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Review article

Achieving Millennium Development Goals 4 and 5 in Sri Lanka

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Sri Lanka has an exemplary record in maternal and child health care. Provision of free education for over 60 years has helped to empower women. Medical care is accessible and provided free of charge. The maternal mortality ratio and the other indices of maternal and neonatal health have shown uninterrupted improvement since 1930. Midwives and the policy to increase their presence has been the key to success. Public health midwives provide care at the doorstep. Institutional midwives carry out the vast majority of deliveries, of which 99% occur in hospitals. Although on target with the Millennium Development Goals, some challenges that still remain are maternal death from postpartum haemorrhage and unsafe abortion, and perinatal deaths due to congenital abnormalities and prematurity.

Keywords Infant mortality rate, maternal mortality rate, Millennium Development Goals 4 and 5, Sri Lanka.

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Background to Sri Lanka

Sri Lanka is held out as a model for maternity care in non-industrialised countries.[1] On a meagre budget it produces indices that are more in line with countries whose per capita gross national incomes are ten-fold greater. The latest maternal mortality ratio (MMR) for Sri Lanka is 33.4 per 100 000 live births in 2008 (Annual Maternal Mortality Review, Family Health Bureau, Colombo, Sri Lanka, unpublished data). When compared with rates from industrialised countries that are about a third of this and figures from other South Asian countries that are ten-fold higher, the MMR for Sri Lanka becomes very impressive. Indeed, it is a story of success amidst adversity. A study of how this was achieved by a low resource country could help save the lives of mothers in many other parts of the world.

Sri Lanka is a small island with a land area of approximately 62 700 km^2 and a population of approximately 20 million. Free health services are available to all. The gross national income per capita is approximately US$1540 and approximately 1.8% of gross domestic product is spent on health care; the expenditure on maternal and child health is 0.23%.[2] The adult literacy rate is 89.7% for females and 92.6% for males. The mean age at marriage for women is 23.2 years, which represents a decline compared with the previously observed upward trend.[3] The terrain is geographically not difficult. A 30-year-long armed conflict affecting mainly the northern and eastern parts of the country was concluded in 2009.

The achievements of Sri Lanka are the result of favourable policies that have continued uninterrupted for more than six decades. The hallmark of these is that they are indigenous and of low cost. There have been two vital non-health interventions. The first of these is the provision of free education without discrimination, up to completion of university education. This contributed greatly to delaying the age at marriage, thereby reducing teenage pregnancies. Education also empowered women and gave them access to electronic and print media which have enabled them to have a greater awareness regarding health. The second is the provision of healthcare services free of charge.

The important health interventions were a gradual expansion and enhancement of the healthcare facilities ensuring easy accessibility of organised primary and tertiary

healthcare services, combined with surveillance and appropriate action. Improved infrastructure and low-cost transport facilities also contributed.

Maternal and newborn health statistics

The total population is approximately 20 million. This is a projected estimate, since the last complete census was carried out in Sri Lanka in 1981. A partial census excluding the north and east (areas affected by the armed conflict) was conducted in 2001. The proportion of women of reproductive age (15–49 years) is estimated to be approximately 27.8% of the population.[5] The total fertility rate was 2.3% in 2007.[4] The adolescent birth rate is 23 per 1000.[6] The main contributors to this relatively low rate are early marriage not being a cultural consideration and the empowerment of women due to free education.

The decline of the MMR in Sri Lanka (33.4 per 100 000 live births in 2008 from 2000 per 100 000 live births in 1930 (Annual Maternal Mortality Review, Family Health Bureau, Colombo, Sri Lanka, unpublished data) is associated with some important landmarks [www.mdg.lk/inpages/thegoals/mdgs_in_srilanka.shtml. Accessed 14 July 2011][7] (Figure 1). The establishment of a field health system for delivering maternal and child health (MCH) services in the country in 1926, a steady increase in the number of government hospitals in the country from the 1930s, the commencement of training of midwives in 1931, establishment of the Family Health Bureau (FHB) under the Ministry of Health to oversee MCH activities in 1969 and the commencement of the National Maternal Mortality Review in 1984 are salient events in this chronology. The MMR since the 1990s continues to show a significant downward trend

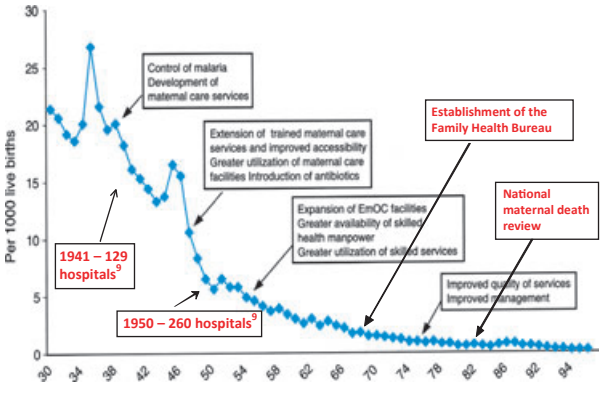

Figure 1. Maternal mortality ratio of Sri Lanka 1930–96.[11] Source: *Maternal Mortality Decline—The Sri Lankan Experience*, Colombo: Family Health Bureau, Ministry of Health, Nutrition and Welfare, 2003. Figure published with the kind permission of the Director, Family Health Bureau.

(Annual Maternal Mortality Review, Family Health Bureau, Colombo, Sri Lanka, unpublished data) (Figure 2).

There is a significant disparity, however, in the MMR in the different districts of Sri Lanka (Figure 3) (Annual Maternal Mortality Review, Family Health Bureau, Colombo, Sri Lanka, unpublished data). The highest rates have usually been seen in areas that were affected by the 30-year armed conflict that ended in 2009 and the plantation areas. It is significant that some areas outside these areas such as Matara also feature in this category.

In Sri Lanka, stillbirth registration is often incomplete and therefore accurate national perinatal mortality rates are not available. The neonatal mortality rate (NMR) and the infant mortality rate (IMR) have improved in parallel with the other MCH indicators[8] Although the NMR and the IMR decreased to 10 and 15 per 1000 live births respectively in 2005 from highs of 80 and 140 per 1000 live births respectively in 1945,[4] neonatal death as a percentage of the total under-1-year mortality has increased from 55% in 1945 to 75% in 2007.[9] This is due to the reduction of deaths by immunisation and those due to other infective causes such as diarrhoea; the main contributors to death in this age group are related to prematurity and perinatal events.

Specific Millennium Development Goal (MDG) 4 and 5 targets for Sri Lanka by 2015

The country-specific targets for Sri Lanka are shown in Table 1.

Continuum of care

Antenatal care

Sri Lanka has a long history of antenatal care. The first antenatal clinic was conducted at the De Soysa Hospital for Women, Colombo, in 1921. Antenatal care coverage runs at 99% for the whole country. There may in fact be a duplication of care by public health midwives (PHM) and medical officers of health in the primary healthcare centres and by consultant obstetricians and gynaecologists in tertiary care centres. Approximately 51% of pregnant women have had 9–15 antenatal visits (Table 2).[10] A detailed history is recorded on the 'mother's card' which is used nationally and measurement of blood pressure and examination of urine for albuminuria forms part of antenatal care delivery. Public health midwives sometimes provide antenatal care on domiciliary visits (Figure 4). The improvement of antenatal care coverage is reflected in the reduction of deaths due to preeclampsia: from 17 deaths in 2005 the number of deaths fell to seven in 2008 (Annual Maternal Mortality Review, Family Health Bureau,

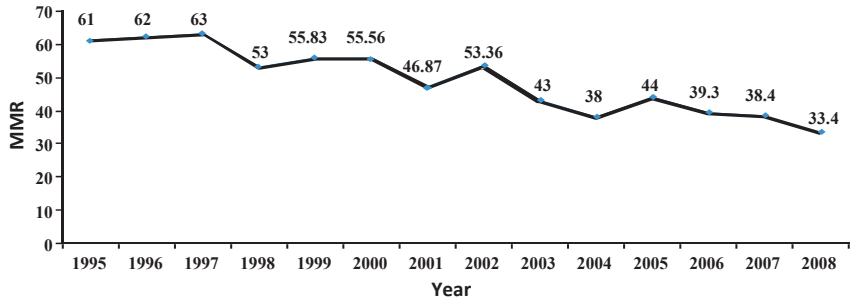

Figure 2. Maternal mortality ratio of Sri Lanka 1995–2008. (Annual Maternal Mortality Review, Family Health Bureau, Colombo, Sri Lanka, unpublished data.)

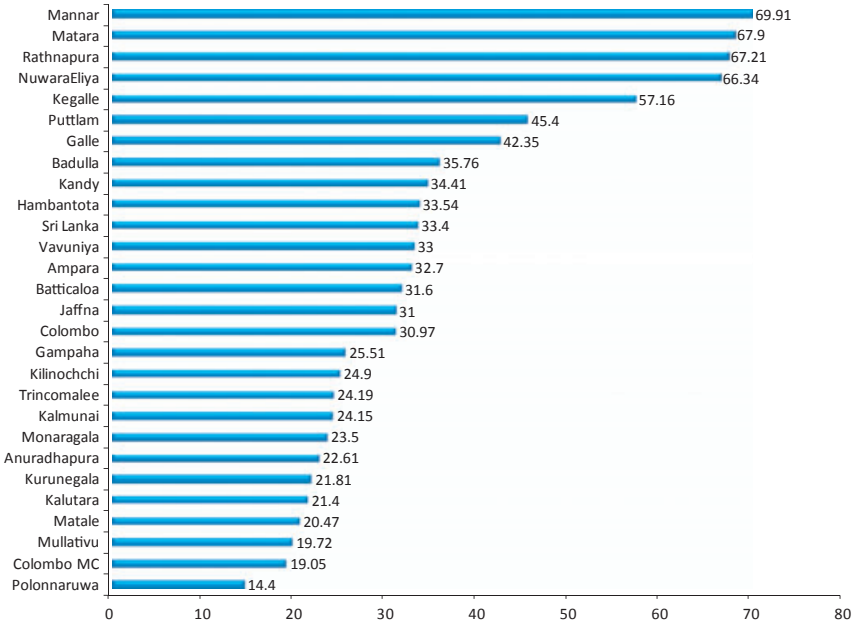

Figure 3. Maternal mortality ratio (per 100 000 live births) in Sri Lanka by district, 2008. (Annual Maternal Mortality Review, Family Health Bureau, Colombo, Sri Lanka, unpublished data.) Maternal mortality ratio is per 100 000 live births.

Colombo, Sri Lanka, unpublished data). In 2007, 89% of mothers were booked by a midwife before the completion of the 12th week of gestation.[8]

Intrapartum care

One of the most important interventions that made an impact on maternity care was an increase in the cadre of midwives from approximately 5000 in 1989[1] to more than 8995 in 2007.[9] This has led to the percentage of mothers receiving skilled birth attendance (SBA) at delivery increasing significantly from 40% in 1948 to 99.5% in 2007.[7,8] This appears to have had a direct impact on MMR (Figure 5). During the last six decades, Sri Lanka has followed a policy of discouraging home births. Home deliveries have declined from 25% in 1958 to <1% today, and even in the home deliveries approximately 50% receive SBA.[11] Eighty-five percent of Sri Lankan mothers now deliver in a facility that has the services of a specialist obstetrician.[10] The National Partogram developed by the Sri Lanka College of Obstetricians and Gynaecologists (SLCOG) has been used as part of routine care throughout Sri Lanka since 1998. By 2006, comprehensive essential obstetric care facilities were available for 1 per 460 000 population, which is over the recommended minimum of 1 per 500 000 population.

Postnatal care

The Lankan midwives play a crucial role in postnatal care. Since the vast majority of births occur in institutions, the initial assessments on both the mother and the neonate are carried out by the nursing officers and institutional midwives, and this is followed by a detailed examination by medical officers. In the 85% of deliveries which occur in

Table 1. Specific (numbered) MDG 4 and 5 targets for the country

	1990	1995	2000	2005	2010	2015
Millennium Development Goal 5						
Target 5A: Reduce maternal mortality by three-quarters between 1990 and 2015						
Maternal mortality ratio*	91	73	59	45	39	–
Proportion of births aattended by skilled health personnel	–	94.1 (1993)*	96*	98*	98.5 (2008)*	99**
Target 5B: Achieve universal access to reproductive health by 2015						
Contraceptive prevalence rate*	–	66.1 (1994)	70		68 (2007)	
Adolescent birth rate*	35 (1991)	31.9 (1994)	31.1	28	–	–
Antenatal care coverage*						
at least one visit	–	80.2 (1994)	94.5	99.4 (2007)	–	–
at least four visits		–	–	–		
Unmet need for family planning*	–	–	18.2	–	7.3 (2007)	–
Millennium Development Goal 4: Reduce child mortality						
Under-5 mortality rate*	28.4	25.1	20.7	17.1	14.7 (2009)	–
Infant mortality rate*	23	21	17	15	13 (2008)	–
Proportion of 1-year-old children immunised against measles	80*	87*	99*	99*	98 (2008)*	99+

*Source: United Nations Statistical Division, Millennium Development Goal Indicators.[6]
**Millennium Development Goals Sri Lanka.[14]

Table 2. Antenatal care in Sri Lanka[10]

Overall coverage	99%
4–8 visits	36%
9–15 visits	51%

tertiary care centres, the mother and the neonate undergo a comprehensive examination by the specialist obstetric and neonatal teams. When the mother and her baby are discharged from hospital, the PHM takes over. The policy is for every postnatal mother to be visited by the PHM at least twice within the first 10 days, at least once between the 11th and 28th day and for a visit at 6 weeks postpartum. Data show that this is achieved in the vast majority of cases during the first 10 days when 90% of the women with a reported pregnancy receive a visit.[6,8] However, beyond the tenth postpartum day the frequency wanes, with only 71% of the women receiving a visit at 6 weeks postpartum (Table 3).[8]

Family planning: fertility and contraception

The total fertility rate (TFR) had apparently increased from 1.9 in 2000 to 2.3 in 2007 (Figure 6).[4] When the figure is recalculated excluding data for the Eastern Province (which were not available in 2000 due to the armed conflict), the increase in TFR becomes less apparent. However, the downward trend that had continued since 1987 was interrupted by an increase in 2007.[4] Although the contraceptive prevalence rate (CPR) shows a decline in 2007, this seems to be due to reduced acceptance of 'traditional' methods and the use of modern methods appears to have increased.

Figure 4. A midwife providing antenatal care during a home visit. Figure reproduced with the kind permission of the Director, Family Health Bureau of Sri Lanka.

The current user rate for modern contraceptives was estimated to be approximately 51.2% in 2007.[8]

In 2007 the TFR varied from a high of 2.8 for women with only a primary education to 2.3 for women who have progressed up to GCE Advanced Level and above. The TFR

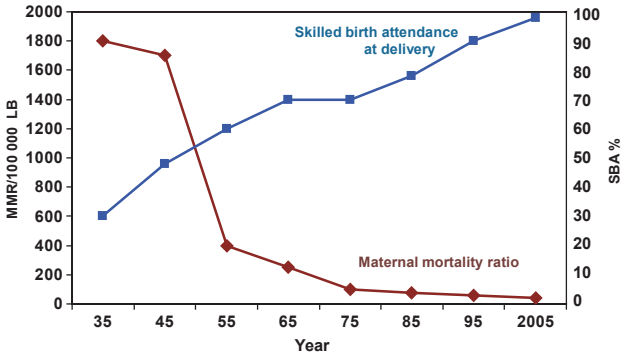

Figure 5. Skilled birth attendance at delivery and maternal mortality ratio in Sri Lanka.[11]

Table 3. Postnatal care in Sri Lanka[9]

Postnatal care provided by the midwife	2005
At least one visit during the first 10 days (%)	85.3
Average number of visits during the first 10 days	2.0
At least one visit during 11th to 28th day (%)	24.4
Postnatal care around 42 days (%)	56.8

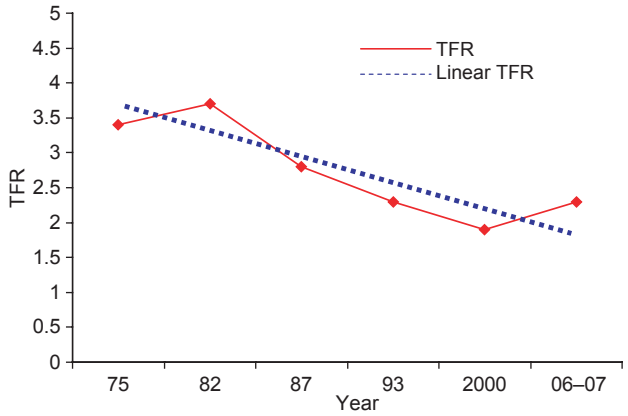

Figure 6. Trends in total fertility rate.[4]

also varied from 2.2 in the urban sector to 2.5 in the estate sector. Compared with the period 1980–87, the use of modern methods of contraception has increased in all age groups except for the group between 45 and 49 years. During this period there has also been a decline in the use of permanent methods from 29.8 to 17%. The most popular temporary method in 2006–7 was depo medroxyprogesterone acetate, accounting for 15% of contraceptive use.[4]

Contraceptive use by parity is shown in Table 4. Approximately 32% of women who had five or more children were not using any form of contraception in 2006–7

Table 4. Parity and contraceptive use (data are presented as percentage)[4]

Parity	Percentage of women currently using contraception		
	Any method	Modern temporary methods	Modern permanent methods
0	20.2	9.7	0.4
1–2	69.6	45.7	6.5
3–4	82.6	54.9	14.4
≥5	67.7	45.9	14.3

(Table 4). The unmet need for contraception has apparently decreased from 18.2% in 2000 to 7.3% in 2007.[4]

Newborn care

With over 99% of deliveries occurring in hospitals, newborn care is handled initially by the nurses and midwives and then by the medical staff. All labour rooms are equipped for resuscitation of the newborn, including basic 'resuscitaires'. Midwifery and nursing staff are in attendance at all institutional deliveries and medical staff are available for the 85% of women that deliver in specialist units.

Sri Lanka follows 'baby friendly principles' and breastfeeding is encouraged actively. One-to -one instructions are given by staff who are trained in breastfeeding counselling. Upon reaching the community, the PHMs take over. They play an invaluable role in postnatal domiciliary care, particularly in breastfeeding counselling. Most if not all newborns receive their BCG vaccine before leaving hospital.[9]

Care for the under-5s

As with the other indices the under-5 mortality rate too is on track. High immunisation and breastfeeding rates and lower rates of death from diarrhoea and other infectious diseases have contributed to this. The immunisation rates are high and a high priority is given for its promotion. The Child Health Development Record (CHDR) is an invaluable record and resource that is given to mothers when leaving hospital after childbirth. This contains a section where all immunisations and weights are recorded. In addition the CHDR provides information on neurodevelopmental milestones, instructions on how to stimulate a child's mental development, 'red-flags' in child development and instructions on infant feeding including weaning practices. The high literacy rate contributes to this being a powerful tool. Infant weighing centres numbering nearly 30 000 have been established throughout the country, almost one per village. The aim is to have all infants

weighed monthly and later once in 3 months for the under-5s, and for each session to service about 30 children. Wheat-soya blend is issued free of charge to children falling below the second centile.

Causes of maternal and newborn mortality and morbidity

Maternal mortality in Sri Lanka

National Maternal Mortality Reviews show that the vast majority of the deaths (a minimum of over two-thirds each year) occur due to direct causes (Annual Maternal Mortality Review, Family Health Bureau, Colombo, Sri Lanka, unpublished data)[8] (Figure 7). In 2008, the three leading causes of maternal death were postpartum haemorrhage (PPH), cardiovascular disease and unsafe abortion, and each accounted for 15% of maternal deaths (Annual Maternal Mortality Review, Family Health Bureau, Colombo, Sri Lanka, unpublished data) (Figure 7). Among the causes of maternal death due to cardiac disease, mitral stenosis plays a leading role.[12]

Since the vast majority of deaths due to PPH occur in hospitals, it appears the commonest delay is of the third type according to the three delays model. The expansion of healthcare services in the country has been such that except in the northern and eastern parts of the country an allopathic healthcare facility is available within 4.8 miles of most Sri Lankan homes.[13] The problem of unsafe abortion is more complex, within the context of restrictive abortion laws, unmet need in contraception and a value system which encourages abortion seekers to conceal information, even from the family. Unsafe abortion has remained the second or third most common cause of maternal mortality in recent maternal death reviews (Figure 8).

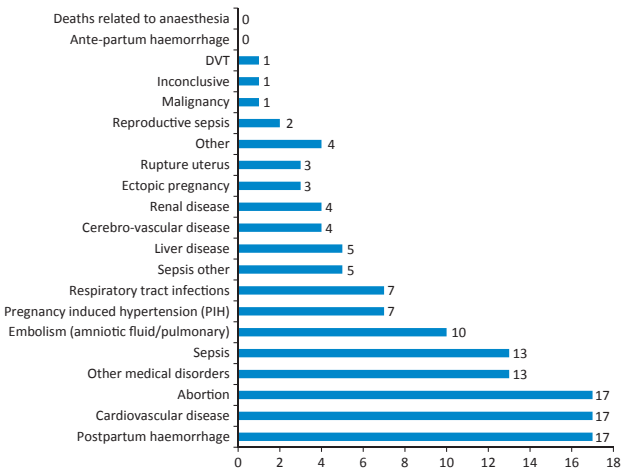

Figure 7. Causes of maternal mortality in Sri Lanka in 2008 (data are presented as percentage; Annual Maternal Mortality Review, Family Health Bureau, Colombo, Sri Lanka, unpublished data).

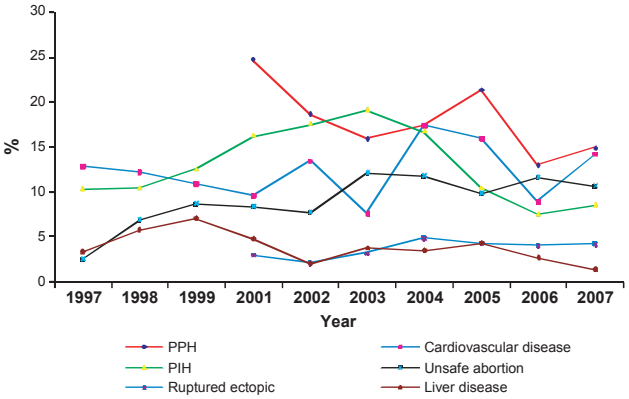

Figure 8. Causal trends of maternal mortality in Sri Lanka 1997–2007. (Annual Maternal Mortality Review, Family Health Bureau, Colombo, Sri Lanka, unpublished data.)

Newborn mortality in Sri Lanka

The chief causes for neonatal deaths are congenital abnormalities (39%) and prematurity (24%). This is followed by asphyxia (15%).[8] This underscores the importance of the availability of personnel skilled in neonatal care. The Perinatal Society of Sri Lanka has an ongoing programme to improve the skills of the relevant healthcare personnel. Sri Lanka has a well established programme of immunisation with 97% of infants immunised against measles and 99% coverage of BCG and three doses of the diphtheria, pertussis, tetanus and olio vaccines. Only 0.3% of infants have had no immunisation at all.[9]

The reduction in the neonatal mortality rate is probably due to availability of skilled attendance at birth, improved resuscitation at birth and support available for establishment of breastfeeding.

National strategies to address MDGs 4 and 5

The salient feature of strategies followed by Sri Lanka is that they have been indigenous and evidence based. The healthcare system has been developed both via the field and institutional systems to reach all parts of the country. Favourable health and non-health interventions have been continued uninterrupted by successive governments for many decades.

The Family Health Bureau

The FHB was established in 1968 to oversee and coordinate the delivery of MCH. At the periphery, the MCH care delivery is coordinated by the Regional Directors of Health Services (RDHS), who are responsible for both curative and preventive health services. Therefore the ultimate responsibility of regional MCH rests with the RDHS. The medical officer in charge of maternal and child health provides a link between the RDHS and the FHB. The

preventive health staff that come under the RDHS include PHMs.

PHM

The Sri Lankan PHM has probably been the most effective intervention in the Sri Lankan success story. The first batch of midwives was trained in 1931. PHMs are recruited from the communities they are meant to serve, and live in their own communities. This promotes contact and rapport with the community and minimises geographical and cultural barriers. Their services are well accepted by the community. The training period is for 18 months with 1 year in a nurse's training school and the rest in a field training centre. The entry criterion is 13 years of schooling. At present, each PHM serves a population of between 3000 and 5000. The number of midwives in service has continued to increase. Every household in Sri Lanka comes under an identified PHM area.

The midwives are truly multifunctional workers. Their role in MCH begins with pre-pregnancy care. All newly married couples are registered in the 'eligible couples register'. This provides an opportunity for rubella immunisation, assessment of nutritional status, screening for medical disorders and delaying of pregnancy where needed.

In 2007, approximately 97% of estimated eligible families were registered in the 'eligible couples register' and were under the care of PHMs.[8] The coverage for antenatal care is almost 100%; 92% will be booked at home by the PHM. Only 3% are booked after 20 weeks. In 2007, 83% were booked before the completion of the 12th week of gestation.[8] A fair proportion of the services of the PHM are delivered to the client in her own home (Figure 4).

The PHMs provide postnatal care after the mother returns to the community following childbirth. They contribute to child survival by providing support for breastfeeding, encouraging visits to the well-baby clinics, weighing of babies, checking immunisation status and by providing family planning advice to parents.

Newborn and child strategies

Sri Lanka has had high rates of immunisation, due to concerted efforts to create awareness and surveillance with appropriate corrective measures. Diseases preventable by immunisation have therefore come under control. The policy and uptake of immunisation is reviewed annually by the Immunisation Advisory Council which comes under the FHB.

The current strategy is aimed at the main causes of death, which are during the neonatal period. However, it seems unlikely that a change could be made in the deaths due to congenital malformations, which is the main cause of perinatal death. The abortion law in Sri Lanka under which abortion for congenital abnormality is illegal is unlikely to be changed in the near future. With the limited availability of specialist fetal medicine expertise and low penetrance of anomaly scans many major congenital abnormalities remain undiagnosed until after birth. The increase in the number of hospitals with neonatal intensive care should reduce the second cause, which is prematurity. The availability of skills and equipment for management of asphyxia are being enhanced by multiple interventions. Labour room staff are being trained in neonatal resuscitation. Almost all hospitals in which deliveries are conducted will have an infant resuscitator (resuscitaire).

The Sri Lanka College of Obstetricians and Gynaecologists

The SLCOG conducts workshops and seminars concentrating on management and prevention of PPH as well as the prevention of morbidity and mortality due to unsafe abortion, targeting areas that have high MMRs.

The high MMR in the Nuwara Eliya district, which belongs to the estate sector of the country, could be due to many factors, one of which is that estate hospitals, which were managed until recently by the plantation companies, had suboptimal standards of staffing compared with the national norms. As a result of lobbying by the SLCOG, these hospitals were taken over by the Ministry of Health in 2006. Prior to this, the availability of skilled attendants at birth and the percentage of women delivering in a healthcare facility were lower in the estates than in the rest of the country. It was hoped that, by bringing these facilities under the FHB and by recruitment and training of midwives from the estates, these problems would be mitigated. However, certain problems such as difficulty in recruiting PHMs were encountered in the early period following the government take-over of these hospitals. This was due to the difficulty in finding prospective PHMs from the estate areas possessing the minimum required qualifications.

Initiatives for prevention of unsafe abortion

Sri Lanka has restrictive laws on abortion, and the problem is a reflection of the unmet need for family planning. Sri Lanka is part of the IPPF/FIGO initiative for prevention of unsafe abortions in South Asia, and a plan of action has been drawn up for Sri Lanka with the following general objectives: (i) reducing unintended and unwanted pregnancies by increasing awareness among the public regarding the dangers of unsafe abortion and encouraging the use of contraception; (ii) strengthening sexual and reproductive health (SRH) education in schools and higher educational institutes as well as providing SRH education to young adults as well as parents; (iii) increasing availability, access and utilisation of effective contraceptives especially in those more at risk of having an unintended

or unplanned pregnancy; (iv) improving post-abortion care; (v) advocating for amendments of the laws in Sri Lanka to include rape, incest and major fetal abnormalities as indications for termination of pregnancy. Specific activities and interventions are being carried out by the SLCOG and the Family Planning Association of Sri Lanka to achieve these objectives.

Programmes and policies to implement strategy

Emergency obstetric care

Sri Lanka has followed a programme of expanding the availability of emergency obstetric care by a planned expansion of specialist obstetric units and skilled attendance at delivery. A policy of increasing the cadre of midwives was followed, rather than retraining traditional birth attendants (TBAs). While the number of midwives has continued to increase, TBAs are now non-existent. Home births have been discouraged as a policy.

Maternal mortality review

Surveillance and action plays a major role in the maternity and child health service of Sri Lanka. From 1982, the Ministry of Health through the FHB has aimed to investigate every maternal death in Sri Lanka. The investigation is commenced within 24 hours of the death of a mother and, after a thorough investigation at the level of the field services and the hospital, the findings are reported to a quarterly district review and then to an annual national review. The findings with suggested appropriate preventive strategies which could be adopted are published annually.

Moves are afoot to further improve the maternal mortality review and to make it a confidential inquiry. A similar national inquiry into perinatal deaths is envisaged.

With childhood deaths due to infection declining, the Ministry of Health has initiated action to strengthen care of the neonate. Training programmes in essential newborn care and advanced life support for neonates are being conducted.

Achievements to date

The effectiveness of the MCH service of Sri Lanka is well recognised. All MCH indices have generally shown a consistent improvement and this achievement has been gained at a lower healthcare expenditure compared with Sri Lanka's peers.[2] This success has shown that interventions to improve services need not be expensive and that they need to be tailored to the needs of each country.[2] Some interventions such as free health care and free education are expensive, but could be considered investments for the future. It could be said that investments in human development have contributed significantly to the improvement of maternal and child death rates in Sri Lanka.[2]

Challenges and opportunities

Although much has been achieved, Sri Lanka's MCH service has its own problems and weaknesses. PPH and unsafe abortion have continued to be leading causes of maternal deaths. There is also a wide variation in MMR among the different districts (Figure 3).

Despite the long-term improvements in family planning services in Sri Lanka, the MDG indicator 5.3 that is increasing CPR to 76% by 2015 appears to be a challenge. To ensure this target is met, greater emphasis would have to be placed on family planning service coverage, in terms of improving availability, access and utilisation of both temporary and permanent methods of contraception especially in the vulnerable groups such as sexually active but unmarried adolescents and young adults, and elderly and widowed women.

The recent demographic and health survey[4] has shown a decline in contraceptive prevalence to 68.3%, due to a reduction in the use of traditional methods and the number undergoing sterilisation. An increase in the use of modern methods is observed due to an increase in the uptake of depot medroxyprogesterone acetate. The declining uptake of female sterilisation underscores problems in service provision and calls for new strategies in service provision. Sterilisation is most often offered in specialist units for which sterilisation may not be a priority due to other commitments. Also, the uptake of long-term reversible contraception such as the Copper T intrauterine device which is highly cost effective needs to be improved. Unless these are addressed, increasing the contraceptive prevalence to the required level will be a major challenge. In newborn care, death due to congenital abnormalities will remain a challenge. Efforts for improved care of premature neonates and birth asphyxia are likely to produce positive results.

Will the MDG 4 and 5 targets be reached?

Our paper has shown that with the policies adopted over the past few decades and current strategies Sri Lanka is well on the way to achieving the MDG targets for the country (Table 5).

Conclusions

Sri Lanka has a high coverage of antenatal care both in the field and in the hospitals, early booking, free health care and high health awareness, all of which contribute to a reduction in the MCH indices over the years. Labour room practices are strong, with trained assistance being available and the use of a National Partogram being universal since 1998. Postpartum monitoring is also sound, with palpation

Table 5. Will the MDG 4 and 5 targets be reached?

	Unlikely	Potentially	No data
Target 5A: Reduce maternal mortality by three-quarters between 1990 and 2015			
Maternal mortality ratio	√		
Proportion of births attended by skilled health personnel	√		
Target 5B: Achieve universal access to reproductive health by 2015			
Contraceptive prevalence rate	√		
Adolescent birth rate	√		
Antenatal care coverage			
at least one visit	√		
at least four visits	√		
Unmet need or family planning	√		
Target 4: Reduce child mortality			
Under-5 mortality rate	√		
Infant mortality rate	√		
Proportion of 1-year-old children immunised against measles	√		

of the fundus in order to ensure retraction and observation for bleeding being routine. PPH is generally managed aggressively in Sri Lanka and the low threshold for using the 'condom catheter' for uterine tamponade in cases of uterine atony is thought to save many lives.

For Sri Lanka, the way forward in improving MCH would depend on reinforcing the already strong areas of its MCH services and by improving on the weaknesses identified. These would include optimisation of many aspects of MCH in institutions and in the field. Deaths due to unsafe abortion remain a major challenge. Disparities in MMR between districts has been another. The end of the armed conflict and the initiatives adopted in the estate sector have raised the possibility that these disparities will be minimised in future. The SLCOG's ongoing training programmes on safe motherhood, management of PPH, and reduction of morbidity and mortality due to unsafe abortion may also contribute to achieving these objectives.

With regard to MDG 4, immunisation rates are high with a resulting control of vaccine-preventable diseases. The main cause of perinatal death, congenital abnormality, however, will remain. Efforts are now directed towards reducing deaths due to prematurity and birth asphyxia.

Investments into human development such as free education up to completion of university and free health care have contributed significantly to the achievements of Sri Lanka in MCH.

Disclosure of interests

The authors disclose that they have no conflict of interest.

Contribution to authorship

HS wrote the manuscript and conceptualised the presentation and material. MG wrote the manuscript and contributed to the presentation. GAR conceptualised the presentation and material and contributed to the presentation. RNH conceptualised the section on contraception and contributed to the presentation. SA conceptualised the section on child care and contributed to the presentation. IA contributed to the presentation.

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