December 2011

Ministry of Health & Population

NHSSP

Readiness of Comprehensive Emergency Obstetric and Neonatal Care in Nepal

Naresh Pratap K.C.
Ganga Shakya
Louise Hulton
Maureen Dariang
Madhu Dixit Deukota
Meera Thapa Upadhyay
Marge Koblinsky
Sumit Karn

Strengthening Health Systems-Improving Services

Suggested citation:

Devkota, M., G. Shakya, N. Pratap K.C., M. Dariang, M. T. Upadhyay, S. Karn, L. Hulton, M. Koblinsky (2011) Readiness of Comprehensive Obstetric and Neonatal Emergency Care in Nepal, National Health Sector Support Programme and Ministry of Health and Population of Nepal, Kathmandu, December 2011.

Government of Nepal
Ministry of Health & Population
DEPARTMENT OF HEALTH SERVICES
Tel. : 4261436
: 4261712
Fax : 4262238
Pachali, Teku
Kathmandu, Nepal

Ref. No.

Date : 15 December 2011.

Foreword

I am very pleased to congratulate Dr Naresh Pratap KC and his team on this excellent and thought-provoking piece of research. It was a privilege for me to be involved in the research process and I believe that the recommendations presented have the potential to effect real change for Nepal's mothers and babies. Despite the real and extensive political, financial and policy commitments made by the Government of Nepal to delivering safe motherhood, additional health system strengthening efforts are still needed. These need to be informed by the local context and take a whole system approach in order to overcome the complex challenges that Nepal faces. I hope we can also learn from the highly-skilled, passionate individuals that are delivering health services in remote rural hospitals every day. This report showcases their resilience, their innovations, as well as their reform-minded perspective.

With this in mind, I would like to highlight that we are indebted to all the district health officers and medical superintendents of the districts visited; we acknowledge the contribution of all the respondents and participants, particularly the CS providers, anaesthetists, anaesthesia assistants, district public health nurses, nurses in-charge, SBAs, OT nurses and members of the hospital development committees who graciously found time in their busy schedules to respond to the interviews that made this report possible.

We are also grateful to all the stakeholders who attended the consultative meeting for their suggestions; their input has been crucial in deriving the recommendations of the study. Special thanks are also due to the NHSSP team for their technical and financial assistance.

Dr. Yashovardhan Pradhan
Director General
Department of Health Services

Acknowledgements

We would like to extend our special thanks to Dr. Y V Pradhan, Director General- Department of Health Services. His guidance, support and constructive feedback at each step of this study and especially during the consultative meeting were invaluable.

We are also indebted to the district health officers and medical superintendents of the districts visited; we acknowledge the contribution of all the respondents and participants, particularly the CS providers, anaesthetists, anaesthesia assistants, district public health nurses, nurses in-charge, SBAs, OT nurses and members of the hospital development committees who graciously found time in their busy schedules to respond to the interviews that made this report possible.

We are also grateful to all the stakeholders who attended the consultative meeting for their suggestions; their input has been crucial in deriving the recommendations of the study. Special thanks are also due to the NHSSP team for their technical and financial assistance.

Table of Contents

Abbreviations and Acronyms

AA	Anaesthesia Assistant
ADSL	Asymmetric Digital Subscriber Line
AI	Appreciative Inquiry
ANC	Antenatal Care
ANM	Auxiliary Nurse Midwife
ASBA	Advanced Skilled Birth Attendant
BEOC	Basic Emergency Obstetric Care
CDMA	Code Division Multiple Access
CEOC	Comprehensive Emergency Obstetric Care
CEONC	Comprehensive Emergency Obstetric and Neonatal Care
CH	Chaurajahari Hospital
CS	Caesarean Section
DGO	Diploma in Gynaecology and Obstetrics
DHO	District Health Officer
DP	Development Partner
DPHN	District Public Health Nurse
DPHO	District Public Health Officer
EOC	Emergency Obstetric Care
FGD	Focus Group Discussion
FHD	Family Health Division
FP	Family Planning
FY	Financial Year
GON	Government of Nepal
HA	Health Assistant
HDC	Hospital Development Committee
HDCS	Human Development Community Service
HDI	Human Development Index
HMIS	Health Management and Information System
HP	Health Post
HR	Human Resources
IEC	Information Education Communication
I-NGO	International Non-Governmental Organisation
LBW	Low Birth Weight
LDCH	Lamjung District Community Hospital
MBBS	Bachelor of Medicine/Bachelor of Surgery
MCH	Maternal and Child Health
MDG	Millennium Development Goal
MDGP	Doctor of Medicine in General Practice
MMR	Maternal Mortality Ratio
MNH	Maternal and Neonatal Health
MO	Medical Officer
MOE	Ministry of Education
MOHP	Ministry of Health and Population
MOU	Memorandum of Understanding
MS	Medical Superintendent
NDHS	Nepal Demographic and Health Survey
NHSP-IP II	Nepal Health Sector Programme-Implementation Plan II
NHSSP	National Health Sector Support Programme
NMR	Neonatal Mortality Ratio

NSI	Nick Simons Institute
OBS/GYN	Obstetrician/Gynaecologist
OT	Operation Theatre
OTTM	Operation Theatre Technique Management
PHCC	Primary Health Care Centre
PPP	Public-Private Partnership
SBA	Skilled Birth Attendant
SDIP	Safe Delivery Incentive Programme
SM	Safe Motherhood
TBA	Traditional Birth Attendant
TH	TEAM Hospital
TOR	Terms of Reference
VDC	Village Development Committee
VSAT	Very Small Aperture Terminal

Executive Summary

Although Nepal has seen a significant decline in maternal mortality over the past two decades, there is an urgent need to accelerate efforts in order to achieve the Millennium Development Goal (MDG) 5 target of reducing the Maternal Mortality Ratio (MMR) by three quarters to 134 per 100,000 live births by 2015. Given that nearly half of the maternal deaths occur in hospitals or in transit, there has been a recent focus on the readiness of district-level hospitals to respond to women who present with the maternal complications that kill.

One policy response has been the establishment in 2008/9 of a special fund for Comprehensive Emergency Obstetric and Neonatal Care (CEONC) services, the "Comprehensive Emergency Obstetric Care (CEOC) fund". This fund is intended to support staff hiring, purchase of equipment, drugs and supplies, repair of the operation theatre, and information dissemination in selected low Human Development Index (HDI) districts. It specifically enables the hiring of a private sector team for the provision of Caesarean Section (CS) services through a short-term contract, including a skilled doctor (Doctor of Medicine in General Practice (MDGP) or Obstetrician/Gynaecologist (OBS/GYN)), an anaesthetist or Anaesthesia Assistant (AA) and an Operation Theatre (OT) trained nurse.

This study took place three years after the start of this policy, in 18 hospitals selected to represent a diversity of geographical locations, terrains and contractual models. Most hospitals had received CEOC funds in 2008/9 although four had not. This report presents the overall synthesis of findings and recommendations; district-specific reports have also been compiled in a second report.

Using CS utilisation as a proxy for the overall readiness of CEONC services, the study found that readiness was low. While CSs should account for no less than 5% of total expected births in a catchment area, an average of only 0.4% of births were delivered by CS in the study hospitals[1]. However when C/S rate of Regional, Zonal and Central referral hospitals are included in the met need of C/S is higher (met need of C/S was 56% in 27 Districts in 2010-11)

Further investigation showed that this low proportion is mainly caused by CS services being inconsistently available throughout the year, despite these districts being recipients of the CEOC fund. Hospitals face many challenges in hiring a CEONC team, these include: a lack of appropriate applicants, a lack of understanding of the CEOC fund's terms of use, late release of the allocated budget, and friction between the lesser-paid government staff and the private sector team.

Significant contributory factors to the latter two problems include inadequate leadership and management. Management responsibility is shared between the Medical Superintendent (MS), the Hospital Development Committee (HDC) and the District (Public) Officer (DPHO). In some cases this shared responsibility works well, especially where there is dynamic leadership as in Gorkha. When it fails, however, the lack of management results in poor communication and coordination, further aggravating relationships between contracted and government staff and hampering continuous service provision. However this cannot be generalised to all Districts

[1]The vast majority of these hospitals were the only ones providing C-sections in their District, such that 0.4% of C-sections is a good estimate of the total proportion of C-section births in the catchment area.

Other major constraints to the consistent provision of CEONC services include: a lack of equipment and infrastructure, inadequate information management, and adversarial relationships with the local community.

Despite the adequate supply of necessary drugs to respond to obstetric complications in most facilities studied (e.g. oxytocics, magnesium sulphate), the operating table was often in need of repair, supplies for newborn resuscitation were sadly lacking, and electrical outages and lack of water in the operating theatre were common. Many facilities also lack adequate staff quarters, thereby constraining the provision of 24/7 services.

Regarding information management, the study found that while maternity registers may be filled in, the numbers recorded were not always consistent with those reported in the Health Management Information System (HMIS). Even at hospital level, the reporting was found to be complex and difficult for providers to carry out.

Finally, the community can be a key enabler to CEONC service provision, as in Syangja and Hetauda, where resources were raised for the development of the hospital. In other districts, however, health providers feel threatened by patients' families, who act in an aggressive manner or ask for written guarantees before operations. This climate of fear, accentuated by excessive political interference and bullying from the cadres of political parties, caused unnecessary referrals.

Using these findings, the following recommendations were developed:

Recommendations	
1.	All CEONC districts should have at least one MDGP/OBGYN and one or two Advanced Skilled Birth Attendants (ASBAs) plus a support team (2 AAs, OT nurse) who must be continually mentored and supported by the senior CS doctor.
2.	Ensure availability of the required service providers: • Review the career structure for MDGPs in order to make it more attractive and hence increase the pool of MDGPs available • Develop an implementation plan to increase the number of trainee ASBAs and AAs • Ensure the continuity and promotion of the Diploma in Gynaecology and Obstetrics (DGO) training programme to get enough OBGYNs for both public and private facilities.
3.	Continue the CEOC fund as a transitional strategy until the recommended staffing noted in 1 above is available through government-sanctioned posting. To improve use of CEOC funds: • Enable multi-year earmarked procurement of CEONC-related services within the CEOC fund • Ensure clear guidance to enable effective management of funds and ensure compliance with the guidelines

	• Hiring and contracting with the CEOC fund: - Hiring and contracting of personnel with specialist and advanced skills should preferably be done by the District to enhance accountability - Implement stronger regulation of private sector provision involved in Public Private Partnerships (PPP)/private partners. Encourage private Medical Colleges to place Post Graduate Residents in the District hospital - Strengthen performance monitoring of compliance with PPP contracts - Provide explicit Terms of Reference (TOR) about what services the contractors are expected to deliver and other requirements such as skills transfer fro government staff.
4.	Leadership and management orientation for HDCs, hospital directors and managers is needed with regard to the management of the hospital and use of the CEOC funds in order to ensure continuous provision of CEONC services.
5.	Where the DHO and MS posts are not held by the same person, responsibility for CEOC fund management should be shifted to MSs given their responsibility for providing hospital services.
6.	Ensure continuous readiness of the CEONC facility: • Update CEONC facilities as per standard • Establish earmarked budget for regular repair and maintenance • Implement system to improve resupply (under the "pull" system) and maintenance of OT equipment on demand
7.	Improve quality of monitoring data, including the completion of maternal and perinatal death forms to inform central and local-level decision-making and policy.

1 Introduction

Although Nepal has seen a significant decline in maternal mortality over the past two decades, there is an urgent need to accelerate efforts in order to achieve the Millennium Development Goal (MDG) 5 target of reducing the Maternal Mortality Ratio (MMR) by three quarters to 134 per 100,000 live births by 2015. Given that nearly half of the maternal deaths occur in hospitals or in transit, there has been a recent focus on the readiness of district-level hospitals to respond to women who present with the maternal complications that kill.

This study aims to explore the context in which district-level hospitals operate and the contributing factors that affect their readiness to provide Comprehensive Emergency Obstetric and Newborn Care (CEONC) services. These factors are analysed using a health system framework and include both direct inputs into service delivery – such as human resources and training, infrastructure, supplies and equipment – and the enabling environment for service delivery, specifically leadership, management and budget processes. It also identifies the strategies that district health systems use to overcome some of the challenges encountered, such as the contractual hiring of CEONC teams or the use of Public-Private Partnerships (PPP) to overcome the human resource gap. Using quantitative and qualitative approaches, the readiness of CEONC services was assessed in 18 district hospitals that fulfilled specific criteria, including a low Human Development Index (HDI) and certain regional and terrain-related characteristics. In addition to this synthesis report, a compilation of 18 district-specific reports will also be available.

The findings of this study provide the evidence needed to rethink strategies and revise policies to improve the readiness and sustainability of CEONC services and to protect the investments made to date.

We first provide some background on mothers' and newborns' health outcomes and the maternity health system in Nepal. A guiding theoretical framework is then presented, which is used to structure the study's analysis. After briefly describing our methodology, we then present our key findings, which are discussed and used to inform our recommendations.

Background

Maternal mortality in Nepal has declined by half between 1996 and 2006 to a ratio (MMR) of 281 per 100,000 live births in 2006, a 4% drop per annum (Nepal Demographic and Health Survey (NDHS) 2006). This figure has been corroborated by the 2009 calculation of 229 maternal deaths per 100,000 live births in eight districts (Suvedi et al. 2009). Even so, to reach Nepal's MDG 5 target of 134 by 2015, the MMR must continue to decline rapidly each year. Neonatal deaths have also declined in this period – from a Neonatal Mortality Ratio (NMR) of 39 per 1,000 live births (1996 to 2000) to 33 (2001 to 2005). Neonatal deaths now represent about 54% of the under-five mortality rate and 69% of the infant mortality rate. It is likely that the MDG 4 target of reducing the under-five mortality rate by two thirds to 15 per 1,000 will be reached.

The causes of maternal death in Nepal follow patterns similar to those reported in many developing countries: haemorrhage is the leading cause, followed by pre-eclampsia or eclampsia, septic abortion, heart disease, obstructed labour, other direct causes and puerperal sepsis (Suvedi et al. 2009). Among neonates, infections account for 39% of

neonatal deaths, birth asphyxia or birth injury for 33%, congenital anomalies for 8%, preterm or Low Birth Weight (LBW) for 6% and other causes for 13.4% (NDHS 2006), again a familiar pattern seen in many other developing countries (although the LBW/preterm proportion is comparatively low).

Along with these declines in the MMR and NMR, a higher proportion of women are now giving birth in the presence of a Skilled Birth Attendant (SBA) or in health facilities. In 2006, 19 % of women delivered with a skilled health professional (a growing number of which are SBA-trained), which constitutes a 70% increase from 2001. In 2009, 29% of women who had given birth had delivered with a skilled health professional in the previous three years. By 2011, this proportion had increased to 36% (NDHS 2011). As expected, facility-based deliveries have also increased: in 2006, 18% of women delivered in a health facility, twice as many as in 2001. Nearly a third of this increase was due to increased use of private facilities. In 2011, 28% delivered in a facility (NDHS 2011).

The percentage of live births delivered by Caesarean Section (CS) has also increased: between 1996 and 2006 there was a nearly three-fold increase, from 1% to 2.9%, primarily owing to the tripling of rural women having CSs. Inequities, however, still play a major role in who delivers by CS: 12% of the richest women deliver through CS, compared to only 1% or less among the poorest 60%. As of 2010, the HMIS data reported that 3.1 % of births take place by CS. Despite this recent increase, there is room for improvement to reach the Nepali target of 5% of CS births.

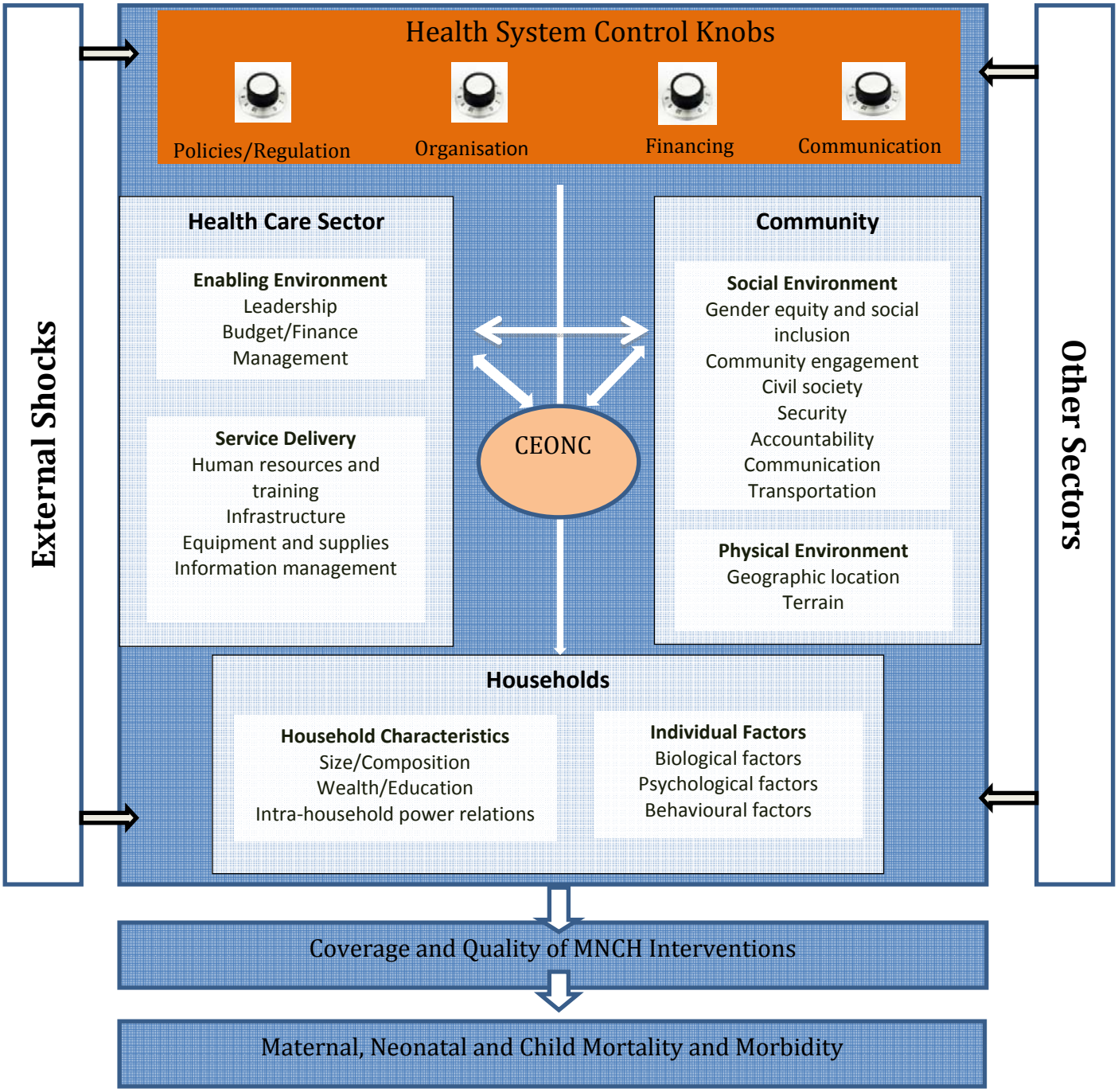
The recent increase in facility-based deliveries, as well as the increased utilisation of CSs, is a positive development that should eventually lead to safer motherhood. Yet, as of 2008, over 40% of maternal deaths occurred in hospitals, mostly public facilities, and 14% of maternal deaths occurred in transit to or from the hospitals (Suvedi et al. 2009). 30% of these hospital deaths were caused by eclampsia, while 19% were due to haemorrhage. Hospital providers and communities agreed that the deaths were caused by three main factors: the inability of providers to treat complications at the facility where the woman died; the inability to treat complications at a previous referring facility; and inadequate clinical expertise. Explored at facility level, CEONC services were not consistently available: only 79% of facilities had an Operating Theatre (OT), 71% provided CSs, 64% had the capacity to deliver blood transfusions, and 24/7 availability of delivery services was limited, especially in mountain and hill districts (Suvedi et al. 2009).

Important challenges identified included: the availability of appropriate staff, particularly senior staff such as gynaecologists, obstetricians and staff nurses, and the lack of 24/7 laboratory support. The management of obstetric complications and newborn illnesses, including CS provision, depends on the availability of a CEONC team to provide the required services — an Obstetrician/Gynaecologist (OBS/GYN), an anaesthetist (or an anaesthetist assistant (AA)) and an OT nurse. The specialist with surgery skills is the primary bottleneck in Nepal as there are few doctors trained to such a level and fewer still that will provide services in rural areas. Furthermore, high demand for these skills leads to augmented salary expectations.

2 Guiding framework

The CEONC readiness study is guided by a health systems strengthening framework that identifies not only the components of health services that directly affect maternal and newborn outcomes, but also the processes or enabling environment guiding and supporting these services. The framework also shows the interaction of these components with households and communities' characteristics (Figure 1).

Figure 1: Guiding Framework for determining readiness of CEONC facilities



More specifically, the framework (adapted from Ergo et al. 2010) includes the following components:

- The health care sector, with two sub-components: the enabling environment (including leadership and management) and service delivery
- The community, with the two sub-components of physical environment and social environment
- The households, which are analysed using household characteristics and individual factors

Maternal and Neonatal Health (MNH) interventions are implemented within this overall health system. Even though some efforts may focus on a few elements within the health system, it is ultimately the system as a whole – i.e. the combination of the different components and sub-components, and all the interactions within and between them – that determines the coverage and quality of MNH interventions, and ultimately impacts on maternal and neonatal mortality and morbidity (as shown at the bottom of the framework).

The four control knobs at the top of the framework disaggregate health systems strengthening initiatives or processes that could stimulate changes in the health system and eventually lead to the desired impact on maternal and neonatal morbidity and mortality. The control knobs represent the 'tools' available to different actors – including but not limited to policymakers – to address weaknesses in the system. These are: policies and regulation, organisation, financing, and communication.

The Nepali government has aggressively implemented best-practice policies and made significant investments in MNH interventions over the past decade. Their efforts have most likely contributed to the increase in the use of SBAs and facilities for delivery and the declines in mortality noted. Specific policies and regulations implemented by Nepal's Ministry of Health and Population (MOHP) that may have impacted on the readiness of CEONC facilities as of 2011 include the following:

a. Nepal's Policies and Regulations

- The National Health Policy of 1991 institutionalised Safe Motherhood (SM) as a primary health care service with a focus on Family Planning (FP), Antenatal Care (ANC) and delivery by Traditional Birth Attendants (TBA).
- The National Safe Motherhood Policy of 1998 emphasised the availability of emergency obstetric care at district hospitals with the aim of gradual expansion.
- The National Safe Motherhood Plan of 2002-17 (revised 2006) aims to expand the availability of CEONC services to 60 districts and guarantee the availability of Basic Emergency Obstetric Care (BEOC) in 80% of the Primary Health Care Centres (PHCC) by 2017. This will involve posting and training SBA staff and improving access to emergency funds and transport.
- The 2006 National Policy for Skilled Birth Attendants broadened the definition of an SBA (until 2012) to include physicians, gynaecologists, obstetricians, midwives, staff

nurses, and Auxiliary Nurse Midwives (ANMs) with at least 18 months of training in Maternal and Child Health (MCH). It also emphasised the need for sufficient numbers of SBAs to be trained and deployed to primary health care levels with the necessary support from district hospitals, and strengthened pre-service and in-service training institutions to ensure SBAs' competencies. Medium-term measures stipulate that all pre-service curricula will be adjusted to ensure SBAs' skills, including the Bachelor of Medicine/Bachelor of Surgery (MBBS) curriculum, while long-term measures aim to develop a professional midwife cadre.

- To meet the target of 60% SBA-attended deliveries by 2015, all SBAs must be trained (minimum 15-60 days training) and recruited by 2012 — which implies an intake of roughly 5,000. The next stage aims to train at least one SBA per health facility providing delivery services. As of 2013, it is anticipated that nurses and medical doctors will receive SBA training during basic training.

- The First Nepal Health Sector Programme (NHSP1) (2004-2009) also emphasised the expansion of CEONC and BEOC facilities at district level.

- A safe blood policy was launched in 2008, using the Red Cross and others to supply blood to hospitals and PHCCs.

b. Financing

- To accelerate the number of SBA-attended deliveries, the MOHP introduced the Safe Delivery Incentive Programme (SDIP) in 2005 to provide cash to women giving birth in a public health facility, with the amount being adjusted based on remoteness of residence. The programme also provides an incentive to the health provider for each delivery attended, either at home or in the facility (Powell-Jackson 2009). In the 25 least developed districts, free health care is provided in addition to the conditional cash transfer (Government of Nepal 2005).

- In 2009, the Government's Aama Suraksha Programme abolished all user fees linked to delivery care at all public health facilities and some private medical college facilities, while continuing to provide the SDIP's conditional cash transfer to all women. Aama includes a transportation allowance and free delivery care including normal vaginal delivery, complication management and CS, as well as an institutional incentive for the facility and for the service provider. There is also a referral fund for selected districts where CEONC services are not available.

- In 2008/9, the Family Health Division (FHD) of the MOHP determined that a special fund for CEONC services (the CEOC fund) would support staff hiring, purchase of equipment, drugs and supplies, repair of the OT and information dissemination in selected low HDI districts. It specifically enables the short-term hire of a private sector team for the provision of CS services, including a skilled doctor (MDGP/OBGYN), anaesthetist or AA and OT trained nurse.

c. Organisation

- Building on the Safe Motherhood Policy (1998), the FHD/MOHP selected district hospitals (initially 19 in 2008/9) for CEONC improvement based on: good geographic accessibility; the capacity to provide 100 CSs/year or more; minimum levels of

population density in their catchment area; and regional equity. Improvements for these selected district hospitals included:

- Infrastructure development for CEONC, including blood transfusion, service expansion and purchase of essential equipment, supplies, and drugs
- Strengthening Hospital Development Committees (HDCs) and providing funds for Information Education and Communication (IEC) activities
- Training to enhance the capacity of CEONC providers, including:
  - Advanced Skilled Birth Attendant (ASBA) training for medical doctors (ten weeks)
  - AA training for Health Assistants (HAs) and nurses (six months initially; extended to 12 months in 2011)
  - Operation Theatre Technique Management (OTTM) training for staff nurses (45 days)
  - Diploma in Gynaecology and Obstetrics (DGO) training (one year) and MDGP training (three years)

This study aims to review the implementation of these government initiatives at district level in order to identify any remaining gaps that must be addressed in order to meet the challenge of MDG 5.

3 Methodology

Definition of CEONC

Emergency obstetric and newborn care is the timely care given to women and newborns experiencing complications during delivery. CEONC includes CS, blood transfusion and neonatal resuscitation in addition to the seven basic signal functions (administration of parenteral antibiotics, uterotonic drugs, and/or parenteral anticonvulsants as needed; manual removal of the placenta; removal of retained products; assisted vaginal delivery; basic neonatal resuscitation). This study specifically focuses on the provision of CSs as a proxy for identifying facilities that are "ready" to provide CEONC services.

District selection criteria

Eighteen CEONC sites were selected (Figure 2, Table 1) based on the following criteria:

- Representation from all five development regions of the country – five districts each from the eastern and central developmental regions, three from the western developmental regions, four from the mid-western developmental region and one from the far-western developmental region

- Geographical representation of mountain, hill and terai districts

- A range of contracting models for CEONC service provision, including Public-Private Partnerships (PPP), local contracting options, Government of Nepal (GON) sanctioned posts, and facilities contracted through International Non-Governmental Organisations (I-NGO)

- Central, regional, zonal and teaching hospitals, as well as private nursing homes and general specialist hospitals, were excluded from the study

Although most of the 18 CEONC sites selected were part of the 2008-9 GON-funded CEONC districts, Udaypur, Nawalparasi, Bhaktapur and Dang did not receive CEOC funds.

Figure 2: Map of Nepal showing the 18 study districts

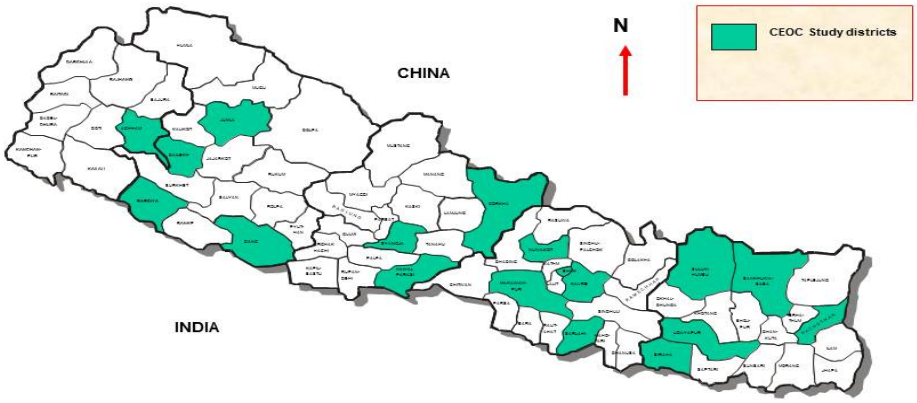


Table 1: Study districts by region, geographic location and service delivery modality

SN	District	Geog. region	# hospitals providing CEONC services in the district	Name of hospital	Total pop.	Exp. birth	Exp. CS
Eastern Development Region							
1	Panchthar	Hill	1	Panchthar District Hospital	239,205	5,794	290
2	Sankhuwasabha	Mountain	1	Sankhuwasabha District Hospital	187,252	4,557	228
3	Udaypur	Terai	1	Udaypur District Hospital	350,325	8,449	422
4	Siraha	Terai	1	Ram Kumar Uma Prasad Memorial	689,648	15,827	791
5	Solukhumbu	Mountain	1	Solukhumbu District Hospital	126,287	2,991	150

Central Development Region							
6	Bhaktapur	Hill	1	Bhaktapur District Hospital	274,605	8,147	407
7	Makwanpur	Hill	1	Makwanpur District Hospital	473,302	11,571	579
8	Nuwakot	Hill	1	Trisuli District Hospital	342,934	8,179	409
9	Sarlahi	Terai	1	Sarlahi District Hospital	772,386	17,390	869
Western Development Region							
10	Arghakhanchi	Hill	1	Arghakhanchi District Hospital	246,569	6,064	303
11	Gorkha	Hill	2	Gorkha District Hospital	340,159	8,223	411
12	Nawalparasi	Terai	1	Prithvi Chandra Hospital	684,035	17,445	872
13	Syangja	Hill	1	Syangja District Hospital	369,856	9,282	464
Mid-Western Development Region							
14	Dailekh	Hill	1	Dailekh District Hospital	269,291	6,614	331
15	Dang	Terai	1	Rapti Sub-regional Hospital	563,679	14,839	742
16	Jumla	Mountain	1	Karnali Zonal Hospital	106,419	2,562	128
Far-Western Development Region							
17	Achham	Hill	1	Achham District Hospital	274,379	6,490	324
18	Bardiya	Terai	1	Gulariya District Hospital	467,603	12,240	612

Study instruments and data collection

Data collection took place from May to September 2011. Information on the enabling environment was gathered from in-depth interviews with key informants in each of the 18 districts – four District Public Health Officers (DPHO), 18 Medical Superintendents (MS), 13 CS providers, 18 nurses in-charge, 18 SBAs, 15 AAs and 14 HDC chairpersons or members. The interview guides were developed to ascertain the hospital's organisational structures and functions, any coordination and communication mechanisms, the availability of financial resources and budget utilisation, and the perceptions of the community. These interviews were carried out by the researchers themselves.

The in-depth interviews were complemented by secondary data collected from maternity and OT registers on service delivery statistics, such as total deliveries, obstetric complications managed and number of CSs performed over the past two fiscal years. Data from the Health Management and Information System (HMIS) and the Emergency Obstetric Care (EOC) monitoring report were also compiled.

Limitations of the study

This study is a first step towards identifying challenges to and enablers of the provision of CEONC services. While it uncovered many reasons why CSs were inconsistently provided, and some lessons towards how these gaps could be rectified, there is much more to learn and to test regarding both the enabling environment and specific services of CEONC. For example, this study focused solely on use of CS as the proxy to investigate readiness of CEONC services. There are many other interventions included in CEONC that could be

followed to understand readiness, such as neonatal resuscitation, blood transfusions, and hygiene practices. The quality of provision of services was not in the scope of the exercise but presents yet another level of necessary investigation.

We did not include measures from the household or individual level, such as equity, ethnicity and women's empowerment, issues that are known to affect access to CEONC services despite the Aama Programme. Other limitations include the non-random selection of districts and the inadequate availability of data around financial management.

4 Results

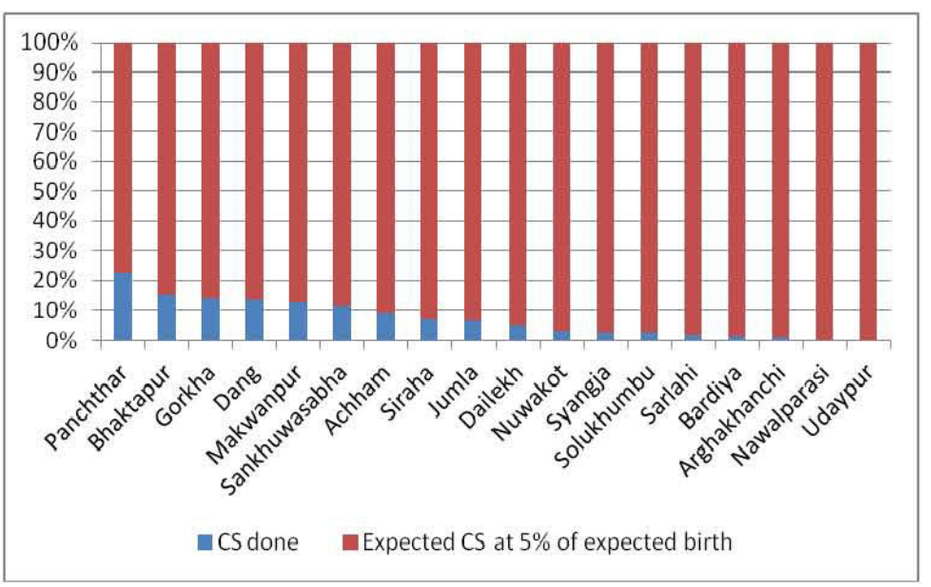
Caesarean Section Performance

The percentage of expected births delivered by CS in a specific catchment population is one of seven indicators developed by WHO/UNICEF/UNFPA to monitor the availability, utilisation and quality of EOC services. It is estimated that in a context of adequate demand and service availability, CSs should account for no less than 5% of total expected births in a catchment area; 5% of all births is also the national target for Nepal, as set in the Nepal Health Sector Programme – Implementation Plan II (NHSP – IP II).

Using the figures recorded in the maternity register maintained at each health facility, this study compares the number of CSs actually performed with the target indicator, in order to obtain a proxy measure of CEONC services' readiness levels[2].

Overall readiness levels are low, with an average of only 0.4% of (expected) births in the district currently delivered by CS over the 18 facilities. Panchthar district hospital delivers the highest proportion of babies by CS (1%), but this only represents 20% of the target for that district (Figure 3).

Figure 3: Percentage of the Nepal Caesarean section target (5%) achieved, by district, 2011



[2] This is only an accurate proxy if the selected hospitals are the only ones providing CS services in the district – this is true for all selected health facilities apart from the Ghorka district hospital, as Amp Pipal Hospital also provides CEONC services in that district. In 2009/10, 40 CSs were performed there, while in 2010/11 there were 21 CS cases.

Furthermore, CS services are inconsistently available throughout the year. In eight of the 18 districts, CS services were available for less than three months in the year. An additional four districts provided CS services for less than six months and only six districts had services available for more than nine months in the last fiscal year. The lack of sustainability and continuity directly impacts service access, while the uncertainty around whether CS services are available makes it less likely that women will think of accessing CEONC services even when services *are* in fact available.

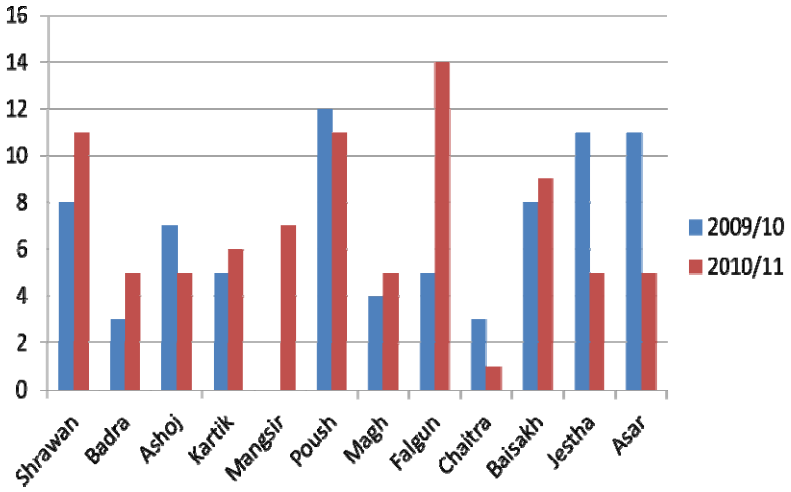
Table 2: Period of CS service availability in 18 districts

Period of CS availability	2009/10	2010/11
Up to three months	Achham, Arghakhanchi, Bardiya Dang, Jumla, Lahan, Udaypur Nawalparasi, Syangja Solukhumbu	Arghakhanchi, Sarlahi, Jumla, Lahan, Udaypur, Nawalparasi, Nuwakot, Solukhumbu
Three to six months	Bhaktapur, Dailekh, Nuwakot, Sarlahi	Dailekh, Sankhuwasabha, Hetauda, Syangja
Six to nine months	Gorkha	
More than nine months	Hetauda, Panchthar, Sankhuwasabha	Bardiya, Bhaktapur, Achham, Dang, Gorkha, Panchthar

The primary reason for inconsistent CS service provision is facilities' reliance on short-term contracted CEONC teams owing to the lack of adequately qualified staff in permanent government posts. In four of the six districts where CS services were available for more than nine months a year, CS services were provided by permanent government staff.

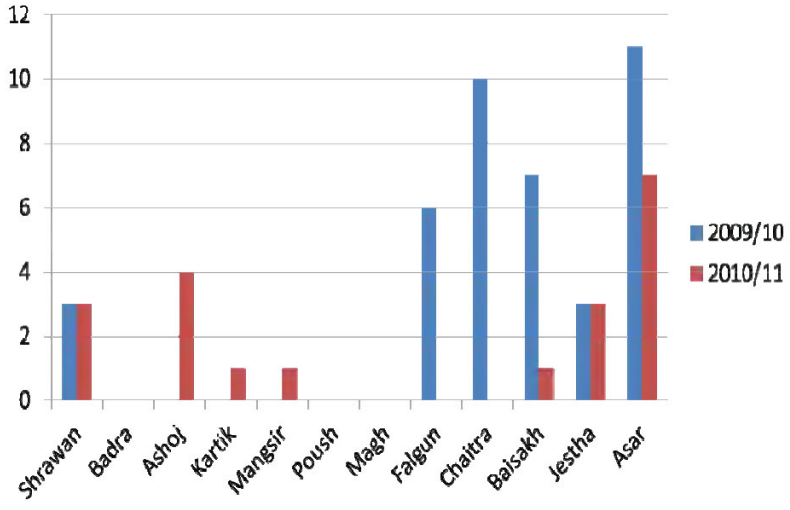
Month-by-month provision of CS services in specific districts (by numbers of CSs performed over 2009-11) is showcased in Figures 4a-d.

Figure 4a: Number of CS services performed monthly in Panchtar, 2009-2011



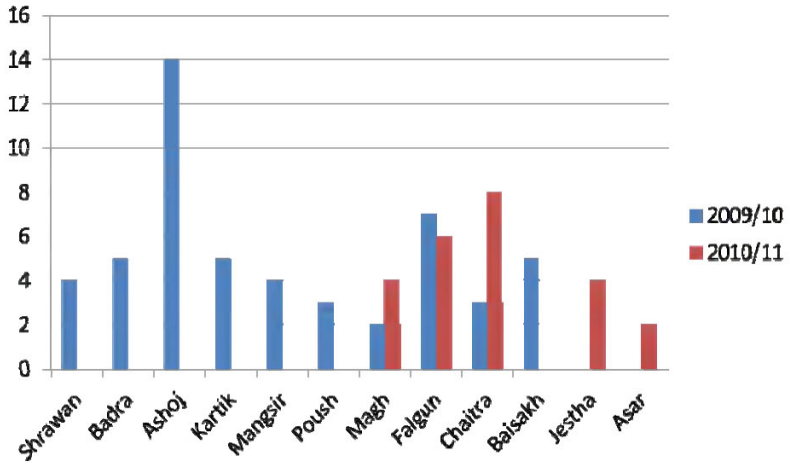
Panchthar had impressive levels of service continuity in both fiscal years. This is due to the proactive HDC that mobilised resources to hire service providers in order to ensure the continuity of services even when the governmental budget was unavailable.

Figure 4b: Number of CS services performed monthly in Dailekh, 2009-2011



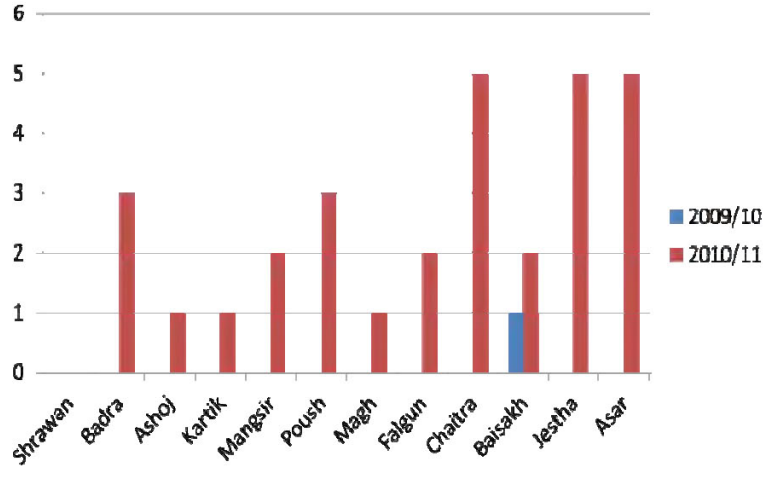
Retention of a contracted team was the main reason behind the low CS performance in the remote Dailekh district. There were frequent changes in the contractual agreements with CS providers with periods when no CS provider was available in the district.

Figure 4c: Number of CS services performed monthly in Sankhuwasabha, 2009-2011



The sustainability of service provision in Sankhuwasabha clearly suffered in 2010/11. There was a gap of six months (July to December 2010) when there were no CEONC services due to the delayed release of the CEOC budget.

Figure 4d: Number of CS services performed monthly in Accham, 2009-2011



Services were not available in Achham during the Financial Year (FY) of 2009/10 despite CEOC fund availability, due to the lack of a CS provider willing to be contracted to work in this remote district. In 2010/11 however, consistent CS services were made possible by a recent medical graduate who had trained as an ASBA.

Health Care Sector: Service Delivery

Human resources

Human resources (HR) challenges in the study districts were manifold and complex. HR scarcity, caused by an insufficient number of sanctioned posts or a large number of unfilled positions, was overlaid with a lack of confidence from certain service providers and poor staff morale. While the availability of a contracted CEONC team addressed these challenges to a certain extent, the attendant tensions and management issues also complicated the HR situation. Table 4 presents the main opportunities and challenges with regards to HR in the studied facilities.

Table 4: Human resources – enablers and challenges

	Enablers	Challenges
Sanctioned positions		• Inadequate sanctioned positions • Sanctioned posts not matched to the current patient load or to the number of available hospital beds • Unfilled sanctioned positions • No sanctioned posts for specialists
Staffing	• Availability of skill mix of different cadres for CEONC • Availability of funds for local hiring of SBAs (from HDC and CEOC fund)	• Only one person available for 24/7 services, especially for CS and anaesthesia
Working environment	• Availability of training opportunities	• System unable to attract trained/skilled staff
HR management		• Transfers are unplanned, without attention to skills matching • Lack of performance-based evaluation • Weak supervision • Weak coordination of the CEONC team

HR availability in the 18 district hospitals

CS provision within a district depends on the availability of a CEONC team to provide these services. Our research found that only five districts had CS teams comprised of permanent government staff[3], while ten additional districts[4] had contracted a temporary CS team from the private sector. In Arghakhanchi there was no CS team owing to an unwillingness to contract external providers despite the availability of CEOC funds for two consecutive years;

[3]Siraha, Bhaktapur, Gorkha, Dang, and Bardiya
[4]Panchthar, Sankhuwasabha, Solukhumbu, Sarlahi, Makwanpur, Nuwakot, Syangja, Jumla, Dailekh and Achham

in Udaypur and Nawalparasi CS services were currently unavailable as there were no funds to hire a CEONC team.

The CEONC team should be comprised of: a doctor skilled in CS provision, an anaesthetist (or an AA) and an OT nurse. The doctor with CS skills is the most crucial member of the team, and the one most lacking. Currently, such skills are possessed by OBS/GYN, MDGPs (Doctor of Medicine in General Practice), or doctors who have received ASBA training. 13 out of the 18 district hospitals studied had an AA. AAs are currently unavailable in Jumla, Sankhuwasabha and Siraha, and in Syangja and Nuwakot the available AAs did not participate in surgery as the hired CS team has its own anaesthesia provider. Similarly, the AAs in Navalaparasi and Udaypur were engaged in other wards as CS surgery was not being performed in those hospitals. Nurses trained in OT management were available at all studied hospitals.

As shown in Table 3, HR gaps in the CEONC team are only a reflection of broader HR problems across the entire hospital. Only 47% of the sanctioned positions for doctors are filled in our study districts. In contrast, 84% of nurses' positions are filled. It is also worth noting that rural hospitals use recent medical graduates to fill their HR gaps, and that 33 of these graduates were working across our 18 study hospitals. Unfortunately, they are inexperienced and unlikely to stay past their two year governmental bond period.

Table 3: Hospital HR in the 18 study districts (2011)

Position	Sanctioned	Filled	Vacant	% of positions filled
Medical doctors	83	39	44	47
Nursing staff including ANMs	147	124	23	84

Impact of the HR shortage

The shortage of appropriate HR impacts on the quality as well as on the continuity of CEONC services. In most districts studied, there was at best a single CS provider, meaning that whenever s/he was on leave, unwell, or attending training or meetings, services were interrupted.

"CS services got stalled for eight weeks when I squashed my finger while closing the window at home. There is no one to help with the services if I am on leave or availing training. Should this not be a concern for the management...?"

MDGP, Dang

Even when services are provided, the inadequacy of HR negatively affects service quality. For example, limited staffing results in the availability of only one or two nurses during a shift, especially during night shifts. The partograph, the tool for monitoring labour, is not being routinely filled in because of excessive work-load and limited staff availability.

Reasons behind the HR shortage

Reasons behind the shortage of HR include: an inadequate number of sanctioned posts given the case load, the lack of sanctioned posts for specialists such as MDGPs,

gynaecologists or AAs, a large number of unfilled positions, and the lack of transparency in deployment and transfer decisions.

Specific problems exist for each cadre of the CEONC team. For example, the four ASBAs we interviewed stated that they did not feel confident in providing such surgeries alone given their lack of experience, that they desired mentoring and follow-up post-training and preferred to be posted with other more experienced staff members (e.g. MDGPs, OBSGYNs).

AAs also face specific problems. Since they can provide for a variety of hospital needs in the emergency room and the outpatient departments, there are no sanctioned posts for AAs. As a result, they miss out on opportunities for skills enhancement, and a chance to build CEONC team spirit and ownership. There is typically only one AA per facility, limiting CEONC services as the AA may be needed for other services, may not be assigned to the OT, and may not be available when needed.

Finally, the scarcity of MDGPs is a wider problem caused by an uncertain career path. The MDGPs belong to the general health group with limited career opportunities and options for promotions to central level management positions. As a result, there is poor commitment to stay in the post and provide surgical (including CEONC) services. Though much needed for service provision in the districts, the MDGP is not a popular career choice for young doctors.

Local solutions

A number of local solutions are being tested to address the HR shortage. The dearth of doctors was compensated by recent medical graduates under the Ministry of Education (MOE) scholarship scheme (Box 1). In addition to providing outpatient consultations and in-patient care, these graduates also support the SBAs in maternity service provision and referral decisions, even though they possess only limited clinical skills and are not SBA-trained. Some, however, have obtained ASBA training and are providing CS services (Achham, Syangja and Lahan). The ASBA-trained doctors are also providing much needed back-up for MDGPs where only one such provider is available. Nurses are being hired locally thanks to FHD, CEOC or HDC funds.

Box 1: Ministry of Education Scholarship Scheme

Medical students funded by the government must serve for a minimum of two years before becoming eligible for registration with the medical council. Many such young doctors are currently serving their tenure in peripheral health facilities.

However it is difficult to find skilled persons in remote areas. In mountains and remote hills, the hiring, deployment, and retention of health personnel are challenges affecting the availability, continuity and costs of CEONC services.

"In this remote district, it is very difficult to find trained and skilled staff. It may not be enough to have money; I could not find an SBA-trained nurse to hire from the CEOC fund though I had the money."

Medical Superintendent/District Health Officer Dailekh

"What we need is a doctor who can perform surgery, the rest are manageable issues. It is very challenging to find such a doctor who can do CS and is willing to work in this remote district...!"

Administrative Assistant, District Health Office, Dailekh

Challenges related to hiring a CEONC team from the private sector

Given the possibility of hiring a CS provider or team through the CEOC fund, it would be ideal if government staff and contracted staff could work in tandem. However, new challenges have emerged owing to poor coordination, lack of clarity about roles and responsibilities, and most importantly the differences in the salary structure for government staff versus contracted staff. Table 5 details these issues.

Table 5: Government vs. contracted CEONC team – enablers and challenges

	Enablers	Challenges
CEONC team in government-sanctioned posts	• Relatively lower cost • Sustainable	• Lack of supply of MDGPs owing to limited career opportunities • Availability of just a single CS provider affecting continuity of services over time and 24/7 • No sanctioned position for AA or SBAs making post less attractive • Transfers (unplanned, without skills matching)
CEONC team contracted through CEOC funds	• Enabled provision of CS • Less burden on management • Help with setting up of OT • Can transfer skills to government staff • Liberal local hiring policy	• High relative cost • Negative effect on government staff morale • Contracted CEONC team not utilised optimally • Problem with contract adherence • Challenging to retain in remote mountains

Training

ASBA, SBA, OT and AA training opportunities are available for government staff and are increasingly being used by contracted staff as well. Despite an insufficient number of training sites, trainees are generally happy with the training they receive. Core issues include the fact that the skills content of some training courses (e.g.: ASBA) is not sufficient to deal with the reality of remote areas where professional surgical support is not accessible. The major finding is the fact that centrally-determined transfers of staff do not always take training levels into account: this is de-motivating for new trainees, who may not be able to exercise their new skills, and seriously interferes with managers' HR plans.

Table 6: Training – enablers and challenges

	Enablers	Challenges
Policies and regulations	• ASBA training for MBBS • The duration of AA training for health assistants and nurses increased to one year • Onsite mentoring and coaching for ASBAs	• No provision for bonding after training • Unresolved issue of AAs trained earlier for three or six months
Content of training	• Competency-based training • SBA, ASBA, AA and OT training appreciated	• Limited exposure to complications management (ASBA) • Lack of team approach in training
Post-training	• Updated resource material • Telemedicine opportunities in selected sites	• Poor post-training follow-up and support • Post-training placement at different facilities or to facilities where new skills are not used

Policy

Competency-based training opportunities exist for different cadres of health workers engaged in CEONC services. These opportunities include SBA, ASBA, AA and OTTM training. Located throughout the country, there are 18 sites for the training of SBAs, two for ASBAs, and three for AAs. This paucity of training sites, as well as the lack of availability of core-trained staff, contributes to the shortage of ASBAs, AAs, MDGPs and obstetricians.

The MS or the DHO selects the personnel to be trained, based on the availability of training opportunities. Nurses and ANMs working in government-sanctioned positions are given priority for SBA training. Increasingly, contracted staffs are also offered SBA training, which is crucial for ensuring the quality of services. Health workers highly value the SBA and AA training opportunities.

Training in the 18 selected districts

Some districts have made better use of SBA training opportunities than others. In Jumla, all nurses working in the hospital are SBAs, and in Panchthar and Udaypur, six out of seven nurses are SBAs. In Achham, Lahan, Solukhumbu and Sarlahi, only one SBA-trained nurse was available in the hospital. Other districts like Nuwakot, Arghakhanchhi, Dailekh and Sankhuwasabha need continued support for training their nurses as SBAs.

Satisfaction with training

The overall feedback received from trained SBAs and ASBAs about their training was positive, as it was perceived to enhance both knowledge and competencies.

"Because of my AA training, I am much more confident in the emergency room. I can practise resuscitation skills and even intubate a patient if needed."

Anaesthesia Assistant, Nawalparasi

Even so, ASBAs working in remote areas requested more hands-on training in the management of complications, as well as post-training placement at hospitals where an MDGP or obstetrician would be available to support and enhance their confidence through in-house mentoring. This request makes a lot of sense given that patients in such remote areas typically arrive in critical condition and that opportunities for onward referral are limited.

The feedback on the AA training was positive overall, but depended on the duration: while such training can last three months, six months or one year, AAs felt that shorter training times impede their confidence. The AAs also reported that they needed additional team-working skills:

"As management of patient in the OT depends on performance of each one of us as part of a team, it would make sense to incorporate team approach and team building skills in the training of the AA, ASBA and OT management."

Anaesthesia Assistant, Gorkha

Post-training issues

AAs felt that supervision, performance-based evaluation and follow-up of new trainees was weak. The lack of professional protection and the possibility of transfer to peripheral health facilities or to sites with no surgical services, were also salient concerns. AAs are in high demand, such that when government employees with AA training are posted to health facilities without surgical services, they face an incentive to take leave from their assigned post and join private-sector CS teams for extra income (as seen in Sankhuwasabha). Such poor HR planning has clear implications for both the retention of this much-needed cadre in the public sector and future service availability.

Such transfers of trained staff are also a concern for the managers. In Sankhuwasabha, Dailekh and Siraha, the AA and the ASBA were transferred post-training to other districts:

"We did everything in a planned manner for 24/7 CEONC services, and sent the medical officer and health assistant for training as ASBA and AA respectively. Neither of them however returned to provide services here as they were transferred to other places. Would you believe it, the same AA has now come as part of the contracted team to provide services? What is the point in planning...?"

District Public Health Nurse, Sankhuwasabha

"Our hospital paid the tuition fee of NRs 500,000 to get an obstetrician trained. After his training was over, he was transferred to Bhojpur instead... I have doubts if the Anaesthesia

Assistant currently being trained would ever come back here. They have to be bonded to the facility that sends them for training."

Administrative Assistant, District Health Office, Dailekh

Infrastructure, equipment and supplies

The infrastructure available for CEONC services varied between districts although there has been continued emphasis and input for improvements in recent years, in particularly thanks to the CEOC fund.

In some districts, however, there is a lack of running water and frequent electrical outages, especially inside the OT. Additional building work is in progress for expansion of the hospital in 12 districts. However, there is no plan for new residential accommodation for health workers in any of the 18 districts visited. The living quarters, particularly for nurses, are inadequate both in terms of the infrastructure and the amenities available. In all hospitals, facilities meant for a single family are being shared by several nurses along with their families. Scrubbing facilities were found to be inadequate in Achham and Hetauda.

"We had to perform a Caesarean under torch light as the solar-backed light went off during surgery!"

MDGP, Jumla

Basic equipment for CS was available, along with provisions for spinal anaesthesia. However, general anaesthesia back-up was available in only four of the 18 hospitals – Lahan (Siraha), Bhaktapur, Makwanpur and Dang. A newborn resuscitation table and equipment for the labour room and theatre were lacking in eight district hospitals – Udaypur, Arghakhanchhi, Nawalparasi, Gorkha, Dailekh, Jumla, Bardiya and Dang. Some hospitals either lacked a proper OT table (Sarlahi, Nawalparasi) or the one available was in poor working order (Achham, Jumla, Dailekh). Except for Dang, all other districts' OT tables suffered from a malfunctioning hydraulic system. The autoclaves in the hospitals of Achham, Sarlahi and Syangja were too small, and there were no refrigerators in Jumla, Solukhumbu and Syangja. The post-operative wards were not always ready for use, owing to a lack of clean sheets, pillows and blankets. Incinerators were not available and waste disposal systems were weak in all districts.

Among the necessary drugs, oxytocics were universally available but magnesium sulphate and calcium gluconate were not stocked in Lahan, Sarlahi and Nawalparasi. Nifedipine was lacking in six districts — Nawalparasi, Bardiya, Dang, Dailekh, Sarlahi and Jumla. Chlorine powder was not stocked in Hetauda, Achham and Trisuli.

Blood banking facilities were not available in any district hospitals except for Bhaktapur and Lahan. However, emergency blood transfusion centres were available at every hospital visited and were working well. These centres were run in collaboration with the Nepal Red Cross Society who generally provided the space and/or staff. The list of potential emergency donors was maintained at these centres, along with their blood groups. Cooperation and help for the centres were also received from the police and army personnel posted in the districts, with much appreciation from all concerned.

There were no systems for repair and maintenance, which meant that many items of salvageable equipment could not be used. This was a common challenge in remote districts like Jumla, where the laryngoscope could not be used owing to a lack of batteries, the oxygen concentrator lay unused owing to the lack of an electrical adapter and the fused bulbs of the OT light could not be replaced.

Information management

Although records of maternity-related data were relatively well maintained in all 18 district hospitals, some hospitals, in Sarlahi, Dailekh and Lahan for example, did not have up to date records due to manual record keeping. District hospitals using manual reporting also suffered from discrepancies between the HMIS data reported to the central level and the onsite data (Jumla, Dang and Bardiya).

Although all hospitals use the maternity register, the OT register is not maintained. There is a lack of uniformity in the recording of some diagnoses for EOC monitoring (e.g. Sarlahi and Hetauda district hospitals). The EOC tally sheet required by the MOHP's FHD is not always used in district hospitals. There is little evidence of local data being used for decision-making at the peripheral level, meaning that information was only being collected for communication to the central level; this certainly impacts on the management's motivation to collect accurate data. Enablers and challenges for information are shown in Table 7.

Table 7: Information management – enablers and challenges

	Enablers	Challenges
Maternity and OT Registers	• Relatively well maintained records	• Examples of poor record maintenance (e.g. Sarlahi) • Tally sheets not accurate • Neonatal resuscitation column not on maternity registers, only outcome and the Apgar score
HMIS and EOC monitoring	• Eight of 18 were reporting monthly EOC data • Monthly reports kept in computer in all but three facilities	• Discrepancy between HMIS and on-site EOC data in 17 out of 18 facilities • EOC monitoring data recording and reporting is not uniform (Sarlahi and Hetauda) • Ten hospitals are using tally sheets to record events, e.g. Lahan, Bhaktapur, Syangja
Data for decision-making		• Little evidence of local data being used for decision-making

Health Care Sector: Enabling Environment

Availability and use of the CEOC budget

A number of funds are available at the district level to improve CEONC services (Table 8). The CEOC fund specifically, made available through the MOHP/FHD, has enabled CEONC service provision in districts where such services were not previously available. However, the capacity of districts to utilise the fund is an ongoing challenge (Table 8).

Table 8: Budget and financial management for CEONC services – enablers and challenges

	Enablers	Challenges
Level of funding	• CEOC fund • Aama Surakshya Fund • FHD fund to recruit nursing staff • Local funding	• Underused CEOC funds for multiple reasons, e.g. lack of candidates to fill posts • Differential pay for same job dependent on fund source
Timing and security of funding		• Delayed release of funding in fiscal year • Uncertain future of CEOC fund
Financial reporting and management		• High variability in interpretation of financial management and reporting requirements • Variable understanding of funding guidelines (e.g. how to use funds)

A case study from Jumla (Box 2) attests to some of the problems at the district level.

Box 2: Jumla's experience with CEONC funds: a case study

Jumla has been the recipient of CEOC funds for the last three fiscal years, during which it has received a total of 14.5 million rupees. However, most of the budget was returned for want of expenditure. Only NRs 2.4 million were spent in the last year of support. Lack of district managers' experience of handling such activities, lack of clarity in the advertisement and the fiscal processes involved, and the delay in the release of the budget have all been implicated in the poor utilisation of funds.

Based on this experience, the district-level managers suggested the following:

- Step-by-step instructions in the guidelines, clearly delineating the advertisement process, the fiscal requirements of the expression of interest, and follow-up
- Identification of the upper limit for hiring human resources
- Instructions on whether it is possible to use the unexpended funds under other headings where needed.

The annual allocations for the different districts varied between two million (Gorkha) and four million rupees (Achham), with seven districts receiving between three and three-and-a-half million rupees. The proportion of allocated CEOC funds expended varied from a mere 12% of the allotted amount in Bardiya to over 90% for Sankhuwashaba (Table 9).

Table 9: CEOC fund allocation vs. expenditure, 2010-2011

District	Budget allocation	Expenditure	% Expended
Sarlahi	3,500,000	2,287,500	65
Arghakhanchi	3,000,000	1,442,393	48
Bardiya	3,000,000	349,050	12
Syangja	3,500,000	2,338,500	67
Sankhuwasabha	3,500,000	3,374,875	96
Solukhumbu	3,060,000	350,000	11
Dailekh	3,500,000	3,111,356	89
Gorkha	2,000,000	1,352,060	68
Achham	4,000,000	2,286,273	57

HR was the largest category of CEOC fund expenditure (77%) (Figure 6). The high salaries paid to the contracted CEONC team raised the service cost of CS (the cost to the district) and impacted negatively on staff morale.

"... it is difficult for me to obtain support from my regular staff due to the discrepancy in the salary and benefits between the government and the hired team ... the morale and work ethics of the staff is being badly affected."

Medical Superintendent

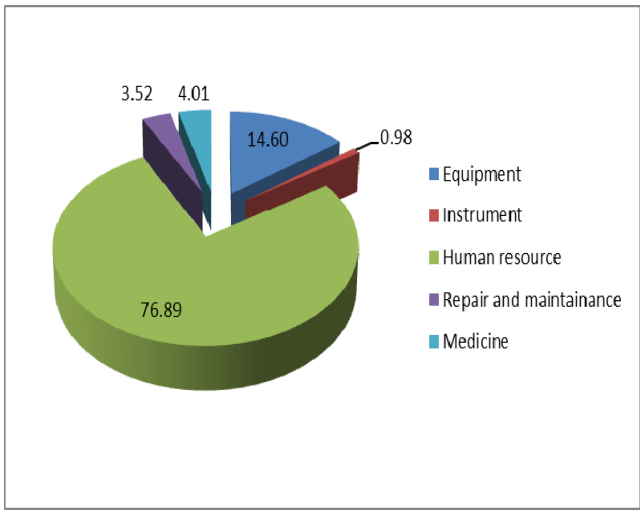
"As a medical superintendent, I draw NRs 20,000 while I'm to pay NRs 150,000 to hire a CS provider...! How does that work? What do you suggest? Where is the incentive for me to do my job?"

Medical Superintendent

While the cost of CS services provided by a government team was approximately NRs 18,000, this increased over eight-fold to NRs 160,000 when services were contracted from the private sector in remote districts. As the programme is in the nascent stage of development, this finding must be interpreted with caution.

The CEOC fund allocations for repair and maintenance, about 15% of the total, were well utilised. However, local purchase of equipment was difficult owing to a lack of appropriate supplies in the local market and poor coordination within the team.

Figure 6: Share of expenditure on CEOC fund headings (%)



Leadership and management of CEONC services

Among the 18 districts visited, a few districts stand out as instances where the leadership qualities of an individual (Gorkha and Achham), or the collective leadership of the HDC (Panchthar) or the community (Syangja) made a difference to CEONC service provision. In other districts, the relationship between the MS and the Chairperson of the HDC were crucial for the management of the hospital. The enablers and challenges to leadership and management are listed in Table 10.

Table 10: Leadership, organisation and management of district hospitals – enablers and challenges

	Enablers	Challenges
Leadership	• High-level political commitment • Exceptional leadership (e.g. Gorkha, Achaam) • Active leadership of some HDCs to improve enabling environment and quality of services	• Weak leadership in most districts • Frequent change of leadership position

Management	• Good examples of PPPs in Lamjung, Rukum and Dadeldhura • Good management practices in some locations (Gorkha) • Regular staff and HDC meetings (Gorkha) • Mobile reporting system, leave reporting and patient complaint system (Gorkha) • Mobilisation of resources by HDC (Syangja)	• Weak hospital management • Limited team building • Lack of coordination between the contracted team and the government providers • Lack of coordination between infrastructure planning and HR deployment at ministry level • Separation of DPHO and MS contributes to confusion and communication gaps

External leadership and support

The HDC is composed of a chairperson, appointed by the Ministry of Health, members from civil society, and the local administration. Its duties are to facilitate the management and operations of the district hospital by planning, mobilising resources, and approving the hospital's budget. Unfortunately, the chair of the HDC has remained unoccupied in most districts owing to ongoing political changes and this has seriously affected the functioning of the committee. Except for Panchthar, Syangja, and Gorkha, other committee members are rarely involved in the absence of such leadership.

In some exemplary hospitals, the HDC was strong and took a proactive role in supporting the hospital despite the absence of the chairperson. In other districts, such as Lahan and Sarlahi, leadership and management-related problems have affected service delivery. The lack of follow-up on decisions taken during meetings, instances of political interference, and the lack of support and oversight of the hospital managers, have all stalled processes for the procurement of supplies and the hiring of human resources, ultimately crippling service provision. Given that leadership should be shared between the MS and the HDC, any distrust, poor communication and coordination between the two result in low morale that could affect hospital performance. There were many voices of dissatisfaction:

"It is very hard for me to call a meeting of the HDC. I have to follow up more than ten times, and even then no one turns up. I have sometimes made personal requests for attendance. No one is prepared to sign the minutes of decisions taken. This has interfered with the timely payment of dues, and the black topping of the access road has not yet been paid for."

Medical Superintendent

"The committee members are only interested in two things – allowances for meetings and contracting their supporters!"

Medical Superintendent

"It is not possible to run the hospital if everything (financial details) is disclosed to the HDC, as we would not come to agreement or make decisions. It is challenging for me to get help, guidance and support even on key issues from the HDC."

Medical Superintendent

"I am not aware about any funds available in the district... No, I do not know about any funds being returned without being utilised in the last two years."

Member, HDC, from a district where CEOC funds had been returned

"The idea behind the formation of a Hospital Development Committee was to generate resources (Human Resources, money and material) locally. However, in the present context it has lost its relevance and its role has become too politicised. This needs to be addressed. "

Medical Superintendent

There were also concerns raised about the lack of understanding among the HDC members regarding the importance of specialised care, and regarding the excessive politicisation of the chairperson's position. The management role of the HDC was weak, particularly with regards to the planning of services or the utilisation of the CEOC fund.

"The HDC has hardly made any contribution in maternal health ... there is hardly a realisation for the need for CS. All they want is a doctor; delegations have gone to MOHP but there is total lack of insight regarding the need for CS services."

District Public Health Nurse

There was provision for a female health worker to be a member of the HDC; however, this did not occur on a regular basis, as expressed by a nurse in-charge:

"I do not know much about the involvement of the HDC in this hospital. I have not received any support from them. I do not even get to know about their meetings, or for that matter who all came, or where and when the meeting was held."

Nurse In-charge

Shared management responsibilities also exist between the DPHO and the MS of the hospital. In many of the districts visited, the MS also held DPHO responsibilities. However, where this was not the case, poor coordination between these two officers was an acute problem, as the authority for the utilisation of CEOC funds remained with the DPHO.

"There has to be some authority associated with the position. He (DPHO) is the one who makes the plans, he is the one who handles the budget, and then what do you expect me to do? Do all the work for him...?!" Medical Superintendent

Internal leadership and management

Despite an acute need for leadership and management on such issues as plans, budgets and service provision, management was sorely lacking. For example, there was usually no regular coordination meeting between doctors and the rest of the team. The nursing team, on the other hand, worked in close collaboration and were typically there to help each other. The system coordinating the handover and takeover of patients strengthened their communication.

Additional management problems surfaced in relation to the contracted teams. Poor coordination of the contracted and government staff led to lack of adherence to contractual agreements. The following issues were reported by hospital staff:

- The contracted team of service providers was not available at the hospital. The team came only when called upon by the nurse in-charge to perform surgery and left soon after the surgery was over, without being involved in the post-operative care of the patients. They were not involved in out-patient care or labour room services either.

- The government staff (especially the AA) were not involved in providing services along with the contracted team. The anticipated learning and skills transfer between the contracted team and the local staff did not occur.

- Complicated cases were still being referred, especially at night.

- Contracts were terminated by the hired team without adequate notice.

- Contracted team members went on leave without finding replacements as had been agreed.

- The contracted team did not contribute to strengthening the other services in the hospital. For instance, the MDGP was not involved in any other medical or surgical services.

Community

Physical environment, transportation and communication

Although the focus of the study is to assess the readiness of health facilities to provide services, the demand side also affects the utilisation of services, an important determinant of health outcomes. The geographic terrain, the quality of the roads and the availability of transportation, along with any uncertainty around the availability of services, all affect access.

Table 11: Geography, communication and transportation – enablers and challenges

	Enablers	Challenges
Physical environment		• Geographic isolation of mountain districts • Sarlahi isolated due to flooding
Communication and transportation	• Road and transport network • Ambulance availability • Mobile and CDMA phones	• Poor condition and availability of ambulance in mountain districts • Lack of repair and maintenance provisions • Lack of a sanctioned position for an ambulance driver at the hospital • Lack of community/household knowledge of where and when to access services, especially referral options

Physical environment

In mountain districts, the difficult terrain restricts access to any available services. For example, in Jumla and Solukhumbu, remoteness seriously limits options for women needing emergency surgery. The availability of aeroplane transfers depends on the weather, and the dirt road to the hill and terai districts is only passable in the dry season. Even then, it takes over two days to access external referral hospitals.

In the terai, access to CEONC services is eased by the availability of extensive transportation and communication networks. Furthermore, other health facilities are within walking distance or a short drive away.

These local realities should be further considered before investments are made to upgrade a health facility, as expressed by an MS:

"Look at the out-patient load; there are more than 150 people. What am I to do? Provide services to those who are here, or run after establishing CS services? Is it so important to have services for cutting open a woman here if she can easily get all those services from Butwal where CS services are available, both in the public and private sectors?"

Medical Superintendent, Nawalparasi, a terai district

Emergency transport network

Despite many villages in mountain and hill districts being linked to the district headquarters through dirt roads, the majority of districts only had access to a single ambulance, which was typically old or in a state of disrepair. In terai districts, ambulance facilities were less of an issue as many private vehicles were available to facilitate referral. A core issue across all districts, however, was the lack of sanctioned funding for a driver. In many hospitals, the HDC supported emergency transport capacity by hiring a driver.

In remote districts like Jumla, Dailekh and Solukhumbu, where there is an almost complete lack of access to markets and repair workshops, the cost of repairing and maintaining an ambulance is beyond the hospital's means. As the DPHO from Jumla expressed during the interview:

"Once, the ambulance met with an accident carrying a patient to the district hospital from a remote village. It was dumped in the hospital premises for many months due to the lack of fund for repair. Later we had to spend more than a million rupee to get it up and running again … This is the only ambulance in the whole district, and if this did not work, patients would have to be carried to the hospitals by their relatives or friends…"

DPHO, Jumla

Emergency communication network

In order to facilitate referrals, many SBAs working in the peripheral birthing centres are using their personal mobile phones when there is no Code Division Multiple Access (CDMA) phone available at the health facility. In Ghorka, mobile phones are also being used to report any health facility delivery to the DPHO.

Social environment

Community engagement and ownership are important for enhancing access to CEONC services. The HDC is meant to act as the bridge between the hospital and the community, thanks to the membership of locally elected bodies and civil society. However, the HDC does not always represent the needs of the community.

Table 12: Community engagement – enablers and challenges

	Enablers	Challenges
Community and local government	• Community funds for CEOC services, e.g. 10% road tax to hospital (Syangja) • Raised one million rupees for hospital development from religious ceremony (Hetauda)	• Lack of community ownership and engagement in some facilities, e.g. Lahan Hospital Siraha, Parasi and Sarlahi • Socio-cultural barriers
Civil society	• Active civil society, e.g. Himalaya Trust re: maternity waiting home	
Security	• Help of the HDC and local authority during conflict	• Health workers feel insecure and isolated in many hospitals

Positive interactions

The contributions of civil society and communities to strengthen CEONC services have taken many forms (Table 12). In Hetauda, funds were raised through a religious function, while in Solukhumbu, a maternity home was built by the Himalaya Trust, a local Non-Governmental Organisation (NGO). In Syangja district, 10% of the road tax collected by the municipality has been allocated towards the development of the hospital. At the initiative of civil society, a new access road to the district hospital has also been laid down.

Box 3: Community mobilisation in Syangja: a case study

The FHD-supported Appreciative Inquiry (AI) workshop in Syangja district clarified the role of community stakeholders and energised the newly formed committee. It is now actively advocating for the retention of the MDGP and has initiated an annual performance-based reward system for the medical staff.

"After the AI workshop we realised that the hospital is ours and that we should take responsibility for it. Small sub-committees have been formed to take responsibility for the water supply, sanitation, garden maintenance and cleanliness of the premises."

Member Hospital Support Committee

The committee works in close collaboration with civil society by:

- Advocating for clearing all the pending dues incurred for water and electricity
- Earmarking 10% of the road tax collected by the municipality for hospital development
- Creating a new shorter access road to the hospital
- Negotiating with the municipality to provide a generator for hospital use

In order to build the capacity of the HDC, appreciative inquiry trainings have also been organised by the central government and partners working in the districts. One such training supported by the FHD in Syangja reportedly greatly enhanced the HDC's awareness around their roles and responsibilities (Box 3).

Negative interactions

In recent years, there has been an increasing trend of health workers in both peripheral and hospital-level facilities being targeted by the angry relatives of a patient. Our interviews revealed widespread consensus and real fear expressed by health workers concerning this issue. There were many instances where families of patients have reportedly been aggressive, misbehaved, and even manhandled health workers. Families are also demanding guarantees for the positive outcome of medical procedures. Excessive political interference and bullying from the cadres of the political parties are partly to blame for this situation. The health workers we talked to felt exasperated, alone and ill-supported by their seniors or by management during such episodes. This has an acute impact on service delivery as threatening situations result in unnecessary referrals.

Some measures taken to address the problem have included encouraging the greater engagement from civil society and local authorities, including the HDC, better coordination among the CEONC team for a common voice, engaging local political parties in dialogue and making families sign high-risk consent before surgery.

Voices of health workers

"We are struggling with the realities all the time. One must be very cautious and tactical in dealing with the cases, particularly if the family is aggressive or demanding. In such instances, we tell them that there is no doctor so the patient is better off elsewhere."

Anaesthesia Assistant, currently managing the Emergency Room

"You do what is within your capacity, if there is hostility, you send such patients away...."

Medical Superintendent

"There is no support from the management; we are discouraged and told not to take any risks while dealing the patients and refer the patient out if the patient party is demanding."

Skilled Birth Attendant

"We are totally on our own ... nobody ever comes to support us if we get into trouble, not even the HDC."

Nurse In-charge

"We must be careful and provide services with utmost caution... There is fear ... and we are fighting all the time... Staffs have been threatened; their chairs lifted and thrashed on the ground before them, they have even been followed to their quarters by the angry relatives."

Skilled Birth Attendant

"I am scared during night duty ... I feel that I am alone while facing hostile behaviour from the patient's family. If there was a serious mishap, there would be no one to back me up...!"

Nurse In-charge

On a more general level, community support is lacking even in terms of service access. During Focus Group Discussions (FGDs) in Sarlahi district, almost all non-users of institutional delivery admitted that they did not have the support of their family for accessing hospital services during delivery:

"I wanted to deliver in the hospital ... but who would take me there ... I had to take permission from my husband or my mother in-law otherwise they would scold me ... so I delivered at home."

An FGD participant

"Everyone is so busy and must go out to work...On the day, I was alone at my house...that's when I started having my pains... I cried to ask for help but no one was there... I delivered and managed everything myself."

An FGD participant

Learning from Case Studies

Lessons from district hospitals

The leadership qualities, skills and commitment of the senior medical staff in Achham and Gorkha districts made a tremendous difference to CEONC service provision.

- In **Achham**, the Senior Medical Officer, who is also the acting DHO, has had an important influence on the hospital's enabling environment. He has gone to great lengths to galvanise support from the health care team and the hospital development committee by involving them in every step of the CEONC planning process, including the use of CEOC funds. Though not a CS provider himself, he stays outside the theatre to boost morale of the team every time a CS occurs, even if it is an emergency at odd hours. He is ably supported by an enthusiastic ASBA who helped build the team and initiated CS services with the support of the DHO. The Achham HDC is also proactive in advocating before local authorities for the recognition and respect of service providers. It has also arranged for the un-interrupted supply of electricity to the hospital and solar back-up, as well as the purchase of equipment and supplies.

- The **Gorkha** District Hospital's experience demonstrates how a single person with the right skills, attitude and savoir-faire can make a difference to the whole system. The availability of a capable and committed MDGP has enabled up to 14 CSs and 60 deliveries every month, along with a range of other medical, surgical and orthopaedic services. The commitment of the MDGP to his patients and the hospital, as well as the discipline and support provided to the rest of the staff, has motivated the team. Regular communication and coordination through monthly all staff meetings, where both technical and non-technical staff participate, has improved accountability and created ownership. Significant innovations have also been scaled up: every institutional delivery taking place at a peripheral birthing centre must be reported to the district public health nurse through a text message sent to her mobile phone, and any leave of absence by the nurse in-charge of a peripheral health facility must also be communicated to the district health officer through SMS.

Lessons from public-private partnerships

Innovative collaborations between the private and public sectors can also make a difference to CEONC service provision. We review two of these below: the first is a partnership between the Government and the Nick Simons Institute (NSI), a local charitable company, while the second is an example of a PPP with the NGO Human Development and Community Services (HDCS).

Rural Staff Support Programme, NSI

Recognising that the improved performance and retention of health workers could not be achieved by training alone, NSI and the MOHP initiated a pilot rural staff support programme in three remote districts (Gulmi, Dolakha and Bajhang) in 2007. The programme was expanded to an additional three districts (Kalikot, Salyan and Kapilvastu) in 2011.

The programme, a bundle of human resource support popularly known as the 8Cs, includes:

1) Communication via Very Small Aperture Terminal (VSAT) or Asymmetric Digital Subscriber Line (ADSL) for internet communication in the office and residential quarters, and for ensuring a regular link with the general practitioners
2) Continuing medical education
3) Efforts towards continuous quality improvements
4) Support with capital items
5) Comfortable living quarters
6) Connections with districts
7) Community governance
8) Captaincy by the MDGP

NSI is contributing to increasing the pool of available MDGPs by offering scholarship for their training and bonding them to district hospitals for three years after the end of training. The package for training and salary during the bond period adds up to approximately 4 million rupees. The current salary of an MDGP ranges from NRs 80,000 to 120,000 per year, which is much lower than what is provided for in the CEOC fund.

Early results show impressive gains not only in terms of the utilisation of CS services in the pilot districts, but also for other services such as emergency visits, out-patient consultations and normal deliveries. In Gulmi district for example, the number of outpatients has increased threefold to 33,229 per year. The number of deliveries has more than doubled to 702, including 35 CSs.

This programme can provide key lessons for ensuring the regular availability of a range of services, including CS provision, in a cost-effective manner.

Human Development and Community Services

Established in 1991, HDCS is a Nepali NGO that manages three rural government hospitals in the remote western part of the country as part of a PPP with the GON. Despite initial teething problems, the partnership is now well established and benefits from mutual trust and confidence. Improvements in infrastructure, equipment, and the number of beds have been matched with increases in the quality of care provided and have resulted in increased service utilisation in two of the three hospitals, especially for complicated deliveries (Tables 13, 14, 15). The hospitals are part of the Aama Programme and report regularly to the DPHO. The hospitals are:

a) Lamjung District Community Hospital (LDCH): established in 2001 and serving 50 beds, it was labelled as the model district hospital for all of Nepal by the World Bank in 2003.

Table 13: Maternity service provision in last three FYs by the LDCH

Year	Normal delivery	Complicated	CS section	Total
2008/2009	698	95	112	905
2009/2010	445	308	58	811
2010/2011	595	347	161	1,103

b) Chaurajahari Hospital (CH) in Rukum, a 40-bed hospital in operation since 2003.

Table 14: Maternity service provision in last three FYs by the CH

Year	Normal delivery	Complicated	CS section	Total
2008/2009	183	18	15	216
2009/2010	270	59	39	368
2010/2011	277	64	43	384

c) TEAM hospital in Dadeldhura was taken over by HDCS in 2007. This 50-bed hospital is in the process of being converted to an 80-bed hospital.

Table 15: Maternity service provision in last three FYs by the TH

Year	Normal delivery	Complicated	CS section	Total
2008/2009	552	121	114	787
2009/2010	903	115	203	1,221
2010/2011	1,017	94	250	1,361

5 Discussion, recommendations and conclusions

This study was initiated to find out whether or not district hospitals are ready to provide CEONC services, anticipating that the lack of readiness of such services is a major impediment to decreasing both maternal and newborn mortality. Because of their focus on MDGs 4 and 5, the development partners and GON initiated the CEOC fund. The CEOC fund's purpose is to enable the provision of CEONC services, especially by attracting highly skilled staff to rural and remote districts. It was felt that CEONC services warranted highly skilled staff because of the complexity of setting up the operating theatre for CS surgery, the complexity of the surgery itself, and the need to mentor less skilled or less experienced government staff, including the ASBAs, until they gained confidence.

The proportion of CS deliveries was used as the proxy to examine the readiness of district hospitals, assuming that if hospitals could provide these services, then the skills for the other required CEONC services were also likely to be available. Given this basic assumption, we then looked at the core health care system components, including HR, specific supplies and equipment, the information system, leadership and management processes, and budget availability and utilisation. Community factors were studied primarily from the perspective of how they supported services rather than through factors such as equity or ethnicity that are known to impact access.

The major finding from the district hospitals studied is that the use of CS is extremely low – 0.4% on average, compared to the GON target of 5%. Three years after the central government's major policy and investment efforts to increase the availability of CEONC services, we therefore find that CEONC service provision is sorely lacking. The major reason for this gap is the lack of availability of a CEONC team – specifically the specialist who can provide surgery, the anaesthetist (or AA) and a nurse to manage the operating theatre. Even with dedicated funds and provisions for much higher salaries, the required team cannot be consistently attracted to remote rural areas. Even when a contracted team is available, there are significant frictions with government staff, whose pay scale is so much lower.

Furthermore, the CEOC funds are released only yearly and typically arrive at district level many months into the year. This hiatus in funding should be addressed by the management at district level. Management and leadership responsibility is shared between the MS, the HDC and the DPHO. While the DPHO manages the CEOC fund, the MS is in charge of the hospital and the HDC supports management while sourcing additional resources. In some cases, this shared responsibility works well, especially where there is dynamic leadership as in Gorkha. When it fails, however, the lack of management results in poor communication and coordination, further exaggerating the tenuous bond between contracted and government staff within the hospital and hampering the continuous flow of services.

The CEOC funds are seen as a stop-gap measure, responding to the scarcity of staff qualified to provide CEONC services, especially in rural and remote areas. Yet the CEOC fund has been established at a crucial time, just as private sector services are beginning to attract providers and patients. One downside of the CEOC fund is that it may accelerate the trend towards the increased privatisation of services by pushing medical staff into the private sector where they can benefit from a higher salary, as seen in the neighbouring countries of India and Bangladesh. In the context of weak private sector regulation, this trend should be a cause for concern. In fact, the lack of contractual accountability of private sector CEONC teams was a common challenge in the study districts.

Strategies other than training and funding will be needed to ensure that public CEONC services remain available and grow. These include the bonding of medical graduates to areas of need, the bonding of government staff sent for training to the facility that funded the training, better matching of those already trained with appropriate positions in facilities, a re-examination of which positions should be sanctioned and how many posts are needed to serve the projected caseload.

Strategies must also be more site-specific than is presently the case. The example provided by one DPHO is salient – where a district is close to another with referral facilities, should the former use funds to ensure surgical capability? Where a remote district has a small population, what is the best use of funds to ensure that a woman and her newborn survive? The study also raised questions about the impact of contextual issues, specifically those around geographical terrain: there is a need to explore further the impact of geography on service provision and how models can be adapted to the terai, hills and mountainous areas. Having a single strategy is obviously not enough – many will be needed in order to reduce maternal mortality in Nepal.

The specific recommendations generated from the present study and presented below suggest possible ways in which policymakers can alter the four 'control knobs' of the guiding framework. Given the complexity of the health system, it is important to take these recommendations as a whole package. Only by targeting multiple levels and dimensions of the health system, as modelled in the guiding framework, can change be achieved.

Human resources

Given the importance of a skilled CEONC team, recommendations 1 and 2 address the composition of the team and the continuous presence of all team members:

1. All CEONC districts should have at least one MDGP/OBGYN and one or two Advanced Skilled Birth Attendants (ASBAs) plus a support team (2 AAs, OT nurse) that must be continually mentored and supported by the senior CS doctor.

2. Ensure availability of the needed service providers

- Review the career structure for MDGPs in order to make it more attractive and hence increase the pool of MDGPs available

- Develop an implementation plan to increase the number of trainees available to become ASBAs and AAs

- Ensure the continuity and promotion of the DGO training programme to get enough OBGYNs for both public and private facilities.

Availability and use of the CEOC budget

Both the lack of continuity of funding and the variability in its use at district level has impacted on the readiness of facilities to provide CEONC services. Some DHOs have not used the CEOC funds because they did not feel secure in their understanding of how the funds could be used, in how they could advertise/tender for such services, or they did not have

appropriate applicants when they did advertise. The receipt of CEOC funds late in the fiscal year and the lack of flexibility for the re-allocation of un-used funds to the following fiscal year has meant that some funds are returned without use, and/or that services can only be contracted for a short period before they are discontinued.

Given these issues, recommendation 3 states:

3. Continue the CEOC fund as a transitional strategy until the recommended staffing noted in (1) above is available through government-sanctioned posting. To improve the use of CEOC funds:

- Enable multi-year earmarked procurement of CEONC-related services within the CEOC fund
- Ensure clear guidance to enable the effective management of funds and ensure compliance with the guideline
- **Hiring and contracting with the CEOC fund:**
  - **Hiring and contracting of personnel with specialist and advanced skills should preferably be done by the District to enhance accountability**
  - Implement stronger regulation of private sector provision involved in PPPs
  - Strengthen performance monitoring of compliance with PPP contracts
  - Provide explicit Terms of Reference (TOR) about which services the contractors are expected to deliver and other requirements such as skills transfer for the government staff

Leadership and management of CEONC services

In order to ensure the usefulness of the CEOC fund at local level, the fund is made available to district managers with some flexibility in its use for developing and ensuring local CEONC services. But fund management, as stated above, is a shared responsibility of the DHO, the MS in charge of the running of the hospital and the HDC. Given the need for such coordination to run an effective CEONC service in a hospital, the following recommendations state:

4. Leadership and management orientation for HDCs, hospital directors and managers is needed with regard to the management of the hospital and the use of the CEOC funds in order to ensure continuous provision of CEONC services.

5. Where the position of DHO is not held by the district hospital's MS, responsibility for CEOC fund management should be shifted to the MS given his/her responsibility for providing hospital services.

Infrastructure, equipment and supplies

Despite the adequate supply of drugs required for obstetric complications (e.g. oxytocics, magnesium sulphate) in most facilities studied, the operating table was often in need of repair, supplies for newborn resuscitation were sadly lacking, and electrical outages were common. Repair and maintenance issues could use more regular review and input, and local awareness and authority to ensure the resupply of necessary commodities and equipment needs improvement.

To address these needs, recommendation 6 reads:

6. Ensure continuous readiness of the CEONC facility

- Update CEONC facilities as per standard
- Establish earmarked budget for regular repair and maintenance
- Implement system to improve resupply (under the “pull” system) and maintenance of OT equipment on demand

Information management

The study found that although maternity registers may be filled in, the numbers recorded were occasionally reported differently in the HMIS, leading to discrepancies in the data. Even at hospital level, the diagnosis/reporting was found to be complex and difficult for providers. Maternal and perinatal death audits have not yet been introduced to the district hospitals but should be considered once there is an adequate team.

Given these issues, our recommendation 7 reads:

7. Improve quality of monitoring data including the completion of maternal and perinatal death forms for better use to inform central and local-level decision-making and policy.

References

Ergo A, Eichler R, Koblinsky M and Shah N. 2011. *Strengthening Health Systems to Improve Maternal, Neonatal and Child Health Outcomes: A Framework.* Washington DC, MCHIP.

Nepal Ministry of Health and Population, NewERA, and MACRO Inc. Preliminary report 2011. *Nepal Demographic and Health Survey 2011.* Kathmandu: Nepal Ministry of Health and Population, NewERA, and MACRO Inc.

Nepal Ministry of Health and Population, NewERA, and MACRO Inc. 2007. *Nepal Demographic and Health Survey 2006.* Kathmandu: Nepal Ministry of Health and Population, NewERA, and MACRO Inc.

Nepal Ministry of Health and Population, New ERA, and MACRO Inc. 2002. *Nepal Demographic and Health Survey 2001.* Kathmandu: Nepal Ministry of Health and Population, NewERA, and MACRO Inc.

New ERA. 2009. *Family planning, maternal, newborn and child health situation in rural Nepal: A mid-term survey for NFHP II.* Kathmandu: New ERA.