



Development
Progress

Case Study Summary

Health

NEPAL'S STORY

Understanding improvements in maternal health

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Nineteen-year-old Maheshwori Devi Bishwokarma is pregnant with her second child. Despite being three days past due, Maheshwori continues to work herding goats. Her husband, who lives and works in neighbouring India, comes home once a year. (Doti District, Nepal, 2009) Photo: © Gates Foundation

- Nepal has – according to most estimates – reduced its maternal mortality ratio by over 50% since the early 1990s, making it one of the few countries on track to achieve Millennium Development Goal 5.
- Central to progress has been a huge reduction in unwanted pregnancies: Nepali women went from having almost six children in the early 1980s to an average of 2.6 in 2011.
- Greater access to and use of maternal health care services has been important: today, over 50% of expectant mothers seek the recommended four antenatal visits, a fivefold increase in the course of 15 years.

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“I am not aware of any maternal deaths in the community in the past two to three years. I think this is because medicines are available, services are free and we have a 24-hour delivery service.” – Medic at rural health post in the Terai



Sunita leading a group discussion on adolescent reproductive health in Surkhet, Midwest, Nepal. Photo: © The Advocacy Project

Key messages

- Nepal achieved a striking reduction in maternal mortality during the 1990s and early 2000s. According to data from Nepal Demographic and Health Surveys (NDHSs), the country’s maternal mortality ratio (MMR) fell by 47% between 1996 and 2006. More recent survey data support this downward trend. Despite difficult terrain, conflict and political upheaval, it is one of the few countries likely to meet Millennium Development Goal 5 on maternal health.
- A consistent policy focus and sustained financial commitment by the government and donors throughout the past two decades, including substantial increases in funding for maternal health since the early 1990s, has allowed for widespread improvements in access to medical services, particularly in remote areas.
- MMR improvements have further been facilitated by behavioural and economic changes at the household level, driven by increased empowerment and education of women and greater awareness of how to mitigate pregnancy-related risks.
- Together with a sustained rise in incomes, these factors have combined to create what appears to be a virtuous cycle, with national policy and implementation reinforcing changes occurring at the household level. Nepal’s experience can provide important lessons for other countries struggling to address high levels of maternal mortality and morbidity, especially within a context of difficult terrain and high poverty rates.
- Despite these improvements, numerous systemic challenges remain. These include addressing inequalities, increasing community mobilisation to improve accountability, building more effectively on inter-sectoral synergies and, most importantly, maintaining political and financial commitment to safer motherhood.

What progress has been achieved?

Nepal, with a population of 26.6 million, is the poorest country in South Asia. While its MMR is still far higher than in industrialised countries, the MMR reduction achieved in Nepal represents a substantial improvement over a short time period, in a country that includes some of the most challenging terrain in the world for the delivery of essential health services.

Nepal's 1996 NDHS estimated the country's MMR at 539 maternal deaths per 100,000 live births between 1990 and 1995.¹ By the time of the 2006 NDHS, it had declined by 47% to 281 (MoHP et al., 2007). This decline is supported by data from the eight-district 2008/09 Nepal Maternal Mortality and Morbidity Survey (MMMS), which placed the MMR at 229 for the time period (Suvedi et al., 2009).

Maternal mortality data are notoriously imprecise, but there is a high likelihood that a significant decline occurred (Box 1). The national survey-based estimates to some extent mirror internationally comparable (modelled) MMR estimates. The Maternal Mortality Estimation Inter-Agency Group (MMEIG) estimates an 80.4% decline between 1990 and 2011, although a large confidence interval (CI) complicates this assessment (Figure 1).²

Other important health indicators have also improved dramatically in the past two decades. The neonatal mortality rate has declined (from 50 to 33 deaths per 1,000 children between 1996 and 2011), as has the under-five mortality rate (from 118 to 54 deaths per 1,000 births) (MoHP et al., 2012). Life expectancy increased by almost 15 years between 1990 and 2010. However, nutritional outcomes, particularly levels of anaemia among mothers (which is highly correlated with maternal mortality), remain high at 35% and have been reducing slowly (MoHP et al., 2012).

Nepal's progress has been enabled in part by poverty reduction. According to the national poverty line, the poverty rate has declined from 42% to 25% in the past 15 years. This is explained partly by migration: 56% of Nepalese households receive remittances, up from 23% in the mid-1990s (MoHP et al., 2012). However, incomes of the majority did not rise significantly during the late 1990s and early 2000s, when large gains in the MMR were made, indicating that poverty reduction is likely to be only part of the explanation.³

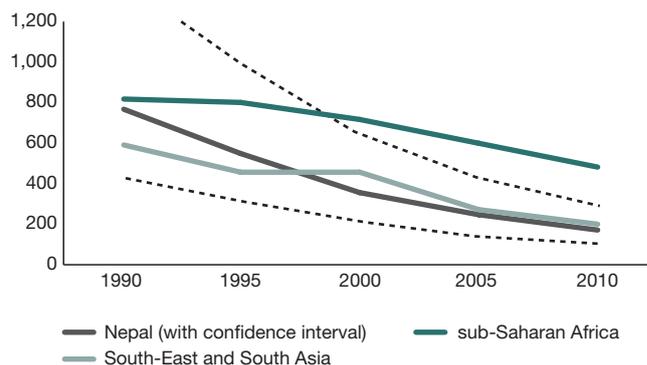


Maya Rani holding her daughter Shami. Photo: © Save the Children



Radhika's baby was born premature and very low weight. Photo: © Save the Children

Figure 1: MMR estimates for Nepal vs. regional averages for South-East and South Asia and sub-Saharan Africa (dashed line = CI for Nepal)



Source: MMEIG

Box 1: How confident are we that maternal mortality has declined?

Given the relatively rare occurrence of maternal deaths, as well as the difficulty in determining whether deaths resulted from obstetric causes, MMRs come with high levels of uncertainty and large CIs. Based on the three survey estimates we have, and depending on whether one uses upper- or lower-bound estimates, the decline between the 1996 NDHS and the 2008/09 MMMS could be as large as 74% and as small as 27%.

These national survey-based figures are reflected in the previously cited estimate by the MMEIG. Using a different methodology, the other internationally comparable MMR estimate, by the Institute of Health Metrics and Evaluation, suggests a decline of only 30.6%, from 455 (365-546) in 1990 to 316 (241-407) in 2011. However, despite these diverging estimates, all sources suggest a broadly similar trend.



Calling in a local birthing expert, Doti District, Nepal, 2009. Photo: © Gates Foundation

What has driven change?

1. Government prioritisation of maternal health

A sustained focus on maternal health

The Nepali government's political prioritisation of maternal health during the late 1980s and 1990s occurred while primary health care was progressively being extended to more rural areas. This seems to have accelerated following the transition to a multi-party system in 1991, which enabled increased scrutiny of the health sector's underperformance and the initiation of reforms.

The focus on improving maternal health outcomes manifested itself in a series of high-level policy documents, including the *Safe Motherhood Policy* (1998), in the integration of maternal health into the *Essential Health Care Package* of priority programmes and in the *National Safe Motherhood and New-born Health Long-term Plan* (2002-2017), which emphasises institutional delivery care and the development of more facilities providing emergency obstetric care. The inclusion of maternal health as one of the eight Millennium Development Goals in 2000 provided further impetus to reduce the MMR and made it a cross-governmental priority.

A strong domestic constituency

Pressure to address maternal mortality and morbidity was fuelled in part by a core group of mid-level health ministry officials who had gained first-hand experience working as public health experts and medics in remote areas and saw the dire birthing conditions of women. These officials, with the financial and technical support of donors, commissioned and drew on in-depth research and surveys on the causes of maternal death and the main barriers to utilising clinics for giving birth (Box 2).

Box 2: The interaction of evidence and advocacy in policy design

The effective integration of evidence and advocacy was crucial in the creation of numerous policies designed to address the leading causes of maternal mortality. Two illustrative examples of this are the legalisation of abortion and the introduction of the Safe Delivery Incentive Programme (SDIP).

Evidence suggesting unsafe abortions were an important cause of maternal deaths was instrumental in the legalisation of abortion. This informed a large-scale campaign to legalise abortion, as well as donor support to further research and analysis on this issue. While there was some opposition from religious groups, policy-makers and advocacy organisations led a targeted information campaign about the risks of unsafe abortions, resulting in legalisation in 2002 and nation-wide provision of first-trimester (and in some cases second-trimester) abortion services by 2004 (Samandari et al., 2012). Over 500,000 women received abortions between 2004 and 2012.

Similarly, implementation of the SDIP, a financial incentive piloted in 2008 to compensate women who give birth in clinics for travel costs, was based on in-depth research on barriers to accessing care. It also benefited from a coalition government looking for a popular policy, the UK Department for International Development's (DFID's) willingness to temporarily bear the costs and advocates who were well connected to the political elite (Ensor et al., 2008).

At the same time, a large and well-connected network of civil society groups, researchers, medical experts and advocates for women's health came together under the umbrella of the *Safe Motherhood Network Federation* to lobby government officials and engage on policy research and advocacy.

The political imperative of maintaining support within the context of the Maoist insurgency (1996-2006) may also have provided strong incentives for the government to reach out to rural communities and establish legitimacy through the provision of basic services. As health policy increasingly became an area of heavy political contestation, the electoral interests of parties converged with the objectives of advocacy and civil society groups to reach the poor, strengthen women's agency and widen access to public services.

Increasing health expenditure

Commitment to improving health outcomes – and particularly maternal health – manifested itself in increased public expenditure to the sector during the 1990s and 2000s, as the size of the total budget increased. Health expenditure per capita (in constant 2005 terms) almost doubled from approximately \$34 in 1995 to \$66 in 2010, although it remains below the regional average. While public expenditure as a share of the total government budget has remained relatively constant, expenditure on family planning and safer motherhood programming in particular has increased significantly.

The gradual abolition of user fees starting in 2007 is likely to have contributed to shifting the burden from households to the state. Out-of-pocket expenditure as a share of total health expenditure declined by over 20% between 1995 and 2010, according to World Health Organization (WHO) data.

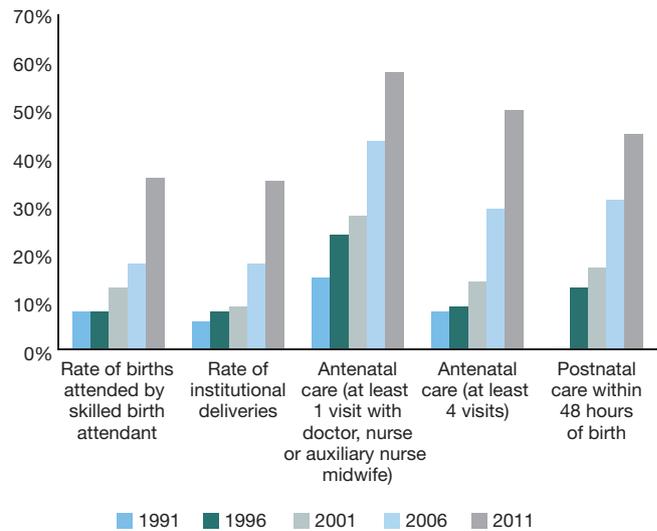
International aid has been central to health financing, as donors appear to have gained confidence in government capacity to achieve results.⁴ Support to health as a share of aid rose from under 2% in 1990/91 to almost 14% in 2010/11. Aid now covers 40-45% of public health expenditure.

2. Improved access to health care

Improvements in utilisation of maternal health services

The past two decades have seen improvements on a number of indicators of access to maternal health care that correlate with MMR reductions, suggesting this has been a significant factor in Nepal (Figure 2). The number of expectant mothers seeking antenatal care has increased substantially since 1996; by 2011, over 50% of women made the WHO-recommended four (or

Figure 2: Safer motherhood indicators in Nepal, 1991-2011



Source: 1996, 2001, 2006 and 2011 NDHS

more) antenatal visits – a fivefold increase in 15 years. Similarly, institutional deliveries have increased rapidly, although over 60% of mothers still give birth at home.

Addressing supply and demand in remote areas

The past two decades have also witnessed a massive expansion of health facilities into more remote areas of Nepal. The 1991 *National Health Policy* led to the establishment of sub-health posts in each village and the upgrading of health posts into primary health care centres in each electoral constituency. The number of health posts increased from 351 in 1991 to 1,204 in 2011. The scaling-up of birthing centres has been prioritised, along with increased provision of 24-hour delivery services. The expansion of privately run pharmacies in rural areas has enabled many mothers to treat illnesses that in the past would have led to their death, particularly after childbirth, and has also broadened access to contraceptives.

Making the most of available health workers has been central to increasing the quantity of skilled medical staff available. The number of health workers has grown more slowly than the population, but the government focused on shifting responsibilities from doctors to nurses and auxiliary health workers, who were trained as skilled birth attendants to address

“Previously we conducted only 40 or 50 deliveries in a year but last year we had 190. I think this is for several reasons: the Millennium Development Goals, more doctors, awareness raising by female community health volunteers and radio and newspaper advertisements.” – Medical superintendent in mountain region



Asha holds her baby. Photo: © Save the Children



Tej Reproductive Health Information Stall. Photo: © The Advocacy Project

a chronic lack of high-level human resources at peripheral health facilities and enable more local lower-level staff to work in remote areas. This has been complemented by a cadre of almost 50,000 female community health volunteers, who promote healthy behaviour to families.

In addition, Nepal's dense network of local and international non-governmental organisations (NGOs) fills many gaps where the system currently fails to provide sufficiently for communities. Community-based organisations and NGOs have cooperated with the government on ensuring that 'mothers' groups' can be established in almost every village, and they also serve as a source of innovation, for example in the development of the Birth Preparedness Package.⁵

Central to supply-side improvements has been the emphasis on road and bridge construction. The total road network expanded by 33% between 1999 and 2008, reducing transport delays.⁶ Paired with improved security and an expansion of facilities to many more villages, this has helped increase access to emergency obstetric care – a key explanatory factor in the MMR reduction (Hussein et al., 2011).

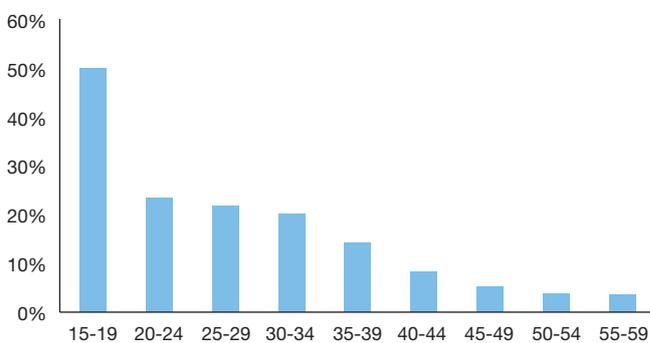
3. Behavioural changes at household level

A number of structural and behavioural changes at the household level have helped enable progress in Nepal, including on reducing the MMR. Maternal mortality tends to be inversely proportional to women's status, with better-educated women more likely to seek antenatal and postnatal care and have institutional deliveries.⁷ Over the past two decades, girls' enrolment in education has increased significantly. The change is particularly striking when looking at access to secondary education by age cohort (Figure 3). Central to the more empowered role of women in households have been active efforts to change norms and behaviours around many of the country's very patriarchal family structures.

Another factor contributing to the decline in Nepal's MMR has been broader improvements in sexual and reproductive health, most notably a precipitous drop in the total fertility rate. Nepali women went from having almost six children in the early 1980s to an average of 2.6 in 2011 (Figure 4). This is explained in part by improved access to family planning: Nepal's contraceptive prevalence rate increased from 24.1% in 1991 to 49.7% in 2011.

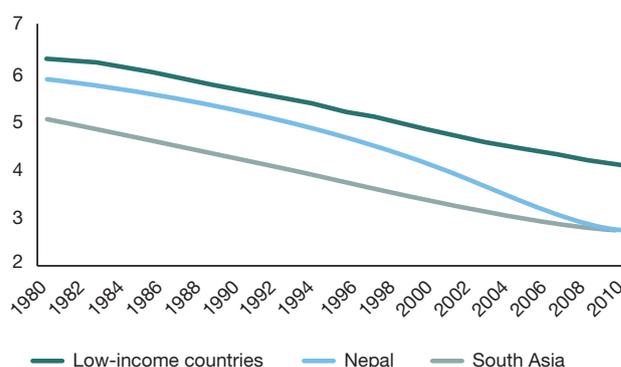
In addition to increased access to contraception and abortion, the aforementioned high levels of outward migration and remittances have in part enabled this decline in fertility. The combination of many men and women working abroad, fewer children and higher incomes is likely to have been a powerful factor in reducing the MMR.

Figure 3: Women who have attended some secondary school by age cohort, 2011



Source: MoHP et al. (2012)

Figure 4: Total fertility rates in Nepal in relation to comparators, 1980-2010



Source: World Development Indicators

What are the challenges?

Looking forward, there are concerns about how to sustain progress in making maternal health care more accessible in Nepal and address great variations in the quality of care.

Most significantly, there are large disparities in access to services, which mirror broader inequities in Nepali society. The reduction in the MMR has been most visible in urban areas and among the richest. Inequality in access is also apparent among ‘lower’ castes and ethnicities, where discrimination by service providers and limited awareness of maternal health services remain significant barriers. For example, the MMR among Muslim women is more than three times as high as among ‘higher’-caste Newari women.

In recent years, the government has gradually increased its share of funding to the health sector. However, as aid budgets come under greater pressure, some have raised doubts about whether donors will remain engaged for the long term.

Moreover, the Nepali economy has only been growing slowly and it is unclear whether the country can continue to expand provision at the same pace.

Governance and management of the health system are becoming increasingly volatile. Overarching concerns include fragmentation of responsibility for financing and delivery between the health ministry and local government and lack of transparency in personnel transfer and procurement decisions. This has been exacerbated by an ongoing constitutional crisis that has affected the government’s ability to carry out basic functions.

Large-scale expansion has been relatively effective in rapidly increasing the scale of provision, but concerns are increasing about the capacity to develop effective plans and budgets at the district level. In many regions, and particularly in remote areas, doctors, nurses and paramedics do not show up at their assigned postings or may receive frequent study deferments.

“When I gave birth several years ago I was not taken to a health facility, but recently my in-laws decided to take my sister-in-law. I’m not sure why – it may have been the [cash] incentive, or because the facility now offered 24-hour delivery.” – Young woman in the Terai

Lessons learned

Nepal’s experience with maternal health over the past 20 years provides useful lessons that other countries struggling to reduce maternal mortality may wish to consider. These include:

- **The importance of a well-connected community of policy advocates.** Sustained political consensus and financial commitment to reducing maternal mortality, even during the conflict, benefited from a large and effective advocacy community of public health officials and experts, civil society organisations, medical staff and donors.
- **Extensive and informed use of data and evidence.** The sustained openness of officials to new ideas and pilots, as well as to swift scale-up, has been integral to the effective use of scarce resources to maximise gains. Officials drew on a relatively standardised set of interventions to address maternal mortality, but generally did so in an evidence-based, targeted and sequenced manner.
- **Creating awareness of risks at the community level.** Given both the poverty and the remoteness of many communities, using community health volunteers has been highly effective in raising awareness of pregnancy-related risks and carrying out simple preventative interventions. Training nurses and midwives to perform more complex obstetric procedures has also provided a cost-effective way of ensuring health workers can carry out life-saving interventions in more remote areas.
- **Integrating maternal health and family planning.** The parallel decline of the MMR and the total fertility rate illustrates the linkages between programmes and policies in maternal health and family planning. Reducing unwanted pregnancies is likely to have been a significant driver in the MMR decline.
- **Working multi-sectorally to improve maternal health.** Factors not directly related to the public health system may have been equally, if not more, important in progress than health policies and programmes. The importance of addressing health priorities across sectors and ministries is underscored by the strong role that poverty reduction, girls’ education and transport infrastructure have played in reducing maternal mortality.

This summary is an abridged version of a research report and one of a series of Development Progress case studies being released at developmentprogress.org

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References

- Ensor, T., Clapham, S. and Prasai, D.P. (2008) 'What Drives Health Policy Formulation: Insights from the Nepal Maternity Incentive Scheme?' *Health Policy*, 90(2): 247-253.
- Hussein, J., Bell, J., Dar Lang, M., Mesko, N. and Amery, J. (2011) 'An Appraisal of the Maternal Mortality Decline in Nepal'. *PLoS ONE*, 6(5): e19898.
- MoHP, New ERA and Macro International Inc. (2007). *Nepal Demographic and Health Survey 2006*. Kathmandu: MoHP, New ERA and Macro International Inc.
- MoHP, New ERA and ICF International Inc. (2012) *Nepal Demographic and Health Survey 2011*. Kathmandu: MoHP, New ERA and ICF International.
- Samandari, G., Wolf, M., Basnett, I., Hyman, A. and Andersen, K. (2012) 'Implementation of Legal Abortion in Nepal: A Model for Rapid Scale-up of High-quality Care'. *Reproductive Health*, 9(7).
- Suvedi, B., Pradhan, A., Barnett, S., Puri, M., Chitrakar, S., Poudel, P., Sharma, S. and Hulton, L. (2009) 'Nepal Maternal Mortality and Morbidity Study 2008/2009: Summary of Preliminary Findings'. Kathmandu: Department of Health Services, Ministry of Health.

Endnotes

1. Prior to 1996, there were no robust national estimates of maternal mortality, but, given what we know of child mortality in that period, it seems plausible that substantial improvements in maternal mortality began significantly earlier than 1990.
2. A CI gives an estimated range in which the 'true' MMR is likely to be found on the basis of the population sampled. The MMEIG MMR values for Nepal are 770 for 1990 (with a 95% CI of 430-1,400) and 170 for 2011 (100-290).
3. The Gini coefficient shows an increase between 1991 and 2001 (from 34.2 to 41.1) followed by a decline during the 2000s to 32.8 in 2010.
4. In particular, DFID's decision to provide long-term targeted support to the sub-sector in 1997 through the Nepal Safer Motherhood Project has complemented existing donor programmes on family planning, and has provided predictable and sustained funding.
5. This consists of information provided by community health workers to pregnant women and their families to increase knowledge of pregnancy-related risks and increase the use of maternal and newborn health services.
6. Data from the World Bank's World Development Indicators database.
7. According to district-level regression analysis by Hussein et al. (2011), the secondary enrolment rate is among the factors most strongly associated with declines in maternal mortality.