided. In Ragh district 87% of maternal deaths were considered preventable (Bartlett et al, 2005).

The global estimate for lifetime risk of maternal death⁵ is one in 74, which means one out of 74 women will die of maternal causes, while this life time risk is one in six in Afghanistan, the highest in the world (Ronsmans et al, 2006). In Ragh district the lifetime risk of maternal deaths is estimated to be 1 in 3. The annual number of maternal deaths in Afghanistan due to maternal causes is estimated 20,000, three times more than the number of deaths due to tuberculosis and 10 times more than the number of deaths due to malaria (AbouZahr, 2003). From a total number of 1776 pregnant women in a year, almost 115 dies due to pregnancy complications in Ragh district (HMIS, 2008).

In spite of rapid expansion of BPHS since 2003, the coverage of basic maternal services in Ragh district is far below the national figures. The contraceptive prevalence rate (CPR) is only 7%, and only 4% of births are attended by skilled birth personnel (HMIS, 2008). Ragh district has the highest maternal mortality ratio in the world (Bartlett et al, 2005). Broad socioeconomic, cultural and religious factors, geographical accessibility of the area in combination with a poor health system has driven the district into such crisis (Bartlett et al, 2005). In this paper, I will try to explore in further depth the relationships of the above mentioned factors to high maternal mortality in Ragh district.

The aim of this thesis is to explore the major determinants of maternal mortality in Ragh district and review the current intervention strategies in reducing maternal mortality in Afghanistan. This review analyses the current interventions and service delivery strategies, in order to find

⁵ Probability of maternal deaths during women's reproductive life, usually expressed in terms of odds (Ronsmans et al, 2006).

the gaps, which are supposed to be accountable for maternal deaths in Afghanistan, particularly in Ragh district and the similar situations. Based on the identified gaps, the thesis will provide recommendations in order to boost the maternal health interventions in Afghanistan.

2.2 OBJECTIVES

2.2.1 GENERAL OBJECTIVE

To analyze the maternal health status in Afghanistan and review the effectiveness, feasibility and applicability of current strategies and interventions in order to provide concrete and feasible recommendation to promote maternal health and decrease maternal mortality in remote and rural districts of Afghanistan particularly in Ragh district.

2.2.2 SPECIFIC OBJECTIVES

1. To identify the key determinants of maternal mortality in Ragh district of Badakhshan province in Afghanistan
2. To review the current strategies and interventions and identify the gaps based on evidence from the similar settings in neighbouring countries, countries in the region and the world.
3. Based on the identified gaps to formulate and provide feasible and concrete recommendations to the provincial health directorate, MOPH and NGOs in Badakhshan province.

2.3 STUDY QUESTIONS

1. What are the key determinants of maternal mortality in rural, remote and underserved districts of Afghanistan (Ragh district)?
2. What are the main gaps in the intervention strategies to reduce maternal mortality in Afghanistan (supply & demand sides)?

2.4 METHODOLOGY

The figures on maternal mortality status in Ragh district represented in this paper are based on a field study led by Linda Bartlett from the

Centre for Disease Control (CDC) in 2002⁶. The limited existing data from the national HMIS has been used to figure out the coverage of maternal health services in the district.

Owing to the scarcity of research data & valid epidemiological studies on maternal health status in Afghanistan, I will use the available data from the global literature and countries in the region, similar to Afghanistan context. Unpublished reports and studies carried out by the MOPH, United States Agency for International Development (USAID), Management Sciences for Health (MSH), domestic NGOs' studies have been accessed

In order to identify and analyze the important determinants of maternal mortality in Ragh district, I draw on the models of McCarthy's & Maine (1992), and Roy Pechansky and J.Whilliam Thomas (1981). To review the current strategies to reduce maternal mortality in Afghanistan I have made use of McCarthy's & Main (1992) conceptual framework. Based on the McCarthy's conceptual framework all program interventions designed to reduce maternal mortality should operate through:

1. Reducing the number of pregnancies (Family planning)
2. Reducing the likelihood of deaths due to pregnancy complications (EmOC, skilled birth attendance)

For the analysis of access to maternal health services I have used Roy Pechansky and J.Whilliam Thomas "The concept of access" in order to analyse access to maternal health services in the area of the interest.

2.5 Search strategy

A review of literature was conducted on determinants of maternal mortality in Afghanistan. I have made extensive use of sexual and reproductive health (SRH) module materials in my reviews. I have also used printed books relevant to the topic of my thesis, though the search was limited to English language, and in only one occasion I have used a Persian book as a reference. Due to the scarcity of research data in Afghanistan, I have used literature from the similar contexts relevant to the topic.

⁶ The maternal mortality survey was done in 2002 and research document was published in 2005.

Google scholar search engine has been extensively used during literature review. KIT library has been searched for the printed material and electronic journals. Databases such as Cochrane library, PubMed, MEDLINE and POPLINE were searched for acquiring the related systematic reviews and abstracts. Relevant articles were also retrieved from the science direct, BMJ, and Lancet extensively. WHO, UNICEF, UNFPA, UNDP, Afghanistan's MOPH websites searched for retrieving related documents and information.

2.6 Key Words

Various combinations of the following terms were used: Determinants, maternal mortality, rural, intervention strategies, status of women, skilled birth attendants, traditional birth attendants, intrapartum care, family planning, emergency obstetric care.

2.7 Limitation of study

The major limitation was the scarcity of published literature on maternal health in Afghanistan which proved to be a major challenge in understanding the trends in MMR. Extensive use of unpublished documents, provincial health reports and anecdotal reports were used but some sources may not be reliable due to the poor quality of data. I have made use of global literature or data to support my arguments, which may not be easy to extrapolate or apply it for Afghanistan

CHAPTER 3

REVIEW OF THE LITERATURE

3.1 DETERMINANTS OF MATERNAL MORTALITY IN RAGH DISTRICT

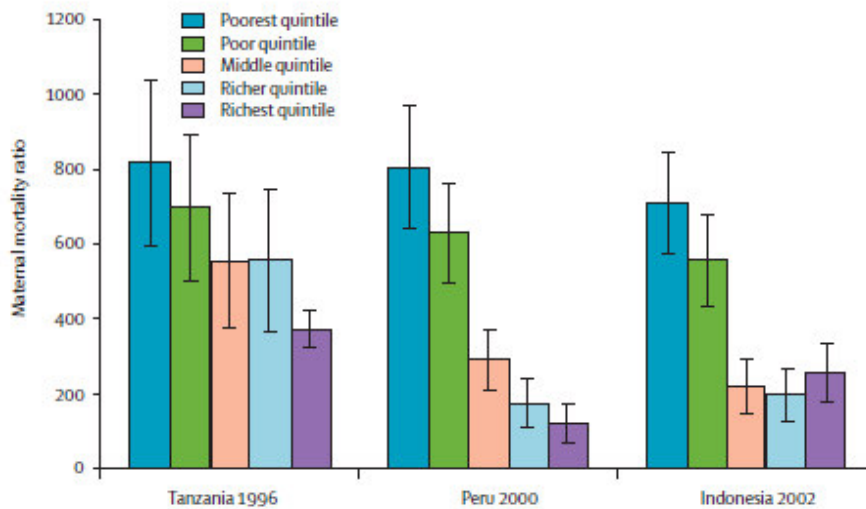
In this literature review, I will focus on the important determinants of maternal mortality in rural, remote, mountainous and neglected areas of the country. This will include issues such as, social cultural, economic factors along with geographical constraints, more specifically maternal health from the client and the provider side. On the provider side, I will focus on the three major interventions which the government of Afghanistan in principle has accepted as the feasible interventions (family planning, skilled birth attendance, and EmOC) in order to reduce maternal mortality (MOPH, 2003a). ANC and TBA training are also included in the intervention strategies to reduce maternal mortality, though evidence shows that ANC role in reducing maternal mortality is very limited (Carroli et al, 2001) and improvement of TBA provision does not reduce maternal mortality (McCarthy, 1997). Therefore I want to shed light on these two interventions as well.

3.1.1 Poverty

According to Ronsmans et al (2006), maternal mortality is associated with poverty. Figure 3.1 depicts the MMR in the population quintiles in three different countries in three continents. It seems that MMR is much lower in the richest quintile and is the highest in poorest quintile. The same pattern is seen between richest and poorest countries of the world. The life time risk of maternal death is one in six in Afghanistan (poorest) while in northern Europe this ratio is 1 in 30.000.

Poor pregnant women have less access to sufficient food, security, and health services. The level of poverty shapes the pregnant women and their family member's decisions to seek care. Researches show that families with lower income do not seek care until pregnancy complications become severe. Costs of transportation, treatment, and other opportunity costs are important factors which determine service utilization (Thaddeus & Maine, 1994).

Figure 3.1 Maternal mortality ratios by poverty quintiles



Source: Adopted from the Lancet 2006 series; 368: p 1190

Ragh district, like many other districts of Badakhshan province, is one of the poorest areas of Afghanistan. Based on the Ministry of Women Affairs (MOWA) and Afghanistan Independent Human Rights Commission (AIHRC), the people on some occasions have sold their children to survive (MOWA, 2009; AIHRC, 2009). The MOWA reports 24 registered cases of child selling by the parents in all districts of Badakhshan province in the year 2008. In one case the family of a 13-year-old girl was paid 40,000 Afghani (US\$ 800) to marry their daughter to one of their relatives (One World South Asia, 2008). Poverty is the driving force that obliges families to force their children (daughters) to get married. Providing food, clothing, and education is costly for the families and the girls eventually leave the family (Nour, 2006).

3.1.2 Decision making at the household level

In Afghanistan family members (husband, in-laws) decide when women can seek care, and often the women have limited autonomy to make their choices of health services, including delivery and childbirth (O'Connor, 1994). Bloom et al (2001) conducted a research in northern India and concluded that women's autonomy seems to be an important determinant in maternal health care utilization among poor and middle-income families. Restrictions on mobility of women imposed by family members could be a disincentive for women in need of maternal care. In Ragh district, like other parts of Afghanistan,

women should be accompanied by one of the family members to the health facility in order to seek care (Ahmad, 2004).

According to the McCarthy's & Maine (1997) lack of women's autonomy limits the women's access to family planning which could lead to pregnancy, pregnancy related complications and finally death of the patient. Mobility is not the only index of autonomy; control over resources and decision making power are also important. The women have limited control over the family resources in rural areas as mainly they are not busy with the income generating activities. However, this autonomy is subject to change and women become more independent in course of time, but this happens after reproductive age in Afghanistan (O'Connor, 1994). The association between economic status and service utilization has been established statistically (Thaddeus & Maine, 1994). Studies show that economic status improvement is associated with an increase in service utilization. Low economic status of women due to long lasting civil war, insecurity, and poverty may be an obstacle for women to use the existing limited service in the centre of the district.

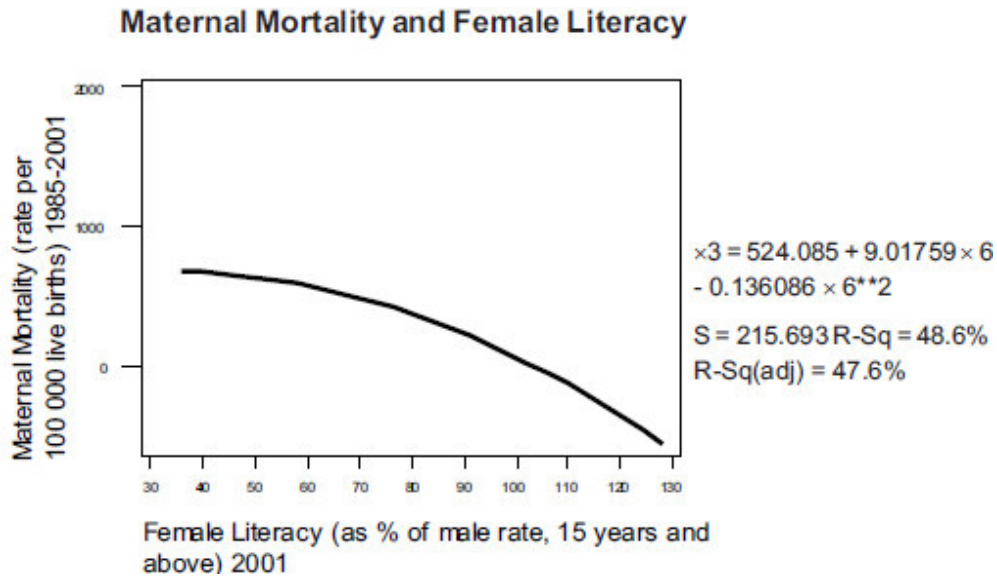
3.1.3 Literacy

Female literacy rate in Afghanistan is only 13% while for men it is 43% and nationally 28% of people are literate (CSO, 2007). The role of literacy is considered to be very important in addressing maternal mortality, though the causal pathways and mechanisms through which literacy and higher levels of education may reduce maternal mortality have not been explained. It is argued that higher levels of education are associated with later age marriages and higher contraceptive use, both of which lead to lower fertility rates and consequently reduction in maternal deaths (McCarthy, 1997).

There are several studies that indicate the association of women's education to maternal mortality. A study in Matlab Bangladesh found that maternal mortality in women who had 8 or more years of formal education was three times lower, compared to those with no formal education (Chowdhury et al, 2007). McAlister & Basket (2006) found the negative correlation between female education and maternal mortality and concluded: "Strategic investment to improve quality of life through female education will have the greatest impact on maternal mortality reduction". In Kabul, the capital of Afghanistan the results of a KAP survey in 2004 revealed that women's schooling was significantly associated with use of ANC attendance, institutional

delivery, skilled birth attendance, and use of contraceptives (Kathia et al, 2004)

Figure 3.2 Association of female literacy to maternal mortality



Source: Chrysta McAlister & Thomas F. Basket, 2006

Based on the above mentioned facts on the association of maternal mortality to women's literacy and women's low literacy rates in Afghanistan and particularly in rural areas, maternal mortality could be partly related to low literacy rates in Ragh district.

3.1.4 Early marriage (Teenage pregnancy)

Early marriage and consequent early pregnancies are significant risk factors for maternal mortality with higher maternal mortality rates (O'Connor, 1994). Early age marriage, including teen and child marriage is common in rural areas of Afghanistan. According to Ministry of Women Affairs, 57% of girls in Afghanistan get married before the age of 16, but the figure could be much higher for Ragh district (MOWA, 2009). Research conducted by Bahgam & Mukhtari (2004) in Herat province revealed that 62% of the respondents were married before age 16. The situation in Ragh district and similar rural and remote areas could be worse than Herat province. Immediately after independence from the British rule in 1919, the king (Amanullah) of Afghanistan started social and economical reforms. The age of marriage was specified by law, 22 for men, and 18 for women, but the reforms faced strong opposition by religious clergy and landlords (Ghobar, 1974). After fall of the Taliban in 2001, the Ministry of

Women Affairs (MOWA) put pressure on legislative bodies to specify age limit for marriage, and the Ministry of Justice set the age limit for girls marriage but it seems that the practice continues due to lack of law enforcement.

Reviews on early and child marriages shows that these marriages are associated with higher risks of obstetric complications and sexually transmitted infections (STIs) transmission. The risk of deaths in child birth is 5 to 7 times more in women between the age of 10 to 14 in comparison to women in their 20s, while the likelihood to die in child birth is only twice in women between 15 to 19 years old (Nour, 2006). The death rates in this category are mainly due to pregnancy complications such as eclampsia, postpartum haemorrhage (PPH), sepsis, and obstructed labour.

3.1.5 Violence against women

It is believed that there is a link between violence against women and maternal mortality because evidence shows that women die due to domestic violence while pregnant or shortly after pregnancy (Espinoza & Camacho, 2005). According to ICD-10 definition of maternal mortality, deaths due to violence are not included in the numerator of maternal mortality ratios (Espinoza & Camacho, 2005), and hence the current HMIS systems do not capture such deaths, though Glasier et al (2006) mentions that violence against women is more common than hypertension or pre-eclampsia.

In Afghanistan 87% of women had experienced at least one form of violence such as physical, sexual, psychological violence or forced marriage in their lifetime (Nijhowne & Oates, 2008). The research found that 17% of women reported sexual violence with a relatively high prevalence of rape (11%). Multiple forms of violence were reported by 62% of women. In 2006, UNIFEM⁷ Afghanistan conducted a research on violence in Afghanistan. The results show that violence affects women of all ages regardless of their level of education and employment; however it is not known what proportion of maternal mortality is due to violence. Beating, rape, forced marriages and suicide as a consequence of domestic violence, were reported the major forms of violence against women by AIHRC (2008).

Though there is no segregated data on the prevalence of violence during pregnancy at the national, provincial or district level, but as the

⁷ United Nations Funds for Women

prevalence of violence is very high (87%) then it seems likely that violence prevalence during pregnancy could be very high. Janssen et al (2003) in a research found that physical violence during pregnancy increased the risk of antepartum haemorrhage, preterm delivery, premature labour, intrauterine growth retardation, and perinatal death. The above mentioned pregnancy complications in line with the unavailability of family planning, EmOC and psychosocial support in the area of the study (Ragh district) could lead to high maternal mortality. The high prevalence of rape in the country could be a contributing factor to maternal mortality in Afghanistan. Koss & Heslet (1992) found that 5% of rape victims become pregnant, and these pregnancies are associated with the high risk of maternal deaths due to attempted abortion or honour killing in the context of Afghanistan.

3.1.6 High fertility rate

The association of maternal mortality to fertility rate has been well established. Shen & Williamson (1999) argue that higher fertility rate is associated with high maternal mortality. McCarthy (1997) also argues that higher fertility rates in developing countries increase the lifetime risk of pregnancy deaths in women. In Afghanistan the total fertility rate (TFR) is estimated to be 6.9 with a huge disparity between rural and urban areas. In urban Kabul TFR is estimated 4.5, while in rural areas of Badakhshan this figure is as high as 7.2 (CSO, 2007). The determinants of high fertility rate in Afghanistan are very diverse, and encompass a large number of factors. As previously discussed 57% of girls in Afghanistan marry before age 16. Son preference is another issue that may contribute to higher fertility rates in rural as well as urban areas of the country.

Lack of awareness on modern contraceptives and unavailability of contraceptives logistics are playing major roles in high fertility rates in rural areas of the country. Traditions and religious factors play a very important role in shaping the women's decision to use contraceptives. In countries with the higher TFR interpregnancy intervals are short, which affects the pregnancy outcome in a negative way. This in turn, increases the fertility rate because of undesirable pregnancy outcomes such as, abortion, stillbirth and miscarriage (Da Vanzo et al, 2004).

Systematic reviews findings show that short interpregnancy intervals are associated with uterine rupture (in women with previous delivery by caesarean section) and uteroplacental bleedings, which are fatal complications in areas with no comprehensive EmOC (Conde-Agudelo et al, 2007). Based on the findings of the review, it is obvious that

maternal conditions due to short interpregnancy intervals in Ragh district and similar settings in other provinces of Afghanistan could be potentially fatal as the people do not have access to comprehensive EmOC.

World fertility surveys shows that in Asian countries, by providing contraceptives to all women who did not want children, 35% of maternal deaths could be prevented (Ganatra & Hirve, 1995).

3.1.7 Religion and Traditions as maternal mortality determinants

Almost all population in Ragh district are Sunni Muslims with a very conservative interpretation of Islam. There is no consensus among Muslim scholars on the minimum age for marriage, and conservative religious clergies have opposed laws limiting the age of marriage. According to Afghanistan law, the minimum marriage age for a girl should be at least 16, but Mullahs usually ignore the law and they give the permission for underage marriage (Kakar, 2004). In the same manner the religious leaders are also opposed to family planning programs, and in March 2006, the community based family planning program was stopped in four districts of Badakhshan province (Sato, 2007). Similar to religion, cultural values also affect pregnant women's health in traditional societies.

Tober et al (2006) revealed the sectarian differences over accepting contraceptives in Afghanistan. He found that Shias⁸ are more flexible to use contraceptives than Sunnis⁹. There are many verses from the holy Quran, which permit birth spacing but traditional Mullahs in many occasions are unaware of it. Tober et al, (2006) also found that Hazara and Tajik women used contraceptives more frequently than Pashtun women among Afghan refugees in Iran.

Traditionally some people believe that delivery and child birth are common issues and do not need medical care and therefore are not encouraged to attend the formal health facilities (O'Connor, 1994; Popal, 2004). Such beliefs prevent women from using existing limited services in the district and increase the risk of pregnancy complications and deaths due to complication in Ragh district.

⁸ Shia is one of the main sects of Islam with a more open interpretation of Islam

⁹ Sunni is the biggest sect in Islam with a more conservative interpretation of Islam

3.1.8 Nutritional status of women

During pregnancy, women need additional food supplementation because their requirements for food rations are higher than general population (Young et al, 2004). According to the World Food Program (2009) and United Nations Development programme (2009), almost 8.8 million people are dependent on WFP for food mainly in northern and central Afghanistan.

The prevalence of acute malnutrition (moderate to severe wasting) is 7% which is not considered high, but the prevalence of underweight and stunting is very high in Afghanistan (MoPH, 2005). Based on the results of national nutritional survey (MOPH, 2005), the prevalence of chronic malnutrition was found 54%, which is very high. The results of 2002 household survey in Badghis province showed the similar results (57.7%) for the prevalence of chronic malnutrition in all children's age groups (Woodruff et al, 2005).

Obstructed labour is another important complication of pregnancy, which is very common in women who are short in stature. This complication (obstructed labour) is attributed to chronic malnutrition in developing countries (Rush, 2000). Poor nutrition of children leads to stunted mothers, and stunted mothers give birth to small babies. Cephalopelvic disproportion (CPD), which leads to obstructed labour, is not a life threatening condition for delivering mother and the baby in developed countries, because of the availability of comprehensive EmOC (Rush, 2000). However this condition is fatal to mothers and the unborn children in Afghanistan due to lack of access to comprehensive EmOC (Bartlett et al, 2002).

Bartlett et al (2005) found that 32% of maternal deaths in Afghanistan are due to haemorrhage while in Ragh district of Badakhshan, obstructed labour was reported as the major cause of maternal mortality (30%) which could be attributed to high prevalence of chronic malnutrition and probably early age marriage. Anaemia is an indirect cause of maternal mortality. It is believed that 50-70% of pregnant women are affected by nutritional anaemia in developing countries. The prevalence of nutritional anaemia in pregnancy was reported to be 90% in (MOPH, 2005). It is believed that the risk of maternal death is increases, with severe anaemia ($Hb^{10} < 7g/dl$), which is related to low uptake of iron. On the other hand, iron and vitamin A, supplementations have been found to be effective in achieving

¹⁰ Haemoglobin

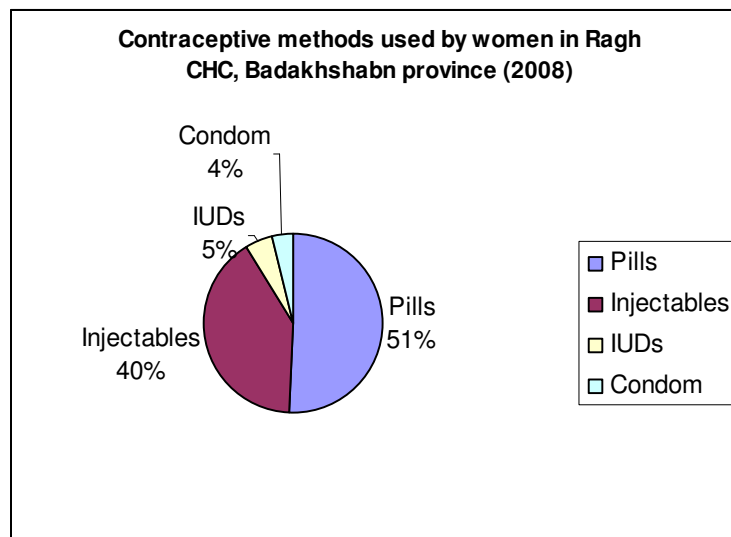
maximum levels of haemoglobin (Hb) in women (Suharno D et al, 1993).

3.2 Health services and maternal mortality in Ragh district

3.2.1 Family planning (FP)

FP is an internationally proven strategy to reduce maternal and child mortality in countries with high total fertility rates. It is believed that an estimated 32% of maternal deaths and 10% of childhood deaths can be averted by promoting family planning in countries with high total fertility rate and MMR (Cleland et al, 2006). It is believed that “a woman is not at risk of maternal death unless she becomes pregnant” (McCarthy, 1997). Therefore, using modern FP methods prevents unwanted pregnancies and reduces the lifetime risk of maternal deaths. The lifetime risk of maternal deaths in Ragh district is 1 in 3, and the TFR is estimated to be 7.2, therefore family planning could be an effective intervention to reduce maternal mortality in Ragh district (Bartlett et al, 2005)

Figure 3.3 commonly used contraceptives in Ragh district of Badakhshan province in 2008



Source: Prepared using facility based HMIS data, Ragh CHC

It was mentioned that teenage pregnancy is a common problem in Ragh district, therefore targeted FP for the teenage married couples

would prevent early pregnancies and pregnancy related complications. Evidence shows that teenage pregnancies (below 20 years) are associated with complications and deaths (FHI, 2009).

Data from Ragh CHC shows that CPR has remained very low in spite of progresses made in other provinces and urban areas of the country. The CPR in Ragh district is only 7%, which is much lower in comparison to overall CPR coverage in the country. With a population of 37,000, the number of women of reproductive age (WRA) is calculated 6468 women eligible for family planning and a total of 77,616 couple month protection is needed for an ideal 100% coverage of family planning in a year. In 2008 only 198 women have used contraceptives in Ragh district with a total couple month protection of 468. All contraceptives have been obtained in the health facility. The most common methods (see Figure 3.3) used include, Pills and Depo-Provera (injectables) (91%), the condoms (4%) and IUDs (only 5%).

The factors underlying high fertility rates and low CPR in Ragh district are summarized here as demand and supply side factors:

A. Demand side factors

Multiple factors deprive the women in Ragh district from their basic rights. Insufficient health resources such as qualified human resources and lack of contraceptives commodities limit the women's access to the family planning. It was mentioned that in Ragh district the stock out of contraceptives is frequents and only few methods of family planning are available which limits the women's choices to the methods. Cultural, religious and economic factors also limit the women access to their basic right (contraceptives).

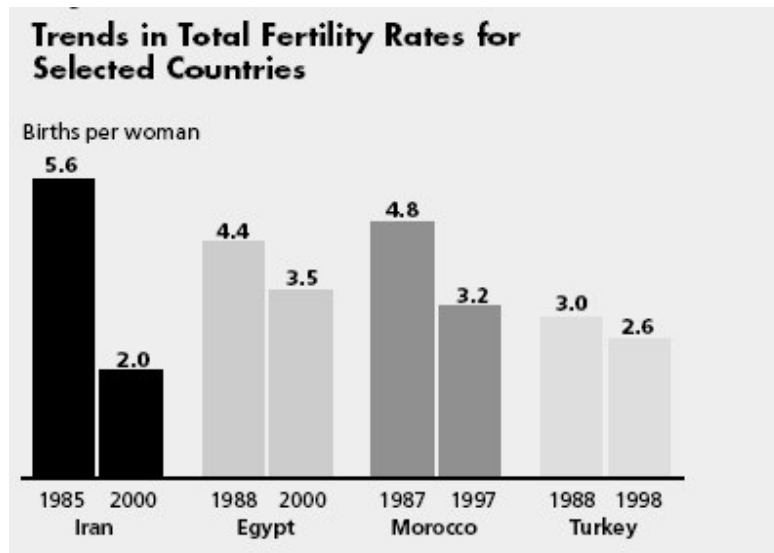
Conservative religious leaders denounce the use of contraceptives and consider it inconsistent with Islam. This belief is almost common in all categories, including among educated people in Afghanistan (Popal, 2004). However some Muslim countries such as Iran, Egypt, Morocco, Turkey and Indonesia, have very successful family planning programs. In Iran for instance the total fertility rate declined from 5.6 in 1985 to 2.0 in 2000 because the family planning program has the support of religious clergy (Roudi-Fahmi, 2006). (See figure 3.4)

It is clear from the evidence to date that culture and traditions are important factors which shape women's decisions to use contraceptives. In addition, economic factors play a role; there is no social security system or pension for retired or old aged people, so

people try to have more children to have a better economic support when they become older.

High infant and under five mortality along with long lasting civil war make the parents want to have more children, especially sons, because there is fear that they may lose the children due to childhood disease or as a result of civil war (Popal, 2004; Rohde & Wyne, 2002). Evidence shows that there are differences in acceptability of FP services by different ethnic groups as well as different religious sects. Non Pashtuns (Tajiks, Hazaras) have a higher degree of contraceptive acceptance (Sato, 2007). The national reproductive health survey in 2005 approves that Tajik and Hazara women had higher rates of contraceptive use in comparison to Pashtun women.

Figure 3.4 Trends in Total Fertility Rates



Source: Population Reference Bureau (PRB) database, based on selected national Surveys

Beside the above-mentioned factors, misconceptions or misinformation about contraceptives prevent people to use the family planning services. In a survey conducted among 20 trainers of Community Health Workers (CHWs), they were asked to list misconceptions (side effects of contraceptives) about family planning. A total number of 53 misconceptions were listed by these 20 trainers (Sato, 2007). Some of the misconceptions are as follows:

“The pill makes women crazy. They lose their patience and start behaving badly toward their family. They should not use this method.”

“Pills cause mental diseases.”

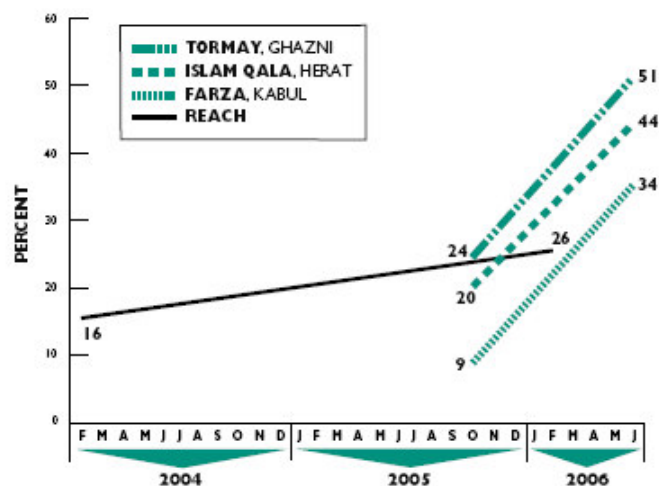
"Pills can cause infertility."

"Injections can cause increased or decreased bleeding."

B. Supply side factors

In Ragh district, as the contraceptives are provided only by the health facility, a small proportion of the population has access to the health facility. The majority of the population has no access to FP methods because only 10% of the people in Ragh district live in 2 hours distance by walk from the health facility. Although the CHC has a female physician and trained midwife but the permanent contraceptive methods (male & female sterilization) are not provided by the health facility. According to BPHS (2005) male and female sterilizations are only being provided in the first referral levels hospitals and the people in the district do not have access to hospital services.

Figure 3.5 Progresses in Contraceptive Prevalence Rates, (2004-06) REACH Projects



Source: Management for Science Website
www.msh.org

At facility level, stock out of family planning commodities in the winter season has been reported by the health facility in 2008. The two frequently used contraceptives Depo-Provera and Pills have had 60 days of stock out according to the HMIS data from the health facility (MOPH, 2008). The reason for stock out could be attributed mainly to stock management issues due to weak management systems in the facility. The long stock out days of family planning commodities limits women's ability to make choices of different methods of family planning, and discourages the women from coming to the facility for

seeking care and damages the health facility's reputation in the community.

Overall, the coverage of FP has been evidenced through CHWs in some pilot projects in Gahazni, Herat and Kabul provinces of Afghanistan. Fig 3.5 shows the how CHWs increased the CPR coverage in the three districts (Ameli et al, 2006). In Ragh district family planning is not provided by the CHWs, because of insufficient number of CHWs in the facility's catchment area but this example indicates that it is possible to scale up the CPR coverage by providing contraceptives through CHWs in the community.

According to Afghanistan's Constitution, basic primary health care, including family planning services, are free of charge, but high cost of transportation or marginal costs hinder the patients from using the limited existing family planning services in Ragh district.

3.2.2 Why emergency obstetric care?

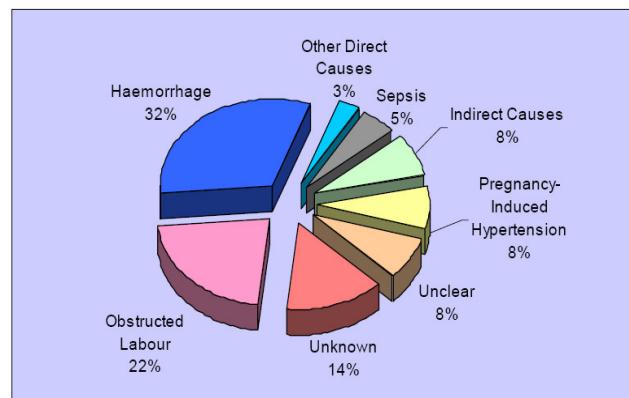
An estimated 210 million women develop life threatening emergency obstetric complications each year and more than half a million women eventually die due to these complications (Glasier et al, 2006). Evidence shows that almost 15% of deliveries develop complications, and if skilled personnel do not provide emergency care, the complications may lead to maternal deaths or disabilities (Shah & Lale, 2007). In McCarthy's (1992) conceptual framework for analyzing determinants of maternal mortality, the unknown factors play an important role in development of pregnancy complications, and even by providing best ANC, the complications may occur any time during or shortly after delivery which need EmOC. Campbell et al (2006) states that "emergency obstetric care is an essential requirement for reduction of a substantial proportion of maternal mortality".

In Matlab Bangladesh the maternal mortality ratio declined from 600/100.000 LB in 1976 to 200/100.000 LB in 2001, though the majority of women still deliver at home in the absence of skilled attendants. One of the major reasons for this decrease in MMR is substantial access to EmOC. In developing countries, such as Sri Lanka, maternal mortality sharply declined in a three years period (1947-1950) from 1056 per 100.000 LB to 486 per 100.000 LB, which is mainly attributed to establishment of rural health facilities able to refer emergencies to EmOC centres (Paxton et al, 2005). These evidences emphasise the significant role of the EmOC services in reduction of

maternal mortality, however overcoming delays in reaching EmOC facilities is a requirement for optimal success of EmOC strategy (Campbell et al, 2006).

According to the literature, 75% of maternal deaths are due to direct obstetric causes, such as haemorrhage, obstructed labour, hypertensive disorders, sepsis, and unsafe abortions (Thaddeus & Maine, 1994). The direct obstetric causes of maternal mortality for Afghanistan are shown in figure 3.6

Figure 3.6 Causes of Maternal Mortality in Afghanistan



Source: Afghanistan MOPH, 2006

EmOC in Ragh district

Availability

According to WHO (2009b) standards, at least five EmOC centres are required per 500,000 populations and at least one of the health facilities should provide comprehensive EmOC. This is one of the important indicators for measuring availability of EmOC services. Comprehensive EmOC, can be provided only by the hospital settings in Afghanistan because the blood transfusions and operating theatre is only available in hospitals (see Annex 4; EmOC indicators). Since there is no hospital setting in Ragh district or adjacent districts, the women in the district have no access to CEmOC centres. In Badakhshan province two hospitals are functioning for a population of more than one million people dispersed in a mountainous and geographically hardly accessible area of 44.059 km².

In Ragh district, in principle the basic EmOC should be provided by the CHC, but evidence shows that even normal delivery rates are very low in the CHC. According to the HMIS data from Ragh CHC, on average there has been only 6 institutional deliveries per month in 2008 while the number of deliveries is estimated to be 1776 in a year. Only normal delivery kits are available in the health facility (HMIS, 2008). The low utilization of existing services is possibly due to lack of awareness in the community, long walking distance from the villages to health facility, lack or costly transportation and insufficient skilled personnel. Only one midwife has been posted to the health facility and the second midwife position has been vacant for a long time (HMIS, 2008).

The nearest hospital to Ragh district is Faizabad provincial hospital, and it was mentioned that it takes days to reach to the hospital by animal transportation or walking (Bartlett et al, 2005). Even this hospital is understaffed, and suffers from shortage of medicines, supplies and blood. Case studies reveal that the hospital staff is overloaded and patients are responsible to pay for the medications and even blood. Chung J (2007) an American journalist visited Badakhshan in order to observe the existence of maternity services, and in one occasion she observed that a family could not afford a US\$ 100 to buy blood for the patient with a newly delivered baby. The mother finally died and left the husband and the second child behind.

The availability of comprehensive EmOC is therefore a major problem in Ragh district of Badakhshan province, but the interventions should focus on both establishing a comprehensive EmOC centre or upgrading CHC to comprehensive EmOC centre, and sensitizing the communities through health education campaigns to use the services.

Accessibility

It was already mentioned that only 10% of the population in Ragh district are living in 2 hours walk from the nearest facility. Only these 10% of people have relatively easy access to primary health services. Since the EmOC is not provided in the health facility, therefore there is no access to EmOC at all in the district. In almost six provinces of Afghanistan, one provincial hospital exists in the centre of the province. There is no hospital in Nuristan province (MOPH, 2009b), which is also mountainous and difficult to reach. The distance between some of the remote districts of Ghazni province to the centre of Ghazni is more than 12 hours by car. Even if the patients are referred to the hospital by the existing CHC in Ajiristan district, it takes 9-12 hours to reach the hospital.

Affordability

The researchers in Kenya found that physical proximity is not the only factor which shapes people's decisions to utilize the services (Thaddeus & Maine, 1994). Other factors, such as cost of treatment, may limit utilization of services by the users.

The Constitution of Afghanistan guarantees free health services to all Afghanistan's citizens, but the physician and facility fees are not the only obstacles for utilization of services. Costs of transportation, medication and supplies, and opportunity costs are the main barriers in the decision making process to seek care (Thaddeus & Maine, 1994). In principle, public health facilities should not charge patients for services including medicines and supplies but case studies show that in public hospitals, even in the capital Kabul patients pay for medicines and supplies (MSH, 2004).

Acceptability and the quality of care

The perceived quality of care by the clients is another important determinant in decision to seek care (Thaddeus & Main, 1994). Reviews indicate that quality of care is considered even more important than the distance. The perception of quality of care by the patients depends on the socioeconomic cultural context in which the patients live in. Wilde et al (1993) has studied the quality of care from the patients' perspective which is viewed from four dimensions: medical competence of health providers, physical condition of the facility, behaviour of the staff and socio cultural atmosphere of the organization. Exit interviews carried out by MSH (2005) in five health facilities in Ghazni province of Afghanistan indicated that 62% of the respondents (women) mentioned health providers' competence, behaviour, and presence of female health providers as important factors in their decision to make use of the services. The MOPH has chosen two proxy indicators to assess the quality of maternity services in the hospitals: Caesarean sections and the proportion of health facilities with female staff. The proportions of caesarean sections in all provinces vary from 0% in Nuristan to 3.2% in Panjshir province (MoPH, 2009a). There is no referral hospital in Nuristan province and the patients must travel to neighbouring provinces for hospital services. Evidence shows that the clients usually give priority to the perceived quality of care in making decision to seek care rather than proximity of the facility (Thaddeus & Maine, 1994).

The availability of female health providers in the context of Afghanistan is very important in patient's decision to seek care. The midwifery

training program, which started in 2003, was an important step to address the issue of female health providers. Since 2002, the number of midwives increased nationally from 467 in 2002 to 2167 in 2008 (UNICEF, 2009) but it is estimated that Afghanistan still needs at least 4500 more midwives to address the gap in female providers at BPHS facilities in rural and remote areas of the country.

3.2.3 Skilled Birth Attendance in Ragh district

It is estimated that if the skilled attendants are present at all deliveries 16% - 33% of maternal deaths could be averted (Graham, 2001). However, skilled birth attendants need an enabling environment of equipment, supplies, drugs, EmOC centre and transport for referrals, in order to work efficiently. The enabling environment in a broader sense includes also the policy and community support. The rationale behind skilled attendance at birth is that maternal deaths are concentrated around labour and delivery, and it is estimated that two-thirds of maternal deaths occur in late pregnancy up to 48 hours after delivery. Therefore presence of a health professional with midwifery skills during delivery may decrease the chance of maternal deaths, either through management of obstetric complications or referral of the complicated cases to the EmOC centre (Graham, 2001). In developing countries village midwife programs has been very successful in increasing the skilled birth attendance and management of emergency complications. In Indonesia skilled birth attendance increased from 37% to 59% between 1998 and 1999 after posting midwives to the districts. Through regular in-service training and supportive supervision the midwives skills and abilities improved to manage delivery complications, but this strategy still can not guarantee access to comprehensive EmOC for all women who need it (Ronsmans et al, 2001).

In 2003 only 6% of births were attended by SBAs in Afghanistan and in 2006 the 19.9% of births were attended by skilled personnel, which is partly attributed to expansion of BPHS and partly due to community midwifery training program. The percentage of health facilities with female health workers (doctor, nurse, and midwife) increased from 39% in 2004 to 76% in 2008 (UNICEF, 2009).

In Ragh district only 4% of the deliveries are attended by skilled attendants in 2008. The community midwifery training program started in 2003 to deploy midwives to the remote villages, though in Ragh district only one midwife has been posted in the health facility and there is no midwife posted in the villages (HMIS, 2008).

Although the MOPH has accepted a 100% hardship allowance (MOPH, 2003) for the midwives, posted in remote areas but the midwives are still not willing to serve in the remote and underserved areas where the work opportunity for their spouses and education for their children proves difficult (Ameli et al, 2006).

3.2.4 TBAs and CHWS role in maternal health program in Afghanistan

The TBAs are not considered as skilled birth attendants based on the definition of SBAs by WHO, international confederation of midwives (ICM), and FIGO (See the definition of TBAs and SBAs in the glossary list). However, historically TBAs have played a significant role in the provision of empathy, psychological, social and emotional support during deliveries, but recent analyses conclude that the impact of TBA training programs on maternal mortality is low (Bergstorm & Goodburn, 2001). The investment on TBAs training programs as a single intervention and ignoring the training of intermediate level health providers, particularly midwives has not reduced MMR (Canavan, 2008). However TBAs can play a positive role in referring delivery complications to the EmOC units provided the EmOC services are available in the area and the TBAs are connected to the EmOC facilities. Studies in Asian and African countries question the efficacy of TBA training in reducing MMR. Results of TBA training in Ghana showed that TBA training played a significant role in decreasing intrapartum fever, and removing retained placenta but it was associated with prolonged labour. The authors conclude that "the evidence for beneficial impact of TBA training on the health of mothers and newborns is not compelling." (Smith JA et al, 2000). Another study in Bangladesh, comparing the practices of trained and untrained TBAs show that infection rate among patients of trained TBAs and untrained TBAs was not different, though the trained TBAs practiced cleaner deliveries than the untrained ones (Fauveau, 1998).

According to the MOPH (2009a), TBAs assisted 20.3% of deliveries in Afghanistan in 2006, but still there is no information about the quality of the services they provide. Until 2003 the MOPH, and NGOs supported the TBA training program in provision of delivery services in Afghanistan and after introduction of BPHS in 2003 the new strategy encouraged the TBAs to receive CHW training and work as CHWs in health posts.

BPHS also defines the roles and responsibilities of female CHWs clearly. The female CHWs are required to provide information, education and communication (IEC), refer, and report home deliveries to their health facilities. BPHS (2005) allows female CHWs who had been working as a TBA in the past to attend normal deliveries. According to BPHS (2005), Ragh district need an estimated 74 CHWs to deliver primary health care services mainly for the women and children. Ideally half of the CHWs should be women. In the area there are only 12 CHWs and 4 of them women and only two they have worked as TBAs in the past. CHWs are not paid and they provide health services voluntarily. Motivation of the CHWs is the main issue in the health system in Afghanistan and is the weak point of the health system.

CHAPTER 4

GAP ANALYSIS OF MATERNAL HEALTH CARE IN RAGH DISTRICT

INTRODUCTION

In this chapter I will discuss the intervention strategies in Afghanistan that are designed to address maternal mortality with reference to antenatal, intrapartum, and postnatal stages.

I will identify the gaps in the intervention strategies in relation to maternal mortality in rural and remote areas of Afghanistan. The package of interventions¹¹ for the following three strategies has been specified in the national reproductive health policy (MOPH, 2003b). It is worth mentioning that ANC, Intrapartum care, and PNC strategies ensure the health of both the mothers and newborn (Gerein et al, 2003), but here I will focus uniquely on maternal health.

4.1 Ante natal care

Although the ANC is a component of safe motherhood, without other interventions, such as EmOC it has a limited role in preventing maternal mortality because the majority of pregnancy complications can not be predicted and can occur any time during pregnancy, delivery or after delivery (Carroli et al, 2001). ANC offers essential health care services in line with national policies, in the country (MOPH, 2003a), but there are many factors that influence effective coverage of ANC in Ragh district. Service related factors (supply side factors), and factors related to the users (demand side) are identified as the main barriers toward successful implementation of ANC strategy in Ragh district.

A. Gaps related to health services

It was mentioned that Ragh CHC is located in the district capital, and it is estimated that only 10% of the catchment population is living within two hours walk from the health facility, and the rest of the population live in remote villages. Four ANC visits have been recommended by the national reproductive health strategy (MOPH, 2003a) during pregnancy. Only 8% of pregnant women had completed three ANC in 2008 (HMIS, 2008)

¹¹ Combination of single interventions such as; procedures and drug treatments

Shortage of female health staff is another obstacle that hinders the women from utilizing the ANC services in Ragh district. Traditions and customs forbid women to be visited by male health providers in Afghanistan (WHO, 2009c; Ahmad, 2004). According to the MOPH (2009b), the proportion of health facilities with required female staff increased from 39% in 2002 to 76% in 2006 but this substantial increase in the number of female staff has had little effect in Ragh district, since the facility is staffed only by one midwife and one female physician.

Staff training and competence are challenges in providing the whole sets of interventions included in the ANC package of interventions. For instance, treatment of pregnant women infected with TB is one of the single interventions in the package while the only midwife in the health facility has not received training on DOTS strategy. Bartlett et al (2005) found that almost 6% of maternal deaths in Ragh district were caused by TB. Fully functional service delivery points (FFSDP)¹², evaluation results in 2006 shows that only 12% of health facilities in Badakhshan province had regular training needs assessment and staff performance review programmes (Laumonier-Ickx, 2006).

CHWs are responsible to disseminate the benefits of ANC to the community, but the number of CHWs is not adequate in Ragh district, therefore the majority of pregnant women and their families may not have access to even information about ANC services. It was mentioned in chapter 3 that in Ragh only 12 CHWs are working and only four of them are women (HMIS, 2008). Therefore, achieving optimal ANC coverage is partly related to sufficient number of CHWs, particularly female CHWs in the district.

Other gaps that are of concern and are further elaborated in Chapter 3 include:

1. The quality of ANC, provided in the CHC could not be optimal based on the above mentioned factors.
2. Availability of drugs, supply and vaccines, and micronutrients is a challenge in successful implementation of the strategy.
3. Low managerial capacity in the CHC and stock management issues which lead to inefficient use of the existing resources.

¹² Fully functional service delivery points (FFSDP), is a quality improvement tool developed by Management Sciences for Health (MSH) in order to improve the quality of BPHS facilities.

Gaps related to service users

Social cultural factors, such as women and their families' beliefs on pregnancy and childbirth, shape women's decision to seek health care. According to the baseline household survey results in 13 provinces of Afghanistan, the majority of women (68%) in rural settings perceived pregnancy and childbirth as a normal event which does not need medical care (Ameli et al, 2006). Lack of information on the benefits of the ANC visits represents a challenge for successful implementation of maternal health strategies. According to Bartlett et al (2005), only 10% of the households in Ragh district had access to radios. Previously it was mentioned that CHWs are responsible to disseminate information about the benefits of ANC, but due to inadequate number of CHWs, this intervention would not be practical in Ragh district.

Access to the health services a big challenge in Ragh district primarily due to bad road network and lack of transportation. Cost of the services is also an important factor in shaping decisions to use ANC services. It is already established in the literature review that perceived quality of care by the patients is important factor in utilization of service.

4.2 Intrapartum Care Strategies (ICS)

Since the majority of maternal deaths occur between the third trimester and first week after the end of pregnancy, intrapartum care is crucial to prevent avoidable obstetric complications by ensuring safe normal deliveries and detecting obstetric complications (Ronsmans et al, 2006). In Afghanistan, the intrapartum care is provided by different levels of cadres through community based health settings, health centres, maternities and hospitals (MOPH, 2003a). According to BPHS (2005) health centres (BHCs & CHC) provide normal delivery care and into some extent BEmOC while community midwives are supposed to attend home deliveries in the community. Though the MOPH is not supporting TBA training program since 2003 but the TBAs attend a substantial number of deliveries in the rural areas (MOPH, 2009a). The package of interventions included in the ICS encompasses a wide variety of single interventions. (See Annex 7)

Based on the literature review and facility based data from Ragh CHC, the following gaps are identified in ICS in Ragh district.

Gaps related to health services

Provision of 24-hour normal delivery, BEmOC and CEmOC services are key to the successful implementation of intrapartum care strategies in

Ragh district. The women in the district do not have access to the comprehensive EmOC at all. Evidence shows that availability and accessibility to CEmOC is enough to substantially reduce maternal mortality. In Matlab Bangladesh the maternal mortality ratio reduced from 600 per 100.000LB to 200 per 100.000 LB (from 1976 to 2001) by ensuring women's access to EmOC (Campbell, 2006).

Normal delivery services provided by Ragh CHC are said to be accessible for only 10% of the target population in the catchment area. Since the facility does not provide 24 hour normal delivery services, a substantial number of deliveries occurring at night can not be attended by the health centre. For instance, in Paghman CHC, located in Paghman district of Kabul province the number of normal deliveries increased from an average of four deliveries per month to 58 deliveries per month, after the CHC was upgraded and provided 24-hours services (Laumonier-Ickx, 2006)

Ragh CHC is suffering from an acute shortage of qualified staff (midwives). Staff motivation is a big challenge for BPHS implementers in remote rural areas, since the health workers (physicians, midwives, nurses) are not willing to work in rural and remote areas (Popal, 2004). Financial incentives could be an important motivator of the health staff but in a study in Tanzania, Manogi et al (2006) concluded that factors such as career development, supportive supervision, and performance appraisal are also important for staff motivation. The shortage of supplies, drugs, and equipments is evident in Ragh CHC. The Provincial Health Coordination Committee (PHCC) team found in a survey that only normal delivery kits were available in the in Ragh CHC. Stock out of essential drugs, FP commodities were also found during the PHCC monitoring visit (PHCC, 2008).

The referral system is very poor in the different levels of health system in the district. The CHWs are expected to refer complicated deliveries to the health facility (BPHS, 2005), but due to insufficient number of CHWs and lack transportation facilities, financial costs to the patients, and social and cultural factors, the referral system is not functioning efficiently. Referral of obstetric complications to the provincial hospital is almost impossible due to lack of ambulances, roadblocks in the winter and long driving hours to the provincial hospital.

Home deliveries attended by skilled birth attendants (community midwives) have proved successful and reduced maternal mortality ratios in countries such as Malaysia and Indonesia (Campbell et al,

2006). In Ragh district only one midwife has been posted to the health facility and there are no community midwives in the villages.

Gaps related to service users

Awareness and knowledge among women and their family members about the possible risks of pregnancy and child birth is an important factor that shapes women's decisions to seek care (Thaddeus & Maine, 1997). Previously it was mentioned that the majority of women (68%) in rural areas of Afghanistan believed that pregnancy and childbirth are normal events and do not require medical professional care (Ameli et al, 2006). These beliefs possibly hinder the patients and their family members to seek skilled care for normal deliveries. Providing information on the benefits of skilled care at birth and the risks of unskilled delivery and child birth is likely the only feasible intervention to increase awareness in the community. According to the reproductive health strategy, community awareness particularly women's awareness is the core responsibility of CHWs, but due to inadequate number of CHWs this strategy may not work in Ragh (BPHS, 2005). As the majority of women are illiterate, the alternative means of health education (published materials) is not accessible to them. In Ragh district people do not have access to television and a small percentage of households have access to radios (Bartlett et al, 2005)

Perceived accessibility is among one of the factors that influence women's decisions to seek care (Thaddeus & Maine, 1997). Factors such as long distances, lack of transportation and costs of care limits accessibility to health services. Costs of care are considered a barrier for poor families to utilize health services (Thaddeus & Maine, 1997). As it was previously mentioned, primary health care service are free of charge in Afghanistan according to the constitution, but the marginal costs of care, such as transportation costs and opportunity costs, may swell the costs of care and prevent the women from seeking health services.

Perceived quality of care is among the considerations in the decision making process to seek care (Thaddeus & Maine, 1997). As it was mentioned previously, that the facility in Ragh district is understaffed and under equipped, which limits staff abilities to provide quality of care. In a patient satisfaction survey in 2 provinces of Afghanistan, long waiting times and staff behaviour were listed by 86% of the respondents as influencing their decisions to come to the facility for the next visit (Laumonier-Ickx, 2006).

4.3 Postpartum care (PPC)

A meta-analysis of published literature on postpartum maternal deaths by Li et al (2001) showed that 60% of maternal deaths in developing countries occur in the postpartum period, and 45% of postpartum deaths occurred within 24 hours after placenta delivery, and 80% of the postpartum deaths occurred within a week after delivery. Haemorrhage, pregnancy induced hypertension, and obstetric infections were identified as the major causes of maternal deaths in the postpartum period in developing countries (Li et al, 2001). Hence, postpartum care plays a crucial role in the detection and treatment of obstetric complications. While health professionals know the importance of postpartum care, the women in rural, remote and even urban areas of Afghanistan often ignore the postnatal visit, recommended by the health providers.

Postpartum care encompasses sets of interventions such as early detection and referral of maternal and newborn complications, iron and folate supplementation, advice on contraception, and advice on postnatal maternal and newborn danger signs (MOPH, 2003b). The timing and the frequency of PPC visits has not been defined in the national reproductive health strategy. The gaps identified in the delivery of postpartum care are almost similar to gaps in intrapartum care strategy and they do not need separate analysis.

CHAPTER 5

Discussion

Introduction

The discussion is formulated based on the framework I have used, and in accordance with the study questions. Based on the literature review the findings under determinants of maternal mortality will be discussed firstly and followed by a discussion on the gap analysis of intervention strategies.

5.1 Key determinants

Based on the literature review and analysis of the local contextual factors that contribute to women's poor access to adequate maternal health services, the following factors are considered to be the primary determinants of maternal mortality in Ragh district:

Poverty

Maternal mortality is associated with poverty, and evidence shows that poor countries have higher maternal mortality ratios compared to prosperous nations. Within the countries, maternal mortality is higher in the poorest quintile of the population (Ronsmans et al, 2006). Evidence shows that women from poor families do not seek maternal care until pregnancy complications becomes severe (Thaddeus & Maine, 1994). According to UNDP (2009), 20% of rural households are chronically food insecure and 18% more face seasonal food shortages in Afghanistan. Ragh district is amongst the poorest districts of Afghanistan, therefore poverty status could be more severe in the district. Therefore the high maternal mortality in Ragh district seems to find its roots in broader socio economic contexts, such as poverty and its consequences.

High fertility rate

High fertility rate due to short interpregnancy intervals, son preference, and early age marriages, and low levels of contraceptives use are among the factors responsible for high maternal mortality in Ragh district. High fertility rates increases the life time risk of maternal deaths in areas where EmOC services is not available (Bartlett et al, 2005). In Ragh district fertility rate is very high (7.2%), while the women do not have access to EmOC, the pregnancy complications may lead to maternal deaths.

Early age pregnancies

Early age marriage (teenage and child marriage) is a common practice in Afghanistan (MOWA, 2009). The teenage and child pregnancies, associated with early marriage age bear greater risks of pregnancy complications because teenage pregnancies are “too soon, too close, too many and too late” (UNFPA, 2006). Evidence shows that the risk of death due to childbirth and maternal mortality ratio are disproportionately higher in teenage pregnant women in comparison to adult pregnant women in their 20s (Nour, 2006). Obstructed labour, eclampsia, haemorrhage are major complications in teenage pregnancies (Nour, 2006). Obstructed labour is the major obstetric complication in Ragh district, followed by haemorrhage. Based on global evidence the risk among teenage women delivering is higher. We can therefore expect this to be the case in Ragh district.

Low status of women in the family

Low status of women in the family and society limits the use of maternal health services in Afghanistan, and increases the risk of maternal deaths due to pregnancy complications. Women’s status is influenced by their educational, cultural, economic, legal and political position (Thaddeus & Maine, 1994). Lack of decision making power and restrictions on mobility (autonomy) of women limits the use of maternal health, including emergency obstetric care, which leads to maternal deaths in Afghanistan, particularly in rural areas of Afghanistan (O’Connor, 1994). In Ragh district, the spouse or senior members of the family decide for women and the women themselves have limited or no autonomy to use maternal health services. The lack of autonomy and restriction of mobility of women in Ragh district hinders women’s use of the limited existing maternal services in the district.

Female education

Low levels of female education and literacy are associated with high fertility rates, early age marriages, and low use of contraceptives; hence, there is higher maternal mortality (McCarthy, 1997; McAlister & Basket, 2006). As Ragh district is amongst underserved areas of the country, the female literacy rate is likely to be much lower than the national estimates (12%). Therefore, a lower level of female education is likely to be a contributing factor to maternal mortality.

Domestic violence

According to the operational definition of maternal deaths (ICD-10), maternal deaths due to domestic violence have been excluded from

numerator of maternal mortality ratios in the world. Therefore it is very difficult to estimate the proportion of maternal deaths due to violence (Espinoza & Camacho, 2005). Though, evidence shows that violence during pregnancy increases the risks of pregnancy complications and deaths (Jensen et al, 2003). Since domestic violence is prevalent in Afghanistan (MOWA, 2009), it may be a contributing factor to maternal mortality in Afghanistan and in Ragh district.

Nutritional status of women

The nutritional status of women in Ragh district could be a possible factor behind high maternal mortality. The prevalence of acute malnutrition on the national level is low at 7% but the prevalence of chronic malnutrition is estimated to be 54% (MOPH, 2005). There is no official data available for the acute or chronic malnutrition among pregnant women in Ragh district, but the figures could be much higher than the national figures. Obstructed labour and nutritional anaemia in Ragh district causes maternal mortality (Bartlett et al, 2005) and according to Rush (2000), malnutrition is the underlying factor for these conditions.

Health services factors

Family planning (FP)

Low use of contraceptives in Ragh district is a major problem, which leads to higher fertility rates (7.2) and increases the risk of maternal deaths due to maternal causes. It is believed that the use of modern contraceptives in countries with high maternal mortality ratios and high fertility rates can avert an estimated 32% of maternal deaths (Cleland et al, 2006). Since Ragh is a poor district, family planning program seems to be an appropriate intervention to reduce maternal mortality. However, socioeconomic, cultural and religious factors are barriers toward family planning program in Afghanistan (Sato, 2007). For instance, religious leaders in Afghanistan believe that family planning is against Islam (Tober et al, 2006). In Ragh district, only the health facility provides contraceptives, while community based family planning through CHWs has proven successful in pilot projects in Afghanistan (Ameli et al, 2004).

Emergency Obstetric Care (EmOC)

Emergency obstetric care is not available in Ragh district, and the only existing health facility provides normal delivery services to those who have access to the health facility. It is believed that almost 15% of pregnancies eventually develop complications and need EmOC (WHO, 2009b). The provincial hospital in Faizabad city is almost inaccessible

to Ragh due to long travel time, road blocks and lack of transportation (Bartlett et al, 2005). There is no simple solution to this problem other than establishing a new comprehensive EmOC centre or at least upgrading the existing CHC along with community health education programs, and expansion of community based health care programs (posting midwives and CHWs to the villages).

Skilled birth attendants (SBAs)

Since the provision of comprehensive EmOC centre is a time consuming intervention and requires a lot of resources, promotion of skilled birth attendance, in the short term could be beneficial to Ragh district. Evidence shows that if all births are attended by skilled personnel 16% -33% of maternal deaths could be averted (Graham, 2001). The MOPH of Afghanistan is committed to provide skilled birth attendance by deploying community midwives to the remote districts of Afghanistan (UNICEF, 2009). Since the start of the community midwife programme, the number of midwives increased substantially in Afghanistan, but in the most remote and rural areas, the scenario seems to be unchanged. For instance there is no midwife posted in the community based settings in Ragh district. The conditions of work and living are the major challenges in posting midwives to remote and rural areas in Afghanistan.

Births attended by TBAs and CHWs

Although, TBAs are not considered skilled birth attendants but they attend overall 20.3% of deliveries in Afghanistan (MOPH, 2009). It is believed that TBAs role in reducing maternal mortality is not significant and current policies do not support TBA training as an intervention to reduce maternal mortality (Bergstorm & Goodburn, 2001). In Ragh district among 12 CHWs, two have received TBA training in the past but there is no data on the number of deliveries they have attended. According to BPHS (2005), CHWs have not been qualified to attend deliveries but they are responsible to refer delivery complications to the EmOC centres. Even this function of CHWs is effective when referral EmOC centres exist in the area.

5.2 Discussion on Gap analysis

Antenatal care

Antenatal care is an important component of reproductive health strategy in Afghanistan, but evidence shows that ANC by itself is not effective in reducing maternal mortality (Carroli et al, 2001). The ANC package of interventions includes feasible interventions to address some of the risk factors for pregnancy complication but the means of

distribution in the district is not sufficient to cover a substantial number of eligible women for ANC. Only 8% of eligible women had completed three ANC visits in 2008. The health facility is frequently understaffed, underequipped and stock out of essential drugs is common (PHCC, 2008). In such an environment, the quality of care is poor, and providers cannot satisfy the clients. Since the health facility is not accessible to the majority of women in Ragh district, therefore women can not receive antenatal visits in the facility. Some of the interventions mentioned in the ANC package, could be delivered efficiently by CHWs in community health posts or outreach campaigns (See Annex 6), but insufficient number of CHWs in the district limits this possibility.

Intrapartum care

The role of intrapartum care is very significant in reducing maternal mortality, since it ensures safety during delivery through primary prevention, early detection, management and referral of pregnancy complications (Campbell et al, 2006). Though this strategy in theory is basically focused on normal deliveries at health centres supported by the referral comprehensive EmOC centres (Campbell et al, 2006), the intrapartum care in Afghanistan is provided by community midwives, and the basic EmOC centres (MOPH, 2003a), supported by comprehensive EmOC centre and district hospitals. In Ragh district the community midwives are not available in the villages and the only health centre has the limited capacity to provide services for the eligible women. Insufficient number of midwives, stock out of essential drugs, supplies, lack of transportation facilities in the health centre, and lack of 24-hours emergency services in the facility limit the effectiveness of this strategy.

Postnatal care

Campbell et al (2006) indicated that "during the post partum period physical, social and mental problems can emerge". It is believed that the majority of maternal deaths in developing and developed countries occur during postpartum period (Li et al, 2001). Therefore availability of efficient postpartum care is very important (Campbell et al, 2006). The approaches to provide sufficient postpartum care should be focused primarily on the expansion of health service along with community awareness on pregnancy and maternal mortality.

CHAPTER 6

CONCLUSIONS AND RECOMMENDATION

6.1 Conclusions

The aim of this thesis is to identify the key determinants of maternal mortality in one of the rural, remote, underserved and geographically isolated districts (Ragh) of Afghanistan, and to analyse the intervention strategies to reduce maternal mortality in the district. The thesis has had its limitations due to lack of sound evidence through secondary data at the district, scarcity of published literature, and reliance on anecdotal reports.

After an extensive literature review, it is concluded that the determinants of maternal mortality in Ragh district are diverse and encompass social, economical, cultural and religious factors that influence access, affordability and acceptability of health services. Also resource poor health services play a significant role in high maternal mortality in the district that adversely influences perceptions of the user and provision of quality care.

Socio-cultural indicators such as poverty, lack of decision making power of the women (autonomy), early age marriage (teenage and child marriage), women's illiteracy, violence against women are all major concerns that prevail and actively contribute to maternal morbidity and mortality. Socio-economic factors, such as income, and opportunity costs of access to healthcare hinder the pregnant women's chances of survival. Other factors that are indirectly influencing maternal mortality rates include; high prevalence of chronic malnutrition (stunting) and high fertility rates in Ragh district. However, social, cultural, economic factors are not the only factors that contribute to high maternal mortality in the district. The unique geographical and seasonal characteristics (accessibility) of the district are found to be a major adverse factor to women's access to healthcare.

The intervention strategies (ANC, intrapartum care, PNC) introduced by the MOPH are relevant to address maternal deaths but the human resources, commodities and logistics are insufficient. Also the BPHS does not adequately address reproductive needs in terms of rights and choices which requires more attention in terms of provision of comprehensive and good quality reproductive health services and ensuring clients' privacy, confidentiality and respect.

Comprehensive EmOC is not available in the district and the only health centre in the district which should provide primary health care services and basic EmOC is understaffed, poorly equipped, and does not provide services 24 hours a day. Since the publication of Bartlett et al (2005), it seems that little has been done to tackle the problem in an effective manner in Ragh and similar contexts in Afghanistan. Setting the targets for MDGs, the MOPH committed to reduce maternal mortality ratio to 800/100.000 LB by the year 2015 in the national level but with the limited resources for current interventions, it may not be possible to significantly reduce maternal mortality in the rural, remote, underserved areas of the country such as Ragh district. However, it is clear that attention to comprehensive and emergency obstetric care while also addressing access and demand issues can and will contribute to maternal health and move in the direction of MMR reduction.

Finally, the intervention strategies to reduce maternal mortality should be very comprehensive and include all developmental aspects that straddle various sectors in the district and provincial government. The efforts to reduce maternal mortality should be consistent, only providing sufficient midwives will not solve the problem unless there is an enabling environment such as EmOC centres, transportation for referrals, and women empowerment programs (microfinance, literacy and non formal education program). Community involvement is also critical to effecting positive changes in demand for services and perception of users of services. This can be achieved through community health committees and increased the knowledge of the women, and their family members who will benefit from sensitisation on the risk and benefits of timely access and provision of skilled birth care.

6.2 Recommendations

The recommendations are made from a bottom up perspective, first giving priority to the household and community level, followed by service delivery level and leading to how to influence government and civil society in policy making and the contribution of public health and research institutions. The recommendations are also framed in short to medium term priorities while results will determine the feasibility of longer term recommendations based on annual reviews and evaluations.

6.2.1 Community Level

- Health management to support the establishment of community health committees and women's groups at the village and district levels
- In the medium term community health committees should actively participate including, women's groups, religious leaders in activities related to health in the district. They will be involved in planning, implementation and monitoring of health programs in the district.
- Communities should support provision of transportation for referral of emergency obstetric cases from the villages to EmOC centres or providing aid to poor pregnant women through financing schemes.
- Community health committees and health management will provide information to the communities regarding the existing maternal health services in the district for women and the importance of skilled care at births through CHWs, community members and media in the short term.

6.2.2 Service delivery level

- Health service management will invest resources to improve access of women to skilled delivery care, primarily through posting sufficient number of midwives to the district.
- Joint action by health management and the community will ensure sufficient number of CHWs (female and male CHWs) in the district as recommended by BPHS (2 CHWs/100 households) is critical to the success of this agenda. Currently there are only 12 CHWs in the whole district while the district requires a total of 74 CHWs based on its population.
- Given that there is no EmOC centre in the district, health management will upgrade the emergency obstetric care facility in the district, to EmOC centre in medium term.
- Health service management will ensure priority for allocation of resources. Availability of skilled personnel, essential drugs, supplies, family planning commodities (in the short run) and

ambulance for referrals (in medium term), based on the needs and requirements of the district.

- CHWs will provide contraceptives through community based health settings (including injectables) in the short term.
- Health facility teams will integrate family planning services to EPI services and will provide contraceptives through outreach programmes to the remote villages.
- Health management teams will conduct regular training needs assessment of the health facility staff, and will provide refresher trainings for the personnel. This needs to be integrated into the annual plans for the district.
- A feasibility study by the PHCC will investigate provision of a maternity waiting home for the women living in the most remote villages. This should be considered by the PHCC in the short term.

6.2.3 Policy level for government and civil society

- Currently the CHWs are part of the health system but they are not included in the payroll of the MOPH. Decisions should be made regarding provision of salaries or incentives to CHWs in order to ensure sustainability and quality of health care in the community based health settings (long term intervention).
- The MOPH should take action on health policy for provision of 24 hours basic EmOC to reduce maternal mortality where BPHS facilities are not operational 24 hours a day based on the model demonstrated by an NGO in a given district.
- The MOPH should advocate for promotion of maternal health in general, and draw the attention of policy makers (cabinet and parliament) to high maternal mortality in rural and remote areas of the country in the longer term.
- The MOPH needs to prioritise engagement in the design of poverty reduction strategies, and convincing the policy makers that investing on maternal health saves money and prevents loss of invaluable resources

- Increase the commitment of the government and donor countries on rehabilitation of basic infrastructures such as roads, bridges, and schools in the district. (long term intervention)
- Enhance the commitment of the government to ensure women empowerment programs such as providing literacy programs and non formal out of school education for women.

6.2.4 Public health and research institutions

- The MOPH in close collaboration with stakeholders, research centres should design more descriptive and qualitative research in the area to generate accurate reliable epidemiological information for designing the specific relevant interventions
- Central Statistics Office should do the census survey in the district level as currently the population surveys are based on the rough estimations and accurate demographic data is not available.
- Government and research institutes need to invest in more research on the various socio economic groups and approaches in respect to utilization of maternal health services
- Ministry of higher education, medical universities, and public health and nursing schools should revise their curriculum and integrate family planning, population studies in their curriculum.

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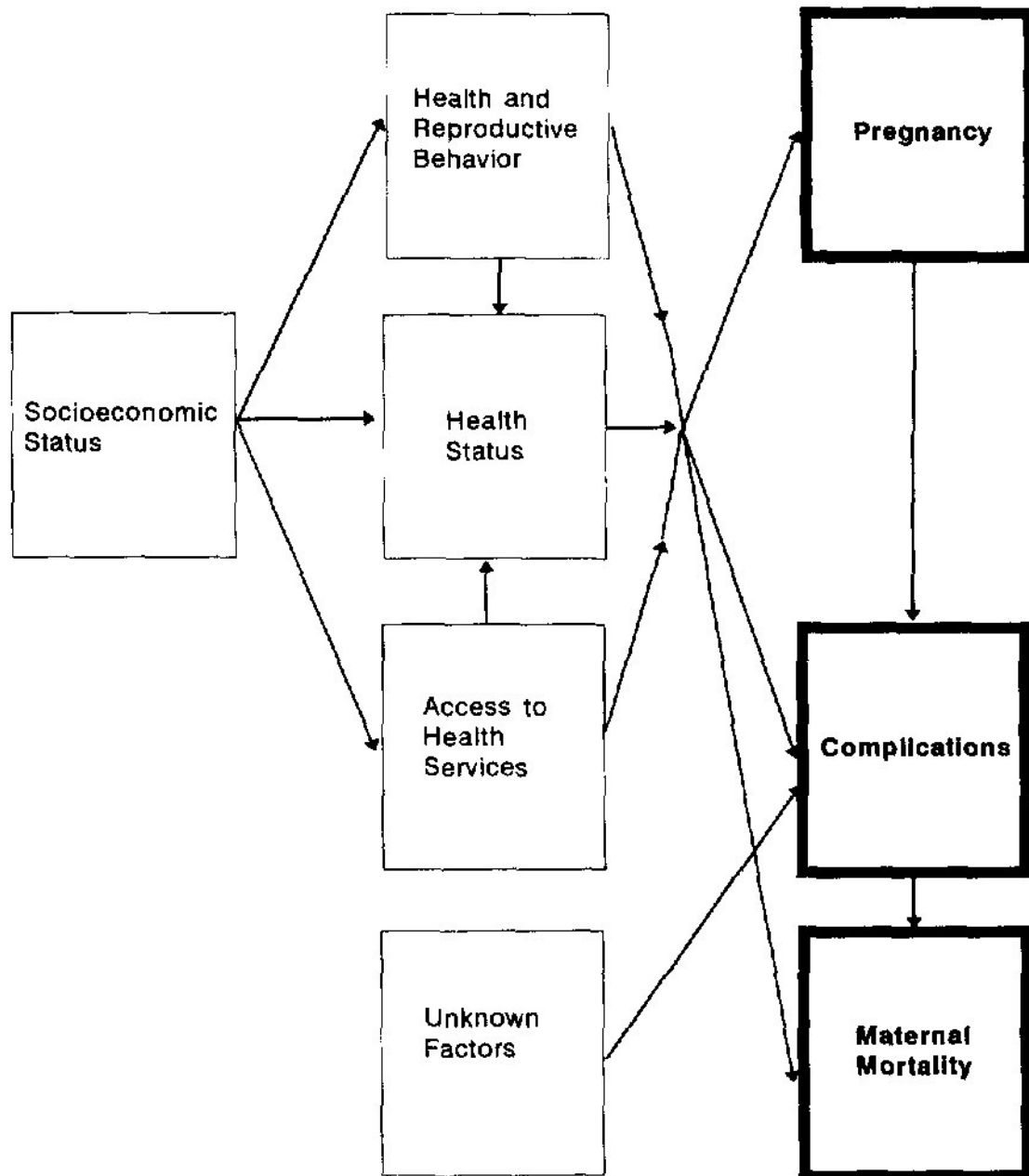
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ANNEXES

Annex 1

McCarthy & Maine (1992), A framework for analysing the determinants of maternal mortality



Source: Adopted from International Journal of Gynaecology Obstetrics. 1997. Vol. 2: pp S15-S21

Annex 2

Health expenditure indicators in Afghanistan

Indicator	Value (year)
External resources for health as percentage of total expenditure on health	13.1 (2005)
General government expenditure on health as percentage of total expenditure on health	20.0 (2005)
General government expenditure on health as percentage of total government expenditure	3.3 (2005)
Out-of-pocket expenditure as percentage of private expenditure on health	97.40 (2005)
Per capita government expenditure on health at average exchange rate (US\$)	4.0 (2005)
Per capita government expenditure on health(PPP int. \$)	5.0 (2005)
Per capita total expenditure on health (PPP int. \$)	26.0 (2005)
Per capita total expenditure on health at average exchange rate (US\$)	20.0 (2005)
Private expenditure on health as percentage of total expenditure on health	80.0 (2005)
Private prepaid plans as percentage of private expenditure on health	0.0 (2005)
Social security expenditure on health as percentage of general government expenditure on health	0.0 (2005)
Total expenditure on health as percentage of gross domestic product	5.2 (2005)

Source: Adopted from WHO website:

http://apps.who.int/whosis/database/core/core_select_process.cfm?country=afg&indicators=nha

Annex 3

Health human resource density per population in Afghanistan

Indicator	Value(Year)
Dentistry personnel density (per 10 000 population)	<1 (2005)
Number of dentistry personnel	900 (2005)
Number of nursing and midwifery personnel	14,930 (2005)
Number of Pharmaceutical personnel	900 (2005)
Number of Physicians	5,970 (2005)
Nursing and midwifery personnel density (per 10 000 population)	5.00 (2005)
Pharmaceutical personnel density (per 10 000 population)	<1 (2005)
Physicians density (per 10 000 population)	2.00 (2005)

Source: Adopted from Afghanistan profile. WHO. Available online at: http://apps.who.int/whosis/database/core/core_select_process.cfm?country=afg&indicators=healthpersonnel

Annex 4

The original six emergency obstetric care indicators plus two included recently

Indicator	Acceptable level
Availability of emergency obstetric care: basic and comprehensive care facilities	There are at least five emergency obstetric care facilities (including at least one comprehensive facility) for every 500.000 population
Geographical distribution of emergency obstetric care facilities	All subnational areas have at least five emergency obstetric care facilities (including at least one comprehensive facility) for every 500 000 population
Proportion of all births in emergency obstetric care facilities	(Minimum acceptable level to be set locally)
Meeting the need for emergency obstetric care: proportion of women with major direct obstetric complications who are treated in such facilities	100% of women estimated to have major direct obstetric complications are treated in emergency obstetric care facilities
Caesarean sections as a proportion of all births	The estimated proportion of births by caesarean section in the population is not less than 5% or more than 15%
Direct obstetric case fatality rate	The case fatality rate among women with direct obstetric complications in emergency obstetric care facilities is less than 1%
Intrapartum and very early neonatal death rate	Standards to be determined
Proportion of maternal deaths due to indirect causes in emergency obstetric care facilities	No standard can be set

Source: Adopted from Handbook of "Monitoring emergency obstetric care". WHO. Available online at:
http://whqlibdoc.who.int/publications/2009/9789241547734_eng.pdf

Annex 5

Signal functions used to identify basic and comprehensive emergency obstetric care services

Basic services	Comprehensive services
Administer parenteral ¹ antibiotics	Perform signal functions 1–7, plus:
Administer uterotonic drugs (i.e., parenteral oxytocin)	Perform surgery (e.g., caesarean section)
Administer parenteral anticonvulsants for preeclampsia and eclampsia (i.e., magnesium sulfate).	Perform blood transfusion
Manually remove the placenta	
Remove retained products (e.g. manual vacuum extraction, dilation and curettage)	
Perform assisted vaginal delivery (e.g. vacuum extraction, forceps delivery)	
Perform basic neonatal resuscitation (e.g., with bag and mask)	
<p>A basic emergency obstetric care facility is one in which all functions 1–7 are performed.</p> <p>A comprehensive emergency obstetric care facility is one in which all functions 1–9 are performed.</p>	

Source: Adopted from Handbook of “Monitoring emergency obstetric care”. WHO. Available online at:
http://whqlibdoc.who.int/publications/2009/9789241547734_eng.pdf

Annex 6

Package of interventions for antenatal care

List of interventions for ANC	
1	Counseling about the danger signs of pregnancy and delivery complications and where to seek care in case of emergency
2	Counseling on birth preparedness, emergency readiness, and the development of a birth plan
3	Providing advice on proper nutrition during pregnancy
4	Detecting conditions that require additional care and providing appropriate treatment for those conditions
5	Detecting complications that influence choice of birthing location
6	Supplying Iron and Folate supplement
7	Supplying low dose supplement of vitamin A
8	In certain settings, providing treatment for conditions that affect women's pregnancies, such as malaria, tuberculosis, hookworm infection, iodine deficiency, and sexually transmitted infections, including HIV/AIDS
9	Providing tetanus toxoid immunization
10	Providing voluntary HIV testing and counseling
11	Providing information about breastfeeding and contraceptives

Source: Adopted from the "National reproductive health strategy in Afghanistan" (MOPH, 2003). Available online at: <http://afghanistan.unfpa.org/Docs/nrhstrategy.doc> (Accessed on April 12 2009)

Annex 7

Package of interventions for Intrapartum care

	Interventions
1	Diagnose labour
2	Ensure clean delivery technique and environment
3	Early detection and referral of pregnancy complications
4	Early detection and referral of neonatal complications
5	Advice on contraceptives after delivery
6	Advice on breastfeeding, particularly exclusive breastfeeding
7	Early detection of newborn infections
8	Newborn resuscitation if required
9	Active management of third stage labour
10	Arrange transportation to referral facilities

Source: Adopted from the "National reproductive health strategy in Afghanistan" (MOPH, 2003). Available online at: <http://afghanistan.unfpa.org/Docs/nrhstrategy.doc> (Accessed on April 12 2009)

Annex 8

Package of interventions for postpartum care

	Interventions
1	Advice on postnatal maternal danger signs, postnatal maternal emergencies, and referral
2	Advice on postnatal home self-care, nutrition, safe sex, breast care
3	Advice on contraception
4	Advice on neonatal danger signs and neonatal emergencies and referral
5	Advice on exclusive breastfeeding
6	Iron and Folic Acid supplementation
7	Early detection of postnatal maternal complications
8	Referral of postnatal maternal complications
9	Detect and refer newborn complications

Source: Adopted from the "National reproductive health strategy in Afghanistan" (MOPH, 2003). Available online at: <http://afghanistan.unfpa.org/Docs/nrhstrategy.doc> (Accessed on April 12 2009)