Editorial

The purpose of the Regional Health Forum is to provide a common platform for exchange of ideas and views on various subjects. The topics covered in the current issue include Reproductive Health, Communicable Diseases and Health Research, including SEARO Notes and News on World Health Report 2002, World Report on Violence and Health and the 55th Session of the Regional Committee.

As has been the practice earlier, the May-June issue of the Forum will be dedicated to the themes of the World Health Day and World Health Report of the year. The theme for 2003 is: Shaping the Future - Healthy Environments for Children. Six areas will be the major focus of the initiative for WHD. These are: household water security; hygiene and sanitation; air pollution; disease vectors; chemical hazards and injuries and accidents. The World Health Report 2003 will be on ‘Health and Sustainable Development, with the focus on the place of health in national planning for sustainable development, and also the issue of food safety, including aspects of genetically modified food.

Readers are invited to contribute articles, essays or short write-ups related to the above areas for the next issue, written in an informal, clear and readable style.
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The world is changing very fast, impacting our lives on several fronts. While at the one end of the spectrum, the digital world allows instant communication, providing a global intellectual pool with the possibility of unimaginable scientific achievements, at the other end, we continue to witness great poverty and deprivation.

Straddling both worlds, we, in WHO, are learning new skills, both to keep up with emerging challenges and to make the most of new opportunities. We are striking new partnerships and making new alliances to enable all people, particularly the most vulnerable, to have better access to health care and facilities. While WHO maintains its core competencies to handle its main functions, at the same time, the scope of WHO’s work has widened beyond the conventional.

As important new avenues for extrabudgetary funds are made available, we are working closely with Member Countries to enhance their capacity to tap these funds. Supported by SEAR staff, 10 proposals for a total of US$ 283 million from SEAR Member Countries for the Global Fund for AIDS, TB and Malaria were accepted, in the first round. In the second round, 14 proposals were submitted, including from Timor-Leste and from NGOs. While the decision will be known by end-January 2003, it is likely that many SEAR countries will receive additional funds.

Over the year, all the countries of the Region demonstrated the principle of “Moving for Health”, and focused on healthier diets and lifestyles and on people taking greater responsibility for their own health and wellbeing. Bhutan, with the cross country walk by H E Lyonpo Sangay Ngedup, Minister for Health and Education, and Thailand with their record setting “Power of Exercise” led by the Thai Prime Minister, H E Thaksin Shinawatra, provided inspirational role models for their own people as well as for the rest of the world. The year also saw the re-launch of the SEAT flame to rekindle national commitment to halt the march of tobacco that particularly targets the youth in our region.

Over the past year, many countries of our Region were faced by man-made emergencies - from terrorism, cross-border flare-ups and civil strife. WHO provided support to DPR Korea; to the internally displaced people in Indonesia and to the newly independent
Timor-Leste. Our country office in Sri Lanka is working closely with the national government in the rebuilding and rehabilitation of health services in the territories earlier torn by civil strife. In India, as with the other UN agencies based here, both our financial and work operations were severely restricted, for nearly two months, due to the security situation. However, our staff responded appropriately to the fast changing situation and despite constraints, programme work continued, to the best possible extent.

Let us keep up the good work and keep the WHO flag flying high!

Dr Uton Muchtar Rafei
Regional Director
WHO South-East Asia Region
Reproductive Health

No More Cradles in the Graveyards

Than Sein* and Uton Muchtar Rafei**

Several years ago in Myanmar, the graveyards in villages and small towns used to have many cradles scattered around the ground, some partially buried and some broken. These cradles were sad reminders of the death of mothers either during pregnancy, at the time of delivery or after. The baby too might have died with the mother or after a few days. In some cases, it meant a still-birth or the death of young infants, mainly neonates. It is the same story in most countries of the South-East Asia Region, where, compared to the global average four to ten times higher maternal deaths take place. According to a popular Myanmar saying, there are two risks to life, one for men who go rafting along fast flowing rivers; and the other for women during childbirth.

Why should pregnancy and childbirth pose such a risk to the precious life of women? Pregnancy and childbirth are normal physiological, reproductive phenomenon for human existence and most pregnancies and childbirth are normal without any risk to health. Many causes for ill-health during pregnancy and childbirth can be prevented and good health practices promoted during these periods. Advocacy for health interventions to reduce the burden of illness during pregnancy and childbirth must be founded on fact, not conviction. These interventions should be based on evidence and not on habits and tradition.

This paper highlights the risk to pregnant women, how to reduce ill-health and death during pregnancy and childbirth, and examines the reasons for different risk factors for women and mothers in different countries in South-East Asia.

Measure of Burden

The burden of women’s health related to pregnancy and childbirth is usually measured through monitoring maternal deaths in a community. WHO defines a maternal death as the death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of pregnancy, from any cause related to or aggravated by the pregnancy or its management but not from accidental or

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** Regional Director for WHO South-East Asia Region

1 WHO ICD 10
incidental causes. Maternal deaths are also indicative of the performance of the health systems.

The most commonly used indicators of maternal mortality\(^2\) include:

1. **Maternal mortality ratio (MMR)** is the most commonly used indicator and it is the ratio of the number of maternal deaths during a given time period per 100,000 live births during the same time period. It is not a true death rate in that it does not measure deaths per woman-year of exposure to pregnancy and childbirth within a specified time period. An appropriate denominator would be the total number of pregnancies (live-births, foetal deaths (still-births), induced or spontaneous abortions, ectopic and molar pregnancies), but this figure is seldom available. Hence, the general use is live births for practical reasons. It is the ratio which indicates the risk of death once a woman has become pregnant.

2. **Maternal mortality rate (MMR)** is the measurement of true rate and it is the total number of maternal deaths in a given period (usually a calendar year) per 100,000 women of reproductive age (aged 15-49) during the same time period. It reflects both the risk of death among pregnant women, and the frequency with which women are exposed to this risk. Different countries may have used the age-groups of women of reproductive age (15-45) or (15-49). The rate could be reduced either by making childbirth safer (as is true for the ratio mentioned above) and/or by reducing the number of pregnancies.

3. **Lifetime risk** is a new measurement for maternal mortality, taking into account both the probability of becoming pregnant and the probability of dying as a result of that pregnancy cumulated across a woman's reproductive years. It is a cohort measure of maternal mortality. It can be approximated by multiplying the maternal mortality rate (MMR) by the length of the reproductive period (around 35 years). Thus, the lifetime risk is calculated as: \[1 - (1 - \text{MMR})^{35}\].

The lifetime risk can also be approximated by the product of the total fertility rate (TFR) and the maternal mortality ratio (MM Ratio) with an adjustment factor of 1.2 or 1.5 in order to compensate for pregnancy loss (stillbirths or ectopic pregnancy, etc.). Thus, the lifetime risk is \[1.2 \times \text{TFR} \times \text{MM Ratio}\].

The global estimates for 1995\(^3\) by WHO/UNICEF/UNFPA showed that while Thailand, Sri Lanka and Myanmar have the lifetime risk of

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1 in 1100, 610 and 190 respectively, Bangladesh, Bhutan, Maldives and Nepal have 1 in 42 or below. While DPR Korea has the risk of 1 in 1100, India and Indonesia have the risk of 1 in 55 and 65. The bigger the ratio, the higher the risk.

In practice, it is extremely difficult to measure maternal mortality, especially in countries where the system of recording vital events including maternal deaths is relatively incomplete. One of the difficulties encountered in measuring maternal mortality is related to the timing of death and the causes of death in relation to the pregnancy status of the women.

Vital registration systems usually account maternal deaths, but rarely record the cause of death. In some case, hospitals might have recorded the cause of death (e.g. kidney or heart failure or tuberculosis) but the fact of the pregnancy may not have been noted in the death certificate. Various studies show that underreporting of maternal deaths in official data ranges from 20-70%.

In many communities, maternal death is a rare event, especially in countries with the MM Ratio not exceeding 1 per 1000 live births. Moreover, to get statistically reliable maternal mortality data, the community surveys require a very large sample and are thus very expensive to conduct. Inadequate information on maternal deaths has long been an obstacle in alerting health policymakers to the magnitude and causes of the problem.

It is more relevant today as the global target has been set for a significant reduction in maternal mortality ratio, i.e. reduction by three-quarters, between 1990 and 2015, as an international Millennium Development Goal (MDG) (Goal 5 Target 6), by the United Nations at the Millennium Summit in 2000.

In order to determine the extent of the problem, WHO and UNICEF had introduced a new methodology to estimate global maternal mortality in the early 1990s. Data from various sources were taken into account when computing these estimates. The results based on the model-based estimates for a large group of developed and developing countries were issued by WHO/UNICEF in 1996. This report had generated considerable discussion around a number of key issues, particularly the way in which countries were classified, the use of survey data and its adjustment, and the use and manner of presentation of the estimates.

However, the results drew the attention of many countries and scientists around the world and resulted in (a) increased awareness of the problems of measuring maternal mortality; (b) identification of various weaknesses and strengths of the different measurement approaches; and (c) getting appropriate national and sub-national data on maternal mortality which were hitherto unavailable. It also helped stimulate new data collection.

After a series of consultations, WHO together with UNICEF and UNFPA made efforts to carry out a similar exercise using revised methodologies, and incorporating new data sets. The revised estimates for the MM Ratio by countries and regions for 1995 were presented. The wide uncertainty levels of the estimates indicated that there could be a considerable range (Figure 1).
According to these estimates, around half-a-million maternal deaths occurred globally in 1995, of which 31% were in WHO’s South-East Asia Region. Twelve countries including Bangladesh, India and Indonesia contributed to nearly two-thirds of all maternal deaths. India, with an estimated 110,000 deaths, has the highest number in the world. While estimating the 1995 maternal deaths, it was stressed that such estimates should not be used for monitoring, but for drawing attention to the existence and likely dimensions of the problem.

In addition to using MM Ratios as an outcome indicator for measuring maternal mortality, countries have started using other process indicators to monitor and evaluate health systems development, most likely to reduce maternal mortality. Such common indicators include:

1. Proportion of pregnant women receiving antenatal care at least once by skilled health personnel;
2. Proportion of childbirths attended by skilled health personnel;
3. Proportion of women receiving postpartum care by skilled health personnel;
4. Proportion of complicated obstetric admissions compared with all deliveries at health institutions;
5. Proportion of births by Caesarean section, and
6. Proportion of women or pregnant women immunized with tetanus toxoid.

These process indicators are more relevant, since the appropriate health information related to them is generally easier and less expensive to record, collect and analyze, and also more sensitive to health system changes. According to WHO estimates, only 70% of births in the developing world in any given period are preceded by a single antenatal visit. Nearly 38 million women receive no antenatal care.
The universal challenge in maternal care is its unpredictability, especially at the time of delivery. Since life-threatening complications can arise suddenly and without warning, the presence of skilled, knowledgeable personnel at delivery is essential to ensure appropriate management of complications. Skilled health personnel usually attend an average of 53% of births in the developing world. There is evidence of a strong relationship between the level of maternal mortality and the proportion of births attended by skilled health personnel, as clearly indicated in Figure 2.

There is, of course, a clear clinical justification for the presence of a skilled attendant during pregnancy and childbirth, as this may reduce both the incidence of complications of pregnancy and births. As shown in Figure 2 (as of data from 1998 estimates), in DPR Korea where skilled health personnel (doctors and nurses) attended all deliveries either at home, community health clinics or hospitals, the estimated MM Ratio was 35 per 100,000 live births. In contrast, Nepal with 9% of births attended by skilled health personnel (mostly auxiliary midwifery personnel), and usually at home, had a ratio of 830. The estimated MM Ratio for Maldives was 390, where trained health staff (mostly midwifery personnel including trained traditional birth attendants) provided 90% of deliveries. This paradoxical situation needs further investigation.

Empirical studies in many parts of the world indicate that the majority of maternal deaths occur due to five main causes:

1. Haemorrhages (25%);
2. Sepsis (15%);
3. Unsafe abortion (13%);
4. Maternal infections (10%);
5. Other causes (10%).

Figure 2. The relationship between maternal mortality ratios and proportion of births attended by skilled health personnel in SEAR countries, 1998

<table>
<thead>
<tr>
<th>Country</th>
<th>Births attended by skilled health personnel (%)</th>
<th>Maternal mortality ratio (per 100,000 live births)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NEP</td>
<td>9</td>
<td>830</td>
</tr>
<tr>
<td>BAN</td>
<td>13</td>
<td>600</td>
</tr>
<tr>
<td>BHU</td>
<td>34</td>
<td>500</td>
</tr>
<tr>
<td>INO</td>
<td>56</td>
<td>470</td>
</tr>
<tr>
<td>IND</td>
<td>34</td>
<td>440</td>
</tr>
<tr>
<td>MAV</td>
<td>170</td>
<td>390</td>
</tr>
<tr>
<td>MMR</td>
<td>100</td>
<td>35</td>
</tr>
<tr>
<td>SRL</td>
<td>71</td>
<td>44</td>
</tr>
<tr>
<td>THA</td>
<td>60</td>
<td>56</td>
</tr>
<tr>
<td>DPRK</td>
<td>94</td>
<td>56</td>
</tr>
</tbody>
</table>
(4) Hypertensive disorders of pregnancy and eclampsia (12%);
(5) Obstetric labour (8%);
(6) Other direct causes (8%), such as ectopic and molar pregnancies, anaesthetic complications, cerebrovascular accidents, and embolisms, and
(7) Balance (around 20%) due to other indirect obstetric causes like anaemia, malaria, tuberculosis, jaundice, and heart disease, which are aggravated during pregnancy or delivery.

Prolonged and obstructed deliveries are more common in humans than in other primates, because the birth canal of a woman is not straight and wide, but varies in width. If obstructed labour cannot be overcome by manipulation or instrumental delivery, Caesarean delivery is needed. Neglected obstructed labour is a major cause of both maternal and newborn mortality and morbidity. Estimates from surveys showed that almost one-sixth to one-quarter of all women develop complications of pregnancy and childbirth serious enough to require rapid and skilled intervention if the woman is to survive without lifelong disabilities.

**Maternal Morbidity**

Information on maternal morbidity is very scanty in the countries of the Region, mainly due to inconsistent and unclear definition on what constitutes maternal morbidity. In general, maternal morbidity is categorized into three types: (a) direct obstetric morbidity resulting from complications of pregnancy during antenatal, natal and postnatal periods; (b) indirect obstetric morbidity resulting from conditions and diseases aggravated during pregnancy like anaemia, malaria, jaundice, tuberculosis, hypertensive disorders and other cardiovascular diseases or a combination of conditions/diseases; and (c) psychological obstetric morbidity that includes postpartum psychosis or depression and other mental health problems related to pregnancy and childbirth.

During pregnancy, immunity is reduced for various reasons and there is a greater risk of infections than during the non-pregnant period. Severe anaemia in pregnancy is a major obstetric problem in areas with high prevalence of malaria and/or other soil-transmitted helminthic infection. Viral hepatitis is another disease that pregnant women are susceptible to, and also more likely to die due to fulminating form. The management of malaria in pregnant mothers is more difficult as most of the anti-malarial drugs like sulphonamides, pyrimethamine, and mefloquine are contraindicated during pregnancy, especially during the first trimester, to avoid teratogenic effects. Similarly, pregnant mothers are more prone to infections, especially tuberculosis, viral hepatitis, HIV/AIDS and other sexually transmitted diseases.

Infections due to sexually transmitted diseases (STD) during pregnancy have been a major issue, as the diseases affect both the mother and the unborn child. Many babies have been born with diseases infected while they are in their mothers’ wombs or just after delivery. HIV infection is on the rise in the countries of the Region and HIV-infected mothers transfer the virus to the child, mostly at the time of delivery and breastfeeding.
Voluntary testing and counselling during the antenatal period for HIV and other STDs would reduce the disease burden of both mothers and children. Short-course ARV therapy in the last trimester of pregnancy has proved an effective measure to protect mother-to-child-transmission.

Hypertensive disorders of pregnancy and eclampsia are easily diagnosed by measuring blood pressure regularly during the pregnancy, urine testing and clinical observation of seizures or convulsions. Eclampsia is more common among the young women during the first pregnancy, or those with previous abortions, molar pregnancy and family history of high-blood pressure. Adequate antenatal monitoring and timely referral for signs and symptoms of eclampsia could result in a higher percentage (around 65%) of reduction of maternal mortality due to eclampsia.

Low stature of women alone is not responsible for obstructed labour, but malposition and mal-presentation of foetus, maternal pelvis abnormality and prolonged labour are also other causes. Thus, in countries where women live far from health care facilities that can handle obstetric emergencies, they are advised to await the delivery nearer such facilities.

Many mothers suffer from infections of the reproductive tract due to unclean environment and inappropriate care during delivery, which, if not properly managed, can lead to chronic complications and consequences like infertility. Puerperal sepsis or childbirth fever is a common occurrence, greatly feared by women. With the wide availability of antibiotics, many lives have been saved, mostly those with access to appropriate health care.

Uterine infections and their complications are responsible for the majority of deaths from puerperal infection. Unsafe deliveries, delivery by an unskilled birth attendant, and/or the traditional practice of inserting foreign objects and substances during delivery, or lack of appropriate postnatal care are major causes of sepsis and death. Though the actual incidence of puerperal infections in developing countries is not known, the number may be vast with estimates ranging from 5-15 percent. A few mothers getting infections during the postpartum period may die, but most of them suffer complications such as ectopic pregnancy, chronic or acute pelvic inflammatory disease (PID), chronic pelvic pain and low backache, and infertility.

As 61 percent of maternal deaths occur after delivery, appropriate and effective postpartum care is an important element in reducing maternal deaths. Immediate care during the first 4-6 hours after delivery is required to review any postpartum haemorrhage due to uterine atony or retained products of conception. From the limited hospital statistics available, the gynaecological wards of hospitals in developing countries are usually seen to be filled with patients suffering from urine incontinence, recto-vesico-vaginal fistulae, prolapsed vagina and uterus, vaginal discharge and lower abdominal discomfort, which are chronic direct obstetric morbidity conditions of women resulting from complications of childbirth. Such diseases create tremendous psychological trauma and social disability. Many women avoid medical intervention due
to lack of self-confidence and embarrassment. It is estimated that maternal morbidity is 4-8 times higher than maternal deaths.

A retrospective study carried out in 1996 in Southern India using a sample of 3600 women with at least one child below 5 years, found that 10% reported a potentially life-threatening condition during pregnancy, while 23% had at least one postpartum complication which included excessive bleeding, fever, discharge and/or lower abdominal pain.

Infant Deaths

Poor maternal health not only affects the mother but also the infant. There are pronounced intergenerational effects. The same causal factors responsible for maternal mortality and morbidity also affect the infants they are carrying. Of nearly 8 million infant deaths each year, around two-thirds occur during the neonatal period (before the baby is one-month old). Every year there are 5 million neonatal deaths, of which 3.4 million die within the first week of life. The causes of early neonatal deaths are largely the consequences of inadequate or inappropriate care during pregnancy, delivery or the first critical hours after birth.

Pre-term birth (delivery of the baby before reaching the full-term pregnancy) is one of the main causes of perinatal mortality. Another major cause is birth asphyxia and trauma. Other causes of perinatal mortality include poor maternal health due to malnutrition and infections during pregnancy, inadequate and inappropriate management of complications during pregnancy and delivery, poor hygiene during delivery and the first critical hours after birth and lack of newborn care.

Figure 3. Infant mortality rate in WHO SEAR countries 1978 & 1998

It is indeed tragic that when a mother dies either during or just after delivery, her children are also more likely to die. A study in Bangladesh found that if a woman dies after childbirth, her newborn baby is almost certain to die. Another study, also in Bangladesh, found that children up to 10 years whose mothers die are 3 to 10 times more likely to die within two years than children with living mothers. Nevertheless, a significant improvement in child survival has been observed in all countries (see Figure 3). The estimated infant mortality rate, in 1998, ranged from 18 per 1,000 live births in Sri Lanka to 83 in Nepal.

Many studies have shown that the major proportion of infant deaths occur in the early and late neonatal stages. In most countries, information on stillbirths and infant deaths in the perinatal and neonatal period is often not properly recorded and/or reported.

According to a global estimate of perinatal and neonatal mortality for 1999 by WHO, there were 6.9 million perinatal deaths, giving a rate of 52 deaths per 1,000 total births. Neonatal deaths for the same period were around 4 million (with a neonatal death rate of 31 per 1,000 live births). Least developed countries accounted for 98% of perinatal and neonatal deaths. The largest number of these infant deaths took place in Asia, where almost 60% of all births occurred.

The figures given in Table 1 below are estimates and provide an indication of the problem. In the SEA Region, perinatal and neonatal death rates were estimated to be around 67 and 42 per 1,000 live births respectively in 1999. Estimated perinatal mortality rates in SEAR countries ranged from 85 in Myanmar to 20 in Thailand per 1,000 live births, while estimated neonatal mortality rates ranged from 60 in Myanmar to 10 in Thailand per 1,000 live births. Only three countries in the Region (Indonesia, Sri Lanka and Thailand) had perinatal and neonatal mortality rates below the global average.

### Table 1. Estimated perinatal and neonatal mortality rates and numbers by WHO Regions, 1999

<table>
<thead>
<tr>
<th>WHO Region</th>
<th>No. of live births (000)</th>
<th>Perinatal mortality</th>
<th>Neonatal mortality</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Mortality rate</td>
<td>No. of deaths (000)</td>
</tr>
<tr>
<td>Africa</td>
<td>24 415</td>
<td>79</td>
<td>2 035</td>
</tr>
<tr>
<td>Americas</td>
<td>15 542</td>
<td>22</td>
<td>352</td>
</tr>
<tr>
<td>Eastern Mediterranean</td>
<td>15 413</td>
<td>61</td>
<td>966</td>
</tr>
<tr>
<td>Europe</td>
<td>10 502</td>
<td>15</td>
<td>157</td>
</tr>
<tr>
<td>South-East Asia</td>
<td>36 212</td>
<td>67</td>
<td>2 509</td>
</tr>
<tr>
<td>Western Pacific</td>
<td>27 183</td>
<td>32</td>
<td>878</td>
</tr>
<tr>
<td>World</td>
<td>129 595</td>
<td>52</td>
<td>6 905</td>
</tr>
</tbody>
</table>

Many of these deaths can be prevented with simple maternal and child care interventions, like resuscitation of newborns, immediate breastfeeding, keeping the baby warm, cleanliness and hygienic practices during delivery, and early detection and management of newborn illnesses, including use of appropriate antibiotics. The availability of a skilled attendant at birth could not only reduce maternal morbidity and mortality, but also be able to help ensure the survival of infants during the perinatal and neonatal periods.

**Unwanted Pregnancy and Unsafe Abortion**

Unwanted pregnancy and unsafe abortion are persistent problems in the Region. Though accurate information is not readily available, an assessment can be made using the proportion of births reported as being unwanted/unplanned. This information is available for selected countries in Table 2. It indicates that the proportion of unplanned pregnancies would be at least as high as, if were reported as unplanned. WHO estimated that globally 120 to 165 million women, including 12-15 million unmarried women, want to limit or space their pregnancies, but are not using contraception.

A significant proportion of this “unmet need” of women around the world - nearly 75 million unwanted pregnancies, usually results in induced abortion, and very often, unsafe ones. Women who opt for unauthorized facilities and/or unskilled providers face grave risks. Such widespread prevalence of unsafe abortions leads to serious adverse effects on the health of women. Complications following unsafe abortions contribute significantly to the deaths of women, in the prime of their lives, and are major causes of maternal mortality in the Region. Within the sociocultural milieu and legal systems of each country, there is a need to strenuously address this situation. Most countries legally permit medically supervised abortion to save the life of the woman.

<table>
<thead>
<tr>
<th>Country</th>
<th>Total fertility rate</th>
<th>Total wanted fertility rate</th>
<th>Per cent unwanted</th>
<th>Per cent mistimed</th>
<th>Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bangladesh</td>
<td>3.4</td>
<td>2.1</td>
<td>12.9</td>
<td>20.3</td>
<td>1993-94</td>
</tr>
<tr>
<td>Indonesia</td>
<td>3.0</td>
<td>2.5</td>
<td>6.5</td>
<td>15.8</td>
<td>1991</td>
</tr>
<tr>
<td>Sri Lanka</td>
<td>2.7</td>
<td>2.2</td>
<td>12.5</td>
<td>25.6</td>
<td>1987</td>
</tr>
<tr>
<td>Thailand</td>
<td>2.2</td>
<td>1.8</td>
<td>14.2</td>
<td>16.2</td>
<td>1987</td>
</tr>
</tbody>
</table>

Source: WHO SEARO, Regional Health Situation Report, 2001
Marriage and Fertility

Marriage and fertility are the approximate measures of reproductive behaviour and also reflect the risk of pregnancy and child-bearing. Marriage is also used as the proxy indicator for sexual exposure. Mean age at first marriage for females varies from 17.9 to 26.5 in the countries of the Region. Available data from different census periods show that the age at first marriage has increased over the past three decades.

A long-term decline in fertility has been observed globally. The total fertility rate (TFR) is usually used as an indicator for measuring fertility and represents “an average number of children that would be born alive to a woman during her lifetime if she were to bear children at each age in accordance with the prevailing age-specific fertility rates.” The TFR provides a reasonably good measurement of the ultimate family size of a given cohort of women.

According to UN Population Projections (see Figure 4), Bhutan and Maldives have the highest TFR with more than 5 children per woman. The decline in fertility in Bhutan has been marginal during the periods 1950/55-1990/95. The most marked decline occurred in Bangladesh during the same period. DPR Korea, Indonesia, Myanmar and Sri Lanka are already in an advanced stage of fertility transition.

Except Thailand, which reached the replacement level by the early 1990s, all countries of the Region will reach replacement level (2.1 children per woman) during the late 1990s or in the early years of the 21st century. Accordingly, Maldives will reach replacement level during the period 2025-2030, while Bhutan will reach it in another 10-20 years.

The decline in TFR witnessed in the Region is mainly due to the increasing use of modern methods of contraception, in addition to social and economic factors.
The increase in literacy rates, especially among young women, as well as the improvement in child survival has made families realize the benefits of small family size. The strengthening of and support to family planning and birth spacing technology and making it widely available at an affordable cost have led to a significant increase in contraceptive use. This trend is clearer in countries that had low use rates in the 1980s.

Teenage Pregnancy

Teenage pregnancy has become a major public health issue in many countries of the Region. Up to 70% of mortality in adulthood has its roots in adolescence. The childbearing rate among adolescents in SEAR countries ranges from 147 live births per 1000 women aged 15-19 years in Bangladesh to 26 in DPR Korea (Figure 5).

Adolescents in these countries face dual health problems: (a) those associated with early marriage and childbearing and (b) those associated with changing lifestyles.

Many teenaged girls are dying prematurely or suffering chronic gynaecological problems due to illnesses and conditions associated with pregnancy and childbirth that could be prevented. Adolescent mothers are routinely worse off than those who become pregnant much later, since the maternal mortality rate among the 15-19 year age group is twice as much compared to the 20-30 year group. Similarly, babies born to adolescent mothers face a higher risk of death during the first five years of life. Demographic and health surveys have shown that the risk of death before age five is 28 percent higher for children of teenage mothers compared to those whose mothers were aged 20-29 years.

Figure 5: Adolescent childbearing, live births per 1000 women (15-19 years) in WHO SEA Region

Source: WHO/SEARO, Women of South-East Asia - A health profile, 2000
The average age at first marriage in countries of the Region ranges from 17 years in Maldives and Nepal to 24 years in Sri Lanka. The proportion of currently married females in the age group of 15-19 years ranges from 50% in Nepal to 7% in Sri Lanka. In another study, it was shown that two-thirds of women become mothers during their teenage years in Bangladesh, compared to half in India and less than 25 percent in Sri Lanka and Thailand.

Adolescents who are less educated tend to marry and have children early. The percentage of adolescents using contraceptives in the SEA Region varies from 1% to 43%. Many adolescents need help to avoid early pregnancy because generally they do not want to have a child while they are still in their teens. Many such unwanted pregnancies may lead to unsafe abortions. It is obvious that unless comprehensive health promotion and education programmes which enjoy a high degree of political and resource commitment are targeted to adolescent girls, the overall MM Ratio in the Region will not be dented significantly. Adolescents represent an enormous untapped resource. Their energies must be properly tapped and channelled. Effective management of these aspects holds the key to success. Family life skills education programmes have been introduced in many countries and are gaining momentum in getting high-level government commitment.

**Contraceptive Use**

Contraceptive use in the countries of SEAR in 1995 varies from less than 20% to above 70%. While more than 50% of married women (15-49 years) in Indonesia, DPR Korea, Sri Lanka and Thailand used contraception, less than 20% of women of the same age group in Bhutan, Myanmar and Maldives have had it (Figure 6). Whereas India and Bangladesh had moderate rates of contraceptive use (between 40-50%), Nepal’s rate for the same was 28.5%.

![Figure 6. Percentage of married women (15-49 years) currently using any methods of contraception, 2000](image-url)
Most women and their spouses do not have enough knowledge or understanding of human reproduction and also on the use of safe and affordable contraceptive measures. A few women also expressed religious grounds for not practising various contraceptive methods. Some cited difficulty in accessibility of such methods and the opposition by family members including their spouses, as reasons for not practising contraception.

How to reduce maternal illnesses and deaths?

The reproductive health strategy of health development programmes of all countries promotes essential health care packages with priority reproductive health interventions, such as, (i) safe motherhood, including care of the newborn, (ii) family planning/birth spacing, (iii) prevention and management of complications of abortion, (iv) reproductive tract infections (RTI) and other sexually transmitted infections (STI) including HIV infection and infertility, and (v) adolescent reproductive health. The strategy underscores the need at least to provide essential health care in these priority areas at each level of health system by appropriate skilled workers.

All countries of the Region initiated national reproductive health promotion programmes to further enhance the reproductive health activities based on the broad strategy above, specifically focusing on the period of pregnancy, young childhood and adolescence, and more generally, at the family level.

Making pregnancy safer (MPS) is a health sector strategy aimed at reducing the burden of unnecessary death, illness, and disability associated with pregnancy, childbirth and the neonatal period, within the broader context of safe motherhood and reproductive health promotion. The technical foundations of MPS are provided by three evidence-based messages:

- Every pregnancy ought to be wanted.
- All pregnant women and their infants should have access to skilled health care.
- Every woman should be able to reach a functioning health facility to obtain appropriate care when complications arise.

The most effective way of preventing maternal deaths is to provide:

- easy, affordable and effective contraceptive methods to all women of reproductive aged, especially teenaged girls;
- appropriate care during pregnancy; and
- emergency obstetric care including treatment of haemorrhages, infections, hypertension and obstructed labour during delivery.

The coverage of family planning services to all reproductive women or effective maternal health care to be provided during pregnancy or childbirth varies widely in the countries of the Region. All countries have a high coverage (over 70%) for women receiving immunization against tetanus.
However, a much smaller proportion of women have been attended by skilled health workers during pregnancy and childbirth (Figure 7). This illustrates the difficulties in making professional health care available to pregnant women.

The low coverage of skilled attendance during pregnancy and childbirth, especially in Bhutan, India, Bangladesh and Nepal, is a cause of serious concern, as these countries have less than 50% coverage for both aspects. Indonesia has made a major stride in coverage of antenatal care and delivery in recent decades, with the government deploying over 54,000 village-based full-fledged trained midwives all over the country. However, according to the national health survey in Indonesia in 2001, the coverage of delivery by skilled attendance is around 50%. The coverage of delivery at hospitals has also not improved much.

The reason for not receiving appropriate health care during pregnancy and childbirth is not just due to the non-availability of skilled health workers or health care facilities within reachable distance. There are other social, economic and personal factors. The reasons cited in various community health surveys include:

(a) lack of knowledge about available health care services,
(b) seeking health not considered necessary,
(c) feeling of shame or guilt to talk about the problem or show to others of the symptoms and signs related to reproductive health issues including pregnancy and childbirth,
(d) not able to afford to get services (transport, medicines),

![Figure 7. Coverage of antenatal care and births attended by skilled health workers, in SEAR countries, 1990-1997](image)
(e) inconvenient and/or lack of time to visit health workers or facilities,

(f) not permitted to go by husbands, and

(g) poor quality of care at health facilities.

Studies carried out in Nepal and India in the late 1990s, on delays in seeking appropriate obstetric care during delivery, indicated that long distances and lack of transportation to reach nearest health care facilities are major reasons and husbands were responsible for the decision to go or not to go for care. Inadequate communication between patient and provider, poor interpersonal relationships, and inadequate follow-up are aspects of care that are frequently mentioned as major factors for lack of accessibility of care by the women.

The Making Pregnancy Safer (MPS) initiative of WHO is intended to contribute to the world-wide safe motherhood movement by promoting effective and evidence-based interventions targeted at major causes of maternal and new-born morbidity and mortality. Emphasis is placed on addressing the requirements of the health care system for strengthening and identifying actions at the community level needed to ensure that women and their newborns have access to the care they need, when they need it. Particular importance is placed on skilled attendance at delivery and the provision of an appropriate and effective continuum of care.

The MPS initiative will operate at global, regional and country levels, working through national and international partners, inline with WHO’s Country Cooperation Strategies. The initiative represents a key WHO contribution to the new global movement in international health and development, notably poverty reduction strategies, sector-wide approaches and health sector reforms. Its implementation will involve strong links with other health programmes dealing with issues such as HIV/AIDS, malaria, TB, Integrated Management of Childhood Illness, immunization and nutrition.

Member Countries and WHO need to focus on the following areas in order to achieve the objectives:

- To strengthen policy support and capacity to plan, design and implement effective evidence-based technical and health system interventions, as well as to identify the necessary actions at the community level to improve maternal and newborn health.

- To enhance partnerships at global, regional and country levels, to increase resources, promote consistent, ethical and evidence-based policies, and ensure that safe motherhood is kept high on the international and development agenda, and also to maximize available resources and ensure better coordination of maternal and newborn health plans and activities.

- To establish norms and standards and develop tools for maternal and newborn health care, and support countries and partners in adapting them for local use and special circumstances (such as complex emergencies) with a focus on highly vulnerable populations.
• To promote and coordinate research and disseminate findings in areas that are crucial to improve maternal and newborn health.

Conclusion

Thousands of women die everyday due to conditions related to pregnancy and childbirth. While estimating deaths and disabilities due to pregnancy and pregnancy-related conditions and complications is difficult, many countries need to strengthen or enhance their maternal and child health (MCH) programmes, through introduction of new initiatives and innovations in order to alleviate many causal factors. Pregnancy and childbirth have long been viewed as full of risks and not amenable to self-management. The tragedy is that mothers die in their prime and leave behind families, many with young children.

The situation causing grave concern is that young women (at their most active and productive age) are dying due to pregnancy-related conditions, some of them unwanted ones. A majority of pregnant women in rural areas have a higher risk of illness or death due to lack of education, lack of skilled health workers nearer where they live, lack of transportation to the nearest health facilities equipped with emergency obstetric care, or lack of support from their own spouses.

While some countries have been able to achieve a better health status for pregnant women and during childbirth, a few countries have a longer way to go. The challenge of reducing maternal mortality is not a straightforward issue. There is a need for a comprehensive reproductive health strategy, within the overall national health development framework. Among others, it is essential to ensure:

• Skilled health personnel should be available within reach of any community, both in rural and urban areas, in order to provide care during pregnancy and childbirth.

• Transportation and communication facilities must be improved so that people in villages can reach any health care facility, equipped with emergency obstetric care, within one to two hours of travel.

• The social position of women in the family, such as decision for care, decision for child preference, reduction of seclusion, segregation and restriction on physical mobility, reduction of burden (in time and energy spent) for gathering fuel wood or water, etc., need to be addressed through intersectoral interventions.

Every pregnancy is risky and every woman of reproductive age has the right to informed choices. Every pregnant woman should receive essential care during pregnancy and childbirth. Mothers and their cradles with happy and healthy children belong at home and not in graveyards.

Acknowledgement

Useful ideas and suggestions by Professor Dr Kyu Kyu Swe, President, Myanmar Maternal Child Welfare Association of Myanmar, Dr M A L R. Perera, Secretary, Ministry of Health of Sri Lanka, and Dr B D Chataut, Senior Advisor, Ministry of Health of HMG Nepal are highly appreciated in shaping this paper.
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High Maternal Mortality and Morbidity: The Shame of the South-East Asia Region

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It is well known that regional maternal mortality and morbidity is very high. Although Member Countries have made concerted efforts, the problem seems intractable. It also appears that in reality, the problem may be far worse than is indicated by official statistics.

Background

The impression of the first sight of our children at birth is something that will be enduring, indelible in our memories to be cherished as long as we live. The miracle of birth is an experience that health workers never tire of. The birth of a child brings indescribable joy especially to the mother, the father, the family, the community and also the health workers attending the mother antenatally, and during birth. On the contrary, a maternal death is a devastating event for the husband, the family, the community and also the health workers who attended on the mother. The tragedy of a maternal death has been put into verse and song. The well-known singer Nana Mascouri expresses her feelings in one of her songs, where she says, “some times I feel like a motherless child”.

The Context

Preventing maternal mortality is one of the cardinal goals of maternal and child health services and obstetrics. The godfather of the quest to reduce maternal mortality in Sri Lanka is Dr Nalin Rodrigo, the well-respected doyen of obstetricians. In his introduction to the preface to the publication, “maternal deaths in Sri Lanka” he opines, “to obstetricians, maternal mortality is not about numbers. It is about making safe for women, the life enhancing process of giving birth. Safety depends on women’s own ability to seek care and the service providers’ ability to provide timely and quality care. Almost every maternal death is an event that could have been avoided. Such deaths should never have been allowed to happen in the first instance. There was a dramatic drop in the MMR in Sri Lanka, from 1 652 / 100 000 live births in 1945, to 23 in 1996 (1). Although we are proud of the remarkable

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achievements Sri Lanka has made in reducing maternal mortality and morbidity over the past decades, much more remains to be done.

Complex emergencies

During the last two decades, Sri Lanka experienced a complex emergency. Maternal and child health care services were disrupted to a large extent. Antenatal and natal care suffered and maternal mortality in the affected areas was regrettably, estimated at more than thrice in the rest of the country. (2)

Review of maternal deaths

Every maternal death in this country is reviewed at least at two levels if not more. The Medical Officer of Health, who is in charge of the MCH services at the field level, carries out a confidential inquiry into every single maternal death. A committee chaired by the Director-General of Health Services and consisting of high-level officials of the Ministry of Health, representatives of the College of Obstetricians and Gynaecologists (SLOCOG), the provincial administration and family health workers concerned, review every maternal death. In addition, some of the districts and provinces have their own maternal mortality reviews. In most teaching hospitals, it is an annual event. These reviews have given us regular and deep insights into the secular changes in rates as well as the contributory causes of maternal deaths. The findings have been ploughed back into the system to address operational deficiencies. We have found these exhaustive reviews to be extremely useful. Of course, the findings have never, ever, been used for disciplinary purposes.

Review of estimates and causes

There is considerable difficulty, even in developed countries, in recognizing maternal deaths, with consequent under-estimation. The SLOCOG assisted by UNICEF carried out a study to obtain an accurate estimate of maternal deaths in 1996. (3) The study also reviewed the factors contributing to maternal deaths focusing on the patient’s responsibility to seek care and the institutional responsibility to provide care.

By a process of pooling of information from all maternal death reviews, 312 maternal deaths were estimated to have occurred in 1996. This is 3.9 times the number reported by the civil registration system. Some of the reasons for the under-estimation were found to be:

(1) Non-receipt of registration document by Registrar-General’s Department (81 out of 312 deaths).
(2) Inaccurate reporting of cause of deaths. (More than 75% of non-identified deaths).
(3) Errors in coding of causes of deaths (25%).

Categories of causes

A significant 23.7% were indirect causes (commonest heart disease). Anaemia was an important cause in the plantation sector. Postpartum haemorrhage was by far the leading direct cause of death followed by hypertensive disorders of pregnancy. A significant finding was that abortion was the third leading direct cause (the great majority are criminal abortions).
Contributory factors
Deaths were, as expected, predominantly from the disadvantaged and socially marginalized groups. Failure to seek timely care and disregarding of medical advice on contraception, even when affected by life threatening conditions, was a disconcerting finding. Evidently, they disregarded medical advice because of overwhelming domestic problems and paid the supreme penalty. Institutional failures accounted for an unacceptable proportion of deaths.

Study Recommendations
(1) Pooling of information from all maternal death reviews and civil registration system would significantly improve estimates.
(2) Given the high prevalence of indirect maternal deaths, a classification of direct and indirect causes is necessary.
(3) Quality control procedures should be institutionalized to ensure accuracy of coding of causes of deaths.
(4) Pregnancy status should be recorded on death certificates and returns of all women. Deaths of all women who were pregnant or in the postpartum period should be labelled maternal deaths.

Recommendations to reduce maternal deaths
(a) The marginalized population such as those in remote villages, plantations, and areas affected by conflict situations should be targeted.
(b) The patient's responsibility to ensure access to timely and appropriate care should be improved.
(c) Adequate basic essential obstetric care should be provided in peripheral hospitals. Referral services should be strengthened to tackle emergencies.
(d) Postpartum follow-up should be especially improved in resource poor areas.

Conclusion
The lessons learned by us should stand all the regional countries in good stead. Let us resolve to renew our efforts to reduce the tragedy of maternal mortality.

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Emergency Obstetric Care: The Key to Further Reducing Maternal Mortality in Sri Lanka

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Abstract

The maternal mortality rate in Sri Lanka compares favourably with that of other countries in the Region. However, much more can be done to bring down this rate further. With near universal coverage achieved in the area of antenatal care, emphasis should be directed towards providing emergency obstetric care where all basic facilities for childbirth, including instrumental deliveries are provided. In addition, comprehensive emergency obstetric care must be made available in selected centres where mothers needing Caesarean section and blood transfusion are cared for. Improved training to ensure provider skills is necessary for quality emergency obstetric care. For this to be meaningful, availability of comprehensive emergency obstetric care at the referral centres for complications are imperative. Equitable geographical distribution of institutions providing emergency obstetric and neonatal care and quality assurance and audit at relevant levels is important. It is also pertinent to enhance community health and hospital liaison. Legislative and policy actions are necessary for equitable distribution of resources among institutions. Collective action from all concerned will lead to setting and enforcing standards which will go a long way in reducing maternal deaths through the provision of quality emergency obstetric care.

Introduction

"The reason for the higher female mortality in the adult age period may probably be found in early marriages and consequent diminished vitality. There is also no doubt that mortality in child bearing is excessive. It is said that the ascertainment rate of mortality

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in Ceylon is one death to 40 from accouchement against one in 185 in England. The fact that in the vast majority of the cases, the women are without skilled assistance at the time of delivery and that their troubles come upon their unmentionable hovels absolutely devoid of sanitary management strengthens the opinion that in this is to be found a very active cause of female mortality": - Lionel Lee 1891.

One hundred and ten years later, maternal deaths still occur, but instead of women dying in their 'hovels', they now die in hospitals. Several maternal deaths, which occurred in government hospitals, were given prominence by the national media recently. Pregnancy and childbirth are physiological processes. Every maternal death is, therefore, a tragedy and in retrospect, many could have been prevented. These women who die are in the prime of their lives, most often with children and other dependants. A maternal death results in social and economic loss with serious consequences not only for the immediate family, especially her surviving children, but also for her community and the country. Sri Lanka's success in reducing maternal mortality, despite being a developing country, has been hailed in numerous international publications. The maternal mortality rate as reported in 1997 by the Registrar-General was 2.3 per 10,000 live births. Antenatal coverage is almost universal. In 1999, 93% of the births occurred in government institutions, 33% took place in teaching hospitals including the two maternity hospitals. Another 33% occurred in specialist units in other hospitals, while 27% took place in non-specialist units. Only 1% of births took place at home.

Most complications occur at childbirth, and the presence of a professional nurse, midwife or doctor is crucial to take urgent life saving action. Women attended by professionals are less likely to have serious complications and receive treatment early, when the situation can still be controlled. Institutional deliveries are encouraged to ensure that a person with midwifery skills is present at every delivery. In 1999, 106 maternal deaths occurred in government hospitals of which 87.7% were in teaching, provincial and base hospitals where specialist obstetric facilities are available. Hence the question we must ask ourselves is, are the institutions in Sri Lanka where births take place capable of managing obstetric complications, the key life-saving component of maternity care? Emergency obstetric care (EOC) is the term used to describe the elements of obstetric care needed for the management of normal and complicated pregnancy, delivery and the postpartum period. Basic EOC includes administration of antibiotics, oxytocics, anti-convulsants, manual removal of the placenta, removal of retained products, and assisted vaginal delivery with forceps or vacuum extractor. Comprehensive EOC includes all basic EOC functions plus Caesarean section and blood transfusion. Most rural hospitals, maternity units and peripheral units in Sri Lanka do not provide even basic EOC. Women quite rightly seek what is perceived to be the most technically advanced facility available because of concerns about safety. This results in under-utilization of the smaller hospitals and overcrowding of larger hospitals, which places heavy demands on staff in the latter diverting them from managing complicated pregnancies optimally. Sri Lanka has traded
quality for equity of access to health services. While efforts are directed towards ensuring coverage of delivery, antenatal and postnatal care, less attention is paid to the quality of care provided. In fact, a past President of the Sri Lanka College of Obstetricians (SLCOG) observed the need for improvements in the quality of care in hospitals. Quality of care means much more than technology. It is using the available resources to provide the greatest health benefits, with the least health risks, to the greatest number of people.

What needs to be done

Ensure skilled attendants at birth

A person with midwifery skills should be present at every delivery. While there is a shortage of staff of all categories, comparison of staff distribution between and within districts indicates problems of deployment. This requires long-term planning for the country's human resource development. In 1999, of the 90 qualified obstetricians and gynaecologists serving in government hospitals, 22 were based in the Colombo district where only 18% of births take place. Four districts did not have a specialist. Similarly, of the 52 anaesthetists, 24 were in the Colombo district while 12 districts had none. Hence, there is a need to ensure an equitable distribution of staff, particularly of the specialist grade. Moreover, district hospitals have been upgraded to base hospitals, creating a single specialist position. Several of these specialist obstetric units lack the infrastructure for even basic EOC. Even when such facilities are available, in the absence of the consultant, patients are transferred to another institution because junior doctors are not permitted to carry out surgical procedures without supervision. The Post Graduate Institute is currently training more doctors to fill this void of specialists in rural areas.

Only one percent of home deliveries occur in the country, but trained birth attendants perform only half of them. In absolute numbers, this amounts to approximately 1,500 births per year, concentrated in the more marginalized rural districts of the country. At least in these areas, a conscientious and deliberate effort must be made by health managers to provide opportunities for refresher training of community midwives in hospitals. Doing so will enable them to maintain their skills and enhance their confidence to attend to home deliveries when the need arises.

Improve training and ensure provider skills

The two six-month appointments in medicine, surgery, paediatrics or obstetrics and gynaecology undertaken during the internship are inadequate. An increase in the internship period to two years has been recommended in order to cover all four specialities. However, logistic problems such as the shortage of hospital quarters preclude this. On completion of internship, many are posted to district hospitals and other smaller institutions. Approximately 50% of them would not have had any further experience in obstetrics other than their undergraduate training. Junior doctors lacking in confidence in treating obstetric problems unnecessarily transfer patients to larger institutions, contributing to overcrowding. Hence, it is necessary to upgrade the clinical skills of
junior doctors, especially in obstetrics, prior to posting them to such institutions.

**In-service training**

All categories of staff working in institutions and among the community need regular in-service training. Continuing education of public and private sector staff is necessary in order to improve clinical acumen and the management of difficult cases. Health personnel must have a high index of suspicion for conditions like ectopic pregnancy. The specialist obstetrician needs continuing professional development and should be familiar with recent advances in the specialty. Training on interpersonal communication skills is necessary. Behaviour change strategies need to focus not only on the provider’s skills but also on changes in attitude and demeanour. A ‘mother-friendly’ environment needs to be created. A third of all deliveries take place in units manned by non-specialist doctors. Hence there is a clear need to improve their skills and knowledge (8). A training programme towards a diploma in reproductive health should be introduced to address this issue.

**Ensure availability of quality obstetric services at referral centres for complications**

Health authorities should seriously review underutilized rural hospitals, maternity units and peripheral units that do not provide even basic EOC and consider their closure. This will enable diversion of limited resources to hospitals and maternity units, which are used by the community enabling these hospitals to further improve their service. Unfortunately, closure of some of these institutions will not be feasible. Establishing a system to ensure adequate staff is available to manage obstetric emergencies 24 hours a day, including a functioning operating theatre, an anaesthetist and paediatrician is necessary. Staffing is inadequate especially at night (10).

Creating two specialist obstetric units in all base hospitals will ensure that these institutions will provide comprehensive EOC on a daily 24 hours basis. At present, patients requiring comprehensive EOC are transferred to other institutions when the obstetrician is not in station. This results in delay in reaching and receiving appropriate care and in many instances, has cost women their lives. In addition, there should be sufficient numbers of anaesthetists, either consultants or trained doctors, available in these institutions.

Trained medical personnel do not man blood banks after hours except in the National Hospital, Colombo, compelling intern medical officers to cross-match blood for obstetric emergencies. Mismatched blood transfusions have led to maternal deaths, albeit rarely. A proper 24-hour blood transfusion service should be a part of comprehensive EOC.

Ensuring availability and accessibility to quality EOC closer to where people live will no doubt contribute to reducing overcrowding in provincial and teaching hospitals and improving the quality of services provided by these institutions.

**Geographical distribution of institutions providing EOC**

The Presidential Task Force on Health Policy of 1997 recommended the development of
at least one hospital in each district. It is essential that this one hospital should provide comprehensive EOC. Since death from obstetric complications can occur within a few hours, EOC should be easily accessible to the population. The services provided by existing institutions and their accessibility to the catchment population must be ascertained. This would facilitate identifying institutions requiring upgrading to provide comprehensive or basic EOC and those smaller underutilized institutions, which should be closed. Furthermore, variation of the proportion of maternal death between districts can be reduced by such an exercise.

A patient in an institution that does not provide EOC, on developing an obstetric complication, will require transfer to another institution. This invariably leads to delays in providing EOC, sometimes resulting in disastrous consequences. Transport facilities should be available. Prior to transfer, it is necessary to ensure that the other institution is ready to receive the patient. If not, the patient is transferred once more to another institution, adding to the delay. Before transfer, all patients should be stabilized and preferably accompanied by a medical officer. Transfer of patients requiring intensive care or for lack of blood takes place from one district or province to another and even from specialist manned institutions. Setting up intensive care units and blood banks in each district will reduce the transfer of such patients.

The experience in Sri Lanka in relation to ‘waiting homes’ for women who find difficulty in accessing EOC services have had mixed results. Utilization of waiting homes is encouraged in the conflict-affected districts where transport in the night is difficult. However, there have been several instances where mothers have not availed themselves of this facility, mainly due to the reluctance to leave young children alone at home. In such situations, mobilization of community support and male participation in the rearing of children and support of the pregnant mother is crucial to enable the mother to have a safe delivery.

Quality assurance of emergency obstetric and neonatal care

Improving infrastructure

Provision of adequate water supplies and electricity, and repairs to operating theatres would contribute to improvements in quality of care. This would minimize transfers to other institutions and overcrowding, but more importantly, win the confidence of the local community in the institution. A dedicated obstetric operating theatre is necessary. Having to share operating theatre facilities with other specialities may result in delays in providing care.

Strengthen supply logistics

Adequate drugs and other equipment are a prerequisite for providing quality services. Regular maintenance of equipment and training of staff in carrying maintenance is necessary. Satisfactory buffer stocks of essential items should be maintained.

Interdisciplinary cooperation

Health professionals sometimes fail to recognize obvious medical conditions, and inappropriate or late interventions take place.
It is recommended that combined management between physicians and obstetricians are adopted for patients with such conditions.

The Sri Lanka College of Obstetricians and Gynaecologists identified the minimum requirements necessary for an obstetric unit and labour ward including staffing, equipment and drugs. A partogram has been introduced; a step towards improving intrapartum care. Written protocols for the management of obstetric complications have been prepared and would be invaluable as a basis for training and supervision. Infection control measures should be strictly enforced, especially in labour rooms and operating theatres. It is also necessary to develop managerial guidelines on organization of services, human resources, management, training and logistics.

**Strengthening supervision, monitoring and evaluation**

Effective supervision at all levels is necessary. It is also necessary to ensure more involvement of specialist staff in the management of critically ill patients at an early stage. An effective system for monitoring quality of care has to be ensured with better record keeping and data collection with greater emphasis on indicators of quality. Because of the difficulties in measuring maternal mortality, alternate indicators are necessary. Instead of using impact indicators, the use of process indicators focuses specifically on monitoring whether women who develop serious obstetric complications receive the services they need. UNFPA has developed several such indicators for developing countries. However, although indicators such as percentage of deliveries in health institutions or percentage of births attended by trained health attendants are relevant for less developed countries, such indicators are inappropriate in the Sri Lankan context. Process indicators such as, number of institutions per 500,000 population providing basic EOC, case fatality rate and percentage of home deliveries attended by personnel trained in midwifery need to be incorporated into the health management information system.

Annually, the Family Health Bureau audits all maternal deaths. This is a unique system where each maternal death is carefully analyzed to identify the factors that contributed to the death. However, these audit results must be published and disseminated more widely both at the centre and sub-national levels in order to implement the recommendations.

**Enhancing community health and hospital liaison**

Lack of communication between staff at the primary health care level and institutions leads to misunderstanding when patients are referred from the field. The Deputy Provincial Director of Health Service chairs the quarterly review meeting on family planning and maternal and child health for primary health staff. Senior hospital staff should also be included in these meetings. Such meetings at the district level increase communication between the primary health staff and the hospital-based clinical staff. Attendance at these meetings should be made compulsory for health staff. Such meetings can help identify and implement strategies for improvement in such areas as referral, emergency transport. In addition, it is recommended that influential community leaders be also invited to these meetings.
Legislative and policy actions

Equitable distribution of resources among institutions

Reducing maternal mortality is a goal of the Population and Reproductive Health Policy of Sri Lanka [12]. The responsibility for implementing this policy lies largely with the central Ministry of Health. The Thirteenth Amendment to the Constitution of Sri Lanka in 1987 set in motion a process of devolution of power to the provinces. However, the Provincial Councils are dependent on an allocation from the central government to implement these programmes. Provincial health ministries are responsible for health services in their respective areas including the management of institutions ranging from outpatient facilities such as central dispensaries to maternity homes, rural, district, base and provincial hospitals. In recent years, several provincial institutions have been transferred to the control of the central Ministry of Health following re-classification as national or teaching hospitals. Provincial health authorities must guard financial resources available for infrastructure development of institutions identified to provide comprehensive and basic EOC. In addition, the availability of personnel with the skills necessary, functional equipment, drugs and other supplies must be guaranteed.

Setting and enforcing standards

With the gradual expansion of the private sector, it is also necessary to ensure that women deliver in facilities where EOC is available. This matter should receive attention in the review of the legislation of such institutions. Furthermore, there is a need to make those working in both the private and government health sectors accountable for their actions. The public demands it. Protocols and guidelines need to be developed for providing standardized routine maternal care and managing obstetric complications at each level of the health system. The responsibilities of health providers at each level for supervision, deployment and reporting procedures must be defined at the national level [13]. The development and promotion of education and training curricula are important.

Conclusions

The knowledge and skills required to ensure that women give birth in safety exist in Sri Lanka. Sri Lanka has the potential to achieve safe motherhood and reduce its maternal mortality to very low levels comparable with the developed world. Yet, maternal deaths continue to occur. It appears that a majority of maternal deaths occur due to delays in providing EOC. This area has to be addressed urgently in order to maintain and improve the rate of reduction of maternal deaths. The political will to make drastic changes is a prerequisite if maternal deaths are to be reduced significantly. Preventing maternal death and disability is not only a health issue - it is also a moral issue underpinned by the guiding principles of human rights, social responsibility, participation, and equity.

Acknowledgement

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Caesarean Deliveries in Thailand: Cause for Concern

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Abstract
Multi-factorial causes determined the increasing trend of Caesarean Section (CS) rate observed in developed and developing countries. This paper aims to shed light on the trend of CS rate in Thailand during the period of 1990-96, share of hospital delivery by type of hospitals and determinants of CS. Methodology includes sample survey of different types of public and private hospitals and in-depth interviews of key informants in sample public and not-for-profit private hospitals in Bangkok.

The survey response rate was 62%. The result demonstrates a series of hospital birth profiles in Thailand, showing an increased total CS rate from 15.2% in 1990 to 22.4% in 1996. In 1996, private hospitals having the highest rate of 51.5% and not insignificant 18% share of hospital births played a significant contributing role to the total number of Caesarean cases in the country. Private practice in public hospital where patient voluntarily and unofficially pays for personal attendance of prenatal, labour, delivery and post-natal care to obstetricians also contributes to higher CS rate than non-private patients. This prompts us to investigate more into private practice in public hospitals. We propose further research questions to generate more evidence and intervention research to bring down unnecessary CS. Efforts should be made to work closely with the Royal College in order to translate evidence into policy and clinical practices.

Key words: Caesarean, private practices in public hospitals, Thailand,
Introduction

International experiences

There have been a number of reports of international and national differences in Caesarean Section (CS) rates from both developed (1-4) and developing countries (5-7). These reports have highlighted trends over time and CS rate differentials by region, hospital ownership, physician characteristics, patient characteristics and source of payment including insurance coverage. Caesarean section has provided one of the classical illustrations of clinical practice variations, with particular emphasis placed in the research findings on the role played by the financial and time management incentives of the physician.

Many countries have experienced an increase in CS rates over the last few decades. Placek et al (4) demonstrated an increase over time in the CS rate in the US, from 4.5% in 1965 to 17.9% in 1981. They noted the highest rate in the north-east region (20%), in larger hospitals of more than 500 beds (19%), in private hospitals (22%), among patients covered by private insurance plans such as Blue Cross (20%), and among mothers over 35 years old (24.4%). A report by MMWR (2) in 1993 showed that the primary CS rate among American women in recent years had been rather stable, with a slight increase from 16.3% in 1985 to 17.1% in 1991, a 0.8% increase in six years. Total Caesarean rate also increased slightly from 22.7% to 23.5%. This study also reported that proprietary hospitals had the highest rate in 1991 (28.8%) and state-owned hospitals the lowest rate (20.7%).

Most attention has been focused on payment mechanisms related to insurance coverage as a key influence on delivery practices. In the MMWR study (2), patients covered by third party payers such as Blue Cross and Blue Shield had the highest rate (27.6%) compared to the lowest rate among women who could not afford to pay (17.8%). Patient payment status showed much more difference than type of hospital. This confirmed the earlier report by Placek et al (4).

In Brazil, Barros et al (5) showed that higher income women had a higher CS rate (47%) than lower income women (18.5%). The rate was also higher among the insured (54%) than the poor (13%). Obstetric risk did not explain these differences.

Other influences have also been identified. For example, in the Brazilian context, Caesarean Section provided the opportunity for tubal ligation which was not covered by social insurance and was against the law in some provinces. Tubal ligation was said to make up 10% of all indications for Caesarean Section (5). In a study in Chile, having a private obstetrician was associated with much higher CS rates: the obstetrician was committed to attending births in person and scheduling births was a common time management strategy (6).

Patients may not be well aware of clinical implications, as systematic assessment of short and long-term maternal and foetal complications resulting from CS is still lacking. Anecdotal evidence shows that anaesthetic complications are not uncommon. There are risks to mothers: maternal mortality after CS is estimated at 2 to 11 times higher than that after vaginal birth, with infection, pulmonary embolism, anaesthesia accidents, and haemorrhage as
the principal causes (13). Furthermore, financial implications and longer lengths of stay are further considerations, and Caesareans could impede early breastfeeding and immediate mother and baby bonding.

**Thailand experiences**

The CS rate in Thailand has been of increasing concern. Rapid economic growth in the last half of the 1980s and the first half of the 1990s encouraged a considerable expansion of the private health sector (8). Regulatory mechanisms in Thailand are rather weak (9). Apart from the life-time licensing of professionals through the Thai Medical Council, there is little control or monitoring of clinical practice whether by professional organizations such as the Royal Colleges, the Ministry of Public Health (MOPH) or by health care purchaser organizations. There has been considerable concern about excessive service provision in private hospitals and private wards in public hospitals face many of the same incentives to excess provision of services as the pure private sector.

The purpose of this paper is to explore the CS rate by type of hospital in Thailand and to seek to shed some light on reasons for variation, paying particular attention to the policy levers that might help to alter behaviour. The paper, after presenting the methods used, summarizes the results of a national survey of CS rates. It then uses the results of case study and qualitative research to shed light on these variations. In the discussion, similarities and differences between Thailand and other countries are highlighted, and the paper concludes with suggestions on how to change current practices and of further research needs.

**Methodology**

Routine information was not available on mode of delivery, when a national survey of hospital delivery during the period 1990-96 was undertaken (10). Information was obtained from the obstetric records of public (MOPH and other ministries) and private hospitals on the number of live births and mode of delivery (vaginal, forceps, vacuum, Caesarean broken down by primary and secondary) for the period 1990-96. Our assessment demonstrates that clinical indication for CS is not always valid, especially among private cases, when CS was done without adequate clinical indications.

The 647 MOPH district hospitals were sampled using a sampling approach with non-proportional probability to size. This means fewer numbers of larger district hospitals (90 and 120 beds) were taken rather than larger numbers of smaller district hospitals (10 and 30 beds). A sampling fraction of 1.0 for 90 and 120 bed district hospitals, and 1/3, 1/7 and 1/3 for 60, 30 and 10 bed hospitals. A census was done for all other public hospitals and private hospitals of more than 50 beds. Smaller private hospitals do not keep reliable records and were not included not in our survey.

To estimate share of delivery by different hospital types, we blow up the total number of deliveries in each hospital type by the proportion of sample to the total number of hospitals in the country.
Further quantitative and qualitative data were drawn from our study funded by the European Union on payment mechanisms, hospital efficiency and quality of care. Under this project, Caesarean rates in public and private wards in each of three hospital groups in Bangkok (public, for profit private and non-profit private hospitals) were thoroughly investigated. Qualitative information was obtained through various sessions of in-depth interviews with key informants (including nurses, pharmacists, surgeons, obstetricians, and medical directors) to explore the reasons for high Caesarean Section rates and their practice variations. Since obstetricians are generally unwilling to discuss their delivery practices and financial incentives, nurses working in labour and delivery suites and operating rooms were used as key informants. This information was cross-checked by in-depth interviews with several surgeons and the hospital medical director.

**Results**

A total of 344 out of the 554 hospitals approached for the survey returned valid questionnaires, giving an overall response rate of 62% (Table 1). Public and private hospitals had a similar response rate, 63% and 60% respectively.

Total number of deliveries in each type of hospital were blown up into a national figure by using the proportion of sample hospital to total hospital in each category. When compared to the numbers of registered births, the blew-up sample covered 77% of total national births in 1990, and 94% in 1996. However, the 1995 blew up figure was higher than registered births. (Table 2). District and provincial hospitals had equally 30% share of total national births over the period of 1990 to 1996. Private hospitals had a slight increase from 14% in 1990 to 18% in 1996 at the expense of other public hospitals.

**Table 1 Number of hospitals and response rate by hospital type**

<table>
<thead>
<tr>
<th>Hospital type</th>
<th>Total hospitals</th>
<th>Sampling frame</th>
<th>Number of response</th>
<th>% response</th>
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<tr>
<td>MOPH district?</td>
<td>647</td>
<td>195</td>
<td>134</td>
<td>69%</td>
</tr>
<tr>
<td>MOPH provincial</td>
<td>93</td>
<td>93</td>
<td>70</td>
<td>75%</td>
</tr>
<tr>
<td>Other MOPH</td>
<td>14</td>
<td>14</td>
<td>11</td>
<td>79%</td>
</tr>
<tr>
<td>Non-MOPH public</td>
<td>72</td>
<td>72</td>
<td>21</td>
<td>29%</td>
</tr>
<tr>
<td>All public</td>
<td>826</td>
<td>374</td>
<td>236</td>
<td>63%</td>
</tr>
<tr>
<td>Private (&gt;50bed)</td>
<td>180</td>
<td>180</td>
<td>108</td>
<td>60%</td>
</tr>
<tr>
<td>Grand Total</td>
<td>1006</td>
<td>554</td>
<td>344</td>
<td>62%</td>
</tr>
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</table>
Table 2. Percent distribution of deliveries, blown up to national figure, 1990-96

<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>MOPH District</td>
<td>30%</td>
<td>31%</td>
<td>36%</td>
<td>34%</td>
<td>33%</td>
<td>30%</td>
<td>30%</td>
</tr>
<tr>
<td>MOPH Provincial</td>
<td>31%</td>
<td>32%</td>
<td>29%</td>
<td>31%</td>
<td>30%</td>
<td>33%</td>
<td>31%</td>
</tr>
<tr>
<td>Other public hospitals</td>
<td>26%</td>
<td>24%</td>
<td>23%</td>
<td>24%</td>
<td>24%</td>
<td>23%</td>
<td>20%</td>
</tr>
<tr>
<td>All public</td>
<td>86%</td>
<td>87%</td>
<td>89%</td>
<td>89%</td>
<td>86%</td>
<td>86%</td>
<td>82%</td>
</tr>
<tr>
<td>Private (&gt;50 beds)</td>
<td>14%</td>
<td>13%</td>
<td>11%</td>
<td>11%</td>
<td>14%</td>
<td>14%</td>
<td>18%</td>
</tr>
<tr>
<td>Total deliveries</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Blown-up to national figure</td>
<td>716 249</td>
<td>779 189</td>
<td>894 438</td>
<td>872 140</td>
<td>883 056</td>
<td>1 001 249</td>
<td>924 895</td>
</tr>
<tr>
<td>Registered births</td>
<td>934 000</td>
<td>957 223</td>
<td>1 007 127</td>
<td>983 964</td>
<td>970 760</td>
<td>928 956</td>
<td>983 395</td>
</tr>
<tr>
<td>% blow up to total registered births</td>
<td>77%</td>
<td>81%</td>
<td>89%</td>
<td>89%</td>
<td>91%</td>
<td>108%</td>
<td>94%</td>
</tr>
</tbody>
</table>

Caesarean rates 1990-96

Table 3 provides information on the CS rate. In the sample hospitals, Caesarean cases had increased from a total of 58 183 in 1990 to 109 867 in 1996, a 1.9 fold increase in six years. The national average Caesarean rate had rapidly increased from 15.19% in 1990 to 22.44% in 1996, a 7.25% gain in six years. The rate amongst private hospitals was extremely high, at slightly more than half of deliveries in 1996, and had shown the fastest growth: 12.9% in six years. District hospitals had the lowest rate of 7.19% in 1996, a 2% gain over the six year period. MOPH provincial hospitals had a slightly higher rate in 1996 (22.9%) than other public hospitals (21.2%), and also higher growth (8.7%) than other public hospitals (5.3%). The table also shows that the increased Caesarean rate was at the expense of a decreased vaginal delivery rate, from 73.8% in 1990 to 66.8% in 1996. Other types of delivery such as vacuum extraction, forceps and breech extraction had stayed at a more or less constant level over the six year period.

Trends in the primary and secondary CS rates differed amongst the four groups of hospitals during 1990-96. Amongst provincial hospitals, the increase in the secondary rate, 5.2%, was slightly higher than the increase in the primary rate, 3.4%.
Table 3. Primary, secondary and total CS, as percent of sampled hospital deliveries and by type of hospital, Thailand 1990-96

<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MOPH District</td>
<td>5.19</td>
<td>5.42</td>
<td>5.70</td>
<td>5.63</td>
<td>6.15</td>
<td>6.47</td>
<td>7.19</td>
</tr>
<tr>
<td>Primary rate</td>
<td>4.30</td>
<td>4.44</td>
<td>4.65</td>
<td>4.57</td>
<td>4.93</td>
<td>5.00</td>
<td>5.47</td>
</tr>
<tr>
<td>Secondary rate</td>
<td>0.89</td>
<td>0.98</td>
<td>1.05</td>
<td>1.06</td>
<td>1.22</td>
<td>1.47</td>
<td>1.72</td>
</tr>
<tr>
<td>MOPH provincial</td>
<td>14.22</td>
<td>15.26</td>
<td>16.45</td>
<td>18.33</td>
<td>20.17</td>
<td>21.44</td>
<td>22.90</td>
</tr>
<tr>
<td>Primary rate</td>
<td>10.98</td>
<td>11.72</td>
<td>12.53</td>
<td>13.94</td>
<td>15.00</td>
<td>13.25</td>
<td>14.42</td>
</tr>
<tr>
<td>Secondary rate</td>
<td>3.24</td>
<td>3.54</td>
<td>3.92</td>
<td>4.39</td>
<td>5.17</td>
<td>8.19</td>
<td>8.48</td>
</tr>
<tr>
<td>Other public</td>
<td>15.94</td>
<td>16.7</td>
<td>17.6</td>
<td>19.1</td>
<td>20.1</td>
<td>20.2</td>
<td>21.2</td>
</tr>
<tr>
<td>Primary rate</td>
<td>11.36</td>
<td>11.7</td>
<td>12.2</td>
<td>12.8</td>
<td>13.1</td>
<td>13.6</td>
<td>14.1</td>
</tr>
<tr>
<td>Secondary rate</td>
<td>4.58</td>
<td>5.0</td>
<td>5.4</td>
<td>6.2</td>
<td>7.0</td>
<td>6.6</td>
<td>7.1</td>
</tr>
<tr>
<td>Private</td>
<td>38.55</td>
<td>42.0</td>
<td>44.5</td>
<td>46.5</td>
<td>49.2</td>
<td>49.9</td>
<td>51.5</td>
</tr>
<tr>
<td>Primary rate</td>
<td>22.95</td>
<td>25.1</td>
<td>27.1</td>
<td>29.0</td>
<td>31.1</td>
<td>30.9</td>
<td>32.0</td>
</tr>
<tr>
<td>Secondary rate</td>
<td>15.60</td>
<td>16.9</td>
<td>17.3</td>
<td>17.4</td>
<td>18.1</td>
<td>19.0</td>
<td>19.4</td>
</tr>
<tr>
<td>All types of hospitals</td>
<td>15.19</td>
<td>16.0</td>
<td>17.0</td>
<td>18.4</td>
<td>20.0</td>
<td>21.1</td>
<td>22.4</td>
</tr>
<tr>
<td>Primary rate</td>
<td>11.00</td>
<td>11.5</td>
<td>12.2</td>
<td>13.2</td>
<td>14.1</td>
<td>13.4</td>
<td>14.4</td>
</tr>
<tr>
<td>Secondary rate</td>
<td>4.19</td>
<td>4.5</td>
<td>4.8</td>
<td>5.3</td>
<td>5.9</td>
<td>7.7</td>
<td>8.1</td>
</tr>
<tr>
<td>No. of CS cases in sample hospitals</td>
<td>58 183</td>
<td>67 347</td>
<td>76 809</td>
<td>85 274</td>
<td>93 534</td>
<td>105 357</td>
<td>109 867</td>
</tr>
<tr>
<td>Rate of vaginal delivery</td>
<td>73.8</td>
<td>73.6</td>
<td>73.0</td>
<td>71.7</td>
<td>70.6</td>
<td>68.3</td>
<td>66.8</td>
</tr>
<tr>
<td>Other (vacuum, forceps, breech)</td>
<td>11.0</td>
<td>10.4</td>
<td>10.0</td>
<td>9.9</td>
<td>9.5</td>
<td>10.6</td>
<td>10.7</td>
</tr>
</tbody>
</table>

In contrast, the private hospital increase in the primary rate, 9.1%, was significantly higher than the secondary rate increase of 3.8%, suggesting that private hospitals were more aggressive in providing primary Caesareans. It may be that private hospitals had a higher share of first births due to the recent expansion in private hospital capacity and a relatively new clientele, and the preference of multiple parity women to return to the same provider. The primary rate contributed 14.4% and the secondary 8.1% to the national average of 22.4% in 1996.
Table 4 confirms this picture, showing secondary Caesareans as a percent of total Caesarean cases. All public hospitals demonstrated an increase in the share of secondary Caesarean Sections, especially provincial hospitals whose share went from 22.8% in 1990 to 37.0% in 1996, a 14.2% gain in six years. In contrast, private hospitals showed a slight downward trend, from 40.5% in 1990 to 37.7% in 1996, a 2.8% reduction in six years. The higher proportion of primary CS in private hospitals is a determinant of subsequent secondary CS, as “once Caesarean, always Caesarean” is still the norm of obstetric practices.

In order to assess the extent to which the four groups of hospital contributed to the total Caesarean rate, the share of total deliveries in each type of hospital (Table 2) was multiplied by the Caesarean Section rate in that type of hospital (Table 3). The results are shown in Table 5. The Caesarean rate in private hospitals was the highest in 1996 (51.5%), their share in total deliveries was 18%, their contribution to the total Caesarean rate was the highest (9.2%) with an increasing trend, from 5.3% in 1990 to 9.2% in 1996 (Table 6). MOPH provincial hospitals contributed 7.2% of total CS rate, as a result of its high share of hospital deliveries (31%) and relative high Caesarean rate (22.9%). District hospitals, where obstetricians are not posted, contributed the least to the national rate, 2.2% in 1996, despite having a higher share of hospital deliveries (30%) but the CS rate was the lowest (7.2%).

Table 4 Secondary CS as percent of total CS cases, by type of hospital, Thailand 1990-96

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</tr>
</thead>
<tbody>
<tr>
<td>MOPH district hospital</td>
<td>17.16</td>
<td>18.14</td>
<td>18.43</td>
<td>18.81</td>
<td>19.83</td>
<td>22.74</td>
<td>23.89</td>
</tr>
<tr>
<td>MOPH provincial hospitals</td>
<td>22.78</td>
<td>23.19</td>
<td>23.83</td>
<td>23.94</td>
<td>25.64</td>
<td>38.21</td>
<td>37.03</td>
</tr>
<tr>
<td>Other public hospitals</td>
<td>28.75</td>
<td>30.19</td>
<td>30.77</td>
<td>32.77</td>
<td>34.62</td>
<td>32.81</td>
<td>33.62</td>
</tr>
<tr>
<td>Private hospitals</td>
<td>40.47</td>
<td>40.20</td>
<td>38.99</td>
<td>37.50</td>
<td>36.73</td>
<td>38.13</td>
<td>37.72</td>
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<tr>
<td>All hospitals</td>
<td>27.59</td>
<td>28.05</td>
<td>28.33</td>
<td>28.63</td>
<td>29.43</td>
<td>36.39</td>
<td>35.90</td>
</tr>
</tbody>
</table>

Table 5 Distribution of CS rate by type of hospital, Thailand 1990-96

<table>
<thead>
<tr>
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<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>MOPH district hospital</td>
<td>1.6</td>
<td>1.7</td>
<td>2.1</td>
<td>1.9</td>
<td>2.0</td>
<td>2.0</td>
<td>2.2</td>
</tr>
<tr>
<td>MOPH provincial hospitals</td>
<td>4.4</td>
<td>4.9</td>
<td>4.8</td>
<td>5.7</td>
<td>6.0</td>
<td>7.1</td>
<td>7.2</td>
</tr>
<tr>
<td>Other public hospitals</td>
<td>4.1</td>
<td>4.0</td>
<td>4.1</td>
<td>4.6</td>
<td>4.7</td>
<td>4.5</td>
<td>4.3</td>
</tr>
<tr>
<td>Private hospitals</td>
<td>5.3</td>
<td>5.5</td>
<td>4.9</td>
<td>5.2</td>
<td>6.7</td>
<td>7.0</td>
<td>9.2</td>
</tr>
<tr>
<td>Overall CS rate</td>
<td>15.3</td>
<td>16.1</td>
<td>15.9</td>
<td>17.4</td>
<td>19.5</td>
<td>20.6</td>
<td>22.9</td>
</tr>
</tbody>
</table>

Note: share of CS = delivery share * CS rate by type of hospital.
Table 6. CS rates in nine public and private hospitals in Bangkok (1994)

<table>
<thead>
<tr>
<th>Hospital type</th>
<th>Private ward</th>
<th>Public ward</th>
<th>Overall rate</th>
<th>Private to public, folds</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public</td>
<td>52.6</td>
<td>12.7</td>
<td>28.3</td>
<td></td>
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<tr>
<td>Hospital 1</td>
<td>48.9</td>
<td>17.1</td>
<td>27.4</td>
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<tr>
<td>Hospital 2</td>
<td>56.5</td>
<td>8.6</td>
<td>25.0</td>
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<tr>
<td>Hospital 3 (Not available)</td>
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<td>Not available</td>
<td>28.9</td>
<td>Not available</td>
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<tr>
<td>Private for profit</td>
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<td>Not applicable</td>
<td>51.1</td>
<td>Not applicable</td>
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<tr>
<td>Hospital 1</td>
<td>57.3</td>
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<td>57.3</td>
<td>Not applicable</td>
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<td>Hospital 2</td>
<td>41.5</td>
<td>Not applicable</td>
<td>41.5</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Hospital 3</td>
<td>41.3</td>
<td>Not applicable</td>
<td>41.3</td>
<td>Not applicable</td>
</tr>
<tr>
<td>Private not for profit</td>
<td>49.7</td>
<td>18.8</td>
<td>45.3</td>
<td>3</td>
</tr>
<tr>
<td>Hospital 1</td>
<td>46.6</td>
<td>7.5</td>
<td>20.9</td>
<td>6</td>
</tr>
<tr>
<td>Hospital 2</td>
<td>42.7</td>
<td>23.2</td>
<td>39.3</td>
<td>2</td>
</tr>
<tr>
<td>Hospital 3</td>
<td>59.5</td>
<td>Not applicable</td>
<td>59.5</td>
<td>Not applicable</td>
</tr>
</tbody>
</table>

This analysis suggested that efforts should be made to bring down unnecessary CS both in private and MOPH provincial hospitals. Greater understanding was required of what lies behind the relatively high CS rate in MOPH provincial hospitals.

Delivery practice variations in public hospitals

Public hospitals maintain 'private' wards. Private wards provide better privacy and services than 'public' ward, while clinical quality is assumed to be similar. Table 6 draws on the study of nine hospitals in Bangkok (three public, three private for profit and three private for profit hospitals) and shows how CS rates differed between public and private wards within public hospitals. CS rate was four times higher among private wards than public wards in public hospitals and private not for profit hospitals. Similar large gap was observed in private not for profit hospitals. The CS rate in the private wards of the public hospitals was comparable to that in private hospitals.

In-depth interviews with staff of public hospitals were used to obtain some insight into delivery practices, and found that the situation was quite complex. It was found that doctors within public hospitals receive 'private' payments – payments made voluntarily by patients, irrespective of insurance coverage, to obtain extra attention during prenatal, delivery and post-natal care. The level of private payment is usually established through consultation with other pregnant women or generally known custom, and is not reimbursable from any of the insurance or medical benefit schemes. Historically, this cultural practice derives from older times when institutional care and user charges were not well developed, and healers were compensated in kind e.g. rice, chicken, eggs or clothes. Over time, this practice has become more institutionalized. One public hospital closely investigated had informally established a standard rate of 4000 Baht for both Caesarean Sections and normal delivery, applied for all

1 Approximately 160 US dollars in 1997
obstetricians to prevent potential conflicts between senior and junior obstetricians.

The main purpose of this voluntary payment is to obtain personal attendance at delivery by an obstetrician. While it was more likely that these patients would occupy a private room and thus be classified by the hospital as a private patient, this was not always the case and some of these patients would occupy public wards. After being accepted as an obstetrician’s ‘private’ patient, there appeared to be three crucial influences encouraging a Caesarean delivery. Firstly, during prenatal visits, a certain proportion of women is identified where there is a clinical indication favouring a Caesarean Section. This is almost always the case for women who have had previous Caesareans. In some cases, astrological beliefs may lead to a preference for an exact date and time of birth.

Secondly, labour was usually initiated by oxytocin drip early in the morning and labour progress observed either by a nurse or the obstetrician. Women are not well prepared to tolerate labour pain, and receive too little education or advice during prenatal care, so some request a Caesarean as a painless choice. In-depth interviews revealed that most obstetricians do not want to attend vaginal deliveries during the night, so for those where labour does not progress well, the obstetrician may decide on a Caesarean before leaving the hospital at the end of the day. Given the private payment, obstetricians feel obliged to attend or provide services themselves, rather than relying on nursing colleagues.

Thirdly, obstetricians increasingly believe in the effectiveness of surgical and medical technologies, and argue that the stake is too high to allow vaginal deliveries if there is slow progress in labour or foetal distress, especially for better-off women who usually have lower fertility. Key informants who are clinicians, suggested that to some extent, obstetricians are becoming less confident of normal deliveries.

We also observed a variation in practice among not-for-profit private hospitals. The policy of Hospital 1 was to waive surgical fees for CS services in public wards. CS rate was six times higher in private wards that paid a full surgical fee. Public wards in Hospital 2 were on fee for service but the surgical fee is slightly lower than in the private ward, CS rate was half.

The proportion of Caesarean sections amongst obstetricians ‘private’ patients was estimated based on information from key informants in one public hospital (Table 7). In one month, there were 250 deliveries (22%) privately attended out of the total 1,150 deliveries. Among the 250 private patients, 70% received a Caesarean and 30% a vaginal delivery. In contrast, only 8% of non-private patients received a Caesarean, and all of these were justified by clinical conditions. The relative risk of being a private patient and having a Caesarean childbirth was (175/250)/(75/900)=8.4. In-depth interviews showed that almost all private patients occupied private wards. They tended to be higher income government employees including the hospital staff themselves, whereas non-private patients were of lower income or
ignorant of the system that provided greater obstetric attention. Private status assured less waiting at prenatal clinics, delivery by an obstetrician rather than nurses or student nurses, and the majority of CS cases had chosen an elective Caesarean during the prenatal period.

**Discussion**

This paper has identified a high CS rate, 22.4% in 1996 as a cause of considerable concern. The study also documented primary and secondary Caesarean rates among the four types of hospital. The secondary rate was of greater importance among provincial hospitals, whereas the primary rate dominated in private hospitals. Primary section is of the greatest concern, as it strongly influences subsequent CS. In 1990, only 7 out of 20 countries among OECD members had caesarean rates higher than the Thai rate, 15.1% in 1990 \(^1\). They were Australia, Canada, Germany, Italy, Portugal, USA and the Netherlands. The rate in 1990 among private hospitals in Thailand was far higher at 38.6%.

Because of the private sector's substantial share (18%) of total deliveries and the highest CS rate (51.5%), it contributes significantly to the total CS rate, 9.2% in 1996. This is an alarming sign. Contribution by MOPH provincial hospitals plays a second role, 7.2% of total CS in 1996. This study identifies two foci of intervention, first in private hospitals and second on private practices in public provincial hospitals, as there is no obstetrician posted in district hospitals.

A small scale in-depth investigation of private practices in several public hospitals suggested that being in a private ward or private attendance by an obstetrician was an important influence on CS rates. In the hospital demonstrated in Table 7, although a standard fee for private practice was charged at four thousand Baht\(^2\) irrespective of type of delivery, the caesarean rate (70%) was significantly higher than the vaginal rate (30%). This may in part be explained by the higher time cost of a vaginal delivery, which can take 3-4 hours between active labour stage and delivery whereas a non-complicated elective caesarean takes less than an hour. Moreover, when there is more than one privately attended patient in active labour phase at a time that may encourage a Caesarean decision since obstetricians feel bound to provide service him/herself.

This finding of the significance of attendance by an obstetrician who receives a private voluntary payment is similar to that found in the study in Chile, \(^6\) though in the case of Thailand, the payment is an informal one. Voluntary private payment is culturally accepted, however it would not be acceptable if it leads to clinically non-indicated cesarean. Our study could only reflect practice variations between private and non-private pregnant women. The current study does not intend to assess if there is unnecessary caesarean and its magnitude.

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\(^2\) This standard rate was set by head of obstetric department instead of individual obstetrician; this is to prevent conflict between the junior and senior obstetricians.
Table 7. CS rate amongst privately and non-privately attended patients, one public hospital, 1996

<table>
<thead>
<tr>
<th></th>
<th>Cesarean</th>
<th>%</th>
<th>Vaginal</th>
<th>%</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Private patient</td>
<td>175</td>
<td>70</td>
<td>75</td>
<td>30</td>
<td>250</td>
<td>100</td>
</tr>
<tr>
<td>Non-private patient</td>
<td>75</td>
<td>8</td>
<td>825</td>
<td>92</td>
<td>900</td>
<td>100</td>
</tr>
<tr>
<td>Total</td>
<td>250</td>
<td>22</td>
<td>900</td>
<td>78</td>
<td>1,150</td>
<td>100</td>
</tr>
</tbody>
</table>

Conclusion

This study prompts us to further explore in greater depth the impact of and policy towards private practices in public hospitals. Several major research questions emerge from this national survey of delivery practices and exploratory study of private practices in public hospitals. To what extent are occupying a private ward and making a private payment to an obstetrician overlapping influences on CS rates? Is the rate primarily influenced by whether or not the obstetrician is paid privately, or are there other influences related to occupying a private ward (such as being covered by insurance of various types)? What is the level of confidence among non-private patients on the quality of delivery services mainly staffed by nurses and midwives with obstetric backup in public hospitals? What are the decision processes between patients and doctors which result in Caesarean? What is the magnitude of unnecessary Caesarean and what waste of resources is associated with these rates? What approaches might best be employed to address high Caesarean rates in different types of hospitals and for different types of patients? In addition to more understanding on determinants of Caesarean, future research should also consider intervention studies to close the gap of practice variations between the two groups of patients.

Several policy options appear desirable given current knowledge.

1. There is a need to increase awareness among Thai women on the risk and choice between normal delivery and Caesarean. Effective classes should be set up in prenatal clinics for pain management through various methods.

2. If private practice arrangements in public hospitals have to be accepted, then group practices of nurses and obstetricians should be encouraged, so consumers are well informed about choices between normal delivery and CS and its financial and medical implications. If the attending obstetrician is not available, an experienced nurse in the team could assist the normal delivery.

3. Introduction of peer review process and second opinion based on a well accepted clinical guideline including labour progress record, especially for...
primary Caesarean, is suggested, but its effectiveness should be monitored. Trials of Vaginal Birth after Caesarean Section (VBAC) should be initiated, especially in all hospitals with affiliated obstetric resident training programmes. These trials and use of second opinion have had some success in the US \(^2\), \(^13\), \(^14\), \(^15\). A small experiment with VBAC at a teaching hospital \(^16\) showed a 76% success rate, but encountered resistance from professionals and patient anxiety. (4) In private hospitals where patients tend to be better educated, full information on choices and their implications should be provided. Similarly, group practice could be encouraged. (5) Research should accompany changes in clinical practices, we plan to work closely with the Royal College of Obstetrics and Gynaecology to generate more evidence and bring down unnecessary CS. A national consensus conference is being planned for when more evidence is acquired to discuss the issue in public, set a target and introduce realistic strategies to achieve it. Furthermore, further research on the causes of current CS rates will enable further policy options to be identified.

Acknowledgments

The authors wish to thank all public and private hospitals in Thailand for their collaboration in the Survey of Hospital Delivery Patterns in Thailand 1990-96. We acknowledge financial supports by the Health Systems Research Institute and Thailand Research Fund for Senior Research Scholar Programme and the European Commission INCO-DC who funded the Project on "Payment mechanism: efficiency and quality of care", a collaborative research between the Health Systems Research Institute and the London School of Hygiene and Tropical Medicine. Special thanks are due to Professor Tada Yipinsoi, who strongly encouraged us to publish this paper and share the Thai experiences with an international audience.

References


Table 1.7 Number of births, deaths, in migration and out migration from registration record: 1990 - 1999, search August 24, 2002


Communicable Diseases

Compliance with Single-Dose Diethylcarbamazine Citrate (DEC) Mass Treatment Programme for Filariasis in Colombo, Sri Lanka

Dr C R Weerasinghe*, Dr W Abeyewickreme*, Prof. N R de Silva*

Abstract

We assessed the effectiveness of drug distribution and compliance with the mass chemotherapy programme in the Divisional Secretariat (DS) of Colombo. Six Grama Sevaka (GS) divisions and 202 households were randomly selected from the household’s lists of these GS divisions.

One hundred and eighty nine (93.6%) of the occupants were aware of the filariasis control programme, but most were unaware of the rationale for complying. DEC had been collected for 413 individuals, but only 312 had swallowed it, giving a drug collection rate of 49.7% and an overall compliance rate of 37.5%. The 101 persons who received the drug but did not swallow it, offered varying reasons for this: 25(24.7%) forgot, 23(22.8%) thought it unnecessary as they were in good health, 21(20.8%) cited side effects experienced by others, 16(15.8%) were on other medications and feared interactions, 12(11.9%) differed due to various myths and 4(4.0%) feared that the drug had expired. The only significant side effect was giddiness, experienced by 9(2.9%).

The programme propaganda appears to have created widespread awareness of the control activities but does not appear to have convinced the public sufficiently of the benefits of compliance.

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Regional Health Forum – Volume 6, Number 2, 2002 43
Introduction

Lymphatic filariasis affects 120 million people in over 80 countries. It has been estimated that 44 million have visible signs of disease - hydrocele and lymphoedema - and another 76 million have preclinical or internal disease\(^1\). The psychological and social stigmata associated with these aspects of the disease are immense. In spite of the magnitude of the problem, there is now a great sense of optimism about effective control of the disease \(^2\). The International Task Force for Disease Eradication has identified it among the world's six "eradicable" or "potentially eradicable" infectious diseases \(^3\). The World Health Assembly in May 1997 passed a resolution to eliminate the disease as a public health problem worldwide.

Annual or semi-annual treatment with diethylcarbamazine citrate (DEC) is one of the recommended strategies for global elimination of filariasis \(^2\). The efficacy of single dose DEC in reducing microfilaria prevalence and intensity is well proven \(^4,5\), but the success of such elimination programmes is also dependent on factors such as drug distribution and its collection and compliance by recipients \(^6\).

In Sri Lanka, the Health Ministry started a semi-annual single-dose treatment programme at the national level in 1999. Drugs are distributed on set dates at Anti-filarial Clinics and places of importance such as schools and temples, after publicity through the mass media.

Radio commercials, newspaper advertisements, mobile public address systems and posters at important places were the main means of publicity.

As a part of an ongoing study on transmission of infection and disease burden of bancroftian filariasis, the efficacy of drug distribution and compliance with the mass chemotherapy programme was assessed in the Divisional Secretariat (DS) of Colombo in order to evaluate the effectiveness of the programme in reaching the general public.

Methodology

A field survey was carried out in January – May 2001 with the collection of retrospective data from randomly selected households. Six administrative units (Grama Sevaka (GS) divisions) were randomly selected using the computer software EPI Info, from the Colombo DS. Two hundred and two households were randomly selected from the householders' lists of the six GS divisions. All individuals were interviewed, using a pretested structured proforma, to ascertain awareness of the ongoing control programme, compliance in collecting DEC from drug distribution centres in November 2000, and individual compliance in swallowing the recommended dose of DEC. The structured proforma included the following questions:

1. Did you collect the DEC tablets?
2. If no, why not? If yes, did you swallow the DEC tablets?
3. If no, why not? If yes, did you have any side effects?
4. If yes, what were those side effects?

The following rates were calculated:
Drug collection rate = 
\[ \frac{\text{No. obtaining DEC from distribution centre}}{\text{No. eligible for treatment}} \times 100 \]

Compliance rate = 
\[ \frac{\text{No. who took treatment}}{\text{No. eligible for treatment}} \times 100 \]

Results

The survey covered 202 households comprising 832 individuals (excluding children <1 yr, pregnant and lactating mothers) in the GS divisions of Kochchikade North, Kochchikade South, Kettarama, Maradana, Masangas Vidiya and Nawagampura. One hundred and eighty nine (93.6%) chief occupants in the 202 households surveyed were aware of the filariasis control programme, but most were unaware of the rationale for complying. Out of the drug distributing centres, health clinics where routine polio immunizations were carried out showed the best drug collection rates. DEC had been collected for 413 individuals, but only 312 had swallowed it, giving a collection rate of 49.7% and an overall compliance rate of 37.5%.

Drug collection rates were higher among females, while more than 90% of those who swallowed the drugs were children and females.

The 101 persons who received the drug but did not swallow it, offered varying reasons for this: 25(24.7%) forgot, 23(22.8%) thought it unnecessary as they were in good health, 21(20.8%) cited side effects experienced by others such as giddiness, nausea and itching, 16(15.8%) were on other medications and feared interactions due to taking many drugs, 12(11.9%) cited mistaken beliefs (such as DEC being a cause for impotence and infertility) and 4(4.0%) feared that the drug was being distributed free because it had passed its expiry date.

The only significant side effect actually experienced by any of the interviewees was giddiness, reported by 9(2.9%).

Discussion

Most chief occupants were aware of the programme. The propaganda appears adequate in creating awareness of the control programme. However, the benefits of treatment do not seem to be clear enough, since the DEC was not collected by almost half the study population and the overall compliance rate was less than 40%, which is extremely low compared with similar studies (7,8). This may be due to the fact that propaganda stressed only the date and place where the drugs would be distributed and not the benefits of treatment. Most individuals stated that the mobile public addressing
system was very effective in informing the public about the availability of DEC.

There could be several reasons for this low compliance. The general prevalence of filariasis is now much less than it was to be in the past (9), and the more florid manifestations such as elephantiasis and massive hydroceles are rarely seen. This means that filariasis is not a major concern in the minds of the public any more.

In this kind of situation, health education highlighting the long-term benefits of the treatment and specific information about side effects and any probable drug interactions especially with commonly used medications are essential, which may result in better acceptance of the drug and compliance with treatment. However, the severity of side effects caused by DEC is related to mf intensity (10) and with expected reduction in mf prevalence (11) and intensity (12) with each round of treatment, the problem of side effects may subside.

Onchocerciasis control programmes report that even low compliance rates of 30% reduced the mean number of parasites per black fly by 21% each year (13). Therefore the compliance shown in our study will certainly have some beneficial effects on transmission of filariasis. However, simulation model-based predictions show that even at compliance rates of 70%, low-level transmission and new infections will continue (14).

Therefore, aspects such as lack of motivation in collecting DEC and compliance clearly need to be improved in future rounds of DEC mass treatment, so that elimination of filariasis could be achieved in the near future.

Acknowledgements

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References


Control of Hepatitis B Virus Infection in Myanmar: Public Health Issues

Myo Khin*

Abstract

Hepatitis B virus (HBV) infection is considered an important health problem in Myanmar as surveys carried out among different population groups revealed HBsAg carrier rate of 10-12%. Health authorities have taken various steps to reduce the incidence of hepatitis B and hepatitis B-associated chronic liver disease in Myanmar. In that context, interruption of its route of transmission and immunization of the susceptible host are the two main approaches. Research studies indicate that the vertical route of transmission might be the commonest route in Myanmar, although the possibility of horizontal transmission through sharing of razors and toothbrushes, or local customs leading to iatrogenic transmission of HBV infection could exist. In view of that, public education on transmission of HBV and means of interrupting it should be carried out especially focusing on specific high-risk groups. Moreover, to interrupt mother-to-infant transmission of HBV infection, hepatitis B vaccination should be promoted. As Expanded Programme of Immunization (EPI) is a successful public health measure in Myanmar, incorporation of hepatitis B vaccine into the EPI programme will eventually lead to the control of hepatitis B infection in Myanmar.

Introduction

Hepatitis B virus (HBV) infection is a global health problem and it has been estimated by the World Health Organization (WHO) that 2,000 million people (one third of the world's population) have been infected worldwide[1]. Of these, more than 300 million are chronically infected carriers. Of the carriers, 25% are at risk of serious illness and eventual death from cirrhosis or hepatocellular carcinoma (HCC). In Myanmar, it has been estimated that 12% of the population carry HBV and 28/100 000 population could develop HCC[2]. Accordingly, public

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measures to control HBV infection are needed.

Health authorities in Myanmar have taken various steps to control and manage HBV infection. HBV has been regarded as a priority disease in the National Health Plans and the Department of Medical Research (Lower Myanmar) (DMR) has actively participated in activities towards the control of HBV infection in Myanmar and has successfully produced the plasma-derived hepatitis B vaccine to be used in prevention of HBV infection[3].

This paper provides the rationale for measures to be adopted for control of hepatitis B infection with the aim of reducing the incidence of hepatitis B and hepatitis B-associated chronic liver disease in Myanmar.

Prevalence of Hepatitis B Virus Infection

The prevalence of chronic HBV infection is endemic in many countries of Asia and Africa and has been estimated as 2.8% in developing countries and 7.6% in developing countries. HBV infection in the Asia-Pacific region is among the highest in the world, and chronic HBV infection in most of the countries of the Asia-Pacific region is high (>10% prevalence)[4]. However, there is a wide variation of HBV infection in the Asia-Pacific Region. The prevalence is low (<1%) in Australia and New Zealand, 1-5% in Japan, Singapore, India and Thailand, 6-10% in Bangladesh, Indonesia and northern China and highest (>10%) in Taiwan, southern China, Korea, Philippines, Melanesia, Micronesia and Polynesia [5].

Myanmar is also regarded as a country with a high endemicity of HBV infection[2]. One of the earliest reports on hepatitis syndrome in Myanmar was based on the recordings made during the War World II period[6]. However, the first study to highlight the significance of HBV infection was based on patients hospitalized at the Rangoon (now Yangon) General Hospital during 1967. However, the diagnosis of hepatitis B was based on history, clinical features and liver function tests, as serological tests were not available then[7].

The magnitude of the problem of hepatitis B infection in Myanmar was reported in a large scale field study carried out in both lower and upper Myanmar where 10.4% of the study population were found to be seropositive to hepatitis B surface antigen (HBsAg)[8]. Subsequent studies carried out among different population groups revealed HBsAg carrier rate of 10-12%[3]. The studies indicate high endemicity of hepatitis B infection in Myanmar.

Approaches for Effective Control of HBV Infection

Like other infectious diseases, HBV infection is composed of three components, viz an infection source, a susceptible host and an established route of transmission. The source of infection is the blood and body fluids of HBV carriers; the presence of hepatitis B e antigen (HBeAg) and/or HBV-DNA denotes high infectivity. The host's susceptibility is evident by the lack of antibody to HBsAg. Transmission is through mucocutaneous disruption, and is usually vertical during delivery and the perinatal period, although transmission of HBV through horizontal routes, especially during childhood, had been reported. Unsterilized syringes and medical instruments as well as needles used
for ear piercing, tattooing, acupuncture, and unsafe blood and blood products serve as vehicles for transmission of HBV.

The most efficient way to control HBV is to prevent any susceptible person from contracting it, rather than treating those already infected. There are two main approaches to achieving this goal. The first is to interrupt its route of transmission and the second is to immunize the susceptible host. Public health measures should include both and to accomplish such measures, it is essential that health professionals should work closely together with the community.

1. Interruption of HBV transmission

Although the patterns of HBV infection may vary to some extent in different countries, vertical or horizontal transmission is an important factor in determining the outcome of the infection. Infection by HBV in infancy or early childhood usually results in chronic HBV infection [9,10], whereas infection in later life usually causes self-limited acute infections that generally do not result in chronicity. Thus, the most important route of transmission is from mother to neonate; through contact with maternal blood and other body fluids during labour, through colostrum and rarely through breast milk or placental transmission, which is a common route of transmission in areas of hyperendemicity [9]. Even when not infected during the perinatal period, children of HBV-infected mothers remain at high risk of acquiring chronic HBV infection by person-to-person (horizontal) transmission during the first five years of life [10]. Horizontal transmission of HBV during the first five years of life also occurs frequently in populations in which HBV infection is endemic. The risk of chronic infection is age dependent, ranging from 30% to 60% for children 1-5 years of age [11]. Moreover, children infected earlier by the mother may be an important secondary source of infection for younger siblings and other children [12].

Several specific modes of transmission have been identified, including sexual contact, especially among homosexual men and persons with multiple heterosexual partners; parenteral drug use; occupational exposures; household contact with a person who has an acute infection or is a chronic carrier; recipient of unsafe blood and certain blood products; and patients undergoing haemodialysis [13].

In Myanmar, vertical transmission of HBV infection has been demonstrated. It has been shown that 25% of children born to hepatitis B surface antigen positive mothers and up to 60% of children born to HBsAg and HBeAg positive mothers became HBsAg positive within the first year of life [14]. However, there were speculations on the horizontal transmission of HBV infection. Recently, based on a seroepidemiological study on children, it has been reported that the odds of being a HBsAg positive child were twice as high for those who had their ears pierced; more than 3 times for those who had history of viral hepatitis or jaundice in their family members; and approximately more than 16 times for those who shared tooth brushes at home [15].

The findings of differential prevalence of HBsAg positivity among certain populations in Myanmar need to be further examined. The high prevalence of HBsAg among the novices and monks of a monastery in a peri-
urban area in Yangon has been reported and the authors have concluded that it might be due to the common sharing of razors (or thin-done-dah) used for shaving the hair periodically\textsuperscript{[16]}. It has also been reported that certain areas in Myanmar had a relatively higher HBsAg seropositivity rate than the national figure\textsuperscript{[17]}. This intranational variation in the prevalence of HBV infection could be due to ethnic differences or local customs leading to iatrogenic transmission of HBV infection. The factors that could lead to iatrogenic transmission include parenteral drug abuse, tattooing, and acupuncture.

The occupational risk is highlighted by a high prevalence of hepatitis B infection among health personnel\textsuperscript{[18]} and among laboratory workers \textsuperscript{[19]}. The vertical route of transmission might be the commonest route in Myanmar although the possibility of horizontal transmission should be always considered. In the control of HBV infection, interruption of the routes of transmission is an important element. To achieve this component, public education is one of the essential tools; but education of the medical personnel also plays a major role.

2. Public education

It can be divided into two components. The first is to give information to the general public on the sequelae of chronic HBV infection and the second is about prevention, which consists of interrupting the route of transmission and hepatitis B vaccination.

Sequelae of chronic HBV infection can be illustrated by individual cases or by vital statistics. However, care must be taken to avoid over-emphasizing the potential of developing hepatic cirrhosis or HCC, because not all cases that are positive for HBsAg result in hepatic cirrhosis or HCC. Over-emphasizing might give rise to unnecessary anxiety in the large number of people who are positive for HBsAg, whereas an appropriate information and understanding of the possible sequelae of hepatitis B infection will alert and forewarn these people to refrain from habits and behaviours that might aggravate chronic liver disease (such as alcoholic abuse, smoking); and to avoid taking medications containing hormones and/or iron compounds.

Health education on transmission of HBV should be provided to the general public. They should be aware of the possible routes, and means of interrupting the transmission of HBV. Perinatal transmission of HBV by mother-to-infant route should be elaborated and education of women who are HBsAg positive and of reproductive age is particularly important. Horizontal transmission of HBV should be explained and the associated factors (ear piercing; sharing tooth brushes, sharing razors (thin-done-dhar), blood transfusion, intramuscular and intravenous injections) should be highlighted. The risk of iatrogenic transmission through parenteral drug abuse, tattooing, acupuncture, among others should also be explained.

Education of opinion leaders is also important. A correct perception of HBV, ways of prevention and the importance of public health measures to control HBV should be facilitated. Active participation in the activities of the control programme should also be encouraged and welcomed.

Education of specific groups such as promoting the practice of using disposable
razors in all monasteries and at barber shops and hair dressing salons should be carried out.

Education of health personnel is absolutely necessary in the control of diseases. These people can convey the importance of HBV control to the public and they are also the ones providing the means of control. Any hesitation or suspicion will end in strong resistance from the general public. The health personnel should know the natural history, modes of transmission and ways of prevention of HBV. For medical doctors, dental practitioners and nurses, the safety of immunoprophylaxis should be reiterated, strict sterilization of instruments should be practised. For laboratory workers, good laboratory practices should be instituted and maintained. All laboratory personnel should be aware that blood or all body fluids are potentially infectious. They should be tested for HBsAg and if negative, should be immunized.

3. Immunization of the susceptible host

Although interrupting the route of transmission is important in preventing HBV infection, this may work effectively only in horizontal transmission. Mother-to-infant transmission is hard to interrupt. Although Caesarean delivery reportedly decreases perinatal HBV infection[20], it is still controversial.

In Taiwan, hepatitis B vaccination of the newborn babies has been shown to be very effective, especially when HBIG is also given at birth[22], and its efficacy has been confirmed in mass immunization [21]. Moreover, integrating hepatitis B vaccine into childhood vaccination schedules in populations with high rates of childhood infection (e.g., Alaskan Natives and Pacific Islanders) has been shown to interrupt HBV transmission[22]. Worldwide, it has been recommended that in populations in which HBV is acquired during childhood, hepatitis B vaccine should be integrated into routine vaccination schedules for infants, usually as a part of the World Health Organization's Expanded Programme on Immunization [21].

Hepatitis B vaccines have been shown to be very safe when given to infants, children or adults. The most common side effects from hepatitis B vaccination are pain at the injection site and mild to moderate fever. Among children receiving both hepatitis B vaccine and diptheria-tetanus-pertussis (DTP) vaccine, these mild side effects have been observed no more frequently than among children receiving DTP vaccine alone. Moreover, there is no confirmed scientific evidence that hepatitis B vaccine causes chronic illness, including multiple sclerosis, chronic fatigue syndrome, rheumatoid arthritis, or autoimmune diseases. There is also no risk of HBV infection from the vaccine[24].

New hepatitis B infections can be prevented in susceptible persons by immunizing them with hepatitis B vaccine. However, it has become evident that HBV transmission cannot be prevented by vaccinating only the groups at high risk of infection. No current medical treatment will reliably eliminate chronic HBV infection and thus eliminate the source of new infections in susceptible persons. Thus, immunization of newborns with hepatitis B vaccine is an important strategy of control of hepatitis B. Two general types of hepatitis B vaccine have been used widely: plasma-derived vaccines
produced with heat inactivated or chemically inactivated subviral particles derived from plasma collected from chronic carriers of HBsAg and recombinant vaccines produced with HBsAg particles expressed from recombinant DNA in the yeast Saccharomyces cerevisiae. The locally available hepatitis B vaccines in Myanmar; their storage, the immunization schedules, routes and sites of administration, dosage, have been elaborated.[25]

Expanded Programme of Immunization (EPI) is a successful public health measure in Myanmar. Incorporation of hepatitis B vaccine into the EPI programme will lead to the reduction of susceptible hosts. Health education activities on hepatitis B infection should be focused on routes of transmission and corrective measures to disrupt transmission. These two parallel public health activities will eventually lead to the control of hepatitis B infection in Myanmar.

Acknowledgement

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Eradication of Poliomyelitis - Update

VAB Unit, SEARO

Global Update

In 1988, the Forty-first World Health Assembly (WHA41.28) established the goal of the global eradication of poliomyelitis by the end of the year 2000. At that time, at least 125 Member Countries with an estimated 350,000 poliomyelitis cases were occurring. After 11 years, the Fifty-second World Health Assembly in May 1999, called on Member Countries to accelerate eradication activities to interrupt the transmission of wild-type poliovirus and to introduce laboratory containment of wild-type poliovirus.

As a result, the global poliomyelitis campaign eradication continues to make progress towards the goal of a polio-free world. On 21 June 2002, the independent Regional Certification Commission certified the WHO European Region poliomyelitis-free, bringing the total number of such certified regions to three, with a total population of more than 3 billion in 134 countries. By the end of 2002, it will be the lowest number of polio-infected countries and areas ever. Wild-type poliovirus transmission is still prevalent in seven countries (India, Nigeria, Pakistan, Afghanistan, Egypt, Niger and Somalia). (See Figure 1)

Figure 1. Reported cases of poliomyelitis due to transmission of indigenous wild-type poliovirus, by country, in 2002*

* In addition to the countries referred to in this figure, the isolation of wild-type poliovirus from Angolan refugees in Zambia suggests ongoing transmission in Angola during 2002. (Data as of 12 Nov. 2002)

1 EB111/32
India Update

Not a single case of poliomyelitis has been found in the South-East Asia Region (with the exception of India) since November 2000. Poliomyelitis eradication regional initiative needs to ensure that the focus remains firmly on tackling transmission in India, the last source of poliovirus in the Region.

The total number of cases of poliomyelitis paralysis for 2002 exceed that of 2001 in India. Particularly, a major resurgence in the number of cases of poliomyelitis occurs in a few States, accounting for 83% of the total number of global polio cases identified so far in 2002. India is now the number one global priority for the poliomyelitis eradication effort.

The upsurge in the number of cases in India should not be allowed to get the regional strategy off-track. Until transmission can be halted in some districts of Uttar Pradesh (UP) and Bihar, neither the other Indian states nor any other countries in the Region can afford to become complacent.

As of 31 December 2002, 1,458 cases of poliomyelitis have been reported in 146 districts of India, as compared to 268 cases for the whole of 2001 (See Figure 2). The vast majority of cases (over 80%) have occurred in UP, although there is low-level endemic transmission in Bihar. Cases in states outside UP and Bihar are the result of exportation of wild poliovirus from these endemic areas.

![Figure 2. Virus-positive poliomyelitis cases reported in India (as of 31 December 2002)](image-url)
The increased cases in 2002 have been due mainly to a major outbreak of type 1 poliovirus centred in central and eastern UP. This outbreak is the result of reintroduction of wild-type poliovirus from a persistent reservoir in Western UP into East and Central UP, where a large pool of susceptible children had accumulated. This has resulted from the insufficient quality of immunization activities in 2001 and 2002. Children in western UP, particularly in the minority community, consistently missed both routine immunization and supplementary immunization activities (SIA) such as National Immunization Days (NIDs) or Sub-National Immunization Days (SNIDs) and mopping-up immunization. Put in simple terms, too many children in UP have been missed too many times.

Transmission of poliovirus in India could be stopped quickly, provided the barriers to effective immunization coverage and disease surveillance can be overcome.

It was this immunity gap, across the State, which allowed the virus to move out of the reservoir and spread widely.

To their credit in Bihar, the combination of strong political support and oversight of health systems has resulted in systematically higher coverage than in UP. This has led to a lower proportion of missed children and thus some progress.

Major political, managerial and operational barriers remain to be overcome to achieve poliomyelitis eradication in India. Unless these barriers are urgently addressed by the national and state governments (especially in UP) in close cooperation with the poliomyelitis eradication partner organizations, it will be difficult to halt poliomyelitis transmission even in 2003. Poliomyelitis-free States in India, as well as other countries, continue to face a major risk of reintroduction of poliovirus from endemic areas of northern India.

Transmission of poliovirus in India could be stopped quickly, provided the barriers to effective immunization coverage and disease surveillance can be overcome.

**Action**

To make rapid progress in 2003, WHO along with the Government of India, UNICEF, Rotary and the other poliomyelitis eradication partners will have to implement the recommendations of the India Expert Advisory Group.

It is recognized that promoting political ownership will be vital so that the responsibility for poliomyelitis eradication at the national and state levels in India rests firmly with the central, state and local governments. Equally, the implementation of high quality and high intensity supplementary immunization activities in the period January 2003 to February 2004, including additional sub-national immunization rounds in high risk states, could prove pivotal.

For these strategies to work, programme communication will target minority leaders and the under-served community (particularly medical societies, and grass-roots organizations) and aim to bring them fully into the process of planning and implementation of SIAs.
Other countries in the Region have maintained international-standard surveillance and commitment to poliomyelitis eradication activities.

Indonesia, DPR Korea and Sri Lanka held NIDs or SNIDs in late 2002. Synchronized NIDs will be held in India and Nepal in January and February 2003 while Bangladesh plans to hold its NIDs in March and May. Activities in other countries in the Region (Myanmar, Thailand, the Maldives and Bhutan) are being implemented in late 2002 and again in early 2003.

Governments in the Region, supported by WHO and our partners in other agencies, have also made great efforts to enhance regional capacity to implement high quality routine immunization and to strengthen surveillance.

Provided quality gaps are closed, especially in northern India, and there is continual improvement in access to all children under five for vaccination, better immunization coverage along with high quality surveillance should ensure that the South-East Asia Region is in the process of polio-free certification by 2005.
Substance and Drug Abuse: Knowledge, Attitude and Perception of Schoolgoing Adolescents in Bangladesh

Syed Masud Ahmed*, AKM Masud Rana#
Shamim Matin Chowdhury**, Anne Mills, Sara Bennett**

Abstract

Objective: This study explored the knowledge, attitude and perception of school going Bangladeshi adolescents on substance/drug abuse to help develop a preventive health education programme.

Methods: A self-administered questionnaire was used to collect information from 4035 students of Class X aged 15-16 years of 203 secondary schools in six metropolitan cities of Bangladesh during June-July 2001. The schools and students were randomly selected. Data were analyzed to compare the responses between boys and girls and socioeconomic differentials.

Findings: Findings revealed a fair level of knowledge on different aspects of substance/drug abuse among study participants of both sexes, including its harmful effects on the body and society. According to them, the mass media and textbooks played an important role in providing this knowledge. The role of the family and peer networks in the causation, management, and prevention of substance/drug abuse were emphasized by the study participants. The negative image of a drug addict in society is well-established in their minds. However, a small percentage who thought that peer counselling on harmful effects might motivate addicts to give up drug abuse displayed a positive attitude. Reportedly, 5% of the participants appeared to be current smokers, 10% of whom started smoking as early as primary level (Class I to Class V). Perceived reasons for abusing substance/drug included peer pressure, quarrelsome family environment, curiosity, etc.

Conclusion: Peer network and family environment are important determinants of adolescent behaviour related to substances/drug abuse and demand the attention of programme designers for any preventive campaign.

Key Words: Bangladesh, adolescents, drug abuse, substance abuse, tobacco, peer network, BRAC

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Introduction

Drug abuse has been a rising social and economic problem in post-war Bangladesh (1, 2, 3, 4, 5, 6). The number of drug addicts in Bangladesh is estimated to be about two million, of which more than half live in the capital city Dhaka (7). Of concern to the public health professionals and social scientists is the spread of this epidemic among adolescents. This is the period of life for exploration and experimentation - the means by which 'adolescents learn who they are and what they want to do with their lives', and trying out new things and making first-time choices (8, 9). These make adolescents vulnerable to experiment drugs, which is marketed through a wide retail network in the cities. Drug abuse in young people has dire consequences such as unnatural death in the form of homicide or suicide, premature morbidity from STDs, needle-borne infections and noxious agents etc., and accidental injuries (10). High socioeconomic status, lack of academic achievement, disenfranchisement from mainstream activities, 'boredom', peer acceptance, marginalized status, disabling family environment, and personal characteristics (such as high curiosity, tolerance for risk, lack of self-esteem, the need to look older, etc.) are implicated for abuse of drugs by adolescents (11, 12, 13). Family influences in the form of parental use and opinions about tobacco, alcohol and drugs have a profound effect on adolescent drug abuse behaviour (14). The situation is compounded by the rapidly changing social and sexual mores leading to wide permissiveness in society in the last few decades.

Another aspect of the problem is the rapid spread of tobacco smoking among teenagers in Bangladesh, especially males (15). Smoking in peer networks and schools as well as family environment helps in initiating and continuing smoking (16, 17, 18). This is alarming, because tobacco is considered to be a "gateway drug", the use of which may lead to alcohol, marijuana, and other drug abuse (19, 20, 21) and high-risk behaviours (22, 23) in the long term.

In public health practice, the saying goes: prevention is better than cure. It would be much more cost-effective and socially beneficial if the epidemic of substance/drug abuse in Bangladesh could be managed by preventive interventions specifically targeted at the adolescents, based on their knowledge base and mindset. However, very little information is available on this issue in Bangladesh. To bridge this knowledge gap, BRAC, a national NGO, and the Central Treatment Centre for Drug Addicts (CTC), Government of Bangladesh, initiated a joint study to explore the knowledge, attitudes and perceptions of the school going adolescents on substance/drug abuse. World Health Organization (WHO) funded the study, and it was expected that the insight gained from it would help them in designing a preventive campaign for school-age adolescents.

Methodology

This descriptive study involving tenth graders (age 14-17 years) of secondary schools was undertaken in the six metropolitan cities of Bangladesh during June-July 2001. A self-administered semi-structured questionnaire was used for collecting information. A list of all secondary schools in each thana of the six
metropolitan cities was obtained from the Bangladesh Bureau of Educational Statistics (BANBES), Dhaka. Systematic random sampling was done to select two government and two nongovernment schools (one boys and one girls), from each thana, if available. Thus, the final sample included 33 government schools and 170 nongovernment schools. The study was facilitated by trained field enumerators who obtained consent from the school headmaster/mistress, fixed a suitable time in consultation with the class teacher, and administered the research instrument. From among the tenth graders present on the day of the survey, 20 were selected by systematic sampling. They were briefed about the purpose and methods of the survey as well as the contents of the self-administered questionnaire. The participants were assured of the confidentiality of the information provided and also its irrelevance to their academic evaluation. When the facilitators were satisfied that the students understood the procedure and consented to participate, the questionnaires were distributed among them to fill in anonymously within about half-an-hour. The sitting arrangement was such that the students were discouraged from talking or consulting with each other. At the end of the session, the facilitators checked whether all the items were touched, and coded the questionnaire for school type and sex of the participant. Data were analyzed to compare the responses of the boys (n=1890) and the girls (n=2145) and the socioeconomic differentials, where relevant.

The instrument

The self-administered questionnaire was divided into four parts and collected information on the students personal and socioeconomic conditions; knowledge on the nature of addictive drugs/substances, use and mode of intake, harmful effects, etc.; attitudes and perceptions about drug/substance abuse; and in-depth information on tobacco smoking among peer network, respectively.

Results

Prior to the presentation of results, a useful context is provided by a brief profile of the demographic and socioeconomic characteristics of the study participants. Majority of them were Muslim (91%), hailed from nuclear families (68%), and were the first forms of their parents (35%). Ninety-two percent of them resided with their parents. Forty-nine percent of their fathers had about 12 years of schooling, while 52% of their mothers had about eight years of schooling. Service and business were the two most common occupations of the participants’ fathers (49% and 32% respectively) while most of the mothers were engaged in ‘household domestic chores’ (89%).

Knowledge on addictive substances and drugs

The participants appeared to possess a fair level of knowledge about the addictive properties of tobacco, alcohol and drugs commonly available in Bangladesh as well as their harmful effects on the body and mind (Table 1). However, when probed to test the depth of their knowledge, a very small proportion could correctly name the active ingredients in tobacco (27%) and alcohol (9%). Interestingly, not much difference was observed between the responses of the boys and the girls.
Table 1. Knowledge on addicting substances/drugs by sex (%)

<table>
<thead>
<tr>
<th></th>
<th>Boys (n=1890)</th>
<th>Girls (n=2145)</th>
<th>All (n=4035)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Knows that the followings are addictive</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tobacco</td>
<td>77.0</td>
<td>81.4</td>
<td>79.4</td>
</tr>
<tr>
<td>Alcohol</td>
<td>81.8</td>
<td>85.3</td>
<td>83.6</td>
</tr>
<tr>
<td>Ganja</td>
<td>92.2</td>
<td>89.5</td>
<td>90.8</td>
</tr>
<tr>
<td>Heroin</td>
<td>88.2</td>
<td>86.0</td>
<td>87.0</td>
</tr>
<tr>
<td>Codein (phenisidyl syrup)</td>
<td>78.5</td>
<td>67.9</td>
<td>72.9</td>
</tr>
<tr>
<td>O pium</td>
<td>62.3</td>
<td>56.5</td>
<td>59.2</td>
</tr>
<tr>
<td>Tari</td>
<td>50.5</td>
<td>48.8</td>
<td>49.6</td>
</tr>
<tr>
<td>Cocaine</td>
<td>46.9</td>
<td>35.8</td>
<td>41.0</td>
</tr>
<tr>
<td>Harmful effects of tobacco intake*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Chronic cough</td>
<td>57.1</td>
<td>58.6</td>
<td>57.9</td>
</tr>
<tr>
<td>Low vital capacity</td>
<td>39.9</td>
<td>39.7</td>
<td>39.8</td>
</tr>
<tr>
<td>Increased blood pressure</td>
<td>32.4</td>
<td>31.0</td>
<td>31.7</td>
</tr>
<tr>
<td>Lung cancer</td>
<td>77.7</td>
<td>74.4</td>
<td>75.9</td>
</tr>
<tr>
<td>Others</td>
<td>4.4</td>
<td>3.9</td>
<td>4.1</td>
</tr>
<tr>
<td>Don’t know</td>
<td>12.2</td>
<td>11.0</td>
<td>11.6</td>
</tr>
<tr>
<td>Harmful effects of alcohol intake*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Behavioural changes</td>
<td>19.3</td>
<td>21.5</td>
<td>20.5</td>
</tr>
<tr>
<td>Disorientation</td>
<td>35.4</td>
<td>37.9</td>
<td>36.7</td>
</tr>
<tr>
<td>Loss of judgment</td>
<td>45.3</td>
<td>47.8</td>
<td>46.6</td>
</tr>
<tr>
<td>Liver damage</td>
<td>64.7</td>
<td>67.1</td>
<td>66.0</td>
</tr>
<tr>
<td>Sense of guilt</td>
<td>43.4</td>
<td>43.6</td>
<td>43.5</td>
</tr>
<tr>
<td>Others</td>
<td>3.0</td>
<td>2.8</td>
<td>2.9</td>
</tr>
<tr>
<td>Don’t know</td>
<td>16.2</td>
<td>12.3</td>
<td>14.1</td>
</tr>
<tr>
<td>Harmful effects of addictive substances/drugs*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Drowsiness</td>
<td>63.8</td>
<td>74.1</td>
<td>69.3</td>
</tr>
<tr>
<td>Euphoria</td>
<td>18.7</td>
<td>19.0</td>
<td>18.9</td>
</tr>
<tr>
<td>Disorientation</td>
<td>35.0</td>
<td>37.6</td>
<td>36.4</td>
</tr>
<tr>
<td>Abnormal behaviour</td>
<td>56.9</td>
<td>69.7</td>
<td>63.7</td>
</tr>
<tr>
<td>Quarrelsome</td>
<td>22.1</td>
<td>26.8</td>
<td>24.6</td>
</tr>
<tr>
<td>Loss of control over movement</td>
<td>61.0</td>
<td>65.9</td>
<td>63.6</td>
</tr>
<tr>
<td>Others</td>
<td>2.4</td>
<td>2.2</td>
<td>2.3</td>
</tr>
<tr>
<td>Don’t know</td>
<td>26.2</td>
<td>14.1</td>
<td>19.8</td>
</tr>
<tr>
<td>Active ingredient in tobacco (could name correctly: nicotine)</td>
<td>37.5</td>
<td>18.6</td>
<td>27.5</td>
</tr>
<tr>
<td>Active ingredient in alcohol (could name correctly: ethyl alcohol)</td>
<td>13.1</td>
<td>4.7</td>
<td>8.6</td>
</tr>
</tbody>
</table>

* multiple responses considered
Availability, route of intake and source of knowledge

The study participants were quite knowledgeable about the sources of addictive drugs as well as routes of intake (Table 2). Mass media e.g., TV (74%), newspaper (63%) emerged as major source of acquiring the prevalent knowledge on addictive substances/drugs while the importance of textbooks (67%) and peer network (40%) could not be ignored. No appreciable sex difference was seen in most of the above responses.

Table 2. Place of availability, route of intake and source of knowledge on addicting substances/drugs by sex (%)∗

<table>
<thead>
<tr>
<th></th>
<th>Boys (n=1890)</th>
<th>Girls (n=2145)</th>
<th>All (n=4035)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Places where addictive drugs are known to be available</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Slums</td>
<td>54.2</td>
<td>61.5</td>
<td>58.1</td>
</tr>
<tr>
<td>Shops selling cigarettes/betel leaves</td>
<td>30.7</td>
<td>32.5</td>
<td>31.7</td>
</tr>
<tr>
<td>Some specific couriers</td>
<td>38.9</td>
<td>46.3</td>
<td>42.8</td>
</tr>
<tr>
<td>Shops selling traditional medicine</td>
<td>6.7</td>
<td>6.6</td>
<td>6.6</td>
</tr>
<tr>
<td>Pharmacies</td>
<td>16.9</td>
<td>15.0</td>
<td>15.9</td>
</tr>
<tr>
<td>Others</td>
<td>3.5</td>
<td>1.9</td>
<td>2.7</td>
</tr>
<tr>
<td>Don’t know</td>
<td>33.7</td>
<td>25.3</td>
<td>29.2</td>
</tr>
<tr>
<td><strong>Routes of intake</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sniffing</td>
<td>36.0</td>
<td>38.2</td>
<td>37.2</td>
</tr>
<tr>
<td>With cigarettes</td>
<td>54.7</td>
<td>58.1</td>
<td>56.5</td>
</tr>
<tr>
<td>Cigar-like sticks</td>
<td>39.4</td>
<td>42.6</td>
<td>41.1</td>
</tr>
<tr>
<td>Chewing</td>
<td>15.8</td>
<td>17.9</td>
<td>16.9</td>
</tr>
<tr>
<td>Swallowing</td>
<td>29.3</td>
<td>30.0</td>
<td>29.7</td>
</tr>
<tr>
<td>Injecting</td>
<td>57.9</td>
<td>68.5</td>
<td>63.5</td>
</tr>
<tr>
<td>Don’t know</td>
<td>29.5</td>
<td>18.4</td>
<td>23.6</td>
</tr>
<tr>
<td><strong>Source of knowledge</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Text books</td>
<td>65.5</td>
<td>68.9</td>
<td>67.3</td>
</tr>
<tr>
<td>Friends</td>
<td>41.5</td>
<td>37.9</td>
<td>39.6</td>
</tr>
<tr>
<td>Relatives</td>
<td>33.9</td>
<td>43.1</td>
<td>38.8</td>
</tr>
<tr>
<td>Newspaper</td>
<td>64.7</td>
<td>62.3</td>
<td>63.4</td>
</tr>
<tr>
<td>Radio</td>
<td>31.2</td>
<td>35.9</td>
<td>33.7</td>
</tr>
<tr>
<td>Television</td>
<td>71.4</td>
<td>76.7</td>
<td>74.2</td>
</tr>
<tr>
<td>Cinema</td>
<td>31.1</td>
<td>33.4</td>
<td>33.3</td>
</tr>
<tr>
<td>Others</td>
<td>5.0</td>
<td>3.3</td>
<td>4.1</td>
</tr>
</tbody>
</table>

* multiple responses considered
Attitude towards substance/drug abuse

Encouragingly, the participants appeared to be socially conscious in their attitude towards substance/drug abuse (Table 3). Majority of them were aware of the harmful effects of substance/drug abuse on society (86%) and human body (83%) as well as negative image of addicts in society (62%). More than 70% of the participants linked substance/drug abuse to disturbed family peace, while 64% cited it to be responsible for poor academic performance. In response to the question about their ideas regarding kinds of boys and girls who abuse substances/drugs, the participants identified family environment (70%) as the major determinant for susceptibility to such practice. Negligible sex difference was noted among the responses.

Table 3. Stated attitude and susceptibility to substance/drug abuse by sex (%)*

<table>
<thead>
<tr>
<th>Stated attitude</th>
<th>Boys (n=1890)</th>
<th>Girls (n=2145)</th>
<th>All (n=4035)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Harmful to body and mind</td>
<td>83.2</td>
<td>83.0</td>
<td>83.1</td>
</tr>
<tr>
<td>Harmful to society</td>
<td>85.1</td>
<td>86.7</td>
<td>86.0</td>
</tr>
<tr>
<td>Not so harmful</td>
<td>1.6</td>
<td>1.4</td>
<td>1.5</td>
</tr>
<tr>
<td>Sign of growing up</td>
<td>3.8</td>
<td>3.3</td>
<td>3.5</td>
</tr>
<tr>
<td>Spoils study</td>
<td>66.0</td>
<td>63.1</td>
<td>64.5</td>
</tr>
<tr>
<td>Disturbs family peace</td>
<td>68.6</td>
<td>72.9</td>
<td>70.9</td>
</tr>
<tr>
<td>Despised by friend/relatives</td>
<td>62.3</td>
<td>61.1</td>
<td>62.2</td>
</tr>
<tr>
<td>Others</td>
<td>4.0</td>
<td>3.4</td>
<td>3.7</td>
</tr>
<tr>
<td>Don’t know</td>
<td>4.3</td>
<td>2.9</td>
<td>3.6</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Stated susceptibility</th>
<th>Boys (n=1890)</th>
<th>Girls (n=2145)</th>
<th>All (n=4035)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Those who are irregular in study</td>
<td>42.0</td>
<td>39.5</td>
<td>40.7</td>
</tr>
<tr>
<td>Those from affluent families</td>
<td>49.0</td>
<td>50.0</td>
<td>49.6</td>
</tr>
<tr>
<td>Those from unhappy families</td>
<td>65.1</td>
<td>74.5</td>
<td>70.5</td>
</tr>
<tr>
<td>Those without parents/guardians</td>
<td>44.9</td>
<td>48.2</td>
<td>46.6</td>
</tr>
<tr>
<td>Those from families where harsh physical punishment is given</td>
<td>28.0</td>
<td>31.3</td>
<td>29.7</td>
</tr>
<tr>
<td>Others</td>
<td>4.7</td>
<td>3.8</td>
<td>4.2</td>
</tr>
<tr>
<td>Don’t know</td>
<td>12.5</td>
<td>10.5</td>
<td>11.4</td>
</tr>
</tbody>
</table>

* multiple responses considered
The attitude of the participants towards substance/drug abuse to probe further, an unstructured query was placed in the questionnaire about whether they would like to make friends with a person known to be abusing substances/drugs and the reasons thereof. Only a small proportion displayed positive attitude, girls more than the boys, and an equal proportion remained undecided. Of those who responded positively, majority thought that counselling by peers about the harms of drug abuse might motivate addicts to give up the bad habit.

Here we cite two representative comments, one positive and one negative, on this issue respectively:

- “A boy or girl indulges in drug addiction only when s/he has sorrow, and under stress...if we don’t make friends with them, they will feel lonely, especially those without guardians. But, if we make friends with them and make them understand that addiction is not good, it is harmful for you and the country - then they may listen. If we keep away from them, they wouldn’t know”.

- “Because everybody mixes with good boys and girls, but nobody mixes with a person who takes drugs! If I mix with them, I may start taking drugs slowly due to pressure from them...sanctity of my mind and character will be lost. There will be no peace in the family...unnecessarily money will be spent”.

Perceptions about the cause, prevention and curability of substance/drug abuse

We probed participants’ perception about the factors responsible for initiating substances/drug use by the adolescents. Interestingly, the most common factors perceived by them were quarrelsome family environment (68%), pressure from peer group (50%), and frustration (50%) (Table 4). In response to how substance/drug abuse can be prevented, the participants made quite a number of practical suggestions. Interestingly, majority of the participants perceived that drug addiction is completely curable with treatment (56%).

To quote some of their observations on how drug abuse can be prevented:

- “Parents should be cautious about quarrelling before their children...there should be good relations between parents...there should be a peaceful environment in the family.”

- “Parents should not exert pressure for studying...even if someone performs poorly in the exam, s/he should not be scolded badly...”

- “Teachers should equally treat all students...they shouldn’t be hurt before others...”

- “Adults should not smoke or drink in front of the adolescents and children.”
Table 4 Perception about cause, prevention and curability of substance/drug abuse by sex (%)

<table>
<thead>
<tr>
<th>Perceived causes</th>
<th>Boys (n=1890)</th>
<th>Girls (n=2145)</th>
<th>All (n=4035)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curiosity</td>
<td>29.8</td>
<td>27.7</td>
<td>28.7</td>
</tr>
<tr>
<td>Peer pressure</td>
<td>48.3</td>
<td>51.9</td>
<td>50.2</td>
</tr>
<tr>
<td>Recreation</td>
<td>30.3</td>
<td>24.1</td>
<td>27.0</td>
</tr>
<tr>
<td>Release of anxiety, tension</td>
<td>35.6</td>
<td>41.4</td>
<td>38.7</td>
</tr>
<tr>
<td>Frustration</td>
<td>48.0</td>
<td>52.1</td>
<td>50.2</td>
</tr>
<tr>
<td>Lack of peace in family</td>
<td>63.2</td>
<td>72.5</td>
<td>68.2</td>
</tr>
<tr>
<td>Poor performance in study</td>
<td>25.3</td>
<td>27.9</td>
<td>26.7</td>
</tr>
<tr>
<td>Others</td>
<td>3.0</td>
<td>1.6</td>
<td>2.2</td>
</tr>
<tr>
<td>Don’t know</td>
<td>14.2</td>
<td>11.4</td>
<td>12.7</td>
</tr>
</tbody>
</table>

| Perception about prevention           |               |               |              |
| Preventive health and social         | 31.8          | 27.3           | 29.4         |
| awareness education                  |               |               |              |
| Close and effective parental         | 23.3          | 18.6           | 20.8         |
| supervision                          |               |               |              |
| Good family environment with         | 10.5          | 15.2           | 13.2         |
| healthy interpersonal relations      |               |               |              |
| Stringent regulatory measures        | 6.3           | 5.5            | 5.9          |
| Avoiding physical/mental punishment  | 1.2           | 1.2            | 1.2          |
| Don’t know                            | 26.9          | 31.8           | 29.5         |

| Perception about cure                 |               |               |              |
| Completely curable                    | 56.7          | 54.5           | 55.6         |
| Not curable                           | 19.3          | 21.9           | 20.7         |
| Don’t know                            | 24.0          | 23.6           | 23.8         |
In this section, we will present some findings from in-depth probing on tobacco smoking (Table 5). Reportedly, around 26% of the participants’ friends currently smoke, more boys than girls. Around 43% of the participants stated that at least a member in the family, mostly father, was a smoker.

**Table 5** In-depth probing on tobacco smoking by sex (%)

<table>
<thead>
<tr>
<th></th>
<th>Boys</th>
<th>Girls</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Do any of your friends currently smoke?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>45.5</td>
<td>9.7</td>
<td>26.5</td>
</tr>
<tr>
<td>No</td>
<td>39.6</td>
<td>79.4</td>
<td>60.7</td>
</tr>
<tr>
<td>Don’t know</td>
<td>14.9</td>
<td>10.9</td>
<td>12.8</td>
</tr>
<tr>
<td>Is there any smoker in your family?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>48.0</td>
<td>39.1</td>
<td>43.2</td>
</tr>
<tr>
<td>No</td>
<td>49.9</td>
<td>59.0</td>
<td>54.7</td>
</tr>
<tr>
<td>Don’t know</td>
<td>2.1</td>
<td>2.0</td>
<td>2.0</td>
</tr>
<tr>
<td>Whether you ever smoked in the past?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>19.6</td>
<td>3.2</td>
<td>10.9</td>
</tr>
<tr>
<td>No</td>
<td>80.4</td>
<td>96.8</td>
<td>88.1</td>
</tr>
<tr>
<td>Whether you currently smoke?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes, regularly</td>
<td>1.6</td>
<td>0.1</td>
<td>0.8</td>
</tr>
<tr>
<td>Yes, irregularly</td>
<td>9.6</td>
<td>0.7</td>
<td>4.9</td>
</tr>
<tr>
<td>No</td>
<td>88.8</td>
<td>99.2</td>
<td>94.3</td>
</tr>
<tr>
<td>From which class you started smoking?</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Class I to Class V</td>
<td>9.6</td>
<td>9.1</td>
<td>6.4</td>
</tr>
<tr>
<td>Class VI to Class VIII</td>
<td>33.2</td>
<td>36.4</td>
<td>33.0</td>
</tr>
<tr>
<td>Class IX/Class X</td>
<td>57.2</td>
<td>54.5</td>
<td>60.6</td>
</tr>
<tr>
<td>Reasons for smoking first time</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Peer pressure</td>
<td>39.2</td>
<td>20.0</td>
<td>36.9</td>
</tr>
<tr>
<td>Curiosity</td>
<td>27.8</td>
<td>45.7</td>
<td>30.0</td>
</tr>
<tr>
<td>Entertainment</td>
<td>15.3</td>
<td>14.3</td>
<td>15.2</td>
</tr>
<tr>
<td>Relieve of anxiety, tension</td>
<td>3.1</td>
<td>2.9</td>
<td>3.1</td>
</tr>
<tr>
<td>Motivated by advertisement</td>
<td>2.0</td>
<td>2.9</td>
<td>2.1</td>
</tr>
<tr>
<td>Other(s)</td>
<td>10.2</td>
<td>8.6</td>
<td>10.0</td>
</tr>
<tr>
<td>Don’t know</td>
<td>2.4</td>
<td>5.7</td>
<td>2.8</td>
</tr>
</tbody>
</table>

n 1890 2145 4035
When probed specifically about the participant's own tobacco habit, 11% were found to be long term smokers while only 6% revealed themselves as current smokers, regular or irregular. In both instances, boys greatly out-proportioned girls. Majority of the current smokers started smoking from Class IX/Class X, and about 9% started as early as at the primary level. There was not much difference between boys and girls in this regard. The respondents stated peer pressure, curiosity, and entertainment to be the three most common reasons underlying their experimentation with smoking. Interestingly, ‘current smoker’ status was positively associated with father's occupation in business/trade, mother's schooling under 12 years, presence of a smoker in the family, lack of congenial relationship between parents, co-residence with someone other than parents, and poor academic achievement (not shown).

Discussion

Drug abuse among adolescents is an emerging public health and social problem in Bangladesh. Though majority of the adolescents come out of this period relatively unharmed, some of them fall prey to the curse of drug abuse and addiction that disadvantage them for the rest of their lives. However, if preventive health education and behaviour modification programmes are to be effective, 'an understanding of current prevailing behaviours, attitudes and subjective norms is required' (24). This will help set enlightened life-style patterns in them because 'teenagers are ready to change if they perceive that the reasons to change outweigh the reasons not to change' (25). To help design a culturally acceptable preventive health and behaviour modification campaign on substance/drug abuse for the adolescents, this study explored the level of knowledge, attitude and perception of tenth graders studying in various schools in the six metropolitan cities of Bangladesh.

This study has two important limitations. First, most of the schools studied were from the large cities, including some from peri-urban areas. Thus, the findings largely reflect the situation in the urban and peri-urban areas, and not necessarily the rural areas. Secondly, this study covered only the secular schools and the religious schools were excluded due to constraint in time and resources.

It is encouraging to note that the study participants have a fairly good level of knowledge on different aspects of substance/drug abuse/addiction, irrespective of sex. However, when probed, a lack in depth of knowledge was noted. Attempts to fill-in this knowledge gap in a balanced way (e.g., what information to give? how much to give...without raising craving for experimentation...) remain a challenge for programme designers. Interestingly, the knowledge level of the participants was found to be positively associated with the level of mother's education and father's involvement in white-collared occupation (not shown). Thus, the gain in knowledge might be related to improved access to the mass media resulting from economic solvency, and perhaps also, an enlightened environment in the family.
As revealed, the mass media and the textbooks played a key role in developing the existing knowledge base of the participants and presumably, are responsible for smoothing out any difference between boys and girls. Also, the perceived importance of the role of family in causing, managing and preventing drug-related problems pinpoints the areas of focus for any preventive campaign. The study established peer group as an important determinant of adolescent behaviour related to substances/drug abuse and needs the attention of programme designers for behaviour modification interventions.

The negative image of the drug addict in the society is well established in the mind of the participants and this appeared to be a strong deterrent for adopting this risky behaviour by adolescents. Any preventive campaign can take advantage of this fact and strengthen this image to discourage future abusers. It is interesting to note that, of those who responded positively with respect to making friends with a known abuser, the majority were willing to help that person get rid of this practice. Thus, these types of adolescents with a compassionate attitude may be used as peer counsellors in any preventive campaign against drug abuse effectively. The participants’ strong perception about the curability of drug addiction is another added advantage in this respect.

However, there are reasons for concern too. The existence of tobacco smoking among the study participants at an early age is a matter of concern because “using tobacco (and alcohol) at a younger age increases the risk of using other drugs later” \(^{(26)}\). This period of mid-adolescence (14 to 17 years), the age of rebellion \(^{(27)}\), is characterized by their reliance on peers for guidance and the belief that they and the peers are infallible and right, besides rejection of authority and perceived flaws in parents and other adults \(^{(28)}\). This is also the age of experimenting, exploring and discovering new things, and these are part of growing up into an adult. Peer pressure to consume substances/drugs at this age satisfies this need and adolescents easily fall victim, especially to tobacco consumption. The school-going adolescents pass a large part of their day in schools and as the study revealed, they are sometimes subjected to peer pressure for experimentation with tobacco or other substances. Given the importance of tobacco as a gateway drug for substance/drug abuse, the preventive campaign should aim at ‘tobacco-free school’ with active cooperation from the teachers. For this, awareness-building campaign among the teachers is also needed. Also, the role of family members and family environment in the case of tobacco smoking is reiterated in this study. Any preventive health campaign on substance/drug abuse/addiction should take note of these and offer alternate ways of satisfying adolescents’ needs and use their leisure productively, especially within the family environment.

In conclusion, it can be said that peer network, and school and family environment are important determinants of adolescent behaviour related to substances/drug abuse and demand the attention of programme designers for preventive health education and behaviour modification intervention. Balanced fulfilling of the adolescents’ knowledge gap,
keeping family in the focus, ‘tobacco-free school’ initiative, strategies to include working adolescents from the poorer section of the society, innovative use of mass media and mainstreaming the problem in textbooks, participatory involvement of adolescents as peer educators, etc. may be some effective components of such an intervention.

Acknowledgments

We thank Brig QMS Hafiz, National Programme Officer, WHO for his personal interest and initiative in getting this study underway. The authors gratefully acknowledge the cooperation of the teachers and the students of the different schools in conducting the study. Thanks are also due to Dr Abdullahel Hadi, Mr Fazlul Karim and Dr Mohammad Rafi of the Research and Evaluation Division, BRAC for giving valuable comments on an earlier version of the paper. Hasan Sharif Ahmed did a painstaking job of editing the manuscript. The authors also appreciate the hard work put in by the members of the study team.

References


SEARO Notes and News

World Health Report 2002

World Health Report 2002 was released in Geneva on 31 October by the Director-General, Dr Brundtland. The report measures the amount of disease, disability and death in the world today that can be attributed to some of the most important risks to human health. It then goes on to calculate how much of this present burden could be avoided in the next 20 years. The report shows that a relatively small number of risks cause a huge number of premature deaths and account for a very large share of the global burden of disease. Reducing these risks would result in significant gains in healthy life expectancy for people in all countries. These gains could be achieved through the greater use of existing cost-effective interventions and population-wide risk reduction strategies.

The 20 major risks examined in the Report range from underweight and unsafe water, sanitation and hygiene, to high cholesterol, high blood pressure, tobacco and obesity. The findings give an intriguing - and alarming - insight into not just the current causes of disease and death and the factors underlying them, but also into human behaviour and how it may be changing around the world.

World Report on Violence and Health

The World Report on Violence and Health is the first comprehensive report of its kind to address violence as a global public health problem. Violence kills more than 1.6 million people every year. Public health experts say these statistics are just the tip of the iceberg with the majority of violent acts being committed behind closed doors and going largely unreported. The death and disability caused by violence make it one of the leading public health issues of our time, says the report. Violence is among the leading causes of death for people aged 15-44 years of age, accounting for 14% of deaths among males and 7% of deaths among females. On an average day, 1424 people are killed in acts of homicide - almost one person every minute. Roughly one person commits suicide every 40 seconds. About 35 people are killed every hour as a direct result of armed conflict.

“The Report challenges us in many respects. It forces us to reach beyond our notions of what is acceptable and comfortable to challenge notions that acts of
violence are simply matters of family privacy, individual choice, or inevitable facets of life, said Dr Gro Harlem Brundtland, Director-General while releasing the report. "Violence is a complex problem related to patterns of thought and behaviour that are shaped by a multitude of forces within our families and communities, forces that can also transcend national borders, she added.

The Report focuses not only on the scale of the problem, but also covers issues related to the causes of violence and the methods for preventing violence and reducing its adverse health and social consequences.

The statistics are chilling, but the situation is far from hopeless, say the experts. Among the recommendations for prevention made in the Report are primary prevention responses such as preschool and social development programmes for children and adolescents, parent training and support programmes and measures to reduce firearm injuries and improve firearm safety. Other recommendations include strengthening responses for victims of violence, promoting adherence to international treaties and laws, and improving data collection on violence.

State of the World’s Vaccines and Immunization Report

The first edition of this book was published by WHO and UNICEF in 1996. In the intervening years, much has happened in the field of vaccines and immunization. WHO, UNICEF and the World Bank have now produced a second version examines the progress made in the field of immunization and presents the remaining challenges of the access gaps and emerging and neglected diseases. It identifies hopes for the future, and some of the gaps that need to be bridged before the world is free of vaccine-preventable diseases.

This comprehensive Report highlights the importance of immunization as one of the most effective public health interventions ever and advocates for international support to accelerate progress for child health and disease control in developing and industrialized countries.

It also outlines the vaccines research agenda for the 21st century, including the expanding role of alliances between the public and private sectors. The Report’s conclusions offer policy options for promoting more effective investment into immunization systems and a global health agenda in the area of vaccines.

55th Session of the Regional Committee

The 55th Session of WHO’s Regional Committee for South-East Asia concluded with a call for a strong commitment and joint endeavours by the Member States. It noted with satisfaction the progress in the implementation of WHO’s collaborative programmes and activities in the Region. The three-day meeting was inaugurated by His Excellency Dr Achmad Sujudi, Minister of Health, Government of the Republic of Indonesia and attended by representatives of the ten Member Countries, UN Agencies, and nongovernmental organizations in relation with WHO. A representative from the newly independent Timor Leste attended as an Observer.
Dr Achmad Sujudi (Indonesia) was elected Chairman and Dr Sangay Thinley (Bhutan) Vice-chairman of the Session. The WHO Director-General, Dr Gro Harlem Brundtland, addressed the inaugural session.

The Committee expressed concern at the threat posed by advertisement campaigns promoting tobacco use, unhealthy foods and lifestyles. It called for a curb on such practices and suggested an intersectoral Ministerial meeting for tackling these problems.

The Committee recognized the need for effective management of decentralization of health care. It urged Member States to ensure equity in access and efficiency of quality health care while implementing national policies, strategies and plans for decentralization.

The Committee noted that accessibility to essential medicines for all citizens in the Region requires national commitment for specific regulations and actions. It urged Member States to strengthen national mechanisms for the use of essential medicines lists and to use prequalification in drug procurement systems to ensure quality. It requested WHO to provide technical assistance to Member Countries to strengthen their Drug Regulatory Authorities, and to facilitate the development of the regional bulk purchases schemes.

HIV/AIDS, Malaria and TB were subjects that received much attention. On the one hand the Committee commended the technical support provided by WHO in obtaining resources from the Global Fund for AIDS TB and Malaria. It sought priority on research to prevent mother-to-child transmission of HIV/AIDS, development of vaccines, and local production of antiretroviral drugs at affordable prices. The Committee urged for WHO technical support to prevent HIV/AIDS through injected drug usage. While noting the successful inter-regional collaboration in malaria control in the Mekong basin area, the Committee urged similar collaboration for HIV/AIDS prevention and control.

The Committee expressed concern about arsenic poisoning, and noted that control of arsenic poisoning had been included as among the 14 regional priority health issues, and was a subject discussed at the WHO South-East Asia Advisory Committee for Health Research.

While appreciating WHO’s support on rapid response to health emergencies, the Committee noted that national disaster preparedness and emergency programmes needed to be further developed and strengthened.

The Committee discussed several other communicable diseases and noted the considerable progress achieved in polio eradication. It called for accelerated implementation of DOTS for effective control of tuberculosis; a more coordinated approach for control of dengue and dengue hemorrhagic fever; cost effective drugs, without side effects, for kala-azar, and the need to tackle the subjects of vaccine cost and the questionable quality, which were impediments in the control of Japanese encephalitis.

The Committee also urged WHO to support Member countries to overcome problems related to health sector reforms, and to address issues linked to human
resources development like quality, accreditation and relevant training programmes in management.

The Regional Committee noted that the 56th Session of the Regional Committee in September 2003 would be held at the WHO Regional office in New Delhi. It also accepted the invitation of the Government of the Republic of Maldives to host the 57th Session of the Regional Committee in September 2004.

**Tobacco Atlas**

A new Tobacco Atlas has been brought out by WHO, which presents a visual view of this galloping worldwide epidemic. The Atlas provides detailed data from countries on the differences and similarities of the global tobacco control struggle. The comparative data shows that action - or inaction - of one country can affect the work of another. "The Tobacco Atlas highlights, in an educational and creative fashion, diverse features of this important global epidemic," said Dr Gro Harlem Brundtland, Director-General, WHO. "Its simple presentation of complex epidemiological and statistical information allows everybody to understand the facts and use them effectively."

The Atlas is being promoted as a tool for policy-makers as they seek to formulate national and international regulations on tobacco control. Tobacco consumption is increasing all over the world and will kill 8.4 million people a year by 2020 if drastic control measures are not put into effect.

The Tobacco Atlas, produced in collaboration with the Centres for Disease Control and Prevention (CDC) in Atlanta, USA, provides a unique statistical profile of the epidemic. Visual presentations, such as colour maps and graphics, make thousands of statistics spring to life on a variety of tobacco issues. Among the presentations are similarities and differences between countries, the conduct of the tobacco companies, gender differences in tobacco consumption, and investments by tobacco industry, the costs of tobacco use and illicit trade and litigation.

"Action taken today will determine the reality of tomorrow. The Atlas is a valuable resource in fighting the tobacco epidemic," said Dr Judith Mackay, author of the Atlas and Senior Policy Advisor to the Tobacco Free Initiative of WHO. The co-author of the Atlas is Dr Michael Eriksen, former Director of the US Office on Smoking and Health and current consultant at the Centers for Disease Control and Prevention.

**Timor Leste Joins WHO**

The Democratic Republic of Timor-Leste (formerly East Timor) has become the 192nd Member State of the World Health Organization (WHO). HE Dr Rui Maria de Araujo, Minister of Health of Timor-Leste, said that his country was very happy to join WHO. He expected that Timor-Leste would greatly benefit from the experiences of other WHO Member States with similar health problems and constraints.

Timor-Leste has a relatively young population with 48.1% of its 850 000 citizens below the age of 17 and 17% under five years of age. The average life expectancy is 57 years. 85% of the population lives in
rural areas and although 80% of the population currently has access to health services, the current average walking time to a health centre is 70 minutes.

Improving health and saving lives of mothers and children is the main public health priority. The infant mortality rate is estimated at 70-95 deaths per 1,000 live births. The mortality rate of children under the age of five may also be characterized as unacceptably high.

"Communicable diseases account for the majority of deaths," says Dr de Araujo. The most common childhood illnesses are acute respiratory infections such as pneumonia, and diarrhoeal diseases, followed by malaria and dengue. Tuberculosis is also a major health problem in both children and adults. Through its office established in the capital Dili in 1999, WHO introduced "Integrated Management of Childhood Illnesses" (IMCI) to bring these rates down.

WHO has supported the Timorese health authorities by establishing a basic communicable disease surveillance system, detecting, investigating, controlling diseases and responding rapidly to outbreaks using an emergency surveillance system.

An effective Roll Back Malaria project, a National Tuberculosis Control Programme and immunization services have been established. WHO continues to provide technical expertise and practical assistance to prevent and control communicable diseases; it will also help to develop and implement national policy, guidelines and procedures for prevention and control of communicable diseases.

WHO is working on developing reproductive health services along with its partners, the United Nations Children's Fund (UNICEF) and the United Nations Population Fund (UNFPA) to promote safe place a programme to prevent HIV and other sexually transmitted infections. Addressing the shortage of health workers is another key to improving health in Timor-Leste. WHO continues to assist in recruitment and training of health professionals. "I congratulate the government of Timor-Leste for giving health highest priority in the National Development Plan and look forward to fruitful, joint collaboration in tackling the public health problems there," said Dr Gro Harlem Brundtland.
Book Review

WHO Expert Committee on Specifications for Pharmaceutical Preparations
[ISBN 92 4 120902; Sw.fr.42.-/US$ 37.80]

This report presents the recommendations of an international group of experts convened by the World Health Organization to consider matters concerning the quality assurance of pharmaceuticals and specifications for drug substances and dosage forms. Of particular relevance to drug regulatory authorities and pharmaceutical manufacturers, the report discusses activities related to the development of The International Pharmacopoeia and basic tests for pharmaceutical substances and dosage forms, as well as quality control of reference materials, good manufacturing practices (GMP), packaging and other aspects of quality assurance of pharmaceuticals, nomenclature and regulatory issues.

The report includes lists of available International Chemical Reference Substances, and International Infrared Reference Spectra, considerations for requesting analysis of drug samples, guidelines on pre-approval inspections of pharmaceutical manufacturers, and on packaging of pharmaceutical products. Guidance is provided on the basic elements of GMP and the requirements for sterile products and for national GMP inspectorates of pharmaceutical manufacturers.

Health Situation in the South-East Asia Region, 1998-2000

The WHO Regional Office for South-East Asia has been bringing out the Bulletin of Regional Health Information every three to five years since 1980. This publication provided a synthesis of all the available data from various sources on the health situation of the people in the countries of this Region. The title of the bulletin was changed to Health Situation in the South-East Asia Region in 1995. The present edition is the tenth in the series and covers mainly the period 1998 to 2000. In order to make the report more meaningful, time trends and cross-comparison of data with graphic presentations have been made and, for the first time where appropriate, data has been analysed and presented in the context of DALE (Disability-Adjusted Life Expectancy) and DALY (Disability-Adjusted Life Years).

The publication consists of an overview of the health situation in the Region and detailed analysis contained in five other sections. The annexes include data as reported by individual countries and estimates gathered from common UN sources, presented as regional tables. In addition to lists of acronyms, definitions, and bibliography, tables and figures/graphs, the overview includes a few notable
achievements, such as eradication of guinea-worm disease and problems in the eradication of poliomyelitis from the Region.

[ISBN 92 4 156208 0; US$27.00/Sw.fr.30/-]

As a key player in the field of sexual and reproductive health, the WHO HRP programme investigates problems in this area and tries to find solutions for them. While fertility regulation has remained a core area of HRP's work, its research agenda has expanded to include the entire spectrum of sexual and reproductive health. This report describes studies conceived and coordinated by HRP and carried out during the 2000-2001 biennium by research groups belonging to the HRP network. It covers a wide range of reproductive health issues - the safety and efficacy of existing and new family planning methods, how to make pregnancy and childbirth less life threatening, preventing RTIs, and doing away with unsafe abortion. The report introduces each issue with basic facts and an outline of the main questions that HRP-backed research sets out to answer.

Effective Drug Regulation: A Multicountry Study
[ISBN 92 4 156206 4; Sw.fr.20./US$ 18.00]

Drugs play a crucial role in saving lives and preventing diseases and epidemics, if their safety, efficacy, quality and rational use are ensured. This can only be done if their production, import/export, storage, supply and distribution are subject to government control through prescribed norms and standards and an effective regulatory system. For this purpose, governments must establish strong national drug regulatory authorities with a sound organizational structure that are legally empowered to function effectively.

This publication presents a synthesis of studies on drug regulation carried out in 1998-1999 in ten countries of the world. It provides an overview of the development of drug regulation in these countries and the strategies applied in their implementation, as well as an analysis of the strengths and weaknesses in drug regulation.

World Mortality in 2000 - Life Tables for 191 Countries
[ISBN 92 4 156204 8; Sw.fr.100./-US$ 90/-]

A fundamental requirement for setting health priorities and evaluating health programmes is reliable information on the number of people according to age and sex who die in different countries. Mortality levels and trends have been monitored in some countries for centuries while in others, little is known about adult mortality. In the wake of the HIV/AIDS epidemic, this uncertainty has increased.

This book provides detailed country, regional and global estimates of age-specific mortality rates and life expectancy in the year 2000 for all 191 Member States of WHO and for 14 sub-regions. Details of data sources available and the figures compiled are provided with a comprehensive analysis of all known census, survey and vital registration data on child mortality since the sixties. This book will serve as a key reference on mortality conditions worldwide at the turn of the century. The text is trilingual - in English, French and Spanish.
Healthy Villages: A guide for Communities and Community Health Workers
[ISBN 92 4 154553 4; Sw.fr.22.-/US$19.80]

Health is determined by many factors, including income, environmental conditions such as access to adequate sanitation and safe water supplies, individual behaviour, and health services. More than half of the world’s population lives in villages and rural areas and most of those without access to safe water sources or basic sanitation are rural dwellers. In response to this, an informal “healthy villages” movement has evolved.

A healthy village promotes local actions by community members, mobilizing human and financial resources to build healthy environments and promote healthy behaviours.

This guide is intended to provide community leaders with information to assist them in implementing and sustaining health promoting environments and activities at village level. It covers topics such as water and sanitation, drainage, waste management, housing quality, domestic and community hygiene, and provision of health services. It has extensive source materials for adaptation to local needs and conditions.
Guidelines for Contributors

The Regional Health Forum seeks to inform and to act as a platform for debate by health personnel including policy-makers, health administrators, health educators and health communicators.

Contributions on current events, issues, theories and activities in all aspects of health development are welcome. Contributions should be original and contain something of interest to those engaged in health policy and practice, some lesson to be learned, some idea, something that worked, something that didn't work, in fact anything that needs to be communicated and discussed on a broader scale. Articles, essays, notes, news and views across the spectrum of health development will be published.

Every year, the May-June issue of the Forum is dedicated to the World Health Day theme of the year, which is mentioned in the December issue. Readers may send contributions relating to the theme for inclusion in the special issue.

Papers for submission should be forwarded to the Editor, Regional Health Forum, World Health Organization, Regional Office for South-East Asia, World Health House, Indraprastha Estate, Mahatma Gandhi Road, New Delhi 110002, India (e.mail address: editor@whosea.org).

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Reprints of contributions are not produced but five printed copies of the issue will be supplied to the respective authors. An electronic version of the article in PDF format may also be made available to authors if they provide their e-mail addresses.
Corrigendum

Regional Health Forum WHO South-East Asia Region, Volume 6, Number 1, 2002,

1. On page 53, Article on “Constitution of the World Health Organization and its Evolution” by Dr U Than Sein; second column, paragraph two, please replace the words “a majority of members have not ratified this resolution to date” with “the Thirty-fourth World Health Assembly in 1981 resolved to retain the practice of annual Assemblies for the time being”.

2. On page 55 same article as above, second column, paragraph two, please replace EB91.R10 with EB97.R10.

- Editor
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