

# Maternal and Neonatal Health in East and South-East Asia



## **Acknowledgements**

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# Maternal and Neonatal Health

## in East and South-East Asia



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**for East and South-East Asia, Bangkok, Thailand**  
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# Acronyms

AIDS	Acquired immunodeficiency syndrome
AMDD	Averting Maternal Death and Disability
CPR	Contraceptive prevalence rate
DHS	Demographic Health Survey
DPRK	Democratic People's Republic of Korea
ESEA	East and South-East Asia
EmOC	Emergency obstetric care
FIGO	The International Federation of Gynecology and Obstetrics
HIV	Human Immunodeficiency Virus
ICM	The International Confederation of Midwives
ICPD	International Conference on Population and Development
IMR	Infant mortality rate
IUD	Intra-uterine device
Lao PDR	Lao People's Democratic Republic
MDGs	Millennium Development Goals
MOH	Ministry of Health
MMR	Maternal mortality ratio
MYFF	Multi year funding framework
NGOs	Non government organizations
PMTCT	Prevention of mother-to-child transmission
PPH	Postpartum haemorrhage
SBA	Skilled birth attendant
STI	Sexually transmitted infection
SWAp	Sector-wide approach
TBA	Traditional birth attendant
TFR	Total fertility rate
UN	United Nations
UNFPA	United Nations Population Fund
UNICEF	United Nations Children's Fund
VCT	Voluntary counselling and testing
VVF	Vesicovaginal fistulae
WHO	World Health Organization

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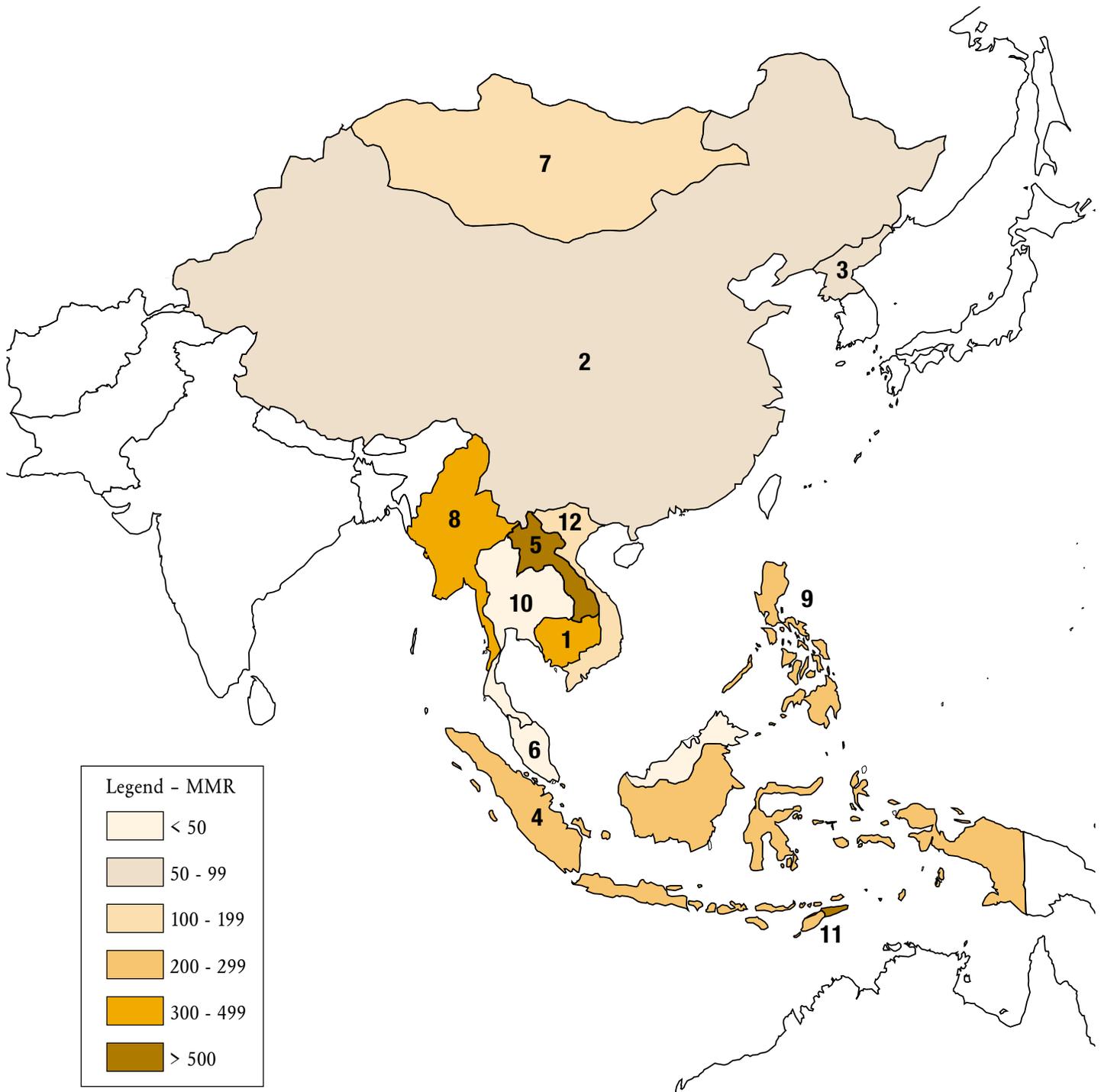
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## The countries of East and South-East Asia (shading showing MMR)



The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations.

- |  |              |
|--|--------------|
| 1. Cambodia                              | 2. China     |
| 3. Democratic People's Republic of Korea | 4. Indonesia |
| 5. Lao People's Democratic Republic      | 6. Malaysia  |
| 7. Mongolia                              | 8. Myanmar   |
| 9. Philippines                           | 10. Thailand |
| 11. Timor-Leste                          | 12. Viet Nam |

# Introduction

Internationally, increasing attention has been concentrated on reducing maternal and neonatal mortality, acknowledging the tragedy of not preventing these avoidable deaths, which include 36,000 women annually in the 12 countries in the region of East and South-East Asia (ESEA). Many of the 647,000 neonatal deaths annually in the region are also avoidable. The Safe Motherhood Initiative in 1987, ICPD in 1994, again in ICPD+5 and the Millennium Development Goals all focus on the need for action in reducing maternal mortality. The recent Partnership for Maternal, Newborn and Child Health<sup>1</sup> launched in September 2005 reinforces the link between maternal and newborn health which has been often overlooked in programmes.

## Major recent policy trends in maternal health

1987	Safe Motherhood Initiative, Nairobi
1994	International Conference on Population and Development, ICPD, Cairo
1994	Investing in Health (World Bank) includes maternal health as “Best buy”
1997	Sri Lanka meeting: lessons learned in safe motherhood (10 key messages at <a href="http://www.safemotherhood.org">www.safemotherhood.org</a> )
2000	Millennium Summit, New York
2002	WHO Making Pregnancy Safer initiative
2004	World Health Assembly endorses WHO’s first reproductive health policy
2005	Partnership for Maternal, Newborn and Child Health

Adapted from Liljestrand 2006.

However, in many countries, both globally and in ESEA, government commitment to maternal and newborn health has not reached the levels required to make a strong impact on mortality rates. Particularly for maternal health, many existing interventions have been found to be ineffective in preventing maternal mortality and there is an urgent need to refocus maternal health programmes.

<sup>1</sup> The Partnership for Maternal, Newborn and Child Health was formed by developing and donor countries, UN agencies, professional associations, academic and research institutions, foundations, and NGOs to intensify and harmonize national, regional and global progress towards the UN Millennium Development Goals 4 and 5 (reduce child mortality; improve maternal health).

This publication gives an overview of the situation of maternal and newborn health in the East and South-East Asia region, with a focus on mortality and the interventions required to save women’s and newborn’s lives. This differs in some aspects from a discussion of general maternal and newborn health programmes which may be implemented in more developed countries. In countries with limited resources, the priority has to be on averting maternal and neonatal mortality in the most cost effective way.

Chapter 1 examines progress towards the fifth Millennium Development Goal on maternal health, as measured by the indicators of maternal mortality ratio (MMR) and percentage of deliveries attended by a skilled birth attendant, for countries in the region. It also examines neonatal mortality, which is limiting progress towards the fourth MDG on child health. In Chapter 2, disparities in MMR between geographical regions or by different ethnic groups within countries are examined, and the lack of access to maternal health services experienced by the poor. In Chapter 3, lessons learned internationally about reducing maternal and neonatal mortality are discussed and the key programmatic issues to be considered in a maternal and newborn health programme in a country with limited resources. Chapter 4 examines the wider picture – looking at the political commitment and health system changes required to achieve improvements in maternal and neonatal health. Chapter 5 describes the UNFPA approach with a focus on family planning, skilled birth attendance and access to emergency obstetric care and give examples of these strategies in the context of the four countries with the highest MMRs in the region. Finally monitoring and evaluation of maternal and neonatal health programmes is discussed in Chapter 6.

A coordinated response building partnerships with donors, government and implementing agencies is essential. Large improvements are required in the quality of maternal and newborn health care available in the region. Even more pressing is the political commitment and action required at all levels, including within other sectors, to support the health system to provide skilled care at birth, and access to emergency obstetric care to all women, including the poor and marginalized.



# Maternal and neonatal health and progress towards the MDGs

Every year there are approximately 36,000 maternal deaths in the 12 countries in the region of East and South-East Asia (ESEA).<sup>2</sup> Four countries (Cambodia, Lao PDR, Myanmar, and Timor-Leste) have high levels of maternal mortality, with over 300 deaths per 100,000 live births (Table 1). Lifetime risk of maternal death in these countries is high, with one in every 25 women in Lao PDR dying during her reproductive life. Progress in reducing maternal mortality in these countries is unacceptably slow. In China, Indonesia, the Philippines, and Viet Nam the overall maternal mortality is lower but these countries all have geographic regions in which the MMR is over 300, similar to the countries with higher mortality ratios.

<sup>2</sup> The 12 countries of East and South-East Asia are a sub-region of the UNFPA's Asia and the Pacific Region.

## Causes of maternal death and morbidity

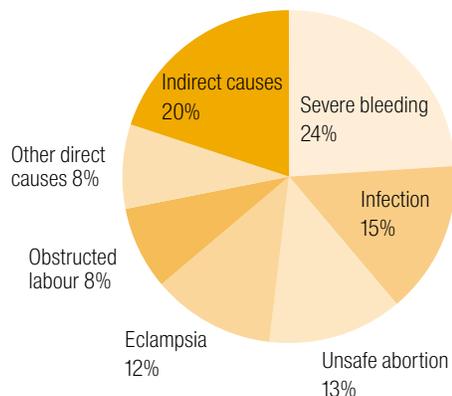
Globally, 60-80 per cent of maternal deaths are due to obstetric haemorrhage, sepsis (infection), obstructed labour, hypertensive disorders of pregnancy (including eclampsia), and complications of unsafe abortion, which are all preventable and/or treatable (see Figure 1). These complications are unpredictable and most occur within hours or days after delivery.

In the ESEA region, the data available show that the patterns of causes of death are similar to the global picture, with the exception of the deaths from unsafe abortion. The proportion of deaths due to unsafe abortion is low to non-existent in Eastern Asia including China, DPRK and Mongolia where abortion is legal. However mortality due to unsafe abortion is estimated to constitute 19 per cent of all maternal deaths in

**Table 1: Maternal health indicators for East and South-East Asia**

	MMR (per 100 000 live births)	Range of MMR estimate	Lifetime risk of maternal death (1 in )	Number of maternal deaths	Per cent of deliveries with skilled birth attendants (%)
Lao PDR	650	160-1 200	25	1 300	19
Timor-Leste	600	170-1 200	30	140	24
Cambodia	450	260-620	36	2 100	32
Myanmar	360	91-660	75	4 300	56
Indonesia	230	58-440	150	10 000	68
Philippines	200	120-280	120	4 100	60
Viet Nam	130	32-240	270	2 000	85
Mongolia	110	75-150	300	65	99
DPRK	67	17-130	590	260	97
China	56	28-110	830	11 000	97
Thailand	44	22-88	900	520	99
Malaysia	41	20-81	660	220	97

Sources: WHO 2004a and UNFPA 2005.

**Figure 1: Causes of maternal death**

Source: WHO 1997.

\*Other direct causes include ectopic pregnancy, embolism, anaesthesia-related. Indirect causes including anaemia, malaria, and heart disease.

South-East Asia<sup>3</sup>, much higher than the global average of 13 per cent. In some geographical areas within Cambodia, Indonesia (mainly West Papua), Lao PDR, Myanmar, Timor-Leste and Viet Nam malaria increases the percentage of deaths from indirect causes, particularly in primigravidae women.

Maternal morbidity is estimated to be thirty times the number of maternal deaths.<sup>4</sup> Anaemia, reproductive tract infections and

depression are common short-term morbidities. Longer-term morbidities include uterine prolapse, vesicovaginal fistulae (VVF), incontinence, dyspareunia, and infertility. The prevalence of these pregnancy related morbidities has not been well documented in the region.

## Reaching the Millennium Development Goals

Out of the eight Millennium Development Goals, goal 5 addresses maternal health, measured by the indicators of maternal mortality ratio and percentage of deliveries attended by a skilled birth attendant. Addressing maternal and newborn health also has the potential to contribute significantly to the achievement of MDG 4 by lowering the neonatal mortality rate, particularly early neonatal deaths in the first week after birth.

Progress in these indicators in the ESEA region are discussed below. Progress towards universal access to reproductive health services, an important recent addition agreed at the World Summit, is as yet not well documented in the region, and is a challenge that needs to be taken on by all countries.

## Maternal mortality ratio

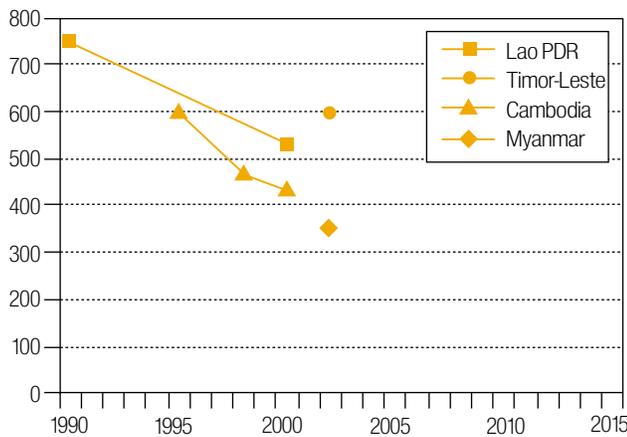
The fifth MDG has a target of reducing the maternal mortality ratio (MMR, the number of maternal deaths per 100,000 births) by three quarters, between 1990 and 2015. This is an endorsement of the ICPD goal for reduction of maternal mortality by one half of the 1990 levels by the year 2000 and a further one half by 2015.

<sup>3</sup> WHO 2000b.

<sup>4</sup> UNFPA 2003.

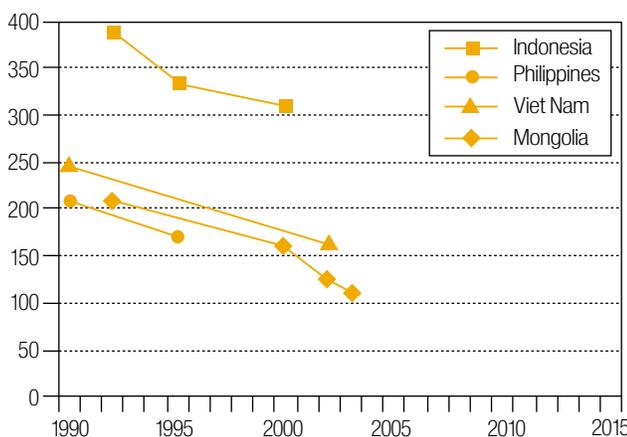
Countries with the highest levels of maternal mortality aim to achieve a maternal mortality ratio below 75 per 100,000 by 2015, those with intermediate ratios aim below 60 per 100,000 (ICPD 1994).<sup>5</sup> As seen in Figures 2 to 4, there is a downward trend in the MMR estimates in the ESEA region, although several countries do not have enough data to establish trends. However, from the statistics available, and if there are no major additional interventions, Cambodia, Lao PDR, Myanmar, and Timor-Leste will not meet the Millennium Development Goal for MMR.

**Figure 2: Trends in MMR in countries of high MMR**



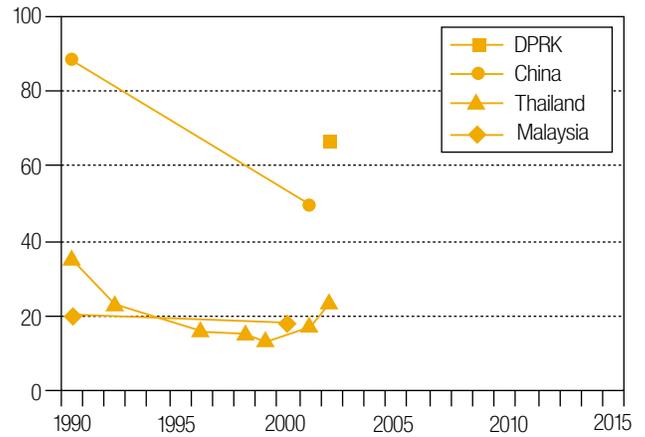
**Note:** These vary in some cases from the estimates from WHO, UNICEF and UNFPA.  
**Sources:** Country MDG reports.

**Figure 3: Trends in MMR in countries of intermediate MMR**



**Note:** These vary in some cases from the estimates from WHO, UNICEF and UNFPA.  
**Sources:** Country MDG reports.

**Figure 4: Trends in MMR in countries of lower MMR**



**Note:** These vary in some cases from the estimates from WHO, UNICEF and UNFPA.  
**Sources:** Country MDG reports.

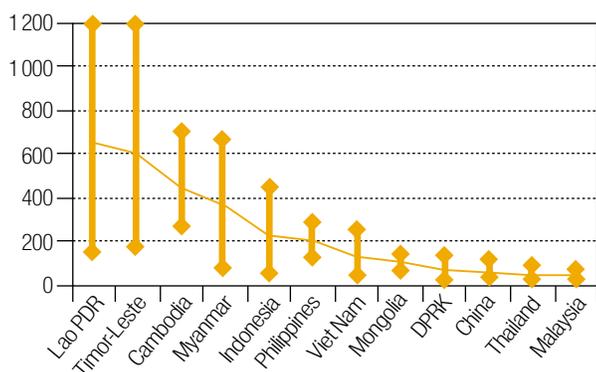
Indonesia reduced MMR from 390 to 307 for the period 1998-2003 but is unlikely to achieve the MDG target. However due to Indonesia’s large population, in practice, a reduction of MMR of this magnitude translates into saving many women’s lives. Philippines lowered MMR from 209 to 172, but it is not possible to ascertain whether this was an actual decline, rather than sampling errors. Mongolia and Viet Nam have made substantial progress. Mongolia may be able to reach the MDG target with additional efforts as current trends are promising. In Viet Nam, there are different MMRs reported from various data sources making trends difficult to interpret.

In the ESEA region, China, DPRK, Malaysia and Thailand have relatively lower MMRs. China has rapidly decreased the number of maternal deaths in the last decade but as will be discussed further below, there are great disparities between geographical regions. Malaysia and Thailand had significant reductions in maternal mortality in the previous decade and have now reached a plateau. Thailand has now set the OECD MMR in 2000 of 12 per 100,000 as its target. While Malaysia is seen as a success story with the lowest MMR in the region, the lifetime risk of maternal death is higher in Malaysia (1 in 660) compared to Thailand (1 in 900) where the contraceptive prevalence is higher and women have less births in a lifetime.

Accurate measurement of maternal mortality ratios is difficult, with a wide range of error in each estimate (see Figure 5). In countries such as Lao PDR and Timor-Leste, the actual MMR may be under 200 or as high as 1,200. For this reason, it is difficult to use MMR as an indicator of progress for many countries.

<sup>5</sup> ICPD PoA para 8.21.

Figure 5: Range of maternal mortality estimates

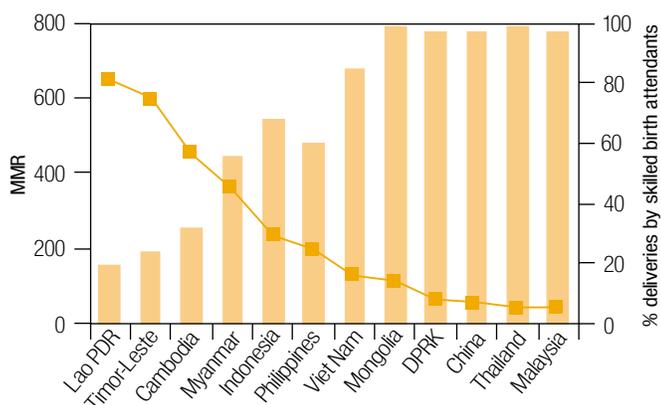


Source: WHO 2004a.

### Skilled birth attendants

A second indicator is more useful to measure progress towards the MDGs: percentage of births that are assisted by skilled birth attendants. The global target for deliveries by skilled birth attendants is 90 per cent by 2015 with ICPD+5 setting a target of at least 60 per cent for countries with high MMRs. Figure 6 shows the level of deliveries performed by a skilled birth attendant in the ESEA region, which nearly is the inverse of the MMR pattern.

Figure 6: Maternal mortality ratios and percentage of births attended by skilled birth attendants



Sources: WHO 2004a and UNFPA 2005.

As shown in Figure 6, Lao PDR, Timor-Leste, and Cambodia still have very low levels of births attended by skilled birth attendants and require substantial interventions to reach levels of 60 per cent. In some countries the figures available for skilled birth attendance may be overestimates as health providers classified as skilled birth attendants in the data often do not have the necessary skills and back-up to function as effective skilled birth attendants.

During the period 1990-2000, there was an increase in deliveries by skilled birth attendants of 36 per cent in East Asia and

Table 2: Percentage of births attended by trained or skilled birth attendants 1995-2005

	1995	2000	2005
Lao PDR	20	30	19
Timor-Leste	n/a	n/a	24
Cambodia	n/a	31	32
Myanmar	70	57	56
Indonesia	40	36	68
Philippines	55	53	60
Viet Nam	90	79	85
Mongolia	99	99	99
DPRK	99	100	97
China	95	85	97
Thailand	66	71	99
Malaysia	98	98	97

Sources: UNFPA 1995, 2000, 2005. State of World Population.

64 per cent in South-East Asia, based on available DHS data. The trends in the most recent ten year period 1995-2005 (Table 2) have reached a plateau but there has been some progress. Indonesia and Thailand have significantly increased the proportion of births attended by skilled birth attendants; Thailand increased from 66 per cent to 99 per cent coverage during 1995-2005 and Indonesia from 40 per cent to 68 per cent in the same period. The weakness of this indicator is that the definition of skilled birth attendant has not been uniform across the region or even within countries over the last decade. This will be discussed further on page 10.

### Neonatal mortality

Neonatal health is critically related to maternal health, with many early neonatal deaths related to care during delivery. There are approximately 647,000 neonatal deaths each year in the 12 countries in the ESEA region. Up to 50 per cent of neonatal deaths occur in the first 24 hours and 75 per cent of neonatal deaths occur in the first week which is defined as the early neonatal period.

Table 3 shows the high early neonatal (day 0-6) and neonatal mortality rates (day 0-27) in some of the countries in this region. The stillbirth rate is also an indicator of poor antenatal and delivery care.

Approximately two thirds of infant deaths occur in the neonatal period. In most of the countries in this region, infant mortality rate (IMR, infant deaths per 1,000 live births) has been decreasing, with the exception of Cambodia (see Table 4). However, decreases in IMR in countries have been in infants over one month of age, with neonatal mortality rates remaining static. Unless neonatal mortality rates are addressed, many countries will have difficulty further reducing infant mortality rates in order to meet the MDG target of reducing by two-thirds, between 1990 and 2015, the under-five mortality rate.

**Table 3: Stillbirth and neonatal mortality rates**

	Stillbirth rate (per 1 000 births) 2000	Early neonatal mortality rate (per 1 000 births) 2000	Neonatal mortality rate (per 1 000 births) 2000	Approximate number of neonatal deaths annually
Cambodia	37 <sup>a</sup>	31	40	19 000
China	19 <sup>a</sup>	16 <sup>a</sup>	21	412 000
Indonesia	17 <sup>a</sup>	14	18	78 000
DPRK	20 <sup>a</sup>	17 <sup>a</sup>	22 <sup>a</sup>	8 500
Lao PDR	32 <sup>a</sup>	26 <sup>a</sup>	35 <sup>a</sup>	7 000
Malaysia	3	4	5	2 700
Mongolia	25 <sup>a</sup>	21	26	1 500
Myanmar	36 <sup>a</sup>	30 <sup>a</sup>	40	48 000
Philippines	11	12	15	31 000
Thailand	11 <sup>a</sup>	9	13	15 000
Timor-Leste	36 <sup>a</sup>	30 <sup>a</sup>	40 <sup>a</sup>	900
Viet Nam	24	13	15	23 000

**Note:** <sup>a</sup> Estimates derived by regression and similar estimation methods.

**Source:** WHO 2005.

**Table 4: Infant mortality trends in East and South-East Asia**

	1990	1995	2000	2003
Cambodia	80	88	95	97
China	38	37	32	30
Indonesia	60	46	35	35
DPRK	42	42	42	42
Lao PDR	120	105	90	82
Malaysia	16	11	8	7
Mongolia	74	67	60	56
Myanmar	91	83	78	76
Philippines	45	36	30	27
Thailand	34	29	25	23
Timor-Leste	110	100	91	87
Viet Nam	38	32	23	19

**Source:** UNICEF 2005.



## Underserved groups in the region

In the countries of East and South-East Asia there are marked disparities in maternal health between the rich and the poor, rural and urban and different ethnic groups within the country. Migrants are often underserved by health services, excluded through administrative and cultural barriers.

### Disparities in MMR within countries

In the countries with intermediate MMRs on a national level, there are still populations with high MMRs, similar to the high levels in Cambodia, Lao PDR, Myanmar and Timor-Leste. In Indonesia, the province of Papua has extremely high estimates of MMR at 1025, Maluku 796, West Java 686 and East Nusa Tenggara 554. Similarly Viet Nam has higher MMRs in the central and northern highlands with the remote mountainous region of Cao Bang having an MMR of 411. In the Philippines there are also marked disparities in the provinces with the highest MMR of 320 in Autonomous Region in Muslim Mindanao.

Even in countries where the MMR is fairly low, there are marked inequities within countries. Remote rural women, the poor and migrant women have less access to emergency obstetric care due to several obstacles: cost, lack of facilities and lack of information. In China, the relatively low national MMR of 56 masks the extreme variation across the country: the western region has much higher MMRs compared to the eastern, with Tibet having an MMR of 466. It is also estimated that the MMR amongst the floating population in China (rural people migrating to urban areas unofficially) is much higher than the general population. In Mongolia, remote western *aimags* (provinces) have MMRs ranging up to 173. In Thailand the MMR is higher in the highland areas of some northern provinces with ethnic hill tribe populations and three southern provinces, predominantly muslim populations, where MMR is double that of the national average. While not well documented, illegal Burmese migrants in Thailand have less access to services and are more likely to deliver at home with

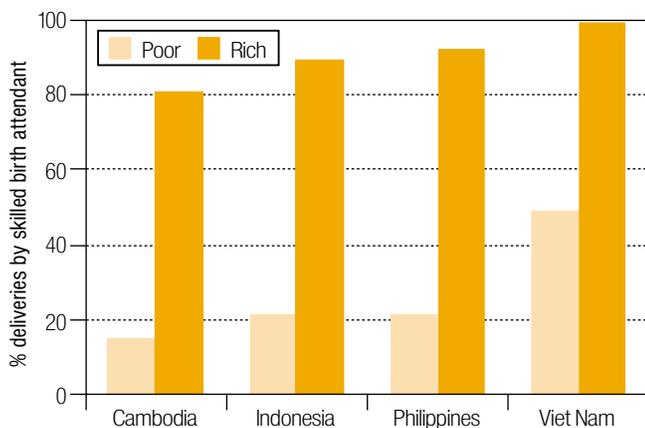
unskilled attendants. In Malaysia the MMR of the Chinese immigrants is less than half those of the Bumiputera.<sup>6</sup> However the gap has narrowed considerably since the 1970s when the Bumiputera, who were predominantly rural and delivering at home, had an MMR of 211, five times that of the Chinese (MMR 49).

### Maternal health of the poor

There is a marked difference between the access to skilled attendance at birth by the rich and the poor, as seen in Figure 7. In Cambodia the richest quintile are five times more likely to have a skilled birth attendant at delivery than the poorest. Similarly, poor women are much more likely to deliver at home, so emergency transport is required if a complication arises (Figure 8). Adolescent fertility, an important risk factor for maternal mortality, is much higher in the poor. In the Philippines, the adolescent fertility rate in the poor is over ten times that in the richest quintile (Figure 9). On average, in Indonesia, Philippines and Viet Nam, the total fertility rate in the poor (3.93) is double that in the rich (1.93), exposing poor women to double the lifetime risk of maternal death. Interventions need to be directed at the poor to have any impact on the MDGs.

The poor are particularly vulnerable in health systems with large out of pocket expenditure. In many of the countries in this region, out of pocket expenditure on health constitutes a large percentage of the total health expenditure (Table 5). Unless there are safety nets for the poor, both in policy and enforced at local level, cost will continue to be a barrier for the poor's access to maternal health services with user fees.

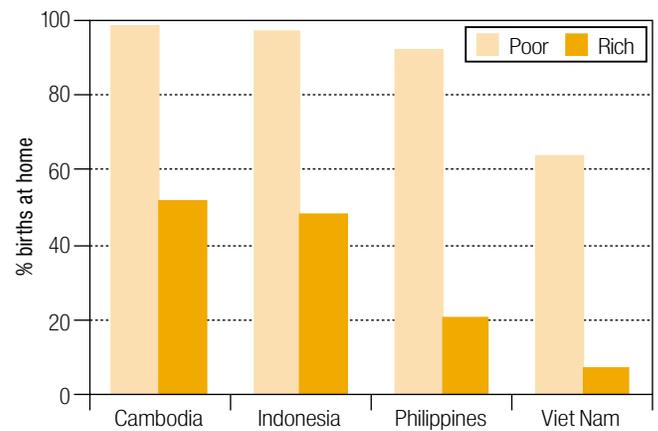
**Figure 7: Percentage of deliveries by skilled birth attendants for poorest and richest quintiles**



Sources: Gwatkin et al. 2004 and World Bank 2004.

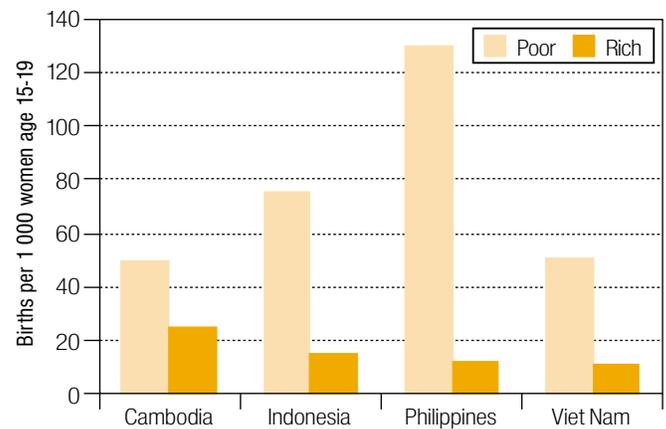
<sup>6</sup> The definition of Bumiputera includes all Malays and excludes ethnic Chinese and non-Muslim Indians. However, other indigenous groups are included as Bumiputera including the Iban and other Bornean groups.

**Figure 8: Percentage of deliveries at home for poorest and richest quintiles**



Source: World Bank 2004.

**Figure 9: Adolescent fertility rates for poorest and richest quintiles**



Source: Gwatkin et al. 2004 and World Bank 2004.

**Table 5: Out of pocket expenditure on health as a percentage of total health expenditure**

Country	% out of pocket expenditure
Cambodia	70.6
China	63.8
Indonesia	48.7
DPRK	23.4
Lao PDR	39.3
Malaysia	42.9
Mongolia	21.9
Myanmar	81.3
Philippines	47.4
Thailand	23.0
Timor-Leste	18.7
Viet Nam	62.0

Source: WHO 2005.



## International lessons learned in reducing maternal and neonatal mortality

Over the past decades, we have learnt many lessons internationally regarding what interventions efficiently reduce maternal and neonatal mortality and what approaches should be abandoned. Success stories show clearly that maternal deaths are avoidable. Different programmatic issues are outlined below that are key to improving maternal and newborn health.

### Maternal deaths are avoidable

The technical interventions to reduce maternal mortality are well known. A life saving package in maternal and newborn health is a combination of skilled birth attendants, emergency obstetric care and an emergency referral system. Whereas prior to the last decade the focus of maternal health in most countries was on antenatal care coverage, a shift has occurred to the provision of emergency obstetric care and skilled birth attendance. The majority of obstetric complications cannot

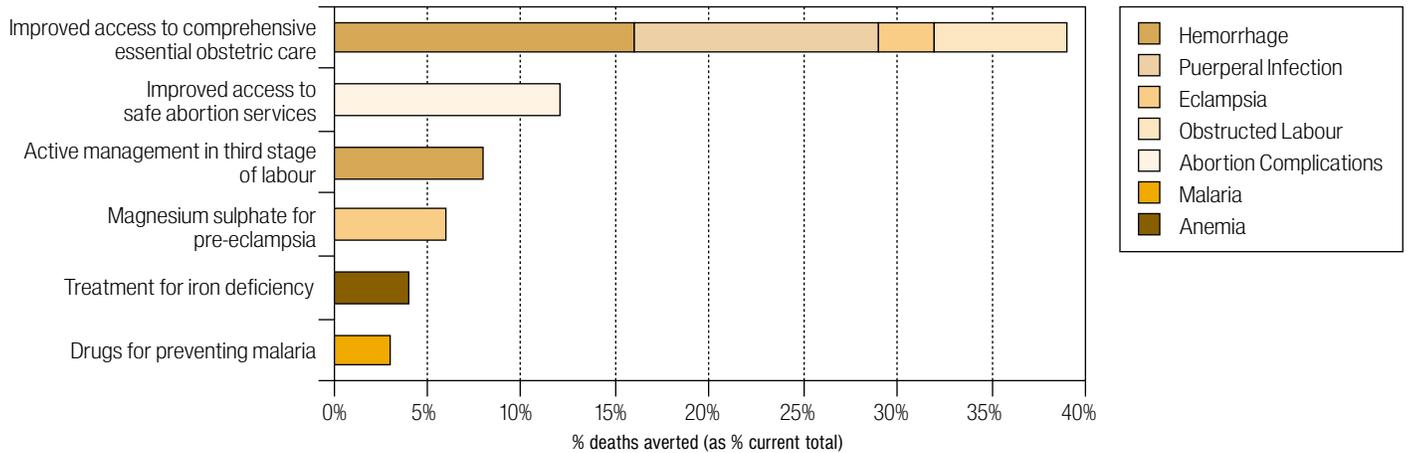
be predicted and all women should be considered at risk of developing complications, which require rapid access to emergency obstetric care.

Primary prevention of maternal deaths can be achieved by reducing the number of unwanted pregnancies in the region. It is estimated that if unmet needs for contraception were met, maternal mortality would drop by 20 to 35 per cent by reducing pregnancies.<sup>7</sup>

It is estimated that guaranteeing access to family planning alone could reduce maternal mortality by 25 per cent and child mortality by up to 20 per cent. (UNFPA 2005)

<sup>7</sup> Maine 1991.

**Figure 10: Percentage of maternal deaths averted by specific interventions**



Source: Adapted from Wagstaff and Claeson 2004.

By increasing coverage of key interventions (Figure 10) to 99 per cent, it is estimated that 73 per cent of maternal mortality can be averted.

Several of the interventions above do not need to be undertaken in health facilities but can be implemented by skilled birth attendants during delivery within the home. Active management of third stage of labour (prophylactic oxytocin before delivery of placenta, early cord clamping and cutting, and controlled cord traction) reduces postpartum haemorrhage by nearly two thirds (RR = 0.38, 95% confidence interval 0.32 to 0.46).<sup>8</sup> The use of magnesium sulphate reduces the risk of eclampsia among women with pre-eclampsia by more than half (RR = 0.41, 95% confidence interval 0.29 to 0.58).<sup>9</sup>

### Success stories in maternal health

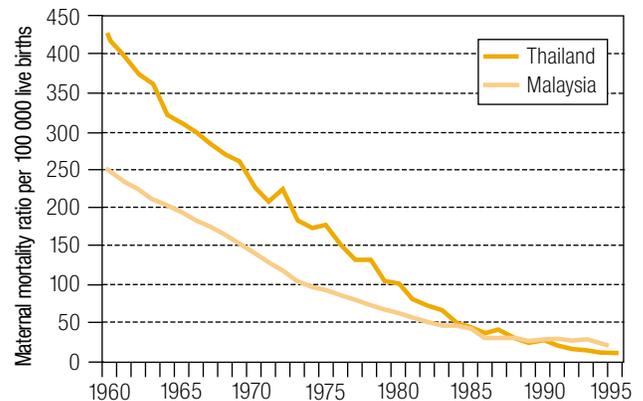
In this region, as seen in Figure 11, Malaysia has reduced maternal mortality through midwifery care backed up by a referral system. In 1957, Malaysia commenced to implement a plan to supply one midwife clinic per 2,000 population in rural areas. During the 60s to mid 70s the decrease in MMR was achieved with a shift from traditional birth attendants (TBAs) to these skilled birth attendants. From the mid 70s until the 90s, deliveries by skilled birth attendants increased from 70 per cent to 90 per cent with increasing numbers of deliveries in hospitals. However an MMR of 39 was reached in 1987 even though 80 per cent of births were still at home attended by midwives.

Similarly Thailand replaced traditional birth attendants in the 1960s with certified village midwives. The government showed

<sup>8</sup> Prendiville et al. 2003.

<sup>9</sup> Duley et al. 2003.

**Figure 11: Reduction in maternal mortality in Thailand and Malaysia since 1960**



Source: Adapted from Van Lerberghe W. and De Brouwere V. 2001 in WHO 2005.

high commitment to maternal health, training 7,000 midwives in the 60's and 18,000 in the 70's. This was followed by a shift of births to hospitals in the 80s. Thailand was able to halve maternal mortality from 200 to 100 in seven years during the period 1974 to 1981 and then halve again to reach 50 over 5 years by 1985, which illustrates the MDG targets are achievable.

### Key programmatic issues in maternal health

Over the last 15 years, a significant evidence base has been developed of the successful and unsuccessful strategies in maternal health. In this section successful strategies are discussed, including emergency obstetric care, skilled birth attendance and family planning and safe abortion. Also included is a discussion in the change of approach from training traditional birth attendants and risk factor screening.

1991	Three delays model of analysing maternal deaths
1990s	Abandoning emphasis on training traditional birth attendants for MMR reduction
1990s	Abandoning risk screening in pregnancy, as previously used
1990s	Efforts into care of obstetric emergencies
1990s	More emphasis on skilled birth attendance

Source: Liljestrand 2006.

## Emergency Obstetric Care

It has been estimated that fifteen per cent of women will develop complications requiring medical interventions with approximately seven per cent of women having serious complications requiring referral from primary care level.<sup>10</sup> The average time until death with postpartum haemorrhage, the most common cause of maternal death, is only two hours. Basic emergency obstetric care needs to be available for every delivery, with as short a delay as possible. Basic EmOC includes parenteral antibiotics, magnesium sulphate for eclampsia, parenteral oxytocics, manual removal of placenta, removal of retained products and assisted vaginal delivery. Comprehensive EmOC also includes Caesarean section and blood transfusion. There should be a minimum of four basic EmOC facilities and one facility providing comprehensive EmOC per 500,000 population.

## Delivery by a skilled birth attendant

It has been estimated that between 13 per cent and 33 per cent of maternal deaths could be eliminated by the presence of skilled attendants at delivery<sup>11</sup>

The presence of a skilled attendant at delivery is an important mechanism of administering life saving procedures and ensuring prompt referral to health facilities. The definition of a skilled birth attendant has not been uniform in the past but now has a clear definition in the joint statement by WHO, ICM and FIGO: “a skilled attendant is an accredited health professional – such as a 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”.<sup>12</sup>

### A skilled attendant should be able to perform the following functions at home or in a facility

1. Safely conduct a normal delivery using aseptic techniques
2. Use partograph to recognize obstructed labour
3. Active management of the third stage of labour<sup>13</sup>
4. Provide immediate care of the newborn including resuscitation
5. Initial management of postpartum haemorrhage through use of parenteral oxytocics and abdominal massage
6. Initial management of pre-eclampsia and eclampsia through use of magnesium sulphate
7. Recognize and manage postpartum infection through use of parenteral antibiotics
8. Know how and when to refer women to the next level of care and stabilize them for their journey

### And in a facility delivery, all of the above plus

9. Repair of tears
10. Manually remove the placenta
11. Perform assisted vaginal delivery through the use of a vacuum extractor
12. Manage incomplete abortion with manual vacuum aspiration (MVA)

Adapted from Carlough and McCall 2005 and UNFPA 2004.

The use of the partograph to detect obstructed labour and active management of the third stage of labour<sup>13</sup> to reduce postpartum haemorrhage (PPH) are essential elements of a skilled birth attendant’s skills, as well as the skills for emergency management of PPH and eclampsia. To achieve this, a minimum of 18 months competency based training is recommended.<sup>14</sup>

## Enabling environment

To be effective, the skilled attendant needs to be working in an environment which provides medication and equipment for emergency management of complications and a referral system operating to comprehensive emergency obstetric care services when required. The term skilled birth attendance is used to indicate delivery by a skilled birth attendant in an enabling environment. Skilled birth attendants cannot work in isolation, and need supervisory support and in-service training to maintain skills. However, currently the health systems in many countries of this region are not supplying the basic training and logistic support to address this problem.

<sup>13</sup> Active management of third stage of labour includes 1) prophylactic oxytocin before delivery of placenta, 2) early cord clamping and cutting, 3) controlled cord traction and 4) fundal massage.

<sup>14</sup> UNFPA 2004.

<sup>10</sup> WHO 2005.

<sup>11</sup> Graham et al. 2001.

<sup>12</sup> WHO 2004c.

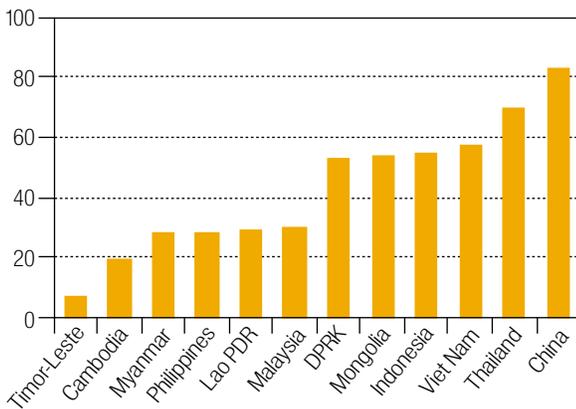
### Emergency referral

Efforts to reduce maternal deaths have placed importance in reducing the three delays: delay in deciding to seek care, delay in reaching care and delay in getting appropriate treatment at the facility. Ensuring skilled birth attendance and 24 hour availability of emergency obstetric care addresses the first and third delay but emergency transportation from the place of birth to the EmOC facility is critical. Local community involvement is important as most health systems cannot afford emergency transportation from village level, leaving a need for community mobilization to arrange emergency transport for women to the first level facility. In some countries in the region where emergency referral is difficult due to geographical access, maternity waiting homes are established near a health facility. This model has proven successful in Mongolia and other countries such as Lao PDR are currently piloting maternity waiting homes.

### Improving access to contraception

Access to contraception can decrease the total number of pregnancies and reduce the total number of maternal deaths which occur in these unwanted pregnancies. As discussed earlier, if unmet needs for contraception were met, it is estimated that maternal mortality would drop by 20 to 35 per cent.<sup>15</sup> Complications from unsafe abortion cause 13 per cent of maternal deaths worldwide, and this can be reduced by preventing unwanted pregnancy through access to contraception. As shown in Figure 12, there is a high unmet need for contraception in the countries with high maternal mortality in this region. Both Lao PDR and Cambodia have documented high unmet needs of 40 per cent and 30 per cent of women respectively. In Timor-Leste the contraceptive prevalence is under 7 per cent.

Figure 12: Contraceptive prevalence rates (modern methods)

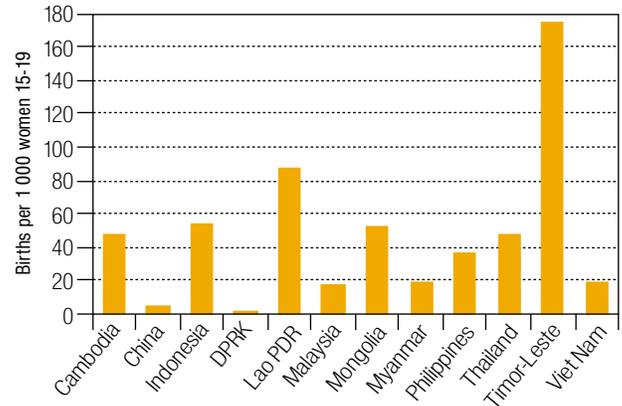


Source: UNFPA 2005.

<sup>15</sup> Maine 1991.

Provision of contraception to young women, as well as advocacy on the importance of delaying the first pregnancy is critical. Girls aged 15-19 are twice as likely to die from childbirth as women in their twenties; those under age 15 are five times as likely to die.<sup>16</sup> In the ESEA region, Lao PDR and Timor-Leste have the highest levels of adolescent fertility levels, at 88 and 175 respectively (see Figure 13).

Figure 13: Births per 1,000 women aged 15-19

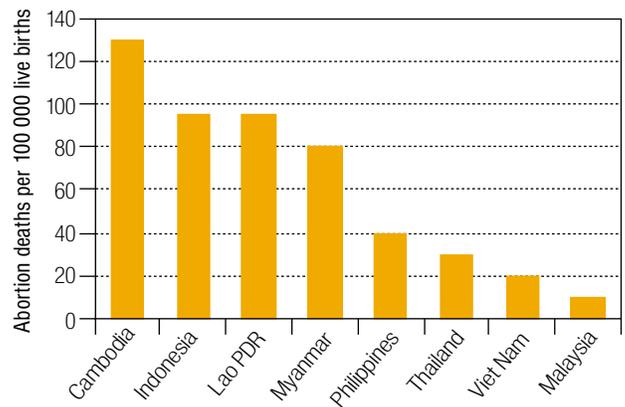


Source: UNFPA 2005.

### Access to safe abortion/care for post-abortion complications

Deaths from unsafe abortion are a significant cause of maternal mortality in the region, as seen in Figure 14. An estimated 4,700 women die in the South-East Asia region<sup>17</sup>, contributing to 19 per cent of maternal deaths. This averages at 40 unsafe abortion deaths per 100,000 live births. The highest ratio of abortion deaths occur in Cambodia, Indonesia, Lao PDR and Myanmar, in which countries abortion deaths are estimated at

Figure 14: Abortion deaths per 100,000 live births



Source: Adapted from IPAS Policy fact sheet.

<sup>16</sup> United Nations Department of International Economic and Social Affairs 1991.

<sup>17</sup> WHO 2000b. (Statistics include Brunei and Singapore).

levels of 80-130 per 100,000 live births (Figure 14). In Eastern Asia, including China, DPRK and Mongolia, the number of deaths from abortion is negligible.

In Indonesia, Lao PDR, Myanmar, and the Philippines, abortion is prohibited or allowed only to save the woman's life. In Thailand, it is available in cases where the woman's physical health is in danger and in cases of rape. In Malaysia, abortion is permitted for the above reasons but also if mental health is in danger. In China, Mongolia, DPRK, Viet Nam and Cambodia abortion is legal (Table 6). Since the data in Figure 14 was published, Cambodia has legalized abortion (gestation limit of 12 weeks), leading to provision of safer abortion services for some women, although in many areas quality services are not available or the community is not aware of the services.

**Table 6: Abortion laws in East and South-East Asia 1999**

Country	Abortion Law
Lao PDR, Philippines	Abortion prohibited altogether
Indonesia, Myanmar	Allowed to save the woman's life
Thailand	Allowed for reasons of physical health and rape
Malaysia	Allowed for reasons of mental health
Cambodia (to 12 weeks), China, DPRK, Mongolia, Viet Nam	Without restriction as to reason

**Source:** Adapted from The Center for Reproductive Law and Policy 1999.

### Focused antenatal care

While antenatal care does not directly reduce MMR, it does contribute to maternal and child health. WHO recommends a focused package of four antenatal visits. More visits than this are unnecessary for the 75 per cent of clients who have normal pregnancies, and are wasteful of valuable staff resources. The focused interventions should include the measurement of blood pressure, testing of urine for bacteriuria and proteinuria, detection and management of syphilis and severe anaemia, tetanus immunisation and iron and folate should be provided. Malaria prevention (insecticide-treated bed nets and intermittent preventive treatment) and effective case management should be provided in endemic areas. A key component of antenatal care is the development of a birth and emergency plan, acknowledging that it is not possible to predict most of the complications at delivery. Women should be informed about danger signs and symptoms, plans made for skilled birth attendance and information given on contraception. The package should also include HIV prevention and care including PMTCT. In contrast to these essential interventions, routine monitoring of weight gain has not shown to have any impact

in reducing the risk of serious complications and maternal deaths.

### Postpartum care

This period of six weeks after delivery has often been neglected despite the fact that the majority of maternal deaths and morbidities occur in the period and early neonatal death rates are high. Ninety per cent of deaths from postpartum haemorrhage, the most common cause of maternal deaths, occur within four hours of delivery. Early initiation of breastfeeding, maintenance of warmth for the newborn and identification of low-weight babies and sick babies who require additional interventions are important to reduce neonatal mortality. Early identification of infections in both the mother and newborn are critical. WHO recommends four visits approximating the schedule of 6 hours, 6 days, 6 weeks and 6 months, with later visits including family planning counselling.<sup>18</sup>

### The role of other interventions

Two previously widely practised interventions in maternal health have been shown over time to not be effective in reducing maternal mortality. The role of traditional birth attendants in delivery and the place of risk factors in predicting at risk pregnancies are discussed below.

#### Traditional Birth Attendants

The role of TBAs should be related to advocacy within the community for women to seek care from skilled attendants. As such, they can be a valuable member of the health care system. However, it has been demonstrated that TBA training programmes on safe delivery have not contributed to the reduction of maternal mortality.<sup>19</sup> While there is a felt need to do something for the many women in the region who deliver at home with TBAs, training of TBAs in delivery produces semi-skilled workers who are unable to save lives. TBA training in safe delivery can therefore be counterproductive, taking resources away from training of skilled birth attendants.

#### Risk approach does not reduce maternal mortality

The risk approach, which has been previously used extensively in antenatal programmes, does not have a significant impact of reducing maternal mortality. Most women who go on to develop life-threatening complications had no apparent risk factors; conversely, those identified as being at risk generally end up with uneventful deliveries.<sup>20</sup> The estimated 7 per cent of women who will have complications requiring back-up care cannot be predicted.<sup>21</sup> The emphasis should now be on

<sup>18</sup> WHO 1998.

<sup>19</sup> Bergström and Goodburn 2001.

<sup>20</sup> WHO and UNICEF 2003.

<sup>21</sup> WHO 2005.

availability of EmOC for all women if necessary, and that all women should be considered at risk of maternal death.

### Programmatic issues in reducing neonatal mortality

The recently established Partnership for Maternal, Newborn and Child Health<sup>22</sup> reinforces the importance of linking maternal and newborn health interventions. The main direct causes of neonatal death are preterm birth (27 per cent), infections (36 per cent, including tetanus 7 per cent) and asphyxia (23 per cent)<sup>23</sup>, all of which may be related to pregnancy and delivery care.

Some of the factors which lead to maternal death can also cause harm to the foetus or neonate. Obstructed or prolonged labour leads to asphyxia or stillbirth. Eclampsia and antepartum haemorrhage can harm the foetus. Infections in pregnancy or during delivery can lead to infections in the foetus or neonate.

Therefore some of the interventions essential to reduce maternal mortality can also reduce stillbirth and neonatal mortality. It

<sup>22</sup> The Partnership for Maternal, Newborn and Child Health was formed by developing and donor countries, UN agencies, professional associations, academic and research institutions, foundations, and NGOs to intensify and harmonize national, regional and global progress towards the UN Millennium Development Goals 4 and 5 (reduce child mortality; improve maternal health).

<sup>23</sup> Lawn et al. 2005.

is estimated that emergency obstetric care can reduce neonatal mortality by 10 to 15 per cent. Most important are the administration of antibiotics to the mother and newborn in cases of amniotic infection and Caesarean section for foetal distress. Other interventions include assisted vaginal delivery for foetal distress, oxytocics given to assist prolonged labour and anticonvulsants to prevent or treat eclampsia.<sup>24</sup>

Skilled birth attendance can reduce neonatal mortality by 20 to 30 per cent. Most neonatal deaths occur in the first 24 hours. The skilled birth attendant is present at a critical period for the newborn and often is only present for 12-24 hours. As well as providing basic EmOC, some simple interventions by the attendant such as provision of warmth to low birth weight babies can have a marked effect. Resuscitation at birth reduces neonatal deaths by 5 to 20 per cent. Feeding for low birthweight infants can reduce deaths in low birthweight babies by 20 to 40 per cent.<sup>25</sup> Interventions to reduce neonatal mortality do not require expensive technology. Viet Nam has been able to lower neonatal mortality to a rate of 15 per 1,000 with total spending on health of only US\$ 20 during the 1990s.<sup>26</sup>

<sup>24</sup> AMDD 2003.

<sup>25</sup> Darmstadt et al. 2005.

<sup>26</sup> WHO 2005.



## Focusing on the bigger picture

Maternal and newborn health cannot be achieved by focusing on maternal health interventions alone. Poverty reduction, multisectoral approaches and health system strengthening are critical to achieve improvements.<sup>27</sup> Political commitment should be visible in the form of allocation of funding and human resources, and ensuring good governance and leadership. The countries with success stories in reducing MMR have at the same time had improvement in many sectors, such as roads, communication systems and provision of education to women. Countries with high MMR in this region have health systems which are not functioning adequately. The structure of the health system must be strengthened which requires high level commitment and coordination between governments, donors and policy makers. Human resource planning and managerial capacity are important elements that have to be addressed within the whole health system, in order to make sustainable improvements in maternal and newborn health. In decentralized

health care systems, it is essential that each level of the health system places a priority on access to maternal and newborn health care. Supportive policies have to be in place and implemented so that change will take place on the ground. Public concern needs to be raised so that programme managers and providers will be held accountable for provision of high quality maternal and newborn services.

The Millennium Project report recommends that user fees should be abolished for basic primary care. This requires increased financial allocations to the health sector, both from governments and donors but also review of financing and payment systems within countries. Most of the countries in the region ranked poorly in the index of fairness of financial contribution to the health system (see Table 7). Regressive patterns in health financing are occurring in many countries, with increasing privatization and out of pocket payments which limit access by the poor. Migrant groups are also often excluded from health care due to restrictive administrative policies.

<sup>27</sup> Liljestrand 2006.

**Table 7: Fairness of financial contributions to health system**

Country	Index of fairness of financial contribution to the health system (ranking in 191 countries)
Indonesia	0.942 (73)
Mongolia	0.932 (97)
Malaysia	0.917 (122-123)
Philippines	0.913 (128-130)
Thailand	0.913 (128-130)
Lao PDR	0.885 (159)
DPRK	0.829 (179)
Cambodia	0.814 (183)
Viet Nam	0.643 (187)
China	0.638 (188)
Myanmar	0.582 (190)

Source: WHO 2000a.

As discussed in the Millennium Project report<sup>28</sup>, neonatal, child and maternal health all need a functioning primary health system. This includes supportive supervision, adequate supplies and community mobilization to provide transport to basic emergency obstetric care facilities. Managerial capacity at local levels has to be strengthened. Coordination with partners in the health sector is essential to avoid duplication of systems and vertical programmes which can ultimately weaken the health system. The partnership between UN agencies working in this area (particularly UNICEF, WHO and UNFPA), as well as the Partnership for Maternal, Newborn and Child Health can provide countries with leadership in this area.

Many countries in the region face difficulties maintaining motivated skilled providers in the public sector, particularly in rural areas. Human resource planning is often marred by high attrition rates after deployment. Public sector salaries are often below living costs so there is a drain of human resources towards the private sector, NGOs/IOs and overseas. Absenteeism of providers as they balance their public duties with private practice

<sup>28</sup> United Nations Millennium Project 2005.

is a major issue, especially for obstetric services where 24 hour availability is required. While increases in salary may not be feasible, some countries have addressed these issues through incentives such as housing, free schooling and health care for dependants, salary bonuses for rural postings, and development of career pathways. Professionalisation of provider groups and recognition of good performance work well to increase motivation.

The health system cannot function in isolation, without taking into account the cultural context and the specific needs of the community. Community involvement is needed to increase utilization of maternal health services and importantly to reduce the first delay, the delay in seeking treatment when an obstetric complication arises. Community involvement has also proven to be an effective way to reduce neonatal mortality, as seen in the Nepal in the box below. Initiatives involving working with TBAs to increase referral to skilled attendants have proved effective. TBAs and other respected community members can also assist women prepare a plan of action for urgent transportation if a complication arises during a homebirth.

#### Participation of women groups reduces neonatal mortality

An intervention with local women facilitating low cost participatory women's groups in a rural district of Nepal, over a period of two years, achieved a reduction of neonatal mortality of nearly 30%. Each facilitator supported nine women's groups every month. In the groups, women were involved in action learning, identifying local perinatal problems and strategies to address them. The maternal mortality also fell from 341 to 69 per 100,000 in the intervention groups, although this was not statistically significant. Manandhar et al. 2004.

Cultural barriers, including gender issues, need to be addressed to improve access to services. Male involvement is critical in maternal health interventions. Men usually play key roles in mobilizing communities to provide emergency transport and reduce delay in accessing emergency obstetric care. In cultural settings where males are the decision-makers for the family, increasing the knowledge of men on reproductive issues affecting their wives and daughters is essential.



## UNFPA's strategies in countries with high MMR in the ESEA region

UNFPA has a three-pronged strategy to reduce maternal mortality. These are 1) universal access to contraceptive services to reduce unintended pregnancies; 2) skilled attendance at all births, and 3) emergency obstetric care to all women who develop complications. These strategies are implemented using a rights based approach which includes cultural sensitivity in programming and striving for gender equity. In each country in the region, UNFPA works at policy, programmatic and community level to improve maternal and newborn health.

### Policy

UNFPA works with partners to develop a policy environment that promotes maternal health, focusing on the key strategies of family planning, emergency obstetric care and skilled birth attendance. Fostering political commitment of government and donors to address poorly functioning health facilities is an

important element. Without these, provision of skilled attendance, EmOC and emergency referral system cannot be achieved.

### Advocacy for maternal and newborn health

Key advocacy messages for policy makers and programme managers

- Allocation of resources for availability of basic and comprehensive emergency obstetric care services, with referral systems, throughout the country according to standard criteria.
- Adequate number of skilled birth attendants necessary to attend all births in the country. This may include an incentive system for trained midwives to stay in remote rural areas

- Promote user fee exceptions for essential maternal and neonatal health care
- Provision of a functioning supportive supervision system to maintain technical support to skilled birth attendants and emergency obstetric care facilities, including establishing in-service training system for midwives maintain adequate skills. In remote rural areas this may need to include rotation in hospitals.
- Policy and logistic systems in place to provide necessary medication and equipment for emergency management of complications (especially eclampsia, postpartum haemorrhage and newborn resuscitation) by skilled birth attendants.
- Reduce maternal deaths from unsafe abortion through contraceptive services to reduce unmet need, safe abortion where it is legal<sup>29</sup> and management of post-abortion complications.
- Inclusion of quality VCT in antenatal services, linked with PMTCT and treatment services.
- Operations research on non-standard ways to improve utilization of services by the underserved (poor, ethnic minorities, migrants and remote rural clients).

## Reaching the unreached

In the ESEA region, UNFPA is targeting the poor in the implementation of maternal health interventions in country programmes. At policy level this is achieved through poverty reduction strategies but UNFPA is also involved at community level. Interventions are often targeted in poorer regions, and efforts made to reach the poorer individuals within those communities. Similarly many countries have interventions targeting migrant communities, who have limited access to services.

The strong focus on adolescent reproductive health in all countries in the region is addressing the issue of lack of access of adolescents to traditional service delivery points. Participation of adolescents at all levels – planning, implementation, monitoring and evaluation, is being strongly encouraged in many country programmes.

## Cultural programming

It is essential to situate the issues of reproductive health in the cultural and religious context of the target group in order to design effective interventions.<sup>30</sup>

<sup>29</sup> UNFPA supports reduction of abortion complications through access to contraception and management of post-abortion complications but does not support abortion services.

<sup>30</sup> UNFPA/CST Bangkok 2005.

“In our development efforts in poor communities, we need to be able to work with people at their own level and to find common ground. We may not believe in what they do, we may not agree with them, but we need to have the compassion and the commitment to understand them and to support them as they translate universal principles into their own codes, messages and way of doing things. Human rights is our frame of reference. And we use culturally sensitive approaches to promote human rights in ways that people can identify with and can internalize in the context of their own lives”

Thoraya Obaid, Executive Director, UNFPA 2004.

The country programmes in the region provide many examples of working with communities from within, particularly working with faith-based organizations. The region includes community groups practicing a range of religions – including Buddhism, Islam, Catholicism, Confucianism and animism. UNFPA country offices have worked successfully with religious institutions and leaders, particularly in Buddhist and Islamic countries in the region, to raise awareness of reproductive health issues, including safe motherhood. Communities are also influenced by a range of political and social systems, and programming interventions need to take these into account. The many ethnic minorities in the ESEA region (particularly in the greater Mekong region of Cambodia, Yunnan in China, Lao PDR, Myanmar, Thailand and Viet Nam) can be reached effectively only through interventions targeted at their specific needs, and with the involvement of the communities.

Gender roles within each country can be an obstacle or an opportunity to improving access to maternal health services. This provides many challenges but working with communities and local leaders has been a common approach.

## Male Involvement – The Y Factor in Reproductive Health\*

In Maguindanao Province in the Philippines, a predominantly Muslim community, the provincial health office initiated a project with UNFPA to improve maternal and child health in the community. Ulama (Muslim religious leaders) were oriented on reproductive health in the context of Islam. RH information was distributed in mosques and regional caravans. The male Barangay Health Workers were also trained and liaised with the Muslim religious leaders. The project was expanded to other male groups who could give peer education, including tricycle drivers (RH on wheels), soldiers and police (Men In Uniform) and indigenous groups.

\* Referring to the Y chromosome in males

Source: UNFPA Philippines and Commission of Population, DOH 2004.

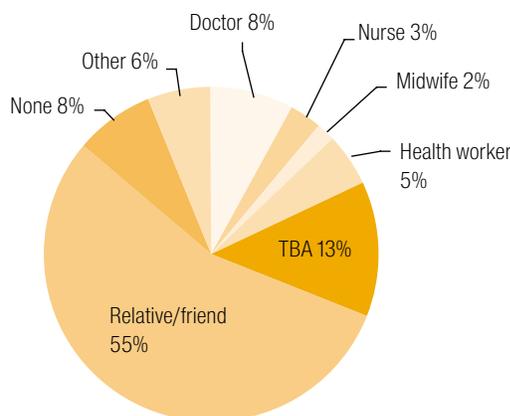
## Case studies of UNFPA activities in countries with high MMR

In the ESEA region, Lao PDR, Timor-Leste, Cambodia and Myanmar have the highest levels of MMR. UNFPA has strong programmes at country level with committed staff, working with government and other partners to decrease maternal and newborn deaths.

### Lao PDR

The MMR in Lao PDR has decreased from 750 to 530<sup>31</sup> in the last decade, showing a positive trend although this is not statistically significant. Progress is uneven among the regions and between urban and rural areas. There are many obstacles to achieving further improvements in maternal health in Lao PDR. The health service in Lao PDR is not functioning well in rural areas, and the proportion of births attended by skilled health personnel is only 13 per cent. The vast majority of rural women (91.3 per cent) deliver at home, with 88.4 per cent of rural women delivering without a skilled birth attendant.<sup>32</sup> Eight per cent of women deliver alone, and 55 per cent are accompanied only by relatives or friends (see Figure 15). The average number of births per woman in rural areas is 5.4, with an average TFR of 4.9 nationally, one of the highest in the region. Twenty one per cent of adolescent girls (15-19) in rural area are already mothers or pregnant with the first child. Additional issues affecting maternal health in Lao PDR include complications due to illegal abortions and the high incidence of malaria in some areas. There are 47 distinct ethnic groups in Lao PDR, with ethnic minorities in the highlands having higher rates of poverty and worse health indicators.

Figure 15: Type of assistance during delivery in Lao PDR



Source: Lao PDR Reproductive Health Survey 2000.

<sup>31</sup> UN Country Team 2004.

<sup>32</sup> NSC and UNFPA 2001.

Challenges to be overcome include the poor health infrastructure, the geographical remoteness of many ethnic communities, and socio-cultural barriers to ethnic groups seeking maternal health services. Language is also a barrier as many ethnic minority people do not speak Lao. The cultural practice of women delivering alone (eight per cent of deliveries) is a major barrier to access to EmOC. Availability of quality emergency obstetric care is limited in rural areas. A history of low quality of care and unavailability of commodities has discouraged clients from using services, or delaying attendance until symptoms are severe. In Lao PDR, client's out of pocket spending on health is approximately 60 per cent of total expenditure on health<sup>33</sup> and in many cases the poor are unable to afford services.

There has been a marked improvement in contraceptive prevalence over the last decade from 14 per cent in 1994 to a level of 32 per cent in 2000, which should have reduced the total number of maternal deaths through reducing the number of unwanted pregnancies. However, there is far to go as rural women have the least access to contraceptive services and have an unmet need for contraception of 40 per cent.

### Policy

In Lao PDR, the newly developed reproductive health policy integrates and updated the Birth Spacing Policy (1995), the Safe Motherhood Policy (1997) and the Primary Health Care Policy (2000). UNFPA is taking on the challenge to stress the importance of EmOC and skilled birth attendance, in a difficult environment of a poorly functioning health system. The recent NGPES<sup>34</sup> includes initiatives of improving referral systems and increasing female service providers.

### UNFPA working with partners

UNFPA has a long history of supporting nationwide family planning in Lao PDR, assisting the Ministry of Health to provide family planning services in all 18 provinces through approximately 700 health facilities. UNFPA is also supporting the MOH to provide integrated RH services in the southern provinces of Attapeu, Sekong and Saravane. UNFPA has also been reaching to community level with the Lao Women's Union and the Lao Youth Union, who have trained village volunteers to provide information on reproductive health including FP, risks of early marriage and maternal health. More recently UNFPA has supported upgrading of staff skills and provision of equipment to enable the provision of emergency obstetric care, antenatal and postnatal care in 27 service delivery points in underserved provinces. As utilization of services is low, this has been supplemented with mobile outreach activities to remote

<sup>33</sup> UN Country Team 2005.

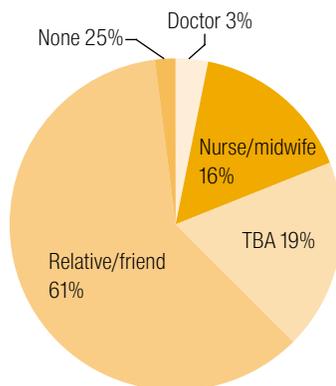
<sup>34</sup> National Growth and Poverty Eradication Strategy.

areas in three provinces, integrating provision of family planning, antenatal services with child health services. Through this mechanism, remote communities have improved access to public health services including contraceptives, immunization and child health. However, access to skilled delivery and EmOC remains to be an important challenge to be met. UNFPA supported the second Reproductive Health Survey in 2005 which will provide essential data on maternal health and services.

## Timor-Leste

Estimates of maternal mortality are difficult in Timor-Leste, where there is a small population with poor records. Current estimates of MMR range from 420-860 deaths per 100,000 live births. Deliveries by skilled birth attendants were previously estimated at 24 to 35 per cent of deliveries<sup>35</sup> but a recent DHS showed a lower level of 18.4 per cent.<sup>36</sup> Over 90 per cent of births occur at home, with most women being delivered by a relative or friend. However, there has been an increase in mothers receiving antenatal care to 61 per cent, with 56 per cent of women receiving antenatal care from a nurse or midwife and 4 per cent from a doctor.<sup>37</sup> The total fertility rate is 7.48,<sup>38</sup> one of the highest in the world and use of modern methods of contraception is very low at 6.8 per cent. The country has extremely high poverty levels, with more than 40 per cent of the population living below US\$ 0.55 per day. The health infrastructure was destroyed in the period prior to independence and the task of rehabilitation is immense. Lack of geographical access severely limits the communities' utilization of services, with 25 per cent of families having to travel two or more hours to reach health staff in facilities.<sup>39</sup>

**Figure 16: Type of assistance during delivery in Timor-Leste**



**Source:** Timor-Leste 2003. Demographic and Health Survey: Key Finding. Deli, Timor-Leste: Ministry of Health.

<sup>35</sup> MICS survey 24 per cent skilled birth attendance, MOH service data 35 per cent skilled birth attendants.

<sup>36</sup> Ministry of Health, et al. 2004.

<sup>37</sup> Ibid.

<sup>38</sup> UNFPA 2005.

<sup>39</sup> Ministry of Health, et al. 2004.

## Policy

In Timor-Leste, UNFPA is supporting the national goal of reducing maternal mortality by increasing access to emergency obstetric care and family planning services and improving the skills of health service providers in EmOC and FP counselling. The national family planning policy was approved by the Council of Ministers in March 2004 and the national reproductive health policy was adopted in October 2004.

## UNFPA working with partners

UNFPA provided a reproductive health adviser to the Ministry of Health who assisted in the development of the national reproductive health policy, which emphasizes strategies to reduce maternal mortality. With this technical assistance, national guidelines on emergency obstetric care have been developed and a training course in EmOC has been used for the training of midwives. Likewise, national family planning guidelines have been developed and printed in collaboration with WHO. UNFPA has been supporting the training of midwives in family planning techniques and counselling since 2004.

There are major deficiencies in the health service infrastructure and the number of trained personnel at all levels of the health service. At present the country is dependent on UNFPA-funded expatriate obstetricians/gynaecologists, who are training local staff in EmOC. In the country's five referral hospitals, midwives and general practitioners are being trained in the management of emergency obstetric complications. Two Timorese doctors are doing obstetrics/gynaecology specialist training in Malaysia sponsored by UNFPA scholarships, in order to provide the country with qualified national human resources.

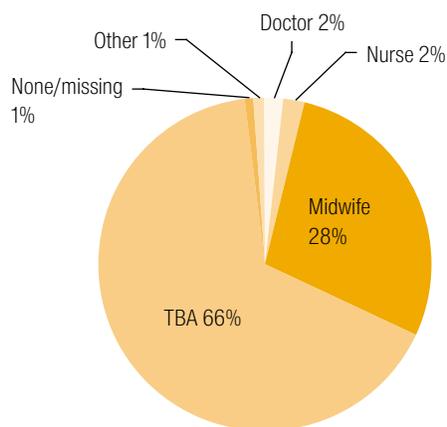
There is a lack of midwives throughout the country, especially in remote areas, and poor logistical supply of FP commodities, drugs and equipment to manage obstetric complications and FP. UNFPA, UNICEF and WHO are cooperating jointly to address these problems. Midwives have been supplied with equipment to facilitate their work. In remote areas, some midwives have been provided with motorbikes to increase access to obstetric services to the population. UNFPA provides contraceptives for the MOH to reduce the high unmet need for family planning. Contraceptive are distributed in public health centres and some private (non profit) health organizations. It is estimated that only 7-10 per cent of women aged 15-49 are using modern contraceptives.

Data in Timor-Leste is scarce and UNFPA has taken steps to address this issue through supporting the Census in 2004 which now provides the much needed population data.

## Cambodia

In Cambodia, the MMR was estimated at 600 by MOH in 1995 and 473 in the National Health Survey in 1998 and 437 in Cambodia Demographic and Health Survey 2000. Deliveries by skilled birth attendants are 32 per cent,<sup>40</sup> with the majority of deliveries attended by traditional birth attendants (66 per cent, see Figure 17). Nearly 90 per cent of births occur at home. Some regions such as Mondolkiri, Rattanakiri, Siem Reap and Otdar Meanchey have under 15 per cent coverage of births by a skilled birth attendant.<sup>41</sup> There are large populations of ethnic minorities concentrated in Mondolkiri and Rattanakiri, consisting of 15 major groups, whose utilization of maternal health services is low. There is a large differential between the rich and poor, with rich women five times more likely to have trained medical providers attending their deliveries. For these reasons, it is unlikely that Cambodia will reach the Millennium Goal target for reduction of maternal mortality. There has been progress in contraceptive prevalence, with an increase in the last decade from 8 per cent in 1992 to 18.5 per cent in 2000. The TFR has decreased rapidly from 4.0 (Census 1998)<sup>42</sup> to 3.3 (CIPS 2004).<sup>43</sup> Access to emergency obstetric care is low, with only 0.8 per cent of women being delivered by Caesarean sections, much lower than the estimated need for Caesarean sections of 5 per cent.

**Figure 17: Type of assistance during delivery in Cambodia**



**Source:** Cambodia Demographic and Health Survey 2000.

Barriers to maternal health include lack of skilled staff (particularly midwives in rural areas), low motivation in existing staff and geographical access to services. The cost of health services, especially emergency obstetric care, is a barrier to the

poor as 36 per cent of the population live below the poverty line.<sup>44</sup> Trained providers have adapted service provision so that cultural birthing practices such as “ang pleung” or roasting over coals (which is adhered to by 88 per cent of women) can still be practiced in institutional deliveries.

### Policy

In Cambodia, a Safe Motherhood Policy and Strategy document was adopted in 1997. The main focus of the Safe Motherhood Policy is improving maternity care services, including birth spacing, antenatal care, clean labour and delivery, essential obstetric care, treatment of complicated abortion and prevention of STIs including HIV/AIDS at all levels of the health care system, including the private sector. A comprehensive reproductive health strategy is currently being developed. A National Policy on the Prevention of Mother-to-Child Transmission of HIV has also been developed.

The National Abortion Law was enacted in November 1997, legalising abortion for gestations under 12 weeks. The Health Sector Strategic Plan (HSSP) 2003-2007 prioritizes the provision of health facilities to reach poor and rural areas and includes improvement of maternal health services including EmOC, safe abortion and post abortion counselling in the Minimum Package of Activities (MPA) at health centres and the Complementary Package of Activities at referral hospitals.

The commitment to maternal health in the country is already producing results, with the MOH commitment to staffing an additional 100 remote health centres with a midwife in 2005, and prioritizing recruitment and training of midwives. In the Joint Annual Health Performance Review and National Health Congress 2005, the MOH identified five key priorities: EmOC, attendance at deliveries by trained health providers, birth spacing services, full MPA status at health centres, and integrated management of childhood illness.

### UNFPA working with partners

In Cambodia, UNFPA is involved in the Sector Wide Approach (SWAp) with the Health Sector Support Project and provided technical support to the development of the national reproductive health strategy. UNFPA supported multiple advisers to the MOH, including a RH Management Adviser and a Midwifery Training Adviser. The UNFPA Improving Birth Spacing and Safe Motherhood Services Project provides support to the MOH’s Safe Motherhood Activities through multiple departments and programmes, including the National Reproductive Health Programme, The Human Resource Department and Personnel Departments and The National Centre for Health Promotion. Operational support is also

<sup>40</sup> National Institute of Statistics, Directorate General for Health (Cambodia) and ORC Macro 2001.

<sup>41</sup> Ibid.

<sup>42</sup> National Institute of Statistics, Ministry of Planning and UNFPA 2000.

<sup>43</sup> National Institute of Statistics, Ministry of Planning and UNFPA 2004.

<sup>44</sup> Ministry of Planning, Cambodia 2003.

provided to 14 operational districts, and training has been given to providers in antenatal care, delivery, long term and permanent contraception methods (IUD and voluntary surgical contraception), emergency obstetrics and postpartum care. Particular focus has been given to the training of midwives in management of third stage and maternal death audits. Through the National Reproductive Health Programme UNFPA is also working on the availability of staff skilled in maternal care, collaborating with United Nations agencies and NGOs to increase the access to skilled birth attendants. This will include a review and revision of midwifery training, recruitment, and allocation and retention.<sup>45</sup>

In order to address the barriers to utilization of maternal care services, UNFPA is engaged in operations research, which has included a study on “Obstacles to delivery by trained health providers”. UNFPA co-sponsored the 2000 and 2005 Cambodia Demographic Health Surveys, and is committed to improving the availability of reproductive health and population data in the country. UNFPA has been in the process of the preparing the next five years country programme 2006-2010 with main focuses on, not limited to, development of performance based health system, increase number of health facilities delivering full reproductive and sexual health service packages, improvement of training and deployment of midwives in remote areas and improvement of financial access to safe delivery services for the poor. Increased demand side initiatives and community empowerment through youth initiatives, civil society engagement, and decentralization and deconcentration is another core area of work of UNFPA from 2006-2010.

### Raising the profile of “Delivering into good hands” to the highest levels

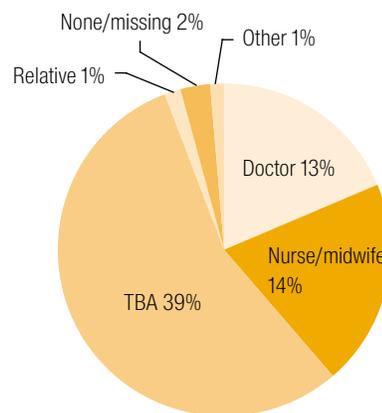
In December 2005 UNFPA supported the First National Midwifery Forum “Delivering into Good Hands”, attended by Secretary of States from several ministries. The forum culminated with H.E Deputy Prime Minister Sok An providing the meeting with a forty minute address on the importance of maternal health and the role of skilled attendance, urging the relevant Ministries to ensure that recruitment, deployment and retention of midwives be tackled. This has opened the door for a full review of skilled attendants by the health sector with the support of ministries involved in civil service reform. The 150 midwives from the 24 provinces were delighted with the chance for their voices to be heard and high commitment made for improvement of midwifery issues by senior government officials.

<sup>45</sup> UNFPA Cambodia 2005.

## Myanmar

The maternal mortality ratio in Myanmar is estimated at 360.<sup>46</sup> The rate of deliveries attended by doctors, nurses and midwives (skilled birth attendants) is 57 per cent (see Figure 18). Most deliveries occur at home, with 56.6 per cent of deliveries occurring at home in urban areas and 91.2 per cent at home in rural areas. Thirty nine per cent of deliveries are attended by traditional birth attendants, but this is much higher in rural areas, where TBA attended births account for 45.3 per cent of deliveries.<sup>47</sup> The number of emergency obstetric care (EmOC) facilities has been assessed as 8 basic EmOC and 4 comprehensive EmOC per 500,000<sup>48</sup> but utilization of services is low. In practice, basic EmOC facilities cannot provide all of the six functions of basic EmOC due to restrictions on the role of midwives. The contraceptive prevalence rate (all methods) of married women of reproductive age rose from 16.8 per cent in 1991, 32.7 per cent in 1997, to 37 per cent in 2001. The CPR for modern methods is 32.8 per cent. However, the unmet need has been estimated at 17 per cent in 2001, but would be higher if the needs of unmarried women were included. Complications from unsafe abortion contribute significantly to the maternal deaths.

Figure 18: Type of assistance during delivery in Myanmar



Source: Myanmar Fertility and Reproductive Health Survey 2001.

While public health services are free, clients usually need to pay for medical and surgical treatment costs e.g. antibiotics, and intravenous fluids and operating costs. This can be a significant barrier to early referral of poor clients with complications. There are also language, cultural and geographical barriers in providing access to the 135 different ethnic groups in Myanmar, often living in remote areas.

<sup>46</sup> WHO 2004a.

<sup>47</sup> MIP and UNFPA Myanmar 2003.

<sup>48</sup> WHO SEARO 2005.

**Policy**

The Five-Year Strategic Plan for Reproductive Health 2004-2008 includes EmOC and training skilled birth attendants. The Ministry of Health granted permission for midwives (the majority of skilled birth attendants) to give parenteral oxytocin, an important medication required for basic EmOC.

**UNFPA working with partners**

With UNFPA support, the Department of Health implemented a birth spacing project in 1992 which now covers 100 townships. Under the project “Strengthening Reproductive Health Services” UNFPA supported a WHO consultant to develop a safe motherhood manual based on the Pregnancy, Childbirth,

Postpartum and Newborn Care manual and training of State and Divisional training teams has been implemented. Obstetricians have been trained in the management of pre-eclampsia and eclampsia. In some townships the use of magnesium sulphate has been initiated and there are plans to scale up to other project townships in 2006. A workshop on active management of labour was conducted and the MOH has agreed to permit midwives to provide oxytocin. In the future, Myanmar country office intends to intensify the focus on EmOC, assisting the government to improve the access and quality of EmOC, so that Myanmar can reach the MDG target of reducing maternal mortality.



# Monitoring and Evaluation

How do we measure our progress? This chapter discusses available indicators in maternal and neonatal health. Improvement of programming is also assisted by including reviews of maternal death and complications as part of programme monitoring, so that improvements can be made to clinical services and programming. Data from monitoring and evaluation and results of maternal death reviews can also be important tools for advocacy targeting policy makers, addressing the wider issues affecting maternal and newborn health.

## Maternal and Neonatal Health Indicators

The two MDG indicators are maternal mortality ratio and percentage of births attended by skilled birth attendants. To monitor progress in maternal and newborn health, we also require indicators of access to, utilization and quality of EmOC services, access and utilization of contraceptive services to prevent unwanted pregnancy, as well as indicators of neonatal health.

## MMR and skilled birth attendance

While all countries in the region have estimates of MMR, there are difficulties using MMR to track progress as the range of estimates is very wide, as seen in Table 1. The percentage of births attended by skilled birth attendants is available in all of the countries. However, in many countries, providers classified in the data as SBAs may not have the skills to provide basic EmOC, which is the criteria for classification as a skilled birth attendant or may not have the necessary back-up services to save a woman's life. For this reason a Skilled Attendance Index has been proposed, which is a composite indicator measuring skills of the attendant and the presence of an enabling environment.<sup>49</sup>

<sup>49</sup> Hussein et al. 2004.

## Indicators of emergency obstetric care

EmOC indicators are not included in the MDG indicators, but the Millennium Project has proposed that coverage of emergency obstetric care is added. At present this information is not available in most countries in the region. A basic but crude measure of EmOC services is the number and distribution of EmOC per 500,000 population (see Table 8). The recommendation is at least one comprehensive and four basic EmOC facilities per 500,000. This may not be adequate in

remote rural areas, so “the 5-hour” radius<sup>50</sup> may be a more useful concept specifying that EmOC should be available within 5 hours of travel in those areas, assuming that skilled birth attendants are at the birth to provide basic EmOC. If this assumption cannot be met, then a 2-hour radius is a more realistic measurement, as women with postpartum haemorrhage require rapid referral to EmOC. This is geographical access only – qualitative assessment of financial, social-cultural access to services should complement this indicator.

<sup>50</sup> UNICEF East Asia and Pacific Regional Office 2003.

**Table 8: Maternal health indicators: MMR, SBA, EmOC, and community awareness**

Question	Indicator	Definition	Usual level of indicator	Source of data	MDG/MYFF <sup>51</sup>
<b>Maternal mortality</b>					
What is the impact?	Maternal mortality ratio (MMR)	Number of maternal deaths per 100,000 live births	Goal	National surveys	MDG MYFF
<b>Skilled birth attendance</b>					
	Skilled birth attendants	Percentage of births attended by skilled birth attendants	Outcome	DHS HMIS	MDG MYFF
<b>Emergency obstetric care</b>					
Are EmOC services available?	Distribution of EmOC services per 500,000 pop.	Number and distribution of emergency obstetric care facilities	Output	HMIS	Proposed MDG <sup>52</sup>
Are EmOC services geographically accessible?	Geographical access to EmOC	Percentage of the population within 2 hours travel distance of basic EmOC	Output	HMIS and mapping	
Are EmOC services being utilized?	Births in EmOC facilities	Proportion of births in basic and comprehensive emergency obstetric facilities	Outcome	HMIS DHS	
Are the services utilized by those in need?	Met need for emergency care	The proportion of women with obstetric complications who are treated at basic or comprehensive EmOC facilities	Outcome	Hospital records	
	Caesarean section rate	Caesarean section as a proportion of all births	Outcome	HMIS	MYFF
What is the quality of the service?	Case fatality rate	Proportion of deaths in women with complications in comprehensive EmOC	Outcome	Hospital records	
<b>Community awareness</b>					
	Women's/Husbands' awareness of danger signs	Proportion of women/husbands knowing three or more of the danger signs of complications of pregnancy and delivery	Output	Survey	

<sup>51</sup> MYFF UNFPA Multi-Year Funding Framework.

<sup>52</sup> United Nations Millennium Project 2005.

Other indicators of utilization of EmOC include:

- The proportion of births in basic and comprehensive emergency obstetric facilities. It is estimated that fifteen per cent of all pregnant women develop complications so at least 15 per cent of births should be in basic or comprehensive facilities. While useful as an indicator of community use of the facilities, a limitation of this indicator is that it does not show whether those who develop complications are using the births in facilities;
- The met need for emergency care is the proportion of women with obstetric complications (that is 15 per cent of deliveries) who are treated at basic or comprehensive EmOC facilities. The target for this indicator is 100 per cent;
- Caesarean section as a proportion of all births (including community home births) should be between 5 to 15 per cent. This is a better indicator at district level as overutilization of Caesarean sections in cities may bias the national levels.
- Case fatality rate in comprehensive EmOC should not exceed 1 per cent of the women admitted with complications.

Another indicator that should be included in countries where skilled birth attendance is low is the community awareness of danger signs of complications pregnancy and delivery. Rapid

recognition and urgent referral to an EmOC facility is critical to reducing maternal mortality in these situations.

### Indicators of prevention of unwanted pregnancy

There are a range of indicators related to the prevention of unwanted pregnancy (Table 9). While CPR is a proxy in countries where CPR is low, it is important to have estimates of unmet need in countries where CPR is higher, with disaggregation for age, ethnicity, marital status, and rural/urban residence. Data on unmet need for contraception is not available in several of the countries in the region. The Millennium Project is suggesting the use of met need for contraception - a more positive target. The proposed inclusion of adolescent fertility rate in MDGs is useful as an indicator of maternal health, due to the higher rates of maternal death in young women. Acknowledging the importance of reproductive health services in meeting MDGs, a new target of 100 per cent access to reproductive health services has been proposed and accepted by the World Summit. Ideally this indicator should cover geographical access, financial and social access. However, in many cases, it has been interpreted as geographical access e.g. percentage of the population living with one hour of a service delivery point providing FP, safe motherhood and RTI/STI services. When services are available, it is important to monitor whether they offer a choice of contraceptives to meet individual needs.

**Table 9: Indicators related to prevention of unwanted pregnancy**

Indicator	Definition	Usual level of indicator	Source of data	MDG/MYFF <sup>53</sup>
Contraceptive prevalence rate - modern methods	Percentage of women of reproductive age (15-49) who are using (or whose partner is using) a modern contraceptive method at a particular point in time	Outcome	DHS	MYFF MDG
Unmet need for contraception	Proportion of women who want to space or limit births who are not using contraception	Outcome	DHS	MYFF
Proportion of demand for family planning satisfied	Proportion of women who want to space or limit births who are using contraception	Outcome	DHS	Proposed MDG
Adolescent fertility rate	Annual number of live births to girls aged 15-19 per 1,000 girls aged 15-19	Goal	DHS HMIS	MYFF Proposed MDG
Access to RH services	Percentage of women with access to RH services	Output	HMIS and mapping	Proposed MDG
Choice of contraceptive method	Percentage of service delivery points offering at least 3 modern methods of contraception	Output	HMIS	MYFF

<sup>53</sup> MYFF: UNFPA Multi-Year Funding Framework.

## Indicators of newborn health

Additionally, indicators on the health of the newborn should be included when measuring progress of the intervention (Table 10). Traditional indicators include neonatal mortality rates. However if an intervention is aimed at improving maternal and foetal/neonatal care during labour and delivery, it would be beneficial to evaluate using an intrapartum case fatality rate, recording fresh (recent) stillbirth rates and neonatal deaths in the first 24 hours.

## Reviewing maternal deaths and complications

By reviewing the context of each maternal death or life-threatening complications we can gain understanding of why the event happened and how can similar events be averted in

future. In “Beyond the numbers: Reviewing maternal deaths and complications to make pregnancy safer” a number of approaches to obtain this information are described.<sup>54</sup> These include community-based maternal death reviews where the family and the community are interviewed to determine factors related to the death, and facility based maternal death reviews. Similarly the cases of “near misses” or women with life threatening complications can be assessed. All of these need to be conducted in a confidential manner which is non threatening, so that a complete picture of events can be obtained without apportioning blame to individuals or facilities.

<sup>54</sup> WHO 2004b.

**Table 10: Neonatal health indicators**

Indicator	Definition	Usual level of indicator	Source of data	MDG/MYFF <sup>55</sup>
Neonatal mortality rate	Number of newborns dying in the first 28 days per 1,000 births	Goal	DHS HMIS	
Early neonatal mortality rate	Number of newborns dying in the first 7 days per 1,000 births	Goal	DHS HMIS	
Stillbirth rate	Number of babies born dead after 22 <sup>56</sup> completed weeks (usually 500 g) per 1,000 births	Goal	DHS HMIS	
Intrapartum case fatality rate (to measure impact of EmOC)	Number of fresh stillbirths + early (24 hours) neonatal deaths divided by total deliveries in the facility	Goal	DHS HMIS	
PMTCT coverage	Percentage of HIV positive mothers who receive PMTCT	Outcome	HMIS	

<sup>55</sup> MYFF Multi-Year Funding Framework.

<sup>56</sup> Ambiguity remains over the definition of a stillbirth (versus a spontaneous abortion). ICD 10 now defines the perinatal period as commencing at 22 weeks; any foetus delivered beyond this gestation, or with a birth weight over 500 g, is therefore included in the perinatal statistics. However, for international comparisons a birth weight of at least 1,000 g is recommended (WHO 1996).

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