Improving Maternal, Newborn and Child Health in the South-East Asia Region
Figures quoted in country profiles are based on the latest national data and may not correspond to data in other WHO publications or official WHO estimates.
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Maternal, newborn and under-five child health in the South-East Asia Region

Introduction

The WHO South-East Asia Region (SEAR) accounts for nearly one fourth of the world’s population. Interestingly, most countries in the Region have very young populations, with nearly 50% in the reproductive age group. Consequently, the numbers of pregnant women and the numbers of babies born annually are very large. An estimated 37 million childbirths take place annually. The Region has about 180 million children under the age of five. Unfortunately, the Region also accounts for more than 170,000 maternal deaths and over 3 million child deaths annually. These statistics make the issue of maternal, newborn and child health a major priority for the Region.

This publication provides an overview of the current maternal, newborn and under-five child health in the 11 Member States of the WHO South-East Asia Region. It also highlights some of the efforts currently underway to improve the maternal and child health indicators in countries of the Region. While documenting the lessons learnt, the publication shows not only the rich diversity, but also the different challenges faced by Member Countries, and the innovative ways to overcome them. Each of the country profiles is based on reports specifically prepared for the launch of the World Health Report on World Health Day 2005 with the theme of Maternal and Child Health and the slogan: Make Every Mother and Child Count.

The country profiles clearly show how each of the Member Countries is addressing the issues of making pregnancy and childbirth safer and protecting the health and well-being of newborns and ensuring a healthier life for all children in the Region.

As is well recognized, making reproduction and childbirth safer, benefits not only women, but also newborns, children, families and ultimately the communities and nations.

To enable women to contribute to national development and for children to achieve their full potential, the health of women and children and family-friendly policies must receive higher priority.

Member Countries have committed themselves to reach the Millennium Development Goals. These include targets not only for maternal and child health, but also for other critical areas including nutrition, communicable diseases, access to essential drugs and safe water and improved sanitation. Improving access to education and empowerment of women, are also necessary to improve maternal and child health. Intensified collaboration among partners and efficient use of resources is needed to realize these goals.
The following pages describe the efforts currently underway in the Member Countries of the South-East Asia Region in the area of maternal and child health.

Issues in maternal, newborn and under-five child health in South-East Asia

In most countries of WHO’s South-East Asia Region, between 31-50% of the population is under 15 years of age. Since they will be reaching their reproductive years soon, it is likely that maternal, newborn and child health will continue to be one of the top priorities for health planners. Even if fertility rates fall, as reported in a few countries, the numbers of pregnant women and children born each year will continue to rise, at least in the foreseeable future.

Additionally, as the following country profiles show, with the exception of the Democratic People’s Republic of Korea, more than 50% of the population in Member Countries lives in rural areas. This is a big challenge, calling for innovative ways to provide a strong network of health services to meet the needs of mothers, newborns and children. This becomes even more critical in countries with different geographic, climatic and socio-economic situations. Further, as per social norms, in several countries, the process of childbirth is perceived to be unclean, which in turn, leads to the seclusion of women and newborns during birth and the postpartum period. Family and community practices related to infant and young child feeding and health seeking behaviour during illness are not always optimal in some countries.

The Region carries a heavy burden of global maternal and child mortality. WHO, UNICEF, UNFPA estimates for 2000 suggests the total number of maternal deaths in the Region (173,000 in 2000), account for almost 33% of all maternal deaths worldwide. These deaths, however, are not spread equally across the Region, and there are vast intra-country and as well as intra-Region variations (Figure 1), especially in terms of inequity in access to skilled care at birth.

Equally, the proportion of newborn deaths globally is enormous – of the estimated 4 million neonatal deaths annually, 1.4 million newborns die in the first month after birth in SEAR. Very few countries in the Region have good birth registration systems. The exact numbers of newborns who die in and around birth and in the first month of life is therefore difficult to ascertain. What is clear, however, is, that neonatal mortality rates are not declining in almost all countries of the Region, or if they are, the decline is very slow.

Skilled care at every birth

The high number of maternal and newborn deaths is not surprising, given that the interventions required to ensure the life of the newborn at and around birth, are the same as for mothers – skilled care at every birth, which is sadly still lacking in many SEAR countries (Figure 2). Although skilled care at all birth and around birth is imperative for saving newborn lives,
it is acknowledged that newborn health also requires other interventions most of these equally benefit the mothers. These include; good nutrition, especially for the girl child and prior to pregnancy; protection from infectious diseases, which requires, in part, a strong immunization programme; quality antenatal care that focuses on the identification and treatment of underlying medical conditions such as malaria, hypertension, STIs, and others such as diabetes in pregnancy; increased education opportunities for girls and young women; good parenting, including health education for healthy families and recognition of danger signs in neonates; access to family planning for birth spacing and limiting the size of families according to their wishes; and finally, early and exclusive breastfeeding, which is still not the common practice in many countries in the Region.

Child mortality

Over 3.1 million children under the age of 5 years die every year in the Region. The health indicators for children under-five in most countries of the Region are, however, improving. Under-five mortality rates, are declining in some countries, but remain high in several others. In addition there are marked gender differentials in mortality rates in several countries (Figure 3). Neonatal mortality accounts for about 40% of under-five mortality. Further reductions in under-five mortality would be dependent on the attention given to neonatal health and survival.

Immunization coverage

Over the years immunization coverage has improved, although there are still pockets where more needs to be done (Figure 4). The reported incidence of vaccine preventable diseases like diphtheria, pertussis, and measles has been significant. There has been a marked decline in neonatal tetanus across the Region (Figure 5). Bhutan, DPR Korea, Maldives, Sri Lanka and Thailand are considered to have reached the neonatal tetanus elimination goal of less than 1 case per 1,000 live births at district level. The Region is very close to eradicating poliomyelitis.

Malnutrition

Malnutrition in children remains a problem. The proportion of underweight children under-five years, ranges from 20-60 % in the countries. On the other hand, in some parts of the Region, child obesity is emerging as a new challenge. Some countries in the Region have the highest incidence of low birth weight babies in the world. In many countries, almost a third of the newborns weigh less than 2,500gms. This poses a special challenge for their survival and development.

Improving child survival

Evidence suggests that exclusive breastfeeding up to six months of age and Oral Rehydration Therapy for preventing/treating dehydration due to diarrhoea has a great potential for preventing child deaths. While
Improving Maternal, Newborn and Child Health in the South-East Asia Region

Trends suggest that exclusive breastfeeding and ORT use rates are increasing, much more remains to be done (Figure 6). The Integrated Management of Childhood Illness (IMCI) strategy addresses the principal causes of child mortality – diarrhoeal disease, acute respiratory infection, measles, malaria and underlying malnutrition. Nine of the Member States in the Region have adapted the global IMCI strategy in order to meet local needs. Several countries have added neonatal care in the national adaptations. Coverage with IMCI within countries, however, remains low. Rapid expansion of IMCI has the potential of not only improving the quality of care for sick children, but also of accelerating the decline in child mortality.

Success stories

The South-East Asia Region has at least two of the most successful countries globally who have managed to dramatically reduce their maternal mortality ratios in recent years. These two countries, Sri Lanka and Thailand, have shown that with political will and determination, much can be done to make pregnancy safer and give all newborns a healthy start in life. Also, the Democratic People’s Republic of Korea, with its mass urbanization has also increased the proportion of births attended by a skilled attendant to 98%, by ensuring that most births take place in a facility where skilled professional care is readily available.

Therefore, as the following individual country profiles shows, all countries, from the most populous – India, to the country with least population – Maldives, are making tremendous efforts to reduce

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**Figure 5:** Reported neonatal tetanus (NT) cases with TT2+ coverage in SEAR, 1978-2003

**Figure 6:** Percent children below 6 months of age who are exclusively breastfed in SEAR, 2002

Source: WHO/SEARO

Source: The State of the World’s Children, 2004
the unacceptable and tragic loss of life around pregnancy and birth, and in the precious early years of childhood. India, Indonesia, Nepal and Bangladesh for example, have major efforts underway to reduce maternal and newborn deaths. Current evidence indicates however that over 60% of the 3.1 million children who die every year in the Region could be saved, if all children had access to a handful of preventive and promotive interventions.

Although different approaches are being taken and countries are at different stages of implementation, they all have some similarities. Each has, or is making efforts to ensure that maternal, newborn and child health is highlighted in their national health and development plans. All are making investments, just as Thailand and Sri Lanka did, to ensure that quality skilled care, especially at and around birth, is available at the community level; that the community health services have strong links to and support from quality hospital services, for the management of complications; and finally, that all these services (community and hospital), are accessible and affordable to all women and children. Equally, a number of countries, Bangladesh, DPR Korea, India, Indonesia, Maldives, Sri Lanka and Thailand, are showing good progress in terms of improving child health, which also requires a comprehensive and integrated network of primary health care services and back-up hospital care, to ensure that every child reaches their fullest potential and can make their own contribution to the future development of the world.

**Conclusion**

In conclusion, it may be stated that countries of the Region have made significant progress in improving child health. Progress in maternal and neonatal health has however been slower. But there are positive signs.

Many countries have developed reproductive and neonatal health strategies, or are in the process of doing so. Several countries have initiated or strengthened action for ensuring skilled care at every birth. Effective and efficient implementation of both these actions will accelerate the pace of improvement in the status of maternal and child health in the Region.

The reasons for high maternal and young child mortality are not only medical but also have social and economic dimensions. Due attention to health systems strengthening, attention to family and community practices and co-ordinated initiatives across several social sectors to meet local specific imperatives, are therefore needed for accelerating progress towards meeting the Millennium Development Goals.
The population of Bangladesh has been steadily increasing at a moderate rate of 2.3%, and now stands at an estimated 135 million. This presents a formidable challenge to the policy makers for improving the quality of life through socio-economic development. Improvements however are being made. Life expectancy at birth has increased from 44 in 1970, to the present 62 years (UNICEF 2004).

The Government of Bangladesh seeks to create conditions whereby people have the opportunity to reach and maintain the highest attainable level of health. The Ministry of Health and Family Welfare (MOHFW) has adopted the Health, Nutrition and Population Sector Program (HNPSP) to provide quality, affordable reproductive health services, including family planning, to contribute directly to the attainment of the Millennium Development Goals (MDGs). Although there has been considerable success in the health services, still more than 60% of the population do not have access to basic health care, despite the fact that many government health facilities at various levels are not being adequately utilized (MOHFW 2003). Although the total fertility rate (TFR) has dropped significantly, maternal mortality ratio remains high – the latest national data shows it to be around 300 per 100,000 live births (BMHS/MMS 2003).

A serious challenge to government efforts to improve the health of women, newborns and children is, that the number of urban poor has increased from 7 million in 1985 to 12 million in 1999, and their health indicators are worse than those of the rural poor. According to the 2001 population census, the urban population in Bangladesh is 29 million, and has increased at the rate of 38% during the last 10 years, which is about 4 times the rural rate (MOHFW 2001). This shift may have a negative impact on the urban health service delivery system, and it is usually women and children that suffer the most.

There has however been substantial improvement between 1994 and 2004 in the survival of baby boys and girls, as well as in the proportion of children immunized for measles. The following data is taken from the World Health Organization’s Basic Indicators: Health Situation in South-East Asia, South-East Asia Region, 2004:

**MDG Goal 4 and 5 indicators:**
- Under-five mortality rate male 71, female 73 per 1,000 live births;
- Infant mortality rate 51 per 1,000 live births;
- Proportion (%) of 1 year-old children immunized for measles 77;
- MMR 230 per 100,000 live birth;
- Births by skilled attendant 21.8%.

Data source: Basic Indicators: Health Situation in South-East Asia, World Health Organization, South-East Asia Region, 2004.
of children. Prevention and control of diseases, such as measles, poliomyelitis and diphtheria, along with widespread use of ORS for diarrhoeal disease, have greatly reduced childhood mortality and morbidity. Bangladesh has not had a case of polio since 2000, and has already achieved the goal for elimination of leprosy at the national level.

Side by side with the Government, the NGOs and private sectors are playing an important role in providing health services, especially to mothers and children. The challenge has been to broaden the service base, in particular to the ultra poor. The Government of Bangladesh (GoB) has acknowledged the importance of government, private and NGO partnership to meet this challenge.

Status of maternal health

Although improving, in terms of national averages, maternal health status for many Bangladeshi woman remains poor. Around 50% of Bangladeshi women suffer from chronic energy deficiency. Over 43% of the pregnant women are iodine deficient and more than 2.7% develop night blindness during pregnancy (Bangladesh Demographic Health Survey (BDHS) 2001). Despite very low level of the use of antenatal and skilled care at birth, the situation in respect of Tetanus Toxoid vaccination among women is much better. About 81% of mothers who gave birth during 1995-1999 received Tetanus Toxoid vaccination (BDHS 2001).

Bangladesh has a high maternal mortality ratio (MMR). The high MMR directly relates to the high perinatal (newborn) mortality rate in the country. The estimated lifetime risk of dying from pregnancy and childbirth-related causes in Bangladesh, is around 100 times higher than that in developed countries. The tragic consequence of these deaths is, that about 75% of the babies born to these women, also die within the first week of their lives. Although a high proportion of such deaths are attributed to a lack of emergency obstetric services and trained personnel, 14% of deaths of pregnant women are associated with injury and violence.

The major causes of maternal deaths are postpartum haemorrhage, eclampsia, and complications of unsafe abortion, obstructed labour, postpartum sepsis and violence and injuries (MOHFW 2004). Abortion complications are responsible for the death of nearly 25% of the mothers (MOHFW 2004). A study on safe motherhood programme in Bangladesh assessed that women’s low status in society, poor quality of maternity care services, lack of trained providers, low uptake of services by women, as well as infrastructure and administrative difficulties - all contribute to the high rate of maternal deaths (Haq et. al. 1997). In addition to the large number of deaths, about nine million women suffer from lasting complications of pregnancy and childbirth, such as fistulae, uterine prolapse, inability in controlling urination or painful intercourse.

Antenatal care coverage, especially by a trained provider, has increased over time although remains low; in 2000 only one third of women reported receiving antenatal care from a medically trained person. Only 56% of pregnant women surveyed received at least one antenatal care from any provider (BDHS 2001).

Doctors, trained nurses, or midwives assist at the birth of only very few babies - estimates suggest 13% of births. Other midwifery trained health providers assist in another 14% (BDHS, 2004). Estimates show that almost two in three births are assisted by dais (untrained traditional birth attendants) and one in eleven are assisted by relatives or friends. Only one in ten births in Bangladesh take place in a health facility.

Care after birth is equally inadequate. Only 18% of mothers receive postnatal care (PNC) from a trained provider within six weeks after birth. Among mothers who do not give birth at a health facility, only 8% receive postnatal care. The likelihood of receiving PNC for mothers has improved only slightly, from 14% in 1999-2000, to 18% in 2004. (BDHS 2004).

Family planning and the burden of unsafe abortion

There has been significant improvement over the years in access to family planning. Overall, 58% of the currently married women in Bangladesh are using a modern contraceptive method and 11% are relying on traditional methods. The pill is by far the most widely used method (26%), followed by injectables.
Due to the past efforts of both the government and the development partners, the total fertility rate (TFR) declined from 6.3 in 1975, to 3 in 2004. The decline of the fertility level is largely due to the impressive increase in the contraceptive prevalence rate (CPR) from 9.6% in 1975, to 58% in 2004 (BDHS 2004).

### Status of health of children under-five

The recent Demographic and Health Survey showed that neonatal, post-neonatal, infant, child and under-five mortality rates are improving (Table 1) (BDHS, 2004). Comparison of the 2004 data with the earlier BDHS survey results, show a substantial (20%) improvement in child (1-4 years of age) survival; but there is no evidence of change in infant survival in recent years.

#### Table 1: Neonatal, post-neonatal, infant, child and under-five mortality rates for five-year periods preceding the 2004 BDHS

<table>
<thead>
<tr>
<th>Approximate reference period</th>
<th>Neonatal mortality</th>
<th>Post-neonatal mortality</th>
<th>Infant mortality</th>
<th>Child mortality</th>
<th>Under-five mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999-2003</td>
<td>41</td>
<td>24</td>
<td>65</td>
<td>24</td>
<td>88</td>
</tr>
<tr>
<td>1995-1999</td>
<td>42</td>
<td>24</td>
<td>66</td>
<td>30</td>
<td>94</td>
</tr>
<tr>
<td>1992-1996</td>
<td>48</td>
<td>34</td>
<td>82</td>
<td>37</td>
<td>116</td>
</tr>
<tr>
<td>1989-1993</td>
<td>52</td>
<td>35</td>
<td>87</td>
<td>50</td>
<td>133</td>
</tr>
</tbody>
</table>

Source: <sup>a</sup> BDHS, 2004; <sup>b</sup> BDHS, 2000; <sup>c</sup> BDHS, 1997; <sup>d</sup> BDHS, 1995

#### Immunization: The government’s policy for childhood immunization, which follows the World Health Organization guidelines, calls for all children to receive: a BCG vaccination against tuberculosis, three doses of DPT vaccine to prevent diphtheria, pertussis and tetanus; three doses of polio vaccine, a measles vaccination. A pilot programme on Hepatitis B vaccination has recently commenced. As many as 73% of Bangladeshi children aged 12-23 months can be considered to be fully immunized.

Although the level of coverage for BCG and the first two doses of DPT and polio is above or around 90 percent, the proportion who go on to complete the third dose of these two vaccines falls to around 81-82%, while a much lower percent (76%) receive the measles vaccine. Only 3% of children aged between 12-23 months do not receive any childhood vaccinations (BDHS 2004).

#### Vitamin A Supplementation: Deficiencies in vitamin A can be avoided by given children supplements of Vitamin A, by capsule, every six months. About 82% of the children aged 9-59 months receive vitamin A supplementation.

#### Childhood communicable diseases: Dehydration from diarrhoea is an important contributing cause of childhood mortality. Data show a slight decline in the prevalence of diarrhoea over time: from 8% of children under five in 1996-1997, to 6% in 1999-2000, and an increase in the use of oral rehydration solution (ORS) from 49% 1996-1997, to 61% in 1999-2000 (BDHS 2001).

Data from 2004 BDHS also show, that about 40% of children under-five had fever and around 21% suffered from acute respiratory infection. (ARI) The proportion of families seeking care from a trained provider for children with ARI was only 20% in 2004, compared with 27% in 1999-2000 (BDHS 2004).

In 1998, the GoB, with the experiences gained through implementation of various health programmes like EPI, ARI and Control of Diarrhoeal Disease (CDD), adopted the Integrated Management of Childhood Illnesses (IMCI) strategy, to reduce child mortality and morbidity. Between 2001 and 2003, the GoB piloted the implementation of IMCI interventions in 3 upazillas. Experiences were carefully documented. The Government also agreed to participate in the WHO Multi-Country Evaluation of IMCI Effectiveness, Costs and Impact. In February 2003, those involved in the pilot, concluded that the IMCI strategy was feasible and effective to address the needs of children in Bangladesh, and recommended that the Government make provisions for rapid scaling up (GoB/WHO Report of the review of early implementation of IMCI, February 2003). By December 2004, IMCI interventions were introduced in 48 new upazillas. The Government of Bangladesh is committed to accelerating the implementation of IMCI, as a key strategy to reduce childhood mortality. IMCI has been included in the
proposed Health Nutrition and Population Sector Program. Functional arrangements have been made to merge previous ARI and CDD programmes into the guide for the implementation of IMCI.

**Nutritional status:** Data from BDHS 2004 show that 43% of Bangladeshi children under-five are short for their age or stunted, while 17% are severely stunted. The prevalence of stunting increases with age from 10% of children under six months of age, to 51% of children aged 48-59 months. Additionally, 13% of the Bangladeshi children are seriously under-weight for their height, or wasted, and 1% are severely wasted. The wasting peaks at age of 12-23 months with around 24% of under-fives in that age group diagnosed as suffering from wasting. The proportion of young child with wasting decreases after 23 months of age, and is 10% for children aged 48-59 months. Forty eight per cent of children are considered under weight (low weight for age), and 13% are classified as severely underweight (BDHS 2004).

**Health care delivery systems for maternal, newborn and child health**

The Ministry of Health and Family Welfare (MOHFW) is responsible for health policy formulation, planning and decision making at the macro level. Under MOHFW, there are two implementation arms: the Directorate General of Health Services (DGHS) and Directorate General of Family Planning (DGFP). The DGHS is responsible for implementation of all health programmes and providing technical guidance to the Ministry. The DGFP is responsible for implementing Family Planning (FP) programmes and providing FP related technical assistance to the Ministry.

Most of the country’s health infrastructure and health service system are under the government’s management and control. At the local level, 3,275 Union Health and Family Welfare Centres (UHFWCs) exist to serve the 4,470 unions. Additionally there are upazila health complexes, with 31 beds in 391 rural upazilas, 64 district hospitals, 13 government medical college (MC) hospitals, 6 postgraduate hospitals and 25 specialized hospitals. A further 64 Maternal and Child Welfare Centres (MCWCs) have been established to provide maternal services at the district level (MOHFW 2000). In addition, the government recently undertook an initiative to construct a community clinic (CC) at the village level, one CC for every six thousand population.

The health service delivery system in the public sector is divided into primary, secondary and tertiary levels. Table 2 provides a summary of the level of care and type of facilities available at every level of public administration in the country.

**Table 2: Level of care and type of health facility**

<table>
<thead>
<tr>
<th>Level of care</th>
<th>Administrative unit</th>
<th>Health facility</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tertiary level</td>
<td>Division or national/capital</td>
<td>Teaching hospital/institute (16), 250-1050 beds each</td>
</tr>
<tr>
<td>Secondary level</td>
<td>District</td>
<td>District hospital (59), 50-150 beds each Maternal and child welfare centres (MCWCs) (64) have 13 beds</td>
</tr>
<tr>
<td>Primary level</td>
<td>Upazila</td>
<td>Upazila health complex (397), 31 beds each</td>
</tr>
<tr>
<td>Union</td>
<td>Union health and family welfare centres (3275)</td>
<td></td>
</tr>
</tbody>
</table>

Source: Rahman, Syed Azizur, 2003

Besides the public sector, the private for-profit providers, and private not-for-profit groups or non-government organizations (NGOs), also play large roles in the Bangladesh health sector. NGOs are mostly involved in the provision of primary health care, in both rural and urban areas. A significant number of tertiary hospitals are run on a not-for profit basis. NGOs run a total of 613 health facilities, which have a total of 11,271 beds (BHB 1998-99).

The MCWCs, established mainly at the district level, provide the only maternal and child health services under the direct control of Directorate of Family Planning. These facilities are expected to be equipped to provide basic essential obstetric care and obstetric first aid. The district hospitals (DHs), in the district headquarters, provide maternal services through an outpatient consultation centre and labour ward. Between 25-40% of hospital beds are reserved for maternal patients in every hospital. Many of the DHs are not providing 24 hour essential and emergency obstetric care (EOC) services, due to lack
Human resources for maternal, newborn and child health

With a view to reducing the maternal and child mortality and morbidity, comprehensive programme efforts have been made over the past years through increasing access to health care services, with special emphasis on human resource development. Maternal and child health (MCH) services have been given highest priority in the health system. Maternal and child health services are provided through the countrywide facility network as described in Table 2.

At the community level the maternal and child health care (MCH) services are provided by the family welfare assistants (FWAs) and health assistants (HAs). At the union level a family welfare visitor (FWV) and a sub-assistant community medical officer, or medical assistants, are mainly responsible for providing MCH services. There are also 250 graduate medical officers posted in 3,275 UHFWCs for providing MCH services (Rahman 2003). FWV trainees, secondary school certificate (SSC) pass graduates, undergo an 18-months training course in one of the 12 FWV Training Institutes. On completion of the training they receive midwifery registration from the Bangladesh Nursing Council.

At the upazila level, the MCH unit of the upazila health complex (UHC), headed by a graduate medical officer who is responsible for providing MCH services. There is also a position of junior consultant (gynaecological), who provides services in case of emergencies, attends all births at the UHC and all referred maternal patients. In addition the FWAs will mainly conduct specific services related to family planning. Nursing and midwifery care is provided by senior staff nurses (SSN). Most of the female senior staff nurses have also undertaken a 1-year midwifery programme. The activities of the MCH unit and other maternal health care services, are supervised by the Upazila Health and Family Planning Officer in the UHC.

Medical assistants (MAs) (SSC graduates) receive a four-year course in basic health care, EPI, antenatal, postnatal and intranatal care, childhood illness, and general health services. The Director General of Health Services (DGHS) is responsible for delivering this training service through 8 institutes located across the country.

Family welfare visitors (FWVs) are the female paramedics in the national programme. One FWV is posted in each union. They are also posted in the Maternal and Child Welfare Centers (MCWC) and the Maternal and Child Health (MCH) unit of the Upazila hospitals. They are involved in providing antenatal check-ups and in conducting normal births, besides providing curative treatment and contraceptives.

Senior staff nurses receive a four year programme of which 1 of the specialities that can be taken is a 1-year course midwifery. In the non-government sector, Bangladesh Red Crescent Society is providing a 1-year programme on midwifery to young women who do not have a nursing qualification. This training is mainly related to normal (uncomplicated) antenatal, intra-natal and postnatal care.

In addition to the above mentioned formally trained health providers, there are a large number of traditional healers in Bangladesh who have considerable influence on local health care practices. Homeopathy and traditional medicines, such as Ayurvedic, Unani etc. are very commonly practised. The GoB has taken up a project to develop the indigenous system of medicine. There are 2 public and 10 private Unani teaching institutes, one public and 5 private institutes for Ayurvedic and for Homoeopathy there are one public and 24 private teaching institutes (Table 3).

Providing skilled attendant for care at birth – a major challenge

In Bangladesh, almost 90% of births take place at home, mostly attended by women living in the neighbourhood called Dais, or traditional birth
attendants (TBAs). In the late 1970s the Government initiated a TBA training programme with an ultimate goal of providing one trained TBA for each of the 68,000 villages, to help reduce maternal deaths. However, contrary to the expectations, no significant decline in maternal mortality occurred. Moreover, several studies have since shown that the trained TBAs were not attending sufficient proportion of births in the communities. Consequently, the government and the development partners abandoned TBA training.

Having abandoned TBA training, the Ministry of Health and Family Welfare piloted a six-month competency based programme to develop a community based Skilled Birth Attendant (SBA- at a level of auxiliary midwife). The training programme was piloted in 6 districts from March 2003 to August 2003. WHO and UNFPA Bangladesh provided technical and financial support for this new programme, while the Obstetrical and Gynaecological Society of Bangladesh (OGSB) provided additional operational technical assistance. Ninety basic health workers (FWA and Female HAs) were trained at district level in selected essential midwifery skills and abilities (WHO 2004). The training aimed to enable them to provide antenatal care, conduct normal home births, postnatal care and newborn care, and also to identify early and refer obstetric complications. FWA and FHAs having minimum SSC with ≥ two years experience in basic or family welfare health services and residing in the place of posting were selected for the training. The trainees were evaluated through examinations and certified and registered by Bangladesh Nursing Council as SBA (community auxiliary midwife). The evaluation of the pilot programme showed that the SBAs are making a significant contribution to increasing the proportion of births by a trained health provider. On average, each SBA performs 3-4 births per month, it is believed that this could easily be raised to 5 or 6 with further strengthening of the field programme. MOHFW had decided to scale up this training programme, and also importantly, to simultaneously establish a supervisory mechanism and accreditation system for the training programme. Consideration is being given to increasing their capacities to be able to offer obstetric first-aid so that they can comply with the international definition of SBA.

Improving maternal and child health through health policy

In 1998, the Sector Wide Approach (SWAp) was adopted in the health and population sector. The GoB developed the Health and Population Sector Strategy (HPSS) in consultation with development partners. Subsequently, the Health and Population Sector Program (HPSP) was formulated.

Implementation Plan (PIP) of HPSP was also put in place from July 1998. The major component-wise outcomes of the programme were:

- Essential Service Package defined, funded, promoted and implemented
- Services delivery mechanism unified, restructured and decentralized
- Integrated support systems strengthened
- Hospital-level services focused and improved
- Policy and regulatory framework strengthened
- Strengthening Public Health services.

The Fifth Five-Year Plan (FFYP) (1997-2002) of the GoB was formulated in 1998, and aimed at creating a greater degree of public awareness of the population issue through a social movement, in order to reach replacement level of fertility by the year 2005. The focus of the FFYP was on a reproductive health sub-programme, which aims at extending the coverage of reproductive health services, including efforts to improve safe motherhood, quality obstetric care, clinical methods of contraception and the management of RTIs and STIs. Issues of gender equity and equality and reproductive rights were introduced in the programmes of education, law enforcement,

<table>
<thead>
<tr>
<th>Type of practitioner</th>
<th>Type of practice</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Practitioners with certificate</td>
<td>Unani</td>
<td>8,000</td>
</tr>
<tr>
<td></td>
<td>Ayurvedic</td>
<td>6,000</td>
</tr>
<tr>
<td></td>
<td>Homeopathy</td>
<td>16,000</td>
</tr>
<tr>
<td>Practitioners without certificate</td>
<td>Unani</td>
<td>30,000</td>
</tr>
<tr>
<td></td>
<td>Ayurvedic</td>
<td>12,000</td>
</tr>
<tr>
<td></td>
<td>Homeopathy</td>
<td>8,000</td>
</tr>
</tbody>
</table>

Table 3: Number of Unani, Ayurvedic and Homeopathic practitioners

Source: Bangladesh Health Bulletin, 1998-99

In the late 1970s the Government initiated a TBA training programme with an ultimate goal of providing one trained TBA for each of the 68,000 villages, to help reduce maternal deaths. However, contrary to the expectations, no significant decline in maternal mortality occurred. Moreover, several studies have since shown that the trained TBAs were not attending sufficient proportion of births in the communities. Consequently, the government and the development partners abandoned TBA training.

Having abandoned TBA training, the Ministry of Health and Family Welfare piloted a six-month competency based programme to develop a community based Skilled Birth Attendant (SBA- at a level of auxiliary midwife). The training programme was piloted in 6 districts from March 2003 to August 2003. WHO and UNFPA Bangladesh provided technical and financial support for this new programme, while the Obstetrical and Gynaecological Society of Bangladesh (OGSB) provided additional operational technical assistance. Ninety basic health workers (FWA and Female HAs) were trained at district level in selected essential midwifery skills and abilities (WHO 2004). The training aimed to enable them to provide antenatal care, conduct normal home births, postnatal care and newborn care, and also to identify early and refer obstetric complications. FWA and FHAs having minimum SSC with ≥ two years experience in basic or family welfare health services and residing in the place of posting were selected for the training. The trainees were evaluated through examinations and certified and registered by Bangladesh Nursing Council as SBA (community auxiliary midwife). The evaluation of the pilot programme showed that the SBAs are making a significant contribution to increasing the proportion of births by a trained health provider. On average, each SBA performs 3-4 births per month, it is believed that this could easily be raised to 5 or 6 with further strengthening of the field programme. MOHFW had decided to scale up this training programme, and also importantly, to simultaneously establish a supervisory mechanism and accreditation system for the training programme. Consideration is being given to increasing their capacities to be able to offer obstetric first-aid so that they can comply with the international definition of SBA.

Improving maternal and child health through health policy

In 1998, the Sector Wide Approach (SWAp) was adopted in the health and population sector. The GoB developed the Health and Population Sector Strategy (HPSS) in consultation with development partners. Subsequently, the Health and Population Sector Program (HPSP) was formulated.

Implementation Plan (PIP) of HPSP was also put in place from July 1998. The major component-wise outcomes of the programme were:

- Essential Service Package defined, funded, promoted and implemented
- Services delivery mechanism unified, restructured and decentralized
- Integrated support systems strengthened
- Hospital-level services focused and improved
- Policy and regulatory framework strengthened
- Strengthening Public Health services.

The Fifth Five-Year Plan (FFYP) (1997-2002) of the GoB was formulated in 1998, and aimed at creating a greater degree of public awareness of the population issue through a social movement, in order to reach replacement level of fertility by the year 2005. The focus of the FFYP was on a reproductive health sub-programme, which aims at extending the coverage of reproductive health services, including efforts to improve safe motherhood, quality obstetric care, clinical methods of contraception and the management of RTIs and STIs. Issues of gender equity and equality and reproductive rights were introduced in the programmes of education, law enforcement,
relational affairs, the garments and tea plantation industries and other sectors. The FFYP also completed a phased programme to upgrade a network of 64 Maternal and Child Welfare Centers (MCWCs) to ensure they have the needed equipment and training staff in EmOC so that these can offer a package of comprehensive maternal health service.

The HPSP came to an end on 30th June 2003. In order to encompass all the activities of the health sector, the GoB has revised the HPSP and formulated the new “Health Nutrition and Population Sector Program” (HN PSP) (2003-2006). The vision and targets outlined in the Interim Poverty Reduction Strategy Paper (i-PRSP) have been taken as an overarching long-term policy framework and a signal of the political commitment of the Government.

The goal of the HN PSP is the sustainable improvement of health, nutrition and family welfare status of the country’s population, especially the vulnerable, e.g., the poor, women, children and the elderly. The purpose of HN PSP will be to increase the availability and utilization of user-centered, effective, efficient, equitable, affordable and accessible quality services for a defined Essential Services Package, plus other selected services. The priority objectives of this effort are to achieve the targets set in the Millennium Development Goals.

Financing healthcare

The healthcare sector in Bangladesh is mostly financed by private households. The Bangladesh National Health Accounts, 1996-97 estimates that around 63% of the total healthcare expenditure of the country comes from households. The rest are divided among MOHFW, NGOs, donors, non-profit organizations and others.

<table>
<thead>
<tr>
<th>Source</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private households</td>
<td>63</td>
</tr>
<tr>
<td>MOHFW budget</td>
<td>31</td>
</tr>
<tr>
<td>Non profit, NGOs, donors</td>
<td>3</td>
</tr>
<tr>
<td>Other public revenue</td>
<td>3</td>
</tr>
<tr>
<td>Firms and private insurance</td>
<td>0.04</td>
</tr>
</tbody>
</table>

The Government of Bangladesh has allocated around 3% of the total national budget to the health sector. The per capita allocation comes to only US$3.6. In total, the government health sector expenditure during 1995-96 stood at $374 million, which was up from $102 million in 1985-86 (MOHFW 1995). The total expenditure of the Ministry of Health and Family Welfare during the 1998-2003 periods has been estimated at US$3,373.20 million (including development assistance) (BDHS 2004).

Implementation and operational constraints

Under the HPSP, the major service delivery issue at the community level has been a shift away from domiciliary services, to static clinic services. This has affected the functioning of the Family Welfare Visitors and Health Assistants. Fears were expressed that such changes in the service delivery system would adversely affect use of contraceptives and that many women would drop out from house delivery contraceptive acceptance and move to the private clinics (Khan et. al. 2000).

The BDHS Survey 2000 (BDHS 2001) shows that 80% of women feel that not having a health care facility nearby is an obstacle to accessing health care. About half the women mention that lack of confidence in the services, and physically going to the health centre, present problems in accessing women's health care. Seventy one percent of women said that getting money for treatment and 44% said that permission to go for health care are obstacles in access to health care. Almost two-thirds said that not knowing where to go is a major obstacle in accessing care.

In order to overcome the implementation and operational constraints, ICDDR,B (2002) has identified the following priority action areas for improving reproductive and child health:

- Improving emergency and essential obstetric care and ensuring safe motherhood
- Improving family planning services including developing services for men as well as women
- Prevention and treatment of STI/RTI/HIV/AIDS

<table>
<thead>
<tr>
<th>Source of financing in healthcare sector in Bangladesh</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private households</td>
<td>63</td>
</tr>
<tr>
<td>MOHFW budget</td>
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<td>Non profit, NGOs, donors</td>
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<tr>
<td>Other public revenue</td>
<td>3</td>
</tr>
<tr>
<td>Firms and private insurance</td>
<td>0.04</td>
</tr>
</tbody>
</table>

Source: Bangladesh National Health Accounts, 1996-97
Minimizing the need for and improving post-abortion care
Developing programmes to increase male involvement in reproductive health
Improving newborn care, and
Understanding the issue of violence against women in the social context and development of public health strategies to reduce violence against women.

Other factors contributing to the operational constraints are, unfavourable doctor to nurse ratio (which is 2:1, the internationally accepted standard is 1:3); non-availability of trained nurses and paramedics in required numbers; low coverage (especially in the urban slums and inaccessible rural areas); lack of an institutional mechanism to bring the very poor and vulnerable people within the ambit of health service delivery; poor attitude of the service providers towards the poor; and gender bias encouraging mothers to keep childbearing until they have a male child.

Until now in Bangladesh, tax and donor-financed supply side subsidies have been the main strategy for improving the access of poor people to health, nutrition and population services. These services are in the main through public service delivery by MOHFW, or by direct contracting of NGOs, therefore it is they, as supplies, that receive the subsidies. The limitation of supply side subsidies is that the target group do not receive the subsidy directly. Instead they receive them from service providers. As a result, in the absence of an effective exemption system, in many cases such efforts are often poorly targeted and fail to achieve the objective.

Additionally, the continuing low status of women in Bangladesh society, along with the low priority given to women’s health, have a severe impact on maternal and child health. Social and cultural changes are needed before the obstacles to seeking healthcare by women start to disappear. According to UNICEF (UNICEF 1999) as many as 27 different types of superstitions have been identified in Bangladesh which are harmful in achieving healthy and safe motherhood. The social taboo in some places on feeding the newborn with breast milk deprives the infant of much needed colostrum. In Bangladesh there are many social practices which take place during the actual time of birth. Some of these delivery-period practices are potentially harmful, and are likely to contribute to postpartum morbidity. The common harmful practices during pregnancy and childbirth include:

- Internal manipulations and massage
- Introduction of oils into vagina
- Use of fundal pressure or tight abdominal bands during labor
- Pulling on the umbilical cord
- Choking or inducing vomiting in the mother to expedite placental delivery
- Not using uterine massage to prevent and treat postpartum haemorrhage.

Culturally, hospitalization of women is not considered important and pregnancy is not looked upon as a risky event. These perceptions lead to increased maternal mortality and morbidity rates.

Finally, the under-15 age population constitutes above 40% of the total population, which is high. This has serious implications for the continuing population growth rate due to “population momentum” and will impact on future demands on the country’s infrastructure, including health.

Best practices/innovations to improve maternal, newborn and child health

Bangladesh has made substantial progress in the health and population sector in recent times, particularly in reducing fertility and child mortality, and in increasing the coverage of health and family planning services to the people.

The most dramatic achievements in child health has been the children’s immunization, which has greatly augmented the chances of their survival. About 73% of Bangladesh children can be considered to be fully immunized. Although the level of coverage for BCG and the first two doses of DPT and polio is around 90 percent, the proportions who go on to complete the third dose of these two vaccines fall to 81 or 82 percent, while a much lower percentage (76%) receive the measles vaccine. Only 3% of children aged 12-23 months have not received any childhood vaccine (BDHS 2004).
Introduction and implementation of Integrated Management of Childhood Illnesses (IMCI) is also playing an important role in child survival. IMCI was introduced in 2001, with the objective to reduce the morbidity and mortality associated with major childhood diseases and conditions, and to promote child growth and development by preventing diseases and promoting healthy practices. By the end of 2004 IMCI has been expanded in 48 upazillas. From 2005 to 2007, the pace of expansion of IMCI should triple to engage 50, 70 and 100 new upazillas in each respective year. By the end of 2007, 265 upazillas will be implementing IMCI activities. The overall aim is to initiate IMCI activities in all 470 upazillas by the end of 2010, and to reach full coverage of implementation in the period 2010-2015.

Limited experiences on community financing schemes show that they can empower the users of services to demand more and better services from a range of providers in the public, private and NGO sector.

Finally, all the relevant ministries of the government are represented in the National Population Council, the highest policy making body headed by the Prime Minister. The Government has also formed a National Council for Women’s Development and a National Committee for the Implementation of the Program of Action of ICPD. These Committees have the potential to build a shared vision and define areas and actions for improvement of maternal and child health in Bangladesh.

Main sources of data


Bhutan, a small country of about 46,500 square kilometres, located between its two huge neighbours, India in the south, east and west, and China in the north, is listed as one of the least developed countries in the world. It is almost entirely mountainous with hardly any flat land. It is a part of great Himalayan range. It is administratively divided into twenty districts, which are further divided into 202 blocks. The population estimate for 2000 was 657,000 of which nearly half were under 15 years of age. The current growth rate stands at 2.5 percent.

About 90% of the population lives in rural areas; in the 5,000 or so scattered villages and hamlets, each with only a few hundred inhabitants or less. Most villages are several hours and even days walking distance from the nearest road. The dispersed population and the difficult mountainous terrain make service delivery and access to education and health facilities very difficult and expensive, even though health care is provided by the government free of charge. Low literacy and health awareness and the poor living conditions of the majority of the rural population are other major challenges. National indicators as per 2000 NHS are in Table 1.

In terms of provision of maternal, newborn and child health services the lack of access to health services for management of pregnancy-related complications is a major problem. The government has over the last three years, and with the support of Women’s Right to Life and Health (WRLH) Project, made many efforts to address lack of access to maternity services and has committed to improve it further in the current five-year development plan. Bhutan’s long-term development goal, “Gross National Happiness” stresses social development with emphasis on quality of life. The allocation of 23% of the total government budget to the social sector reflects the high priority accorded to social development.

Reproductive health is an important component of the primary health care delivery system in the country. The Royal Government of Bhutan has, since the early 1970s, always accorded high priority to
There is no obvious discrimination against women and women are entitled to own and manage land and property. However, despite the apparent equality, women lag behind men in participation in decision-making processes. There are very few women in the people’s representative bodies and at senior levels of the administration. In education, the net enrollment of girls is 47%, as against 58% for boys. Adult literacy for females is 28%, while that of male is 52%. Available fertility data in clinic suggested that there is a sizeable proportion (approximately 15%) of teenage mothers, but it is not clear what proportion of these are married. Early onset of childbearing has consequences for the future health and well-being of mother. Not only does it interfere with their ongoing education and economic prospects, but early onset of childbearing is highly associated with repeated frequent childbirth and with higher rates of maternal mortality than for women giving birth for the first time in their 20’s.

Although there has been a very slow decline in morbidity and mortality in Bhutan since the 1980’ (Figure 1), the maternal mortality ratio (MMR) remains high, national data shows it stands at 255 per 100,000 live births (2003), whereas other estimates indicate it may be higher. The health care system is making steady efforts to make pregnancy and birth safer, by increasing access to skilled care, but infectious diseases and malnutrition remain common among programmes for maternal and child health. High maternal, infant and under-five deaths, high fertility rates and high natural growth rates, were among the key concerns that led the government to urgently develop integrated maternal and childcare, family planning and safe motherhood initiatives throughout the nation.

Status of maternal health

In Bhutan, women and men have enjoyed equal rights before the law and religion for many years.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>1984</th>
<th>1994</th>
<th>2000</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex ratio, males per 100 females</td>
<td>94.50</td>
<td>91.0</td>
<td>94.7</td>
</tr>
<tr>
<td>Overall dependency ratio (%)</td>
<td>80.0</td>
<td>91.7</td>
<td>77.4</td>
</tr>
<tr>
<td>Sex ratio at birth (males per 100 females)</td>
<td>102.0</td>
<td>105.1</td>
<td>106.6</td>
</tr>
<tr>
<td>General fertility rate</td>
<td>169.6</td>
<td>172.7</td>
<td>142.7</td>
</tr>
<tr>
<td>Total fertility rate</td>
<td>NA</td>
<td>5.6</td>
<td>4.7</td>
</tr>
<tr>
<td>Crude birth rate (per 1000 population)</td>
<td>39.1</td>
<td>39.9</td>
<td>34.09</td>
</tr>
<tr>
<td>Crude death rate (per 1000 population)</td>
<td>13.4</td>
<td>9.0</td>
<td>8.64</td>
</tr>
<tr>
<td>Infant mortality (per 1000 live births)</td>
<td>102.8</td>
<td>70.7</td>
<td>60.5</td>
</tr>
<tr>
<td>Under five mortality (per 1000 live births)</td>
<td>162.4</td>
<td>96.9</td>
<td>84.0</td>
</tr>
<tr>
<td>Maternal mortality (per 100,000 live births)</td>
<td>770</td>
<td>380</td>
<td>255</td>
</tr>
<tr>
<td>Trained birth attendant (%)</td>
<td>NA</td>
<td>15.0</td>
<td>23.66</td>
</tr>
<tr>
<td>Population growth rate (%)</td>
<td>2.6</td>
<td>3.1</td>
<td>2.5</td>
</tr>
<tr>
<td>Contraceptive prevalence rate (%)</td>
<td>NA</td>
<td>18.8</td>
<td>30.7</td>
</tr>
<tr>
<td>Population with access to safe drinking water (rural, %)</td>
<td>NA</td>
<td>54.0</td>
<td>77.8</td>
</tr>
<tr>
<td>Population with access to safe sanitation (%)</td>
<td>NA</td>
<td>70.0</td>
<td>88.0</td>
</tr>
</tbody>
</table>

Source: National Health Survey, 2000
women. Iron deficiency anemia in women is estimated to be about 60%. These factors predispose the pregnant women to complications and when these complications arise, the absence of appropriate services for emergency obstetric care (EmOC) services aggravates the situation. The maternal death review of 2001-2003 shows more than 60% of the death occurred at home, unsurprising given the situation. However it also showed that over 25% of the deaths occurred in health facilities, indicating that the technical standards of the facilities are in need of improvement. The major causes of maternal death show the same typical pattern as in other countries, with postpartum hemorrhage (PPH) being by far the major complication leading to maternal mortality (Figure 2).

Specific pregnancy-related problems or concerns: The knowledge of danger signs in pregnancy, delivery and the puerperium is low in communities, families and among women. This delays timely decisions concerning health, which given the difficult terrain is a major factor that must be overcome if acceleration of reduction of maternal and newborn morbidity and mortalities are to be achieved. Poor nutritional status of women and high prevalence of anaemia are of major concern.

Family planning and the burden of unsafe abortion

Efforts to promote accessibility of effective family planning efforts has seen contraceptive prevalence rate increase from 18.4% in 1994 to 30.7% in 2000 (NHS 2000). Fertility rates have declined marginally over the last decade. The total fertility rate (TFR) has reduced marginally from 5.6 in 1994 to 4.7 in 2000 (National Health Survey 2000). Nevertheless, the current rate is very high for a small country with limited resources.

Abortion is illegal in Bhutan unless undertaken to save the life of the mother. Despite data being limited, it is widely believed that women sometimes seek the assistance of unqualified and untrained personnel to perform illegal abortions. Reliable data on the burden of such unsafe abortions however is not available.

Status of health of children under-five

The challenges facing maternal health also affect the health of newborns and children. The geographic terrain makes data collection difficult and therefore the true picture of the health status of children in Bhutan is not clearly known. Basic neonatal and infant care is part of primary health care delivery system, but there is a lack of a national set standard of care for neonates. There are suggestions that there is need for strengthening immunization services further. Finally, there are no data on neonatal morbidity and mortality.

In the absence of national data, WHO estimated Bhutan's 1999 neonatal mortality rate at 55 per 1000 live births (WHO, Health Situation in the South-East Asia Region (1994-1997). As in other countries, the common causes of early neonatal deaths in Bhutan include sepsis, asphyxia, low birth weight, hypothermia and congenital malformations. During the 8th Five Year Plan a few nurses were sent abroad for training in neonatal care, and resuscitation equipment, incubators and baby warmers were supplied to hospitals.

Indicators to measure infant health are available and figures show that infant mortality has improved significantly from 102 in 1984 to 60.5 per 1000 live births in the year 2000. This is very encouraging, although efforts must continue to further reduce IMR. Continued progress will require increased efforts to strengthen the immunization programme and control of diarrhoeal diseases and acute respiratory infections, which after the death of newborns, are the major causes of infant mortality.
The under-five-mortality rate has improved from 96.9 per 1000 live births in 1994 to 84.0 in 2000, according to the 2000 National Health Survey. This is largely accounted for by the reductions in the infant mortality, which in turn is attributed to the successful implementation of the immunization and other health programmes, such as the Integrated Management of Childhood Illnesses (IMCI), better nutrition, access to clean water and improved sanitation.

**Immunization:** The Expanded Programme on Immunization (EPI), was first launched in Bhutan in 1979, with the objective of reducing the seven vaccine preventable diseases: TB, diphtheria, pertussis, tetanus, polio, measles and hepatitis B. Since the achievement of Universal Child Immunization in 1990, the coverage for the six main antigens has been sustained well above 85% (for BCG, OPV, DPT and measles). In 1994 the Tetanus Toxoid vaccine was introduced for pregnant women, followed in 1996 with hepatitis B vaccination for children under one year of age. Over the years immunization coverage has improved, especially for the antigens BCG, OPV, DPT and measles. Although the routine reporting system showed that the coverage for TT was only 66%, the EPI survey of 2001 showed a much higher coverage of 86.3 %. No neonatal tetanus has been reported since 1994.

**Nutritional status of young children:** In Bhutan infants are usually breast feed up to two years, but exclusive breast-feeding is not widely practiced. Concerted efforts are being made to further promote the benefits of exclusive breastfeeding, such as the enactment of National Breast Feeding Policy, and by conducting awareness campaigns via mass media.

**Health care delivery systems for maternal, newborn and child health**

Modern medical care in Bhutan did not begin until the early 1960s. By the early 1970s there were still only 34 doctors in the country, and there were no peripheral health workers such as health assistants or basic health workers. There were only a few assistant nurses and compounders running some 46 dispensaries around the country.

Following Alma Ata declaration on Primary Health Care in 1978, Bhutan adopted the Primary Health care approach as the main strategy to address the health needs of its people. The State provides free health care services, including essential drugs. The health services are provided through a four-tiered system consisting of a national referral hospital, regional referral hospitals, district hospitals with traditional medicine services and basic health units spread out in blocks (gewogs). There are networks of twenty-nine hospitals, 172 basic health units, over 454 fixed outreaches, and 1300 village health workers acting as service outlets. Only the national referral hospital and the two regional referral hospitals provide specialized medical care (see Table 2).

<table>
<thead>
<tr>
<th>Facility</th>
<th>1997</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitals</td>
<td>28</td>
<td>29</td>
</tr>
<tr>
<td>Indigenous hospitals</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Basic health units</td>
<td>145</td>
<td>172</td>
</tr>
<tr>
<td>Outreach clinics</td>
<td>454</td>
<td>454</td>
</tr>
<tr>
<td>Indigenous units</td>
<td>45</td>
<td>18</td>
</tr>
<tr>
<td>Total facilities</td>
<td>639</td>
<td>657</td>
</tr>
</tbody>
</table>

The in-country referral system is fully dependent on the road networks for ambulance transport. In many places, especially at village level, people have to carry patients on stretchers for days to reach a road point. The referral system does not end at national referral hospital. The Government does send patients that need specialized services aboard, mainly to India, most commonly for heart and renal disease and cancers. The large distances across Bhutan, and lack of facilities, mean that access to Emergency Obstetric Care (EmOC) services is limited.

In terms of antenatal care coverage, only 51.4% of pregnant women have two or more visits during their pregnancy. Only somewhere in the region of 23.7% of women have care during childbirth from a trained health care provider. The proportion of women and newborn who have care from a trained health worker in the postnatal period is also very low.

The reduction of maternal mortality ratio to acceptable level is the long-term goals of the
reproductive health programme. Several initiates have been taken for this. A UN supported Emergency Obstetric Project is under implementation in Dzongkhags district. The steady progress in indicators in this district is given in Table 3.

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Before project</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
</tr>
</thead>
<tbody>
<tr>
<td>Basic EmOC facilities</td>
<td>4</td>
<td>9</td>
<td>9</td>
<td>14</td>
<td>12</td>
<td>14</td>
</tr>
<tr>
<td>Comprehensive EmOC facilities</td>
<td>4</td>
<td>5</td>
<td>5</td>
<td>8</td>
<td>7</td>
<td>9</td>
</tr>
<tr>
<td>Proportion of all birth in EmOC facilities (%)</td>
<td>11</td>
<td>21.05</td>
<td>23.5</td>
<td>20.5</td>
<td>20.5</td>
<td>23.4</td>
</tr>
<tr>
<td>Met need for EmOC (%)</td>
<td>37</td>
<td>43.35</td>
<td>48.6</td>
<td>37.6</td>
<td>40</td>
<td>49.7</td>
</tr>
<tr>
<td>Caesarean sections as a % of all birth (%)</td>
<td>1.28</td>
<td>2.3</td>
<td>2.9</td>
<td>2.23</td>
<td>2.6</td>
<td>3</td>
</tr>
<tr>
<td>Case fatality rate (%)</td>
<td>0.76</td>
<td>1.9</td>
<td>1.4</td>
<td>1.29</td>
<td>0.14</td>
<td>0.36</td>
</tr>
</tbody>
</table>

Source: Mis. 2003

Table 3: Status of UN process indicators in Dzongkhags District

Human resources for maternal, newborn and child health

Human resources for health remain one of the biggest changes facing Bhutan at the present time. There is only one modern training institution for training health professionals in the country, the Royal Institute of Health Sciences. There is no medical college in the country, so medical doctors and others specialization trainings are undertaken outside the country, especially in India. There is however one institution for training of ingenious Physicians and Compounders. The current strength of health manpower for different categories of health provider are given in Table 4 (AHB 2003).

What can be seen from Table 4 is that a substantive portion of the health care is provided by semi-skilled practitioners. In country, there are only 4 national gynaecologist/obstetrician, 4 national anaesthesiologist and 12 nurse anaesthetist, excluding non-nationals. This has implications for the effective management of pregnancy and birth-related complications, including neonatal complications, as well as for specialist child health services. All doctors, nurses and community health workers can however provide basic emergency obstetric care (EmOC), and can identify complications and make appropriate referrals. Unfortunately there are insufficient numbers of technically competent providers and essential equipment to meet the full unmet obstetric need, and as already stated, there are only three referral hospitals in the country. Additionally, there is no in-country capacity for training of EmOC care providers, and a lack of appropriate training packages. Consequently, staff have to be sent outside the country for training including refresher training. The lack of sufficient adequately skilled human resources for health is a continuing constraint for the provision of quality health services for maternal, newborn and child health. Although steady progress is being made to ensure women who need it can obtain comprehensive obstetric care for management of complications related to pregnancy and childbirth, the unmet obstetric need remains high.

Best practices/innovations to improve maternal, newborn and child health

Innovations used in Bhutan for improving maternal and child health include:

- The Ministry of Health has recently approved and taken decision to commence competency-based training of EmOC teams. Standardization of evidence-based clinical practices is contributing to maximum use of human resources, improving the quality of care in facilities, while building a cadre of skilled EmOC service providers.
- Given the shortage of obstetricians/gynaecologist and anaesthesiologist, the Ministry has approved the training of nurses.
to equip them to provide anaesthesia. In addition, short-term training is provided for medical doctors in management of obstetrics complication and also how to perform an emergency caesarean section.

- In order to improve the quality of care in health facilities, hospital transformation using “Appreciative Inquiry” process has been initiated in two hospitals, as a pilot for one year. The interim report is very encouraging. Institutional births have double in these two hospitals within one year.

- Bhutan has adopted and adapted the IMCI strategy in managing childhood illness with the aim that this would help in further reduction of child morbidity and mortality.

### Main source of data


<table>
<thead>
<tr>
<th>Category of manpower</th>
<th>Number</th>
<th>Ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of doctors (including non-nationals)</td>
<td>140</td>
<td></td>
</tr>
<tr>
<td>Doctors per 10,000 population</td>
<td>1.9</td>
<td></td>
</tr>
<tr>
<td>Ratio of doctors to hospital bed</td>
<td>1:8</td>
<td></td>
</tr>
<tr>
<td>No. of drungtshos (Indigenous Physicians)</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>No. of indigenous compounders</td>
<td>26</td>
<td></td>
</tr>
<tr>
<td>District Health Supervisory Officers (DHSO)</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>B.Sc. Nurses</td>
<td>8</td>
<td></td>
</tr>
<tr>
<td>General nurse midwife (GNM)</td>
<td>173</td>
<td></td>
</tr>
<tr>
<td>Assistant nurses (AN)</td>
<td>176</td>
<td></td>
</tr>
<tr>
<td>Auxiliary nurse midwife (ANM)</td>
<td>144</td>
<td></td>
</tr>
<tr>
<td>Health assistants (HA)</td>
<td>144</td>
<td></td>
</tr>
<tr>
<td>Basic health workers (BHW)</td>
<td>172</td>
<td></td>
</tr>
<tr>
<td>Ratio of nurses to hospital bed</td>
<td>1:2</td>
<td></td>
</tr>
<tr>
<td>Nurses per 10,000 population</td>
<td>6.8</td>
<td></td>
</tr>
<tr>
<td>Laboratory technicians</td>
<td>87</td>
<td></td>
</tr>
<tr>
<td>Dental technicians/ hygienist</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>X-Ray technicians</td>
<td>28</td>
<td></td>
</tr>
<tr>
<td>Pharmacy technicians</td>
<td>72</td>
<td></td>
</tr>
<tr>
<td>OT technicians</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>Eye technicians</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td>Other technicians</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td>Compounders/para medical workers</td>
<td>16</td>
<td></td>
</tr>
<tr>
<td>Malaria workers</td>
<td>47</td>
<td></td>
</tr>
</tbody>
</table>

Source: AHB, 2003
The promotion and protection of people’s health is a key government policy in the Democratic People’s Republic (DPR) of Korea. The total population in DPR Korea according to 2003 estimates was 22.7 million of which 60% lived in urban areas. The Democratic People’s Republic (DPR) of Korea is geographically divided into 9 provinces, 3 major municipalities, 212 counties, and further sub-divided into smaller administrative units, as Ri (in rural areas) and Dong (in urban areas). DPRK has a wide spread structure for delivering health services to the population in terms of coverage and access to health care.

The government of DPR Korea have taken steps to systematically improve the health and well-being of women and children, based on a number of Laws and statutory instruments and international commitments, namely the Law on Public Health, the Family Law, the Law on Educating and Upbringing Children and the Law of Education, which established free and compulsory school education. Efforts have included developing a comprehensive package of health care services in accordance with the programme of action adopted in the International Conference on Population and Development in Cairo 1994.

The fundamental principles of national health policy include universal and free medical care and services, including preventative and curative health services. This has been extended to free contraceptive services to support national efforts to promote smaller families. Trained health workers provide family planning services in hospitals at the district and country levels.

Status of maternal health

The national efforts on education have meant that illiteracy in both men and women was completely eliminated before 1950. Maternal health services are located at all levels in the health sector. The maternal health indicators for DPR Korea show that while some aspects of women’s health have improved, for

MDG Goal 4 and 5 indicators: Under-five mortality rate males 56, females 54 per 1,000 live births; Infant mortality rate 21.8 per 1,000 live births; Proportion (%) of 1 year-old children immunized for measles 95; MMR 105 per 100,000 live births; Births by skilled attendant 98.6%.

Data source: Basic Indicators: Health Situation in South-East Asia, World Health Organization, South-East Asia Region, 2004.
example delaying the age of marriage and increased access to family planning, other aspects, such as maternal mortality, continue to be a challenge. Although the MMR for DPR Korea is lower than many countries in the region, it is nevertheless still high – at 97 per 100,000 live births in 2002, (national data, Table 1).

Table 1: Maternal health indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contraceptive prevalence rate (%) - 2002</td>
<td>68.6</td>
</tr>
<tr>
<td>Total fertility rate (%) - 2002</td>
<td>2.0</td>
</tr>
<tr>
<td>Crude birth rate per 1,000 population - 2002</td>
<td>16.2</td>
</tr>
<tr>
<td>Maternal mortality ratio per 100,000 live births - 2001</td>
<td>97</td>
</tr>
<tr>
<td>Proportion of births with skilled attendant (%) - 2004</td>
<td>98</td>
</tr>
<tr>
<td>Average age at first marriage</td>
<td>24.8</td>
</tr>
</tbody>
</table>

Source: National data, 2002

Efforts are made to ensure that all pregnant women register for health care within the first three months of pregnancy. According to country reports, all pregnant women are seen by an obstetrician-gynaecologist by 32 weeks of pregnancy and then again 5 times after birth.

Prevalence rate of HIV infection in pregnant women: the government of DPR Korea have put in place strict measure to control and monitor the HIV/AIDS situation. The prevention and control of HIV/AIDS Strategy 2003-2007 sets the framework for this work. To date no case of HIV-positive persons has been recorded.

Family planning and the burden of unsafe abortion

The 2002 national Reproductive Health Survey found that 98% of male and female respondents are aware of at least one modern contraceptive method. The survey also found that 68.6% of married women were using a contraceptive method; 6.8% to space their births and 61.8% to limit their births.

The contraceptive prevalence rate (CPR) showed a slight increase from 67.3% in 1997, to 68.6% in 2002. The estimate for unmet need for family planning is in the region of 17%. The majority of this unmet need (almost 10.5%) was by women who wished to limit further births.

Status of health of children under-five

The health and well-being of children is a major priority for the government and is enshrined in a number of Laws. Infant mortality rate is 21 per 1,000 live births.

Recently the government have put great efforts into strengthening the child immunization programme in order to further decrease morbidity and mortality of children and newborns. To reach the 98% target of all infants immunized, the government has taken steps to increase significantly the production of vaccine; organized 10,000 non-standing immunization teams; and regularized the immunization schedule. Consequently in 2002, immunization rates for DPT3 were 69%, polio 99%, measles 95.3% and TB 88.3%. Vitamin A supplementation was given to 98% of all children under 2 years of age.

Immunization programmes for children are coordinated to reach the community. However, lack of updated knowledge and skills on the management of common childhood medical conditions is a major concern. This problem is aggravated by the limited laboratory diagnostic facilities and lack of emergency essential medicines. Poor transport infrastructure and non functioning of the referral system added to the burden of child mortality and morbidity.

Comprehensive services for children are provided through the Ri hospitals, urban polyclinics and the household doctor. IMCI training adapted to the needs identified in DPR Korea has recently been introduced in the country. This programme will be expanded over time.

Health care delivery systems for maternal, newborn and child health

The health services in DPR Korea are under the responsibility of the Ministry of Public Health, one of the ministries under the Cabinet. The Ministry is responsible for the national network of health services, and monitors the work of all services, including the nursery care sector. The country historically has an extensive and comprehensive health systems infrastructure and has a vast network
of more than 800 general and specialized hospitals at the central, provincial and county levels, and about 1,000 hospitals and 6,500 polyclinics at Ri and Dong, with an estimated staff of around 300,000.

The national hospital for women and children, Pyongyang Maternity Hospital, provides technical guidance on all matters relating to maternal and newborn health including provincial health work. The paediatric hospitals and the maternity hospitals at all levels of the health sector, and the paediatric and obstetric and gynaecological sections below hospital, have been reconstructed and enlarged.

Mobile teams have been organized to take services to hard to reach areas. Finally, polyclinics have been situated so that they are no more than 30 minutes walking distance from the majority of the communities they serve. Women are encouraged to have their births in a hospital. Consequently, given the relative nearness for the majority of the population to a health facility, approximately 98% of all births in DPR Korea take place in a health facility.

All health facilities in DPR Korea are run and financed by the government.

Human resources for maternal, newborn and child health

Doctors, midwives and nurses provide the main maternal, newborn and child health services. The government draws the strategy to train the health workers in accordance with the increasing population and expanding curative and preventative establishments. Doctors, nurses, and midwives are trained in the medical universities at the central and provincial levels, including the Reorientation University, the Nursing School and the Midwifery School. The State is also strengthening general education, as well as re-orientation and strengthening of pre-service programmes and developing study-at-work programmes, in an effort to strengthen the capacities of the health care providers, as part of quality improvement. The government has managed to increase the total numbers of health providers. Doctors have been increased by 104%, nurses 125% and midwives 107%, in the period 2001 to 2003.

The Ministry of Public Health are closely cooperating with the institutions of health personnel training and in assessing the needs of health personnel. The intention is to look at trends, to develop a training plan which then with the cooperation of the Ministry of Education can renew and revise the contents of the pre-service programmes to fit the current health needs of mothers, newborns and children.

Best practices/innovations to improve maternal newborn and child health

Some innovations for improving maternal, newborn and under-five child health services include the following:

- DPR Korea has used legislative and administrative measures to strengthen health services to protect the health of pregnant women, mothers, newborns and children
- The government have taken a systematic and step-wise approach to improving maternal, newborn and child health
- The health services for pregnant women, mothers, newborns and children are organized in a comprehensive package, that links the Ri hospitals, polyclinics and household doctors, nurses and midwives
- Service points are organized so that they are close to where women and children live - within 30 minutes walking
- All pregnant women are encouraged and expected to register for health care within the first 3 months of their pregnancy, to receive essential screening and monitoring. Postnatal care is well established. All women are seen five times in the postnatal period
- Extensive use is made of mass media, in particular Central TV, education and cultural programmes on the TV, broadcasting and various newspapers and printed media, for health education and for promotion of key health messages.

Main source of data

India is the world’s largest democracy and the largest country in South Asia covering over three million square kilometers from the Himalayas in the North to the Indian ocean in the South. The estimated population of India is 1028.6 million (Table 1). Not only is India the second most populous country in the world but India contributes to around 20% of global births. Traditionally India has been viewed as having an agriculture-based economy, but now with the advent of liberal economic policies, is undergoing rapid urbanization, industrialization and privatization. Currently the urban population is 28%. There are 40.6 million people living in slums in 607 cities/towns.

India is a country of great diversity with its 29 states and 6 union territories, all varying in language, social customs and traditions. There are regions in the country with health profile comparable to developed countries and there are others that lag well behind. Regional disparities in maternal and neonatal mortality are wide. For example, maternal mortality is so low in such states as Kerala and Punjab that indirect estimates for these states could not be attempted. In contrast in as many as 10 of the 15 major states (Assam, Bihar, Gujarat, Haryana, Karnataka, Madhya Pradesh, Orissa, Rajasthan, Uttar Pradesh and West Bengal) where maternal mortality ratios (MMRs) exceed 400 per 100,000 live births, and three states (Assam, Madhya Pradesh and Uttar

Table 1: Demographic trends – India

<table>
<thead>
<tr>
<th>Total population (in millions)</th>
<th>846.3</th>
<th>1028.6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sex ratio (females/1000 males)</td>
<td>927</td>
<td>933</td>
</tr>
<tr>
<td>Crude birth rate (per 1000 population.)</td>
<td>29.5</td>
<td>25</td>
</tr>
<tr>
<td>Crude death rate (per 1000 population.)</td>
<td>9.8</td>
<td>8.1</td>
</tr>
</tbody>
</table>

Source: \(^a\) Census, 1991; \(^b\) SRS, 1991; \(^c\) Census, 2001; \(^d\) SRS, 2004
India

Improving Maternal, Newborn and Child Health in the South-East Asia Region

Pradesh) where MMRs are as high as 700 or more (Mari Bhat, 2002). Direct evidence from NFHS suggests, likewise, there is considerable rural-urban variation in MMR: as expected, the rural MMR was considerably higher than the urban in both the early and late 1990s: 434 as compared to 385 in NFHS 1, and 619 and 267, respectively in NFHS 2 (note that these figures are affected by large confidence intervals and sampling errors); (IIPS, 1995; IIPS and ORC Macro, 2000).

In India women of reproductive age (15-45yrs) and children (<15 yrs) constitute 60% of the total population. They comprise the vulnerable fraction of the population due to the risks connected with child-bearing in case of women; and growth, development and survival in case of infants and children. Reduction of child mortality and improvement in maternal health are the major goals in Millennium Declaration, to which India is a signatory. Another important goal for its own sake but also has a direct impact on maternal and child health (MCH), is promotion of gender equality and empowerment of women. Additionally, about one fifth of India’s population is in adolescent age group and yet to begin their reproductive lives. It is expected that this age group will continue to grow. Thus, for all of these reasons maternal, newborn and child health has become a priority area for the policy makers, planners and various professionals.

The socio-cultural determinants of maternal, newborn and child health have a cumulative effect over a lifetime. A correlation exists between the social inequity and maternal and child health. This is one of the many challenges facing India. For example, the female literacy rate in India is 54.3% (Census, 2001) and 26.1% of the total population in India are below the poverty line (CBHI, 2002).

Finally, son preference and sex-ratio in India continues to be unfavourable to females (933 females/1000 males, Census 2001). Discriminatory care of a girl child leads to malnutrition and impaired physical, mental and emotional growth of a female child. Approximately 85% of women want at least one son and 33% wants more sons than daughters (NFHS-2).

Status of maternal health

Each year in India, roughly 30 million women experience pregnancy and 27 million have a live birth (MoHFW, 2003c). Of these, an estimated 136,000 maternal deaths and one million newborn deaths occur each year. In addition, millions more women and newborns suffer pregnancy and birth-related ill-health. Thus, pregnancy–related mortality and morbidity continues to take a huge toll on the lives of Indian women and their newborns. The causes of maternal mortality also remain the same as in previous years (Figure 1).

Not only does pregnancy and childbirth continue to be potentially hazardous to many women, but motherhood comes at too early an age for far too many women in India. About one third of women in India are married by the age of 15 years, and two-third by 18 years. The median age at first birth is 19.6 years (NFHS-2). Thus, half of all women experience childbirth by the time they are 19 years, usually before physical maturity is obtained. Early childbearing has resulted in adverse health consequences, including damage to the reproductive tract, maternal mortality, pregnancy complications, perinatal and neonatal mortality and low birth weight (Kulkami, 2003). NFHS-2 results show that mothers who are younger than 20 years old at the time of first birth, were associated with a 1.7 times higher neonatal mortality rate and 1.6 times greater infant

Figure 1: Causes of maternal mortality in rural India.

Source: Registrar General India, Survey of causes of death (rural), 1998
mortality rate, than were mothers giving birth between 20-29 years.

The links between pregnancy-related care and maternal mortality are well recognized. Over the last decade national programmes and plans have stressed the need for universal screening of pregnant women and operationalising essential and emergency obstetric care. Proper antenatal care can help ensure a favourable pregnancy outcome, a healthy mother and a healthy baby, but the coverage of antenatal care in India remains inadequate.

Antenatal care however, no matter how high the quality, can not alleviate the major burden of suffering during and around childbirth, for this there is a need of a skilled health professional, a skilled birth attendant (SBA). Estimates suggest that SBAs conduct only 42.3% of all births (Table 2). Compared to 1992-93 however, this rate had increased by 8%, this is largely due to a 50% increase in the coverage of births assisted by doctors. Non-skilled attendants, TBAs, however continue to conduct over one-third of all births in India. The distribution of skilled attendants and institutional births by states reveals an inverse relationship with maternal mortality ratios (MMR), neonatal mortality rates (NMR) and infant mortality rates (IMR).

Postpartum care, both immediate and late postnatal check-up, is also a major concern in India. Although there has been an increase in institutional births in some states (e.g. Tamil Nadu, Box 1), around 65% of all births nation-wide still occur at home. Cultural practice of seclusion after birth, practiced in many parts of the country make skilled care to all women and newborns difficult. In one national study, among those women who underwent a non-institutional birth in the three years prior to investigation, only 17% had a postpartum check-up within two months, and only 2% obtained a check-up within two days of birth. Of these, just one-third

<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>Skilled birth attendants (SBAs)</td>
<td>34.2</td>
<td>42.3</td>
</tr>
<tr>
<td>Traditional birth attendants (TBAs)</td>
<td>35.2</td>
<td>35</td>
</tr>
<tr>
<td>Other person</td>
<td>29.5</td>
<td>22.4</td>
</tr>
<tr>
<td>Home births</td>
<td>73.5</td>
<td>65.4</td>
</tr>
</tbody>
</table>

**Table 2: Trends and place of birth and assistance during delivery**

Tamil Nadu, a South Indian state, has a MMR of 115 per 100,000 live births compared to the national figures. The IMR in this state is just 44 per 1,000 live births vis-à-vis a nationally reported figure of 63 per 1,000. The main interventions responsible for this rapid progress were the increase of skilled care at birth—increase in numbers of safe births by increased use of skilled attendants and with this improved provision of emergency obstetric care.
reported they had an abdominal examination (35%), and only around two-fifths reported receiving breast-feeding advice and baby care advice (43% and 46 % respectively); even fewer (27 %) were counselled about family planning (IIPS and ORC Macro, 2000).

Specific pregnancy-related conditions: Use of pregnancy related services is largely considered unnecessary as pregnancy is regarded as being a ‘natural’ phenomenon (NFHS-1). Illness is often ascribed to supernatural powers and therefore seeking care from a trained provider is often delayed. Practices undermining the important of increased diet during pregnancy and breast feeding practices are rampant.

Globally, for every woman who dies, approximately 30 more women suffer injuries, infection and disabilities in pregnancy or childbirth. In India women reporting complications due to pregnancy are 63.6% , during childbirth 37% and 44.4% during the postnatal period (IIPS, 2001). A significant proportion of ill-health in women is related to their reproductive and sex lives. For example, 30% of ever-married women report at least one type of problem related to vaginal discharge, 18% reports symptoms of urinary tract infection (UTI). Overall 36 % of women report either problems with vaginal discharge or symptoms of UTI (NFHS-2).

Prevalence rate of HIV infection in pregnant women: The 2003 surveillance data estimates of the prevalence of HIV in pregnant women ranged from 0.13% in Delhi, Dadar and Nagar Haveli, to 1.38% in Mizoram. With around 30 million pregnancies a year, and an estimated prevalence of 0.3%, around 100,000 HIV positive Indian women become pregnant every year.

Using a conservative vertical transmission rate of 30%, a new cohort of approximately 30,000 HIV infected infants is added every year (NACO, 2005). Mother to child transmission of HIV is by far the largest source of HIV infection in children below the age of 15 years. Despite the above, studies suggest that some 60% of women in the childbearing age group in India have never heard of AIDS. Knowledge of AIDS increases from 18 % among illiterate women, to 92 % among women who have at least completed high school (NFHS-2). In India, NACO is implementing with the support of UNICEF, prevention of MTCT using AZT/NVP in 11 centers with HIV prevalence among pregnant women of more than 1%.

Family planning and the burden of unsafe abortion

Progress in family planning can improve maternal and child health significantly in India. There has been a decline in total fertility rate from 6.4 in 1950s to 3.3 in 1997. The national target though is to achieve a net reproduction rate of 1, by the year 2010, which is equivalent to attaining approximately the two children per family norm. This target can be achieved only if the contraceptive prevalence rate (CPR) is more than 60%. There has been an increase in the CPR from 41% (NFHS-1) to 48% (NFHS-2) being higher in urban (58%), than rural (45%). Overall sterilization accounts for 75% of total contraceptive use, (34% women vs. 2% men). Current user rates for pill, IUD and condom remain very low however, each at about 2-3%. Unmet need for family planning has however declined from 20% (NFHS-1) to 16% (NFHS-2). If these 16% of women were to use family planning methods, the current CPR 48% would increase to 64% (NFHS -2).

Abortion and Unsafe Abortion: The reported number of legal abortion has reached about 600,000 annually. An amendment to the Medical Termination of Pregnancy Act 1971 in 2003 allows the use of manual vacuum aspiration (MVA); Medical abortion methods; decentralization of approval of facilities as medical termination of pregnancy centres to district level.

The estimated number of illegal unsafe abortions in the country could be in the range of 4-6 million, exact figures are however unknown. Sex-selective abortion is a major challenge and reportedly account for approximately 11% of unsafe abortions in India. Recent evidence both direct and indirect, highlights that the number of sex-selective abortions has increased (Oommen, 2002). An amendment to the Pre-natal Diagnostic Techniques (PNDT) Act now bars the determination and disclosure of the sex of the foetus, places limits on the use of ultrasound and recognizes sex selection prior to conception as a cognizable offence.
Status of health of children under-five

Trends in perinatal and infant mortality show a slow but steady decline in infant mortality rates (IMR), less for neonatal mortality (NMR) and almost no change for rate of stillbirths (Figure 2). Each year 27 million infants are born in India. Around 10% of them do not survive to 5 years of age. In absolute figures, India contributes to 25% of the over 10 million under-five deaths occurring worldwide every year. Nearly half of the under-five deaths occur in neonatal period.

Over the decades there has been a declining trend in infant mortality rate, neonatal mortality rate and stillbirth rate (Figure 2). However, the decline for NMR shows signs of slowing and stagnating - only 15% decline in NMR during the 1990s, compared to a 25% decline during the 1980s. This decline has become even less during 1995-2000, a meagre 4 points (48 to 44 per 1,000 live births respectively).

Nutritional status: Malnutrition among children is rampant. One in every three of the world’s malnourished children lives here and about 50 per cent of all childhood deaths in India are attributable to malnutrition (UNICEF). The proportion of low birth weight babies remains high at one third of all births. The promotion of early and exclusive breast feeding is a well recognized strategy for child survival. It is estimated that in India 28% of mothers initiate breast feeding within one hour of delivery and only 39.7% practice exclusive breast feeding till 6 months (BPNI, 2003). Enhancing early initiation of breastfeeding and intensify nutrition is highlighted in Tenth plan (Box 2).

Immunization: India had started the Expanded Programme on Immunization (EPI) in 1978 aiming to protect the newborns against 6 vaccine preventable diseases. Recently Hepatitis B vaccine and injectable Vi Antigen Typhoid vaccine have also been introduced as pilot projects as part of improving child survival (Box 3). The coverage rates have still not reached the desired levels with 54.2% children completely immunized for age. Coverage rates for individual vaccines are 71.6% for BCG, 55.1% for 3
doses of DPT, 62.8% for 3 doses of OPV and 50.7% for measles. 17.5% of children do not receive any vaccine (NFHS-2). The measles vaccine coverage had improved, from 42% reported in NFHS-1.

Control of infectious diseases: Diarrhoeal disease and acute respiratory infections account for a significant morbidity and mortality among under-five children in India. It is estimated that there are 1.7 episodes of diarrhoea per child per year in under-fives (WHO, 1999). The National Oral Rehydration Therapy (ORT) Programme was started by the Government of India in 1985-86, with an aim of focusing on diarrhoea case management at home by mothers using home based fluids, Oral Rehydration Salt (ORS) and continued feeding. However only 22% under-fives with diarrhoea receive oral rehydration and continued feeding. An estimated 400,000 children under-five years of age die each year due to diarrhoea (UNICEF, 2005). India launched the new low-osmolar Oral Rehydration Salts (ORS) in June 2004 and in the process became the first country to adopt the new WHO formulation.

Health care delivery systems for maternal, newborn and child health

At the time of India’s independence, health care services in India were scant, predominantly urban, hospital based, and curative. The National Family Planning Program was launched in 1952 with emphasis on population control. The MCH programme has evolved over a period of time (Table 3).

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Table 3: Evolution of maternal and child health programmes in India

<table>
<thead>
<tr>
<th>Year</th>
<th>Milestones</th>
</tr>
</thead>
<tbody>
<tr>
<td>1952</td>
<td>Family Planning programme adopted by Government of India (GOI)</td>
</tr>
<tr>
<td>1961</td>
<td>Department of Family Planning created in Ministry of Health</td>
</tr>
<tr>
<td>1971</td>
<td>Medical Termination of Pregnancy Act (MTP Act) 1971</td>
</tr>
<tr>
<td>1977</td>
<td>Renaming of Family Planning to Family Welfare</td>
</tr>
<tr>
<td>1978</td>
<td>Expanded Programme on Immunization (EPI)</td>
</tr>
<tr>
<td>1985</td>
<td>Universal Immunization Programme (UIP) + National Oral Rehydration Therapy (ORT) Programme</td>
</tr>
<tr>
<td>1992</td>
<td>Child Survival and Safe Motherhood Programme (CSSM)</td>
</tr>
<tr>
<td>1996</td>
<td>Target-free approach</td>
</tr>
<tr>
<td>1997</td>
<td>Reproductive and Child Health Programme - 1 (RCH-1)</td>
</tr>
<tr>
<td>2005</td>
<td>Reproductive and Child Health Programme - 2 (RCH-2)</td>
</tr>
</tbody>
</table>

Box 3: Improving child survival – focus on the newborn

To pursue the goals of NPP, the Government of India constituted a National Technical Committee on Child Health in June 2000. New initiatives taken on the basis of this are:

- Launch of Immunization Strengthening Project
- Organization of RCH camps, health “melas” and RCH outreach scheme to reach disadvantaged segments of the population
- Launch of project for Hepatitis B vaccine in the immunization programme
- Operationalization of newborn care facilities in identified weak districts
- Operations research by ICMR for provision of home-based neonatal care through community-level providers
- Policy for exclusive breast-feeding up to 6 months of age
- Preparation and approval of concept note on development of community based midwives
- Implementation of Dai training to provide key messages for newborn health in 166 districts
- Adaptation of IMCI to incorporate newborn issues and development of INMCI*

* The Government of India established an IMCI Adaptation Committee that has led the development of Integrated Management of Newborn and Childhood Illnesses (IMNCI). Separate tools and guidelines have been produced that focus on newborn issues; these are used to trained field staff and for supervision and monitoring purposes.
The next 5-year phase of national Reproductive and Child Health programme II (RCH II), will be launched in 2005. The vision in the next 5-year phase is to accelerate action towards achieving the Millennium Development Goals, as well as the goals of the National Population Policy 2000 (NPP 2000), the Tenth Plan, the National Health Policy 2002 and Vision 2020 India. The focus of RCH II is the minimizing of the regional variations in the areas of reproduction and child health, and population stabilization, through an integrated, focused, participatory programme and by meeting the unmet demands of the target population, and the provision of assured, equitable, responsive quality services. Targets set for maternal and child health under the various government policies and projects are outlined in Table 4.

The health system in India is a mix of public and private sector with the non-governmental organizations (NGOs) playing a small yet important role. The total number of hospitals as on December 2002 was 15,393 with 683,545 beds (ratio of 1 bed per 1500 population) As on December 2002, the total number of allopathic doctors registered with the Medical Council of India (MCI) was 605,800, giving a doctor-population ratio of 1:1800, which changes to 1:800 after accounting for registered practitioners of Indian System of Medicine and Homeopathy (ISM&H). About 74% of doctors live in urban areas, where only 28% of the total population of India resides.

The public health system in India is primarily under the purview of State Governments, with the Central Government providing broad policy guidelines, technical assistance, and additional resources. The rural health system in India is well-structured (Figure 4). A sub-center facility (SC) is the most peripheral health service delivery point in the health care infrastructure. Each SC is staffed by a female worker, auxiliary nurse midwife (ANM) and a male worker. SCs cover a population of 3,000-5,000.

Table 4: Targets of major policies/project relevant to MCH

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant mortality rate</td>
<td>45/1000</td>
<td>35/1000</td>
<td>30/1000</td>
<td>–</td>
</tr>
<tr>
<td>Under-five mortality rate</td>
<td>–</td>
<td>–</td>
<td>–</td>
<td>Reduce by 2/3rds from 1990 levels</td>
</tr>
<tr>
<td>Maternal mortality ratio</td>
<td>200/100,000</td>
<td>150/100,000</td>
<td>100/100,000</td>
<td>Reduce by 3/4th from 1990 levels</td>
</tr>
<tr>
<td>Total fertility rate</td>
<td>2.3</td>
<td>2.2</td>
<td>2.1</td>
<td>–</td>
</tr>
<tr>
<td>Couple protection rate</td>
<td>65%</td>
<td>65%</td>
<td>M est 100% needs</td>
<td>–</td>
</tr>
</tbody>
</table>

Figure 4: Health care delivery system in India

Source: State of India Newborns, Unicef, 2005
A Primary Health Centre (PHC), the next level, caters to a population of 30,000 and overseeing 6-8 SCs.

A PHC is staffed by one or two general physicians, a lady health visitor (LHV) and one or more ANMs. For every 3-4 PHCs there is a provision for community health centres (CHCs), which total 2,953 nationwide.

More than 80% of qualified medical doctors are in private practice and more than 1.25 million untrained, unqualified registered medical practitioners (RMPs) provide informal private healthcare, mostly in villages and slums. A comparison of the National Sample Survey (NSS 1986 and 1995), shows that there has been an increase in the use of private health sector by sick patients, both in urban and rural areas.

A total of 1,728 CHCs nationwide have been designated as first referral units (FRUs) and are staffed by a paediatrician, obstetrician, anaesthetist, several general physicians, nurses and paramedics, and are able to provide emergency obstetric and newborn care. There are 2-4 FRUs in each district, and one or more multi-speciality hospitals at the district headquarters. Most parts of the country have yet to achieve the prescribed norms both for health infrastructure (Figure 4) and for manpower (Table 5).

Unlike the rural areas, the cities and towns do not have a well-structured health system. Urban areas are usually catered to by a mix of services, consisting of small and large hospitals complemented by outreach services run by the government, civic agencies, private organizations, and NGOs. Most slums are covered by the Integrated Child Development Scheme (ICDS), and some cities have been implementing World Bank-funded India Population Projects.

It is estimated that around 7,000 NGOs are involved in health related activities. NGOs often provide a limited range of services localized to a small geographical area.

### Human resources for maternal, newborn and child health

Defining the human resource needs for provision of quality maternal, newborn and child health across such a large and diverse country is problematic. Estimates have been done in the past to calculate the numbers of staff by category needed at the primary health care level, see Table 5. Human resources for all the health sector is major challenge. A number of innovations are underway to increase the capacities of the health workers, both in numbers and skills. Discussions are currently taking place and agreement is expected soon, to permit the midwife at the community level, the ANM, to perform some limited life-saving interventions, such as initiating an IV infusion, administration of antibiotics under certain conditions, etc.

### Improving maternal and child health through national health policy and strategic plans

The health care expenditure in India currently stands at 6.1% of GDP and is increasing. The private out of pocket expenditure is estimated at 4.7% of Gross Domestic Product (GDP). The total government expenditure on family welfare has shown an increasing trend from Rs. 4.9 billion in fifth plan (1974-79) to Rs. 271.25 billion in the tenth plan (2002-07), but still it is just 1.8% of the total plan outlay (Health Information of India, 2003 Page 83).
A sum of Rs. 63.59 billion (23%) of the 10th five-year plan outlay has been allocated to the RCH programme to support the national plan of action for improving maternal, newborn and child health.

In addition, the National Population Policy (NPP 2000) emphasizes the commitments of the Government of India to voluntary and informed choice in Family Planning and Reproductive Health Care services. Towards this end, the government, the corporate sector and the voluntary and non-voluntary sector are expected to work together in partnership to achieve these aims.

Partnership with NGOs is one of the strategic themes in the NPP 2000. The work of NGOs is essential, supplementary and complementary in nature to that of the government as they have the comparative advantage of flexibility in procedures and a rapport with the local population and are at the cutting edge of program implementation.

Involvement of private providers for improving public health services enables recruitment of doctors trained in MTP as safe motherhood consultants for safe abortion services and antenatal and postnatal services. A working group for formulating the specific model schemes for the engagement of private medical practitioners has been constituted in the Department of Family Welfare (FW).

A Jansankhya Sthirata Kosh (population stabilization fund) has been registered in the Department of FW to channelling contributions from the private sector, donors etc., to where they are needed. The Confederation of Indian Industries (CII) and Federation of India Chambers of Commerce and Industry (FICCI) have been approached for incorporating key family welfare message in advertisement campaigns of industries.

Consequent to the adoption of NPP 2000, the village panchayats (local self governing agencies) have become important stakeholders in the field of health and for FW. One of the promotional and motivational measures is to reward the panchayats and the Zila Parishads for exemplary performance. Panchayats can play an important role in the universalization of the small family norm, and thereby achieving reduction in IMR, birth rate and promoting literacy for completion of primary school, for achieving the goal of Health for All by 2010.

Best practices/innovations to improve maternal, newborn and child health

One of the major goals of the Department of Family Welfare is to reduce maternal mortality and morbidity. Several new initiatives have been taken in this regard. The focus has undergone a paradigm shift from individualized vertical interventions to a more holistic and integrated life-cycle approach, giving more focused attention to the reproductive health care and more recently to give greater emphasis to child health, (Box 1, 2 and 3). Other changes and innovations being implemented to improve maternal, newborn and child health include:

- Training of MBBS doctors in anaesthetic skills for emergency obstetric care at FRUs
- Setting up of blood storage centers at FRUs
- Development of guidelines for skilled attendance at birth for ANMs/LHVs and guidelines for normal pregnancy and management of obstetric complications, including authorizing ANMs/LHVs to be able to conduct a limited number of identified life-saving midwifery skills and practices
- Guidelines for operationalising FRUs and 24 hours delivery services at PHCs
- Universalization of ICDS - There is a proposal in Union Budget 2005-2006 to create 188,168 additional Anganwadi centres to attain universalization of ICDS as per existing population norm. The allocation for ICDS has been increased from Rs 1,623 crores in 2004-2005 to Rs 3,142 crores for the year 2005-2006
- Janani Suraksha Yojna (National Maternity Benefit Scheme) is envisaged as a package of services, geared at reducing maternal mortality, neonatal mortality, female feticide and gender disparity
- In the new initiative, National Rural Health Mission, every village/large habitat will have a female Accredited Social Health Activist (ASHA) chosen by and accountable to the Panchayat to act as the interface between the community and the public healthcare system

India

Improving Maternal, Newborn and Child Health in the South-East Asia Region
Adaptation on IMCI to include newborn issues and development of the Integrated Management of Newborn and Childhood Illnesses (IMNCI). Under this new initiative separate tools guides and other resource have been developed and being used with field staff. The major features of the Indian adaptation are:

- Focus on young infants, since a significant proportion on child mortality is centred in the first few months of life
- Including essential newborn care in the first week of life
- Ensuring harmonisation between existing child health interventions and programmes like ICDS and NAMP implemented by agencies other than the Department of Family Welfare
- 8 day training package rather than 11 days as in the global training package.

Main sources of data


Hutton I. Reduction of food intake during pregnancy in rural South India. Tropical Medicine and International Health, 19961 (3): 399-405.


National Neonatology Forum & Save the Children/US, State of India’s Newborns, 2004


Registrar General of India, Sample registration system, statistical report, New Delhi, 2004.


Indonesia, consisting of more than 17,500 islands spreading out all along 3,200 miles, with some 266.3 million inhabitants, is the second most populated country in the Region. In the year 2000, it was estimated that 70% of the population were living in rural areas. Sector reform has been introduced and led to major decentralization, the country is now divided into 30 provinces, each with a legislative council headed by a governor. There are 302 regencies and 89 municipalities divided into 4,918 sub-districts, with a total of 70,460 villages.

Indonesia is a very heterogeneous country, which is clearly manifested in a diversity of geographical, demographic, economic, social, political and cultural aspects of the population. Women make up 50% of the population, and of these 66% are of reproductive age. Between 1980 to 2000 Indonesia had a population growth rate of 1.35%; a crude birth rate of 22 per thousand population; and an average life expectancy of 67 years (men: 64.3 years and women: 68.2 years) (MOH 2000). The total fertility rate, estimated at 2.6 in 2003, shows a continuing decrease on previous estimates.

Despite the success in reducing the overall fertility rate, the same success has eluded Indonesia in terms of maternal and perinatal mortality figures, both of which remain high. Morbidity, for both the women and newborns related to pregnancy and childbirth, is under investigated, therefore reliable nation-wide data is unavailable.

Indicators for child health are better reported and show that the health of children in Indonesia is improving. However the complexities of data collection over such a large archipelago, and given the various crises (both natural and political) situations that is a constant feature across the country, developing reliable national health indicators is a challenge. From data that is available, it is clear that, as with other such large and highly populous countries, wide intra-country variations exists in most of the major health indicators, particularly among those related to maternal, newborn and child health.
**Status of maternal health**

Maternal health appears to be improving for some women in Indonesia. However, pregnancy and childbirth remain a major challenge to the health of many Indonesian women. Although the age of first marriage is increasing, studies suggest that 10% of adolescents girls are married by the age of 16 years, with some provinces having higher proportions than others: West Java (16%), South Kalimantan (15%), East Java (15%), Jambi (14%), Bengkulu (11%) (1998, Susenas). The proportion of adolescent pregnancies (birth before 18 years of age) stands at 4.1% (Susenas, 1998).

Data from the 2000 Household Health Survey (HHS) show a maternal mortality ratio (MMR) of 390 deaths per 100,000 live births, demonstrating a steady decline since the mid 1980s (Figure 1). These reductions, however, must be treated with caution, and are certainly not consistent across the country as a whole. For example, analysis of the 1995 Household Survey (HHS) data showed a substantial variation in MMR between provinces. In Central Java, for example, the MMR was estimated at 248, while in West Java it was 686. In outer Java areas the level of MMR remains high: for example in NTT the estimated MMR was 554 per 100,000 live births, and in Papua it was estimated at 1025. WHO Regional estimates put the MMR at 307 for the period 1998-2000.

**Figure 1:** Maternal mortality ratio in Indonesia, 1986-2002

![Maternal mortality ratio in Indonesia, 1986-2002](image)

Source: Based on data collated by GOI-UNICEF, 2000 and DHS, 2002/3

National data shows that 70.59% of births are attended by a skilled birth attendant. This is increased on previous years in line with increased numbers of skilled providers in the system. According to the National Economic and Social Survey (Susenas) 2002, the proportion of the skilled providers versus traditional attendants at the primary care level, is approximately 60%-40%. The trend is towards increased use of skilled providers. The government’s initiative to increasing partnerships between traditional birth attendants (TBA) and midwives (Bidan) working at the community level, appears to be showing early signs of success.

**Family planning and the burden of unsafe abortion**

Family planning services are coordinated by the National Family Planning Coordinating Board (NFPCB), but services are delivered utilizing the health infrastructure under the Ministry of Health.

Contraceptive prevalence rate (CPR) has more than tripled in just 27 years, increasing from 19% in 1976 to over 54% in 2002, with urban rural differences - more than 55% in urban areas and just over 53% in rural area (Susenas, 2002). Total fertility rate (TFR) has decreased by more than 50% in just 35 years; TFR dropped from 5.6 in 1968, to 2.6 births per woman in 2003 (IDHS (2002/3). In-country experts believe that increasing the age at first marriage, from 18.6 years in 1997 to 19.2 years in 2003 has contributed to the reduction in TFR along with increased CPR.

According to most recent DHS data, the most commonly used contraceptive in Indonesia is injectables (48.6%), then the pill (24.9%), followed by implants 10.5%, IUD (13.9%), traditional methods (3.8%) and then condoms (0.9%). Again, according to 2003 DHS data, 3.7% of women elected for female sterilization, while male sterilization was 0.4%.

Unsafe abortion: Abortion is illegal in Indonesia, and if done, is often performed under unsafe conditions. Estimates suggest 2.5 million abortions occur in the country each year (Afandi B, SpOG. POGI, 2004). It is estimated that 15-30% of the maternal mortality is due to unsafe abortion.
Status of health of children under-five

Current national health indicators for children are given in Table 1. As with maternal health indicators, those for child health show considerable variations across the country, but the major conditions affecting children remain the same across the country (Table 2). Although the health of children, as a total group, appears to be improving, the situation in terms of newborn health does not show the same improvements (Figure 2 and 3).

**Table 1: World summit for children indicators, Indonesia 2002-2003**

<table>
<thead>
<tr>
<th>Indicators</th>
<th>Achievements</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under-five mortality rate (U5MR) (per 1,000 live births)</td>
<td>46</td>
</tr>
<tr>
<td>Infant mortality rate (IMR) (per 1,000 live births)</td>
<td>35</td>
</tr>
<tr>
<td>Maternal mortality ratio (MMR) (per 100,000 live births)</td>
<td>240</td>
</tr>
<tr>
<td>Use of improved drinking water sources</td>
<td>61.1</td>
</tr>
<tr>
<td>Use of improved sanitary means of excreta disposal</td>
<td>51.6</td>
</tr>
<tr>
<td>Contraceptive prevalence - currently married women</td>
<td>60.3</td>
</tr>
<tr>
<td>Contraceptive prevalence - ever-married women</td>
<td>57.3</td>
</tr>
<tr>
<td>Antenatal care (%)</td>
<td>91.5</td>
</tr>
<tr>
<td>Childbirth care (%)</td>
<td>66.2</td>
</tr>
<tr>
<td>Low birth weight (%)</td>
<td>7.6</td>
</tr>
<tr>
<td>Children receiving vitamin A supplements (%)</td>
<td>63.7</td>
</tr>
<tr>
<td>Mothers receiving vitamin A supplements (%)</td>
<td>42.5</td>
</tr>
<tr>
<td>Night blindness in pregnant women (%)</td>
<td>1.7</td>
</tr>
<tr>
<td>Exclusive breastfeeding (%)</td>
<td>39.5</td>
</tr>
<tr>
<td>Continued breastfeeding at 12-15 months</td>
<td>82.7</td>
</tr>
<tr>
<td>Continue breastfeeding at 20-23 months</td>
<td>55.7</td>
</tr>
<tr>
<td>Timely complementary feeding</td>
<td>75.0</td>
</tr>
<tr>
<td>Tuberculosis immunization coverage</td>
<td>82.5</td>
</tr>
<tr>
<td>DPT immunization coverage</td>
<td>58.3</td>
</tr>
<tr>
<td>Polio immunization coverage</td>
<td>65.6</td>
</tr>
<tr>
<td>Measles immunization coverage</td>
<td>71.6</td>
</tr>
<tr>
<td>Children protected against neonatal tetanus</td>
<td>50.7</td>
</tr>
<tr>
<td>Oral rehydration therapy (ORT)</td>
<td>48.4</td>
</tr>
<tr>
<td>Home management of diarrhoea</td>
<td>26.2</td>
</tr>
<tr>
<td>Treatment of ARI</td>
<td>61.3</td>
</tr>
<tr>
<td>Birth registration</td>
<td>55.1</td>
</tr>
<tr>
<td>Children’s living arrangements</td>
<td>4.5</td>
</tr>
<tr>
<td>Orphans in households</td>
<td>3.2</td>
</tr>
<tr>
<td>Treatment of illness</td>
<td>55.8</td>
</tr>
<tr>
<td>Malaria treatment</td>
<td>0.7</td>
</tr>
<tr>
<td>Knowledge of preventing HIV/AIDS</td>
<td>19.3</td>
</tr>
<tr>
<td>Knowledge of misconceptions of HIV/AIDS</td>
<td>2.3</td>
</tr>
<tr>
<td>Knowledge of mother-to-child transmission of HIV</td>
<td>30.0</td>
</tr>
<tr>
<td>Women who know where to be tested for HIV</td>
<td>13.7</td>
</tr>
</tbody>
</table>


Source: National Health Research Survey, 2001

**Table 2: Proportional disease-related infant mortality in Indonesia**

<table>
<thead>
<tr>
<th>Type of diseases</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Perinatal illnesses</td>
<td>34.7</td>
</tr>
<tr>
<td>2. Respiratory illnesses</td>
<td>27.6</td>
</tr>
<tr>
<td>3. Diarrhoea</td>
<td>9.4</td>
</tr>
<tr>
<td>4. Digestive illnesses</td>
<td>4.3</td>
</tr>
<tr>
<td>5. Non-Specific signs of illnesses</td>
<td>4.1</td>
</tr>
<tr>
<td>6. Tetanus</td>
<td>3.4</td>
</tr>
<tr>
<td>7. Nervous System illnesses</td>
<td>3.2</td>
</tr>
</tbody>
</table>

Source: National Health Research Survey, 2001

**Figure 2: Trend of mortality: infant vs neonatal mortality in Indonesia**

**Figure 3: Percentage contribution of neonatal deaths to infant and under-five deaths in Indonesia**

Given the statistics for newborn health, greater understanding is called for regarding the background to perinatal deaths. The causes of neonatal deaths are known, (Figure 4), also some other characteristics are already clear, for example perinatal deaths are higher in women who give birth above 45 years and where there is a short birth interval (Figure 5).

Nutritional status: Data shows that the nutritional status in children under-five has improved since 1986. The latest data of Susenas 2001, show prevalence of stunted/very stunted growth in under-fives of 34%, and in school-age children (5-14 years old) 0.1%. Prevalence of wasting/severe wasting in under-fives is 16%, and in school-age children 0.5%. Based on Central Bureau of Statistics data and MCH in 2000, figures shows that the prevalence of children under-five years with malnutrition/underweight, has declined to 41%, as compared to 1986 figures.

Child health and development status: There is no nationally representative data on the current situation of Indonesian children with respect to psychosocial, cognitive, and motor development and language skills. However, assessment of the development of children aged 6-60 months in Marunda, using the Denver Development Test Scores, found that gross motor, personal-social, language and fine motor development, delay in 20%, 30%, 35% and 50% of children respectively.

Health care delivery system for maternal, newborn and child health

Following the principle of ‘Health For All by the year 2000’, the Indonesian National Health Development Program is focusing on a Primary Health Care concept, with the community health center as the basic health facility, supported by a range of hospitals and other community based health facilities.
Health service delivery in Indonesia is organized in five levels: central, provincial, districts, sub-districts and villages. Health centers (Pusat Kesehatan Masyarakat - Puskesmas) at sub-district level deliver primary health care services. Table 3 lists the various facilities at different levels of service delivery.

<table>
<thead>
<tr>
<th>Administrative level</th>
<th>Facility</th>
<th>Schedule for serving</th>
</tr>
</thead>
<tbody>
<tr>
<td>Village</td>
<td>1. Community based facility:</td>
<td>1 time per month</td>
</tr>
<tr>
<td></td>
<td>• Integrated Service Post (Pusat Pelayanan Terpadu - Posyandu)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Maternity Hut (Pondok Bersalin Desa - Polindes)</td>
<td>Daily – office hours</td>
</tr>
<tr>
<td>Sub-district</td>
<td>2. Sub health center (Puskesmas Pembantu – Pustu)</td>
<td>Daily – office hours</td>
</tr>
<tr>
<td></td>
<td>3. Mobile service unit (Puskesmas Keliling – Pusling)</td>
<td>1-4 times per month</td>
</tr>
<tr>
<td>District</td>
<td>Health center with and without inpatient facility (including simple laboratory facility).</td>
<td>Daily – office hours</td>
</tr>
<tr>
<td>Province</td>
<td>First referral hospital</td>
<td>Daily – office hours</td>
</tr>
<tr>
<td>Central</td>
<td>1. Tertiary or top referral hospital</td>
<td>Daily – office hours</td>
</tr>
<tr>
<td></td>
<td>2. Hospital as center of excellence</td>
<td></td>
</tr>
</tbody>
</table>

Table 3: Health facility at different level of service delivery in Indonesia

Source: MOH, 2003

Organization of health services close to the community is crucial for maternal, newborn and child health. The Puskesmas is the focal point for delivery of primary health care, (Box 1). The current infrastructure includes 7,243 community health centers, 21,115 sub-health centers, and 243,783 integrated village health posts. Finally the Posyandu network, run by Family Welfare Movement, with more than 1.2 million volunteers, provides the basic community level health care. These units make up Indonesia’s primary health care services under the supervision of health centers/puskesmas.

Human resources for maternal, newborn and child health

The main health providers delivering maternal, newborn and child health services, include, doctors, both general and specialists, nurses and midwives. Midwives, Bidan, make up the largest proportion of staff at the Puskesmas (Figure 6).

Training of medical doctors takes place in medical school located within universities. Whereas nursing and midwifery training takes place mainly at polytechnic level, in specific schools or nursing or midwifery. Nursing and midwifery pre-service education have undergone many changes in recent years. All nurses and midwives now follow a three-year diploma programme. A few graduate programmes exist for nurses, and some nurses have obtained a doctoral degree from abroad. Midwifery is seen as a separate profession with specific professional association for midwives. A few midwives have undertaken Masters programmes from overseas.

The pre-service training of midwives has come under much scrutiny over the last decade, particularly
the previous community midwife programme - more precisely called, the bidan di desa pegawai tidak tetap (BDD-PTT) or ‘temporary contracted midwife programme’. The BDD-PTT, often referred to as the Bidan di desa (BDD) programme, took young graduates from Junior High School and gave them a three-year basic nursing programme and one-year midwifery training. The aim of the programme was to ensure that a trained health professional was available at village level. More than 54,000 community midwives were deployed in rural villages during the period 1990 - 1996. Following extensive evaluation, the BDD programme was discontinued in 1996, as the target was achieved. At this time, consensus was reached that, regardless of whether they choose to work in the community, in a hospital, or at a Puskesmas, all midwives should follow the same three-year Diploma (DIII) programme. The Midwifery DIII programme commenced in 1996. Efforts have been established to upgrade the BDDs, either through specific in-service competency-based training, especially for intra-natal care, and through part-time Diploma bridging programmes. Recent evaluations appear to suggest that efforts to increase the capacity of midwives to provide skilled care, are proving successful (Box 2).

Improving maternal, newborn and child health through Health Policy and Financing

Sources for Reproductive Health programmes are often varied. In Indonesia however there are two main sources of funding:

- Government funding (including loans and grants): National development funds, (APBN) as the main source for the Central Government and Local development funds, and (APBD) for local Government, and
- Community funding (including private sectors).

Both the APBN and APBD are divided into 2 budget plans:

- Budget for development
- Budget for routine expenditures.

The state’s APBN budget for development includes: Sectoral Project List (DIP), International Grants/Loans, Presidential Instructions (Inpres), and the Hospital Operations and Costs. The APBN routine expenditure plan, usually includes the List of Activities and Subsidy for Hospital Operational Costs. Health budgets are usually allocated mainly for prevention and curative efforts (70% and 30% respectively). Trends in Health expenditure are shown in Figure 7.
Prior to 1998 the national budget for health expenditure was steadily increasing. After 1998, as a result of the economic crisis, expenditure took a steep decline. However, in comparison to 2 to 3 years ago, current reported figures indicated that the preventive budget has been increased. However, the MOH Reproductive Health programme budget is difficult to measure, due to cross and inter-sectoral work and the various resource funds and programmes.

Many current health programmes and projects are funded by donors. The sources of funding are from international donor agencies in the form of:

- Loans (e.g. from the World Bank, the ADB) and/or
- Grants (bilateral, multi-lateral, or MoU-based, with or without the common requirement for ‘counter-part funding’).

Some of these sources of funding come from various UN agencies (WHO, UNICEF, UNDP, UNFPA, UNAIDS, ILO), USAID, CIDA, AusAID, JICA, German GTZ/KfW, MSF, and others.

The communities also contribute funding for health services through

- Health insurance participation, and/or
- Using private health services.

The proportion of community who have joined health insurance programs (government run or private insurance) is still very small, and least at the rural areas. The 1997 Susenas data shows that, among urban communities, only about 25% of the population join some sort of insurance scheme. Of these about 13% join the civil-servant health insurance plan (the Askes), about 4.6% join the workers insurance scheme (the Astek), and about 5% join the workers private insurance. Of the other portions of the population, less than 1% joined the Health Funds (Dana Sehat), about 0.8% joined the Healthy Card Program (Kartu Sehat) and 0.7% joined other types of insurance plan. In the rural areas, less than 10% joined an insurance plan.

**Social Safety Net Program for the Poor Families:**

The Social Safety Net Program in health sector, initiated mid 1998, is a major effort of the Government of Indonesia to overcome the impact of the economic crisis, towards improving the health status of children from the poor families. Around 12,985,128 poor families, from the 13,997,030 target, have owned the health card, and as many as 6,815,501 poor families (48.7%) have utilized health facilities.

Currently health services for the poor are focused to maternal health services (basic obstetric care, childbirth and postnatal care for mothers and babies) and on complementary feeding for children aged 6-23 months and pregnant mothers with chronic energy deficiency.

**Community maternal savings:** Since June 1996 the government initiated a programme called ‘Mother Friendly Movement’ (the Gerakan Sayang Ibu). This initiative is coordinated by the State Ministry for Women’s Affairs (subsequently the State Ministry of Women Empowerment, since November 1999). There are two main components of activities in the programme: the Mother Friendly Hospital, and Mother Friendly Sub-district. In the Mother Friendly Sub-district component, the community has been encouraged to join local saving schemes, e.g. Tabungan Ibu Bersalin, or Tabulin, which is later used for covering the cost during childbirth, for getting the necessary services in case of obstetric emergency.
Implementation and operational constraints

Extensive efforts have, and continue to be required to overcome the many factors and challenged which hamper and constrain successful implementation of efforts to improve maternal, newborn and child health. The major constraining factors have included:

- Limited commitment from local government towards the national reproductive health programme
- Limited allocation of budget at local level
- Limited logistic support, due to the size of the country
- Lack of competencies of local staff to manage the programme, including planning, budgeting, monitoring and evaluation
- Low compliance of local government towards, national and global policies, and standards and to national and global commitments and responsibilities
- Low protection of reproductive health needs of the poor
- Lack of standardized quality improvement mechanisms, leading to low quality of health service and care (including health education and counselling)

The low performance of health services management, including:

- problems in the recruitment, appointment, deployment and distribution of health personnel, especially with the high rotation of HC doctors (every 3 years)
- limitation in competency, and qualification of many health personnel
- insufficient referral back-up services
- in adequate supervisory and performance assurance mechanisms
- mechanisms to assess staff inequity distribution of health facilities and infrastructure
- insufficient operational funds.

Best practices/innovations to improve maternal, newborn and child health

- Health Sector Reform: basic concept of health sector reform in Indonesia is to shift the paradigm used in implementing the National Health Development Programme from the old paradigm to a new paradigm
- Launch in 1999 of ‘Healthy Indonesia’ 2010, which outlines the basic principles and strategic direction for the national health programme, including maternal and child health
- Introduction and expansion of the Integrated Management of Childhood Illness (IMCI) strategy as an important initiative for improving the status of child health in Indonesia. The strategy has been expanded to include elements for essential newborn care
- Inter-sector collaboration: a number of activities have been conducted to collaborate with related sectors to increase maternal and newborn health and child survival, growth and development, as follows:
  - Development of National Task Force for Reproductive Health
  - National Commission for HIV/AIDS, National Task Force for Early Child Development; Breast Feeding Campaign, Tuberculosis Control and Roll Malaria Control
  - Development of Minimal Standard of Health Services for Province, District/ Municipality levels through a Ministerial Decree signed by Minister of Health
  - Development several technical standard and accreditation of health services for example basic delivery care, essential neonatal care, resuscitation, integrated management of childhood illness, etc.
  - Advocacy to the local authority to develop various regulations to support the implementation of integrated child health care and development.
Main sources of data


Reproductive Health Study Program. Assessment of school age children and adolescent health in Indonesia. Faculty of Public Health, University of Indonesia, and World Health Organization South-East Asia Region, 2001.
Maldives is a small island nation with a population in 2000 of approximately 270,101, scattered among 200 islands dispersed over a large geographical area. The country has made considerable advances over the last decades in terms of health status, reflected in increasing life expectancy rates for both sexes and decreasing maternal and infant mortality rates. Life expectancy at birth increased from 63 for women and 64 for men in 1990, to 71 for women and 70 for men in 2003.

Providing health services to such a dispersed population is one of the major challenges facing the government. In particular, ensure timely referral for specialist and emergency care poses special difficulties for health planners. The barriers to accessing health care services in the rural islands, such as lack of everyday and regular transport and lack of personnel and facilities, have created significant rural and urban differences. In addition to access to health care, malnutrition remains the other major concern for the health status of mothers, newborns and children.

The health policy of the Maldives states that the enjoyment of the highest attainable level of health is a basic right of every citizen. Therefore, the government places great emphasis on the accessibility and affordability of health care services and the health of women and other vulnerable groups. An important part of the long term national efforts to improve maternal and child health, is increasing awareness of the opportunities for practicing family planning. The effects of this effort can be seen in the dramatic decrease in the crude birth rate from 41 per 1000 live births in 1990 to 18 per 1000 in 2003.

The government’s expenditure on the health sector has been at around 10% of the national budget in recent years, while the health expenditure per capita has increased from MRF 1124 in 2000 to MRF 1316 in 2003. The increasing involvement of the private sector in health care has yet to be fully integrated into the major strategic national plans of

**MDG Goal 4 and 5 indicators:** Under-five mortality rate males 38, females 42 per 1,000 live births; Infant mortality rate 18.0 per 1,000 live births; Proportion (%) of 1 year-old children immunized for measles 97; MMR 160 per 100,000 live births; Births by a skilled attendant 70.3%.

Data source: Basic Indicators: Health Situation in South-East Asia, World Health Organization, South-East Asia Region, 2004.
action. Appropriate mechanisms for regulating the private sector and for ensuring protection of the public have still to be worked out.

**Status of maternal health**

Maldivian women have enjoyed greater freedom, economic and social empowerment than women in countries with similar cultural and social backgrounds. However, there are social, cultural and geographical factors that disadvantage women and perpetuate gender inequalities within the country, especially in the areas of health, education and economic status. Traditionally men are accorded the top ranks in the social, economic and political hierarchy. Although women’s participation in all sectors is encouraged by the state, society prescribes predominantly domestic and traditional roles for women. Further, societal norms prescribe domestic and child-rearing responsibilities to women and the role of breadwinner to men. Thus, male involvement in all aspects of reproductive health and family planning is low, and the burden of contraception continues to fall on women. Men are also reluctant to help with the domestic responsibilities and child-rearing duties, due to the role of nurturer being believed to be “feminine” work, with social stigmas attached to men who contribute to this. The importance of male involvement in maternal and reproductive health has not been given as much attention as needed until recently. The recent focus on men in information and awareness programmes has resulted in an increasing number of men being actively involved in maternal and child health issues.

Despite the tradition culture in relation to social stereotypes, the mean age at marriage for women had increased from 19.1 in 1990 to 21.8 in the year 2000. Meanwhile the live births for the age group 25 – 34 years have increased in the same period, indicating that more women are having children later in life (Figure 1).

Maternal mortality however continues to be a concern for the Maldives health sector and a priority area for government interventions. Although, the Maternal Mortality Ratio (MMR) has been gradually decreasing in recent years, it is still high at 97 per 100,000 live births in 2003. UN MMR estimates for 2000 was 110 per 100,000 live births. The high MMR can be attributed to the difficulties in providing maternal health services and facilities, due to the geographical constraints and lack of human resources.

![Figure 1: Proportion of live births by age of mother](source: National data, 2003)

![Figure 2: Maternal mortality ratio per 100,000 live births, 1997-2003](source: National data, 2003)

National data estimate that approximately 84% of births are undertaken by a skilled attendant. The Reproductive Health Survey 2004 indicates that 50% of all births were attended by a gynaecologist, 18% by another doctor and 16% by a nurse with midwifery skills.

The high rate of anaemia among pregnant women in the Maldives also compromises maternal health. The Multiple Indicator Cluster Survey II 2001, shows that 55% of expectant mothers in the country had some level of anaemia, which includes 31% with mild anaemia, 23% with moderate and 1.4% with severe anaemia.

**Specific pregnancy-related conditions:** There is a high incidence of Thalassemia major in the Maldives. The cumulative total of registered Thalassemia cases has increased from 387 in 1999, to 525 in 2003. Statistics show that the percentage of Thalassemia cases and Thalassemia carriers have decreased in recent years. The number of new cases have also decreased, by almost 50% from 43 in 1999, to 24 in...
2003. From those screened for Thalassemia in 1999, 21.9% were carriers. This rate fell to 18.3% in 2003. However, this is still a significantly high percentage, with almost 1 in every 5 Maldivians being a Thalassemia carrier. The government has recently approved prenatal diagnosis and medical termination of pregnancies of foetuses with Thalassemia major. Thalassemia is one cause of anaemia which may explain the high rate of anaemic pregnant women, although no data exists on the causes of anaemia among pregnant women in the country.

Prevalence rate of HIV infection in pregnant women: The AIDS situation in the country is rigorously monitored, and due to screening and awareness efforts, AIDS is considered to be under control in the Maldives. Since 1991 there have been a cumulative total of 13 local HIV positive cases including 9 AIDS cases at the end of 2004. The cumulative total of HIV positive cases among immigrant workers was 123 in 2003, with 13 new cases found during that year (MoH 2004a). Moreover, general public awareness about HIV/AIDS transmission is 99% according to the Reproductive Health Survey in 2004.

Family planning and the burden of unsafe abortion

Contraceptive methods such as pills and condoms are widely available to married couples, as is education and assistance with decision-making for family planning. Condoms have recently been made available over-the-counter. Other methods such as IUDs are also accessible and used. While the Contraceptive User Rate and the Contraceptive Prevalence Rate (CPR) is gradually increasing, it is still very low in the country. The Reproductive Health Survey of 2004 estimates that, among married women aged 15-49, the CPR is 39% for all methods of contraception, including traditional and ‘natural’. CPR for modern methods of contraception is 34%. However, despite the relatively low CPR, an impact on Total Fertility Rate (TFR) can be seen. According to the Country Population Assessment in 2001, there has been a marked decrease in TFR from 5.4% in the period 1990-1995 to 2.8% in the period 1995-2000. Equally an impact can be seen on adolescent pregnancies. The number of live births for the age group of 15-19 years decreased by around 4% in the years between 2000 to 2003 and the number of live births for the age group 10-14 also dropped from 6 in the year 2000 to 2 in 2003 (MoH 2004a).

Table 1: Maternal health indicators

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Contraceptive prevalence rate, 2004 (% of women aged 15-49)</td>
<td>39</td>
</tr>
<tr>
<td>Total fertility rate (per woman), 1995-2000</td>
<td>2.8</td>
</tr>
<tr>
<td>Maternal mortality rate (2003) per 100,000 live birth</td>
<td>97</td>
</tr>
<tr>
<td>Proportion of births with skilled attendant (% - 2004)</td>
<td>84</td>
</tr>
<tr>
<td>Proportion of all births to women under 20 years of age (% - 2003)</td>
<td>6</td>
</tr>
<tr>
<td>Proportion of pregnant women with Hb less than 11g/dl (% - 2001)</td>
<td>55</td>
</tr>
</tbody>
</table>

Unsafe abortion: data on abortion is difficult to find and not very reliable, as there is so little researched data available on unwanted pregnancies and safe or unsafe abortions in the Maldives. One reason for the lack of data is that most people would be unwilling to discuss these issues, or report personal accounts due to legal, social and religious reasons. However, the Reproductive Health Survey 2004 shows that both unwanted pregnancies and voluntary abortions do happen in the islands and Male’. It is likely that unsafe abortions may be cause for concern if reliable data was available, as well as being one of the factors that is contributing to the high MMR.

Status of health of children under-five

The health of children in the Maldives has improved dramatically in recent years. For example, infant mortality rate (IMR) has decreased at a rapid rate during the last decade, from 30 per 1,000 live births in 1992, to 18 per 1000 live births in 2002, and 14 per 1,000 live births in 2003. However the same decline in neonatal mortality rate is not seen. Early neonatal deaths (0-6 days after birth) account for 61% of the total infant deaths – this high level of early neonatal mortality is an indication that the provision of maternity and newborn care across the country is not yet adequate in terms of high coverage of quality services. Poor antenatal and postnatal health care
could be a contributing factor to the high numbers of neonatal deaths. Unlike other countries, the stillbirth rate in Maldives has also shown a significant and steady decrease over the last decade, dropping from 19 per 1,000 live births in 1990, to 11 per 1,000 live births in 2003. However, this is not a marked decline, when compared to the rate of improvements in the IMR and under-five mortality rates. Although it is generally believe the decreasing number of stillborns is a reflection of the increased level of births attended by skilled birth attendants, further studies are needed to verify this.

Nutritional status: Malnutrition in all the population, including children, is of particular concern. The high prevalence of nutrition disorders, such as under-nutrition, stunting and wasting among children, is a great concern. The Vulnerable and Poverty Assessment (VPA) 1998 revealed that the extent of stunting and wasting found among girls was greater than boys. However, the preliminary results of the VPA II of 2004, shows that the overall under-nutrition, stunting and wasting levels for children under 5 years, has decreased by 15% and 2% respectively, from 1997 to 2004.

A National Nutrition Strategic Plan 2002-2006 (cited in MoH 2004a) has been developed. In this Strategic Plan particular attention is given to areas such as the reduction of malnutrition, increasing accessibility to essential food, promotion of exclusive breastfeeding and the reduction of low birth weight. There is evidence that there is an increase in exclusive breastfeeding with 42% of mothers breastfeeding their children exclusively up to 4 months (MoH 2001a).

<table>
<thead>
<tr>
<th>Perinatal mortality rate</th>
<th>N/A</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant mortality rate (2003) per 1,000 live births</td>
<td>18</td>
</tr>
<tr>
<td>Exclusive breast feeding at 4 months of age (%) - 2001</td>
<td>42</td>
</tr>
<tr>
<td>Under-five mortality (2003) per 1,000 live births</td>
<td>18</td>
</tr>
</tbody>
</table>

Table 2: Child health indicators

Health care delivery systems for maternal, newborn and child health

The Ministry of Health is responsible for formulating policies, for both preventive and curative services. Health services in the Maldives have in recent years been re-organized into a five-tier referral system. Health services for maternal, newborn and child health care follow the same basic delivery system. This system comprise of the central referral hospital, the regional and atoll hospitals, atoll and island health centres and island health posts, all of which offer maternal and child specific health services.

The fifth tier - at the top of the decision making hierarchy – consist of central health institutions which function under the Ministry of Health, and includes the Department of Public Health (DPH), the central hospital Indhira Gandhi Memorial Hospital (IGMH), the National Thalassemia Centre, and the Maldives Water and Sanitation Authority (MWSA), all of which are located in Male’.

The fourth tier of the system is the regional hospitals – 6 across the country – each catering to a geographical region covering 2-5 atolls. They provide secondary level curative services, and through public health units also implement preventative health programmes, in addition they also supervise third and second level health services. All regional hospitals provide specialized care in gynaecology, obstetrics and paediatric services.
The third layer in the health delivery system includes the 10 atoll hospitals. These are establishments that have recently been upgraded from health centres, and are now capable of handling obstetric and surgical emergencies.

The atoll health centres - a total of 63 across 20 atolls - are at the second tier. They provide medical curative and preventative services. The personnel staffing these centres include doctors and nurses for curative services and community health workers for preventative services. These centres have now been upgraded and have facilities for women giving birth.

At the first level, and closest to the users, is the island health post - 52 altogether - which offers basic health services. They are staffed with Community Health Workers (CHWs), Family Health Workers (FHWs) and are often assisted by foolhumas (traditional birth attendants, TBAs). The services available at this level include simple preventative and a few simple curative services, including antenatal clinics for basic maternal health care monitoring, such as blood pressure monitoring, administration of iron and folic acid supplements, and identifying danger signs and cases which need referral to the hospitals for specialized antenatal care.

While in the past health services were predominantly provided by the government, the involvement of the private sector has significantly increased in recent years. There is now one private major tertiary hospital - ADK Hospital in Male', around 50 private clinics and a number of independent laboratories. Furthermore, 117 of the 182 pharmacy outlets are run privately. Private traditional healers and practitioners of alternative medicine also operate on a significant scale. Consequently, there is now an urgent need for an appropriate regulatory mechanism for private and traditional practices.

Human resources for maternal, newborn and child health in the country

The Maldives has seen in the last decade a rapid increase in medical health professionals and trained personnel, both local and foreign. The number of medical personnel rose by almost 56% from 1994 to 1999. Even with this significant increase however there remains a significant shortage of health staff. The shortage of medical staff is acutely felt, particularly in the rural atolls. According to the 2003 statistics the patient doctor ratio was 858:1. Further, data shows that there were 785 nurses, 454 paramedics, 119 community health workers (CHWs), 333 family health workers (FHWs) and 409 traditional birth attendants or foolhumas in total in 2003. The shortage of medical personnel is reflected in the high rate of expatriates employed in this field; expatriates make up 34% of the total health personnel of both private and public sector. The shortfall is felt most in speciality fields, for example there are currently only 31 gynaecologists and 11 paediatricians in the country.

In terms of quality of services provided, case reviews on maternal deaths reveal that the shortage of trained medical personnel at island level, is one of the major contributing factors in poor management of pregnancy and birth-related complications and therefore to poor maternal health outcomes. Early identification of high risk cases and better access to emergency health care facilities and services would greatly reduce the loss of lives (Box 1).

Local training of health personnel has shown great benefits. Special priority is given to training

<table>
<thead>
<tr>
<th>Box 1: Case study</th>
</tr>
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<tbody>
<tr>
<td>Fathmath’s (alias) husband took her to the FHW with the complaint of bleeding. Even though she had fever, and a prior history of complications and miscarriages the FHW prescribed panadol and the CHW advised referral to the hospital if condition did not get better. The next day her family took her to the RH which was on another island, as the bleeding had not stopped. On the third day she got weaker and started to vomit and complained of severe abdominal pain. A scan confirmed that the foetus was dead and an emergency D&amp;C was done and the foetus removed. Later that day the patient’s condition became unstable and she was given a second blood transfusion and transferred to intensive therapy. Later that night she was given a third blood transfusion and the doctor reported severe bleeding. Fathmath was posted for an emergency hysterectomy but stopped breathing on the operating table and she could not be revived. Fathmath was not using any contraception and she had not wanted this pregnancy. She was 36 years old and a mother of 5.</td>
</tr>
</tbody>
</table>

*Maternal Death Review Report of 2001*
maternal health personnel, including CHWs, FHWs and providing health education to TBAs. The Faculty of Health Sciences offers diploma level training in nursing and midwifery.

Improving maternal, newborn and child health through health policy

The government recognizes the health of mothers and children as a priority area for health policy and plans, and a number of measures are currently being implemented in the areas of maternal, child, reproductive health (RH) and family planning (FP). Several of these initiatives have been undertaken with support from agencies such as WHO, UNFPA and other bilateral and multilateral donors.

While the Ministry of Health formulates health policies, monitors and evaluates the health situation, the Department of Public Health carries out preventive health programmes and promotive, preventive and rehabilitative health care services in the country. The areas of focus for the Department of Public Health include nutrition, disease control and immunization, maternal and child health, reproductive health and family planning, and food safety.

Implementation and operational constraints

Geographical make-up of the country makes communication and travelling expensive and time consuming. The scattered nature of the population in small islands over a large geographical area causes diseconomies of scale in the provision of health care on a large scale to all the islands. In addition:

- There is a shortage of skilled health personnel, particularly skilled personnel for quality maternal, newborn and child health, especially at the island level. The lack of trained and specialist staff makes it difficult for early detection of critical cases, which is necessary to reduce maternal and infant mortality
- There is a lack of an established domestic transport system, which hinders accessibility of health services. This is a great constraint, especially in the case of emergencies where transport of patients becomes extremely costly. This acts as a barrier for further improvements in maternal health, especially in remote areas and for the poor
- Despite efforts to address the situation, the high prevalence of nutritional deficiencies found in the Maldives is a major challenge. Nutritional deficiencies are mostly due to behaviour and lifestyle factors, which needs to be changed across all age groups. As the health status prior to pregnancy is as relevant to neonatal morbidity and mortality and contributes to a significant proportion of maternal deaths, there is urgent need to address nutritional deficiencies.

Best practices/innovations to improve maternal, newborn and child health

Considerable contribution to improving maternal and reproductive health in the Maldives is provided through partnership with the NGO sector. There are two local NGOs, whose contribution is of particular note, one being the Society for Health Education (SHE). SHE provides reproductive health and family planning services, such as doctor consultations for pregnant women, family planning information and services and counselling. SHE also conducts outreach programmes by running mobile clinics in a number of islands. In addition to the National Thalassaemia Center, SHE has undertaken a considerable amount of work raising awareness on Thalassaemia, and providing practical assistance to individuals with Thalassaemia and their families. The other NGO operating in the country is the Foundation for the Advancement of Self Help in Attaining Needs (FASHAN), which has been involved in creating awareness around HIV/AIDS and other social health issues. Other important innovations that have been successfully used to improve maternal, newborn and child health include:

- The development of specific nutrition education materials and activities. Under the National Nutrition Strategic Plan, materials have been developed and community workshops have been conducted on Vitamin
A supplementation; the use of iodised salt; exclusive breastfeeding; and complementary feeding using locally available foods

- Celebrating World Breastfeeding Week. This is celebrated annually throughout the country. In addition, information education and communication (IEC) materials have been produced and disseminated on breastfeeding, and extensive awareness programmes have been conducted through the media

- Providing iron and folic acid supplementation to all pregnant women attending antenatal clinics

- Use of peer education and training in schools, and public education, via the mass media, has been very effective for increasing awareness on a range of health issues, especially those concerned with reproductive health

- Special programmes are being conducted targeting men, in order to increase male participation in reproductive health and family planning. The effectiveness of these has yet to be evaluated

- Finally, health sector initiatives in the area of vaccine preventable diseases have shown considerable achievements. There has been good progress in the decentralisation of immunization rounds (MoH 2004a).

**Main sources of data**


Myanmar is situated between South and Southeast Asia. It is bordered by India, Bangladesh and China to the north and west, and to the east by Thailand and Laos. It has an area of 676,578 square kilometres. Administratively, there are 14 states and divisions (with a further division into 17 states/divisions for the management of health programmes). The states/divisions are further subdivided into 63 districts, 324 townships and 65,148 villages. The total population of Myanmar is estimated at 53.22 million with a population growth rate of just over 2% (MOH, 2003).

In Myanmar, over 60% of the total population are women and children. The population is made up of the Bamar ethnic majority, who live mostly in the lowlands and central part of the country, and some 135 different ethnic groups, mainly living in the highlands and eastern and western borders of Myanmar. More than 70% of the total population lives in rural areas. The lowland delta and central dry zone are highly populated areas.

In 2003, the MOH estimated a crude birth rate of 24 live births per 1,000 populations in urban areas, and 26 per 1,000 in rural areas. Intense efforts have been instigated to improve maternal and newborn health (MNH) services. Various activities have been implemented, with particular emphasis on improving essential obstetric care and post-abortion care. Although there have been significant improvements in quality of MNH service delivery, current estimates indicate that maternal mortality ratio has not declined to the levels anticipated.

Status of maternal health

Approximately 1.3 million women in Myanmar give birth each year, however, as shown by the maternal health indicators in Table 1, childbirth remains potentially hazardous for a number of women and newborns. Thus, maternal health remains an issue of concern for the government, policy makers and health planners as well as individual women, their
families and communities. According to routine reporting, the maternal mortality ratio (MMR), is 110 deaths per 100,000 live births in urban areas, and 190 per 100,000 live births in rural areas (MOH 2003). However, the National Mortality Survey in 1999, conducted by the Central Statistical Organization, showed MMR to be much higher – 255 per 100,000 live births.

Table 1: Summary information on the obstetric care situation in Myanmar

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
<th>Source</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal mortality ratio (per 1,000 live births)</td>
<td>2.55</td>
<td>CSO 2000</td>
</tr>
<tr>
<td>Antenatal care coverage by trained personnel (%)</td>
<td>73.0</td>
<td>Department of Population (DoP) and UNFPA 2002</td>
</tr>
<tr>
<td>Skilled attendance at delivery (%)</td>
<td>37.4</td>
<td>DoP and UNFPA 2002</td>
</tr>
<tr>
<td>Doctor (%)</td>
<td>13.0</td>
<td></td>
</tr>
<tr>
<td>Nurse/midwife (percent)</td>
<td>24.4</td>
<td></td>
</tr>
<tr>
<td>Pregnant women receiving at least two anti-tetanus immunizations (percent)</td>
<td>71</td>
<td>DoH 2003</td>
</tr>
</tbody>
</table>

Myanmar has a different pattern of causation of maternal death when compared to those of other regional countries; complications following abortion make up a much larger proportion of maternal deaths than in neighboring countries (Figure 1). However, in keeping with most other countries in the region and elsewhere, a large proportion of maternal mortality is found to be preventable.

In response to the challenge of high MMR, an essential reproductive health package, with emphasis on safe motherhood, birth spacing and post-abortion care management, was implemented with momentum during 1996-97 biennium. The number of facilities with functioning basic essential obstetric care is 8 per 500,000 population and for comprehensive essential obstetric care is 4 per 500,000 population. However, as can be seen from Figure 2, much more work is still require to intensify efforts to increase the low proportion of births attended by a skilled health care provider – a skilled attendant, who can institute emergency measures to prevent and manage pregnancy complications leading to mortality.

Figure 1: Causes of maternal death, North Okkalapa General Hospital (1992-1998)

Source: MOH facility data, 2000

Family Planning and the burden of unsafe abortion

Birth spacing methods have been available in the Public sector in Myanmar since 1991. The development of the 1992 National Population Policy saw a shift from a pro-nationalist policy to a health-oriented approach. According to the last Fertility and Reproductive Health Survey (FRHS, 2001), in 2001 approximately 37% of currently married women were using a method of contraception. The current total fertility rate (TFR) is 2.8.
According to hospital-based abortion studies and the wide-ranging maternal mortality survey, over one-third of maternal deaths were found to be attributed to abortions and its complications.

Status of health of children under-five

Children in Myanmar are regarded as the country’s most important resource and the government has adopted the ‘Child Law’ which emphatically states that “Every child has the right to enjoy health services provided by the State”. Improvement of the health status of children is one of the priority areas for Government of the Union of Myanmar, Ministry of Health. Under the guidelines set by the National Health Committee (NHC), the Ministry of Health, other related Ministries and partner agencies are implementing programmes and projects that are directly or indirectly related to the well-being of children in Myanmar. Major activities include training, provision of logistics and human resources, and supervision. In addition, research and surveys have been conducted to study the base-line situation and effectiveness of health programmes.

Department of Health, Department of Health Planning and Central Statistical Organization, UN agencies and INGOs have conducted a number of research studies and surveys in the area of child health. According to survey data, trend of under-five mortality rate (U5MR) declined from 82.4 per 1,000 Live Births in 1995, to 66.1 per 1,000 live births in 2003, because of effective public health interventions, such as increased access of the community to PHC (Figure 3).

The Overall and Cause Specific under-five Mortality Survey, DOH (2002-03) showed that 87% of death occurred in rural area (Figure 4).

Infant deaths account for 73% of all under-five mortality, and neonatal deaths contributed to about 1/3 of infant deaths, as shown by figures 5 and 6. The leading causes for under-five deaths were ARI 25%, brain infections 14%, diarrhoea 13.4% septicaemia, 10.5%, malaria 5.7%, and beri-beri 5.5%. Major causes of neonatal deaths are prematurity 30%, sepsis 25.5% and birth asphyxia 24.5%. Underlying problems for high under-five mortality were malnutrition and weaknesses in some family practices.

**Nutritional status:** The overall nutrition status of children under-five has not significantly improved and malnutrition is still the main underlying cause...
under-five deaths. However the prevalence of under weight has dropped from 38.6% in 1997 to 31.8% in 2003. Prevalence of anaemia in under-five children is high (55% in 2003). Prevalence of Bitot’s spot was only 0.03% in 2000 and visible goitre rate was 5.5% in 2004, very near to the national target of below 5%.

Health care delivery systems for maternal, newborn and child health

Health care delivery is under the ultimate responsibility of the National Health Committee, a high-level inter-ministerial and policy making body. The National Health Committee provides leadership and guidance in implementation of systematic and efficient health programmes. At each level of administration, down to the village level, a health committee with multi-sectoral representation is organized to oversee local implementation of health services.

The Department of Health (DoH) is responsible for providing promotive, preventive, curative, and rehabilitative health care services. The DoH has nine divisions, each headed by a Director (public health, communicable disease control, medical care, administration, planning, nursing, food and drug administration, laboratory, and occupational health). Programmes and projects related to maternal, newborn and child health are generally under the Director, Public Health.

Public health services in Myanmar are provided through a network of service providers at various levels (Figure 7). The highest-level referral facilities are the tertiary hospitals and the hospitals in state/division capitals. Below this, at the district level, referral hospitals with medical specialists, including an obstetrician/gynaecologist and a pediatrician, who provide specialized services to townships under the district jurisdiction. Most daily health services are managed at the township level. Hospital services are found in the township urban centre, and in one or two strategically placed station hospitals. Below this, each township has approximately five rural health centres. As well as providing services, rural health centre staff oversees the services provided from four or five sub-rural health centres. In addition, voluntary health worker, auxiliary midwives, and community health workers, provide services at the village level.

Human resources for maternal, newborn and child health

Among basic health workers, lady health visitors and midwives provide the backbone of maternal health care service delivery, with the assistance of auxiliary midwives (AMWs). Each township has approximately five rural health centres, staffed by a health assistant, lady health visitor and a midwife. As well as providing services, rural health centre staff oversees the services provided from four or five sub-rural health centres, which are staffed by a midwife. In addition, voluntary health worker, auxiliary midwives, and community health workers, provide services at the village level.

In total, the country has 16,570 doctors (6,157 in the public sector and 10,413 in the private sector), 1,211 dental surgeons, 15,482 nurses, 103 dental nurses, 1,719 health assistants, 2,550 lady health visitors, 14,094 midwives, 529 health supervisors (level 1), and 1,094 health supervisors (level 2) (MOH 2003). In addition to public health services, private general practitioners are active in most urban areas. There are many private drug shops in urban areas and even in rural areas, small shops often sell a limited range of drugs. Traditional medicine practitioners and informal health care providers also serve the population. For urban population, (84) Urban Health Centres and
(348) MCH Centres provide maternal and child health care while (1402) RHCs, and (5608) Rural Sub-health Centres are providing necessary care to the rural community. At the divisional and township level, there are (52) MCH officers, (307) lady health visitors, and (817) midwives. For rural population, (1152) lady health visitors, (7108) midwives and (25,799) AMWs are providing MCH care at the village level.

Improving maternal, newborn and child health through health policy

In relation to the time-bound development goals set out in the ICPD Programme of Action (Cairo, 1994), the country has tried to make considerable efforts, to improve maternal and child health especially through
promotion of overall reproductive health. With the heightened interest in reduction of newborn, infant, child and maternal mortality, and by improving the quality and accessibility of birth spacing services, it is anticipated that maternal, newborn and child health indicators will see rapid improvement.

Myanmar’s Reproductive Health Policy was formulated in 2002 and approved by the Ministry of Health in 2003. The Government is aiming to attain a better quality of life for all, by improving reproductive health status of women and men, including adolescents, through effective and appropriate reproductive health programmes undertaken using a life cycle approach.

**Implementation and operational constraints**

Implementation of maternal and obstetric services, as well as neonatal and child care is constrained by a number of factors, including:

- Scarcity of supplies, equipment, live-saving drugs, and job-aids at the peripheral level. This is the most pressing constraint
- The cost of referral services and frequently delayed referral of clients poses a challenge to the delivery of emergency obstetric services
- Inconsistencies in collection of routine data and other relevant information, turnover of basic health staff, and turnover and quality of voluntary health workers, are also challenges to the provision of consistent quality services
- Putting in place systems that will ensure that the poor have access to safe and effective reproductive health care services will require central level initiation, although they could be implemented on a township or even clinic level
- Other issues such as increasing the availability of adequate supplies and equipment including commodities would require fund mobilization, either at the central government level, or through international donors.

**Best practices/innovations to improve maternal, newborn and child health**

In order to reflect the worldwide commitment for reducing maternal deaths during childbirth by 75 percent by 2015 as one of the targets set in the Millennium Development Goals, the Safe Motherhood Initiative in Myanmar takes a proactive stance in improving access to skilled birth attendance, including managing obstetric and newborn cases at all levels. In order to be able to provide quality service for the aforesaid tasks, the following have been carried out, namely:

- Regular and refresher technical as well as management training, on-the-job training, curriculum and training materials development, strengthening of health facilities, essential drugs and instruments, regular and refresher AMW training, supervision and monitoring and coordination with related sectors
- To date, considerable emphasis has been placed on improving antenatal care, particularly with regard to antenatal screening for syphilis
- Establishment of infrastructure for basic obstetric care for the management of pregnancy
- As an urgent need, the curriculum for training midwives, auxiliary midwives, and traditional birth attendants was updated to develop competency in the provision of routine maternity care, as well as the recognition of complications and referral
- The development of a competency-based curriculum served as a national standard for high quality maternal health care. In developing this standard important decisions were made regarding the optimal management of obstetrical complications based on a review of current international best practices (for example, use of partograph, routine administration of oxytocin versus ergotamine for prevention of postpartum
haemorrhage and the use of magnesium sulfate versus diazepam for the management of eclampsia)

- Given that most births take place at home, the feasibility of providing a disposable, clean delivery kit has also been considered.

- A checklist of essential equipment and supplies was developed for the first referral level, including surgical instruments for Caesarean section, fluid volume expanders, forceps, examination lamp, labour room table, suction machine, sterilizers, oxygen cylinder, refrigerator for essential drugs, etc. This checklist has been used to strengthen logistic and supply systems to ensure that all referral facilities are equipped to provide essential and comprehensive obstetrical care.

- The first UNFPA's multi-year special programme of assistance to Myanmar (2002-2005) was approved by the UNFPA Executive Board in 2001. The focus of the UNFPA programme of assistance has shifted from birth spacing to broader aspects of RH, including birth spacing, with a special emphasis on safe motherhood, STIs, prevention of HIV/AIDS, adolescent health and management of post-abortion complications. The special programme now emphasizes reduction of maternal mortality, meeting the reproductive health needs of men and women including adolescents and youths, and prevention of the spread of HIV/AIDS.

- More importantly, multidisciplinary team involvement and effective collaboration with working partners was found to be essential.

Finally, Myanmar has decided to prioritize achievement of the MDGs in the area of maternal, newborn and child health. Therefore a “Five-year Strategic Plan for Reproductive Health” (2004-2008) and “Five-year Strategic Plan for Child Health Development” (2005-2009) were developed by the Department of Health, Ministry of Health, with inputs from key stakeholders. In response to the felt need, it was decided to have a comprehensive document that embodies the national aspirations on reproductive health and child health development in the country, and the way to achieve it. The comprehensive document bringing together the strategic plans for reproductive health and child health, is a road map for maternal, newborn and child health, as well as for other essential components of reproductive health and for adolescent health strategic plan (under development), as well as to the existing disease specific strategic plans in the country. The strategic plans have the common programme approaches namely:

1. Improving skills of health care providers
2. Strengthening the health system to deliver child health services
3. Improving family and community practices
4. Improving the enabling environment
5. Improving the evidence-base for decision making.

**Main sources of data**

Nepal is a landlocked country constrained by rugged terrain and limited resources. It is also among the least developed countries in the world, with 42% of its 24 million populations living below the poverty line. Agriculture is the mainstay of the economy, providing a livelihood for over 80% of the population and accounting for 40% of GDP. Industrial activity is centred around the processing of agricultural produce including jute, sugarcane, tobacco, and grain. The geographical position and terrain make the provision of health services to all people very difficult. This is compounded currently due to the Maoist insurgence, making some parts of the country inaccessible to the government. Due to the small economy, the international community currently funds more than 60% of Nepal’s development budget.

The socio-cultural situation in Nepal also prevails negatively on the maternal, newborn and child health. For example, the cultural and religious practices during menstruation and childbirth often prevent women from accessing and utilizing essential health care services and thereby increase maternal, newborn and child mortality. Menstruation, childbirth and the 10 days after childbirth are considered to be impure and during those periods, the women are secluded from the family members and are sometimes kept in unhygienic places, such as cow sheds.

The low status of women, poverty and caste system also prohibit women from obtaining maternal services. In most societies within the country there is little or no encouragement or support for women who have a pregnancy complication to seek appropriate care. Furthermore, women, as well as the family members, are often not aware of the life threatening danger signs of pregnancy or birth-related complications, in either the mother or the newborn infant. Given that 40% of the overall population are currently below 15 years of age and thus have yet to enter their reproductive years, it is likely that maternal and newborn health will remain a significant priority.

**MDG Goal 4 and 5 indicators:** Under-five mortality rate male 81, female 87 per 1,000 live births; Infant mortality rate 64.2 per 1,000 live births; Proportion (%) of 1 year-old children immunized for measles 75; MMR 415 per 100,000 live births; Births by skilled attendant 77.5%.

Data source: Basic Indicators: Health Situation in South-East Asia, World Health Organization, South-East Asia Region, 2004.
and challenge for the current and all future governments.

**Status of maternal health**

The maternal mortality ratio (MMR) of Nepal is among the highest in the world. The 1996 Nepal Family Health Survey revealed a MMR of 539 per 100,000 live births, which is still considered to be the most reliable estimate available so far. In Nepal, approximately 80-90% of births take place at home, often “conducted” by family members, sometimes assisted by a traditional birth attendant (TBA), but many without any attendant at all. The proportion of all births assisted by a trained health worker, but not necessarily one who has the full range of skills to be counted as a skilled birth attendant, both at home and in an institution has increased, from 8% in 2001/02 to 18% in 2003/04. Currently 9.6 % of births take place in an institution. According to the 1998 Maternal Mortality and Morbidity Study, conducted in 3 districts of the country, where safe motherhood activities were underway (Kailali, Rupendehi and Okhaldhunga), the majority of women, who died as a result of pregnancy, childbirth or the postpartum period, did so at home (67.4%). Slightly more than 11% of deaths occurred on the way to the health facility and about 21% in a health facility (14.4% in a hospital, 4.5% in a private clinic and 2.3% in a primary health centre (PHC).

The majority of maternal deaths (62.1%) take place soon after birth. According to the same study as above, postpartum haemorrhage was the number one cause of direct maternal death (46.3%), followed by obstructed labour (16.3%), eclampsia (14.3%) and puerperal sepsis (11.8%). Abortion was the leading cause of hospital admission, followed by postpartum haemorrhage.

Nepal’s Safe Motherhood Programme is coordinated by the Family Health Division of the Directorate of Health Services of MOH, within the context of the National Reproductive Health Programme. Under this programme a Safe Motherhood Committee has been established, in which most stakeholders participate and contribute, amongst others, to policy and strategy development. The strategy that was adopted to reduce maternal mortality focuses on increased access to family planning, essential obstetric care, essential neonatal care, comprehensive safe abortion services and skilled birth attendants (SBAs). According to the Second Long-term Health Plan 1997-2017, the country intends to reduce the MMR to 250 by 2017.

**Family Planning and the Burden of unsafe abortion**

Family planning has been one of the success stories in Nepal. In the 1972 the total fertility rate (TFR) was 5.8 and declined to 4.8 by the late 1990s. Despite limitations to many services, access to family planning has increased. The contraceptive prevalence rate (CPR) and seen an impressive increase from 15% in 1986, to a position whereby by 2001, 39.2% of ever married women were using a method of family planning.

The median age of marriage has increased slightly over the last 25 years from 16.1 years to 16.8 years, and about half of all Nepali women have given birth by the age of 17.

**Status of health of children under-five**

The health and well-being of children under-five is improving (Table 1). Nepal’s neonatal mortality rate (NMR) is 39 per 1000 live births, and the infant mortality rate 64, (in other words more than half of infant mortality occurs in neonates) (Figure 1). Other indicators such as prevalence of anaemia in children also show an improved picture (Figure 2).

**Immunization:** While immunization rates are improving there are still few children who receive full immunization – only 60.1% of all children (Figure 3).

<table>
<thead>
<tr>
<th>Year</th>
<th>1991</th>
<th>1996</th>
<th>2001</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under-five mortality rate</td>
<td>165</td>
<td>118</td>
<td>91</td>
</tr>
<tr>
<td>Infant mortality rate (IMR)</td>
<td>97.5</td>
<td>78.5</td>
<td>64.2</td>
</tr>
<tr>
<td>Neonatal mortality rate (NNMR)</td>
<td>52.4</td>
<td>49.9</td>
<td>38.6</td>
</tr>
</tbody>
</table>

Nutritional status: Exclusive Breastfeeding rate up to 4 months is 66%. Low birth-weight prevalence is estimated at 27% (health facility based data). According to the 2001 DHS, there is a steady increase in the proportion of young children who are under weight in the first year of life, peaking at around 12 to 23 months, after this the proportion begins to fall slowly (Figure 4). The proportion of under-five children with stunting appears to continue to increase until 36-47 months.

Health care delivery systems for maternal, newborn and child health

His Majesty’s Government of Nepal is committed to improving the health status of the people of Nepal through provision of an equitable and quality health care delivery system. The aim is to provide an equitable, high quality health care system for the Nepalese people. Towards this aim, and in line with the Poverty Reduction Strategy Paper, Millennium Development Goals and the 10th plan (2002-2007),
HMG has formulated the Health Sector Strategy: An Agenda for Reform 2003 (The Nepal Health Sector Programme – Implementation Plan10 (NHSP-IP), MOH 2004). The NHSP-IP, among others, includes safe motherhood and neonatal health as one of the key elements of the essential health care package.

Health care delivery remains largely the responsibility of the Ministry of Health, although the non-governmental organisations (NGO’s) are increasingly providing health services, particularly in the urban areas of the country. The Ministry of Health has three departments, the Department of Health Services, the Department of Drug Administration (both of these departments relate to allopathic track of health care) and the Department of Ayurveda (this is the traditional system of health care).

There are five levels of health care delivery within the Department of Health Services. They are; a) Sub-health Post and Health Post, b) Primary Health Care Center, c) District Hospital d) Zonal, sub-regional and Regional Hospital and e) National Hospital. The Sub-health post, health post and the primary health care centers are the primary health care units, while the district, zonal and sub-regional hospitals and regional hospitals are the secondary referral units, the national hospitals are the tertiary level of health care. Table 2 outlines the services provided at each level.

The numbers of facilities offering specialist maternal, newborn and child health are considered adequate and there are no plans to increase the number of hospitals at this point in time. However, much work is needed to strengthen capacities of the hospitals, especially in terms of quality of care and the management of major health problems. The latter will require expanding the coverage of specially trained doctors who are skilled in anaesthesiology, surgery, obstetrics/gynaecology and paediatrics – the MDGP. Although the Government is committed to increasing the number of births that take place in a facility in order to address the unmet obstetric need, it is likely that a significant amount of maternal, newborn and child health care will remain at the primary care level (Table 3). This has implications for the skills base of primary care workers, as well as the need for better referral systems, including increased communications and transport between the primary care level and the first referral centres.

<table>
<thead>
<tr>
<th>Level</th>
<th>Services</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sub-Health Post/Health Post</td>
<td>ANC, PNC, Delivery in select health posts, Emergency Obstetric First Aid; Family Planning (Condom, Pills and Injectables), Immunizations; ARI and Diarrhoeal disease treatment and referral.</td>
</tr>
<tr>
<td>Primary Health Care Center</td>
<td>ANC, PNC, Delivery, Emergency Obstetric First Aid Service and in select centers Basic EOC services are available, Family Planning (Condom, Pills, Injectables, and in select centers IUD &amp; Norplant services are available), Immunizations, ARI and Diarrhoeal disease treatment and referral.</td>
</tr>
<tr>
<td>District Hospital</td>
<td>ANC, PNC, Delivery, and in select hospitals Basic EOC services are available; Family Planning (Condom, Pills, Injectables, and in select hospitals IUD, Norplant and Voluntary Surgical Contraception services are available); Immunizations, ARI and Diarrhoeal disease treatment and referral. Management of neonatal complications and reproductive morbidities.</td>
</tr>
<tr>
<td>Zonal/Sub-regional and Regional Hospital</td>
<td>ANC, PNC, Delivery, and Comprehensive EOC services are available, Family Planning (Condom, Pills, Injectables, and in select hospitals IUD, Norplant and Voluntary Surgical Contraception services are available); Immunizations, ARI and Diarrhoeal disease treatment and referral. Management of neonatal complications and reproductive morbidities.</td>
</tr>
<tr>
<td>National Level Hospital</td>
<td>ANC, PNC, Delivery, and Comprehensive EOC services are available; Family Planning (Condom, Pills, Injectables, and in select hospitals IUD, Norplant and Voluntary Surgical Contraception services are available); Immunizations; Management of neonatal complications including intensive care; Management and treatment of reproductive morbidities including cancers.</td>
</tr>
</tbody>
</table>
Human resources for maternal, newborn and child health

In order to provide maternal care and for reducing maternal mortality, various cadres of service providers are required. The current profile of provider at specific service delivery points is outlined in Table 4.

The human resources for maternal, newborn and child health are produced within Nepal. The Universities, as well as the certified private institutions conduct pre-service education programmes for Nurses and Doctors. Pre-service programmes for ANMs and other paramedic workers is under the auspices of the Council for Technical Education and Vocational Training (CTEVT). The National Health Training Center (NHTC), in the Ministry of Health, along with some institutions in the private sector, also provides in-service training to various cadres of paramedics.

The accreditation for medical graduates and the nurses is done by the Ministry of Health, for medical doctors it is through the Nepal Medical Council and nurses and for auxiliary nurse-midwives (ANMs) through the Nepal Nursing Council.

Improving maternal, newborn and child health through Health policy and financing

In 1998, His Majesty’s Government of Nepal, Ministry of Health produced the Safe Motherhood Policy for Nepal. The policy emphasized:

- increasing the accessibility, availability and utilization of maternal health care
- strengthening technical capacity of service providers at all levels
- strengthening referral services for maternity care, particularly at the district level and with specific emphasis on appropriate referral
- increasing the availability and use of contraceptives for spacing and limiting
- raising public awareness about the importance of the health care of women and in particular maternal care, and
- improving the legal and social status of women.

Furthermore, following activities were carried out in improving the maternal, newborn and child health status in Nepal:

- Establishment of Safe Motherhood Sub-committee
- Establishment of Reproductive Health Steering Committee (a policy level committee)
- Establishment of Reproductive Health Coordinating Committee
- Formulation of National Reproductive Health Strategy (1998)
- Development of reproductive health (including maternal, and neonatal) clinical protocol for paramedics, nurses and medical officers
- Development of Health Sector Strategy: An Agenda for Reform
- National Policy on Safe Abortion Care.

The sector wide approach (SWAPs) has been pursued in Nepal. Following SWAPs, the Health Sector Strategy (HSR): An agenda for reform was developed. Based on the HSR, the Nepal Health
Table 4: Service providers at the different service points

<table>
<thead>
<tr>
<th>Service provider/s</th>
<th>Services provided</th>
<th>Minimum qualification</th>
<th>Training duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal and Child Worker/Village Health Worker (MCHW)</td>
<td>ANC, PNC, normal delivery in select s/health posts, Emergency Obstetric First Aid Service, Family Planning (Condom, Pills and Injectables), Immunizations, ARI and Diarrhoeal disease treatment and referral.</td>
<td>8 yrs. of schooling</td>
<td>6 months</td>
</tr>
<tr>
<td></td>
<td>NB: No more new recruits. The present MCHW who meet criteria are being offered possibility to take ANM course.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auxiliary Nurse Midwife (ANM)</td>
<td>ANC, PNC, delivery, Limited First Aid Service, Family planning (Condom, Pills, Injectables, and in select centers IUD &amp; Norplant services), Immunizations, ARI and Diarrhoeal disease treatment and referral.</td>
<td>10 yrs. of schooling</td>
<td>18 months</td>
</tr>
<tr>
<td></td>
<td>NB: Some ANMs have been given in-service training for basic emergency obstetric life-saving skills.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Auxiliary Health Worker</td>
<td>Family Planning services; Treatment of minor illnesses related to pregnancy, infants and children; Referral.</td>
<td>10 years of schooling</td>
<td>18 months</td>
</tr>
<tr>
<td>Health Assistant</td>
<td>Family Planning services, Treatment of minor illnesses related to pregnancy, infants and children. Referral.</td>
<td>SLC</td>
<td>2 yrs.</td>
</tr>
<tr>
<td>Staff Nurses (SN)</td>
<td>ANC, PNC, Delivery, Limited First Aid Service, family planning (Condom, Pills, Injectables, and in select centers IUD &amp; Norplant services); Immunizations; ARI and Diarrhoeal disease treatment and referral.</td>
<td>10 year</td>
<td>3 yrs.</td>
</tr>
<tr>
<td></td>
<td>NB: Some SNs have been given in-service training for basic emergency obstetric life-saving skills.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Staff Nurse (Midwife)</td>
<td>ANC, PNC, Delivery, First line management of complications, newborn care, family planning (Condom, Pills, Injectables, and in select centers IUD &amp; Norplant services), Immunizations, ARI and Diarrhoeal disease treatment and referral, Health education and promotion, counselling.</td>
<td>Staff Nurse Plus 1 Yr. programme in midwifery</td>
<td>plus 1 yr.</td>
</tr>
<tr>
<td>Medical Officer (MBBS)</td>
<td>Delivery, Basic EOC services, Family Planning (Voluntary Surgical Contraception services if trained), Management of immunization preventable, ARI and Diarrhoeal disease treatment. Management of neonatal complications and reproductive morbidities.</td>
<td>I.Sc.</td>
<td>5 years</td>
</tr>
<tr>
<td>General Practitioner (MDGP)</td>
<td>Delivery, Comprehensive EOC services, Family Planning (Voluntary Surgical Contraception services if trained), Management of immunization preventable, ARI and Diarrhoeal disease treatment. Management of neonatal complications and reproductive morbidities.</td>
<td>MBBS plus MDGP</td>
<td>5 plus 3 yrs.</td>
</tr>
<tr>
<td>Obstetrician/ Gynaecologist (OBGYN) and Paediatrician</td>
<td>OBGYN: Comprehensive EOC services, Voluntary Surgical Contraception. Management and treatment of reproductive morbidities including cancers, Paediatrician: Management of neonatal complications, including intensive care.</td>
<td>MBBS plus specialist training</td>
<td>plus 2 yrs. for DGO plus 3 yrs. for MS-OBGYN</td>
</tr>
</tbody>
</table>

Sector Programme: Implementation Plan (NHSP-IP) 2004-2009 was then formulated. The NHSP-IP has identified eight major areas including prioritizing essential health care services (EHCS). In the EHCS, three outputs in the logframe relate to maternal, newborn and child health viz. a) decreasing unmet need for family planning, including reducing TFR, b) reducing maternal and newborn mortality through increased coverage of quality antenatal care, skilled attendance at birth, newborn and postpartum care,
and EOC, and c) reduced IMR and CMR due to respiratory, diarrhoeal, and other childhood illness and improved child survival through an integrated programme.

Financing health care for maternal, newborn and child health
The proportion of budget allocated for health in the total national budget is 5 percent and is aimed to increase to 6.5 percent by the year 2006 and to 7 percent by the year 2009 (Nepal Health Sector Programme – Implementation Plan: 2004-2009, MOH 2004). It is estimated that the out of pocket expenditure for health care is 70-75% of the total health care expenditure. Currently, about 38% of the population lives on less than 1 US$ a day. The Millennium Development Goal of His Majesty’s Government of Nepal aims to reduce proportion of population with income of US$ 1 by 17% by the year 2015 (Health Sector Strategy: An Agenda for Reform, MOH 2004).

The budget overview for maternal, newborn and child health care is outlined in Table 5.

Table 5: Overview of MCH budget and main source of funding

<table>
<thead>
<tr>
<th>Service</th>
<th>Source</th>
<th>Budget</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safe motherhood/newborn (SM/NB) care</td>
<td>DFID GB£ 20 million</td>
<td>2004-2009</td>
<td></td>
</tr>
<tr>
<td>Health Sector including SM/NB care</td>
<td>World Bank/DFID US$ 100 million</td>
<td>2004-2009</td>
<td></td>
</tr>
<tr>
<td>Safe motherhood/newborn care</td>
<td>HMG Salary and other operational expenses which are integrated with other services and therefore not shown</td>
<td>ongoing</td>
<td></td>
</tr>
</tbody>
</table>

Apart from the sources shown above, external development partners such as WHO, UNFPA, UNICEF, USAID and GTZ are providing financial support for the safe motherhood and newborn care services in Nepal.

Implementation and operational constraints

- The maternal health service at present is in a state of transition, i.e. from focusing on simply providing antenatal, childbirth and postnatal care, to providing quality care that extends beyond “routine” care, to care of women with obstetric complications and of newborns with complications – this is a great challenge.
- Providing services to manage the obstetric and early neonatal complications means that basic and comprehensive emergency obstetric care facilities (CEO C) must be established and functional in accessible places. At present, there are only 32 CEOC sites in 26 districts and 17 BEOC facilities in the country – this is too few for the population given the terrain. Most of the maternal deaths occur in the community. This means that services and interventions need to be focused at the community level. At the same time community and family members need to be made aware of the danger signs during and after pregnancy, and need to seek appropriate care with a competent health care provider or an appropriate health facility.
- The geography and terrain of the country has remained a great obstacle to the access and provision of maternal, newborn and child health care services and referral in time. Newborn care, particularly at the community level, is yet to be put in place. This will be guided by the National Neonatal Health Strategy that was formulated in 2004.
- Finally, the issue of human resources is a major challenge. The need to have skilled and competent health care providers with midwifery skills at all levels of the heath system cannot be overstated. Providing sufficient providers with the requisite skills, especially at the community level, is something the MoH is currently engaged in.

Best practices/innovations to improve maternal, newborn and child health

- In the past, maternity care in Nepal was concentrated on antenatal care, intra-natal...
and postnatal care, which was not clearly defined. The safe motherhood programme has now provided focus and direction for the health care services of mothers and newborns. The current programme focuses on the need to have at least 4 ANC and 2 PNC checkups. All births are to be attended by a skilled attendant.

Furthermore, it is recognized that every pregnancy is at risk of maternal death which cannot be predicted. Therefore, contact with a health care provider during pregnancy, identification of pregnancy complications, and timely referral to an appropriate institution is recognized as critical to preventing maternal deaths. In addition, to manage the direct obstetric complications such as, antepartum and postpartum haemorrhage, pre-eclampsia and eclampsia, obstructed labour, ruptured uterus, abortion and ectopic pregnancy, there is need for provision of both basic and comprehensive emergency obstetric care. Facilities for the management of complication of pregnancy, birth and the puerperium are also essential.

To help address the human resource needs, consideration is being given to developing community primary health midwives. To provide the necessary medical care for the management of pregnancy and childbirth-related complications in women and newborn, consideration is being given to expanding the specialist general practitioner, MDGCP programme.

Additionally, it is recognized that increasing access to services is vital, for this to occur there must be particular attention to the demand side and work with communities to increase demand, as well as increase their capacities for self-care and to seek emergency care when needed (by increasing knowledge and awareness of danger signs in the women and newborns) is essential.

Although the neonatal programme is yet to be incorporated in the Public Health programme, it is believed the development of a National Neonatal Health Strategy (MOH 2004) which identifies the evidence-based response to the neonatal health issues, such as interventions during pregnancy, normal neonatal care, care for low birth-weight babies, early and exclusive breastfeeding, prevention of sepsis and birth asphyxia will lead to reductions in neonatal mortality. The neonatal strategy will be incorporated into the maternal strategy, to make one maternal and neonatal health strategy.

The progress in reducing infant and child mortality in recent years in Nepal can be attributed to the sustained long duration of breastfeeding, increased contraceptive use and increased immunization coverage. The wide coverage of vitamin A administration, treatment of acute respiratory infections and diarrhoeal diseases among children has also contributed to these reductions.

**Main sources of data**

Sri Lanka has an estimated population of 18.7 million. The Birth rate for the year 2002 was 19.1 and the annual growth rate is estimated at 1.13%. Life expectancy at birth has shown a consistent upward trend and has increased from 64.8 years for males and 66.9 for females in 1967, to 70.7 years for males and 75.4 years for females during the period 1996 – 2001. Other indicators also show considerable strides in development. For example, literacy rate in Sri Lanka is one of the highest in the region and show very little gender differentials, in 2001 for males was 92.2 and females 89.2. The GNP per capita has increased from US $ 556 in 1992 to 823 in 2002.

From the above it can be seen that Sri Lanka continues to make great efforts in health and development, however such improvements are not yet uniform across the whole country. Health indicators, including those for maternal, newborn and child health for the areas of conflict and plantation areas have not yet reached the same level as elsewhere in the country. This is one of the greatest challenges being faced but the government is taking steps to address this. The current policy framework for the country has been defined in the document Vision 2010, a strategic framework for Finance and Planning, in which one of the primary objectives is to reduce the gap in health status between the have and the have nots (Ministry of Finance and Planning, 2001).

Health care services to the people of Sri Lanka are provided by the public and private sectors and include services of those practicing Western (allopathic) system of health care, the traditional systems of medicine (specially the Ayurveda system) and other types of health care including homeopathy. Service provision for maternal, newborn and child health is mainly through the western system of care provided by the state sector. Maternal, newborn and child health services are provided free at the point of contact, although private health services are available and frequently used. The major health issues...
for maternal, newborn and child health are malnutrition, giving rise to high rates of anaemia in pregnancy and poor quality of care in both hospital and primary level care. Internal conflicts continue to present a challenge to the provision of equitable high quality maternal, newborn and child health services across the country.

**Status of maternal health**

Maternal health indicators continue to improve gradually year on year.

**Maternal mortality:** The Maternal mortality ratio (MMR) appears to be showing a slowing of the previous declining trend but questions are being raised as to the true figure for MMR. MMR for the year 2000, calculated on the basis of the revised maternal death surveillance system was 57 per 100,000 live births, whereas previous figures for 1996 for example reported 23 deaths per 100,000 live birth. The maternal death surveillance system enables access to more detailed and accurate data on maternal mortality. Findings from the surveillance system therefore appears to indicate some degree of under registration of maternal deaths. Data is also difficult to get from all parts of the country, making national rates difficult to estimate. Most recent data available from the maternal death surveillance system indicates that 20% of the deaths were due to haemorrhages, 13% due to septic abortion and the group ‘other causes’ contributing to 55% of the deaths. A majority of the deaths included in the latter group were due to heart disease complicating pregnancy. Poor quality of care appears to be a significant factor in most of the maternal deaths.

Limited data available appears to indicate a higher maternal mortality ratio and a high proportion of home deliveries in the conflict areas of the North East (19.4% of all births) and 41% for Batticaloa District. These areas also appear to have a higher total fertility rate of 2.6 (Sri Lanka average 1.9).

**Family planning and the burden of unsafe abortion**
The Demographic and Health Survey (DHS) 2000 reports that the total fertility rate (TFR) has declined and was estimated to be 1.9 during the period 1995-2000. The contraceptive prevalence rate (CPR) among currently married women aged 15-49 years for the year 2000 is 70%, with 49.5% of the women using modern methods and 20.5%, traditional methods. Of the modern methods, sterilization is now the most popular method (23%), followed by injectables (11%).

**Status of health of children under-five**

As with maternal health, the health of newborns and children under-five continues to improve (Figure 1). In terms of specific health services for care of newborns during the early hours of neonatal life, this is mostly provided through the state sector hospitals, where a major proportion of births take place. Health of the mother, inappropriate management and poor sterilization practices during births and care during the first critical hours after, are the key determinants for neonatal health. The Safe Motherhood programme in Sri Lanka implemented in the state sector focuses on the above components as ‘essential neonatal care’. Facilities for specialized newborn care are available at the higher level of hospitals. Some other indicators show the stillbirth rate to be 11.9%; proportion of mothers immunized with Tetanus Toxiod 87.7% (Epidemiological Unit 2001); proportion of newborns with low birth weight - 17% (but this is only data for births in state sector hospitals). Immunization coverage during infancy is good (BCG 99.5%; DPT3/OPV 3 – 99.9%; Measles 100%).

**Figure 1:** Mortality indicators – neonatal, stillbirths and child health 1980-2001 (per 1,000)

Source: Ministry of Health, Sri Lanka, 2002
In terms of specialist health care for children, as of end of year 2000, there were a total of 7411 paediatric beds in state sector institutions, including beds in premature baby units, 54% of the paediatric beds are covered by the services of a Consultant Paediatrician.

Health care delivery systems for maternal, newborn and child health

In keeping with the “levels” of organization for other administrative activities in the country, i.e. provincial, district and divisional levels, the state sector family health services are organized at 4 different levels:

- Central government level
- Province
- District
- Division.

At the level of the central government, the responsibility of provision of family health services is with the Director General of Health Services and the Deputy Director General – Public Health Services (DDGPHS). The Family Health Bureau, the decentralized unit of the Ministry of Health is responsible for policy formulation, programme development and for monitoring and evaluation of family health services.

At the provincial level, the Provincial Director of Health Services (PDHS) has the overall responsibility for all family health services provided at both field and institutional level. At the next level i.e. district level, the Medical Officer – Maternal and Child Health (MO-MCH) is responsible for supervision, monitoring and evaluation, and at the divisional level, the Divisional Director of Health Services (DDHS) / Medical Officer of Health (MOH) has the responsibility of implementation and monitoring of services of an area with a population ranging from about 50,000 to 100,000. There are several categories of staff at the MOH level who implement family health services among whom, the Public Health Midwife (PHM) is the key field level health worker. Each PHM is responsible for field level health services focusing on family health activities for a population of approximately 3,000-4,000 residing in a geographically defined area. The immediate supervising officers, the Supervising Public Health Midwife (SPHM) and Public Health Nursing Sister (PHNS) have an important role to play in monitoring.

Institutions that provide MCH services could be broadly grouped as primary level institutions comprising of Rural Hospitals and Maternity Homes with facilities for antenatal care and uncomplicated births, intermediate level of institutions (District Hospitals and Peripheral Units) where more facilities are available and, higher level institutions where specialist facilities are available. Institutional services for maternal and child health are provided through a wide range of institutions.

As of 2001, there were a total of 9,490 beds for maternal care. Hospitals provide services for intrapartum care and early newborn care after birth. Postnatal clinic services are also provided in selected institutions. The high number of births taking care in the high level institutions is leading to serious issues of congestions in these places, while under-utilization of beds in the lower levels is another concern. Bypassing the first level facilities and self-referrals to tertiary level care, is a major concern for the health planners and managers, and innovative action to maintaining quality are currently being considered.

Introduction of a comprehensive MCH/FP information system in 1986, revised in 2000, enables data from field level MCH activities to be assessed. Completeness of registration of births and deaths has been considered to be satisfactory. Maternal deaths were made notifiable, in 1989. However, due to inconsistencies in the identification of cause of death, the under registration of maternal deaths has been a concern. In recent years however, alternative approaches have been used to collect data on maternal deaths, through reports from field staff and from institutions.

Estimates suggest the proportion of births attended by trained health personnel is 96.6% (DHS, 2000). In 2002, 92% of all births took place in state sector hospitals (Medical Statistics Unit, Ministry of Health, 2001), where care is provided by doctors, nurses with midwifery training and midwives. Of these births, 71% took place in the higher level institutions, where care is given under the supervision of a doctor with obstetric training.
Special areas

The health services for maternal and child care described above refers to the service availability for Sri Lanka as a whole. However, inequities in the availability of services exist. Many of these inequities could be related to two key populations groups i.e. those resident in the plantation sector and those living in conflict affected areas.

Plantation sector

The plantations of Sri Lanka date back to the colonial times when South Indian labourers were brought to work in the labour intensive tea plantations. The health of the immigrant worker was the responsibility of the plantation management. The unsatisfactory health status of the immigrant labour led to the enactment of the Medical Wants Ordinance No. 17 of 1875, specifying the provisions to be made by the employer towards providing medical care. Even though a majority of the workforce were women in the childbearing age, there were no special provisions for MCH services.

There were no specific programmes to provide MCH services in the estates, until the acquisition of estates by the government, under the Land Reform Law, in 1974/75, when the Family Health Bureau of the Ministry of Health commenced maternal care services on estates, on similar lines to those in the non estate health services. Trained midwives, Family Welfare Supervisors, Assistant Medical Practitioners and Estate Medical Assistants were responsible for service provision. Women were provided with transport facilities and paid leave to attend antenatal clinics.

With changing economic policies and the restructuring of the plantation industry, the management of the plantations was gradually transferred to the private sector, so that by 1998, the majority were managed by the private sector. In mid 1990’s, the MMR in the estates was in the range of 0.9 to 1.9 per 1000 live births (90 to 190 per 100,000 live births), higher than the reported national figure for Sri Lanka. Implementation of a health programme with active involvement of estate management and the state sector health care providers is being put in place and is aimed at provision of maternal health services as a component of the total package of health care.

Conflict affected areas

The existence of a conflict situation in the northern and eastern part of Sri Lanka dates back nearly two decades. The districts of the north and east were the areas that were most involved in the conflict and the areas adjoining these districts were also affected to some extent. Assessment of the current status of the health services indicate a number of problems: disruption of health services to varying degrees, non-availability of health personnel and inadequate data on population and health status all of which highlight the need for targeted programmes, especially for the displaced populations.

Human resources for maternal, newborn and child health

The main categories of personnel responsible for maternal and child health care include: medical personnel, both specialist and non-specialist, nursing personnel and midwives. (The availability of staff providing MCH services in the state sector within the past 15 years is given in Figure 2 and 3). At present, there are 82 Paediatricians, 4 Neonatologists and 90 Obstetricians who serve in the state sector. With the exception of medical officers who receive their basic training at the Universities in the state sector which are under the responsibility of Ministry of Higher Education, all other categories are trained in institutions within the Ministry of Health.

The basic medical course in Sri Lanka is of five years duration following which the graduate has to complete an internship of one year in a state sector

Figure 2: Trends in the availability of medical officers of health, paediatricians and obstetricians 1985-1999

Source: National data, 2000
hospital under supervision of a specialist, this includes rotation to maternal and child health areas. Registration with the Sri Lanka Medical Council can only be obtained after completing both these components.

Postgraduate training for medical graduates is presently provided by the Postgraduate Institute of Medicine, University of Colombo. All such training is provided free of charge to the trainee, in keeping with the policy of free education.

All nurses undergo a three year training programme in one of the 11 Schools of Nursing. The curriculum provides for training in basic theoretical aspects and practical experience in all fields of nursing care, including obstetric and neonatal care. Recent discussions within the country suggest that community and primary health care elements require further strengthening. Nurses are able to upgrade to graduate level by following a postgraduate programme, the most popular of which is through the Open University. A new Masters in nursing programme is just about to commence.

The school of Post-Basic Nursing, Department of Health Services conduct two main post-basic training programs, one for Ward Sisters and the other for PHN. Public Health Nursing Sisters have a one-year training in midwifery (including training in neonatal care) and a 6-month training in monitoring and supervision of field health services and field services personnel. Their role however in the community is exclusively supervisory and does not include provision of hands-on community nursing. This is a matter being discussed by the nursing profession.

Improving maternal, newborn and child health through health policy and health insurance policy

The national policy on health service provision is to provide health services free of charge to the population of Sri Lanka. Provision of ‘free health services’ to the population of Sri Lanka was an important welfare measure that existed in Sri Lanka since independence along with the system of free education. The state has spent an amount ranging from 4.1% to 5.6% of the total government expenditure on health, during the period 1995 – 2002. This amounts to approximately 1.4% -1.65% of the GNP.

Distribution of the health expenditure by the different programs for the year 2002 indicate that 67% was spent on patient care services with 8.7% and 21.5% being spent on community health services and on general administration respectively. It is not possible to identify the amount spent on MCH services per se.
In recent years the private sector increasingly contributes to the provision of health services. However, information on the investment or the expenditure incurred by the private sector is not available and therefore poses a major limitation in the total assessment of expenditure on health. The role of private health insurance has been marginal, with about 1-2% of the population covered by such schemes.

Best practices/innovations to improve maternal, newborn and child health

There are few NGOs working in Sri Lanka. However the contribution of the private sector is growing. For example, approximately 5-6% of the births take place in private hospitals. In 2003, there were 178 hospitals in the private sector with a bed strength of approximately 9,000, with no specific allocations for maternal care. It is reported that some of the larger private hospitals in the capital city of Colombo have facilities for specialized newborn care.

The following strategies have been adopted in the provision of care for the pregnant mother and the newborn:

▶ Establishment of a wide network of services to provide MCH services
▶ Training of different categories of personnel for service provision
▶ Introduction of activities aimed at promoting the health of the mother. These include all activities related to antenatal, natal and postnatal care and family planning, with special emphasis on ‘risk screening’
▶ Immunizing pregnant mothers with Tetanus Toxoid
▶ Strengthening the capability of peripheral institutions to carry out clean, safe deliveries by providing low tech equipment and appropriate training of personnel
▶ Introduction of the partogram to all institutions
▶ Development of facilities at referral institutions
▶ Encourage institutional births
▶ Improvements in facilities for sterilization at all higher and intermediate level
▶ Promotion of exclusive breastfeeding
▶ Implementation of a health information system, from the home-based records to information required for monitoring at divisional, district and central levels
▶ Introduction of rubella immunization
▶ Implementation of the ‘Expanded Programme of Immunization’
▶ Implementation of a broadbased child welfare activities through the field based health care delivery system supported by referrals for instructions as necessary.

Main source of data

Thai population is around 63.07 million, of which 17.88 million (29.5%) are women aged 15-49 years, and 4.79 (7.59%) are children under 5 years of age. Almost 25% of the population is under 15 years of age. Maternal and child health has been important and has continually been declared as a top priority since the 3rd National Health Development Plan (NHDP 1972-1976) and continues to be so in the present plan (9th NHDP, 2002-2006), which has set ambitious targets for maternal, newborn and child health. The enormous social changes experienced recently has enormous potential for impacting on the sexual and reproductive life styles in Thailand over the coming years, especially in the large urban areas.

Thailand is often quoted as being one of the success stories for maternal mortality reductions in recent years. Contributing to, but by no means the only reason for this achievement, is that it has for many years adopted and successfully implemented a safe motherhood project aimed at developing quality maternal and child health services, strengthening health personnel efficiency, and at reducing maternal mortality and perinatal mortality. Under this project a number of specific initiatives have been implemented. These include, WHO/UNICEF Ten Steps for Breastfeeding; Baby-friendly Hospital Initiative; Action for Safe Motherhood Programme; Thalassemia Prevention and Control project; Reduction of birth asphyxia project; Prevention of mother to child transmission of HIV/AIDS; the Nutrition and Development Corner and Healthy Daycare Center Project.

Status of maternal health
Maternal health indicators in Thailand are some of the best in the Region. National data for 2003 suggest the MMR is 20.6 per 100,000 live births, UN estimates for 2000 suggested a much higher figure - 44 per 100,000 live births, while regional estimates quote 13.2 per 100,000 live births. The target for MMR reduction set by the government under the 9th

MDG Goal 4 and 5 Indicators: Under-five Mortality rate males 32, females 26 per 1,000 liv births; Infant mortality rate 21.5 per 1,000 live births; Proportion (%) of 1 year-old children immunized for measles 94; MMR 13.2 per 100,000 live births; Births by skilled attendant 94.5%. Data source: Basic Indicators: Health Situation in South-East Asia, World Health Organization, South-East Asia Region, 2004.
NHDP (2002-2006) calls for MMR of no more than 18 per 100,000 live births, current concern is that this target may not be reached (see Table 1).

**Table 1: Maternal health indicators**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Value</th>
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<tbody>
<tr>
<td>Contraceptive prevalence rate (%) - 2001</td>
<td>79.2</td>
</tr>
<tr>
<td>Total fertility rate (per woman) - 2003</td>
<td>1.7</td>
</tr>
<tr>
<td>Maternal mortality ratio (per 100,000 live births)-2003 national data</td>
<td>20.63</td>
</tr>
<tr>
<td>Proportion of births with skilled attendant (live births)-2003</td>
<td>97.9</td>
</tr>
<tr>
<td>Major causes of maternal death 2003 (%)</td>
<td></td>
</tr>
<tr>
<td>• Haemorrhage (deaths)</td>
<td>27.8</td>
</tr>
<tr>
<td>• Sepsis</td>
<td>8.73</td>
</tr>
<tr>
<td>• Toxaemia</td>
<td>16.7</td>
</tr>
<tr>
<td>• Amniotic Fluid Embolism</td>
<td>11.9</td>
</tr>
<tr>
<td>• Other direct causes</td>
<td>8.73</td>
</tr>
<tr>
<td>Proportion(%) of all births to women under 20 years of age</td>
<td>12.76</td>
</tr>
<tr>
<td>Proportion(%) of pregnant women with Hb less than 11g/dl</td>
<td>12.17</td>
</tr>
</tbody>
</table>

Although there is no doubt that maternal mortality is reducing, questions continue to be raised about the exact figure for MMR, for example the Bureau of Health Promotion retrospective study of maternal mortality during 1995-1996 using RAMOS approach (Reproductive Age Mortality Survey) revealed a much higher figure than national figures obtained from routine data. Estimates using the RAMOS approach suggest the maternal mortality ratio in 1991 was 44.3 per 100,000 live births and 43 per 100,000 live births in 1996. Recently however the health data systems have been strengthened and it is expected that future data will be more reliable.

Approximately 97.9% of all births in Thailand take place in a hospital or institution, and are assisted by professionally trained health personnel (doctors/nurses/midwives). If the birth occurs at home assisted by others, i.e. village health volunteer, traditional birth attendant (TBA) or family member, the midwife or a doctor or nurse would make a follow up visit to check on the health of the woman and the baby.

Family planning services are well organized and ensure quality and safety of methods, as well as ensuring that services are available at all levels of the health system at minimum expense. More women than ever are making choices over their birth spacing. The contraceptive prevalence rate (CPR) of married women in reproductive age between 15-44 years continues to increase and was up to 79.2 % in 2001. The total fertility rate (TFR) has decreases nationwide to 1.7 in 2003.

Despite the accessibility of family planning services and although the Thai culture does not support abortion, studies suggest, 66.6% of women with unplanned pregnancies seek abortion services from abortionists who are non medical-professionals. A recent survey suggests approximately that in 12% of abortion cases the women made an attempt to induce the abortion on themselves using various techniques. The latest hospital-based survey in 1999 conducted by MOPH, DOH, found that a total of 45,990 women were admitted for treatment of abortion complications; 71.5% from spontaneous and 28.5% from induced abortion. 41.2% of all such admissions were in the age group 15-24.

**Specific pregnancy-related conditions:** It was found that 30-40% of the population in Thailand are Thalassemia carrier, 1% have Thalassemia and 5.5% of married couples gave birth to a newborn with severe Thalassemia.

**Prevalence rate of HIV infection in pregnant women:** The prevalence rate of HIV infection in pregnant women has dramatically decreased since 1995 from 2.3% to 1.04% in 2004. Equally, HIV transmission from mother to child has decreased from 25.5% to 8-9%. The MOPH policy on prevention of mother to child transmission (established 1997), encourages health care facilities to provide voluntary counselling and confidential HIV testing to all pregnant women, and to provide antiretroviral drug to HIV positive pregnant women for prevention of mother to child transmission, and replacement feeding to all babies born to HIV infected mothers.
Status of health of children under-five

The overall indicators show that perinatal and child health is improving (Table 2). In 2003, perinatal mortality rate decreased to 8.39 per 1,000 total births which was already lower than the national target under the 9th NHDP which is set at 9 per 1,000 total births by the end of 2006.

<table>
<thead>
<tr>
<th>Table 2: Child health indicators</th>
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<tbody>
<tr>
<td>Under-five mortality</td>
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<tr>
<td>(per 1,000 live births) - 2002</td>
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<tr>
<td>Infant mortality rate (%) - 2002</td>
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<tr>
<td>per 1,000 total births</td>
</tr>
<tr>
<td>Target (%) - under 9th Plan for 2006</td>
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<tr>
<td>Perinatal mortality rate (%) - 2002</td>
</tr>
<tr>
<td>per 1,000 total births</td>
</tr>
<tr>
<td>Target (%) - under 9th Plan for 2006</td>
</tr>
<tr>
<td>Major causes of perinatal death (%) of total deaths, 2003</td>
</tr>
<tr>
<td>• Late pregnancy inter-uterine death (maceration)</td>
</tr>
<tr>
<td>• Congenital malformation</td>
</tr>
<tr>
<td>• Birth Asphyxia</td>
</tr>
<tr>
<td>• Prematurity</td>
</tr>
<tr>
<td>Exclusive breast feeding at 4 months of age (%) - 2002</td>
</tr>
</tbody>
</table>

Source: Safe motherhood programme, 2002

Infant mortality rate (IMR) and under-five mortality rate

Infant mortality rate statistics in Thailand rely on a survey of population change by the Institute of Population and Social Research, Mahidol University, which is carried out every 10 years. In 2004, infant mortality rate (IMR) was 20.0 per 1,000 live-births. The national target of the 9th NHDP is 19 per 1,000 live births by the end of 2006. Mortality rate of children under-five for 2002, from the same report, was 28 per 1,000 live-births.

Nutritional status: Malnutrition in Thai children appears to be decreasing, although the increasing rate of overweight is a cause for concern. From routine health reports, malnutrition rate in children was 8.71%. The national target of 9th NHDP was set at lower than 7%. Reports from longitudinal research in 2001, found that nutritional status compared with weight and height, and nutritional indicators -8.9% under 3 years of age have the height below the standard height, 8.0% were overweight, while 4.1% were underweight. In terms of Breastfeeding, the exclusive breastfeeding rate at 4 months has increased from 3.6% in 1995 to 13.8% in 2002, but is well below the national target of 30% by the end of 2006 set in the 9th NHDP.

Child health and development status: The proportion of early age children with normal development has increased from 71.69% in 1999 to 79.9% in 2001, which is on target for the national target of 9th NHDP (which is 80% by the end of 2006). Children in the urban areas have developmental score higher than children outside municipal areas in all aspects of child development.

Health care delivery systems for maternal, newborn and child health

There are several sectors other than health which play a major role and provide maternal and child health care. Three are most obvious, the most important one is the Ministry of Education, which has 8 medical schools and is responsible for the overall skills and quality of the health providers. The second is the Ministry of Defense, the Royal Thai Air Force and the Royal Thai Navy, who along with other units at the provinces provide maternal and newborn care. The third is the Bangkok Metropolitan Administration, which provides specialist newborn health care in 4 Bangkok hospitals and 50 health care centers. In addition, the professional associations such as the Royal College of Obstetricians and Gynaecologists, the Royal College of Paediatrics, the Perinatal Society of Thailand, and the Paediatric Society of Thailand all play an important role in maternal and child health. The main donors that are interested in supporting maternal and child health programmes in Thailand include UNICEF, UNAIDS, UNFPA, JICA and WHO.

At present, there are standard guidelines for provision of maternal and child health services at

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1PMR in Thailand is defined as the number of deaths of a foetus weight at least 1,000 grams or after 28 completed weeks of gestation or with crown-heel length of 35 centimetres or more, plus the number of early neonatal deaths, per 1000 live births.
every level of government health facilities. The majority of maternal and child health services are delivered throughout the country by government agencies at all levels of health care system. At village level there is a primary health care unit, where village health volunteers assist in providing advice and referring cases to health centers. The MCH services system at community level is complemented by the hospital component, made up of a network of community hospitals at district level, provincial, regional hospitals, MCH hospitals, and university hospitals. All levels are linked together by an established referral system.

Currently 92.2% of pregnant women receive at least 4 antenatal care visits. Most antenatal care is provided in hospitals and/or health centers by medical and health personnel (doctor/nurses/midwives). In government hospitals, antenatal care services are free of charge. Services provided at antenatal clinics include: routine physical examination; voluntary counselling and testing of HIV and Thalassemia; Tetanus Toxoid vaccination; health education, provision of folic acid and iron supplement. All pregnant women are given the MCH Booklet and Pregnancy Pathway at the first antenatal visit. Almost all of the mothers (98.9%) were found to utilize the MCH Booklet to record their antenatal and postpartum care received. Apparently 61% of postpartum mothers received complete standard postpartum care; at least 3 visits by trained medical and health personnel (doctor/nurses/midwives). A slightly higher percentage (62.5%) of infants received child care from a professionally trained health care provider.

The average number of bed-days in hospital for birth is two days for both mother and newborn. If the newborn is sick and requires hospitalization beyond two days, usually the mother is discharged. Some hospitals have tried to set up a place for mothers to stay while their sick babies are being treated, to help promote breastfeeding for sick babies, and to educate mothers about essential newborn care.

Human resources for maternal, newborn and child health

As stated above, most care is provided by trained health personnel, doctors, nurses and midwives. In 2000, the ratio of health personnel to population in Thailand was as follows: doctor 1:3,394; dentist 1:15,292; pharmacist 1:10,156, registered nurse (nurse midwives) 1:905 and Technical nurse (nurse midwives) 1:1,952. In Thailand there are 70 agencies responsible for health personnel production, of which 13 are under the Ministry of Education, 43 are under the Ministry of Public Health, 3 under Ministry of Defence, 1 under the Ministry of Interior, and finally 10 agencies in the private sector, including the Thai Red Cross Society.

A registration mechanism is in place for the accreditation of all doctors, nurses and midwives; however this does not as yet make periodic updating mandatory.

Improving maternal, newborn and child health through health insurance policy

The government declared the universal health insurance policy (30-baht health care) in 2002, in a form of capitation payment system. The policy aims at promoting governmental and non-governmental sectors to equally and evenly provide services in their respective area. Universal coverage is supported by the new constitution. Studies have been conducted to confirm the feasibility of the policy. Various payment mechanisms employed in Thailand (capitation, case basis, fee for service) have been evaluated and will be the basis for designing of an effective and efficient policy.

Implementation and operational constraints

- Thailand has recently introduced universal health care coverage for 45 million of its people, financed by general tax revenue. A capitation contract model has been adopted to purchase ambulatory and hospital care, and preventive care and promotion, including reproductive health services, from public and private service providers.
- The potential impact of universal coverage on maternal and child health services depends on the three key aspects: awareness of entitlement on the part of intended...
beneficiaries of services; the response of health care providers to capitation; and the capacity of purchasers to monitor and enforce contracts.

- In rural areas, the district public health system is the sole service provider and the contractual relationship requires trust and positive engagement with purchasers.

Best practices/innovations to improve maternal, newborn and child health

Making further reductions of maternal newborn and child mortality has been aided by:

- Using the Maternal and Child Health handbook nationwide
- Safe Motherhood Hospitals Program
- Prevention of Mother to Child Transmission and Care (of HIV) Project
- Reassessment of Baby-Friendly Hospitals
- Establishment of Provincial Maternal and Child Health Committees
- Healthy Daycare Program
- Healthy Thailand Program
- The new budgeting system, where “the money follows the patients”, has replaced the old mechanism of historical, incremental financing of supply side costs. This new mechanism empowers service users/patients to make choices and enables providers to be responsive to their legitimate expectations.

- Finally, cross-sector linkages and initiatives with others ministries, departments, public/private sector, national and international NGOs, bilateral and multilateral agencies has been important.

Main sources of data


Upon gaining Independence from Indonesia in May 2002 Timor-Leste officially became the world’s newest nation. The country’s health system was completely devastated during the violent events of August 1999. Since that time the new government, assisted by a United Nations mission, has faced the enormous challenge of rehabilitating its health sector, virtually from scratch. Health policy is still under development and there is not yet any reliable national health information system.

Strengthening of reproductive health services, in particular focusing on increasing the proportions of births attended by a skilled health professional; enhancing the capacities of skilled health providers, in particular the nurse-midwives and increasing access to emergencies obstetric and neonatal services and child health, has been embedded in health sector national efforts from the very beginning and even leading up to Independence.

The total population of Timor-Leste in 2002 was 850,000. Available data show that more than 40% of the population live below the poverty line, which is US$0.55 per day. As with many countries in the region, the population below age 15 is high – believed to be in the region of 36%-49%, but as reliable vital registration is not yet fully operating in all parts of the country, all population data is only estimates.

Status of maternal health

Reliable data on the general situation regarding maternal health is not yet fully documented. Early mortality studies in 2000 show the maternal mortality ratio (MMR) to be in the region of 660 per 100,000 live births, (although regional estimates put this at a high figure – 800 per 100,000 live births). The socio-economic situation does not yet favour women’s health, despite the fact that government has made maternal mortality reduction one of its specific goals. One of the many consequences of the crisis before independence for maternal health, was that very few citizens, particularly women, had confidence in the health services. Thus, utilization of health care for

MDG Goal 4 and 5 indicators: Under-five mortality rate male 142, female 108 per 1,000 live births; Infant mortality rate 70-95 per 1,000 live births; Proportion (%) of 1 year-old children immunized for measles 60; MMR 800 per 100,000 live births; Births by skilled attendant n/a.

Data source: Basic Indicators: Health Situation in South-East Asia, World Health Organization, South-East Asia Region, 2004.
pregnancy and childbirth prior to Independence was never very high. The breakdown of the infrastructure and the referral networks that occurred prior to Independence has led to many women giving birth with no formal assistance from the health sector. Currently, in the region only an estimated 8-9% of women give birth with the assistance of a skilled birth attendant.

**Family planning and the burden of unsafe abortion**

A number of reports show that prior to Independence, women’s knowledge of contraceptive methods was very low.

Family planning efforts are developed in close collaboration with religious leaders. The current consensus around family planning and birth spacing is to see family planning as an effort of all parents to improve the health and education of their children. Family planning services are being introduced in the country to assist with birth spacing.

Current estimates suggest TFR 7.6 in 2002 and contraceptive prevalence rate (CPR) was 7.0 in 2001.

**Status of health of children under-five**

In general the health of children in Timor-Leste is improving and set to improve further in future years. Important groundwork is being laid down. For example, the Timor-Leste government has recently endorsed the Convention of the Rights of Child, now part of the Constitution. A school health curriculum has been developed as a joint initiative of the Ministries of Health and Education. IMCI has been introduced with national efforts.

The commonest child health problems in Timor-Leste are malaria, acute respiratory infection, diarrhoea and malnutrition. Other common and important child health issues include tuberculosis, dengue haemorrhagic fever and neonatal problems such as sepsis.

In terms of neonatal, infant and under-five mortality rates: There have been 2 national studies estimating child mortality rates since Independence.

(1) A multiple indicator cluster survey (MICS) was conducted in 2002; mortality rates refer to the 4 year period preceding the survey. This showed an under-five mortality rate of 125 per 1,000 and an infant mortality rate of 88 per 1,000 live births. Neonatal mortality however was not assessed.

(2) In 2003 a national demographic health survey (DHS) showed an under-five mortality rate of 107 per 1,000, infant mortality of 82 per 1,000 and neonatal mortality of 42 per 1,000 live births. Mortality rates in both surveys are notably lower in urban and lowland areas.

Both of these studies calculated mortality rates retrospectively; there is not yet any established system for prospective mortality reporting in Timor-Leste.

**Trends in infant and under-five mortality**

The DHS2 calculated mortality rates for 5-year periods for the 15 years preceding the survey in 2003. This survey showed a steady decline in both infant and under-five mortality (Figure 1).

**Process indicators relevant to child health**

- **Immunisation coverage**: The DHS reports retrospective coverage of immunisations for children 12-23 months. Only 18% of children were fully immunised and 42% of children had never been immunised; 38% had been immunised against DPT3 and 56% against measles. Since introduction of EPI in March
2000, immunization coverage rates have been slowly improving. A national EPI coverage survey conducted in December 2004 demonstrated that the national immunization cover was BCG 72%, DPT-3 57% and measles was 55%.

- **Coverage with Vitamin A supplements:** The DHS showed routine vitamin A supplementation coverage of 34% for children 6 months-5 years.

- **Exclusive breastfeeding:** Although almost all children in Timor-Leste are breastfed at some stage, recent surveys show low rates of exclusive breastfeeding at 4 months and lower rates still at 6 months.

- **Nutritional status:** Malnutrition is a major child health problem in Timor-Leste. Both severe wasting and malnutrition with oedema are commonly seen. Since 2002 there have been 2 national health surveys and 3 other district nutrition surveys. They consistently show alarmingly high rates of wasting, stunting and underweight in children under five years. Mean rates of moderate or severe wasting range from 12-18.7%, moderate or severe stunting from 41-58% and moderate or severe underweight from 42.6-65.4%.

  Complications of malnutrition, such as Vitamin A deficiency and anaemia are also common. The recent DHS showed 29.1% of children under-five are anaemic (Hb < 11 g/dl), 5.6% have moderate to severe anaemia (Hb < 9 g/dl), and 0.8% have severe anaemia (Hb < 7 g/dl).

**Health care delivery systems for maternal, newborn and child health**

In Timor Leste over 90% of births occur at home and culture dictates that women and their newborns remain secluded in the home for 40 days after birth. There is no regular system of early postpartum contact. Health facility data is still in a very early stage of development, for example birth weight data is not yet reported on. For these reasons there is no reliable estimate of the percentage of babies who are low birth weight.

**Human resources for maternal, newborn and child health**

Strengthening and capacity building of human resources and human resources mobilization generally, have been major efforts since independence and began in the transition period, prior to full Independence. There remains a large shortage of medical doctors, especially for speciality services. Professional by trained nurses and midwives provide the main human resources for delivery of health services.

**Improving maternal, newborn and child health through Health policy**

Timor Leste’s Health Policy Framework, highlights maternal and child health as a national priority. Individual micro-policies are still being developed. Although there are no specific maternal, newborn and child health policies yet finalised, there are recently drafted national strategies for IMCI, EPI, nutrition, reproductive health and health promotion. The draft documents serve as the framework from which to formalise policy in these important areas.

**Best practices/innovations to improve maternal, newborn and child health**

Despite the early stage of development of all health programmes, important early lessons have emerged and are used as the basis for ongoing efforts in Timor-Leste to improve maternal and child health, these include:

- Strengthening of reproductive health services. In particular focusing on increasing the proportions of births attended by a skilled health professional requires enhancing the capacities of skilled health providers, especially the nurse-midwives

- Increasing access to emergency obstetric and neonatal services has been embedded in health sector national efforts from the very beginning, and even leading up to Independence.
- National standard protocols and guidelines for maternal and newborn health and family planning have been developed based on WHO guidelines. These have been used for training of all health personnel.
- The Integrated Management of Childhood Illness (IMCI) was introduced as a national child health strategy in May 2001. The first 2 components of IMCI will be implemented in all 13 districts by the end of 2005 and community IMCI is in early stages of development. IMCI has served as a template for many health programs in the new health system in Timor-Leste. WHO has been a full partner providing financial and technical assistance to the implementation of IMCI in Timor-Leste.
- Formulation of the National Strategy on Child Health has been important to guide the work of all partners, including NGOs in the important area of child health.
- Training of health staff from hospitals for management of severe malnutrition will help ensure that important health messages are integrated in health service provision. The development health messages, on improvement of child health, specifically aimed at the community and family, has proven useful. Starting from 2005 WHO will support Ministry of Health to carry out mass deworming programme for children.
- The WHO/UNICEF breastfeeding counselling training has been adapted and implemented in Timor-Leste by the Alola Foundation, a national NGO. The training is currently being scaled up to cover all districts.
- Finally, a coordinated collaborative approach, in particular between all UN Agencies, has been used to improve maternal, newborn and child health. Joint work plan between MoH, WHO, UNFPA and UNICEF has been very successful to move the work forward.

**Main sources of data**


Timor-Leste. Ministry of Health. *Timor Leste demographic and general health survey 2003 (draft only).*


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