October 2013

A STUDY ON ACCESS TO MATERNAL, NEONATAL, AND CHILD HEALTH SERVICES IN REMOTE AREAS OF NEPAL

CONSOLIDATED REPORT OF FINDINGS

Kiran Regmi, Senendra Upreti, Maureen Dar Iang, Hom Nath Subedi, Devi P Prasai, Kapil Babu Dahal, Chhaya Jha, Shilu Aryal, Swaraj Rajbhandari, Rachel Phillipson, Stephen Keeling, Alison Dembo Rath, and Deborah Thomas

ACKNOWLEDGEMENTS

We would like to extend our thanks to the many people who participated in this study including the district health officers, medical superintendents of the district hospitals, health workers, the local women and men who were interviewed, the female community health volunteers, members of the hospital management committees, members of the health facility management committees and NGO representatives in the five districts, and the key informants interviewed in Kathmandu. We acknowledge the contribution of all participants, particularly the local women who participated in the focus group discussions and in-depth interviews who kindly found time in their busy schedules and enthusiastically took part in interviews and discussions that made this study possible.

We are grateful to all the field researchers — Tola Kumari Pathak, Bharat Mani Sharma, Poshan Dahal, Obindra B Chand, Roshan K Karn, Shalik R Dital and Ashok K Paudel —who made an enormous effort to collect data and interview women and men from the study areas in Nepal's remotest areas, even amidst the pouring rain of this year's early monsoon. Their efforts will be repaid if this study results in improvements in the health status of women and children from Nepal's remote areas. We also extend our thanks to people who helped with the data entry and analysis.

We are indebted to Dr Nancy Gerein, Ms Corrina Moucheraud, Dr Suresh Mehata and Ms Kate Gray for their support and for providing technical assistance. We also thank Prashan Shrestha for his assistance with GIS mapping and Ms Cherry Bird for her assistance editing the report.

We are also grateful to all Key Informant Group members who attended the consultative meeting and provided technical guidance to the study. Their inputs have been crucial in deriving the study's recommendations. Special thanks goes to The World Bank (through its BNPP trust fund) for being a co-funder and the NHSSP team for their financial, technical and logistic support.

The study team

EXECUTIVE SUMMARY

A Study on Access to Maternal, Neonatal, and Child Health (MNCH) Services in Remote Areas of Nepal

A. INTRODUCTION

Background — Many socio-economically disadvantaged communities and people in rural and remote locations have limited access to maternal newborn and child health (MNCH) services in Nepal. Nepal's remote areas are mostly the mountainous areas. The Nepal Demographic and Health Survey 2011 found that the use of almost all MNCH services was the lowest in mountain areas.

Objectives — The main rationale for the 'Study on Access to Maternal, Neonatal, and Child Health (MNCH) Services in Remote Areas of Nepal' was that Nepal's current health policies, plans, service provision and budget allocations are insufficient to address the needs of women and children in Nepal's remote areas where physical barriers inhibit access to, and the availability and use of health services. This study focused on geographical exclusion but also considered poverty-, social identity- and gender-based issues.

The study — The study was carried out in 2013 by the Family Health Division (FHD), Child Health Division (CHD), World Bank and Nepal Health Sector Support Programme (NHSSP) in three phases:

1. A situational analysis of MNCH services in remote areas based on secondary data and interviews with key informants, and the identification of good practices.
2. The collection and analysis of data on access to MNCH services in five remote districts of Nepal (Bajura, Rukum, Gorkha, Rasuwa and Taplejung). Quantitative and qualitative data was gathered from local communities, service providers and district health teams, and secondary data from health facilities and the Health Management Information System (HMIS). In each district data was gathered from health facilities and communities in i) district headquarters, ii) VDCs within eight hours travel of district HQs, and iii) VDCs more than eight hours travel away from district HQs.
3. Stakeholder consultations to draw out conclusions and recommendations.

B. KEY FINDINGS

The government has taken initiatives to improve access to MNCH services in rural Nepal, including by the local recruitment of health workers and strengthening community-based programmes. Despite improved MNCH outcomes, it is recognised that Nepal's health system focuses on providing MNCH services to the majority population and the achievement of population based targets. Less attention has gone to the most disadvantaged people that face greater geographical, social and economic barriers to accessing services, and particularly women and children in remote locations. If the MDG targets are to be achieved for people in mountain and remote areas, greater policy level focus and a comprehensive approach is needed. This requires interventions addressing multiple barriers at different levels of the health system from communities to the referral hospital level tailored to the diverse contexts of remote areas.

Use of MNCH services in remote areas across Nepal — Using mountain areas as a proxy for remoteness and drawing from national evidence, the study found poorer use of MNCH services and home practices in mountain areas of Nepal:

- *Family planning* — The birth interval is shortest among women from mountain district HQs and mountain rural VDCs putting mothers and their children at increased risk of complications.
- *Safe motherhood* — Antenatal care coverage is lower among women from mountain and hill areas than Terai women. Mountain women have proportionately far few institutional deliveries, are half as likely as hill and Terai women to have their births attended by skilled birth attendants and receive lower quality care when they give birth in a health institution. And access to emergency obstetric care is limited as seen in very low caesarean section rate in the mountains— only 1.4% of expected deliveries compared to the national average of 5%.
- *Newborn deaths* — Delayed bathing after birth is practised less in the mountains meaning that these babies are more at risk of hypothermia and related complications.
- *Immunisation* — immunisation coverage for children from mountain areas is comparable with that of Terai and hill areas.

Study site characteristics — The study sites were selected to represent the five regions of Nepal and the diversity of mountain districts. The five districts had differing population distributions. In Bajura almost two-thirds of the population live more than 8 hours travel from the district headquarters while in the other four districts less than a third do so. Four of the five districts have a high rate of poverty. The VDCs furthest away from the headquarters had the highest rates of poverty.

Barriers to accessing MNCH services — The study identified the following barriers and related issues to accessing and using MNCH services in the study districts:

- *Home and community based barriers* — The study found a strong preference for home births and traditional healers, which can lead to delays in seeking modern health care. Financial barriers due to high costs and lack of local emergency funds were also a major barrier. Traditional socio-cultural practices, women's heavy work burdens, and lack of knowledge and awareness about health coalesced to result in women's limited decision making power and mobility to seek health care for themselves and their children.
- *Journey based barriers* —Geographical terrain and long distances to modern health care are a major barrier for women and children in Nepal's mountains. Steep and narrow paths, perceived insecurity while passing through forests and uninhabited areas, monsoon rains and winter snow provide barriers that are exacerbated the further people have to travel. Although new roads are being built the five districts only have a limited network and many roads are closed in the monsoon. Within the study VDCs, emergency cases are usually carried to health institutions in doko baskets or on stretchers, often entailing high costs. Local people in most study settlements could reach a birthing centre within 4 hours, but some have to travel 4-8 hours. Thirty-one percent of people in the five districts live more than eight hours travel from their district hospitals.
- *Population distribution and institutional deliveries* — The study found that the proportion of women giving birth in a health facility or hospital declined from the district headquarters outwards. Institutional delivery was highest in Bajura in all three types of areas compared to the other four districts and lowest in the remote VDCs of Gorkha and Taplejung.
- *Service based barriers* — The limited number of female service providers, shortages of higher skilled personnel like doctors, inadequate drinking water at health facilities, lack of room heating and insufficient waiting rooms in hospitals were all raised by local users as barriers to accessing

and using care. Informants gave the main reason for services not being up to standard as the transfer away of health staff, including SBAs, from birthing centres. But all respondents said they could access service providers anytime in case of an emergency.

- *Availability of MNCH services* — All five district hospitals were providing most of the regular MNCH services based on the national programme. However, only three were providing caesarean sections and Bajura hospital was not providing mini-laps and vasectomies. In the study's health posts and sub-health posts (SHPs) the weakest service areas were long term family planning methods and medical abortions. It was found that the availability of MNCH services mostly depended on the availability of trained care providers, medicines, and a facility to provide services. And in the five study districts the VDCs lying more than 8 hours away from the district HQs had far fewer birthing centres than those closer to the district HQs. The situation was worst in Gorkha and Taplejung districts.
- *Availability of drugs in health facilities* — Significant stock outs of essential drugs were found in Rukum district hospital and in one Bajura health post. The most expired drugs were found at Rasuwa district hospital and at the remote health post in Gorkha. Local people expressed concerns about the need to purchase medicines that should be freely available and some women said that this constrained them from going to health facilities.
- *Availability of health workers* —20% of sanctioned posts were vacant in the five district hospitals. In the 10 study health posts and SHPs, 11% of positions were vacant. The satisfactory availability of medical personnel was a major issue for enabling access to health services for respondents. The lack of women service providers was raised in several places. The lack of adequate staff accommodation is a major disincentive for health workers to serve and stay in remote areas. In terms of the origin of the health workers, in facilities +8 hours travel from the district HQs, three types of posts, including ANMs and MCHWs were completely filled by local people. Female community health volunteers (FCHVs) provide an important means of health service delivery in remote areas. Although some study participants said that FCHVs were sometimes indifferent to their work local people generally have high expectations of them and in very remote areas often depend on their services.

Service use — The diversity of the remote areas studied is reflected in their varied use of MNCH services. Bajura district had the highest use of MNCH services among the sample including the highest institutional delivery rates and met need for emergency obstetric care. The analysis suggests this is probably due to the higher number of birthing centres, the responsiveness of service providers, the good presence of SBAs, active FCHVs, VDCs providing stretchers, and efforts to provide warm environments in health facilities. Within the districts there was a pattern of increasingly poor access to and use of services the further away and more difficult the journey to district headquarters was. The proportion of institutional childbirths among expected deliveries was two times higher in district headquarters than in outside VDCs. And met emergency obstetric care need was less in the remote VDCs. However where birthing centres in remote VDCs are staffed and equipped to provide care for complicated deliveries there is both the will and demand for them to do so, as there may no alternative.

C. CONCLUSIONS AND RECOMMENDATIONS

Overall findings — The remote VDCs were found to be worse off in most aspects of access to and use of MNCH services. They generally have less human resources (except for SBAs and MCHWs), fewer birthing centres, and higher levels of drug stock-outs and expired drugs. Staff absenteeism is higher and supervision of service delivery is minimal. The use of institutional deliveries, met EOC and 4 ANC coverage was less in the remote VDCs.

Making improvements — To improve access to health services in remote areas both demand and supply-side barriers need addressing in a way tailored to the local context. The study had five main findings. The related recommendations are directed at members of the study's Key Informant Group and the government's Safe Motherhood and Neonatal Sub Committee and other stakeholders.

Finding 1 — Multiple exclusion negatively impacts access to and the use of health service as the impacts of home and community level socio-cultural practices are reinforced by remoteness.

The recommendations to address this are as follows:

1. Mobilise women's groups to effect maternal and neonatal health improvements.
2. Adapt the government's behaviour change communications strategy for MNCH and family planning for remote areas.
3. Mobilise traditional healers to improve awareness about healthy practices and healthcare seeking among hard-to-reach populations.
4. Target men and local leaders to engender their support for MNCH including family planning.
5. Promote safe delivery kits.

Finding 2 — Terrain and distance impact decision making about health care and access to services.

Recommendations to address this are as follows:

1. Address financial barriers by i) establishing community-based emergency funds in all mothers' groups, ii) supporting DHOs and DPHOs to establish EOC referral funds, iii) prioritising remote districts for interventions that address financial barriers; and iv) designing ways in which out-of-pocket spending on transportation for emergency cases can be reduced.
2. Promote regular home visits by FCHVs or other lay persons to deliver packages of evidence-based MNCH interventions.
3. Strengthen the capacity and functioning of FCHVs.
4. Strengthen the functionality of outreach services.
5. Establish more rationally located birthing centres.
6. Provide mothers' groups in remote areas with stretchers or doko baskets for carrying patients to health facilities.
7. Promote the social marketing and franchising of family planning commodities in remote areas.

Finding 3 — Remoteness increases service barriers including the availability and quality of services.

Recommendations to address this are as follows:

1. Ensure the functionality of CEONC services at district hospitals.
2. Establish more strategically located MNCH services.
3. Give more attention and resources to health service provision and quality in remote areas.

4. Strengthen referral systems by ensuring adequate linkages with higher level hospitals including by using mHealth technologies.
5. Provide an enabling environment for staff posted to remote locations.
6. Enable staff posted at remote health facilities to spend time at district hospitals to enhance their skills and knowledge.
7. Develop partnerships with NGOs and the private sector to transport medical equipment and medicines to remote areas.
8. Test out mHealth technologies and promote telemedicine.
9. Consider contracting out health service provision to NGOs and the private sector in remote areas.

Finding 4 — Poor governance impacts service delivery while remoteness affects monitoring and staff motivation.

Recommendations to address this are as follows:

1. Strengthen health service supervision and monitoring systems.
2. Strengthen health facility operation management committees (HFOMCs) to facilitate better supervision and monitoring and ensure that services in remote parts of their catchments are well delivered.
3. Make contractual arrangements with private teaching hospitals to strengthen service delivery in remote areas.
4. Establish, improve and strengthen networks of civil society organisations working on demand side governance in remote areas.
5. Strengthen reproductive health coordination committees (RHCCs) in remote districts.
6. Introduce context-specific and need-based planning at the district level with additional and flexible resources provided by the centre to cover remote area-specific interventions.
7. Expand the social auditing of health facilities to remote areas through support from PHCRD.

Finding 5 — The need for more of a policy focus on improving access to and the use of MNCH services in remote areas**.**

Recommendations to address this are as follows:

1. Develop and implement a strategy for MNCH services in remote areas to strengthen the policy focus on MNCH health care provision.
2. Investigate establishing a remote areas desk within the Department of Health Services.
3. Prioritise remote districts when scaling up interventions to provide community health services.
4. Calculate an increased appropriate transport incentive for mountain districts.
5. Consider higher salaries and allowances for locally recruited health workers in remote locations.
6. Make activities that strengthen FCHV capacity and performance an integral part of FCHV-based community health interventions in remote areas.

7. Make flexible funds available to district health officers to enable them to respond to the service and demand side context in remote areas.

F. COSTING THE OPTIONS FOR IMPROVING ACCESS TO MNCH SERVICES

Methodology —Subsequent to analysis of the findings and preparing recommendations, the study undertook a costing exercise to calculate the relative costs of addressing the main barriers: i) home and community based barriers; ii) journey-related barriers; iii) service related barriers; and iv) governance-related barriers. The actions recommended for each thematic barrier were broken down into sub-activities with associated unit costs.

Total cost estimates — The calculated total cost for additional MNCH interventions in the five districts is NPR 72 million (USD 736,814). The per capita cost for additional MNCH interventions in the five study districts would be USD 1.1. The cost to implement across all Nepal's remote (mountain) districts would be considerably more. Removing service related barriers will be the most expensive option accounting for over 50% of total costs. Removing social and cultural barriers is the next most expensive component (19%), followed by journey-related barriers (18%) and governance-related barriers.

Projected impacts — In the case of Nepal's remote areas, it is assumed that a 50% reduction in neonatal deaths and an 18% reduction in under-5 mortality rate will result from implementing the recommendations to help overcome the four types of barriers. For reducing the maternal mortality ratio in remote areas, 50% reduction is targeted. The study assumed 36 disability-adjusted life years (DALYs) saved for each maternal death averted and 33 DALYs saved per neonatal and under-5 death averted.

Prioritisation — Consideration of the cost per DALY gained should guide the prioritisation of interventions. Reducing home and community based barriers in communities is the most cost-effective option at a cost per DALY saved of NPR 1,402 (USD 14.3). This is followed by removing journey related barriers at NPR 3,177 (USD 32.42). Facility based service improvement is the most costly option at a cost per DALY saved of NPR 4,673 (USD 47.7).

Prioritising interventions — In Nepal's resource-constrained environment, priority should be given to the demand side interventions (removing home and community based and journey related barrier) and less to the supply side (removing MNCH service and governance barriers), because more DALYs can be saved through the former. It is however recognised that programming decisions must be based on the specific operating environment, and different districts will warrant varied responses and combinations of demand and supply side interventions.

H. THE WAY AHEAD

The study findings point to potential strategies and interventions to improve access to MNCH services in remote areas of Nepal.

Recommendations for district health system strengthening in remote areas:

1. Make district level planning context specific and DHO-led.
2. Leverage and implement existing annual work plan and budget activities in remote areas.
3. Fine tune technical interventions to fit the contexts of remote areas.

4. Provide flexible funds to DHOs for implementing tailored, evidence-based activities in remote locations.
5. Appoint additional management staff to support DHOs and DPHOs to implement and monitor remote area activities.
6. Select NGOs, community based organisation and private sector partners to improve access to and use of services in remote areas.

Core package for piloting — A core package of interventions are recommended to overcome the barriers to access in remote Nepal. To test this core package for effectiveness and impact, it is proposed that it is tested in one of the study districts. This will inform the development of strategies for MNCH in remote areas, and the preparation of NHSP-3. The core package consists of the following:

1. At district hospitals enhance staffing, funding, equipment and supplies and provide referral funds and airlift service for obstetric complication cases where CEONC service are not available 24/7.
2. At health facilities prioritise and select facilities in remote areas to be upgraded to birthing centres; strengthen and motivate HFOMCs to mobilise local resources; train locally recruited staff on MNCH competencies; provide obstetric first aid at all health facilities; and contract NGOs to provide services where government health works cannot be maintained.
3. Implement EAP Plus, which may include district BCC planning and implementation; mobilising women's groups; supporting and strengthening FCHVs; promoting post-partum home visits by FCHVs; mobilising husbands, community leaders and traditional healers; and increasing the frequency and number of outreach clinics.

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ACRONYMS

ANC	antenatal care
ANM	auxiliary nurse midwife
ARI	acute respiratory infection
ASRH	adolescent sexual and reproductive health
BCN	Brahmin, Chhetri, Newar
BEONC	basic emergency obstetric and newborn care
CB-IMCI	Community based Integrated Management of Childhood Illness
CB-NCP	Community based Newborn Care Package
CEOC	comprehensive emergency obstetric care
CEONC	comprehensive emergency obstetric and newborn care
CHD	Child Health Division
CPR	contraceptive prevalence rate
CS	caesarean section
DALYs	disability-adjusted life years
DoHS	Department of Health Services
EAP	Equity and Access Programme
EPI	Expanded Programme of Immunisation
FCHV	Female Community Health Volunteers
FHD	Family Health Division
GESI	gender equality and social inclusion
HBLSS	home based life saving skills
HDI	Human Development Index
HFOMC	health facility operation management committees
HHS	Household Survey
HMIS	Health Management Information System
HP	health post
HQ	headquarter
HR	human resources
INGO	international non-government organisation
Ipas	International Pregnancy Advisory Services
IUCD	intrauterine contraceptive device
KIG	Key Informant Group
MBBS	Bachelor of Medicine and Bachelor of Surgery
MCHIP	Maternal and Child Health Innovative Programme
MCHW	maternal and child health workers
MNCH	maternal newborn and child health
MoHP	Ministry of Health and Population
MWRA	Married Women of Reproductive Age
NDHS	Nepal Demographic Health Survey
NGO	non-government organisation
NHEICC	National Health Education and Information Communication Centre
NHSP 2	Nepal Health Sector Programme 2
NHTC	National Health Training Centre
NLSS	Nepal Living Standards Survey

NPC	National Planning Commission
NSI	Nick Simons Institute
ORC	outreach clinic
ORC	outreach clinic
ORS	oral rehydration solution
PEER	participatory ethnographic evaluation and research
PHCC	primary health care centre
PHC-ORC	primary health care outreach clinic
PMMN	Prevention of Maternal Mortality Network
PNC	postnatal care
RHCC	reproductive health coordination committee
SBA	skilled birth attendant
SHP	sub-health post
Sr	senior
SSMP	Support to the Safe Motherhood Programme
STS	Service Tracking Survey
UNFPA	United Nations Population Fund
Unicef	United Nations Childrens Fund
VDC	village development committee

1 INTRODUCTION

1.1 BACKGROUND

Disparities in access to MNCH services — Over the past few decades there have been large improvements in the overall health status and access to maternal newborn and child health (MNCH) services in Nepal. However, socio-economically disadvantaged communities and many people living in rural and remote locations have less access to and use of these services.

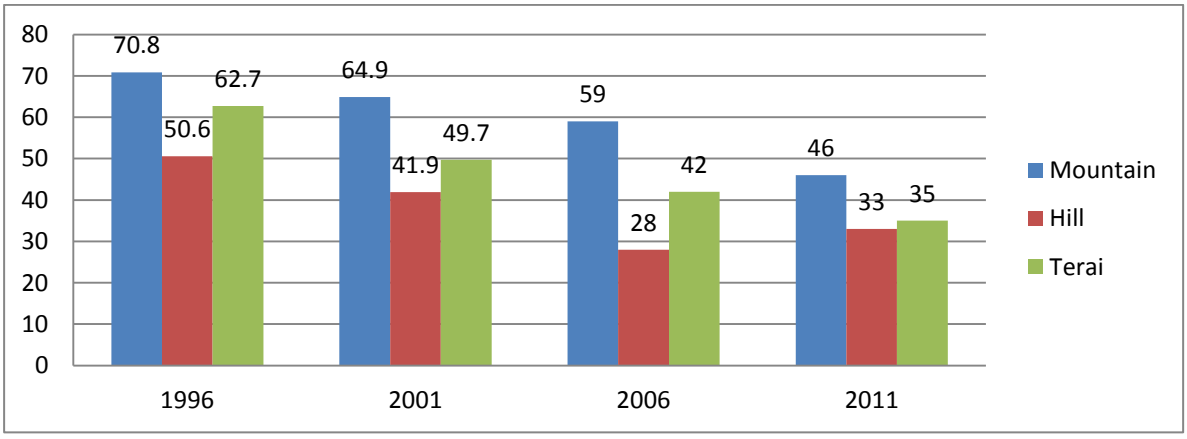
Amongst the various indicators, the latest data, which is based on the Nepal Demographic Health Survey (NDHS) 2011 (MoHP et al. 2012), indicates a slowing of progress in reducing under-five mortality. This is largely due to newborn deaths remaining at 33 per 1,000 live births for the last five years and there being less progress in certain geographical regions and socioeconomic groups.

By geographical location, the NDHS 2011 found the largest equity gaps to be between:

- urban and rural areas, with under-five mortality in rural areas almost 1.5 times higher than urban areas; and
- ecological regions, with under-five mortality being 1.5 times higher in mountain districts than in hill and Terai (southern plains) districts (Figure 1.1).

A recent study on maternal mortality and morbidity in eight districts of Nepal also found higher mortalities in the two mountain districts it covered (Suvedi et al. 2010: p. 93).

Figure 1.1: Newborn mortality rate per 1,000 live births in mountain, hill and Terai districts of Nepal (means of 10 year periods)



Sources: NDHSs for 1996, 2001, 2006 and 2011 (DoHS et al. 1997; MoH et al. 2002; MoHP et al. 2007; MoHP et al. 2012a)

Exclusion due to geography — The four main factors that govern exclusion from health services are i) gender; ii) caste, ethnic and religious identity; iii) poverty; and iv) geographical location. Overcoming exclusion is a priority of the Nepal Health Sector Programe-2 (2010–2015) (MoHP 2010). The current study investigates the influence of geographical location on this exclusion.

Poverty and remoteness — Populations in remote areas are among the poorest in Nepal facing exclusion due to poverty, socio-cultural factors and geographical barriers. The poorest families are those least able to overcome the difficulties of living in remote areas. They face multiple barriers accessing health services, including limited availability of health workers, higher costs of reaching services, lack of information and weak political voice.

Mountains as remote areas — There is evidence that people living in remote areas, particularly in the mountains, have less access to MNCH services. NDHS 2011 found that, apart from immunisation, the use of MNCH services was lower in mountain areas, and to some extent in the hills, compared with the Terai.

Changing nature of remoteness — It is important to note that the nature of remoteness is changing in Nepal, with changing demographic patterns, increasing concentrations of populations in district headquarters and declining numbers of people in many rural areas, especially in the mountains. The recent rapid expansion of Nepal's road network has dramatically improved mobility and has major implications for service availability and referral to higher level health facilities. Examples include the new roads to Darchula in the west and Solukhumbu in the east.

Policy focus — The core objective of the Nepal Health Service Programme-2 (2010–2015) is to improve the use of essential health care and other services, especially by women and poor and excluded people. The Interim Constitution (2007), the Three Year Interim Plan (TYIP) (2007-2010) and the Three Year Plan (2010-2013) of the Government of Nepal (GoN) define those who experience exclusion as women, Dalits, Adibasi Janajatis (indigenous and ethnic people), Madhesis, Muslims, people living with disabilities, sexual and gender minorities, and people in geographically remote areas. Women are the largest excluded group and many women remain marginalised economically, socially and politically. Hence, although the current study is focused on geographical exclusion it also considers poverty-based, social identity-based and gender-based issues as these aspects of exclusion are all inter-related.

1.2 THE STUDY

Rationale — Nepal's current health policies, plans, service provision and budget allocations are ill-prepared and insufficient to address the particular needs of women and children in Nepal's remote areas where physical barriers inhibit the availability and use of health services. While programme managers and implementers are aware of the challenges, comprehensive evidence is needed to transform this concern into informed investments that will improve the health status of women and children in remote areas.

Purpose and objectives —This study was carried out in March to September 2013 to undertake a situational analysis of women's and children's access to, and use of, MNCH services in remote areas including the barriers they face, and to make recommendations for reducing demand-side barriers, improving service coverage and improving health seeking behaviours.

The study's objectives were as follows:

1. To improve understanding of the barriers to accessing and using MNCH services in remote areas of Nepal.
2. To define and identify remote areas of Nepal and MNCH service availability and the barriers to accessing and using these services in these areas.
3. To make context-specific recommendations for demand and supply side measures to overcome these barriers and to cost options that have the greatest potential to bring about improvements.
4. To present findings and recommendations to key stakeholders, including Key Informant Group members, and GoN's Safe Motherhood and Neonatal Sub Committee.

Three phases — This study was a collaborative effort between the Family Health Division (FHD), the Child Health Division (CHD), the World Bank and the Nepal Health Sector Support Programme (NHSSP). It was undertaken in three phases:

Phase 1: A situational analysis of MNCH services in remote areas of Nepal based on secondary data and interviews with key informants; and the identification of national and international best practices for increasing access to and the use of MNCH services in remote areas.

Phase 2: The collection and analysis of primary data on access to MNCH services in five remote districts of Nepal.

Phase 3: National and district stakeholder consultations to draw out conclusions and recommendations from the findings of the study, and to identify options for costing.

The findings from phase 1 were used to develop a conceptual framework, methodology, and tools for data collection in five remote districts. Based on the findings from Phases 1 and 2, the study has identified and costed options for overcoming the barriers found.

1.3 CONCEPTUAL FRAMEWORK

The conceptual framework for this study is premised on two widely accepted principles:

- First, that access to and the use of health services is determined by supply and demand side factors, which interplay at all stages, from decision making at home to receiving quality services. In the health sector, the 'demand side' refers to the behaviour of recipients or intended recipients of healthcare services, including individuals, households and communities.
- Second, that access to health services in Nepal is affected by the social determinants of gender; poverty; geography; caste, ethnicity and religion; seasonality; and the nature and capacity of health services. These interact and play out in different ways for different populations in different contexts, and in turn affect access to, and the use of services (see Figure 1.2).

Bearing these two principles in mind, the study adopted a pathway to care framework to identify and conceptualise the barriers to accessing and utilising services in remote areas of Nepal, and their inter-relatedness (see Figure 1.3). This framework is adapted from a recent study on access to health services in Nepal (Thomas et al. 2013). It gets below the simple supply and demand side dichotomy, and encourages a more holistic understanding of the multiple factors that impact access, their interconnectedness at different points along the pathway to care, and how this amplifies their influence on use of services, delays in seeking care, and decisions to seek traditional healers or no care at all.

The analysis of the findings from primary and secondary data as presented in Chapter 4 is organised around the barriers at each stage along the pathway to accessing care.

Figure 1.2: Social determinants of accessing health services in Nepal

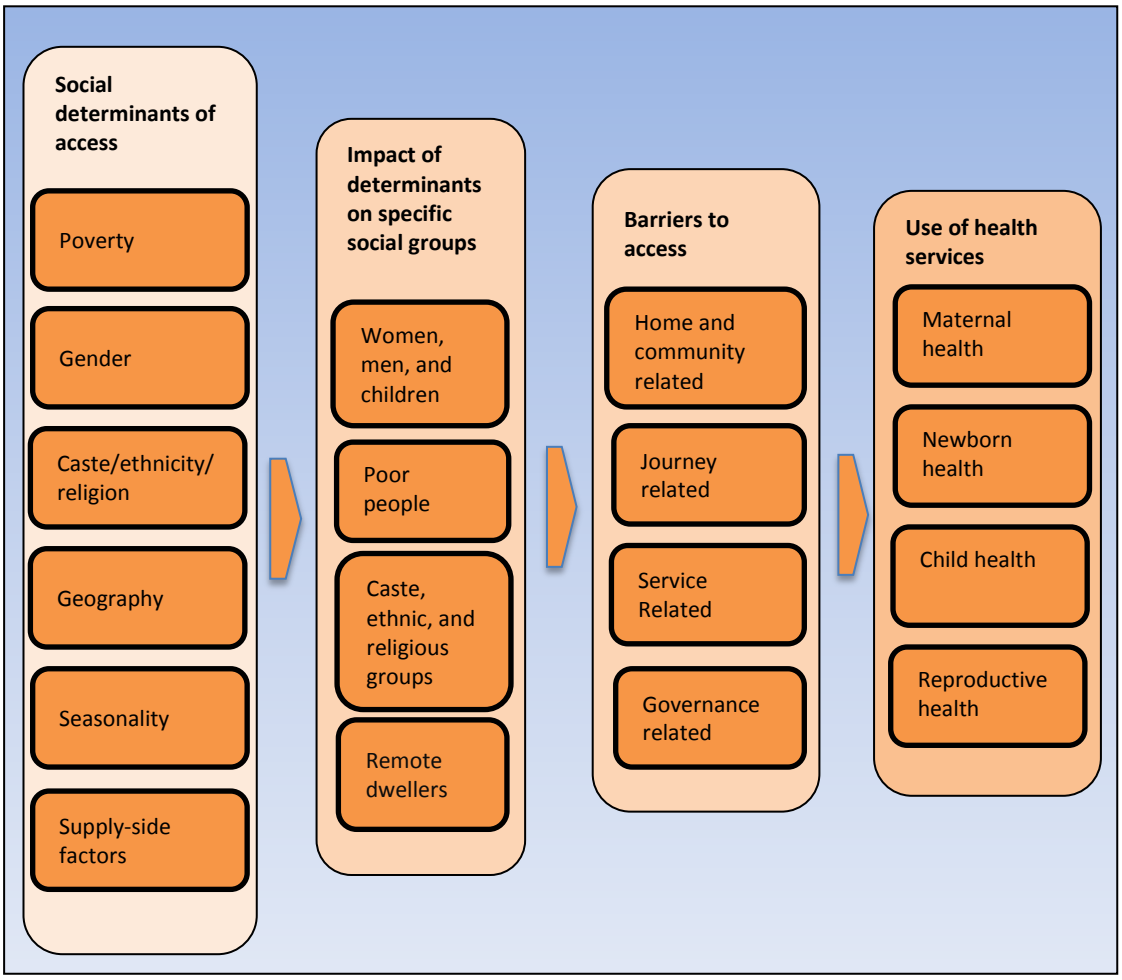
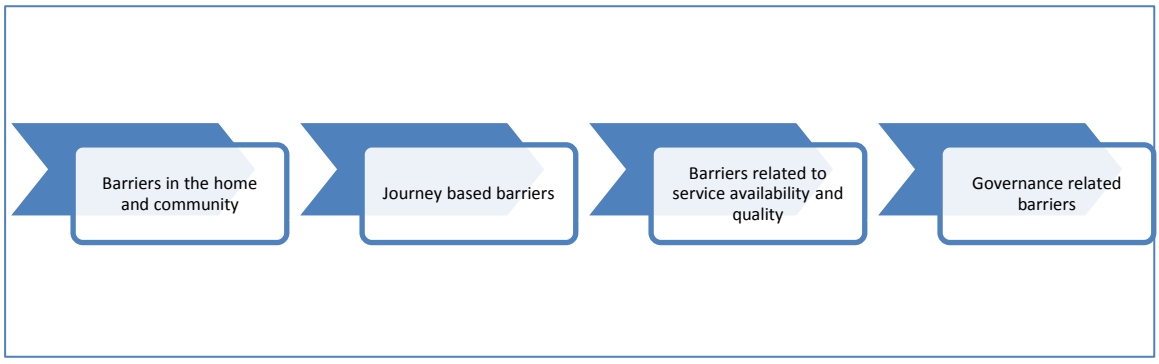


Figure 1.3: Framework for analysing barriers to accessing MNCH services



1.4 METHODOLOGY

A key informants group (KIG) of experts in the field of MNCH was formed by the Family Health Division (FHD) and the Child Health Division to facilitate the design and implementation of the study and to provide expert guidance. Several KIG meetings were held before and during the study to get its inputs on site selection, technical contents, methodology, and variables for the study. The KIG also provided valuable important inputs on organizing the final reports and on drawing out policy and strategic options based on the study findings.

1.4.1 Phase 1: Situational analysis and literature review

Conceptual framework — A conceptual framework was developed for identifying and organising the barriers to accessing services, and secondary data was reviewed to compile evidence of the barriers faced by people in remote areas. Additional thematic content analysis was carried out of a recently study on access to MNCH services in rural Nepal (Thomas et al. 2013).

Defining remote areas — Phase 1 of the study began by defining remote areas:

- The study used data on road networks, population densities, the price of food items, transport costs, catchment areas of health institutions, and official definitions to define remote areas in Nepal. This data was used to determine cut off lines for remote and non-remote areas. Economic data, including poverty rates and access to health institutions, were collected from the Nepal Living Standards Survey (NLSS) 2010/11 (CBS 2011) and the Benefit-Incidence Analysis in Health (Silva-Leander 2012).
- The study considered two ways of categorising districts as remote (see Section 2.1). It was decided to use the traditional definition, which classifies the 16 mountain districts as remote. The further analysis of NDHS data was carried out based on this categorisation using mountain districts as the proxy for remote areas.

The study sub-divided districts into remote and non-remote areas. NDHS data is traditionally disaggregated on the basis of urban versus rural and by ecological zone (mountain, hill and Terai) giving six categories describing geographical access. However, district headquarters are generally better connected than most rural village development committees (VDCs), yet the NDHS classifies some of these as rural. For the analysis, NDHS 2011 data were further disaggregated into urban district headquarters, rural district headquarters and the rest of the VDCs as rural for each of the three ecological zones, giving eight categories (there are no rural district headquarters in the Terai), for which selected indicators were analysed.

Data on use of MNCH services — Quantitative data was collected on the use of MNCH services in remote areas from the two most recent NDHSs (MoHP 2007 and MoHP 2012a), the Service Tracking Surveys for 2011 and 2012 (Suvedi et al. 2012; and Mehata et al. 2013a [STS 2012 draft]), the Household Survey 2012 (Mehata et al. 2013b), the NLSS (CBS 2011) and the National Census 2011 (CBS 2012).

Data analysis — Selected MNCH indicators were analysed based on geographical location. For indicators showing a difference related to location, logistic regression was used and sampling stratification carried out to assess the effect of place of residence and ecological zone on the use of MNCH services. In the net effect model a number of additional controls (age, education and wealth status) were introduced to examine the independent effect of place of residence and ecological zone on the use of MNCH services. The results are presented as odds ratios along with 95% confidence intervals, which can be interpreted as the factor by which a change of one unit in the independent variable will increase or decrease the odds of MNCH services utilisation. Household survey and NDHS findings for which further analysis was not performed were presented from urban/rural and mountain/hill/Terai categories only.

Literature review — Global and national literature was reviewed on interventions that have improved MNCH service delivery and access by marginalised groups, with an emphasis on rural and remote locations. This review also explored variables and indices to define remote areas and to inform the

study's index of remoteness. The literature was sourced from a number of databases (the census, road networks, the Health Management Information System [HMIS], the Education Management Information System [EMIS], from policies and strategies, legal documents, reports and government publications, and from a range of national and international journals, texts and conference papers.

National key informants — In-depth interviews were undertaken with national level government and non-government stakeholders to understand their views on remote areas, to map out MNCH programming in remote areas, and to discuss strategies for reaching unreached populations.

1.4.2 Phase 2: Case studies in five remote districts

Sampling frame and selection — The KIG selected five remote districts based on their degree of remoteness, regional representation (one per development region) and coverage of MNCH services. The following districts were selected (Figure 1.4):

- Bajura District, Far Western Development Region
- Rukum District, Mid Western Development Region
- Gorkha District, Western Development Region
- Rasuwa District, Central Development Region
- Taplejung District, Eastern Development Region.

Figure 1.4: The five study districts

Study sites — Three of the five study districts are among Nepal's least developed districts (Table 1.1). And within all five districts the remote VDCs have substantially higher levels of poverty than the district headquarters (Figure 1.5). As for the social profile, the latest available figures (2001 census)

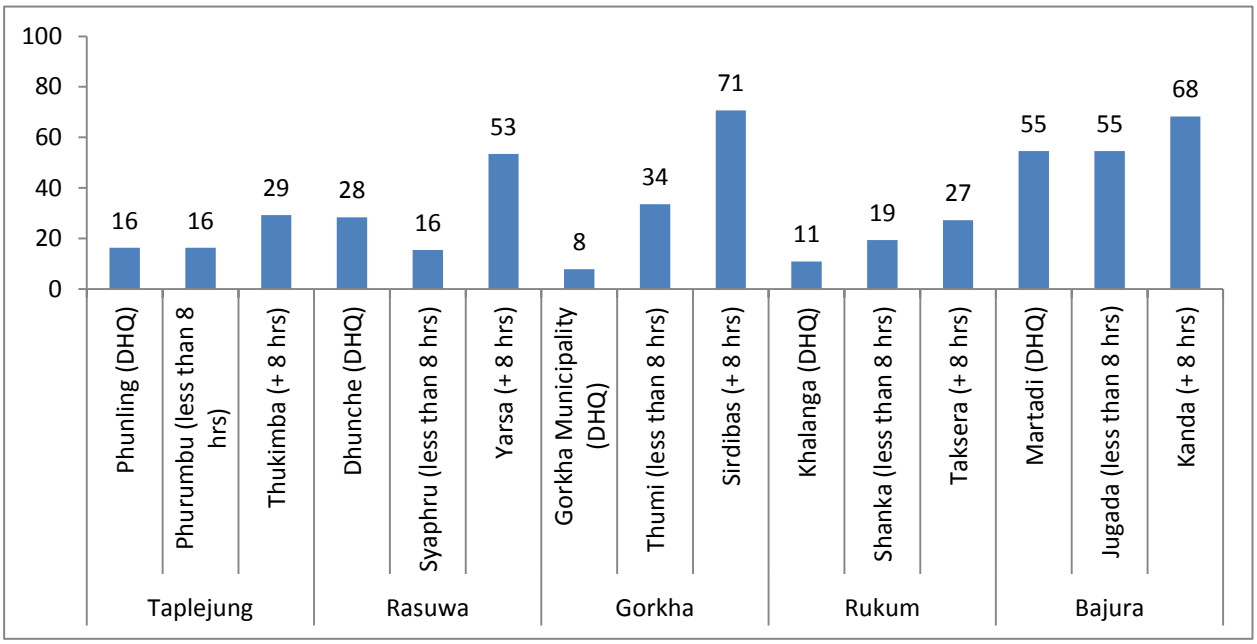
show Bajura as having the highest proportion of Brahmins, Chhetris, Newars (BCN) and Dalits and Rasuwa with the highest proportion of Janajatis (ethnic group people) (Table 1.1).

Table 1.1: The caste and ethnic make-up of the five study districts (2001)

District	HDI	Population makeup			
		Proportion BCN	Proportion Janajati	Proportion Dalit	Total
Bajura	74	80.10	1.05	18.85	100
Gorkha	40	45.34	43.06	11.60	100
Rasuwa	62	35.14	62.41	2.45	100
Rukum	64	61.05	22.05	16.90	100
Taplejung	36	34.88	59.59	5.53	100

Source: UNDP 2004 (Human Development Report) and CBS 2004 (2001 census)

Figure 1.5: Poverty rate in the study's district headquarters and in VDCs by distance from district HQs



Source: 2011 census (CBS 2012)

Varied sources — In the five districts, quantitative and qualitative data was gathered from local communities, service providers and district health teams, and secondary data from health facilities and the HMIS. Separate research teams collected demand and supply side data. This mix of methods allowed triangulation of the data across several levels. The supply and demand side investigations were carried out in the same focal VDCs, which also enabled triangulation.

Within district division of areas — Based on the differing use of MNCH services between district headquarters and peripheral facilities the five districts were divided into three areas:

- district headquarters (which, except for Gorkha HQ that is a municipality, are all VDCs);

- VDCs that lie within 8 hours travel distance from the district HQ;[1] and
- VDCs that lie more than 8 hours travel distance from the district HQ (remote VDCs).

Note that the distance to the VDC from the district HQ means the distance to the VDC HQ.

Note that all Rasuwa VDCS are within 8 hours or exactly 8 hours travel distance of the district HQ. Also note that travel distance was defined the walking time by an average adult where no vehicular transport is available or bus and walking time. It will take about two to three times as long to carry a patient over the same walking distance.

Sampled institutions and communities — A sample of 15 health institutions (5 hospitals and 10 health posts and sub-health posts [SHPs]) and people living in the catchment areas of 13 of these institutions was selected from the five districts (Table 1.2).

- **Health institutions** — The district hospitals were selected from all five districts. (Note that there are other hospitals in Gorkha and Rukum districts). One health post or sub-health post (SHP) was selected from a VDC with 8 hours travel distance and one from a VDC that is more than 8 hours travel distance from the district HQ in all five districts. These facilities were selected in consultation with district health officers based on distance from the district headquarter and ethnic composition of the VDCs in which they are located. This was done to compare access to and use of MNCH services between the three types of areas. At least one of the two peripheral selected facilities in each district had to have a birthing centre. Table 1.3 lists the 15 sample health facilities.
- **Sample communities** — One settlement was selected within the VDC (the catchment area) of 13 of the health institutions (i.e. all except Gorkha and Rukum district hospitals). Settlements that were either the furthest away from the studied health facilities or that least used the services of the health facilities were selected (often the same settlements). The focus group discussions and interviews with local people were held in these settlements to get user (and non-user) perspectives.

Table 1.2: The study's sample of health facilities and people in their catchment areas

	Health facilities	Local people (interview and focus group discussions participants)
District headquarters (HQs)	5 district hospitals	Outlying settlements of district HQ VDCs in Bajura, Rasuwa and Taplejung (see Annex 1).
VDCs less than 8 hours from district HQ	5 health facilities — 3 health posts and 2 SHPs (see Table 1.3)	5 furthest settlements in catchment area VDC of study health facilities (see Annex 1)
VDCs more than (or exactly) 8 hours from district HQs	5 health facilities — 4 health posts and 1 SHP (see Table 1.3)	5 furthest settlements in catchment area VDC of study health facilities (see Annex 1)

[1] Note that these VDCs were earlier called 'relatively remote VDCs', but this term has been abandoned.

Table 1.3: Selected study health facilities

Region	District HQ	Less than 8 hrs travel from district HQ (Relatively remote)	More than (or exactly) 8 hrs travel from district HQ (Most remote)
Eastern	Taplejung district hospital (CEOC site)	Phurumbu SHP	Mahasring health post Thukimba VDC (with birthing centre)
Centre	Rasuwa district hospital (BEOC site)	Syaphru Besi health post (with birthing centre)	Yarsha health post (with birthing centre). This VDC is exactly 8 hrs from district HQ.
Western	Gorkha district hospital (CEOC site)	Thumi health post	Sirdibas health post with birthing centre (no birthing centre as no use)
Mid-western	Rukum District hospital (BEOC site)	Sankh SHP (with birthing centre)	Taksera SHP (with birthing centre)
Far Western	Bajura district hospital (BEOC site)	Jugada health post (with birthing centre)	Kanda health post (with birthing centre)

Note: CEOC and BEOC = comprehensive/basic emergency obstetric care

Tools for data collection — Tools were developed in consultation with the KIG for collecting

- qualitative information (focus group discussions, in-depth interviews, and key informant interviews) (see list of formats at Annex 2 and formats in a separate document); and
- quantitative information (access to and use of MNCH services, including trends, financial data, logistic supplies data, and human resources) (see list of formats at Annex 3 and formats in a separate document).

Supply side data collection — Geographical access-related data, including travel times and distance to health posts and SHPs and the availability and use of MNCH services were collected from the selected health facilities. Information relating to geographical, social and cultural barriers to accessing MNCH services was collected from service providers at the facilities and was cross-matched with information provided by local people.

The following information was also collected from the sampled facilities:

- the use of institutional childbirth, antenatal care, the integrated management of childhood illness (IMCI)-related service use, growth monitoring, family planning, and immunization service-related use data (this was cross verified with district level data; and
- the availability of the health workforce (position, filled, and deputation), drugs and MNCH related equipment.

Data on inputs for strategic MNCH interventions were also collected from the hospitals and health facilities for costing purposes.

Data retrieval — District data on institutional childbirths by facility were retrieved from the statistical section (HMIS) of the district health offices and district hospitals in the five districts. Then, profiles of all women (ethnicity, residence, distance to service centres) who had given birth at the selected health facilities was collected. An inventory of the health workforce (position, filled, vacant, deputation, hiring types), and individual workers' profiles (gender, ethnicity, local or outsider) was also collected to assess supply side barriers.

Research guidelines — Interview guidelines and discussion points were prepared for each type of respondents (see Annex 2). These guidelines had been tried out at a VDC in Dhading district and adapted in line with these experiences. Guidance and comments from the KIG meeting also enriched the research guidelines.

Key informant interviews — Key informant interviews were conducted with the district (public) health officers and medical superintendents of district hospitals and health workers (mostly auxiliary nurse midwives [ANMs]) to gather information on journey-related barriers and programmatic and financial barriers. Private, NGOs and community based organization providers were consulted on how to reduce the barriers. Interviews were also held with the chairpersons or members of health facility operation management committees (HFOMCs) and hospital management committees on the availability of services, planning and implementing outreach clinics, and social, cultural and geographical barriers. Information was also collected on the composition of HFOMCs and the hospital development boards through interviews with

- 6 district health officers and medical superintendents;
- 5 members of district hospital management committees;
- 10 members or chairpersons of HFOMCs;
- 5 NGO representatives; and
- 8 service providers.

Demand side data collection — The qualitative research assessed:

- the health care seeking behaviour of local women and children;
- the barriers faced by women and children to access and use MNCH services; and
- constraints experienced by service providers in delivering MNCH services, particularly to poor and excluded group people.

Selection of local communities — In the study VDCs, the field researchers met local service providers and FCHVs and selected the ward or settlement cluster within the VDC where MNCH services were most underused as the study's sample remote local communities.

Focus group discussions — Thirteen focus group discussions were held across the five districts with women with under five-year old children. One discussion was held in each of the 13 selected communities. These included discussions in an outlying settlement of the district headquarters in three of the districts (the mountain districts of Bajura, Rasuwa and Taplejung) as the literature and data from the Phase 1 review exercise had pointed to the underuse of MNCH services in mountain district headquarters. On average, there were 8-12 participants in each discussion. The majority of participants were illiterate and only some were able to read and write. Almost all participants were involved in agriculture and household work except for a few who ran tea shops. Women from different caste and ethnic groups were selected to represent the local populations.

In-depth interviews were conducted in the sample local communities with:

- 40 women with under-five year old children, including four women from each VDC who were representative of the caste and ethnic mix. (These women were purposively selected considering

the different problems and/or coping mechanisms they had devised for the problems they have faced at their last deliveries);

- 20 men with under-5 year-old children with 2 men from each VDC;
- 20 mothers-in-law having under-five year old grandchildren with 2 from each VDC; and
- 10 FCHVs including 1 from each sample community.

Quantitative data analysis — A database was designed once the tools had been finalised and the analysis plan agreed with the KIG. Service use and other quantitative data from the hospitals and health facilities were entered on the Microsoft Excel spreadsheets. The information and data was rechecked and data cleaning done before the final analysis. The data was analysed in terms of percentages, means and the dispersion (standard deviation). A geographic information system (GIS) was used to map service users from the different village development committees (VDC).

Qualitative data analysis — Immediately after they had completed their field research the researchers were debriefed by the team leaders. The enabling and barrier factors for accessing MNCH services were identified by going through each focus group discussion and in-depth interview. These factors were plotted on to a spreadsheet to give a comparative picture of their importance and influence, also showing from which place they were reported. In addition, some cases were extracted from the in-depth interviews of mothers to highlight experiences.

1.4.3 Phase 3

In Phase 3:

- District consultations were conducted in Gorkha and Taplejung districts to clarify the findings and discuss recommendations.
- National and district stakeholder consultations were held to draw out conclusions and recommendations from the study findings, and to identify options for costing.

1.5 LIMITATIONS

The studied communities (settlements) where the interviews and discussions with local people took place were selected for being either furthest from the studied health facilities or being the communities that least used the services of the health facilities. Therefore most study findings are related with barriers and only a few community related-enablers were reported from non-user study participants. The study of success cases would have yielded different findings, but the study did not focus on this.

The overall limitations of the study were as follows:

- Greater attention was given to maternal health issues given that analysis of maternal health services, and obstetric care in particular, more fully captures the functioning of the health system. Moreover, further analysis of the NDHS found that the impact of geography on service use was mainly on institutional delivery and delivery attended by skilled birth attendant skilled birth attendants (SBAs).Therefore only limited qualitative data was gathered on child health issues from the focus group discussions and interviews.
- Separate interviews were not held with Dalits and Janajati groups to get their perspectives on the specific barriers they face.

- District consultations could not be held in three districts due to their inaccessibility due to the early arrival of the 2013 monsoon that caused landslides in Rasuwa, Rukum and Bajura.
- The national level consultation will be held in mid-November after the completion of the national annual performance review.
- The studied communities (settlements) where the interviews and discussions with local people took place were selected for being either furthest from the studied health facilities or being the communities that least used the services of the study's health facilities (often the same thing). Therefore most study findings concern barriers and only a few community related-enablers were reported from non-user study participants. The study of success cases would have yielded different findings; but the study did not focus on this.

The gathering of the qualitative data was hindered by:

- The field research was carried out during the peak agricultural season when most people are busy working in their fields. This led to repeat visits having to be made by the researchers to arrange meetings and then to meet respondents.
- The early onset of the monsoon rains made travel difficult, especially in the steep terrain of Rukum, Gorkha and Bajura districts.
- Not being able to limit the size of the focus group discussion in Bajura led to large groups that somewhat hindered discussions.

The gathering of the quantitative data was hindered by:

- Poorly maintained data (HMIS) at some sample facilities meant that the researchers had to compile the data themselves.
- IMCI and maternity related data was missing at Taksera sub-health post (Rukum.
- At a few places, SBAs were out of station and so interviews were taken with other MNCH providers.
- The logistics registers had not been maintained at the two health facilities in Rukum district.

1.6 ORGANISATION OF THE REPORT

The initial introductory chapter is followed by chapters 2, 3 and 4 that give the findings from the three parts of the study. Chapter 2 presents the findings from secondary data sources on the situation of access to MNCH services in remote areas of Nepal. Chapter 3 presents evidence from other countries on improving access to and the use of MNCH services in remote areas. Chapter 4 presents the findings from the field study in five remote districts of Nepal. The final chapter (chapter 5) summaries the main findings and gives a number of recommendations for improving access and use in remote areas of Nepal. This final chapter also includes tentative costings for overcoming barriers to MNCH services in the five study districts. A number of annexes with supplementary information are included. The study's tools are given in a separate document.

2 THE SITUATION OF MNCH IN NEPAL'S REMOTE AREAS

2.1 DEFINING REMOTENESS

There is no universal definition of remoteness.

2.1.1 Factors that affect remoteness

Defining remoteness — Remote areas can be defined on the basis of geographical, economic, socio-cultural and population factors. In Nepal within districts there are remote and non-remote VDCs. Remoteness in the context of health service provision is related to ease of access to services with remote area populations usually experiencing greater barriers to accessing health care than the rest of the population.

Remote area committee criteria — In 1991 the government's Remote Area Development Committee classified Nepal's districts into non-remote, general remote, remote and most remote. This was done based on i) transportation and geographical distance, ii) level of social and infrastructure development, iii) the price of goods; and iv) being adjacent to the People's Republic of China (RADF 1991). This classification defined 475 of Nepal's 3,913 VDCs as 'remote areas' (= 'remote' and 'most remote' categories), with all VDCs of 13 districts and some in a further nine districts defined as remote. Various social and infrastructure developments, such as the establishment of more VDC level primary schools, sub-health posts (SHPs) and post offices, mobile phone networks and expanded road networks mean that the 1991 classification is now less applicable (Roka 2011).

Geographical factors — *Durgam,* the Nepali word for remote, means a long distance to go for goods or services. In Nepal's mountain districts 23.4% of the population take more than one hour to reach a health post or sub-health post compared with only 6.4% of people in the Terai (CBS 2011). Distance is also used to define a remote area:

> *"a remote area would be any district or geographical area such as a VDC which is not likely to have a functioning health facility with staff capable of providing obstetric first aid services within four hours as well as access to a facility with signal functions of CEOC services within six hours, using 24 hour locally available transportation" (FHD 2009).*

The 2013 PEER study (Thomas et al. 2013) found that the time of year influences perceptions and actual distance and service accessibility in Terai areas. During the rainy season bridges may be washed away and roads become impassable making nearby health posts and SHPs difficult to reach.

Economic factors — The 2011 NLSS (CBS 2011) found that the poverty rate in mountain areas (42.3%) was nearly double that of the Terai (23.4%). The price of goods, including drugs and medical equipment, increases with remoteness due to higher transport costs. Opportunities for earning money and growing food crops are often more limited in remote areas.

Social factors — The literacy rate for aged five years and above children is lower in the mountains (60.5%) than the hills (72.3%) (CBS 2012). The Human Development Index (HDI) also varies with remoteness (UNDP 2009), being lower in mountain (0.436) than hill (0.543) and Terai areas (0.494). A low HDI is associated with lower demand for health services, as it increases the barriers to accessing services and hampers demand creation activities.

Population factors — Population density is usually lower in remote areas, with a population of only 34/km^2 in the mountains compared to 186/km^2 in the hills and 392/km^2 in the Terai (CBS 2012). The scattered and thin population in mountain areas challenges the delivery of health services.

2.1.2 Study indicators for defining remote areas

Demand perspective — From a demand perspective this study defined remote areas on the basis of road access and population density:

- *Road access* — The combination of geographical distance plus rugged terrain, described as "the friction of space" (Paudel no date) is a significant barrier to accessing health care in Nepal's mountain and hill areas. Many of Nepal's rural roads are only usable during the dry season. Few mountain districts have black top roads, which hampers the delivery of MNCH services, particularly emergency referrals. Dolpa and Mugu districts have no road networks. Districts such as Bhojpur, Khotang, Rukum, Rolpa and Okhaldunga have gravel/earthen roads but no black topped roads (see Annex Table 4.1).
- *Population density* — The sparse and scattered populations that characterises Nepal's mountain and some hill districts pose large challenges for delivering health services (Byrne et al. 2012). Annex Table 4.2 shows the 18 Nepalese districts with the lowest population densities, including all the mountain districts and four hill districts (Rukum, Gorkha, Myagdi and Jajarkot).

Supply perspective — From a supply perspective the study used catchment area and legal definitions:

- *Health facility catchment area* — The government is the major supplier of MNCH services, with public health facilities established according to political units (VDCs etc.) irrespective of their populations and geographical area. Health facilities in remote areas thus tend to have larger catchment areas (see Annex Table 4.3). For example, health facilities in the remote mountain district of Dolpa serve an average area of 329 km^2 compared to only 40 km^2 in the accessible hill district of Dolakha. Note that government coverage is supplemented by NGO and INGO coverage.
- *The legally agreed definitions* — The Health Services Act (1997) divides districts into most remote (A1, A2), remote (B1, B2), and non-remote (C1, C2) areas. Most mountain districts, excluding their district headquarters, are A1, with their district headquarters being A2. In districts categorised as A2, their headquarters are B1 since people there, even in remote districts, have better access to goods and services (Government of Nepal 1999). The Civil Service Act (1993) and its regulations classify remoteness into A for most remote, B for remote, C and D for non-remote. (The Health Service Act and its regulations say that employees should work in a most remote area for at least one year or a remote area for at least two years to get promotion.) But the classification does not match that of the Health Services Act (1997) (see Annex Table 4.4). The Civil Service Act excludes Dhading and Gorkha districts as they contain areas categorised as non-remote (C). The hill districts of Rolpa, Rukum and Jajarkot are classified as remote.

2.1.3 Defining a remote area For MNCH delivery

Two options — The study considered two options for defining remoteness for delivering MNCH services (Table 2.1). All option A criteria must be met to qualify as remote leading to 15 mountain districts plus the hill districts of Gorkha, Jajarkot and Rukum being categorised as remote. Option B, as used by the 2004 Human Development Report (UNDP 2004), categorised districts into remote, relatively remote and non-remote, putting 25 districts into the remote category. Annex Tables 4.5 and 4.6 list the districts according to the two options.

Table 2.1: Two ways of classifying remoteness

Criteria	Option A	Option B
Road length:	Less than 6.5 km per 100 km^2 or no black topped roads	Less than 7.7 Km per 100 km^2 or no black topped roads
Population density:	Less than 80 per km^2	Less than 120 per km^2
Average catchment area of health institutions:	Greater than 52 km^2	Greater than 51 km^2
Legal category:	A1, A2 by Health Act (1997) and A by Civil Service Act (1993)	A1, A2, and B1 by Health Act (1997) and A by Civil Service Act (1993)
Transport cost as % of price of goods	na	> 8%

All districts defined as remote in Option A also fall into the remote category in Option B, but six districts categorised as remote under Option B do not meet the criteria for remoteness under Option A (Lamjung, Ramechhap, Kaski, Okhaldunga, Bhojpur and Rolpa).

Recommended option — The KIG was asked to consider the two ways of ranking remoteness. They also compared the results with existing government ratings. A high degree of conformity was found between the government system and the two alternative indices. The KIG therefore decided that the existing government system should continue to be used for programme planning purposes to assist the targeting of health services in remote areas. It was decided to use Option A to select the five very remote districts for this study, as the best fit with existing government definitions.

2.2 USE OF MNCH SERVICES IN REMOTE AREAS OF NEPAL

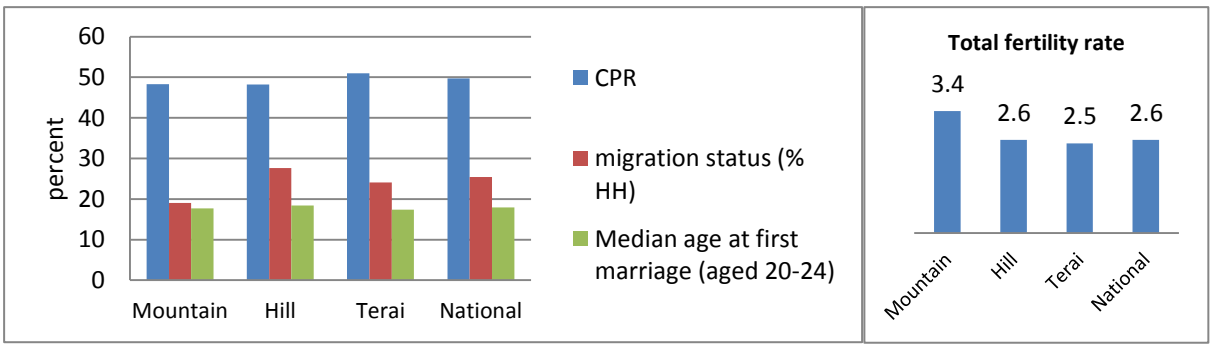
Using mountain areas as a proxy for remoteness, this section looks at how remoteness affects the use of the four main kinds of MNCH services: family planning and safe abortions; safe motherhood, immunization, and childhood illness and newborn care.

2.2.1 Family planning and safe abortion

Usage — The NDHSs report the use of family planning methods in Nepal increasing from 28.5% of married women of reproductive age (MWRA) in 1996 to 49.7% of them in 2011 (using any one method). Awareness about family planning is consistently high at over 90% for all methods except for intrauterine contraceptive device (IUCDs) (83%) and emergency contraception (29%). There is, however, heterogeneity in family planning behaviour between geographic areas. The NDHS 2011 and the 2012 Household Survey found a lower use of family planning and higher unmet need among women in hill rural VDCs than in Terai rural VDCs. Unmet need among women (15-49 years) was found to be 24.3% in mountain areas — slightly lower than the national average of 27%. Male migration and women's age of marriage have also been shown to affect contraceptive use in Nepal (Figure 2.1).

Birth intervals — There is evidence that a short birth interval is related to increased complications during the next pregnancy and delivery and a higher risk of death of mothers, newborns and under-5 children (Rutstein 2008; Paudel et al. 2013). In Nepal the birth interval is shortest among women from mountain district headquarters (66%) and mountain rural VDCs (54%). Additionally, when MWRAs who had given birth before were asked whether their last child had been wanted, 22% of mountain women would have wanted it delayed or not wanted it at all, but only 10% of hill women and 9% of those in the Terai said this (Mehata et al. 2013b).

Figure 2.1: Contraceptive prevalence rate (CPR, any method), median age of marriage, percentage of households with migration and total fertility rate (TFR) (2011)



Sources: NDHS (2011) for CPR, marriage age and TFR; CBS (2012, 2011 census) for migration status

Family planning — The increased risks associated with early child bearing are well documented and the fertility rate among adolescents (15-19 year-olds) is an impact indicator for NHSP-2. Overall, the use of contraception among currently married adolescent girls and women aged 20-24 years has increased over the last few decades, with a faster rate of increase in mountain districts than in hill and Terai districts, although a decline in contraceptive use was observed among 20-24 year olds in 2011 (NDHSs 1996-2011). The source of contraception was mainly government health services but the private sector share (mainly pharmacies) has increased.

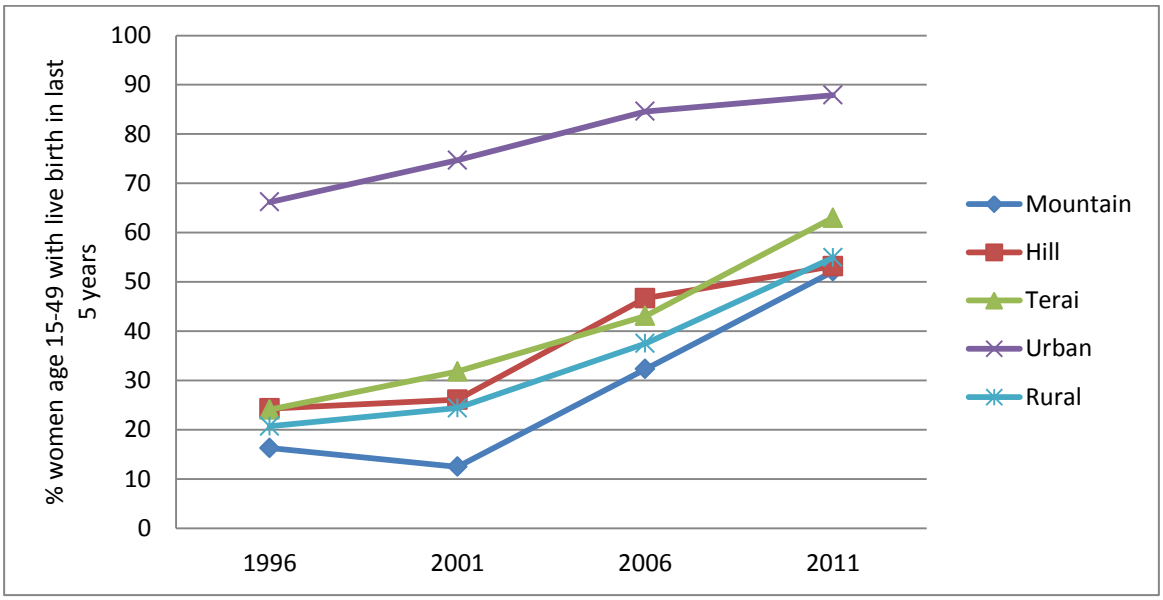
Safe abortions — Knowledge about safe abortion in Nepal remains relatively low, although it is increasing. The 2011 NDHS found that 38% of women of reproductive age (WRA) knew abortion was legal. However, among aware women, only 35.5% knew the legal limit was 12 weeks under any circumstances. About 59% of WRA knew where to obtain safe abortions of whom 71% mentioned government facilities and 58% private clinics. More women from the mountains mentioned government services (88%) and only a few mentioned non-government clinics (18%) and the private sector (47%), possibly reflecting the limited choice of services available there.

2.2.2 Safe motherhood

Antenatal care — Despite gradual improvement in antenatal care (ANC) coverage, its provision by skilled birth attendants (SBAs) is much lower among women from rural areas than among urban women, with mountain and hill women faring worse than Terai women (Figure 2.2).

Other studies show that Janajatis and Dalits have poorer health indicators, including the 2011 NDHS which showed that 63.5% of Brahmin/Chhetri women undergone at least four ANC visits while only 48.7% of hill Dalit and 44.5% of hill Janajati women had done so (Pandey et al. 2013).

Figure 2.2: Trends in percentage of women receiving antenatal care from skilled providers by ecological region, 1996-2011, Nepal



Source: NDHS 1996, 2001, 2006, 2011

Services provided alongside ANC check-ups, including iron folic acid (IFA) supplements and tetanus vaccination, are also improving; but mountain and hill districts lag behind Terai and urban areas. Further analysis shows that the percentage of women who took the recommended dose of iron folic acid was lower in mountain districts, especially in rural district headquarters (28%) and rural VDCs (30%) compared to the rest of the country (38%).

Institutional delivery rate trends — The NDHSs report that the proportion of deliveries assisted by SBAs and institutional deliveries increased from 8% in 2001 to 18% in 2006 and 35% in 2011. However, inequalities remain between ecological areas with the mean institutional delivery rate over the preceding five years being 18% in mountain areas, 31% in hill areas and 41% in the Terai (NDHS 2011). Further analysis of this data shows the lowest rates of SBA and institutional deliveries in rural VDCs of mountain districts (Table 2.2).

Institutional delivery and emergency care — Even after controlling for geographic zone, women's age, education and wealth, a significant association remains between the use of skilled attendants at birth with place of residence, thus indicating that geographical access is an important determinant for attendance during deliveries (Table 2.3). The likelihood of SBA delivery was significantly higher and of a much greater magnitude for women residing in rural district headquarters and urban areas than for those residing in the rural areas (odds ratios of 5.56 (CI - 2.08-14.82) and 4.55 (CI - 1.84-11.26) respectively). Similarly, the odds of SBA use in hill and Terai districts was almost two times higher than for respondents in mountain districts. Analysis of institutional deliveries found the same association between place of residence and use of institutional deliveries (data not presented).

Table 2.2: Mean percentage of institutional deliveries and deliveries assisted by skilled birth attendants among women with live births in the five years preceding NDHS 2011

	Urban	District HQ	Rural
% institutional deliveries			
Mountain	43	31	17
Hill	76	53	25
Terai	68	Not applicable	38
% deliveries assisted by SBAs			
Mountain	50	31	17
Hill	77	54	24
Terai	70	Not applicable	40

Source: The current study's further analysis of NDHS 2011 data.

Table 2.3: Determinants for the use of SBA during delivery

Characteristics	N (%) 5,391 (100%)	SBA use Multivariate model Odds ratio (95% confidence interval)
Place of residence		
Rural VDCs	4,771 (88.5)	1
Rural district HQ	117 (2.2)	5.56 (2.08-14.82)*
Urban	503 (9.3)	4.55 (1.84-11.26)*
Ecological zone		
Mountain	428 (7.9)	1
Hill	2,130 (39.5)	1.81 (1.09-3.02)*
Terai	2,833 (52.6)	2.27 (1.49-3.45)*
Age group (years)		
<20	381 (7.1)	1
20-34	4,383 (81.3)	0.45 (0.19-1.01)
≥35	628 (11.6)	0.27 (0.10-0.72)*
Education level		
No education	2,550 (47.3)	1
Primary	1,079 (20.0)	1.51 (0.19-1.01)
Secondary	1,468 (27.2)	2.25 (1.17-4.34)*
Higher	294 (5.5)	16.33 (1.30-204.66)*
Wealth quintile		
Lowest	1,390 (25.8)	1
Second	1,182 (21.9)	2.12 (1.44-3.11)*
Middle	1,133 (21.0)	1.88 (1.25-2.84)*
Fourth	938 (17.4)	2.80 (1.92-4.09)*
Highest	748 (13.9)	6.02 (1.39-26.04)*

Source: Further analysis of 2011 NDHS (Dahal and Thomas 2013)
**P = 0.05*

The 2012 Household Survey (Mehata et al. 2013b) supports the above findings, recording the institutional delivery at 47% of deliveries in the Terai, 39% in the hills and 27% in the mountains. A significant difference ($p<0.001$) was observed between urban/rural and among ecological zones. No deliveries were reported in mountain SHPs, reflecting lack of service availability and/or access difficulties there. Comparing planned with actual place of delivery, 59% of mountain women, 66% of hill women and 84% of Terai women who planned for an institutional delivery were able to have one.

Quality of care — Only limited information is available about the quality of childbirth care. Only 63% of women who had had their deliveries assisted by health workers in the last two years reported receiving an oxytocin injection after delivery (NDHS 2011). On arrival at a health facility women in mountain areas were less likely to be seen immediately by a health worker (40%) compared with the hills (79%) and Terai (67%) (Mehata et al. 2013b).

Caesareans — Caesarean sections are a critical life-saving service for complicated births and so are a key focus of NHSP-2. The national target is for 4.5% of deliveries to be by caesarean section. But the caesarean section rate is only 1.4% in mountain areas compared with 3.7% in the hills and 5.8% in the Terai (NDHS 2011) (Table 2.4). The HMIS reported that in 2011/12, 13.5% of institutional deliveries were by caesarean section, which is equal to 5% at the population level. In 2010/12 the met need for emergency obstetric care (EOC) in 44 districts was 23% (DoHS annual report 2010/11).

Table 2.4: Caesarean section rates and met need for caesarean sections, 2010/12

	Caesarean section rate as % of expected deliveries			Met need for caesarean sections
	2010/11 HMIS	2011/12 HMIS	NDHS 2011	NDHS 2011 (based on 5% of expected pregnancies)[2]
Mountain	0.6	0.2	1.4	28
Hill	4.3	5.1	3.7	74
Terai	5.2	6.1	5.8	116
Total	4.4	5.3	5	

Source: HMIS 2010/11 and 2011/12 and NDHS 2011

Delays seeking care — Delays in seeking care and reaching an appropriate health facility with emergency obstetric and newborn care services has been identified as the main reason for Nepal's high maternal mortality. This is exacerbated by the inability of many facilities to provide the immediate care needed (Suvedi et al. 2010). The referral system is also not functioning sufficiently to save lives and poor record keeping of patients referred hinders programme management.

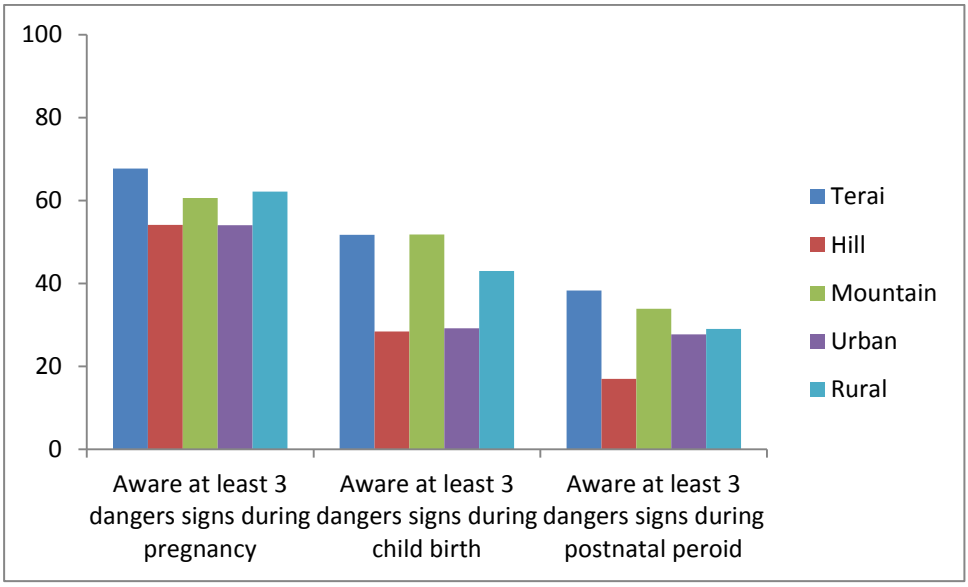
Postnatal care — Over half of maternal deaths in Nepal occur during the postpartum period (Suvedi et al. 2010) and 85% of newborn deaths occur during the first seven days of life (Paudel et al. 2013). The national guidelines require women and their babies to receive three post-natal check-ups (MoHP 2007b). However, this vulnerable period, which is also linked to socio-cultural taboos and practices that isolate women and babies, is often neglected by providers so that coverage is low and quality of care poor.

[2] 5% of expected pregnancies could have serious complications needing ceasarean section for maternal and foetal complications (WHO 2006a - monitoring emergency obstetric care)

- Post-natal check-ups for mothers within the first 48 hours have increased in line with the greater numbers of institutional deliveries, from 17% in 2001 to 44.5% in 2011 (NDHS). Discrepancies between mountain, hill and Terai areas are similar to those for deliveries assisted by SBAs. However, in the 2012 Household Survey (HHS), more women who had recently delivered at a health facility in the mountains had received one postpartum check-up (90%) than in the Terai (79%) and hills (68%). However, quality of care needs improving as only 8.5% of women who had a live birth in the five years preceding the NDHS 2011 reported receiving information on family planning during their postpartum care.
- Thirty per cent of newborns who had received a post-natal check-up had it within 48 hours, 28% within 24 hours and 23% within four hours of giving birth. Further analysis shows that there is less postnatal care for mothers and babies within 48 hours of birth in mountain and hill rural VDCs and mountain rural district headquarters. Multivariate analysis found no significant difference in postnatal care (PNC) coverage for different locations, which may be because health facilities in mountain districts perform more PNC check-ups after institutional delivery, as reported by the household survey, in spite of fewer women using institutional deliveries there.

Awareness — Nepal implements a birth preparedness package to help women and their families be better informed and prepared for births. The 2012 Household Survey found varying proportions of women of reproductive age and recently delivered women aware of at least three danger signs during pregnancy (57% and 44.7% respectively), delivery (43.8% and 44.7%) and the post-natal period (27.4% and 36.1%). Awareness was consistently higher among women in the mountains and Terai than in the hills, and for rural compared with urban women. Higher awareness among women from the mountains is consistent with 2011 NHDS findings. See Figure 2.3 for trends on pregnancy related danger signs.

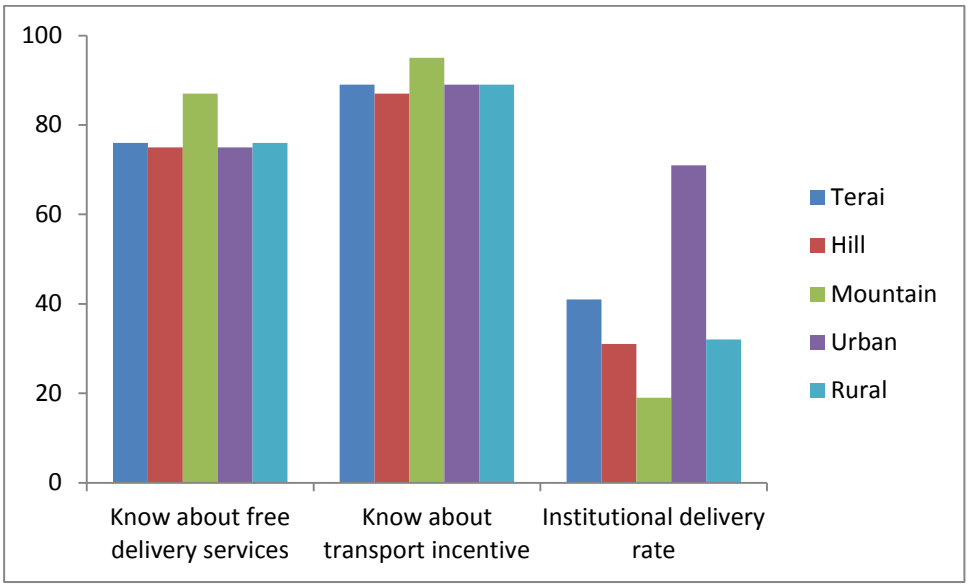
Figure 2.3: Percentage of recently delivered women aware of pregnancy related danger signs



Source: HHS 2012

The 2011 NDHS found a high level of awareness of the Aama and free delivery care programme in all regions. However, high awareness in the mountains is not translated into increased institutional deliveries, possibly due to the limited access to facilities (Figure 2.4).

Figure 2.4: Percentage of married women of reproductive age who knew about Aama incentives and free delivery care, compared with institutional delivery in previous five years



Source: NDHS 2011

2.2.3 Immunisation

By 2011, 87% of children aged 12-23 months in Nepal were fully immunised (for BCG, DPT, polio and measles), 97% had received BCG and 93% were vaccinated against measles alone. Only 3% of children had received no vaccinations (NDHS 2011). Analysis of the last three NDHSs shows that despite poorer education of mothers and more poverty in mountain districts, the immunisation coverage there was comparable to hill and Terai districts.

There have been large improvements across all three ecological zones for access to and use of immunization in the 2010/11 to 2012/13 period. However, the official monitoring system reports that 90% of Terai districts, but only 50% of hill and 51% of mountain districts had high coverage and low dropout (category A) while 12.5% of mountain districts had low coverage and low dropout (category C) (DoHS annual reports).

The main area of underachievement of the National Immunisation Programme in 2011/12 was the failure to meet the DPT 3 and measles district coverage targets. Further analysis of NDHS 2011 shows very low coverage in mountain district headquarters (62% compared to 87% national coverage); but this could not be verified due to the small sample size.

2.2.4 Childhood illness

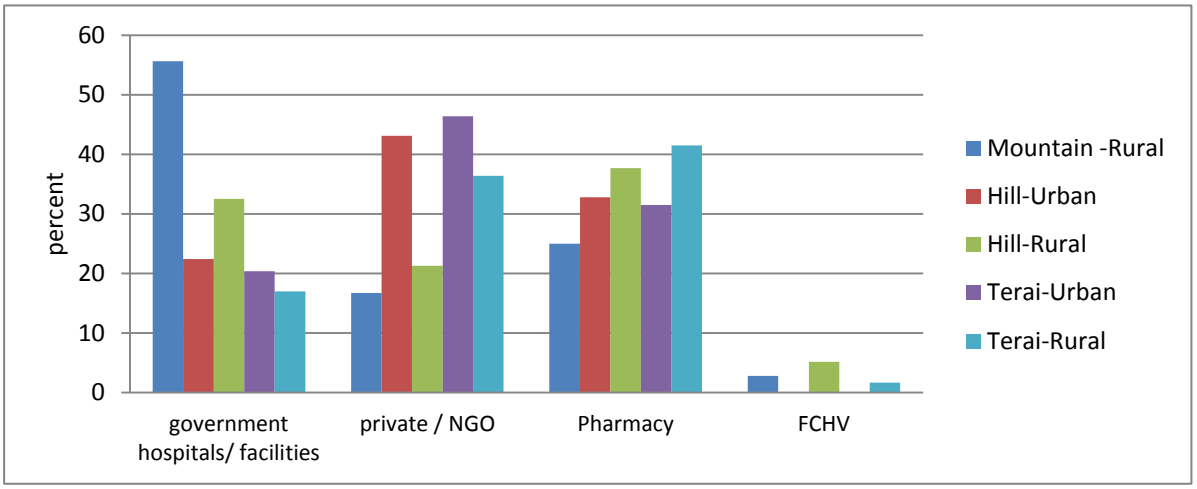
Successive NDHSs show an increasing percentage of children receiving treatment for diarrhoea, acute respiratory infections (ARI) and fever from public and private health facilities and female community health volunteers (FCHVs).

- Knowledge of oral rehydration solution (ORS) is universal across ecological zones and urban versus rural areas, and the use of ORS or increased fluid intake for care of diarrhoea cases is increasing,
- The incidence of ARIs among children decreased from 34% in 1996 to 4.6%, based on children reported to have symptoms in the two weeks preceding the NDHS. Successive NDHSs show more

families seeking treatment from healthcare providers for children with ARI with no significant difference between ecological regions (2006 NDHS).

- As a common symptom for many childhood illnesses (including ARI, measles and malaria) fever reported among under-5 year-old children during the two weeks preceding the NDHS was 18.7% in 2011. Treatment from service providers was sought for 42% of children with fever including 43% in mountain, 37.5% in hill and 44.5% in Terai districts. In 2011, government health facilities were the main source of care in mountain-rural areas, private/NGO hospitals in hill-urban and Terai-urban, and pharmacies in Terai-rural areas (Figure 2.5).

Figure 2.5: Percentage of children under 5 with fever seeking care, by type of provider, 2011



Source: The current study's further analysis of NDHS 2011 data

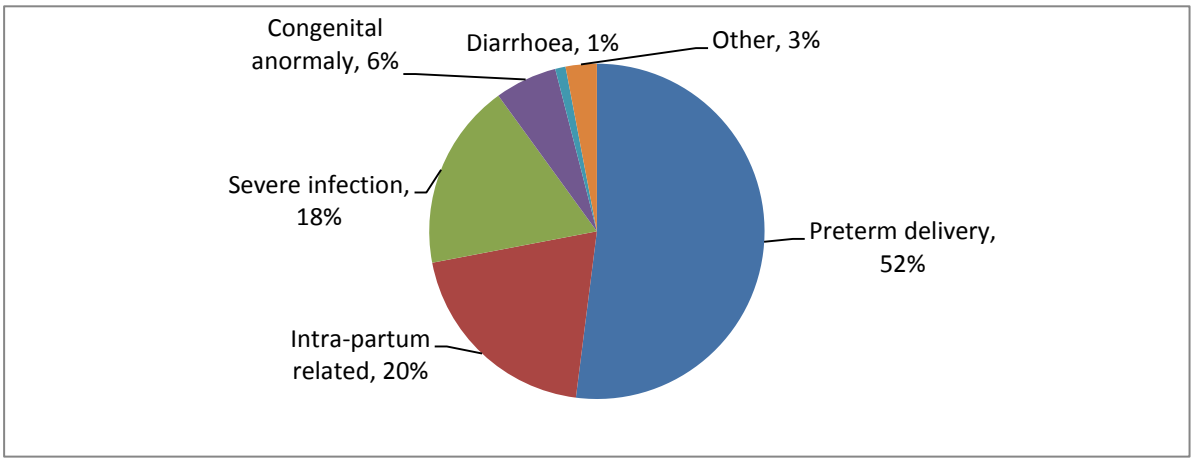
2.2.5 Newborn deaths

The proportion of newborn deaths among under-five deaths in Nepal increased from 54% in 2006 to 61% in 2011 (NDHS 2006 and 2011), compared with 40% globally (Liu et al. 2012).

Predictors — Further analysis of NDHS 2011 data shows that the predictors of newborn death are more related to the socio-demographic status of mothers than health service use. The main influences on birth outcomes include mother's education status, indoor air pollution, first or fourth/higher birth order, birth intervals, exposure to public health radio, women's height and problems accessing healthcare. When controlling other socio-demographic characteristics, mothers with no education, babies born after a short birth interval (less than 24 months), poor cord care, short stature (less than 145 cm), less than four ANC check-ups, and indoor air pollution were found to be the main predictors of newborn death (Paudel et al. 2013).

Prevention — Globally, deaths of pre-term delivered babies have been slow to decline, and this is now the leading cause of newborn death in Nepal (Pradhan et al. 2012) (Figure 2.6). Hypothermia and related complications are a major cause of newborn death in Nepal, particularly among small birth weight and pre-term babies. Advocacy for delayed bathing (after 24 hours) has led to some improvement, but in many homes babies are still bathed too soon after delivery. The NDHS 2011 found that delayed bathing was only practised in 26% of homes (increased from 9% in 2006) and this was less in the mountains (16%) and hills (22%).

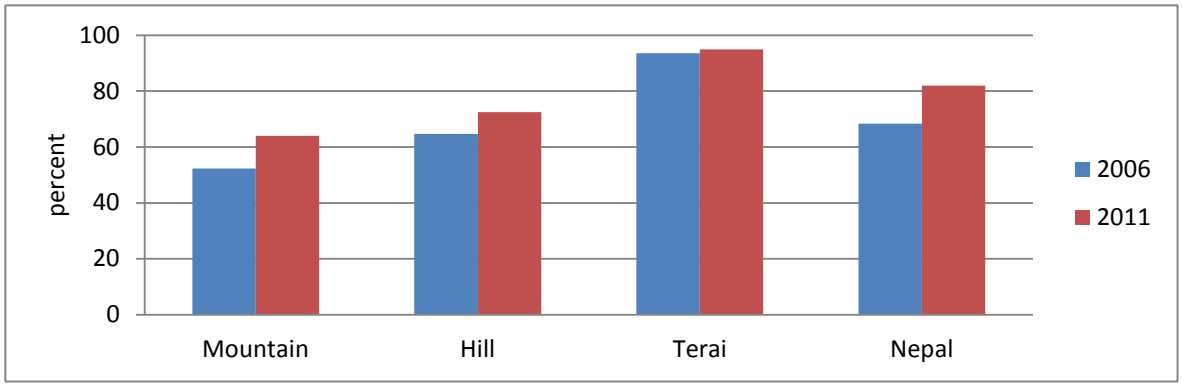
Figure 2.6: Causes of newborn mortality in Nepal



Source: Pradhan et al. (2012). Data sources: Nepal-specific mortality estimates (Liu et al. 2012).

Clean delivery kits — The use of clean delivery kits can prevent neonatal cord infection and puerperal sepsis (Darmstadt et al. 2009, Mosha et al. 2005). However, the use in Nepal of such kits for cutting the cord declined from 17.6% in 2006 to 14.1% in 2011, although use of a new or boiled blade increased from 61% to 68% of home deliveries. This was lowest amongst home births in mountain regions, where home delivery is common (Figure 2.7).

Figure 2.7: Use of a clean instrument (clean delivery kit or new blade or boiled blade) for cutting cord at home deliveries



Source: NDHS 2006, 2011

2.3 HOW REMOTENESS AFFECTS ACCESS TO MNCH SERVICES

As described in the conceptual framework, access to and the use of health services in Nepal is influenced by a set of social determinants that interplay with a variety of supply and demand side factors along the pathway to health care (Figures 1.2 and 3.1).

Gabrysch and Campbell (2009) listed 20 determinants of care seeking in maternal health including socio-cultural factors, the perceived benefits of or for skilled attendance, economic accessibility and physical accessibility factors. They found that studies on determinants for skilled attendance usually focus on socio-cultural and economic factors, neglecting the perceived benefits/needs and physical accessibility.

This section of the report documents the findings of the study's literature review on barriers to accessing MNCH services and well-being in remote and mountain areas of Nepal. Key sources of data include Byrne et al. (2012), further analysis of the 2013 PEER study (Dahal and Thomas 2013), NDHS 2011 (MoHP 2012) the Household Survey 2012 (Mehata 2013b), and reviews of NDHS 2001 and 2006, NLSS 2011 and census 2011.

Figure 3.1: Social determinants of accessing health services in Nepal (summary version)

2.3.1 Home and community based barriers[3]

Social norms — In addition, social norms that define pregnancy as nothing exceptional and as a normal event for women encourages home births. Perceptions about possible side effects are also important, and the prevalence of myths, for example about side effects from using contraceptives, is often a major reason for women's lack of uptake of institutional delivery.

Gender-based decision-making — Gender based decision making in the home and women's lack of control over their lives underpins household decision making about health care, and influences family practices that affect maternal, newborn and child health. The further analysis of the NDHS found that empowered women were more likely to receive four antenatal check-ups (Tuladhar et al. 2013). Daughter-in-laws in mountain areas are normally of low standing and so their care during pregnancy may not be a priority (Byrne et al. 2012). Dahal and Thomas (2013) in their further analysis of barriers to accessing health services in remote areas found that mother-in-laws often do not allow their daughter-in-laws to go to health facilities for pregnancy check-ups and institutional delivery for various reasons, such as:

- the belief that women use health care seeking to avoid demanding work at home;
- that preventive health care and institutional delivery are unnecessary, often with older women reporting that they never received such care when they were pregnant and it did not harm them; and
- that women may use the time away from home to be unfaithful to their husbands.

Mothers-in-law were also found to often be misinformed about immunisation, and unaware of the benefits of maternal health and immunisation services.

The PEER study found that husbands and family members become suspicious of women if they have to go to a far-away health facility and this restricted women's mobility. Furthermore, even if permission to access healthcare is given, women in mountain areas often do not want to go alone to a health facility (71% of mountain non-users of health services said this in NDHS 2011).

[3] Note that all references to the PEER study in this section (original study report = Thomas et al. 2013) are to the further analysis of this study's findings (Dahal and Thomas 2013).

"A Chepang man of Bumrang married at 18 to a girl of 16. Now they have six children. Last year, she went to the health post for the vaccine of her youngest child with a man from the same locality that was also going for his son's vaccine. They went together to the hospital. After immunisation, the two had snacks together. One man from the same community saw them and reported it to the husband. The husband could not control his fury and on her arrival battered her cruelly to wounds" — Female, Dhusha VDC, Dhading

"Mothers-in-law do not allow us to go, saying: 'We gave births while carrying loads of grass." — Female, Baseri VDC, Dhading

"Village women have to work at home from 6 am to 9 pm. Because of this it is difficult for them to go for health care at the health post" — Male, Dhusha VDC, Dhading

Poverty and remoteness — Poverty is a consequence of remoteness. More than 60% of households in mountain areas are in the two lowest wealth quintiles and only 1.8% in the richest quintile (Byrne et al. 2012). The incidence of poverty in the mountains is nearly double (42%) that in the hills (24%) and Terai (23%) (CBS 2012). All the remote areas included in the PEER Study (Dahal and Thomas 2013) were characterised by low agricultural productivity. The study showed the links between remoteness, the availability of fewer economic activities, and consequent inadequate levels of income (in cash and kind), which limits access to healthcare. Male absenteeism to pursue employment is also associated with lower land productivity. Unless men are able to remit significant amounts of money, their absence can make matters worse for those left behind.

Heavy work burdens — Severe household poverty and gender interact, and the demands of forging a livelihood in steep mountainous areas i) increases women's workloads, ii) results in limited food availability and poor nutrition for them and their children, and iii) increases women's reproductive and maternal health risks. It also means that women have little time to travel to health facilities. Women in the PEER study reported that their workloads were also affected by i) their husbands working away from home for long periods, ii) by living in a small nuclear family with fewer people to help, iii) by seasonal agricultural fluctuations, and iv) by the common lack of understanding from in-laws about their problems.

Costs — It is well known internationally that direct and indirect financial implications are often a reason for not seeking healthcare when pregnancy complications occur (Thaddeus and Maine 1994). Distance to a health facility and consequent extra costs reduce service use (Ensor and Cooper 2004). The relative costs of seeking healthcare in Nepal are greater in the mountains, with 55% of mountain women interviewed for the NDHS 2011 stating problems finding money as a reason for not using health services, compared with 44% in the Terai. It has been calculated that the average cost of caring for a single illness event will on average consume 65% of monthly household incomes in the mountains, compared with 31% in the hills and 47% in the Terai (Silva-Leander 2012). This suggests that despite the availability of transport incentives payments for institutional deliveries (see section 2.4), the cost of accessing care remains a significant barrier to service use in remote areas.

Awareness and perceptions of benefits of care — Health choices are influenced by awareness of the benefits of care, and a host of perceptions including the perceived seriousness of illnesses, the availability of appropriate home remedies, and the perceived likelihood of cures by using traditional or modern medicines.

Late care seeking — Signs and symptoms of pregnancy-related complications are not always recognised as reasons for seeking modern healthcare. The common belief that complications are due to spiritual causes means help is more likely to be sought from traditional healers (PMMN 1992). In many cases, only serious visible signs trigger families to seek care from a skilled birth attendant (SBA). Thus patients are often in a critical condition by the time they reach a health facility, especially with the long travel times in the mountains. Families then lose confidence in local health facilities as the delays mean that women often have to be referred to a higher level facility (Byrne et al, 2012). As shown in Table 2.2 above, the HHS 2012 (Mehata et al. 2013b) found low awareness of danger signs among recently delivered women with hill women least aware. Birth preparedness and complication readiness is rarely undertaken by families of the lowest income and education levels, especially in the mountains (Byrne et al. 2012).

Immunisations — Although the take up of immunisation services is higher than for other MNCH care services, the PEER study found gaps in awareness among some remote communities. Some in-laws and elders insisted that vaccinations were unnecessary. This lack of knowledge was exacerbated by concerns and misunderstandings related to side effects. Side effects ranged from children being upset about injection pain, to unexpected fevers and infected wounds. Where side effects occurred, women were less likely to go for the full dose.

> *"There is a lack of understanding about the benefits of immunisation. Some of the households of the Bishwakama caste (Dalits) have missed. They did not go as they do not understand the benefits of what immunisations." — Local women, Dhusha VDC, Dhading*

Traditional and cultural beliefs — Traditional and cultural beliefs that pregnancy and childbirth is a normal process that does not require care from a formal health system are still prevalent in most developing countries and constitute a major reason for the predominance of home deliveries. According to NDHS 2011, 72% of the women who delivered at home said they had not thought it necessary to go to a health facility for the birth, or it was not their custom to do so. Women in the PEER study said they were inhibited by their mother-in-law's perception that they should give birth at home.

> *"Those mothers in laws, who do not send [their daughters-in-law], give examples from their time when they had not gone to a health post even if they had 15 or 20 children. They blame the young women saying they want to go just to escape work at home! They should have babies as long as their body can reproduce (*Bet hunjel*)..." — Woman, Dhusha VDC, Dhading*

Strong religious beliefs that promote childbirth prevent the use of family planning, and the PEER study found concerns that the use of longer-term temporary and permanent family planning methods created the opportunity for infidelity.

Cultural taboos around 'pollution' associated with childbirth further exacerbate delays in care seeking. The situation is further compounded for Dalit women, who are traditionally considered untouchable even without bleeding (Byrne et al. 2012).

Harmful cultural practices — Some cultural practices are potentially harmful. Fear and harmful superstitions are prevalent in mountain communities (Byrne et al. 2012). NDHS 2011 found that more than 41% of families still put substances on the umbilical stump (less common in mountains and hills than in the Terai). The restriction of food is still practised in many communities during pregnancy,

childbirth, lactation and periods of childhood illness (Adhikari 2010). Beliefs in supernatural phenomena and the influence of traditional healers often hinder the use of appropriate healthcare services in rural areas (Byrne et al. 2012).

2.3.2 Journey barriers

Distance to health facilities — The Nepal Living Standards Survey found that, on average, only 44% of households were within 30 minutes travel of an SHP or sub-health post in mountain areas, compared with 78% in the Terai. About a third of women had to travel between 30 minutes and an hour to reach an SHP or health post in the mountains compared to only 16% in the Terai. There was an almost six-fold difference disparity between mountain and Terai areas for access to a public hospital.

Impact on service use — Studies of health service use show that it decreases with distance (Kyei et al. 2012), and distance to a facility is a significant determinant for undertaking institutional childbirth (Byrne et al. 2012). According to the 2012 Household Survey, in mountain and hill areas the likelihood of a woman receiving ANC, institutional delivery and postnatal care is greater if she lives within one hour of a health facility than if she lives further away. A significant difference in use of institutional delivery was observed among women who travelled less than 60 minutes compared with women who travelled more. Similarly, when asked about barriers to healthcare in the NDHS, 65% of women from mountain areas cited distance, compared with 49% in the hills and 43% in the Terai.

Socio-cultural barriers — The effects of distance on use of health services may not however be straightforward. As noted above, socio-cultural barriers were exacerbated when women had to travel further for health services, and women themselves were more reluctant to go alone, especially in remote areas where they might have to pass through forests and unpopulated areas. To cope with this they preferred visiting health facilities in groups.

Economic barriers — Ensor and Cooper (2004) identified the economic barrier of travel as a 'distance cost' since the indirect costs of journeys increases with distance to a health facility. Travel-related costs of healthcare were reported during the PEER study to be a greater barrier than the direct costs, and included the cost of buying food, paying for porters and the opportunity cost of time away from productive work.

2.3.3 Service availability and quality barriers

Service availability

The limited availability of MNCH services in remote areas is due to a combination of insufficient service providers, unreliable opening hours and shortages of drugs and supplies. The 2012 Household Survey found that no recently delivered woman interviewed (n=1,498) had given birth at a sub-health post while only 2% had given birth at a health post in the mountain districts. Yet mountain districts have not been the focus of programme expansion plans by FHD and CHD, except for emergency referral funds, and have tended not to receive interventions until after most Terai and hill districts.

Lack of birthing centres — The most commonly mentioned barrier to institutional delivery in the PEER study was the lack of birthing centres and medical professionals unable to attend home births. Health facilities in remote areas often lack basis amenities such as electricity, and there is usually no transport. These limitations sometimes have fatal consequences, which in turn discourages others from accessing health services.

Lack of health staff — Vacant staff positions is a major problem in remote districts at all levels of health facilities (Suvedi et al. 2011). Problems also exist in the distribution of health workers, with a considerable mismatching of skilled staff and local needs (MoHP 2012c). Subedi et al. (2009) reported lack of staff and unfilled sanctioned posts, frequent transfers, staff on leave, deputation or training leave and low patient loads at health facility level as important challenge in remote districts.

> *"Sometimes there will be only the nurse, but there will be no doctor in the health post. People are asked to come back the next day. So people cannot get services" (Female, Baseri VDC, Dhading).*

> *"Health staff are there but not in the morning, evening and night time so they have to wait – better to go to witchdoctor for jharfuk who is available anytime" [women, Dhading).*

The PEER study found absenteeism among health personnel increased with remoteness, as personnel either did not attend or else did not stay for all official opening hours. The limited availability of human resources in remote areas was the main concern of all key informants of the current study.

Opening hours — In the PEER study respondents reported that most health facilities only opened from 10 am to 2 pm. Local people therefore often seek traditional healers and other locally available treatments outside facility opening hours. Similarly, during peak working seasons it may be difficult for parents to take their children for immunisation on the fixed days.

Limited availability of drugs — The limited availability of drugs is a problem in remote areas as:

- stocks often run out and take longer to be replaced;
- low population densities mean that drugs often expire before they are used;
- the high price of drugs makes them difficult to afford; and
- limited opening hours because of the absence of health workers mean that opportunities to collect drugs are limited.

Many PEER study respondents in remote areas reported that drugs were not available at health facilities and they had to buy them from local drug stores. The 2012 STS (Maheta et al. 2013) found that nationally only seven of the 22 essential drugs to be available in all surveyed hospitals, and only 3 essential drugs to be available at all PHCCs, while 6 of the 22 essential drugs were out of stock at 20% of PHCCs with a worse situation at health post and SHPs.

Restricted access to safe abortions — The PEER study indicated that in remote areas, compared to other MNCH services, access to safe abortion services was most restricted. This was said to be due to i) the lack of local, affordable safe abortion services; ii) beliefs that promoted childbirth and prohibited abortion; and iii) the cost of accessing services outside local areas. These barriers lead some women and couples to choose traditional unsafe practices to maintain secrecy and avoid prohibitive costs.

Community-based health service delivery — FCHVs are an important part of community based health service delivery with a number of health interventions provided through FCHVs (see Annex 5). But the fact that many FCHVs are from wealthier and traditionally higher status groups can lead to fewer services being received by people with a lower socioeconomic profile (Byrne et al. 2012).

The New Era (2012) study sheds light on women's interaction with FCHVs in mountain areas. It found that only 45% of women in areas with a mother's group in the mountain districts of Bajhang and Jumla

had attended a group meeting during their last pregnancy. Importantly, mother's groups in the Terai were more likely to serve women of lower education and caste levels, while in Jumla middle wealth quintile women with some education predominantly participated (New Era 2012). Although over 90% of women know their local FCHV, in the remote mountain districts of Bajhang and Jumla only 68% and 85% of women respectively had met their FCHV during their last pregnancies (New Era 2012).

Service quality barriers

Quality of care — The actual and perceived quality of care are important determinants of health service use. Patients are willing to travel long distances and bear financial burdens if they think they will get good services (Upreti et al. 2013). Thaddeus and Maine (1994) described two mechanisms at work in clients deciding to seek care: satisfaction or dissatisfaction with the outcome, and satisfaction or dissatisfaction with services received, including staff attitudes, procedures and availability of supplies.

Byrne et al.(2012) show that women in remote areas often avoid facilities due to inadequate privacy during family planning and antenatal consultations, as they are often examined by male health workers, left partly dressed during childbirth, their movements are restricted in hospitals and the rooms are cold in winter. Health worker attitudes and poor communication also affect satisfaction. Quality of care was a major concern among key informants of the current study, especially in remote areas, and this is linked with lack of monitoring and supervision.

> *"The quality of care is seriously compromised in remote areas. Women have to sleep on a cold and bloody floor if they deliver their babies at a health facility. There is little privacy. They have to undergo episiotomies. They do not get hot food or drinks…" — Kathmandu based programme manager*

Social distance inhibits service use — The social distance between service providers and users can deter health service use. Many of the national level key informants of the current study (policy makers, programme managers and civil society organisation leaders) noted the importance of recruiting local health care providers, especially in mountain and remote areas where local languages and culture may not be understood by incomers and it takes time for externally recruited health workers to be accepted and appreciated. As well as communication problems, key informants also said that lack of trust towards outsiders was a barrier to seeking care. Local people think outsiders just come to earn money and not to serve local people.

> *"In remote areas, where care providers are mostly outsiders, they hardly understand the local language and culture, which creates communication barriers." — Kathmandu based policy maker*

Female health providers — Many women prefer female care providers, as they are more likely to protect their privacy and dignity, understand their problems and offer care in a friendly way. The PEER study found that women and their families will only accept male service providers to attend to female health issues if the illness is considered serious and for delivery complications. For services such as family planning and antenatal care, male providers are considered inappropriate. The situation is particularly difficult in Nepal's most remote area — the Karnali zone — where there are no sanctioned posts for auxiliary nurse midwife (ANMs) in health posts.

2.3.4 Governance barriers

Governance barriers to accessing health care are systems, structures and practices that work against the interests of clients, or are misused or misinterpreted, thus causing problems to clients wishing to access services.

Accountability mechanisms — Mechanisms are in place to improve the accountability of local health facilities to local communities. Health facility operation management committees (HFOMCs) are supposed to represent the interests of consumers. However, care providers often feel more accountable to higher level authorities than to HFOMCs or clients especially as their performance appraisals are usually carried out only by higher level authorities. Accountability tools such as social audits, which are meant to address accountability, are being rolled out gradually across the country; STS 2012 found early one third (31%) of the facilities surveyed had undertaken a social audit in the current or last fiscal year. Coverage in remote areas has been low, except for in Jumla district (Suvedi et al. 2012).

Health Facility Operation and Management Committees — HFOMCs Have an important role to play in increasing the reach and quality of service delivery and ensuring responsiveness to the needs of women and poor and excluded populations in the catchment areas they serve. They also have responsibilities to improve the organisation and management of the facilities'' health resources (MoHP 2013, GESI Operational Guidelines). However, HFOMC performance is mixed, community engagement is weak, and HFOMCs are often not social inclusive with women and excluded group people often being underrepresented or not properly involved. HFOMCs have a good potential to spearhead health governance issues at the local level, especially as they start to steward the social auditing of health services, and MoHP's experiments with strengthening HFOMCs to better perform this role are underway.

Transport syndicates hinder access — Local transport systems can limit the extent to which local needs are addressed. For example, transport syndicates in remote areas limit the movement of vehicles by enforcing rigid practices and routes, leading to higher fares. A central level programme manager said that this can lead to women being unable to get a vehicle to go to a health facility, even in an emergency and even where one is available.

Inadequate policy attention — Exclusion on the basis of geography has received inadequate attention from policy makers and programme managers. The problems of remote areas differ from those of non-remote areas and need special attention. The Ministry of Federal Affairs and Local Development (MoFALD) and the Ministry of Education, but *not* MoHP, have separate desks to look after remote area issues.

2.4 POLICIES, STRATEGIES AND PROGRAMMES TO IMPROVE SERVICES IN REMOTE AREAS

The Nepal National Health Policy, 1991 (HMGN 1991) called for improving the health of rural populations by strengthening primary health care and establishing a sub-health post in each VDC and a PHCC in each constituency. In response to high maternal mortality, safe motherhood was designated a national priority 1 programme. A Safe Motherhood Plan of Action (1994-97) and National Maternity Care Guidelines (UNICEF and FHD 1996) defined the care to be provided for mothers and newborns. Various child survival interventions were initiated including the Expanded Programme of Immunisation (EPI) and programmes to control diarrhoeal diseases and acute respiratory infections.

Over recent years there has been a growing realisation that programmes benefits have not been equally distributed. Significant populations have not been reached due to their geographical location, socioeconomic situation, social group or gender. Policies and strategies have been developed to address social inclusion including MoHP's Gender Equality and Social Inclusion Strategy (MoHP 2010) and the objectives and targets of NHSP-2. This section gives an overview of the programmes, strategies and policies introduced to improve health service uptake in remote areas of Nepal.

Extra background information on some programmes, strategies and policies are included in Annex 5.

2.4.1 Health system approaches

Human resource management

Local recruitment — Strategies have been implemented to address human resource shortages by increasing the local recruitment of health workers. Local recruitment provides health workers who are aware of local issues, speak the local language and are more likely to remain in the area. In some cases funding is provided by Department of Health Services (DoHS) divisions: FHD has funded the recruitment of staff nurses and ANMs through DHOs and DPHOs; and CHD has paid for the services of 1,000 vaccinators. MoHP has also recently instructed regional health directorates to recruit over 1,500 health workers to fill gaps. HFOMCs are also empowered to recruit ANMs using locally generated funds.

Drawbacks of locally contracted staff — Although this has increased staffing levels, there are problems due to lack of continuity in services provided by staff on local contracts as contracts are only for one year. Even when contracts are renewed, there is usually a gap while they are renewed. Remote areas suffer further as qualified local health professionals are often unavailable, and it is difficult to attract health workers from other areas, since the cost of living is generally higher and conditions harder, while the allowances are the same as for other areas (or even less). A further issue is ensuring that locally recruited health workers receive required training and professional support. The STS 2012 found that temporary staff received less training than equivalent permanent government staff.

Scholarships — To address the lack of qualified health workers in remote areas, the National Planning Commission (NPC) is using the Poverty Alleviation Fund to provide ANM training scholarships for Dalit and other marginalised girls from rural and remote areas. Anecdotal information indicates that these ANMs are being recruited locally by HFOMCs.

Graduate placements — Recently graduated doctors who received scholarships from the Ministry of Education are the main service providers in hospitals and PHCCs in remote mountain districts as they are bonded for two years as a condition of their scholarships. Although this has placed more doctors in remote areas, as recent graduates their lack of experience means they may lack the skills for managing a district health system (which can be harder in remote districts) and undertaking emergency surgery without backup from more experienced doctors. Also, the Patan Health Science Academy, started in 2009, is training doctors and other health workers from rural and remote areas and supports their placement in these areas.

Traditional healers — The mobilisation of traditional healers, who are consulted and trusted by local populations, has helped create awareness about healthy practices and healthcare seeking among hard-to-reach populations in CB-IMCI programme.

Strengthening local management

HFOMCs — HFOMCs play a central role in ensuring the quality of services and accountability of health facilities, including by raising funds locally and directing their use (Gurung 2012). Significant investments have been made in strengthening HFOMCs, often resulting in increased institutional delivery services especially in remote areas. HFOMC members and health workers have been encouraged to work as teams to solve problems and to take more client and community-centred approaches.

Community mobilisation for MNCH

The Equity and Access Programme — The Equity and Access Programme (EAP), which was launched in 2006, is a women's empowerment and rights-based community mobilisation programme for health. It is a targeted programme to reach the unreached built on a tried and tested package of inputs (see list of inputs in Annex **), which work together to empower women and create an enabling environment for social change:

Where implemented well, EAP has contributed to improvements in the use of maternal and newborn health services among poor and excluded communities, has mobilised communities to promote health seeking behaviour, has increased community participation in managing health facilities, and has raised the voices of poor and marginalised groups (Shrestha et al. 2012). The programme is now being implemented by Primary Health Care Revitalisation Division (PHCRD) in 20 districts through local NGOs. More than 1,500 community groups are collecting emergency funds and establishing transport mechanisms at the VDC level (DoHS Annual report, 2012/13). The EAP model has been shown appropriate for hill and Terai areas but has not yet focused on remote or mountain areas. The recent strategic review (Shrestha et al. 2012) recommended that the programme be adapted for remote areas where service availability is weaker.

Community-based health activities

Female community health volunteers — FCHVs play a crucial role in connecting remote communities to health services through local health facilities and outreach services (Acharya and Cleland 2000) and are often the only health service providers for remote communities.[4] However, concern was raised by key informants of the current study about the capacity of FCHVs in remote areas, as they are more likely to be illiterate and speak only the local language. Different studies found the same findings of FCHVs in rural and remote areas being less literate (New Era 2007) and less active (New Era 2012). A further issue is the high work burden of women in these areas, such that FCHVs in these areas may not have time to reach communities that are not close by as both the women and FCHV in mountain/remote areas have higher work burdens.

Primary healthcare outreach clinics — Every VDC has between one and three outreach clinics. This does not differ by geographical terrain or the size or distribution of the local populations.[5] However, the functionality of these outreach clinics is questionable. Although HMIS reports the regular provision of outreach services, NDHS 2011 found outreach clinics to be serving a very small proportion of clients: 1.6% of family planning service users and 0.6% of children with fever.

[4] See background information on FCHVs at Annex 5.
[5] See background information on primary healthcare outreach clinics at Annex 5.

Partner initiatives

Specific areas of support provided by development partners to target remote areas include the following:

- **Improving the availability of health workers in remote areas** — Many partners (including UNICEF) are working to mobilise local resources at district and VDC levels for recruiting local health workers. This has resulted in the increased availability of birthing services in rural and remote areas. One Heart International has supported local NGOs in the seven most remote VDCs of Dolpa district to recruit local ANMs, who are providing delivery care and other maternal and child health services. Despite many challenges, there is a potential for increasing services at public health facilities in remote areas through the support of NGOs.
- **Upgrading facilities and training health workers** — The Nick Simons Institute (NSI) has supported district hospitals since 2007 to improve their communication systems, to facilitate community governance, to provide mHealth services, and to provide staff quarters and continuing medical education for staff. This initiative is underway in Bajhang, Dolakha, Gulmi, Doti, Kalikot, Kapilvastu and Salyan districts and has resulted in the provision of CEONC services in these districts and increasing service use (Rural Staff Support Programme [RSSP] mid-term assessment [NSI 2010]).
- **Supporting community based programmes** — Partners have supported community based programmes, including interventions implemented through FCHVs by the government (such as CB-IMCI, CB-NCP and the birth preparedness package) and the mobilisation of community groups to improve awareness and reduce access barriers, including in remote areas. However, the effectiveness of these interventions in mountain districts is poorer in comparison to in hill and Terai districts.
- **Family planning services** — Non-government organisations carry out more than a third of all vasectomies. The Family Planning Association of Nepal (FPAN) and Marie Stopes International (MSI) provide static and mobile family planning services. The association has expanded its services to include maternal and newborn care, safe abortion and adolescent sexual reproductive health, and currently works in 32 districts (19% of mountain, 49% of hill and all Terai districts). Marie Stopes runs 52 centres in 41 districts that provide family planning, safe abortion, ANC, PNC, immunisation, general health check-up and diagnosis and treatment of sexually transmitted infections.

Although partners have helped improve the availability and quality of services in remote areas, more focus has been on the high population Terai districts, although this is beginning to change. Only safe abortion (Ipas) and the social marketing of family planning methods (CRS Nepal) cover all districts (see Annex Table 6.1).

Private sector services — Private sector health services have significantly increased in recent years in urban and accessible rural areas. NLSS 3 found differing health service use patterns, with 58% of consultations for acute illnesses sought from public facilities in the mountains compared to only 28% of consultations in the Terai. This indicates that public institutions continue to be the major providers in mountain areas (NLSS 2011). However, although most private hospitals and nursing homes are concentrated in urban and easily accessible areas, there is a proliferation of private pharmacies and shops providing medical care and drugs everywhere, including in remote areas (see Table 2.5). Sometimes services are provided by government health workers (in addition to their government jobs) or independent private health practitioners. Organisations such as Population Services International

(PSI) train and support private sector health workers to provide family planning services, however more focusing on urban and accessible areas. CRS Nepal has greatly increased the availability of family planning commodities such as condoms, pills and injectables, and of oral rehydration solution and clean delivery kits through social marketing, reaching almost all corners of Nepal.

Table 2.5: Proportion of services provided by government, non-government and private sector providers (percentage of users)

Service	Government facilities	NGOs	Private facilities and pharmacies	Other
Family planning	69.0	8.5	19.8	0.8
Institutional delivery	70.5	5.7	19.5	4.3
Treatments for fever	22.7	0.4	72.0	2.3 (FCHVs)
Mountains	**56**	**3**	**39**	**3 (FCHVs)**
Hills	30	0	63	4 (FCHVs)
Terai	17	0	79	2 (FCHVs)

Sources: NDHS 2006 and 2011

2.4.2 Increasing service use in individual MNCH service areas

Family planning and safe abortion services

Integrating family planning with other services — Family planning is a pillar of Nepal's national safe motherhood programme as a cost effective intervention for saving the lives of mothers and babies (Goldie et al. 2010). NHSP-2 aims to increase contraceptive prevalence through supply and demand efforts. The following initiatives are of particular relevance to remote areas, although it is too early to assess the effects of most of them:

- Micro-planning is to be carried out by FHD in six yet-to-be-identified low performing districts based on district reviews of each VDC in terms of the contraceptive prevalence rate and the presence of hard-to-reach populations.
- The integration of family planning with EPI clinic services is being tested in Kalikot district.
- FHD is working with JHPIEGO to implement the healthy timing and spacing of pregnancies (HTSP) in 10 districts.
- The insertion of IUCDs immediately after delivery has been piloted in three hospitals. (No data available yet to review performance).
- The provision of family planning services at prevention of mother to child transmission (of HIV) (PMTCT) sites was started in 2005/06 in three districts and has been scaled up to 41 districts (but to no mountain districts).

Availability of family planning services at rural health facilities — Most health facilities provide condoms, pills and injectables; but only 8% of health posts are reported to provide IUCD and implants and vasectomies and minilaps are only available in 69% and 63% of hospitals respectively (STS 2012). A key constraint is the lack of trained health workers. The 2012 STS (Mehata et al. 2013a) found that only 33% of permanent ANMs and 10% of temporary ANMs at health post level had received IUCD training, and about 10% of ANMs, health assistants and assistant health workers had received implant training. Table 2.6 shows National Health Training Centre (NHTC) training information for the last

three years, illustrating the gaps that exist. It shows that no minilap or IUCD training took place for government health staff in mountain districts in the last three years.

Table 2.6: Number and percentage of districts (n=75) where staff received family planning training in the last 3 years (2009/10, 2010/11, 2011/12)

Training	Mountain districts (n=16)	Hill districts (n=39)	Terai districts (n=20)	Total no. staff trained
IUCD	0	11 (28%)	3 (15%)	189
Implant	12 (75%)	23 (59%)	14 (70%)	327
Non-scalpel vasectomies (NSV)	10 (63%)	22 (56%)	2 (10%)	115
Minilap	0	59 (13%)	9 (45%)	116

Source: NHTC 2013 (internal document)

Access to safe abortions — Abortion was legalised in Nepal in 2002, and safe abortion services (manual vacuum aspiration) were introduced in 2004 in hospitals and PHCCs. In 2008, the training of nurses was successfully initiated and scaled up, to increase the availability of safe abortions. The introduction of medical abortions, using the drug Medabon, has further increased access, especially in rural areas, as ANMs at health posts can be trained to provide this service. Piloting in 56 health posts in 10 districts showed the service was safe, with very low complication rates (0.3%). It was being scaled up to a planned 22 districts by 2012/13. This is an important development for women in remote areas where a health post may be the only source of safe services for ending unwanted pregnancies. FCHVs are being trained to provide urine pregnancy testing to help women make early (and safer) decisions about their pregnancies.

Safe motherhood services

Remote area guidelines — Building on the Safe Motherhood and Neonatal Health Long Term Plan (2006-2017) (MoHP 2006b), which aims to improve the outcomes of poor and excluded groups, the Remote Area Guidelines for Safe Motherhood (2009) (FHD 2009) further increased the profile and understanding of issues faced in providing these services in remote areas and reaching unreached women.

Increasing skilled birth attendance — Increasing the proportion of births assisted by SBAs is very important for reducing maternal mortality with Nepal having an MDG target of 60% coverage by 2015.

- **Skilled birth attendants** — Across Nepal, access to skilled attendance has greatly improved through the implementation of the Skilled Birth Attendants Policy, 2006 (MoHP 2006a). There have been enormous investments in staff training, and NHTC has established 22 SBA training sites of which 9 sites are in hill districts, but no SBA training sites in mountain districts. These sites produce about 1,000 SBAs per year. By the end of 2012, 3,600 health workers had received training and many of them are providing services in hospitals and rural health facilities including SHP level, associated with increased institutional delivery rates. However, shortages of doctors, nurses, and in some areas ANMs, remains a huge challenge (MoHP 2012c), especially in remote areas.

- **Training courses** — Under the SBA policy, MBBS[6] doctors are eligible for advanced SBA training, including on performing caesarean sections. This has helped increase service availability especially in remote districts. The Diploma in Gynaecology and Obstetrics (DGO) was introduced in 2009 to enable MBBS doctors to acquire further skills needed to provide full CEONC services. Nurses and health assistants can be trained as anaesthesia assistants, enabling them to provide anaesthesia at district hospitals to support doctors (especially doctors working in small under-staffed hospitals) to carry out caesarean sections. This has made a great difference, as there are no specialist anaesthetists in district hospitals. However, this can only be effective if accompanied by the strategic posting of trained staff where needed rather than the common ad-hoc transfer of trained staff to posts where their skills may not be used.

Institutional delivery and the Aama Programme — Increasing the use of institutional delivery services is a major strategy to reduce maternal mortality.

- **Birthing centres** — Institutional delivery facilities are being increased across the country, including in remote areas, mainly by upgrading health posts to birthing centres and training SBAs to enable them to deal with normal deliveries, provide obstetric first aid and recognise and refer complicated cases. Over 1,200 birthing centres are now providing services at health posts and SHPs, making institutional delivery care more accessible to women in rural and remote areas. The most increases in the provision of these services has been at SHPs with an increase from 326 SHP birthing centres in 2010/11 to 473 in 2011/12 at SHP. At health posts the increase has been less — from 533 health posts with birthing centres in 2010/11 to 573 in 2011/12. (DoHS annual reports 2010/11 and 2011/12). However, mountain areas still lag behind (see below).
- **Incentives** — The Aama Programme[7] provides free delivery care, the free care of all pregnancy and birth complications, transport incentives for mothers and incentives for service providers and institutions. The transport incentives are higher in mountain areas (NPR 1,500) than in the hills (NPR 1,000) and Terai (NPR 500), reflecting the differences in transport costs and availability. This programme has successfully increased the uptake of institutional delivery, especially by marginalised groups, and has greatly increased the availability of institutional delivery care, as the reimbursement of the costs of providing free care has enabled HFOMCs to hire additional ANMs locally, thus reducing staff shortages.

  Mountain districts lag behind — FHD internal records on service provision for 2011/12 show that i) although a higher proportion of PHCCs provide BEONC services in mountain districts (65%) compared to 54% of hill and 49% of Terai PHCCs; ii) a higher proportion of hill health posts (96%) have birthing centres compared to 78% of mountain health posts and 67% of Terai health posts; and iii) only 19% of hill, 15% of mountain and 9% of Terai SHPs have birthing centres (FHD internal records 2011/12). In the mid-western region (which has many of Nepal's least developed hill and mountain districts) mountain districts are less well provided for, as only 49% of peripheral health facilities in its mountain districts had a birthing centre, compared to 66% in the hills and 65% in the Terai districts of this region (May 2013 FHD records).
- But HMIS 2011/12 reports that the proportion of deliveries in birthing centres was significantly higher in mountain districts (38%) than in the hills (24%) and Terai (13%) indicating the greater use of more accessible local facilities in remote areas.

[6] Bachelor of Medicine and Bachelor of Surgery
[7] See background to this programme in Annex 6.

Community support for home deliveries — In remote areas home delivery remains the most practical choice for many women; but if complications occur, particularly haemorrhaging, there may be insufficient time to get to an appropriate health facility. In response to evidence about the effectiveness of misoprostol in preventing postpartum haemorrhaging, FHD, with support from the Nepal Family Health Program (NFHP), piloted misoprostol distribution through FCHVs in the eighth month of pregnancy in Banke district, and through health workers during antenatal care in Sindhuli district. The distribution of misoprostol through FCHVs was subsequently scaled up from 2009 as a component of the revised Birth Preparedness Package. This was initially limited to remote districts where home births are the norm, but by 2012 it had been expanded to 30 districts, including 44% of mountain districts, 44% of hill districts and 25% of Terai districts. A recommendation of this study is that remote locations should be prioritised for this initiative.

Emergency care — Since the 1990s there has been a strong drive to expand the provision of obstetric emergency care for all women suffering from complications during pregnancy, birth or postpartum.

- **Availability of services** — In spite of large increases in the provision of emergency obstetric care (EOC), only 38% of mountain districts have 24-hour CEONC services, compared with 79% of hill and 85% of Terai districts. Basic emergency obstetric and newborn care (BEONC) services have also expanded considerably, and are available at more than 52% of PHCCs, with 38% providing 24-hour birthing services. A higher % of PHCCs were providing BEONC services in mountain districts (65%) than in hill (54%) and Terai (49%) districts.
- **Referral funds** — The maternal morbidity and mortality study (Suvedi 2009) found that when complications occur, delays in reaching a facility where appropriate care could be provided was one of the major reasons for maternal and newborn deaths. To help address this, FHD is providing referral funds to the district hospitals where CEONC services are not available to support the referral of serious cases to another facility. These funds are managed locally. In 2010/11, 12 remote districts where CEONC is not available were provided with referral funds. Bajura, Khotang and Mugu are districts where this has reportedly benefited women with obstetric complications. Success strongly depends on the motivation and management capabilities of district authorities, which varies. Community involvement is also important, to ensure the accountable use of these funds and to provide additional inputs such as stretchers. The availability of community EOC funds has also facilitated decisions to seek care and reach a facility when obstetric complications occur (Hussein et al. 2012). Although many organisations are supporting this initiative, there is no reliable country level data on the coverage and use of these funds.

Antenatal care — The following antenatal care mechanisms have been introduced in recent years:

- **Check-ups** — Nepal has adopted the World Health Organisation (WHO) recommendation of antenatal check-ups in the fourth, sixth, eighth and ninth months of pregnancy. ANC services are available at all health facilities and outreach clinics and an incentive of NPR 400 is provided for women who attend four ANC check-ups and deliver at a health facility. However, the incentive does not appear to have affected uptake with HMIS data from the last three year showing no increase in ANC 4 coverage of 57% of pregnant women (DoHS annual report 2011/12). No difference in service uptake was observed between ecological regions, since ANC services are provided close to communities, making access less of a problem.

- **Birth preparedness** — In Bangladesh, effective birth preparedness with awareness of danger signs encourages women and their families to prepare for a normal birth and to deal with unforeseen complications (Khanum et al. 2000; Thaddeus and Maine 1994). In 2002, the SUMATA Care, Share and Prepare campaign was initiated in Nepal with support from JHPIEGO. The birth preparedness package developed as a part of this became a national programme, implemented through FCHVs who were trained to educate women and their families to adopt healthy practices during pregnancies and to prepare for births.
- **Ultrasound screening** — A new intervention with potential for saving maternal and newborn lives in remote areas was piloted in two districts in Nepal in 2010/11. Trained SBAs were provided with portable ultrasound machines and sent to rural areas to conduct mobile antenatal clinics with ultrasound screening to detect abnormal conditions that could progress to life threatening complications. This allows women to plan for an institutional birth with facilities for dealing with complications. This initiative had increased antenatal attendance as women felt the service was enhanced by ultrasound screening (Daud et al. 2012).
- **Prevention of pre-eclampsia** —Suvedi et al. (2009) reported that eclampsia was responsible for 21% of maternal deaths in Nepal. There is evidence that low intake of calcium in the diet and low serum calcium concentrations are associated with the increased incidence of pre-eclampsia. Emergency treatment with magnesium sulphate can save the lives of women with pre-eclampsia and increasing calcium intake can reduce the incidence of pre-eclampsia by 50% (Maternal and Child Nutrition series Lancet, 2013). With the support of JHPIEGO and the Maternal and Child Health Innovative Programme (MCHIP), FHD is piloting the provision of calcium tablets in conjunction with interventions to strengthen secondary and tertiary level services for the prevention and treatment of pre-eclampsia in one district.

Child health and newborn care

Immunisation — Child immunisation is one of the most cost effective ways of reducing infant and child mortality. The National Immunisation Programme (NIP) includes the routine immunisation of all children with supplementary immunisation activities as needed.

- **Unreached groups** — Immunisation coverage is high in Nepal, but there are still challenges reaching all groups. For example, coverage of Muslim children is only 57% (Pandey et al. 2013). In some remote areas where the regular presence of health workers cannot be ensured, the regularity of immunisation clinics is questionable.
- **Micro-planning** —Reaching Every District (RED) micro-planning gives additional support to poorly performing districts. It encourages district authorities and health facilities to identify unreached children, develop ways of reaching them, and to link services with communities (WHO 2009). In 2011/12, 25 districts (2 mountain, 15 hill and eight Terai districts) were identified as low performing districts. Their performance was reviewed, actions planned to improve performance and district planning sessions conducted to mobilise VDC resources. UNICEF supported these activities in 15 districts, and other partners such as Care Nepal supported VDCs to extend immunisation to all local children. The success of this initiative has yet to be evaluated.
- **Year of intensification** — The government has also attempted to increase immunisation coverage by declaring 2012-13 a year of intensification of immunisation. Strategies include strengthened service delivery including capacity building; development of national and district specific plans of action; and creating an immunisation law and trust fund.

The integrated management of childhood illnesses[8]

- **Community based IMCI** — The Community Based Integrated Management of Childhood Illness (CB-IMCI) programme has resulted in significant gains in child survival for cases of diarrhoea and ARI (Ghimire et al. 2010). Adapted WHO IMCI training materials were piloted in one district (Mahottari) and scaled up to all 75 districts by 2009. However, although there is a focus on making services available close to communities through FCHVs (with back up from PHCCs, health posts and SHPs) there has been no emphasis on the special conditions of remote and difficult districts. CB-IMCI was scaled up in the mountain districts later in the programme, with benefits coming correspondingly later.
- **Quality of CB-IMCI care** — The quality of care provided through CB-IMCI can be evaluated using HMIS district data including the percentage of severely dehydrated children among new diarrhoeal cases and the percentage of those with severe pneumonia among new ARI cases. It is expected that districts that are performing well will have fewer severe cases coming into the system as they will have been detected and treated early in communities. Analysis of district performance compared with national performance ranked mountain districts lower than hill and Terai districts for both diarrhoeal and ARI management (Table 2.7) indicating a need to strengthen CB-IMCI case management in mountain districts. The role of active and trusted FCHVs is very important as children with diarrhoea and ARI will be brought to them in the early phases of disease. A higher percentage of cases seen by FCHVs correlates with lower percentage of severe illness among new cases.
- **Private service providers** — CB-IMCI mainly focuses on the government health system and does not yet fully work with the private sector. However, further analysis of NDHS (2006 and 2011) on place of service sought for fever shows an increase in services provided by shops and pharmacies and the declining use of FCHVs.

Table 2.7: Proportion of mountain, hill and Terai districts performing better than national average on four IMCI indicators

	1. % districts performing better in severe pneumonia cases among new ARI cases		2. % districts performing better in severe dehydration cases among new diarrhoea cases		3. % districts performing better in total ARI cases seen by FCHVs		4. % districts performing better in total diarrhoeal cases seen by FCHVs	
	2068/69	2069/70	2068/69	2069/70	2068/69	2069/70	2068/69	2069/70
Mountain districts (n=16)	25	25	56	38	25	38	19	31
Hill districts (n=39)	56	49	77	59	54	64	62	67
Terai districts (n=20)	75	75	80	75	70	75	55	50

Source: Analysis of HMIS data from DoHS annual reports 2068/69 and 2069/70

[8] The integrated management of childhood illnesses (IMCI) is a WHO-UNICEF approach developed in 1992. It focuses holistically on the five major childhood killer diseases of pneumonia, diarrhoea, malaria, measles and malnutrition among children aged two months to five years. The management of infection, jaundice and hypothermia and counselling on breastfeeding (infants less than two months old) are also covered.

Newborn care — Over the years Nepal has introduced a number of essential newborn care interventions, including clean delivery, cord care, prevention and care of hypothermia, promotion of immediate and exclusive breast feeding, all based on having service available at community level through FCHVs, and through SBAs, paramedics and doctors at health facility levels.

- **Quality of care** — The core competencies of skilled birth attendants should include essential newborn care and the resuscitation of newborns with asphyxia (SBA training strategy, 2007-12). However, the quality of care provided by SBAs is not known as it is not monitored by HMIS. In the 2012 STS, 66% of health providers reported difficulties providing newborn care services, and this was higher in health posts (83%) than in hospitals (44%), and PHCCs (61%). Since women in remote areas are more likely to use the services of a local health post or PHCC, this means newborns in remote areas are disadvantaged.
- **Awareness raising** —In coordination with CHD and FHD, the National Health Education and Information Communication Centre (NHEICC) has promoted essential newborn care messages by improving the interpersonal communication skills of health workers and FCHVs, and mass media communication. More tailored behaviour change communication (BCC) responses are needed given the lower levels of interaction between families and health workers and FCHVs in remote areas, and the lesser media penetration in mountain areas. Essential newborn care messages are also included in SBA training and the Birth Preparedness Package.
- **Community care** — By the end of 2012/13, the Community Based Newborn Care Package (CB-NCP) (CB-NCP manual, CHD 2008/09) covered 44% of mountain districts, 54% of hill and 95% of Terai districts (CHD records 2012/13). Although it was designed to address issues related to home delivery, which is more common in the mountains and hills, the selection of districts for CB-NCP did not take this into account with more Terai districts covered where the number of institutional deliveries is high (see Annex Table 6.2). A recent assessment (MCHIP no date) found little evidence of the effectiveness of CB-NCP, although the reasons for this were not given. Note that FCHVs receive incentives under this programme based on the performance of their groups.
- **The Clean Delivery Kit** — The Clean Delivery Kit is now available at local stores in all 75 districts. NDHS 2011 found that 3.5% of women from mountain and 4.6% of women from rural areas had bought a kit as part of their preparations for childbirth.
- **Cord care** — The application of 4% chlorhexidine to the umbilical cord within 24 hours of birth can prevent severe cord infection and neonatal death in settings where hygiene is poor (Mullany et al. 2006). The use of chlorhexidine was scaled up from 2009 and integrated into CB-NCP from 2011/12. By the end of 2013/14 it is expected that 50% of mountain districts, 56% of hill districts and 95% of Terai districts will be covered (see Table 2.8). However, again, implementation has been lowest in mountain districts where it is most needed because of the high level of home births, often in very poor and unhygienic conditions. Note that FCHVs provide pregnant mothers with chlorhexidine at 8 months of their pregnancies if they plan to give birth at home . If an FCHV attends a home delivery, she will apply it and if not she teaches families how to apply it.

Table 2.8: Scaling up the use of chlorhexidine for cord care in Nepal by number of districts

Year	Mountain	Hill	Terai
Piloting districts	2	0	2
2010/11	0	2	0
2011/12	5	7	10
2012/13	1	6	4
2013/14	0	7	3
Total districts	8 (50%)	22 (56%)	19 (95%)

Source: CBNC programme (communication)

3 GLOBAL EVIDENCE ABOUT HEALTH SERVICES IN REMOTE AREAS

Rural communities in developing countries across the world have poorer health outcomes and worse access to services than people their urban, non-remote counterparts. This section describes strategies adopted globally to increase health service use in remote and rural areas.

3.1 IMPROVING THE AVAILABILITY OF SERVICES

Locating health facilities— There is evidence that significant increased equality of access to health care can be achieved when decisions about the location of new health facilities are underpinned by targeting services to poor and underserved communities. In Costa Rica, health sector reform in the mid-1990s closed redundant health posts and opened new primary care facilities opened. The least privileged, underserved populations were explicitly targeted first. A 2004 review found that inequity of access to health care (defined as distance to the nearest outpatient care centre) had reduced to greatly in areas that had implemented reforms compared with other areas (Rosero-Bixby 2004). Geographical information systems (GIS) also provide a very useful tool for planning the location of health services in developing (McLafferty 2003).

Human resources — The unequal distribution of health workers has been well documented (WHO 2006b). WHO (2010) identifies strategies to improve staff retention in remote areas although it is recognised that there is no one-size-fits-all way to address this problem (Uta et al, 2008). The latter authors found that task shifting and the contracting in or out of services have positively impacted access to health services and outcomes in rural or remote communities. Task shifting has been adopted in many countries, for example by training nurse practitioners and medical officers (non-doctors) in Africa, and has been documented as successful in overcoming shortages of doctors able to provide caesarean sections (Atiyeh et al. 2010). In Nepal, nurses trained as anaesthesia assistants have increased the availability of CEONC at district and zonal hospitals and reduced referrals on to higher level facilities (NSMP 2004).

Contracting services — Evidence exists of improved service delivery after contracting-out services to private providers in rural Cambodia, Guatemala and India (Bloom et al. 2006; Danel and La Forgia 2005; Loevinsohn and Harding 2005). However, with the exception of Orissa (India) and Guatemala, most evidence is based on whole district approaches, rather than focusing on difficult areas. Experiences in rural Cambodia show that the approach reduced the health expenditure of poor families. However, several issues and challenges need to be addressed in service contracting (England 2004):

- sustainability, as most contracts are funded by donors;
- the existence of the institutional capacity to develop and manage contracts;
- the existence of systems to identify the poor;
- the use of built in incentives for private providers; and
- regular monitoring and evaluation.

A review of evidence on the effectiveness of contracting-out services, (Liu et al. 2008) concluded that it improves access, but whether this extends to equity, quality and efficiency is unknown. Health system-wide effects are also little known.

System-wide approach — A system-wide approach has been recommended by Freedman et al (2007), to strengthen the capacity of district health systems to convert inputs into functioning, accessible services that will be used by all elements of the population. Nepal has taken a system strengthening approach under earlier programmes including Support to the Safe Motherhood Programme (SSMP) and UNICEF support for maternal health care. In addition to systems approaches there is still a need for flexible interventions to meet contextual needs in remote and underserved areas. Interventions need to be tailored to the local context based on evidence, and while they may be defined and designed at national level, they need to be informed by the local analysis of district problems and solutions.

Telemedicine — In remote communities, telemedicine is a potential vehicle for improving the quality of diagnosis and increasing the availability of specialised care to isolated, underserved communities (Craig and Patterson 2005; Mukundan et al. 2003). It has also been suggested that telemedicine can motivate health professionals to remain in rural practice by providing a means of continuing professional development (Gagnon 2006).

- **Obstetric telemedicine** — Telemedicine has so far only been used in a few low income countries to provide obstetric support — a 2009 survey (WHO 2010a) identified only four developing countries (including Nepal) with such programmes. But promising results have emerged from remote areas of Mongolia, where telemedicine has increased the availability of tertiary services in areas where population densities are very low and access to services poor. Modern diagnostic and telemedicine equipment was installed in facilities to enable distance consultations and teaching support for health providers. This led to improvements in the early detection of pregnancy complications, their more timely management, fewer unnecessary referrals and reduced childbirth complications (Baatar et al. 2012). This success was attributed to the extensive training provided, respect for local practices and the existing knowledge of local doctors (WHO 2010b). The challenges included equipment breakdowns, slow internet bandwidths and the reluctance of some staff to work with new technologies. The unreliability of technology in remote areas inevitably limits the extent to which telemedicine can be used, but it can support the clinical management of women at risk of poor pregnancy outcomes in remote regions.
- **Telemedicine in Nepal** — Telemedicine has been tried out in Nepal to support the expansion of specialist dermatology care (Jha and Gurung 2011), create links between Kathmandu Model Hospital and Dolakha Hospital (Subedi et al. 2011), and to allow practitioners at Patan Hospital to access a global network of specialists (Pradhan 2003). These trials have identified the factors that are likely to limit the effectiveness of telemedicine as lack of reliable electricity supplies, limited infrastructure outside Kathmandu, poor internet connectivity, and the cost of establishing effective systems (Ramesh et al. 2009).

3.2 INCREASING ACCESS TO CARE

Reducing delays — Long distances to a health facility and the associated financial and opportunity costs to clients cause the preference for home delivery and delayed care seeking when complications arise, which contributes to high numbers of maternal and newborn deaths in developing countries (Gabrysch and Campbell 2009). Nepal's Maternal Morbidity and Mortality Study (MMMS) 2008/09 (Suvedi et al. 2009) found that 80% of maternal death cases at health facilities had been were admitted in a critical state, with 18% dying within 4 hours, 39% within 12 hours and 53% within 24

hours of admission, indicating substantial delays in mothers with complications reaching a health facility.

The referral of complications — In their meta-analysis of the effectiveness of emergency referral interventions in developing countries, Hussein et al. (2012) found that referral interventions (the 'second delay') aimed at improving the referral of women with complications usually led to the improved use of health services and reduced newborn mortality, but failed to affect maternal mortality. The same author found that programmes that generate community funds for emergency transport have positive effects on newborn and maternal death rates. Holmes and Kennedy (2010) found that barriers and solutions for the second delay vary greatly with the context and are complex, and are thus relatively neglected. The second delay has the greatest impact in poor remote populations.

Maternity waiting homes — Hussein et al. (2012) found that maternity waiting homes help reduce stillbirths, but have questionable sustainability. A review of the use of these homes in low-resource countries found that a wide range of factors affect the willingness of women to use them (van Lonkhuijzen et al. 2009). In Ghana the location and cost of living whilst staying in homes were strong barriers to use (Martey et al. 1995), and there were concerns about the limited availability of health care personnel, safety and the fact that women were not able to take care of their families and farms whilst waiting for the onset of labour (Wilson 1997). Thus it is questionable whether women from remote locations will use such services as much as women living closer to health facilities.

Pairing low and high level facilities — In Nigeria, the pairing of four facilities that have midwives who provide BEONC services, with hospitals where CEONC services are provided resulted in improved maternal and newborn mortality through skill transfer. Both maternal and newborn mortality rates declined after a year of implementation. However, the result was not significant in remote areas where staff availability and retention was low (Abimbola et al. 2012).

Strengthening community responses — Group-based approaches increased access to health care and improved family practices and outcomes:

- **Participatory learning and action —** The practice of participatory learning and action (PLA) by women's groups in rural areas of developing countries can reduce newborn and maternal mortality (Prost et al. 2013). This review found participation in a women's group to be associated with a 37% reduction in maternal deaths and a 23% reduction in newborn deaths in Nepal, Bangladesh, India and Malawi. This approach promotes appropriate care-seeking and appropriate preventative and home care practices. It is also considered effective in increasing timely referrals for complications and preventing maternal mortality (Hussein et al. 2012). The Nepal Makwanpur trial was a cost-effective initiative (Borghi et al. 2005), which alongside mobilising women, strengthened health services through staff training and by providing equipment for newborn resuscitation to health facilities and FCHVs (Morrison et al. 2005),. Prost et al. (2013) hypothesised that reduced maternal mortality via PLA might be due to a combination of reduced infections through improved uptake of antenatal care and better hygiene during delivery, and changes in the rapidity of response to danger signs that make the difference for survival. This was supported by the process evaluation (Morrison et al. 2009) showing that women's groups discussed danger signs, raised community support for maternal health, and contributed to emergency transport funds. High coverage and participation of pregnant women (at least 30-50% of pregnant women attending groups) is necessary to demonstrate a positive impact on mortality.

Combining group participation and home visits to improve demand and supply of healthcare was also recommended.

- **Equity and Access Programme** — The Nepal Equity and Access Programme, which took a rights based social mobilisation approach to maternal and newborn health produced an impact by involving women and community groups in decision making within communities and at home. The programme supported the establishment of community based emergency funds and community led transport solutions, and helped increase the accountability of health facilities by working with and through HFOMCs, and increased the use of MNH services by targeted poor and excluded groups.
- **Home based life saving skills (HBLSS) —** The Home based Life Saving Skills programme, which was implemented in Ethiopia, Liberia, India and Bangladesh through group processes, increased knowledge and health service use by communities (Dynes et al. 2011). A community facilitator organises meetings for local men and women on core topics related to maternal and newborn complications and facilitates them to identify problems and plan solutions. The programme discusses and demonstrates specific skills for the care of women and newborns, such as teaching them how to do uterine massages and to ensure that women lie down if postpartum bleeding occurs (ACNM 2013, HBLSS manuals).

3.3 COMMUNITY BASED CARE

Community based care — Community health workers are recommended for providing clinical services in rural and remote settings. There is evidence that key health interventions can be safely and effectively delivered in this way. Nepal's experience with CB-IMCI is a successful example of this. Community based care with home visits and the counselling of mothers during pregnancy and the early post-natal period has reduced perinatal, newborn and maternal mortalities (Lewycka et al. 2013). A review of community based postpartum care by Koblinsky (2005) recommended three models for providing this care:

1. **Home visits by professional health care providers.** Results from studies show that healthy behaviours can be successfully promoted, including exclusive breastfeeding, early breastfeeding initiation, family planning, and use of iron folate tablets; but there is no evidence of effects on mortality levels. However, in remote areas the challenge is identifying and reaching recently delivered women within the required timeframe as their locations may be unknown if they have not arranged for professional care.
2. **Home visits by non-professional community health workers.** Studies found significant reductions in newborn death by training community health workers to recognise and treat specific newborn illness. There are examples from Malawi (Lewycka et al. 2013), Egypt (the TAHSEEN programme), and Tibet (the PAVOT programme, Dickerson et al. 2010).
3. **Home visits by community workers with emergency referral or outreach health facility support.** Koblinsky found eight studies showing improvements in the use of skilled birth attendants, family planning, and initiation and continuation of full breastfeeding as a result of using this model. However, she found the referral links to be the weakest point.

Benefits — A review of community based newborn care found that a 27% reduction in newborn mortality could be achieved in a resource limited setting through timely home visits by lay community health workers, provided that the visits took place within one day and on day two (Gogia and Sachdev

2010; Gogia 2011). Among babies who survived the first day, mortality was 67% lower if they were visited on the first day; and among babies who survived the second day it was 64% lower for those visited on the second day. Post-natal visits after the second day were not associated with any declines in mortality. The benefit increases with coverage of the programme; higher coverage (>50%) is essential to achieving a meaningful reduction in newborn mortality.

Provision of misoprostol and antibiotics — Mathematical modelling by Pagel et al. (2013) found that the community-based provision of misoprostol and antibiotics alongside health facility strengthening reduced maternal deaths from postpartum haemorrhage (PPH) and sepsis in Africa. Nepal has implemented the community based distribution of misoprostol to pregnant women via FCHVs, with initial evaluation showing good coverage and the use of misoprostol by women (Rajbhandari et al. 2006).

IMCI case management training — Early research from other settings shows that IMCI case management training improves the quality of care; but without health system strengthening measures this is insufficient to increase child survival rates (Pariyo et al. 2005). Recent research demonstrates significant gains through a broader set of interventions under CB-IMCI, with the most robust trial of IMCI to date (in Bangladesh) reporting reduced mortality rates among children aged seven days to 59 months. These were 13.4% lower in IMCI intervention areas than in comparison areas, corresponding to 4.2 fewer deaths per 1,000 live births. The same study also showed that IMCI implementation led to improved health worker skills, health system support and family and community practices, resulting in increased care seeking during illness. In Peru an IMCI programme was used as a tool to reach remote and underserved locations (Huicho et al. 2005).

Contribution of the private sector — Although the ability of the private sector to reach the poor is questionable (Patouillard 2007), the Chiranjivi scheme in India successfully mobilised the private sector to provide maternal healthcare services in rural areas of Gujarat, resulting in a decline in maternal and newborn deaths (Mavalankar et al. 2009).

3.4 FAMILY PLANNING

Family planning is universally acknowledged as one of the most cost effective ways of improving the health of women and their families. Singh et al. (2009) calculated that if all unmet family planning needs were met globally 53 million unintended pregnancies, which would result in 22 million unplanned births, 25 million abortions and 7 million miscarriages, would be prevented, resulting in savings of $2.5 billion.

Benefits of increasing family planning — Using a computer based model, Goldie et al. (2010) found that increasing family planning is the most cost effective intervention for reducing pregnancy-related mortality. Since the level of skills and infrastructure required is modest compared with many interventions, it is practical to target meeting 100% of unmet needs in rural areas. Augmenting family planning with the option of safe abortion services could reduce maternal deaths by 23-35% by 2015. Goldie et al. recommended an integrated approach that would save four out of five maternal deaths in India, including step-wise improvements in family planning and safe abortion with increased skilled birth attendance, improved antenatal and postpartum care, institutional delivery, improved referral mechanisms and quality emergency obstetric care (EmOC).

Generating demand — Efforts are needed to generate demand among populations with high levels of wanted fertility by focusing on socio-cultural norms, by promoting the benefits of smaller families, and by reaching populations with high unmet need. The latter should happen by focusing on education about methods and how to access them and dispelling myths and misinformation. Other interventions that can increase the use of family planning services include task shifting among health workers to reach areas where there are staff shortages, social marketing and social franchising. Social marketing promotes socially beneficial behaviour such as family planning, and the use of products such as family planning commodities and oral rehydration solution. A review of social marketing programmes in African countries indicated that social marketing has a positive impact on knowledge and access to contraceptive methods (Chapman and Astatke 2003). Social franchising is a contract between a private provider and a branded franchised agent, whereby the agent supports the provider with training and demand generation, while the private provider maintains agreed values and quality standards.

3.5 USING MOBILE TECHNOLOGY

mHealth — mHealth is an innovation for strengthening health systems that can improve point of care service support and patient motivation and can serve as a means for behaviour change communication messages, training and follow up for health workers, supply chain management and monitoring and evaluation. Piloting in a number of countries shows its potential for improving health service delivery in remote areas. Meta-analysis of the effectiveness of mobile health services found that support for providers was effective in improving point of care delivery, including diagnosis and management outcomes (Free et al. 2013). SMS messaging has been used in Afghanistan to enhance training by re-enforcing learning, encouraging the implementation of new skills and action plans and providing hint and tips. Although the impact on quality of care has yet to be assessed, initial review indicates that 80% of participants are satisfied with this mHealth initiative, 50% forwarded messages to colleagues and 75% recommended the initiative to be continued (JHPIEGO). Marie Stopes International is piloting mHealth in Uganda to reinforce clinical training and monitor quality of care among family planning providers. Clinical staff receive daily text messages with tips and quizzes to target behaviour related infection prevention, client care and adherence to standards and protocols. In Tanzania *s*mart phone tools are being used to support and connect health care providers in facilities and communities, guiding the health worker through clinical protocols and facilitating decision-making.

4 KEY FINDINGS FROM THE FIVE DISTRICTS

This section gives the findings from the five district case studies on access and use of MNCH services. It gives the findings on the home, community and journey based barriers to accessing and using services in the five districts and the selected VDCs. As explained in section 1.4.2, the study is based on findings from:

- the five district hospitals and user communities located in the furthest away point of the district HQ VDCs in the three mountain districts;
- one VDC per district that lies *within* 8 hours travel distance from the district HQ and its local health facility and the furthest flung community in that VDC in each of the five districts; and
- one VDC per district that lies *more than* 8 hours travel distance from the district HQ and its local health facility and the furthest flung community in that VDC in each of the five districts.

The following findings are based on consultations with a range of primary and secondary stakeholders and on data extracted from health facility and district records. To keep the findings in context, a brief overview of the study site characteristics is presented first of all.

4.1 STUDY SITE CHARACTERISTICS

Population distribution — The five study districts have differing population distributions in terms of the three types of study area. In all five districts between 7% and 12% of the population live in the district headquarters (Table 4.1). Between 30% and 93% live in VDCs within 8 hours travel of the headquarters. And in Bajura almost two-thirds of the population live more than 8 hours travel away with less than a third of people in the other four districts living more than eight hours away. Table 4.2 shows expected target populations for MNCH services in the study districts based on location.

Table 4.1: Population distribution in 5 study district by 3 types of areas, 2011

	District HQ		VDCs less than 8 hrs from district HQ		VDCs + 8 hrs from district HQ		Total
	No.	%	No.	%	No.	%	
Taplejung	14,974	12%	73,269	58%	38,205	30%	126,448
Rasuwa	2,744	7%	39,389	93%	0	0%	42,133
Gorkha	32,473	13%	187,673	74%	34,680	14%	254,826
Rukum	13,203	7%	134,832	70%	45,295	23%	193,330
Bajura	8,807	7%	40,866	30%	84,580	63%	134,253
Total	72,201	10%	476,029	63%	202,760	27%	

Source: Census 2011

Table 4.2: Expected target population for MNCH services in the five study districts based on three different categories of locations

	District HQ	Population in VDCs within 8 hours travelling distance of HQ	VDCs >8 hours of travelling distance of HQ	Total
Population	72,201 (9.6%)	476,029 (63.4%)	202,760 (27%)	750,990
Expected no. pregnancies	1,949	12,853	5,475	20,277
Expected no. deliveries	1,754	11,568	4,927	18,249
Expected no. pregnancy complications	292	1,928	821	3,042
Expected no. under-one year old children	1,652	10,892	4,639	1,7183
Expected no. under-5 year old children	8,411	55,457	23,622	87,490
Expected no. MWRA	14,354	94,635	40,309	149,297

Sources: Census 2011 and target population calculation based on HMIS

Poverty — Four of the five districts have a higher rate of headcount poverty than Nepal's average rate of 25% of the population (Table 4.3). Bajura has the highest proportion of its population living under the poverty line (64.5%) while Gorkha has the lowest (20.4%). In all five districts there is a large variation in poverty rates within the district with the district headquarters having lower rates of poverty than elsewhere in all five districts with the furthest away sampled VDCs having the highest rates of poverty. The largest difference between the levels of poverty in the district HQ and the sampled remote VDCs was in Gorkha — a 63 percentage points difference between the poverty rate in the district HQ (7.9%) and the remote VDCs (70.7%) in the sampled most remote VDC.

The current study identified the higher levels of poverty in the remote study VDCs as largely being a consequence of their remoteness (see Chapter 2). It found that there are fewer economic opportunities in remote areas of districts, partly as a result of less access to information, education and services and less essential infrastructure including roads and communication networks.

Among the five districts, Gorkha, Rasuwa and Taplejung have a majority of Janajatis or ethnic group people (Magars in Gorkha, Tamangs in Rasuwa and Limbus in Taplejung) while Bajura and Rukum have a majority Brahmans and Chhetris (Table 1.2). Dalits make up more than 10% of the population in Gorkha, Bajura and Rukum.

The ethnic makeup and some other background characteristics of the study sites are given in Section 1.3.2.

Table 4.3: Percentage of population under the poverty line in study districts and VDCs, 2011

	VDC	Location	Poverty rate %	Difference in poverty rate between most remote and district HQ
Taplejung				
	District average		26.9	
	Phunling	District HQ	16.3	
	Phurumbu	Less than 8 hrs travel from HQ	16.3	
	Thukimba	More than 8 hrs travel from HQ	29.3	13.0
Rasuwa				
	District average		31.6	
	Dhunche	District HQ	28.4	
	Syaphru	Less than 8 hrs travel from HQ	15.5	
	Yarsa	8 hours travel from HQ	53.4	25.1
Gorkha				
	District average		20.4	
	Gorkha Municipality	Headquarter	7.9	
	Thumi	Less than 8 hrs travel from HQ	33.5	
	Sirdibas	More than 8 hrs travel from HQ	70.3	62.8
Rukum				
	District average		26.3	
	Khalanga	District HQ	10.9	
	Shanka	Less than 8 hrs travel from HQ	19.4	
	Taksera	More than 8 hrs travel from HQ	27.3	16.4
Bajura				
	District average		64.5	
	Martadi	District HQ	54.7	
	Jugada	Less than 8 hrs travel from HQ	54.7	
	Kanda	More than 8 hrs travel from HQ	68.3	13.7

Source: CBS 2011 (NLSS)

4.2 BARRIERS TO ACCESSING MNCH SERVICES

Following the pathway to care analytical framework (Figure 1.3), this section gives the study's findings on the barriers experienced accessing health services in the five study districts according to demand and supply side factors.

4.2.1 Home and community based barriers

Preference for home births and traditional healers — Almost all the focus groups and interviews with local people from the 13 study settlements said they preferred home births and traditional healers. This was the preferred option primarily because of easy accessibility, lower costs and less trouble of managing household chores while accessing this type of health care. Additionally, there was less understanding of the benefits of institutional deliveries. In the community level discussions with

women, husbands and mothers-in-law and in the interviews with district health officers, health workers and FCHVs, the preference of most local people for the methods of traditional healers was widely reported. The traditional methods mentioned were *dhyaangro thokne* (beating a special drum), *jhaar phuk garne* (sacred blowing on the patient to drive away evil spirits), *dhaami jhaakri lagaune* (the power of shamans). Many of them said that care was only sought at a health facility for recognised complications. Such practices are common among all social groups in all the five study districts. This finding matches evidence in the literature (Byrne et al. 2012; Thomas et al. 2013) of the general preference among many rural communities in Nepal, and particularly mountain communities, for traditional healers as a major constraint on accessing modern health services on time.

The common delay in seeking care and reaching an appropriate health facility with emergency obstetric and newborn care (EmONC) is one of the main reasons for Nepal's high rate of maternal mortality.

> *"There is a cultural or religious belief that if medicine is taken then the disease will increase (rog jhan jaagne) — so the people don't come to the health post directly. They slaughter a hen or goat which is called '*jhaakri laaunu*', instead of going to the health post" — FCHV and HFOMC member, Syaphru health post, Rasuwa*

> *"They first go to try and exorcise the ghost out from their body (*bhootfyalnu*), and only after this fails to they come to health post" — skilled birth attendant, Syaphru health post, Rasuwa*

> *First we do traditional healing (mansaune) when we become ill, then only do we go to the doctors. — local person, Thukimba VDC, Taplejung*

> *"There is a belief in lamas and dhami-jhankris in the remote areas of Gorkha" — district health officer, Gorkha*

> *"The first point of contact in case of illness and sickness of children or even adults is dhami jhankris". Taksera SHP health worker, Rukum*

Only for emergencies or serious illnesses are FCHVs contacted or health facilities visited. Although there is an increasing trend in local communities to visit local health facilities, this tends to happen only after first visiting a traditional healer. The study found that delivery was still preferred at home across all districts and VDCs.

Financial barriers— High costs and the lack of local emergency funds were cited in Rukum (Box 4.1) and Bajura as important barriers to accessing health care. A number of study participants said that people had to often sell their livestock or take loans to pay for dealing with obstetric complications during childbirth. Respondents in 8 out of the 10 outlying VDCs ranked the cost of accessing treatment as one of the top four barriers they faced accessing MNCH services.

Of the 13 study settlements only 5 had a community fund such as a saving and credit group fund, Poverty Alleviation Programme funds or mothers' group funds. There were no specific safe motherhood emergency funds at any of the study sites. Nobody in Rukum or Rasuwa mentioned having health emergency funds and local people in Rasuwa, said that they were not aware of the availability of any such funds.

"We don't have such an emergency fund for health/treatment. In this village there is a Poverty Alleviation Fund of NPR 900,000, but that is for income generation purposes only and is not given out for treatment." — local person, Sankh, Rukum

It was said that for complicated cases, local people had to go to higher level hospitals with, for example, people from Rukum going to hospitals in Dang or Nepalgunj for specialised care, which entailed a heavier financial burden. Both district health officers and women development officers said that they provided financial support for emergency cases, but the support was contingent on the availability of funds in their budgets.

The perception of service providers across all the study districts and VDCs was that women saved up to pay for their deliveries, and if they didn't have enough money would sell livestock or borrow from neighbours to raise funds. At the time of emergency need other local people sometimes give interest free loans to poor people and expect to be repaid within a few months (see Box 4.1).

Box 4.1: A supportive neighbour saves a woman's life

Two years ago, Rita BK of Sankh, Rukum suffered prolonged labour from 7 am to 11 pm. They live on the upper part of the hill where there is no FCHV. So her husband asked a neighbour to arrange a jeep to take her to the district hospital. The vehicle agreed to come on payment of NPR 7,000. However, they did not have any savings and so borrowed the money from the neighbour who called the jeep. They later paid off the loan. The women said that she would have died if the neighbour had not leant them the money to hire the jeep.

Socio-cultural practices — Practices such as the exclusion of women during and after delivery (due to the perception of them as being ritual polluting) were found to impact on the care of women in Furumba VDC (Taplejung), Thumi VDC (Gorkha) and both Bajura VDCs. In Thumi, it was rationalised that the common 11 days of exclusion is a way of giving mothers time to recover and to give them a rest from heavy work. The issue of exclusion was not raised in Rasuwa and Rukum districts, probably because ethnic groups do not have strict rules regarding this.

In emergency cases, it was said that women who were bleeding were allowed to come out of exclusion and be taken to a health facility. Cultural taboos around 'pollution' associated with childbirth and women's menstrual bleeding were identified in the literature review. This highlighted how such practices exacerbate delays in seeking care as it made it even more difficult for such women to find transport to take them to a health facility. The situation is further compounded for Dalit women who are traditionally considered untouchable at all times (Byrne et al. 2012).

The study found strong food taboos for women who have recently given birth, especially the belief that household cows or buffaloes could die if such women eat or drinks milk products in their '*sutkeri*' periods (i.e. 11 days after delivery). It was also said that green leafy vegetables were often not allowed to women who had given birth as they were considered 'cold' (*chiso*) foods.

Local study participants said that women's heavy work burdens constrained them from visiting health facilities and it was often difficult for women to find or get time for their personal health requirements. And single women experienced this issue most of all.

"25% of women cannot receive health care in time due to having too much domestic work." — HFOMC member, Bajura

Women in rural farming households have a multitude of daily tasks to carry out including looking after their children, livestock, elderly and sick relatives and fields as well as collecting firewood and water. Women's workloads tend to be burdensome in more remote areas and areas with difficult terrain, making it more difficult for these women to find time to access healthcare services. It was reported that in times of need, family members would provide support and share workloads.

Many women said that they often felt embarrassed and shy about being in public and this impacted their access to and use of health services. Discrimination based on caste was not cited from any of the study site in contrast to findings from the Terai and Hills in the PEER study where caste-based discrimination was mentioned as a barrier to accessing health services (Thomas et al. 2013) (although only a few Dalit people were interviewed). However, the current study found that service use was perceived by DHO staff and health workers to be lowest in Dalit communities (cited in Rukum) especially for those from remote areas, a result probably of both caste-based and distance issues.

Other kinds of traditional beliefs continue to impact service use. For example, it was said in Taplejung that children who were 'caught' by a *sikari* (a ghost who lives in the forest) would catch a cough. It is probable that these kinds of beliefs have a stronger impact on accessing services in areas with difficult terrain because of the delay it causes in seeking services and the time it takes to reach services there once the family have decided to seek care.

Knowledge — Local people had varied knowledge about health care issues. At none of the sites did study participants demonstrate complete and full knowledge of all aspects of MNCH services. People in the study settlements in the outlying areas of the three district HQs had better knowledge than in the other VDCs. No consistent pattern was found of people in the most remote sites having less knowledge than people in the less than 8 hrs from district HQ.

There was sound knowledge about:

- The danger signs of child and maternal health and the Aama Programme at all three study sites in Bajura (district HQ and plus and minus 8 hrs distant VDCs); and
- danger signs of child health (vomiting or high fever) at all three study sites in Rasuwa and in the VDC that is less than 8 hours from Rukum HQ.

Women in the remote VDC in Gorkha (Sirdibas) had very poor knowledge of the danger signs of child health, maternal health and institutional delivery and on immunisations.

The district health officers, SBAs, other service providers and HFOMC members cited lack of knowledge and limited awareness as a key barrier for women to access services:

> *"Very low levels of education, especially very poor knowledge about health, have resulted in people's belief in traditional practices. This is due to lack of appropriate information on health and service delivery" — health stakeholders in Gorkha*

On a related topic: Local people and FCHVs in Sankh and Taksera said that they did not know that their local health facilities had birthing centres. The health workers in Sankh said that they had acquired permission from the DHO to run a birthing centre about a year ago.

Awareness but limited use of 4ANC — The awareness and use of antenatal care (ANC) services varied among local women study participants. ANC services were available in all 10 study sites according to facility level use data.

- Most of the women in Taplejung and Bajura district HQs said they had used ANC services and received the NPR 400 four ANC visits incentive.
- It was reported by local study participants in Bajura and the remote VDC of Sirdibas (Gorkha) that only a few women went for ANC check-ups.
- At both non-district HQ sites in Rukum and Taplejung it was said that no women made ANC visits to the health facility, and there was low knowledge of the 4 ANC incentive.

Knowledge of maternity and transport incentives — Local women at 4 of the 8 non-district HQ settlements from where information was available said that they had received the maternity incentive (NPR 1,000-1,500) while giving birth in a health facility. The local women at both Rukum sites did not have any information about this incentive and at Sirdibas VDC in (Gorkha remote VDC) the women had information about the incentive but no knowledge about how much it was. All local women interviewed were aware about free maternity care services at health facilities although they said they usually had to pay some fees. There was some knowledge about maternity services among local women at all study sites, but they did not know how much they should receive.

Limited decision making power and mobility — In the remote Rukum site some interviewees said that mothers sometimes take decisions on the immunisation of their children. However, at all the sites it was said that husbands and in-laws decided about women's access to maternal health services (place of delivery and check-ups):

> *"I don't know what to do to stop getting pregnant. When I ask my husband he says that if they take Depo, women can't carry heavy loads. He asks me who will do the household work [if I take Depo Provera]? When I say let's not have more children, my husband doesn't understand." — 33 year old Tamang women from Furumbu 6, Taplejung, who has given birth to six children and was 9 months pregnant at the time of the interview*

Due to strong control by male family members, in many instances local women were said to often have to go to health facilities secretly after lying to their husbands or mothers-in-law about where they were going (Phurumbu, Taplejung). Mobility constraints for women were cited from all sites except Sirdibas, Gorkha (most remote VDC) and Rasuwa district HQ. Apart from issues of security for women, other constraints were said to be the difficult terrain and trails (cited from both Rasuwa and Bajura sites and one Rukum site) that necessitated male family members to accompany women.

District health officers, HFOMC members and health workers agreed that in most households husbands and mothers-in-law were the key decision-makers. Only in Rasuwa did the district health officer and ANM say that women were "self-dependent and made their own decisions". This was probably due to the population being mostly Tamang, an ethnic group where women have substantial decision-making powers.

4.2.2 Journey based barriers

This section discusses the geographical terrain and distance issues experienced by local people to access health services. It also presents a comparative analysis of the take up of institutional deliveries by people in the three types of areas to illustrate how the different journeys faced affect the use of health services.

Although the road network has greatly extended in recent years there are still only very limited vehicular transport links to most of Nepal's remote areas. In remote mountain areas there are many geographical barriers such as the long distances to health posts and birthing centres, narrow trails, no proper transportation and poor road linkages, steep hills, flooded rivers/streams and landslides.

Difficult terrain and weather conditions — The study found that many of the study communities had substantial geographical and weather related barriers to negotiate to access their local health posts and sub-health posts (Table 4.4). The barriers were even greater for accessing the district hospitals (Table 4.4). Crossing areas of forests, with perceived dangers from wild animals, was said to be a major barrier to accessing health facilities from all sites. The local study participants reported difficulties crossing rivers with either no bridges or bad condition bridges, slippery roads after heavy rain and footpaths blocked due to snowfall. People from all three types of areas in all five districts experienced difficult terrain and weather conditions.

See maps at Annex 6 for all five districts showing the division into three kinds of areas and the study health facilities and settlements. These maps show the roads in the five districts split into seasonal and year round roads.

Steep hills with uneven, unsafe trails and perceived insecurity due to lonely paths with chances of being accosted by drunken men were cited as causing women to be unwilling to go to health facilities.

District health officers and service providers also acknowledged the geographical difficulties of accessing health services in remote and hilly areas:

> *"People living in most northern areas have to walk about 3 to 5 days to reach their district hospital; and there are hardly any bridges over the rivers." — DHO, Taplejung*

The study found that a road is being built to Taksera VDC (Rukum), which will decrease the travel distance from 3 days walk to one day by Mahindra jeep.

Consultations in Gorkha indicated that travel distance and geographical constraints affected access and use of health services there.

Table 4.4: The physical barriers and travel times and cost that sample local people have to negotiate to reach the study's health facilities

	Taplejung		Rasuwa		Gorkha		Rukum		Bajura	
	Phurumbu	**Thukimba**	**Syaphru**	**Yarsa**	**Thumi**	**Sirdibas**	**Sankh**	**Taksera**	**Jugada**	**Kanda**
	Less than 8 hrs to district HQ	**More than 8 hrs to district HQ**	**Less than 8 hrs to district HQ**	**8 hrs to district HQ**	**Less than 8 hrs to district HQ**	**More than 8 hrs to district HQ**	**Less than 8 hrs to district HQ**	**More than 8 hrs to district HQ**	**Less than 8 hrs to district HQ**	**More than 8 hrs to district HQ**
From study communities to local health facility (the study's health posts and SHPs)										
Terrain and geographical conditions	Forest, steep hills	Forest, landslide, stream, steep hills	Forest, snowfall, steep hills	Forest, rivers, steep slippery trails	Unsafe forest	Slippery trails	Forest, snowfall, long steep route	Forest, snowfall, steep slippery trails, flooding	Forest, river, snowfall, slippery narrow trails	Forests, river broken bridge, narrow trails
Means of transport and time to reach	1 hr walk	1 hour	3-4 hours walk with doko or stretcher	6-8 hours walk carrying pregnant woman in doko/stretcher	2-3 hours walk with doko or stretcher	2-3 hours walk with doko or stretcher	3-4 hours walk with doko or stretcher	3 hours walk with doko or stretcher	2-3 hours walk with doko or stretcher	2-3 hours walk with doko or stretcher
Travel costs	NPR 5,000-6,000	NPR 5,000-6,000	NPR 6,000	NPR 6,000-12,000	NPR 500/day and food	NPR 500/day and food	To private medical (Rukumkot) 1-2,000	NPR 2,000 - 2,500 for porter and meal costs	NPR 600/day and meal	NPR 700 day including meals
From study communities to district hospitals										
Time and means of transport to district hospital	3-4 hours in doko, stretcher or ambulance	1 day walk carrying doko or stretcher. From northern districts have to walk 3 to 5 days	1 hour bus	8 -11 hours walk	No motorable roads. 5 hours walk	3 days walk	6-7 hours walk (from SHP: an hour by bus along new built jeep track)	3 days walk. Will take 1 day along new jeep track (not usable in monsoon)	4 hour's walk. No road links from VDCs to district HQs	Bridge over river; so travel is easier
Travel costs to district hospital	NPR 10-15,000. Ambulance charge – NPR 2,500	NPR 20,000-30,000	Not available	Not available	Not available	Not available	NPR 2,000-2,500. NPR 4,000 for vehicle in emergency	Not available	Not available	Not available

Table 4.5: Status of institutional delivery and met emergency and obstetric care for all VDCs in the five study district

	Taplejung		Rasuwa		Gorkha		Rukum		Bajura	
	Less than 8 hrs to district HQ	More than 8 hrs to district HQ	Less than 8 hrs to district HQ	8 hrs to district HQ	Less than 8 hrs to district HQ	More than 8 hrs to district HQ	Less than 8 hrs to district HQ	More than 8 hrs to district HQ	Less than 8 hrs to district HQ	More than 8 hrs to district HQ
Institutional deliveries (% of all births)	20.8	9.2	13.3	not applicable	28.9	4.9	13.3	12.0	65	37.8
Met emergency obstetric care (%)	10.1	7.1	2.0	not applicable	18.9	2.8	35.5	12.6	82.2	14.5
No. VDCs	29	20	17	not applicable	48	17	27	14	7	19
No. birthing centres	7	2	8	not applicable	17	0	7	5	5	13

Note: District HQs excluded and Yarsa VDC, Rasuwa included in within 8 hours distance category.

MNCH services are available in the five study VDCs at either health posts or SHPs (see Table 1.3). The distance to reach these health facilities from the study's communities (see Annex 1) varied by type of MNCH services. People from at least two-thirds of the 10 study settlements lived within 30 minutes travel time from a primary health care outreach clinic (PHC-ORC) or Expanded Programme of Immunization (EPI) clinic (see Table 4.6). These clinics are held at the same places in outlying parts of VDCs away from the local health facility.

Table 4.6: Distance from 10 non-district HQ study settlements to primary health care services (the situation in the 45 wards of the 5 study VDCs)

		Study VDCs less than 8 hrs travel from HQ (5 VDCs x 9 wards)		Study VDCs + 8 hrs travel from HQ (5 VDCs x 9 wards)	
		No. settlements	**%**	**No. settlements**	**%**
Distance to EPI or PHC-ORC					
1	Study settlements within less than 30 min. travel to a EPI-ORC	30	67	35	78
2	Study settlements within 30–60 min travel to an EPI-ORC	10	22	7	15
3	Study settlements more than 60 min. travel from an EPI-ORC	5	11	3	7
Distance to a birthing centre					
1	Study settlements within less than 1 hour travel distance to a birthing centre	20	44	18	40
2	Study settlements within 1-2 hour travel to a birthing centre	13	29	8	18
3	Study settlements within 2-4 hour travel to a birthing centre	7	16	6	13
4	Study settlements at more than 4 hour travel to a birthing centre	5	11	13	29
	Total wards	**45**		**45**	

Source: from health workers in 10 study VDCs
Note: Data missing from 3 wards/settlements for distance to EPI or PHC-ORCs from +8 hours distant VDCs.

However, only people in about 40% of the wards in the five remote and five other study VDC settlement sites had access to birthing centres within 60 minutes travel time. However, the average travel distance from the study settlements in the VDCs +8 hours from the district HQ to the local health facility was 3.5 hours.

Also note that travel distance is defined as the walking time of an average adult where there are no roads or the combination of walking and bus or jeep travel where there are roads. Note that it will take about two to three times as long to carry a patient over the same distance. See Table 4.4 for a description of the geographical barriers that local people in remote villages have to overcome.

Means of transport for emergency cases — In the study's 10 non-district HQ VDCs (where road transport is hardly available), the usual way of taking pregnant women in labour to the health facility is in a basket (doko) or a stretcher. Bajura's VDCs provide stretchers for local people to use (especially

needed for emergency and complication cases), while in other places communities provide one. Family members, primarily husbands, were responsible for getting women to the health facilities to give birth if a complication arises. As reported by women in the focus group discussions and interviews in almost all study sites, the cost of transporting a women from home to the district hospital ranged from NPR 6,000-10,000. But the cost went up to NPR 20,000-30,000 when women are referred to a higher level facility in another district. In most study sites the stated costs were for porters to carry the patient to the health facility or hospital and for meals along the way. Where available, taking an ambulance to the district hospital costs about NPR 2,500. Ambulances are not available at the frequent times when roads are cut off landslides or heavy snow. Study participants said that savings and loans from neighbours were the usual source of funds for these costs. If a patient is carried by local people to the health facility then this involves no payments except for food costs. Only people from the district headquarters in Bajura said that the costs were limited to refreshments for the people travelling (in-district).

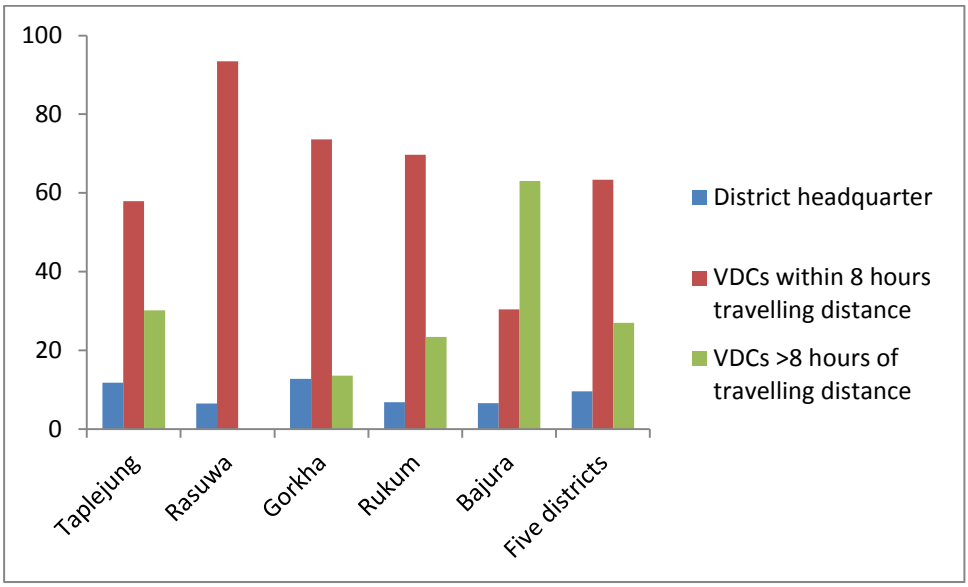
Along with the challenges of difficult terrain and high costs, the social practices of considering women impure and of certain members of the family (including the husband's elder brother) not being allowed to touch the woman, impact on who is willing to carry a woman to the birthing centre.

Note that either stretchers or dokos are more suitable in certain situations. Dokos need only person to carry them although with heavier patients it is a difficult task. It is also easier to negotiate steep and difficult trails with a doko. On the other hand stretchers will provide more comfort to patients but are difficult to carry over rough terrain.

Population distribution and institutional deliveries — To assess the distribution of institutional deliveries within each district across geographical areas the study calculated the proportion of the district population living in the district HQ, in VDCs less than 8 hours travel from the HQ, and in VDCs 8 hours or more travel away from district HQs (remote) (see Figure 4.1 and Table 4.1 above).

The study found that women in the district headquarters had proportionately more institutional deliveries. The district headquarters in the five districts account for only 9.5% of the total population but accounted for 20.7% of all institutional childbirths in the five districts in 2010/11. The women of Rasuwa district HQ had 3.8 times and the women of Taplejung district HQ 3.1 times more use of institutional childbirth care compared to their proportion of their district's populations. Women in Gorkha and Bajura HQs had almost twice the proportion of institutional births compared to their proportions of the population. Across all five districts, the VDCs less than 8 hours from the district HQ accounted for about 60% of the population but only 52% of institutional childbirths. In all, 31% of women lived in the VDCs 8 or more hours from the HQs, but only 27% of women from these areas delivered at a health institution.

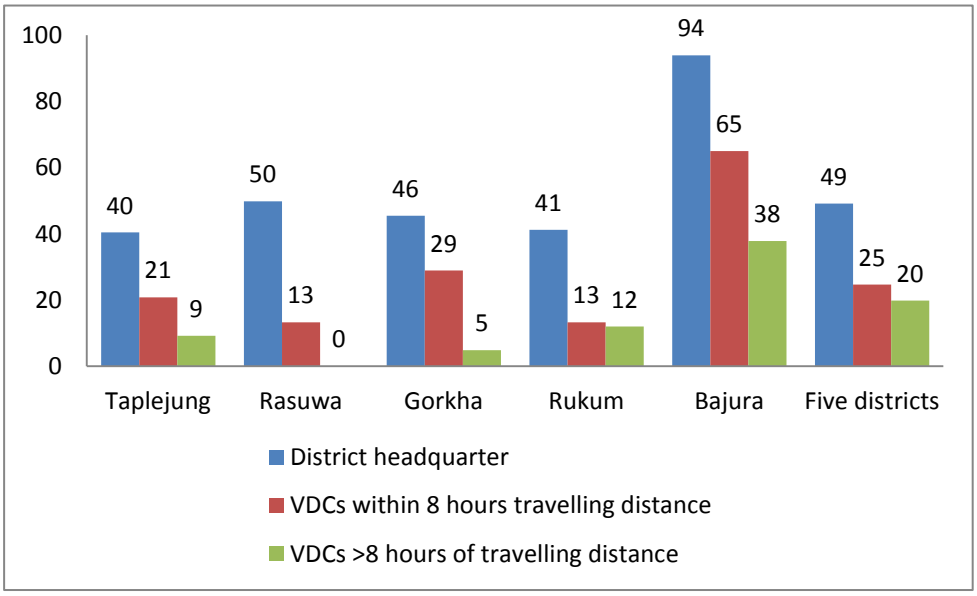
Figure 4.1: Proportion of populations in five study district by travel distance from district headquarters (source: Census 2011)



Overall across the five districts 25% of women living in VDCs closer than 8 hours travel from the district HQ gave birth in a health institution compared to only 20% of women who lived 8 or more hours away.

The study found that the proportion of women giving birth in a health facility or hospital declined from the district headquarters outwards to VDCs less than and +8 hours away from the headquarters (see Figure 4.2).

Figure 4.2: Percentage coverage of institutional deliveries in five study districts in district HQs and VDCs lying less than and + 8 hours travel distance from district HQs



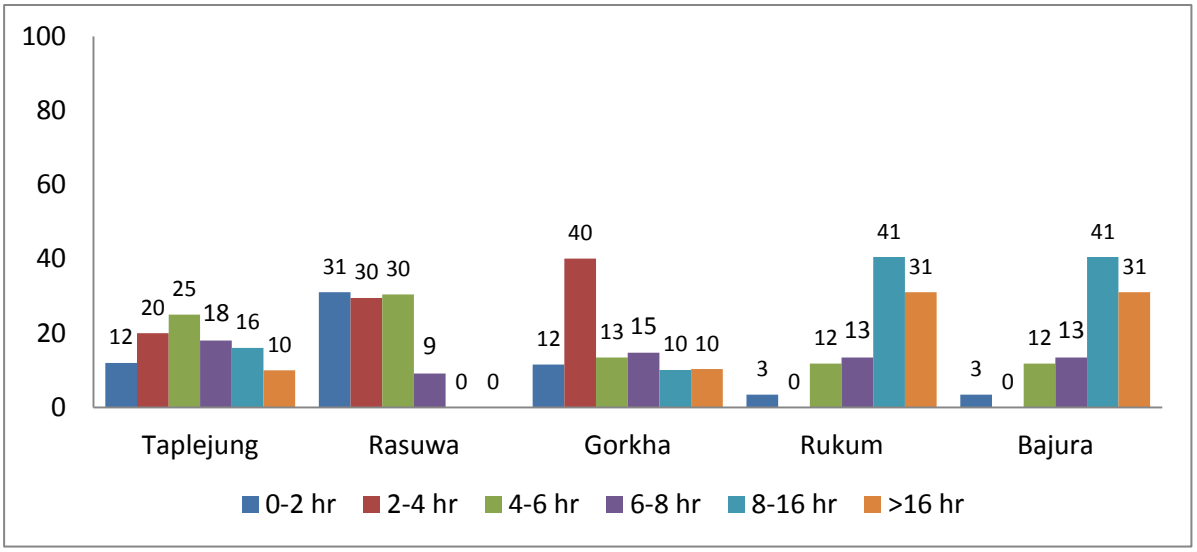
Source: Population data from 2011 census, Maternity register of district hospitals and HMIS report from all birthing centres in five districts

Institutional delivery was highest in Bajura in all three types of areas compared to the other four districts. Coverage was lowest in VDCs + 8 hours in Gorkha (5%) followed by Taplejung (9%) and

Rukum (12%) compare to the national target for 2015 of 60% of deliveries. Even the VDCs less than 8 hours away from the district HQs in Rasuwa and Rukum had very low coverage at 13% of all deliveries. Compare to other use data (ANC 4, immunisation and IMCI) it seems that the effect of distance is most detrimental to institutional delivery coverage.

Time required to reach birthing centres— Local people in most of the ten study settlements could reach a birthing centre within 4 hours (see Table 4.6). But women of some wards have to travel 4-8 hours to reach the birthing centres. It takes more than 8 hours to reach to the birthing centres in case of women are who residing in the wards of Sridibas and Thumi. The birthing centre in Sridibas was closed at the time of the study causing women to have to travel further for MNCH services. Table 4.7 and Figure 4.3 show the travel time from all VDCs in the study districts to district hospitals with population percentages. About 33% of the population of the five districts live within 0-4 hours travelling time to the district hospital. Thirty-six percent of the population live within 4-8 hours travel time from the district hospital, while 31% live more than eight hours from their district hospital.

Figure 4.3: Travel distances of proportions of district populations to district hospitals in the study districts



Source: CBS 2011

The long and arduous journeys that most people living in rural areas of the five study districts face to access emergency and hospital care affects access to and demand for such services, and causes delays in availing of services. The residents of the study's remote settlements in the VDCs that lie more than 8 hours from the district HQ face lengthy journeys to access birthing centres, which inevitably impacts use (see Table 4.6). All study participants cited the long distances, and long travel times as inhibiting access to higher level services at referral hospitals.

The situation in the five districts for accessing MNCH services was as follows:

- Only 13 of Rukum's 42 VDCs have birthing centres. People from the 10 remotest VDCs find it hard to reach these centres during the winter and monsoon seasons and to communicate with the centres in case of emergencies.

- In Bajura, where 19 out of the 27 VDCs have birthing centres, women from the remote communities reported that they found it difficult to reach one in the monsoon and snow seasons (although utilisation was high in all parts of this district).
- Taplejung, that has a CEONC centre at the district hospital and 10 birthing centres in the 50 VDCs, people in the northern VDCs said they found it difficult to access these services
- Rasuwa district hospital provides BEONC services and complicated deliveries are referred to Kathmandu. There were 9 birthing centres in the districts 18 VDCs. All but one of the VDCs were ranked as less than Most VDC were ranked as less than 8 hours travel from the HQ as most of the VDCs are connected with roads. But accessibility becomes difficult during the monsoon and winter snowfall blocks the paths of a few communities in the north of the district.
- In Gorkha, no VDCs that lie more than 8 hours from the district HQ has a birthing centre. And apart from the seasonal challenges of rain and snow, there are hardly any telecommunication facilities in the 13 northern VDCs, which has a strong impact on access to and use of services.

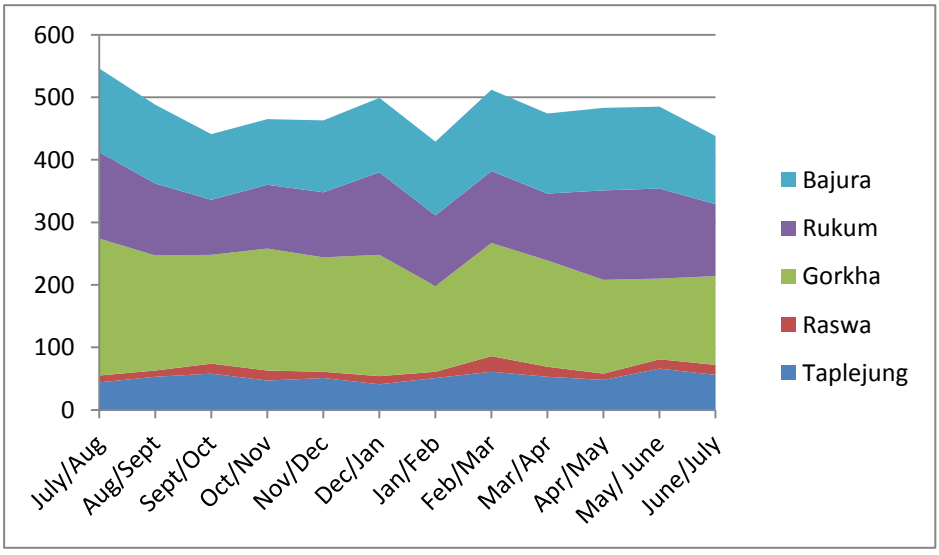
  "The health service is easily accessible for people in places [nearby the district HQ] but not for people who live far away from the district HQ" (DHO, Gorkha).

The following was also mentioned as inhibiting access:

- The nomadic lifestyle of communities, such as sheep and goat herders (*bhedikot*), makes it difficult for them to access health services and for service providers to provide services. All five study districts have populations that move around with the seasons, especially during winter.
- The large-scale migration of men from these districts to work elsewhere means that at times there are no men available to carry women to health facilities to give birth.

The seasonal weather patterns probably explain the seasonal trends of institutional childbirths in the five districts (Figure 4.4).

Figure 4.4: Seasonality in institutional childbirths in five study districts, 2010/11



The decreasing trend in January/February (Nepali month of Magh) is probably due to snowfall and winter cold exacerbated by terrain conditions. The numbers were also less in the month of Ashadh

(June/July) probably due to rainfall and road blockages due to landslides. However, increased numbers during the Nepali month of July/August could not be explained due to seasonal factors.

4.2.3 Service based barriers

The limited number of female service providers, shortages of higher skilled health personnel like doctors, limited health facility opening hours (in Taplejung), inadequate drinking water at health facilities, lack of room heating and insufficient waiting rooms in the hospitals were issues raised by local users.

Service users mentioned the following service-related barriers:

- The language used by service providers (Nepali when local women have a different mother tongue) was said to be a barrier to accessing health services for women in the remote VDCs of Yarsha (Rasuwa), Taksera (Rukum) and Sirdibas (Gorkha).
- Respondents from Taplejung and Rasuwa said there were no doctors in health facilities and no senior doctors in the district hospitals.
- Taplejung (both sites) was the only district where the issue of discriminatory or impolite behaviour of service providers was raised.
- In some areas (e.g. Taplejung), respondents said they had not received the delivery incentive and had had to pay cleaning costs of between NPR 600 and 1,000.

Other service-related issues raised by users included lengthy waiting times, insufficient waiting areas and benches, congested health posts, the late arrival of health workers, home visits only being available for serious cases, and the health post peon being drunk!

But all user respondents said that they could access service providers anytime in case of an emergency.

> *"MNCH services are available 24 hours since care providers stay in the health post quarters. The ANM goes to the community during emergencies, whenever needed" — SBA, Rasuwa*

The service providers and HFOMC members interviewed in the five districts pointed to inadequate human resources, delays of supply, lack of drugs and supplies and poor monitoring and supervision from the district level as the main barriers to providing MNCH services (Table 4.7). Remoteness impacted all these dimensions, which in turn resulted in poorer service delivery.

HMIS data shows that the quality of services for childhood illness (IMCI) is better than the national average in all parts of Taplejung and Gorkha districts (Table 4.8). The quality of care for ARI and pneumonia is poor in Bajura district. The trends of this data suggest that distance does not influence the quality of care of IMCI in the study districts.

Table 4.7: Issues raised by DHO personnel, SBAs, other service providers and HFOMC members regarding service barriers

Districts	Issues raised
Bajura	Delays in supply of medicines and equipment, no maintenance or repair of equipment, drugs and equipment transported on foot using porters or support staff because there are no roads, and incomplete commodities supplied. Problems with new recruitment by regional health directorates, unfair staff transfer system, no substitution of staff during transfers, lack of punctuality of health workers, delays in staff returning after leave and limited staff coordination.
Gorkha	Low staff motivation and unwillingness to stay in remote areas. Staff transfer and retention is a huge problem. There are almost no women service providers. There are only a few birthing centres because of this. Inadequate supervision system and monitoring from central level is irregular. Delays in budget release from centre. Transportation, budget and lack of labour are major constraints for providing MNCH services. High transport costs — at times DHO has to pay NPR 10,000 for 50 kg goods to be transported to remote areas. Distance impacts supply of essential drugs to remote places. Referral services do not work properly.
Rasuwa	No blood transfusion or caesarean section delivery services. The district hospital has not publicised that it provides complicated delivery services. (Note that this hospital will provide CEONC services from 2013/14). Inadequate human resources (40% sanctioned post were vacant and there is low retention). Medicines do not reach health facilities on time. No additional programmes possible as there is no flexible fund in the district. Lack of effective local and district plans for solving problems of MNCH service delivery
Rukum	Lack of sufficient human resources — about 24% of sanctioned posts were vacant due to no recruitment by centre and region. Logistics demanded from DHO are not fully supplied by regional and central levels. Lack of vehicular transport so porters are used. Transport is very difficult in monsoon season. Service providers do not speak local language of many local people (Magar) so it is difficult to provide services to them, (although local translators are sometimes used). Service use is lower among Dalits and Janajatis, especially those in remote areas, but this is not an issue in easily accessible areas. Lack of supervision and monitoring from the centre and region to the district and of the district to very remote areas. No additional resources are allocated by the centre (DoHS) for remote districts. On a positive note: During programme planning at district level, special focus is given to remote VDCs to increase service access especially in case of family planning and immunization services through the Equity and Access programme.
Taplejung	The irregular availability of skilled health workers in the district hospital and health facilities. The one year contract staffing of key positions in most health facilities, no staff substitution, inadequate staff coordination. Some staff not trained so unable to manage difficult health conditions. Poor infrastructure, no lights, no separate toilet for women, lack of equipment to conduct deliveries. Lack of transport costs to deliver commodities to VDCs so need to use porters. Transport difficult in monsoon season.

Source: Interviews with DHO personnel, HFOMC members, SBAs, and FCHVs in March-August 2013

Table 4.8: Parentage of severe pneumonia among new ARI cases and severe dehydration among new diarrhoea cases in under-5 years children (HMIS data)

		VDCs less than 8 hours travel from HQ	VDCs +8 hours from HQ
National average (HMIS 2011/12)	% of severe pneumonia among new ARI cases	0.4%	
	% of severe dehydration mong new diarrhoea cases	0.3%	
Taplejung	% of severe pneumonia among new ARI cases	0.1%	0.1%
	% of severe dehydration among new diarrhoea cases	0	0
Rasuwa	% of severe pneumonia among new ARI cases	1.1%	Not applicable
	% of severe dehydration mong new diarrhoea cases	0	Not applicable
Gorkha	% of severe pneumonia among new ARI cases	0.1%	0
	% of severe dehydration mong new diarrhoea cases	0.1%	0
Bajura	% of severe pneumonia among new ARI cases	2.4%	1.9%
	% of severe dehydration mong new diarrhoea cases	1.4%	0.5%

Source: HMIS data from DHOs
Note: Data not available from Rukum

Different informants gave the main reason for services not being up to required standards as the transfer away of health staff, including SBAs, from birthing centres, without the DHO/DPHO being properly informed and there thus being delays in replacing them. Other factors mentioned included:

- reporting from remote health facilities not being on time;
- it being difficult for the DHO to follow up and monitor service delivery performance and carry out regular monthly review meetings;
- the interruption of telemedicine services; and
- the insufficient role of the local authorities in facilitating access to health services (DDCs and VDCs) (Taplejung consultations).

4.2.4 Availability of MNCH services

District hospitals — All five district hospitals were providing most of the regular MNCH services based on the national programme. However, only three of the five district hospitals were providing caesarean section services at the time of the study visits. Mini-lap and vasectomy services were provided only in Bajura hospital and long term family planning services were reportedly only provided in Gorkha, Rukum and Bajura hospitals.

Health posts and SHPs — In the 10 non-district HQ study health facilities only the two facilities in Gorkha did not provide institutional delivery services. The weakest service area identified was the

availability of long term family planning methods (IUCDs and implants) and medical abortions as one of the study's 7 health posts provided long term family planning methods (and the 3 SHPs are not mandated to provide them) and none of the facility provided medical abortions. The availability of these services seems not to be related with the level of health facility nor with the distance from the district HQ at the 10 study sites. All other regular MNCH services were provided at all 10 health facilities.

The study found that (Table 4.9):

- for the five districts as a whole the availability of long-term family planning methods varied between the five districts with Bajura and Taplejung having the most access;
- the facilities closer to the district HQs had more access to both implants and IUCDs.

Table 4.9: Availability of long term family planning services in the five study districts' peripheral health facilities

Districts	% health facilities with both IUCD and implant available		% health facilities with IUCD or implant available	
	Less than 8 hours travel from HQ	+8 hours travel from district HQ	Less than 8 hours travel from HQ	+8 hours travel from district HQ
Bajura	25.0	10	37.5	40
Rukum	7.1	0	14.3	35.7
Gorkha	4.1	0	10.2	5.9
Rasuwa	11.1	0	11.1	0
Taplejung	20.0	5	56.7	35

Source: Family planning supervisors' records. Calculation based on all health facilities

The existing services such as immunisation, CB-IMCI, growth monitoring, family planning (condom, pills and injectables), ANC and PNC services were available in all 10 study SHPs and health posts (Table 4.10). But new community based programmes and interventions such as CB-NCP, chlorhexidine, misoprostol, and community based nutrition had yet to be introduced in the five districts except for community based nutrition in Taplejung and Bajura and CB-NCP in Taplejung district.

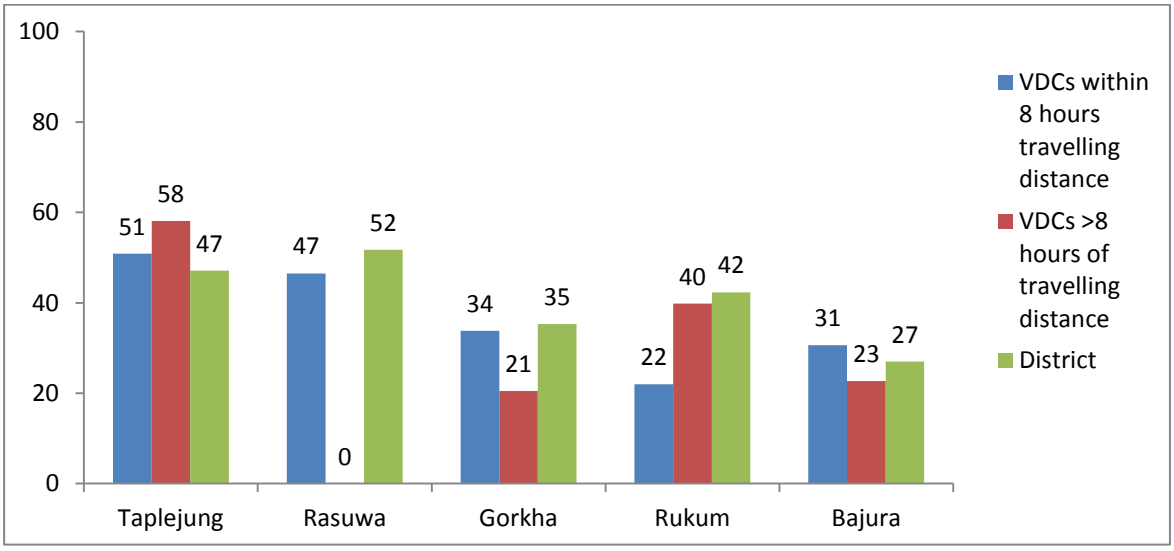
It was found that the availability of MNCH services mostly depended on the availability of medicines, trained care providers and a facility to provide services. Figure 4.5 shows that the use of the standard four antenatal care (ANC) visits may not be related with distance from the district headquarters as all of the studied health facilities were providing ANC services; although distance from the settlement may have been an influence as reported by local women in Gorkha.

Table 4.10: Availability of MNCH services at the study's ten health posts and SHPs

	Taplejung		Rasuwa		Gorkha		Rukum		Bajura	
	Thukimba HP	Phurumbu SHP	Syaphru HP	Yarsa HP	Sirdibas HP	Thumi HP	Sankh SHP	Taksera SHP	Jugada HP	Kanda HP
Antenatal care	1	1	1	1	1	1	1	1	1	1
Postnatal carte	1	1	1	1	1	1	1	1	1	1
Immunization	1	1	1	1	1	1	1	1	1	1
CB-IMCI	1	1	1	1	1	1	0	1	1	1
Growth monitoring	1	1	1	1	1	1	1	1	1	1
Pills, condoms	1	1	1	1	1	1	1	1	1	1
Injectable family planning	1	1	1	1	1	1	1	1	1	1
PHC-ORC	1	1	1	1	1	1	1	1	1	1
Normal deliveries — institutional	1	1	1	1	0	0	1	1	1	1
IUCD/implant	0	NA	0	0	0	0	NA	NA	0	1
Medical abortions	0	NA	0	0	0	0	NA	NA	0	0

NA = not applicable

Figure 4.5: Percentage coverage of 4 ANC visits by location



Birthing centres — Birthing centres have been established to bring institutional delivery services closer to more women. Geographical access is an important determinant of institutional delivery overriding the substantial effects of age, education and wealth status of women. In the five study districts the VDCs lying more than 8 hours travel distance from the district HQ had far fewer birthing centres than those closer to the district HQ (Table 4.11). The situation was worse in:

- Gorkha where there are no birthing centres in the VDCs beyond 8 hours travel distance when there are about 7000 married women of reproductive age in these VDCs; and

- Taplejung district where only 10% of VDCs beyond 8 hours has birthing centre service when about 7,500 MWRA live in these areas in these VDCs.

Table 4.11: VDCs with a hospital or health facilities that have birthing centres

		District headquarters	VDCs less than 8 hours travel from district HQ	VDCs +8 hours travel from district HQ
Taplejung	Number of VDCs	1	29	20
	Hospital	1	0	0
	Birthing centres	0	7	2
Rasuwa	Number of VDCs	1	17	0
	Hospital	1	0	0
	Birthing centres	1	8	0
Gorkha	Number of VDCs	1	48	17
	Hospital	1	1	0
	Birthing centres	1	17	0
Rukum	Number of VDCs	1	27	14
	Hospital	1	0	0
	Birthing centres	0	7	5
Bajura	Number of VDCs	1	7	19
	Hospital	1	0	0
	Birthing centres	0	5	13

NHSP-2 plans to upgrade all sub-health post to health posts by 2015, with 70% of these health posts having birthing centres. To meet the NHSP 2 targets and the national SBA policy requires additional birthing centres in four of the five districts. To meet the NHSP-2 target 27 birthing centres are needed in Taplejung, 29 in Gorkha, 17 in Rukum and 4 in Rasuwa, while Bajura will need none (Table 4.12).

Table 4.12: need for additional birthing centres in the 5 study districts according to NHSP-2 targets

Districts	Total no PHCCs, HPs & SHPs	Average catchment area in km^2	NHSP-2 target	Total needed birthing centres (at 70% of HPs and PHCCs)	No. existing birthing centre	Additional birthing centres needed
Taplejung	53	365	70%	37	10	27
Rasuwa	18	129	70%	13	9	4
Gorkha	68	278	70%	48	19	29
Rukum	43	125	70%	30	13	17
Bajura	27	104	70%	19	19	0

However, as presented in Table 4.11 calculating the number based on target number could be misleading as the percentage of birthing centres in VDCs beyond 8 hours distance is very low (0% to

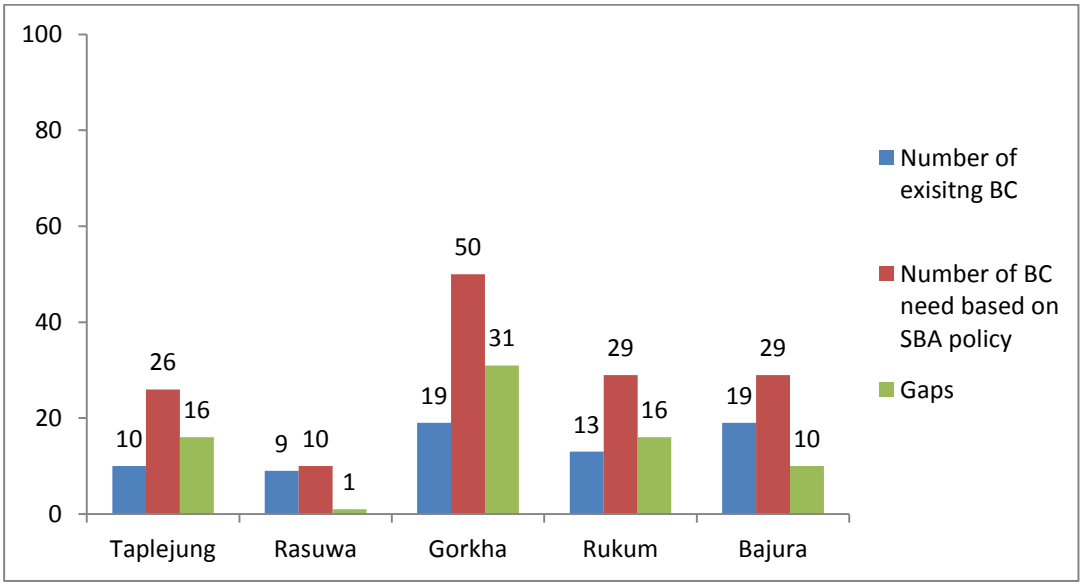
36%) in four of the study districts — except for Bajura where 68% of health facilities beyond 8 hours travel from the HQ have a birthing centre. While the proportion of health facilities with birthing centres in VDCs within 8 hours travel is 24%-47% in the four districts and 71% in Bajura district.

According to the SBA policy, two SBAs are needed in a birthing centre and each SBA should be attending at least 50 deliveries in a year in mountain areas. Thus, there should be 100 deliveries per year per birthing centre. Accordingly, Taplejung needs an additional 16 birthing centres, Gorkha 31 and Rukum 16, Bajura 10 and Rasuwa 1 (Table 4.13).

Table 4.13: The need for additional birthing centres in the 5 study districts according to SBA policy

Districts	Pop. density per km^2	Population, excluding district HQ	Expected no. births per year	Total needed birthing centres according to SBA policy	No. existing birthing centre	Extra BCs needed
Taplejung	44.3	112,487	2,610	26	10	16
Rasuwa	34.8	42,133	977	10	9	1
Gorkha	95.8	216,570	5,024	50	19	31
Rukum	79.9	190,052	4,409	29	13	16
Bajura	60	125,347	2,908	29	19	10

Figure 4.6: Number of additional birthing centres needed in five study districts to meet SBA policy requirements



The following reasons for low performing birthing centres in Gorkha district probably apply to other areas:

- The long-time taken to refill positions where clinical staff (SBAs, ANMs and senior nurses) had been transferred away particularly from the most remote areas of the district.
- The single year contracting of ANMs and staff nurses as SBAs.
- The poor infrastructure including lack of accommodation for health workers.

- Poor staff security in health facilities and inadequate support from communities and HFOMCs.
- An insufficient supportive environment for health workers in health facilities.
- Expensive transport costs for supplying centres with medicines, equipment and consumables.
- The unclear role of local authorities (DDC, VDCs) for local level health service strengthening in remote areas.

4.2.5 Availability of drugs in health facilities

Stock outs

The only stock outs of 15 essential drugs in the hospitals were observed in Rukum district hospital where 2 of the 15 essential drugs were out of stock out. In the study's health posts and SHPs stock outs were minimal in the 8 health facilities with drug registers except for Kanda health post (Bajura, +8 hours from district HQ) where 7 of the 15 essential drugs checked were stock out (Table 4.14). The most commonly out of stock drugs were ferrous sulphate and zinc tablets in 4 out of 8 health facilities. Cotrim (paediatric) was out of stock at 2 of the 8 health facilities. The stock situation in the Rukum health facilities could not be investigated as they did not maintain drug registers. (The field researcher came back with a photo of a blank drug register from both facilities).

Table 4.14: Stock out of 15 essential drugs in 8 study health facilities with drug registers

Stock status	No. in health facilities in VDCs less than 8 hours from HQ (n=4)	No. in health facilities in VDCs +8 hours from HQ (n=4)
No stock outs	1	1
1 of 15 drugs out of stock	1	0
2 out of 15 drugs out of stock	2	2
7 of 15 drugs out of stock	0	1

Note: Information only available for 4 districts as the drug register was not maintained at Rukum health facilities.

Expired drugs

The largest number of expired drugs were found at Rasuwa district hospital (4 out of 15 essential drugs expired) and at the health facility in the remote VDC of Gorkha (5 out of 15 essential drugs expired) (Tables 4.15 and 4.16). In the interviews about drug availability, community respondents said that they purchased medicines that were not available at their health facility.

Table 4.15: Quantity of expired drugs at district hospitals

Drugs	Taplejung	Rasuwa	Gorkha	Rukum	Bajura
Oxytocin	0	180	0	0	0
Mg sulphate	0	353	0	0	0
Gentamycin injections	0	610	0	0	0
Zinc	0	1,500	0	0	0
Misoprotol (if applicable)	0	0	0	5499	0

Note: None of the other medicines (ferrous sulphate/folic acid, Ringer's Lactate, amoxicillin (paediatric), 125 mg cotrim (paediatric) albendazol, ORS pills, injectable (Depo), vitamin A Caps Vaccine, DPT-penta), were expired at any of the five district hospitals

Table 4.16: Expired drugs out of 15 essential drugs in 10 study health facilities

Expired drugs situation	No. health facilities in VDCs less than 8 hours from HQ (n=4)	No. health facilities in VDCs +8 hours from HQ (n=4)
No expired drugs	1	2
1 or 2 expired drugs	2	0
3 or more expired drugs	1	3

It was found that oxytocin and magnesium sulphate were more likely to be expired as they have short expiry dates, can only be used for delivery care and are supplied based on expected number of births. The use of magnesium sulphate is only used for pre-eclampsia, which is a rare event. However, both are life saving drugs and should not be out of stock or expired in any health institution providing birthing services. Health workers also reported that medicines often only had a short period left to expiry by the time they reached a health institution. This period was often insufficient to use up all the medicines supplied. In Nepal, it is still challenging for logistics management to maintain supplies across the country given the limited transport links and the difficult terrain, especially in remote areas.

A large quantity of expired Cotrim (paediatric) was found at Thumi health post, Gorkha handed over to the facility after a health camp (Table 4.17). Drugs had also been over supplied to Kanda health post (Bajura) as there is a tendency to push drugs with short expiry dates to peripheral facilities. In a few cases, expired drugs appear to be the result of absent care providers not delivering services.

Table 4.17: Quantity of expired drugs at SHPs and health posts

	Taplejung		Rasuwa		Gorkha		Bajura	
VDC:	Phurumbu	Thukimba	Syaphru	Yarsa	Thumi	Sirdibas	Jugada	Kanda
Remoteness:	Less than 8 hrs from VDC	+8 hours from VDC	Less than 8 hrs from VDC	8 hrs from HQ	Less than 8 hrs from VDC	+8 hours from VDC	Less than 8 hrs from VDC	+8 hrs from VDC
BC or not:	BC	BC	BC	No BC	No BC	BC	BC	BC
Ferrous sulphate/folic acid	0	0	0	0	0	0	1	500
Oxytocin	0	5	0	0	0	0	0	41
Mag. sulphate	0	10	10	0	10	0	0	50
Gentamycin injection	0	0	15	0	24	0	20	0
Cotrim (paediatric)	0	0	0	0	1650	0	0	0
Oral rehydration solution (ORS)	0	0	0	0	0	0	0	85
Injectable (Depo)	0	0	0	0	0	0	0	60
Zinc	0	200	0	0	0	0	0	0

Note: other medicines (Ringer's Lactate, Amoxicillin (paediatric), 125 mg albendazol pills, Vitamin A Caps, Vaccine (DPT-penta) and Misoprotol, if applicable) were not expired at any of the health facilities.
Data for Rukum was unavailable

Consumer's perceptions and experience about drug supplies

At almost all 13 VDCs where local people were consulted, some dissatisfaction was expressed by service users about the availability of medicines. Local women at Sankh VDC (remote VDC, Rukum) complained that children's medicines were often not available at health posts and SHPs and they had to purchase them from private medical stores. Respondents from Taplejung district headquarters mentioned that medicines required during delivery were expensive. Suspicions were voiced that local service providers sometimes dispensed expired medicines (both VDCs of Taplejung and Sankh VDC, Rukum). Misoprostol distribution through FCHVs was reported to have been discontinued at Taksera in Rukum.

Some concerns were expressed about the need to purchase medicines despite them supposedly being freely available. Medicines for diarrhoea, fever, headache and pneumonia were mentioned as freely available whereas other medicines had to be bought. Additionally the medicines provided free were the cheap ones while the expensive ones always had to be bought (as reported by respondents from Taplejung headquarters and Furumbu VDC, Sankh, Rukum. Local people at Thumi VDC, Gorkha (less than 8 hrs travel from HQ) and Sirdibas VDC (remote) did not raise this issue. Respondents at Thukimba VDC, Taplejung, and Jugada VDC Bajura said that health workers sometimes sold medicines. FCHVs admitted this themselves and it was raised by many other study sites that they sell paracetamol and oral rehydration solution (ORS) at NPR 5 and NPR 30 per packet.

The perception that medicines may need to be purchased constrains many women from going to health facilities.

4.2.6 Availability of health workers

Posts filled — In the five district hospitals 80% of the sanctioned posts were filled with 91% of the senior ANM/ANM posts filled (Table 4.18). So 20% of the posts in the hospitals were vacant including the single position for obstetrician/gynaecologist and dental surgeon in the one hospital that was recently upgraded to a zonal hospital. Five of the seven health assistant posts and 40% of staff nurse positions were also unfilled.

In the 10 study health posts and SHPs, only 11% of the positions were vacant. However, only 85% of the health facilities within 8 hours travel distance of the district HQ and 70% of facilities in the remote VDCs had at least one health assistance or senior AHW or AHW, while they are expected to have at least one of this type of paramedic.

Recruitment — There has been no recruitment to fill vacant health worker positions in government health facilities for the last three years awaiting the introduction of legislation to implement a Supreme Court ruling to make the health workforce more inclusive. The Inclusive Health Workforce Ordinance was passed in 2013 allowing new recruitment to restart.

The satisfactory availability of medical personnel was recognised as a major issue for enabling access to health services by local people in Yarsha (Rasuwa) and Jugad and Kanda (Bajura). The lack of senior doctors and nurses was raised in the study settlements in the District HQs, Furumbu VDC (Taplejung), and Sankh VDC (Rukum). Taplejung respondents also expressed concerns about the late attendance of staff at health facilities.

Table 4.18: Filled position of health workers in the five district hospitals

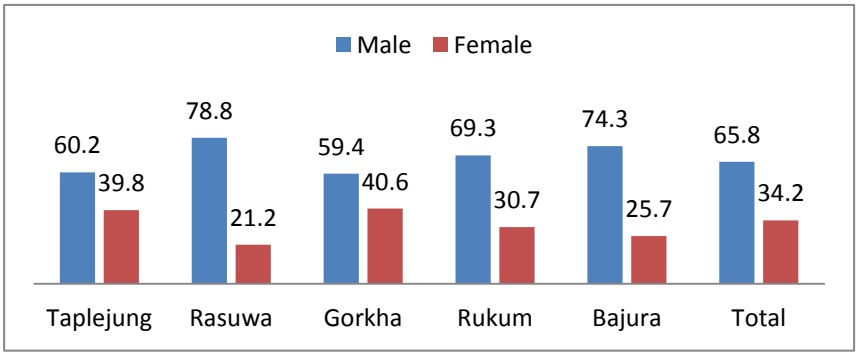
Position	Total positions	Filled	Vacant	% filled	% vacant
Medical superintendent (MS)	3	2	1	66.7	33.3
Obstetrician/gynaecologist	1	0	1	0.0	100.0
Public health inspector	1	1	0	100.0	0.0
Medical officer	9	7	2	77.8	22.2
Dental surgeon	1	0	1	0.0	100.0
Staff nurses	18	11	7	61.1	38.9
Sr AHW	11	12	-1	109.1	-9.1
Sr ANM/ANM	11	10	1	90.9	9.1
Radiographer	2	2	0	100.0	0.0
Anaesthesia technologist	2	2	0	100.0	0.0
Health assistant (HA)	7	2	5	28.6	71.4
Lab. assistant	6	5	1	83.3	16.7
Nayab subba (clerk)	2	1	1	50.0	50.0
Office assistant	26	25	1	96.2	3.8
Total	**100**	**80**	**20**	**80.0**	**20.0**

Women providers — The lack of women service providers was raised as an issue by locals in Syaphru (Rasuwa). Among the five districts, Rasuwa had the lowest percentage of female health workers (Figure 4.7). Many local women study participants said that most of the service providers being male prevented them from openly communicating with them:

> *"Women in this area face difficulties in communicating with health providers of the opposite gender. Female patients are more open to female providers." — HFOMC member, Syaphru, Rasuwa*

> *Women feel shy with male health workers and cannot express all health problems" — HFOMC member, Bajura*

Figure 4.7: Gender health workers in the five study districts (%)



Availability of birthing services — There was a difference in the availability of birthing centres and skilled birth attendants in the relatively and most remote areas (Table 4.12 and 4.19) although the pattern is not consistent. In Bajura and Rukum, the VDCs more than 8 hours from the district HQ had a higher proportion of at least one SBA than VDCs within 8 hours of district HQ. In contrast Gorkha has a

lower proportion of remote VDCs with SBAs than those relatively closer, this is not surprising given that there are no birthing centres in the northern remote VDCs that lie more than 8 hours from the district HQ. Similarly in Taplejung, a higher proportion of VDCs within 8 hours of the district HQ have SBAs, this is consistent with the fact that one-fifth of those VDCs have a birthing centre while only one-tenth of VDCs in the more remote areas more than 8 hours from district HQ have one. In Rasuwa there are no VDCs further than 8 hours from the district HQ. The data in Table 4.19 doesn't show this as it uses proportion of VDCs with SBAs and MCHWs and is based on the number of filled sanctioned posts. However, the number of locally recruited SBAs was not available.

The high coverage of institutional deliveries in Bajura is probably related to the relatively high presence of ANMs (SBA) and birthing centres across that district; 71% and 68% of VDCs <8 hours and >8 hours from the district HQ have a birthing centre respectively There is however no such match in Rukum district (equivalent figures of 26% and 36%), although it does have a high number of ANMs in its VDCs +8 hours from the district HQ. The study found only a few VDCs with ANMs (SBA) in Taplejung and Gorkha district in both types of VDCs outside the district headquarters. This is consistent with the fact that in Taplejung only 24% and 10% of VDCs <8 hours and >8 hours from the district HQ have a birthing centre respectively. Likewise in Gorkha the figures are 35% and 0% respectively.

The above mismatch of % VDCs with birthing centres and with an ANM (SBA) may be due to several reasons. According to government policy birthing centres are established at health post level. However, due to community demands there are an increasing numbers of birthing centres in SHPs. This has led to a lack of skilled providers at this level. In response to this FHD has allocated 1,000 ANMs to be posted in health facilities where birthing service are provided. Moreover, resources mobilised from local communities, including VDCs, have resulted in more ANMs being recruited to provide birthing services. The government recently upgraded more than 1,200 MCHWs into ANMs providing them with in-service training. However, the study has not counted these MCHWs as ANMs/senior nurses due to difficulties in verifying upgraded and non-upgraded personnel. All of the above reasons may have resulted in mismatch between birthing centres and SBA numbers.

Except for Bajura, the study found consistently fewer senior AHWs/AHWs, HAs/AHWs and VHWs in the study's health facilities in the most remote than in the other two types of areas (Table 4.20).

Table 4.19: Proportion of VDCs with SBAs and MCHWs in the five study districts

	Bajura		Rukum		Gorkha		Rasuwa		Taplejung	
	% VDCs with at least one SBA (ANM)	% VDCs with MCHW	% VDCs with at least one SBA (ANM)	% VDCs with MCHW	% VDCs with at least one SBA (ANM)	% VDCs with MCHW	% VDCs with at least one SBA (ANM)	% VDCs with MCHW	% VDCs with at least one SBA (ANM)	% VDCs with MCHW
District headquarters (hospital)	100	Na	100	na	100	na	100	na	100	na
VDCs less than 8 hours from district HQ	25	88	14	86	10	67	28	22	27	67
VDCs <8 hours from district HQ % VDCs with birthing centre	71		26		35		47		24	
VDCs <8 hours from district HQ % of institutional deliveries	65		13		29		13		21	
VDCs + 8 hours from district HQ	37	63	57	43	8	82	na	na	10	70
VDCs >8 hours from district HQ % VDCs with birthing centre	68		36		0		na		10	
VDCs >8 hours from district HQ % of institutional deliveries	38		12		5		na		9	

Source: DHO records

Table 4.20: Proportion of VDCs with at least one of certain mid-grade health workers in the five study districts

	Bajura		Gorkha		Rasuwa		Rukum		Taplejung	
	% VDCs with at least one HA/Sr AHW/AHW	% VDCs with one VHW	% VDCs with at least one HA/Sr AHW/AHW	% VDCs with one VHW	% VDCs with at least one HA/Sr AHW/AHW	% VDCs with one VHW	% VDCs with at least one HA/Sr AHW/AHW	% VDCs with one VHW	% VDCs with at least one HA/Sr AHW/AHW	% VDCs with one VHW
District HQs (hospital)	100	Na	100	na	100	Na	100	na	100	na
VDCs within 8 hours travelling distance	87.5	0	89.8	40.8	61.1	38.9	89.3	64.3	73.3	43.3
VDCs >8 hours of travelling distance	90	10	58.8	35.3	na	Na	78.6	42.9	50.0	35.0

Source: DHO records

Staff accommodation — The lack of adequate accommodation for health workers at peripheral health facilities is known to be a major disincentive for health workers. The study found the following:

- At Taplejung district hospital there was not enough accommodation for night duty staff and no separate toilets for women.
- There were staff quarters at Mahashring health (Taplejung), but the lack of a compound wall led to staff feeling insecure and so ANMs did not stay there.
- There were no staff quarters at Phurmbu SHP (Taplejung and Jugada health post (Bajura).
- The staff quarters at Yarsa health post (Rasuwa) were old and in poor condition.

Origin of health workers

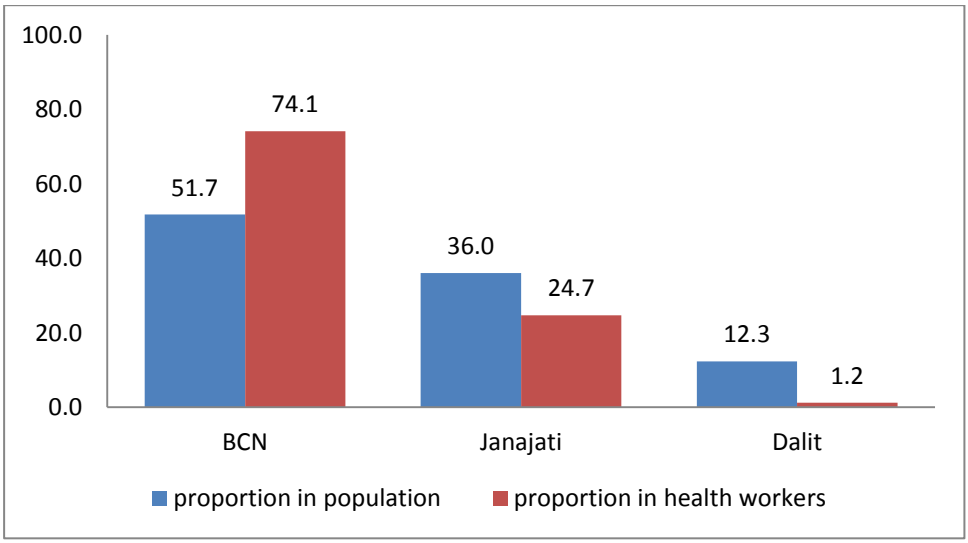
In terms of the health workers being from the local district or from outside:

- In the district hospitals, all medical officers (7) and 45% of staff nurses were outsiders, 36% of the ANMs were locals, and all ANMs at the relatively remote and half of the ANMs were locals.
- Among the five type of posts in facilities in VDCs less than 8 hours from the district HQ, 4 posts were completely filled by local people (only AHWs were 20% outsiders).
- In the facilities in the VDCs that are +8 hours travel to the district HQ, three types of posts were completely filled by locals and senior AHW/VHW posts were 60% and 50% filled by locals. The ANMs and MCHWs were all local people in these facilities. However, in these areas, despite most staff being local, there were complaints about staff absenteeism.

Diversity of health workers

Two of the five study districts have a majority of Janajati people (Tamangs in Rasuwa and Limbus in Taplejung) while Gorkha has 43% Janajatis. Brahmins, Chhetris and Newars are in the majority in Bajura, Gorkha and Rukum with Dalits making up between 11% and 18% and 17% of the populations in Bajura, Gorkha and Rukum districts (see Table 1.2).

Figure 4.8: Proportion of BCNS, Janajatis and Dalits in the health workforce and in the population in the five study districts



Source: 2001 census (CBS 2001 figures on ethnic/caste populations of districts.

It was found that only 1% of the government health workforce were Dalits in the five districts when they make up 12% of the population. On the other hand Brahmans, Chhetris and Newars (BCN) made up 75% of the workforce when they only accounted for 52% of the population in the 2011 census.[9]

Roles of FCHVS and perceptions about them

The revised FCHV Strategy 2012 sets out a range of activities and duties for FCHVs. Many of these are ambitious, especially in remote areas where support and supervision is not available. Many local women interviewees recognised that FCHVs provide a range of services. FCHVs were said to promote ANC check-ups, the use of contraception, pregnancy care, early breast feeding, complementary feeding, and tetanus immunisation, and provide deworming tablets, iron tablets and contraceptives. In addition, FCHVs in both Bajura study sites accompanied clients to institutional deliveries, which may have influenced the higher rates of use in Bajura than in the other four study districts.

Some local study participants from four study sites in Taplejung, Rukum and Rasuwa said that FCHVs were sometimes indifferent to their work and usually not available to serve local people. But people at a majority of the sites appreciated the services provided by FCHVs. Local people in Jugada VDC (Bajura) praised two FCHVs for the home visits they made. Local people have high expectations of their FCHVs and in some very remote areas depend on their services a lot. At the study site in Syaphru VDC (Rasuwa) the community expect to receive all SHP services from their FCHV because the SHP lies far away. FCHVs are the sole providers of modern health care in some remote areas.

4.2.7 HFOMCS, monitoring and supervision

The monitoring and supervision of health facility service delivery by higher level personnel was identified as weak by all health service providers interviewed. HFOMCs existed but were said to be not very active at almost all sites except Bajura. This was due to various reasons including political interference (see Table 4.21).

Table 4.21: Perceptions of DHO and HFOMC members on health service governance issues

District	Perceptions
Bajura	The district health officer reported poor recording and reporting from the health facility level; the poor monitoring of performance at health facility level; not having regular supervision system within the district; delayed in delivery of equipment to the districts from regional level) The HFOMC of one VDC shared their contribution to health facility management including decision making for outreach clinics and space for the clinics and drugs supplies. The members also said that there was women and Dalit representation on their committees.
Rasuwa	The district health officer said that his office monitored health facility performance and interacted with health facilities and HFOMCs on monitoring findings. Dalits, Janajatis, women and poor people are involved in HFOMCs and information transparency is maintained. HFOMC members said that political factors play a major role in the formation of HFOMCs and that information is disclosed in meetings with local people and through the local newspapers.
Rukum	The HFOMCs were found to be inactive, which might be due to lack of local responsible and accountable leadership.
Taplejung	The HFOMC chairperson and other members were not active and were unaware about PHC-ORCs and other health programmes. The study SHP faced medicine and equipment shortages.

Source: Interviews with district health officers and HFOMC members during study fieldwork, 2013

[9] The study team was unable to collect the disaggregated data of district and VDC population which would have provided a better evidence for comparative analysis

4.3 FACTORS THAT ENABLE ACCESS TO AND USE OF MNCH SERVICES

This section presents enabling factors for access to MNCH services. These present important resources that future programmes could work with and build on.

Home-based enablers — The saving of cash and food, social and family permissions to seek health services and support for household work are enabling factors for women giving birth and in the postpartum period to access health care.

Local people at nine of the ten non-district HQ study sites said that families will give spices, chickens and ghee to neighbours who have given birth:

> *"Relatives and neighbours also bring honey, mustard oil, eggs, turmeric powder, methi (fenugreek), ghee (butter) to woman who have recently given birth. Sisters-in-law and other relatives bring these things." — FCHV, Taksera, Rukum*

To prepare for childbirth, local women, especially in Taplejung, said that they would secretly save money to have some extra cash at the time of delivery. Women preferred to save without letting their husbands know to safeguard this money.

In some areas there was evidence of more acceptance by mothers-in-law of the use of modern health care for maternal health:

> *"Nowadays women have access to health services more than in our time. People are aware of family planning and limit children. The situation has changed." — Mother-in-law, Thumi, Gorkha*

> *"Earlier they wouldn't go for a check-up. These days they do. Time teaches (*jamana le sikaune ta ho) *— Mother-in-law, Sankh, Rukum*

Mothers-in-law, husbands and daughters will usually help out when women are unable to do household work due to illness, pregnancy, having given birth or other reasons. In case of perceived emergencies or danger signs, women are usually permitted to go to a health facility. The support of husbands and in-laws was said to be a very important enabler for this when they arrange the necessary resources and decide that it is best to get professional health care.

When there is a need to save a life, it was said that work would stop:

> *"Our life and health is greater than our work" — Syaphru, Rasuwa*

Similarly, during health emergencies, the concept of childbirth and the postpartum period (*sutkeri*) being impure is not a factor and people carry the pregnant woman to the health facility. There are also signs that people are gaining confidence in allopathic care, often combining traditional and modern medicine.

> *"Herbs don't work these days… First we do mansaune (traditional healing) when we become ill, then only we go to the doctors." Local person, Thukimba VDC, Taplejung*

Community enablers — Different kinds of local groups exist in the study areas including women's cooperatives, saving and credit groups and mothers groups. These groups were present in all study sites except for Yarsha (Rasuwa) and the non-district HQ sites in Rukum. Most of these groups are formed with the support of government bodies such as women development offices.

Economic support is provided by women's development offices and through programmes like the Poverty Alleviation Fund. These groups mostly support their members but at times money is lent to non-members at higher rates of interest. These groups support women in times of need and provide emotional support to their members.

Journey enablers — Where no other means of transport is available, local people in remote areas carry patients to health facilities on stretchers or in *dokos* (baskets for carrying goods and people). At Thumi (Gorkha), Sankh (Rukum), Jugada (Bajura) and in the settlements in the district HQs, it was said that local people usually did not charge for carrying patients to a health facility. The VDC provided stretchers in Jugada (Bajura). Note that Bajura was the district with the highest number of MNCH services and the use of institutional deliveries.

Service enablers — Ensuring privacy and confidentiality was reported as an enabler for accessing health services from all study settlement sites for promoting women's access to services. The closing of examination room doors and windows and the use of curtains and examinations in a separate room were reported as ways of maintaining privacy.

Though not consistently reported in all places visited, the followings were considered as service-based enablers by the studied communities:

- the freely available medicines for diarrhoea, fever, headache and pneumonia;
- the ability to call (access) health workers 24/7 in case of emergencies;
- FCHVs' advice and counselling and their distribution of drugs and contraceptives and child health care services;
- FCHVs accompanying women for institutional deliveries;
- the local katuwal in Sankh (Rukum) (a person who transmits notices and messages for all to hear, often by calling them out) announcing outreach clinics and the services they provide;
- supportive health personnel, warm rooms and the provision of blankets for child birth in Jugada (Bajura); and
- the toilets, waiting rooms and drinking water in the health facility in Rasuwa district hospital;

Governance related enablers — The employment of local health workers enabled staff retention. Active and functional HFOMCs supported better services to the people (mentioned in Bajura).

4.4 SERVICE USE

HMIS data shows Bajura district as having the highest use of MNCH services (Figure 4.9). As already discussed, in Bajura, a number of factors seem to support service uptake up in this remote district: the higher number of birthing centres, the responsiveness of service providers, the good presence of SBAs and active FCHVs, VDCs providing stretchers and efforts to provide warm environments in health facilities.

Looking across the individual MNCH services, in 2011/12:

- Bajura had the most measles vaccination while Gorkha had the least;
- Bajura had by far the highest rate of institutional deliveries (41%) followed by Rukum (20%), Gorkha (19%), Rasuwa (16%) and Taplejung (13%);

- Bajura had the highest met need for emergency obstetric care (36.7%) and Rasuwa the lowest (5.5%);
- Bajura had the highest rate of PNC visits (55%) and Rasuwa the lowest (22%);
- Rasuwa had the highest contraceptive prevalence rate (46.2%) and Rukum the lowest (24.3%);
- Gorkha had the highest rate of 4 ANC visits (62%) and Bajura the lowest (27%).

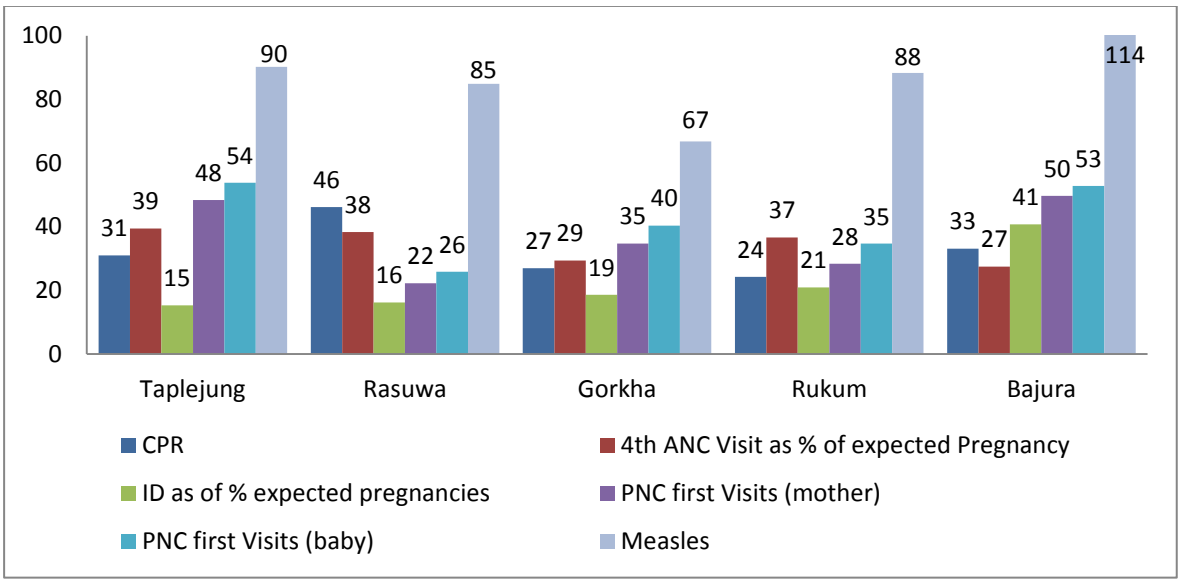
While Bajura had the highest use of most MNCH services it strangely had the fewest 4 ANC visits. The reasons for this need further investigation. However, the Key Informant Group speculated that women in Bajura may be less informed about the early ANC visit at the fourth month of pregnancy, which is a pre-requisite to complete the four ANC visit. Women who started their first ANC visit after completing their fourth month cannot complete the four scheduled visits based on the WHO guidelines.

A study of referral hospitals in Nepal carried out by FHD with support from DFID and SAIPAL Nepal (report forthcoming) found that a number of women from the current study's five districts had given birth in hospitals elsewhere (referral hospitals) in 2010/11. It found that many women preferred to give birth at referral hospitals because they expected to have access to better and higher level services. The study found that the following deliveries took place at health facilities outside their home districts:

- 2.1% (102) of expected deliveries in Rukum;
- 11.7% (726) of expected deliveries Gorkha;
- 7.5% (82) of expected deliveries in Rasuwa;
- 2% (62) of expected deliveries in Taplejung; and
- 1.3% (40) of expected deliveries in Bajura.

This finding may impact on the coverage of institutional deliveries and more so on EOC met need especially women within 8 hours travel distance. However, we are not able to verify the place of residence of these women who gave birth in these referral hospitals except for their home district address. They may be living outside their home districts.

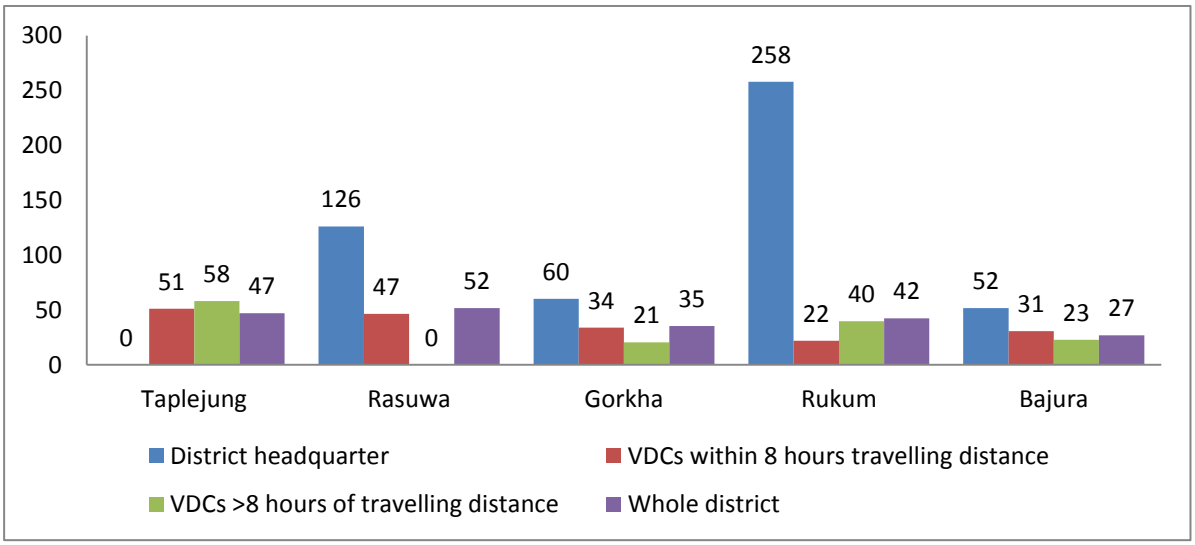
Figure 4.9: Use of services along the continuum of MNCH care



Source: HMIS 2011/12

The level of ANC coverage (defined as proportion of pregnant women attending 4 ANC visits) was highest in Rasuwa of the five districts and highest in Rukum district HQs data in the four districts where data was available. The higher than 100% means that women from nearly VDCs came to the district HQ for ANC. (Figure 4.10). Higher ANC 4 coverage was also observed in VDCs beyond 8 hours of Taplejung and Rukum indicating availability and use of the services in these remote VDCs.

Figure 4.10: Percentage of ANC coverage based on VDC remoteness in the five study districts

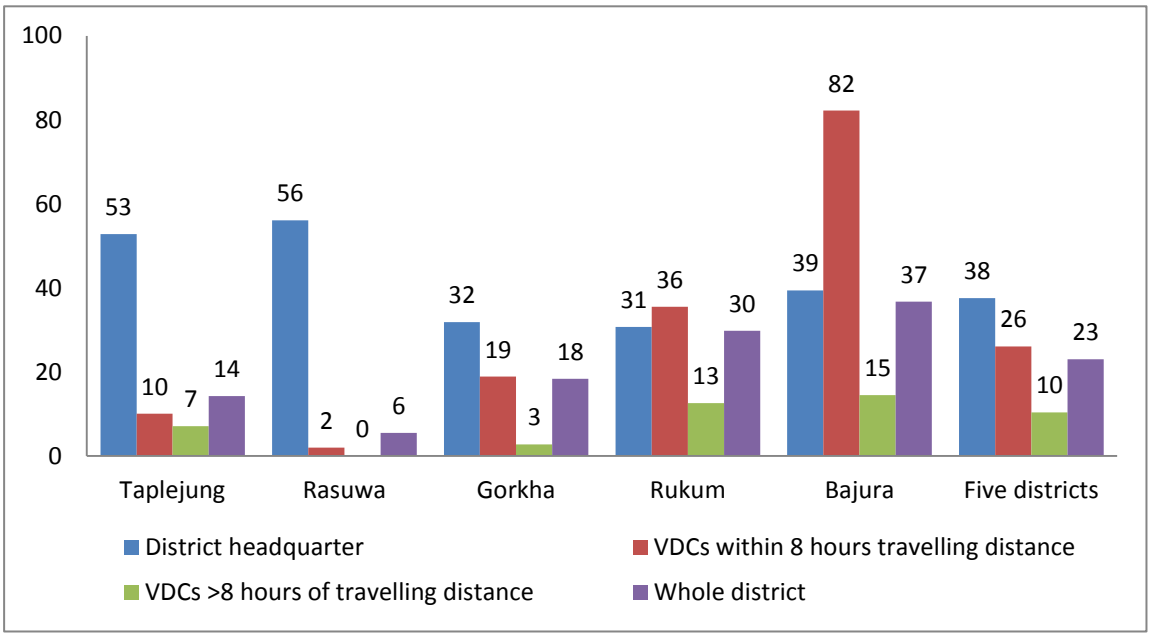


Note: Taplejung – district HQ data not available (denominator = number of expected pregnancies in three types of VDCs)

As reported above (journey based barriers, Section 4.2.2) and on the availability of birthing centres, the level of institutional delivery is highest in district HQs in the study districts followed by VDCs that lie within 8 hours, with the lowest level in the furthest away VDCs.

Bajura district had the highest met need for emergency obstetric care (37%) (Figure 4.11), which is above the national average (23%) but below NSHP-2 target for 2015 of a met need of 49%. The met need for EOC was highest for women in the district headquarters of Taplejung, Rasuwa and Gorkha, but in Rukum and Bajura was highest among women in the VDCs within 8 hrs of the district HQ, likely due to higher % of BC in VDCs of >8 hours travel or presence of a hospital in Rukum and an airstrip in Bajura at these locations. In all the districts where populations live further than 8 hours from the district HQ, the VDCs closer to the district HQ had considerably higher levels of EOC met need than the remote VDCs. This shows the large role that distance plays in facilitating or hindering access to these life-saving services.

Figure 4.11: Met need of EOC based on location in five study districts



Note: All VDCS of Rasuwa are within 8 hours travel distance
EOC is defined as percentage of women who received treatment for obstetric complications among the expected number of women with complications (= about 15% of total expected pregnancies).

4.5 IMPACT OF GEOGRAPHY ON SERVICE DELIVERY AND USE — SUMMARY OF FINDINGS

4.5.1 Supply side

- There were more drug stock outs and expired drugs in the VDCs furthest from the district HQs. Lack of transport, budget and labour were the major constraints for supplies needed for MNCH services. Transport costs are high with DHOs paying as much as NPR 10,000 to transport 50 kg of goods by porter to a remote area.
- The limited budgets for transporting goods to peripheral health facilities makes it difficult to deliver goods there by porter (= costly) especially in the monsoon season.
- Drugs and supplies demanded by DHOs are usually not fully supplied by regional and central health authorities.
- Staff motivation and willingness to stay in remote areas (HQs and peripheral health facilities) is low. Staff transfer and retention is a huge problem and was noted in all of the study field reports from all levels of facility.
- Inadequate human resources and delays in replacing transferred staff, and poor monitoring and supervision were highlighted in all districts. There is a lack of supervision and monitoring of performance in the districts by central and regional health authorities and by DHOs of health workers in remote areas. This results in poorer accountability for delivering services.
- The inability of many service providers to speak the local language was a barrier. This was reported only for women from a predominantly Tamang and a predominantly Magar study settlement, in most remote VDCs.

4.5.2 Demand side

- One of the prime reasons for preference for home delivery and traditional healers is their easy accessibility and difficulty in accessing modern care.
- Steep hills with uneven, unsafe trails and insecurity due to lonely paths with chances of being caught by drunken men reduce the willingness of women to go to health facilities.
- Women's mobility constraints were cited from almost all study sites — principally security concerns and the difficult terrain and trails that necessitate male family members to accompany women also for a regular visit.
- The sampled settlements in the district HQ VDCs had better knowledge on MNCH care messages and services than the outlying VDCs.
- The cost of transport and other opportunity cost were considered as the biggest barriers in reaching appropriate health facilities especially for obstetric emergencies (only in Bajura were patients found to be carried to health facilities for free by local people). This becomes more of a constraint as the distance to the facility increases.

4.5.3 Service use

- The proportion of institutional childbirths among expected deliveries was 2 times higher in district headquarters than in VDCs outside the district HQ. The coverage of district headquarter is 49.1% of expected deliveries compared to only 23.3% among the periphery. Institutional delivery coverage also declines with distance from district HQ (49% at DHQ, 25% at <8 hours and 20% at >8 hours) indicating access to and use of this service is influenced by distance from the district HQ.
- Met EOC need was less in the remote VDCs. However it seems that the birthing centres in remote VDCs are able and willing to provide care for complicated deliveries as they may not have other alternative of referring women to nearby centre (Figure 4.11).

4.6 OVERALL FINDINGS

There was no common pattern across all five districts with large variations in the human resource situation, commodity availability, service availability and service use. The drivers of low service use are multiple and complex, underscoring the need for district and locally specific planning and targeted interventions. The main study findings are presented in Tables 4.22 and 4.23 by the three types of geographical areas.

The overall findings are therefore that the remote VDCs (plus 8 hours travel time from district HQs) are worse off in most aspects of access to and use of MNCH services. They generally have less human resources (except for SBAs and MCHWs), fewer birthing centres, and higher levels of drug stock-outs and expired drugs. Staff absenteeism is higher and supervision of service delivery is minimal. The use of institutional deliveries, met EOC and 4 ANC coverage was less in the remote VDCs.

Table 4.22: Differences in inputs, process and outputs related to MNCH service provision by geographic location

Indicator/variable	District HQ/district	VDCs within 8 hrs travel of district HQ (whole district)	VDCs more than 8 hrs travel from district HQ (whole district)
Inputs			
% VDC with at least one SBA	100	25.8	28.6
% of VDC with at least one HA/Sr AHW/ AHW	100	85.2	70
% VDC with at least one VHW	NA	45.3	30
% VDC with at least one MCHW	NA	65.6	81.4
% VDC with one at least BC	80	34.4	28.6

Table 4.23: Inputs, process and outputs related to MNCH service provision by health facility

Indicator/variable	District HQ/district	VDCs within 8 hrs travel of district HQ (study sites)	VDCs more than 8 hrs travel from district HQ (study sites)
Inputs			
% of hospital/ HF with no drugs stock-out (15 drugs checked)	80%	25%	25%
% of hospital/ HF without expiry drugs (15 drugs checked)	60%	25%	50%
Process			
Opening hours	10 1m – 2 or 4 pm, no consistent opening hours		
Health worker absenteeism (according to service provider interviews)	Less	High	Higher
Health worker behaviour	Usually good (no difference due to distance)		
Supervision by higher level (according to service provider interviews)	Poor and worse in most remote areas		
Management (according to service provider interviewees)	Usually weak, worse in most remote areas		
Demand side process			
Home delivery preference	At all study sites (no difference due to distance but probably a result of distance and cost due to geographical conditions) **		
Preference for traditional healers	At all study sites (no difference due to distance)		
Language barrier	No	A little	Higher (according to service provider interviews) isn't it the other way around?
Knowledge/awareness about Aama Programme and danger signs of child and maternal health	High	No difference between less than/more than 8 hrs travel from HQ VDCs of awareness about danger signs during pregnancy and child birth Knowledge about ANC incentives least in remote VDCs	
Affordability of services	Low	Lower	Lowest due to higher travel/transport and opportunity costs

Indicator/variable	District HQ/district	VDCs within 8 hrs travel of district HQ (study sites)	VDCs more than 8 hrs travel from district HQ (study sites)
Dependence on loans to manage costs	At all study sites (no difference due to distance)		
Travel time (to health post from furthest ward/settlement)		2-3 hours	3-4 hours
Terrain (forest, snowfall, landslide)	More problematic for most remote areas due to distance		
Workload	Heavy for women (no difference due to distance)		
Decision-making	Low decision making power of women, higher among women in Tamang community (no difference due to distance)		
Outputs			
4 ANC coverage	86	33	31
Institutional deliveries coverage %	49	25	20
Met need EOC %	38	26	10
IMCI coverage	No difference in severity of pneumonia and diarrhoea suggesting no difference in quality of care of IMCI		

Source: district HMIS data analysis, data from 10 VDCs and field notes, 2013

5 CONCLUSIONS, RECOMMENDATIONS AND COSTINGS

This chapter builds on the findings from the five district case studies and the situational analysis to draw conclusions and recommendations. The combined findings of this study show that access to services in remote areas is affected by multiple and interrelated factors that are influenced by the socio-cultural, economic and geographical context. To improve access, it is clearly necessary to address demand-side (home, community and travel [journey]) and supply-side barriers (service and governance) concurrently, and in a manner that is tailored to local contexts.

It is also important to recognize that historical inequalities and structural barriers have resulted in gender, caste and ethnicity based discrimination in Nepal, which takes different forms. These exist, not because of geography but because they are embedded in Nepali society. Gender discrimination, which starts within the family, of course exists even in remote areas. It is also very important to recognise and value the social, cultural and geographic diversity of communities in remote areas. The discussion and recommendations below are presented considering these aspects. Recommendations cover both issues and lessons based on existing interventions.

The study has five main findings. These findings 1 to 4 are presented in the following text with lists of associated recommendations to address these findings.

5.1 DISCUSSION AND RECOMMENDATIONS

Finding 1: Multiple exclusion negatively impacts access to and the use of health service as the impacts of home and community level socio-cultural practices are reinforced by remoteness.

a. Home delivery and traditional healers are preferred across all remote area sites — Both the situational analysis and the five district case studies identified that home delivery is preferred over facility-based ones, and there is a high preference for consulting traditional healers if complications arise. There was no difference according to level of remoteness in the districts studied in these preferences. These preferences seem to be a result of a combination of factors such as traditional beliefs, the physical and financial difficulties in reaching health services, and the challenges of finding ways to cope if family members are absent for a long period.

b. Gender based discriminatory practices, socio-cultural practices, language barriers and women's work responsibilities impact access to health services — Women's work burden (which is shared only during emergencies or serious illnesses) and the many gender based norms which determine who will access what services and when, result in practices which are harmful to women's and children's health. Since this operates at the household level, gender is a crucial determinant of access to resources, decision making authority and ability to seek services. Geography and remoteness are less of a variable in this than gender and culture based practices. Surprisingly, caste-based discrimination was not an issue in accessing services according to the respondents (mostly non-Dalits). But it will still be essential to consider these aspects as it may be affecting some women, men and children.

c. Knowledge/awareness about danger signs and about services vary with the most remote being less informed — Understanding regarding danger signs varied across sites but full information and knowledge about different aspects of MNCH was missing from even the relatively remote and marginal district headquarter sites, indicating the need for a customized communication effort.

Recommendations — While it is important to continue to inform, motivate and mobilise women and ensure their participation in decision making about their health and other health of their families, it is also important to recognise that with the prevailing high preference for home delivery, steps need to be taken to ensure that home deliveries are safer for women and their babies.

This study therefore makes the following recommendations:

4. *Mobilisation of women's groups* — Participatory learning and action has successfully mobilised women's groups to effect maternal and neonatal health improvements, especially when delivered in conjunction with home visits especially during postnatal period. It is recommended that EAP be adapted to take a participatory learning and action approach to working with women's groups in remote areas and involves community leaders and traditional healers to advocate for MNCH services. It is also important to inform and mobilise other local groups such as forest users groups, drinking water users to advocate for MNCH service uptake, and to serve as a vehicle for providing essential MNCH information and support to pregnant women and women with young children. This will need to be a partnership approach between government and local NGOs and community based organisations.
5. *Adapt BCC strategy* — The behaviour change communications strategy for MNCH and family planning (2012) should be adapted locally for remote areas with a focus on more localised communication and language regarding harmful socio-cultural practices that negatively impact the health of women and children, the benefits of using modern health services and complete information about government provisions to support their access to services. Understanding of the socio-cultural and geographical context of local caste and ethnic groups should be a core part of the adapted strategy.
6. *Mobilise traditional healers*— Continue to mobilise traditional healers, who are consulted and trusted by local populations, to improve awareness about healthy practices and healthcare seeking among hard to reach populations.
7. *Target men and local leaders* — Tailor BCC efforts to reach men and community leaders in culturally appropriate ways to engender their support for MNCH including family planning. Men and community leaders are key change agents for reproductive and MNCH in homes and communities. Increasing their awareness of the benefits of modern health care and entitlements to MNCH services is important.
8. *Promote safe delivery kits* — Promote the use of safe delivery kits in remote areas which have been in declining use nationally (see Section 2.2.5) and promote in-depth discussions in mothers' groups and other community groups so that the right use of the kit is better understood. The message that this is not to replace institutional deliveries but is a complementary intervention should be a part of this campaign.

Implementation — The above initiatives need partnerships between the government and NGOs and community based organisations to motivate and mobilise local people to access and use health services and for the provision of health services for all, with a focus on excluded people within remote areas.

Finding 2: Terrain and distance impact decision making about health care and access to services

a. Distance from the district headquarters and the type of terrain impact access to and use of health services — The distance, physical conditions of the terrain (forested, steep, slippery slopes), seasonal conditions (monsoon rain and winter snow), and landslides have a strong influence on the capacity of woman and their families to travel to health services. Evidence indicates that the most remote areas have proportionately fewer institutional deliveries. This is a strong indicator of how distance and physical difficulties of travel impact the access and use of facility-based health care.

Referral services are always at a further distance, making it particularly difficult to access such services from remote areas due to transport and geographical challenges. In this case travel is not only stressful in terms of financial burdens; but families and communities must find ways of organising transport to referral facilities. Organising transport is also usually a male responsibility and leaves women dependent on others if they or their child need transport to a referral facility. Household tasks and child care need to be managed and these create stresses.

Also, poverty and remoteness are linked resulting in the usually poorer financial ability of people in remote areas to access and use health services, especially for obstetric complications and health emergencies, which incur greater out-of-pocket spending.

b. The further the distance from the headquarters, the higher the poverty —Secondary data indicates that poverty rates are higher in remote areas (NDHS) and among people who live more than 8 hours away from their district headquarters (NLSS). All the most remote sites of this study experienced higher levels of poverty than the other areas of their districts. NLSS 3 (CBS 2012) found higher levels of poverty in mountain than other ecological areas, and that access to services is correlated with poverty. Recent further analysis of poverty data in Nepal (DFID 2013) found the highest concentrations of poverty in the Far Western and Mid-Western regions of Nepal where remoteness is an important feature and access to public services, standard of living, literacy and women's empowerment are all substantially worse than other regions. Higher levels of poverty result in financial tensions for people seeking higher level health services. None of the current study sites had emergency health funds, although five sites had some sort of saving and credit funds. This limited financial ability impacts on families' abilities to seek services at district and higher level hospitals. Women, who often lack financial decision making powers or control over cash, are particularly disadvantaged.

c. It is a challenge to reach nomadic groups and mobile populations with health services — It is difficult to provide health services for mobile populations such as families that migrate seasonally with their cattle and it is difficult for these people to access services.

Recommendations— It is important to bring services closer to the people in order for them to overcome the journey based barriers and associated costs. As terrain barriers and distance increase the time required to access services, home and community-based barriers negatively impact on who can travel to health facilities, when and for what health conditions. It hence becomes imperative to implement good quality services nearer to communities especially for women and children. Furthermore, efforts are needed to reduce the journey barriers to accessing referral level care. As Holmes and Kennedy (2010) found, although reducing the 'second delay' is complex and context specific, in remote areas it has the greatest potential to reduce mortality.

The recommendations to achieve this thus include the following:

1. *Address financial barriers* — Address financial barriers more systematically in the following two ways:
    a. Establish community based emergency funds in all mothers' groups so that some local support is available in time of need. Establish community referral funds for families beyond the Mother's Group and as a safety net. (Community based emergency funds can have a direct positive effect on maternal and neonatal deaths [Hussein et al. 2012]).
    b. Support and facilitate DHOs and DPHOs to establish EOC referral fund at district level and for availability and use of funds especially for women from remote and marginalised groups.
    c. Prioritise remote districts for interventions that address financial barriers especially focusing on travel and transport - provision and establishment of EOC referral fund at district level and service for air lifting.
    d. Carry out research in remote districts to design ways in which out-of-pocket spending on transportation for emergency cases can be reduced. Voucher schemes have worked in some countries and some settings, and are worth exploring in Nepal. (This is needed because Aama transport incentives are insufficient in some remote areas to cover the costs of reaching a BEOC/CEOC in case of an emergency.)
2. *Home visits* — Regular home visits by a volunteer or health worker have helped reduce neonatal mortality and FCHVs are being mobilised to provide home visits as a part of CB-NCP. It is recommended that home visits be introduced in remote areas through FCHVs or other lay persons to deliver packages of evidence based activities including birth preparedness package, misoprostol, chlorhexidine, postnatal home visits, and family planning and child health care advice.
3. *Strengthen FCHVs* — FCHV are found to be the sole service providers in some community while their performance is weaker in remote areas. Strengthen FCHVs to help connect remote communities to health services and to deliver community based care. This can be done by increasing the number of FCHVs in these areas, combined with regular refresher training for skill development and to improve their literacy skills to bolster their confidence and motivation. Specific efforts may be required to ensure regular medicine supplies to FCHVs in the most remote areas and additional budget will need to be set aside for this. Regular field based supervision is necessary and may require additional inputs so that supervisors have the transport and incentive structures to undertake the usually tiring, difficult and costly supervision visits to remote areas. Additional allowances for supervisors may be necessary. In some settings, FCHV strengthening could also be contracted out to a local NGO.
4. *Strengthen the functionality of outreach services*—Expand the package of services provided to improve the functionality of outreach services including by adding integrated community based MNCH services. Also, increase the number of outreach services in remote areas and funding to allow for this. Additionally outreach clinic sites should be located to ease access of women and children in catchment areas that are excluded in multiple ways. Site selection should be based on geographical distance, with remote areas being prioritised.
5. *Establish more rationally located birthing centres* —Establish more properly staffed birthing centres, built using standard designs, in remote areas where the by-passing of birthing centres

to referral hospitals is unlikely. Strictly apply MoHP criteria for site selection which draw on information collected by the Health Infrastructure Information System. And ensure that all birthing centres have warm rooms in the winter, toilets, source of clean water for drinking, and washing and electricity supplies. The distribution of birthing centres in districts is an important issue as aggregate numbers can hide the difficult access of very remote and highly dispersed populations. Given that SBAs need a sufficient volume of clients to maintain functionality, innovative methods may be needed to ensure that SBAs serving in very remote areas with low catchment populations maintain their skills, by for example regular exchange programmes with district hospital staff. Note that this approach is going to be tested for strategic birthing centres in the Terai.

6. *Means of transport* — Provide all local mothers' groups in remote areas with stretchers or doko baskets for carrying patients to health facilities. This builds on positive experiences and lessons learned from the Equity and Access Programme.
7. *Social marketing and franchising* — Promote the social marketing and franchising organisations of health commodities in remote locations (such as by CRS Nepal and PSI Nepal).

Finding 3: Remoteness increases service barriers including availability and the quality of services

a. Human resource retention is challenging in remote areas — Too frequent staff transfers and the availability of senior doctors is a particularly large problem in remote areas. (This is the case even though many health post and SHP health workers are from the local districts.)The absence of health workers badly affects service delivery. There tends to be less absence when health workers, such as ANMs and MCHWs, live locally. And local recruitment has the advantage of providing health workers who are aware of local issues, speak the local language and are more likely to remain in the area.

Remote areas suffer as qualified local health professionals are often not available, and it is difficult to attract health workers from other areas, since the cost of living is generally higher and conditions much harder, yet the allowances provided for short term contracts are the same as for other areas. To address this problem the government has provided scholarships for Dalit and other marginalised girls from rural and remote areas to undergo ANM training.

b. Language barriers — Language can be a barrier for women with limited literacy whose mother tongue is not Nepali. Many women in remote areas fall into this category. This makes it difficult for them to access services where health providers do not understand the local language.

c. Presence of women service providers encourages women seeking services — The common lack of women health workers influences women and families in their decisions to access services. Remoteness has no major influence on this and this factor depends on socio-cultural practices. However, attracting female providers at hospital level is more difficult in remote districts given the demand for their services across the country. Additional benefits, such as postgraduate training opportunities or promotion prospects, need considering to encourage women health workers to serve in remote areas.

d. Geographical distance affects quality and availability of supplies/commodities — Stock-outs of drugs are more common in remote areas. Delays in sending medicines results in shorter expiry periods for

medicines and hence where travelling distance is higher, there is a higher chance of more expired medicines at health facilities.

e. Service availability is also influenced by distance— MNCH services (especially birthing centres), are more available in less remote than remote areas. Only one out of the five study's district hospitals were providing caesarean section services at the time of the study visits. There is a huge gap in the need and existing availability of birthing centres in three of the five mountain remote districts studied. Where there are a sufficient number of birthing centres e.g. in Bajura, utilisation is much better than other districts, but this may be a result of multiple factors, including the presence of SBAs, rather than just the number of facilities.

f. Positive service provider behaviour influences service delivery — Responsive and supportive service providers increase the confidence of service seekers and supports their access to services.

g. More conducive environments — Warm rooms, heated water and proper waiting spaces at health facilities create a more conducive environment. The lack of such environments can increase the distress of patients, especially in areas that experience severe winters. This is a major barrier to the use of facilities in remote areas and is relatively straightforward to address. Note that work is being undertaken within MoHP that requires the more systematic planning of new health facility locations to ensure that they are suitably located.

Recommendations

1. *Ensure functionality of CEONC services at district hospitals*— District hospitals should be upgraded to provided caesarean section services if they serve a reasonable sized population and it is far from the district hospital to another CEONC centre (more than 6 hours travel as per remote area guidelines). Partnership with and contracting-in an organisation that already has a proven ability to support a CEONC hospital will speed district hospital strengthening and upgrading.
2. *Strategic locations for MNCH services* – While planning for the provision of new birthing centres (see recommendation 5 under finding 2 above), medical abortion and long term family planning services at all HP level, it will be necessary to map districts and plan service expansion based on the size and distribution of populations and their geographical access to services. Such a district-based approach using local data and information on the use of services, communication and transport facilities will be essential for placing MNCH services at strategic and appropriate locations.
3. *More attention and resources* — Dedicate more focused programmatic and management attention to health service provision in remote areas with dedicated financial resources and the necessary implementation modalities for improved access and use of MNCH services. Select strategic locations based on distance and travel time for priority facility-based interventions.
4. *Improve the quality of services* – Attention should be given to improve the quality of available services to be more user-friendly, including upgrading the facilities to ensure warmth, waiting space, water and toilet facilities; promote recruitment of local staff; and ensure availability of women service providers for reproductive health services. The infrastructure element of this work has already been initiated through MoHP's infrastructure improvement plan.

5. *Referral systems* — Strengthen referral system by ensuring adequate linkages with higher level hospital including by using mHealth technologies. And implement EOC referral funds at district hospital as mentioned above. (The soon to be completed organisational reform study may well have more specific recommendations related to this).
6. *Staff retention* — While MoHP is developing a staff retention strategy and plans for institutional restructuring, it is important to stress the importance of staff retention and ensuring an enabling environment for staff posted to remote locations. Compulsory remote area postings for nurses that study on a government scholarship may be introduced as happens for doctors.
7. *Rotation of staff* - Enable staff posted at remote rural health facilities to spend time at district hospitals to enhance their skills and knowledge in new-born resuscitation, essential new-born care and other new developments, and maintain competencies such as in delivery and obstetric first aid while district based staff take their place and gain an understanding of the remote context. (This is being tested in Terai districts in 2013/14 fiscal year)
8. *Transport modalities* — Develop partnerships with NGOs and the private sector to transport medical equipment and medicines within districts, especially to remote areas to ensure year round medicine availability.
9. *Test out mHealth technologies* — mHealth technologies should be tested in Nepal as a means of improving communication, referral and clinical and counselling support at peripheral level health facilities as mobile networks penetrate remote areas. (Promising evidence is being collected of how mHealth technologies can motivate, inform, and support frontline health workers, such as in Indonesia [Unicef 2013] and India [BBC 2013]).
10. *Promote telemedicine* — Promote the use of telemedicine for district hospitals to communicate with central level hospitals to support the clinical management of women at risks of poor pregnancy outcomes in peripheral facilities.
11. *Contracting out* — Consider contracting out health service provision to NGOs and the private sector in most remote areas within a district where the government is unable to retain staff.

Finding 4: Poor governance impacts service delivery; remoteness affects monitoring and staff motivation

a. Unfilled posts impacts service — Many unfilled posts and frequent staff absences badly impact health service provision in Nepal's remote areas.

b. Most vacant posts — Twenty percent of district health worker posts were not filled in the study districts. The most vacant positions were for health assistants and AHWs in the most remote study VDCs.

c. Functional HFOMCs improve services — Bajura is an example of how active HFOMCs can lead to the better delivery of services and facilitate local people's access to and use of services.

d. Insufficient monitoring and supervision— Government systems for monitoring health service provision are weak and remote areas are most affected as the distance demotivates clinical supervision and monitoring teams. The study found that senior health workers and DHO officials make

hardly any monitoring visits to health posts and SHPs, which affects quality of services and fails to deter absenteeism.

e. Poor recording and reporting— Many service records had not been updated at the health posts and SHPs. Also, inconsistencies were found in HMIS reporting and recording at many institutions.

Recommendations

8. *Strengthen supervision and monitoring systems* — Strengthen recording, supervision, monitoring and reporting systems through cross-checking, the validation of data and timely recording and reporting. This will require additional resources for supervision and monitoring visits to remote facilities. And hold periodic DHO-led review meetings to discuss service provision and use in remote areas.
9. *HFOMCs* — Strengthen HFOMCs to enable them to facilitate better supervision and monitoring and ensure that the services in remote areas are well delivered. At the same time ensure that membership of the committees reflects the ethnic/caste mix of their catchment areas.
10. *Partnerships* — Make transparent contractual arrangements with private teaching hospitals, including between district hospitals and medical colleges to strengthen service delivery in remote areas by teaching hospitals using them as their field practice sites and ensuring that good quality services are delivered.
11. *Demand-side governance* — Establish, improve and strengthen networks of civil society organisations working on demand side governance in remote areas, including the use of m-technologies as a monitoring platform.
12. *RHCCs* — Strengthen the district level reproductive health coordination committees (RHCCs) in remote districts to improve coordination and collaboration at the district levels and to build linkages with sub-district level facilities in remote areas.
13. *Planning at local level* — Introduce context-specific and need-based planning at the district level with additional and flexible resources provided by the centre to cover remote area-specific interventions.
14. *Social auditing* — Expand the social auditing of health facilities to remote areas through support from PHCRD.

Finding 5: The need for more of a policy focus on improving access to and use of MNCH services in remote areas

a. Policy focus — The study found that the development of and scaling up of interventions in Nepal has prioritised districts where large numbers of people can be reached quickly and at lower relative costs in order to achieve population-based targets. Remote districts with their relatively lower populations and difficult operating environments have tended to be left behind.

b. Context-specific programming — The differing contexts of remote areas mean that programming needs to be tailored to the demands and opportunities of remote locations. For example, as Koblinsky (2005) argued, the diversity of Nepal means that a blanket approach to obstetric care is not appropriate.

c. Staff salaries and allowances — The government has clear rules and guidelines related to allowances for government staff posted in remote locations. However, locally recruited health workers

in remote areas receive only minimum salaries with no other compensation or incentives. This often results in low morale and motivation and thus poor quality of care provided by these staff, who may resent the fact that their government colleagues, who are doing the same job, are better compensated.

d. Flexible funds — The lack of flexible funds for DHOs to spend on meeting local needs hinders programming and reach to remote populations.

Recommendations:

1. *Strategy for MNCH in remote areas* —Develop and implement a strategy for MNCH in remote areas to strengthen the policy focus on MNCH in remote areas. This would enable the government to provide improved policy guidance for a focus on hard-to-reach districts in the development and implementation of new interventions, even though this may not yield high returns in terms of impact on numbers of people.

2. *Remote area desk* — A feasibility study should be carried out on establishing a remote areas desk within DoHS.

3. *Prioritise in new interventions* — Remote districts need to be prioritised when scaling up interventions to provide services at the community level such as community based (FCHV based) programmes including CB-NCP, the birth preparedness package, misoprostol and chlorhexidine.
4. *Transport incentives* — The Aama programme provides a higher transport incentive for women in mountain districts; but the extra money may not be sufficient to cover the very high costs sometimes involved in travel when a health emergency occurs, especially for those living in settlements far from the district headquarters. Further study is needed to calculate and propose an appropriate transport incentive for mountain districts.
5. *Higher salaries, allowances and incentives to cover actual costs*— consider providing higher salaries and allowances for locally recruited health workers in remote locations to promote higher quality of care and more motivated staff. Consider introducing more flexible allocations to take into account the real costs involved in delivering services and the higher costs of living in different circumstances such as remote areas.
6. *FCHV strengthening*— Make activities that strengthen FCHVs an integral part of FCHV-based community health interventions in remote areas.
7. *Flexible funds for remote areas* — Make flexible funds available to district managers of remote area health services (district health officers) to increase service use and to enable DHOs to respond to the service and demand side context in remote areas. These funds will need clear rules and guidelines, including third party monitoring.

5.2 COSTING OPTIONS FOR IMPROVING ACCESS TO MNCH SERVICES

5.2.1 Methods of costing

The recommendations are grouped according to the themes in the conceptual framework. For costing purposes, each group of recommendations has been broken down into sub-activities with attached unit costs. Where available and appropriate, unit costs have been taken from costing studies and

programme division estimates. Where unit costs could not be borrowed, estimates were made through rapid costing by the study team.

Unit costs have been scaled up by the appropriate population in the study districts to reach estimated total costs. The target population varies according to which recommendation is being considered and is based on available norms and standards, e.g. human resources including FCHVs, training and orientation, service delivery, and organizing and conducting outreach clinics at the community level. VDCs located more than 8 hours travel from district headquarters were only selected for the targeted interventions. However, strengthening the district hospitals in these districts was also selected for back-up and referral care. Since these interventions would benefit the entire districts and not just the remote VDCs the total population of women of child bearing ages, new-born and under-5 children was considered as the target. None of the VDCs were located greater than eight 8 hours travel distance from the district headquarters in Rasuwa and so costing was only is done for the other four districts

Populations and the basis of costing are summarized in Table 5.1.

Table 5.1: Basis of costing and target population

Recommended intervention	Basis of costing	Target population
Community based intervention programme	Mother and Infant Research Activities (MIRA)/Makawanpur project (Manandhar et al. 2004)	Women of child bearing ages, new-born and under-5 children, FCHVs, mothers groups
Governance barriers	Strengthening local health governance (pilot programme 2011)	Health Facility management committees
Social, cultural and journey barriers	Equity and Access programme (EAP) (FHD 2010) and EAP plus	Wards of VDCs
Improving MNCH service	Adapted from locally tested expansion of service provision, facility improvement, establishing birthing centres, capacity enhancement for MNCH service providers and rotation of care providers.	Women of child bearing ages, new-born and under-5 children, health posts and sub health posts, MNCH care providers

All costs were classified into capital and recurrent costs and costed at the market price, assuming no tax on drugs and no subsidy distortions. Capital costs are the annual costs of resources that have a life expectancy of more than one year. The life of the buildings was taken as 30 years. The replacement cost of birthing centre construction was taken from the Department of Urban Development and Building Construction (DUDBC)/Nepal Health Sector Support Programme (NHSSP). Researchers worked with facility staff to prepare minimal lists of equipment, instruments, and furniture of birthing centres. Replacement cost, which is the cost of the item if it were to be replaced at current market price, was used for calculation. The study used the latest purchasing price of equipment by DHOs. A discount rate of 3% was used to annualise the capital items (Shepherd et al. 2000).

For personnel costs, the gross earnings (12 months' salary, plus one month's Dasain bonus, and one month gratuity) (Creese and Parker, 1994) were included; as were incentives and allowances. Drug costs and overhead costs were collected from the respective health facilities. In the case of birthing centres, the costs of locally purchased drugs were ascertained from the respective birthing centres; additional drugs and medical supplies provided by the DHOs/DPHOs were also costed (Devkota et al. 2012).

Programme costs were directly assigned to the respective programme. Overhead costs were apportioned on the basis of space used by the birthing centre [Creese & Parker, 1994].

5.2.2 Total Cost Estimates

Table 5.2 shows that total additional cost for addressing the recommended four types of identified barriers (socio-cultural, journey-related, governance-related and service related barriers) requires NPR 72.2 million per year.

Removing service related barriers will be the most expensive option accounting for over 50% of total costs. Removing social and cultural barriers is the next most expensive component (19%), followed by journey-related barriers (18%) and governance-related barriers (over 12%). The strengthening of health facility management committees (HFOMCs), social auditing, supervision and monitoring, and networking of CBOs are relatively costly interventions under removing governance barriers accounting for over 12% of total costs. The per capita additional cost for additional MNCH interventions in the five study districts would be USD 1.1 using an exchange rate of $1: NPR 98. The details are given in Table 5.2. Note that the cost to implement across all Nepal's remote (mountain) districts would be considerably more.

Table 5.2: Additional cost to implement recommendations (annual in NPR and USD) in the five study districts

	Recommendations	Centre	Taplejung	Gorkha	Rukum	Bajura	Total	Percent
Demand side costs								
	1. Remove socio-cultural barriers	0	3,417,305	3,787,950	2,676,015	3,602,628	13,483,898	18.67
	2. Remove journey related barriers	0	2,956,926	3,275,379	2,762,302	3,678,458	12,673,066	17.55
Supply side costs								
	3. Remove governance related barriers	1,199,000	2,039,250	2,257,950	1,601,850	2,148,600	9,246,650	12.81
	4. Remove service related barriers	86,000	9,291,664	14,377,414	6,413,340	6,721,807	36,804,225	50.97
Totals								
	Total cost (additional) in NPR	1,285,000	17,705,145	23,698,693	13,453,507	16,151,493	72,207,838	100.00
	Total cost (additional) in USD	13,112.24	180,664.7	241,823.4	137,280.7	164,811.1	736,814.7	
Per capita costs								
	Population		126,448	205,489	175,993	119,750	669,813	
	Per capita cost in NRs		140.0	115.3	76.4	134.9	107.8	
	Per capita cost in USD		1.43	1.18	0.78	1.38	1.10	

Projected Impacts

We have estimated the impact of the various recommendations based on previous studies. It is estimated that 28% of neonatal deaths could be reduced through the community-based interventions undertaken in Makawanpur district, Nepal (Manandhar et al. 2004), and another 23% through facility based service improvements (Darmstadt et al. 2005). Worldwide, 41–72% of neonatal deaths can be averted by community and facility based interventions (Darmstadt et al. 2005). In the case of Nepal's

remote areas, it is assumed that a 50% reduction in neonatal deaths will follow from implementing recommendations related to all four types of barriers. Integrated management of childhood illness (IMCI)-related interventions have reduced under-five mortality rate by about 28% in Jumla district, Nepal (Dawson 2008). However, this was conducted long ago in a high case scenario. But a study in Egypt showed only a 6% reduction of the under-5 mortality rate. Considering the difficult geographical terrain, limited access to roads, scattered and thin populations and very cold weather in the remote areas, we used the medium case scenario of an 18% reduction in the under-5 mortality rate. Manandhar et al. (2004) showed an over 70% reduction of maternal mortality in Makawanpur district (Nepal) with a similar intervention. Reducing the maternal mortality ratio in remote areas is relatively difficult due to difficult terrain and the limited road networks and so only a 50% reduction is targeted. In accordance with WHO guidelines, we have assumed 36 disability-adjusted life years[10] (DALYs) saved for each maternal death averted and 33 DALYs saved per neonatal and under-5 death averted (Mathers 2009).

The DALYs saved have been allocated to facility, community, and journey-based interventions in the same proportion that maternal deaths took place in those places (Pradhan et al. 2010). A total of 9,854 DALYs can be saved through interventions at facilities, 9,619 DALYs in communities and about 4,000 during the journeys by the proposed options. Community-based IMCI can save more DALYs, saving over half (55%) of the total DALYs followed by new-born interventions (40%). Maternal and perinatal care also contributes to newborn health. Moreover, investing in maternal health contributes to the health of whole communities. However, we estimated DALYs separately for ease of calculation. It is difficult to extrapolate DALYs saved across all remote districts because of purposive sampling and the great variations in socioeconomic status in remote districts. Thus, this exercise only calculated DALYs saved in the study districts.

Table 5.3: DALYs saved by proposed recommendations in the five study districts

		Facility based	Community based intervention	Journey based intervention	Total
Proportion of deaths		0.42	0.41	0.17	1
DALYs saved by new-born care interventions		4,031	3,935	1,632	9,598
DALYs saved by CB IMCI		5,463	5,333	2,211	13,007
DALY saved by maternal health interventions		360	351	146	856

Options and priorities

Consideration of the cost per DALY gained should guide the prioritisation of the options bearing in mind the need to ensure a functioning health system that can provide a continuum of care and effectively treat complicated cases when they occur. The removal of social and cultural barriers in communities is the most cost-effective option, with the cost per DALY saved estimated at NPR 1,402 (USD 14.3). This is followed by removing journey related barriers at NPR 3177(USD 32.42). Facility based service improvement appears to be the most costly option; recommended programme interventions with each DALY saved costing NPR 4,673 (USD 47.7).

[10] A measure of overall disease burden

There is evidence that MNCH service use increases if demand creation and supply of quality MNCH services go hand-in-hand. Many women and children will not receive quality MNCH services unless there are supply side improvements. Bad quality services will reduce demand for these services. ON the other hand the provision of good quality services will lead to increasing demand as the word spreads. The supply side should be improved to respond to the rapidly increased demand for service delivery (Ahmed and Khan 2011).

Note that the cost of service and governance related barriers are merged in Table 5.4 as there is no available national or international evidence showing the impact (reduction of DALYs) of governance related interventions to calculate the cost per DALY saved.

Table 5.4: Cost per DALY saved by options in the five study districts

	Options	Total cost (additional)	Additional DALYs saved	Cost for additional DALY saved in NPR	Cost per additional DALY saved in USD
Option 1	Removing socio-cultural barriers	13,483,898	9,619	1,402	14.30
Option 2	Removing journey related barriers	12,673,066	3,988	3,177	32.42
Option 3	Removing service and governance related barriers	46,050,875	9,854	4,673	47.69
	Total	72,207,838	23,462	3,078	31.40

Annualized capital cost accounts for 17%and recurrent cost 83% of the total cost. Capital costs mostly cover the building and equipment costs of the additional birthing centres.

Table 5.5: Additional capital and recurrent costs

	Total cost	Percentage
Annualized capital cost	12,416,404	17
Recurrent cost	59,791,434	83
Total	72,207,838	100

5.2.3 Discussion and Conclusions

The additional cost per DALY saved from these MNCH interventions is estimated at USD 31.

RTI international (2007) showed that per-capita public expenditure on health was double in mountain area (NPR 265) in Nepal where access is difficult compared to Terai areas (NPR 136). On the supply side, the cost of delivering health care services to remote areas is significantly higher due to the remote allowances paid to personnel and the higher costs of transporting drugs and medical supplies. Construction costs for birthing centres in remote areas are similarly higher. On the demand side, more FCHVs are needed to educate mothers' groups on danger signs and the importance of MNCH services. This significantly increases the cost of removing social and cultural barriers in communities. Communication and transportation costs further increase the cost for referrals. Stanley-Davies et al. (2008) showed that the cost of setting up a standalone service and providing outreach services in remote communities is about 20% more costly than transporting clients to a centralized facility. We have presented here the costs per DALY of the different recommendations for increasing access to and use of MNCH services in remote area. They are all important to reduce the maternal, neonatal and under five mortalities. In an unconstrained funding scenario, all four could be implemented. However,

in Nepal's resource-constrained environment, priority should be given to the demand side interventions (removing social, cultural and journey related barrier) and less to the supply side(removing MNCH service and governance barriers), because more DALYs can be saved through the former.

5.3 THE WAY AHEAD

There are various proven, innovative and global evidence-based interventions that could help reach unreached and marginalised populations, and have yet to be tested in remote locations of Nepal. In addition to the policy level recommendations above, the findings of this study point to a number of potential implementation strategies and interventions that can improve access to MNCH services in remote areas of Nepal. This requires: i) strengthening the functioning of the health system in remote areas to provide the enabling environment and ii) specific facility and community based interventions that could well bring the greatest gains in reducing maternal, neonatal and child health deaths in remote areas.

5.3.1 District health system strengthening in remote areas to improve access to and use of MNCH services

Improved programming for remote areas needs to take a district-based approach given the importance of the continuum of care for MNCH service provision, and the importance of referrals from communities and health posts and SHPs to referral level facilities for managing complications and emergencies. Strengthening district health systems in remote areas will enable improved availability, quality and responsiveness of services. In addition to the on-going national level health system strengthening including on human resource management, health financing, infrastructure, procurement, and monitoring and evaluation, there is a need for tailored inputs for remote districts, especially on planning and management.

Recommendations: Based on the study findings and global and national evidence it is recommended that the following district level health systems strengthening activities are undertaken to enable improved access to and the delivery of MNCH service in remote districts:

1. *Planning* — Make district level planning context specific and DHO-led. Ensure that this planning addresses barriers to access at different levels of the health system from the community to referral hospitals, and involves multisectoral stakeholders. In this context it is important to strengthen reproductive health coordination committees (RHCCS) and improve coordination with other sectors and external stakeholders (civil society organisations and the private sector) for improved road, transport and communication networks, and support for emergency care. Gather more evidence for planning, monitoring and supervision to support this work.
2. *AWPB funds*— Leverage and implement existing annual workplan and budget (AWPB) activities (e.g. medical abortions, obstetric first aid, CEONC fund, social audit, EAP, airlifts) in remote areas. Such activities also need to be included in future district plans and incoming years' MoHP AWPB.
3. *Context-specific programming*— Fine tune technical interventions to fit the contexts of remote areas, including how to promote safe deliveries in isolated communities without reasonable

access to birthing centres. This should include adapting technical programme guidelines as appropriate.

4. *District grants*— Provide flexible funds to DHOs for implementing tailored, evidence-based activities in remote locations targeted at improving access to and the use of MNCH services.
5. *Management staff*— Appoint additional management staff to support DHOs and DPHOs to implement and monitor remote area activities. FHD/CHD or supporting agencies should support the needed extra human resources (officers/coordinators).
6. *Partnerships*— NGOs, community based organisation and the private sector are key partners for improving access to and use of services in remote areas. The selection of such partners should be undertaken in consultation with district and central level health authorities.

5.3.2 Intervention packages for improving access to and use of MNCH services in remote areas of Nepal in one pilot district

In addition to the proposed policy level and health system changes, it is recommended that the following package of interventions be tested to inform the development of strategies for increasing access to, and the use of MNCH services in remote areas under NHSP-3. A core package of interventions is proposed with one additional activity that builds on this core. It is proposed that the main package of interventions is tested in one of the focal study districts from where information on barriers to access has already been collected by this study.

Core package for piloting in one district

At district hospitals:

1. Enhance staffing, funding, equipment and supplies to ensure availability and functionality of CEONC services in district hospitals.
2. Provide referral funds and airlift service for obstetric complication cases where CEONC service cannot be ensured 24/7.

At health facilities:

3. Prioritise and select facilities in remote areas of districts to be upgraded to birthing centres based on criteria such as geographical location and accessibility, and ensuring functionality. Include medical abortions and long term family planning methods in remote birthing centres.
4. Strengthen and motivate HFOMCs to mobilise local resources (for local staff recruitment and to create an enabling environment for staff and users) and improve the governance of health facilities.
5. Train locally recruited staff on MNCH competencies.
6. Provide obstetric first aid at all health facilities.
7. Where health workers cannot be maintained through DHOs in remote areas, an NGO may be contracted to support health facility functioning at selected remote VDCs within districts. These NGO would be responsible for supporting the most remote health facilities to fill staff gaps as well as to facilitate the distribution of commodities and supplies from the district level.

In communities:

Implement EAP Plus (EAP adapted to include women groups empowerment with discussion on danger signs and means of overcoming the first and second delays, community mobilisation and community level service strengthening), which may include the following community-based interventions:

8. District behaviour change communication (BCC) planning and implementation to adapt the national BCC strategy for MNCH and family planning to local contexts.
9. Mobilise groups including women's groups and discuss danger signs during pregnancy, child birth and for new born, linked with community based emergency funds, and community-led transport solutions.
10. Support and strengthen FCHVs particularly to undertake home visits in the postpartum period. Where FCHVs are unable to perform home visits, test out the use of lay persons to undertake this function.
11. Mobilise husbands, community leaders and traditional healers for promoting the access of women and children to MNCH services.
12. Increase the frequency and number of outreach clinics (EPI and PHC-ORC) and the functionality of these clinics.

An alternative option may be to include postnatal home visits by a lay person in the EAP package especially in places where institutional delivery is low.

Additional activity:

Phase wise expansion and implementation of community-based (FCHV-based) MNCH interventions such as community based IYCF, revised CBNCP, misoprostol in the pilot district.

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ANNEX 1: THE 13 SELECTED COMMUNITIES IN CATCHMENTS OF SAMPLE HEALTH FACILITIES

	District	Type of study area	Health facility	VDC	Sample settlement in health facility catchment		
					Name	Ward no.	Most common ethnic/caste groups
1	Bajura	District HQ	Bajura District Hospital	Martadi	Dhamkane	1	Chhetri
2	Bajura	Less than 8 hrs travel from HQ	Jugada health post (with birthing centre)	Jugada	Tandakot, Ghatmune, Basala	7	Chhetri, Dalit, Brahmin
3	Bajura	More than 8 hrs travel from	Kanda health post (with birthing centre)	Kanda	Singra	1	Chhetri, Dalit
4	Gorkha	Less than 8 hrs travel from HQ	Thumi health post	Thumi	Semrang	7	Chhetri, Brahmin, Gurung, Dalit
5	Gorkha	More than 8 hrs travel from HQ	Sirdibas health post with birthing centre	Sirdibas	Pangsing	3,4, 5	Gurung
6	Rasuwa	District HQ	Rasuwa District Hospital	Dhunche	Lambu	8, 9	Tamang, Newar
7	Rasuwa	Less than 8 hrs travel from HQ	Syaphru Besi health post (with birthing centre)	Syaphru Besi	Thulo Syaphru	3, 7, 8	Tamang
8	Rasuwa	Exactly 8 hrs travel from HQ	Yarsha health post	Yarsha	Nagung	6, 7, 8	Tamang
9	Rukum	Less than 8 hrs travel from HQ	Sankh SHP (with birthing centre)	Sankh	Kapribas, Ghorkhani	6	Magar, Chhetri, Dalit
10	Rukum	More than 8 hrs travel from HQ	Taksera SHP (with birthing centre)	Taksera	Ghumlibang	6	Magar, Dalit
11	Taplejung	District HQ	Taplejung District Hospital	Phungling	Lahare	1	Limbu, Sherpa, Tamang
12	Taplejung	Less than 8 hrs travel from HQ	Phurumbu SHP	Phurumbu	Othe Tol, Rai Tol	6	Limbu, Chhetri (Bista), Tamang
13	Taplejung	More than 8 hrs travel from HQ	Mahasring health post (with birthing centre)	Thukimba	Okhar Tol	7, 8	Limbu, Sherpa

ANNEX 2: DISCUSSION POINTS FOR INTERVIEWS AND FOCUS GROUP DISCUSSIONS

Informed consent form

- Namaste! My name is Devi Prasai/Maureen Dariang. I am working for Family Health Division, Department of Health Services to collect data for increasing access to maternal, newborn and child health. During this data collection, I will ask you some questions that will be about MNCH. It is important that you provide correct information. The information given by you will be strictly treated as confidential. Nobody will know whatever we talk about because your name will not be mentioned on this form. All the mentioned information will be used only for the assessment purpose. This will take about half an hour/an hour.
- Your participation in this assessment is voluntarily. There is no any possible risk and direct benefit for you. It depends on your wish to participate in this assessment. You may end this interview at any time you want to. But I hope you will participate in this interview and make it a success by providing correct answers to all the questions.
- Would you be willing to participate?
- 1. Yes 2. No
- Signature of the Respondent: _____ Date:_____/_____/2013
- Signature of the interviewer: _____ Date:_____/_____/2013

The following annexes are given in a separate document:

Annex 2.1 Interviews with Central Level Stakeholders

Annex 2.2: Interviews with District Health Officers

Annex 2.3: Interviews with INGO and NGO Representatives

Annex 2.4: Interviews with Health Facility Management Committee Members

Annex 2.5: Focus Group Discussions with Local Women

Annex 2.6: Interviews with Woman Clients

Annex 2.7: Interviews with Husbands

Annex 2.8: Interviews with Mother-in-Laws

Annex 2.9: Interviews with Female Community Health Volunteers

ANNEX 3: TOOLS FOR COLLECTING QUANTITATIVE INFORMATION IN PHASE 2 OF THE STUDY

The following annexes are given in a separate document:

Annex 3.1: Quantitative Tools for DHO on District Hospitals

Lists of data collected for whole district:

Table 1 Institutional delivery for each BC month wise for whole year (from DHO)
Table 2 Institutional delivery at hospital for 12 months (from hospital)
Table 3.1 HR information of district hospital
Table 3.2 HR information on DHO office
Table 3.3 HR information from records at selected HPs/SHPs
Table 4 Hospital management committee
Table 5 I/NGO working in the district (from district stakeholders)
Table 6 Catchment population: Collect from DDC/ DHO by ethnic groups
Table 7 Availability of services at district hospital
Table 8 Delivery care services availability (district hospital)
Table 9 Referral (district hospital)
Table 10 Access to phone network connection and travel distance
Table 11 Service utilization data – MNCH (Source: DHO - HMIS)
Table 12 Target population size (from DHO)
Table 13 Essential drugs (observation) (quantity) (from District hospital)
Table 14 Equipment (observation) (quantity) (from District hospital)

Annex 3.2: Quantitative Tools for DHO on Health Facilities

Table 1 Members of health facility development management committees
Table 2 Catchment population: Collect from VDC
Table 3A Availability of services - MNCH (health facility level)
Table 3B Availability of services - Delivery care services
Table 4 Distance to the service centres from wards
Table 5 I/NGOs working in the VDC
Table 6 VDCs where MNCH service delivery is affected by snowfall
Table 7 Out and in referrals
Table 8 Service utilization data – MNCH (Source: HMIS)
Table 8.1 Target population size: 2068/69 year
Table 9 Trend data
Table 10 All IMCI cases
Table 11 Essential drugs (observation)(quantity)
Table 12 Equipment (observation)(quantity)
Table 13 Human resources
Table 14 FCHV profile
Table 15 Profile of women delivered at the health facility

ANNEX 4: CALCULATIONS MADE TO DEFINE WHICH DISTRICTS ARE REMOTE IN NEPAL

Annex Table 4.1: Road access in remote areas (from least to most)

	District	Belt	Population	Total land area (km^2)	Total road length (km)	Black top	Gravel	Earthen	Ratio of road length to area
1	Dolpa	Mountain	36,700	7,889	0	0	0	0	0.00
2	Mugu	Mountain	55,286	3,535	0	0	0	0	0.00
3	Humla	Mountain	50,858	5,655	40	0	0	40	0.71
4	Solukumbhu	Mountain	105,886	3,312	37.2	0	0	37.2	1.12
5	Taplejung	Mountain	127,461	3,646	46.5	29.5	0	17	1.28
6	Manang	Mountain	6,538	2,246	30	0	0	30	1.34
7	Myagdi	Hill	113,641	2,297	31	0	10	21	1.35
8	Bajura	Mountain	134,912	2,188	43	13	0	30	1.97
9	Bajhang	Mountain	195,159	3,422	79.08	30.4	0.3	48.36	2.31
10	Jumla	Mountain	108,921	2,531	85	0	0	85	3.36
11	Darchula	Mountain	133,274	2,322	78.42	10	50	18.42	3.38
12	Sankhuwasabha	Mountain	158,742	3,480	134.7	47.7	25	62	3.87
13	Parsa	Flat	601,017	1,353	52.82	37.8	13	2	3.90
14	Lamjung	Hill	167,724	1,692	72.04	19.2	1	51.87	4.26
15	Rasuwa	Mountain	43,300	1,544	66.2	40.5	10	15.7	4.29
16	Kalikot	Mountain	136,948	1,741	77	0	0	77	4.42
17	Gorkha	Hill	271,061	3,610	177.24	26.8	40.5	109.9	4.91
18	Ramechhap	Hill	202,646	1,546	77	44	0	33	4.98
19	Mustang	Mountain	13,452	3,573	181	0	0	181	5.07
20	Jajarkot	Hill	171,304	2,230	118	0	0	118	5.29
21	Kaski	Hill	492,098	2,017	112.96	87.5	5	20.5	5.60
22	Dolakha	Mountain	186,557	2,191	136.68	106.7	10	20	6.24

Source: DoR (2011) Strategic Road Network

Annex Table 4.2: Population densities in mountain and some hill districts of Nepal (2011)

	Districts	Belt	Population	Area (km^2)	Population density
1	Manang	Mountain	6,538	2,246	3
2	Mustang	Mountain	13,452	3,573	4
3	Dolpa	Mountain	36,700	7,889	5
4	Humla	Mountain	50,858	5,655	9
5	Mugu	Mountain	55,286	3,535	16
6	Rasuwa	Mountain	43,300	1,544	28
7	Solukhumbhu	Mountain	105,886	3,312	32
8	Taplejung	Mountain	127,461	3,646	35
9	Jumla	Mountain	108,921	2,531	43
10	Sankhuwasabha	Mountain	158,742	3,480	46
11	Myagdi	Hill	113,641	2,297	49
12	Bajhang	Mountain	195,159	3,422	57
13	Darchula	Mountain	133,274	2,322	57
14	Bajura	Mountain	134,912	2,188	62
15	Rukum	Hill	208,567	2,877	72
16	Gorkha	Hill	271,061	3,610	75
17	Jajarkot	Hill	171,304	2,230	77
18	Kalikot	Mountain	136,948	1,741	79
19	Dolakha	Mountain	186,557	2,191	85

Source: Census 2011, (CBS 2012)

Annex Table 4.3: Average catchment area of public health institutions and presence of NGOs in remote districts

Rank	Districts	Belt	Total area (Km^2)	SHP	HP	PHCC	Hospital	Total facilities	Average catchment area (Km^2)	No. of NGOs
1	Dolpa	Mountain	7,889	14	9	0	1	24	328.7	0
2	Mustang	Mountain	3,573	7	8	1	1	17	210.2	1
3	Humla	Mountain	5,655	16	10	0	1	27	209.4	4
4	Manang	Mountain	2,246	4	9	0	1	14	160.4	5
5	Mugu	Mountain	3,535	16	8	1	1	26	136.0	4
6	Solukhumbhu	Mountain	3,312	23	9	2	1	35	94.6	4
7	Sankuwasabha	Mountain	3,480	25	11	2	1	39	89.2	1
8	Jumla	Mountain	2,531	20	8	1	1	30	84.4	2
9	Rasuwa	Mountain	1,544	9	8	1	1	19	81.3	1
10	Bajura	Mountain	2,188	15	11	1	1	28	78.1	1
11	Kanchanpur	Terai	1,610	10	8	3	1	22	73.2	3
12	Dang	Terai	2,955	26	10	3	2	41	72.1	3
13	Kailali	Terai	3,235	31	7	5	2	45	71.9	4
14	Bajhang	Mountain	3,422	35	10	2	1	48	71.3	1
15	Taplejung	Mountain	3,646	43	8	2	1	54	67.5	2
16	Rukum	Hill	2,877	34	7	2	1	44	65.4	0
17	Jajarkot	Hill	2,230	25	7	2	1	35	63.7	0
18	Bardiya	Terai	2,025	22	8	3	1	34	59.6	16
19	Kalikot	Mountain	1,741	19	9	1	1	30	58.0	0
20	Dadeldhura	Hill	1,538	15	9	1	2	27	57.0	5
21	Myagdi	Hill	2,297	31	8	1	1	41	56.0	2
22	Darchula	Mountain	2,322	29	11	1	1	42	55.3	0
23	Makawanpur	Hill	2,426	30	10	4	1	45	53.9	7
24	Chitwan	Flat	2,218	31	5	4	2	42	52.8	29
25	Gorkha	Hill	3,610	55	10	3	2	70	51.6	6
26	Banke	Terai	2,337	35	10	3	1	49	47.7	4
27	Surkhet	Hill	2,451	38	9	4	1	52	47.1	6
28	Sindhuli	Hill	2,491	42	10	3	1	56	44.5	2
29	Udayapur	Hill	2,063	35	9	2	1	47	43.9	3
30	Kaski	Hill	2,017	34	11	3	1	49	41.2	3
31	Dolakha	Mountain	2,191	43	9	2	1	55	39.8	4

Source: HMIS (2012); CBS (2012)

Annex Table 4.4: Remote districts according to Nepal's health and civil service acts

	Remote district	Belt	Categorized as remote by:	
			The Health Services Act	The Civil Service Act
1	Taplejung	Mountain	A1, A2	A
2	Solukhumbhu	Mountain	A1, A2	A
3	Rasuwa	Mountain	A2, B1	A
4	Manang	Mountain	A1, A2	A
5	Mustang	Mountain	A1, A2	A
6	Rolpa	Hill	A1, A2	A
7	Rukum	Hill	A1, A2	A
8	Jajarkot	Hill	A1, A2	A
9	Dolpa	Mountain	A1, A2	A
10	Jumla	Mountain	A1, A2	A
11	Kalikot	Mountain	A1, A2	A
12	Mugu	Mountain	A1 ,A2	A
13	Humla	Mountain	A1, A2	A
14	Bajura	Mountain	A1, A2	A
15	Bajhang	Mountain	A1, A2	A
16	Darchula	Mountain	A1 ,A2	A
17	Sankhuwasabha	Mountain	A1, A2	A, B
18	Dolakha	Mountain	A1 A2	A, B
19	Dhading	Hill	A1, B1	A, C
20	Gorkha	Hill	A1, B1	A, C

Sources: HMGN 1993 and 1997

Annex Table 4.5: Remote districts defined under study Option A with criteria

Rank	District	Ecological belt	Road length: <6.5 km/km^2 or no black top roads	Pop. density <80/ km^2	Catchment area >52 km^2	Remote under Civil Service Act	Remote under Health Act
1	Dolpa	Mountain	0	5	328.7	A	A1, A2
2	Mugu	Mountain	0	9	136	A	A1, A2
3	Humla	Mountain	0.71	16	209.4	A	A1 ,A2
4	Solukhumbhu	Mountain	1.12	32	94.6	A	A1 ,A2
5	Taplejung	Mountain	1.28	35	67.5	A	A1, A2
6	Manang	Mountain	1.34	3	160.4	A	A1 ,A2
7	Myagdi	Hill	1.35	49	56	B	A2, B1
8	Bajura	Mountain	1.97	62	78.1	A	A1, A2
9	Bajhang	Mountain	2.31	57	71.3	A	A1, A2
10	Jumla	Mountain	3.36	43	84.4	A	A1, A2
11	Darchula	Mountain	3.38	57	55.3	A	A1, A2
12	Sankhuwasabha	Mountain	3.87	46	89.2	A	A1, A2
13	Rasuwa	Mountain	4.29	28	81.3	A	A2, B1
14	Kalikot	Mountain	4.42	79	58	A	A1, A2
15	Gorkha	Hill	4.91	75	51.6	A, C	A1, B1
16	Mustang	Mountain	5.07	4	210.2	A	A1, A2
17	Jajarkot	Hill	5.29	77	63.7	A	A1, A2
18	Rukum	Hill	6.44	72	65.4	A	A1, A2

**For government health facilities*

Annex Table 4.6: Remote districts defined under study Option B with criteria

	Districts	Belt	Road length (KM/ 100KM2)	Population density	Average catchment area Sq.KM	Transport cost as % of price of food	Defined by Health Act	Defined by Civil Service Act
1	Dolpa	Mountain	0.00	0.0	328.7	95.08	A1,A2	A
2	Mugu	Mountain	0.00	15.6	136	50.88	A1,A2	A
3	Humla	Mountain	0.71	9.0	209.4	162.45	A1,A2	A
4	Solukhumbu	Mountain	1.12	32.0	94.6	20.26	A1,A2	A
5	Taplejung	Mountain	1.28	35.0	67.5	12.14	A1,A2	A
6	Manang	Mountain	1.34	22.5	160.4	67.08	A1,A2	A
7	Myagdi	Hill	1.35	49.5	56	NA	A2,B1	B
8	Bajura	Mountain	1.97	61.7	78.1	17.24	A1,A2	A
9	Bajhang	Mountain	2.31	57.0	71.3	43.80	A1,A2	A
10	Jumla	Mountain	3.36	43.0	84.4	26.19	A1,A2	A
11	Darchula	Mountain	3.38	57.4	55.3	69.55	A1,A2	A
12	Sankhuwasabha	Mountain	3.87	45.6	89.2	12.36	A1,A2	A,B
13	Lamjung	Hill	4.26	99.1	27.7	NA	A2,B1	B
14	Rasuwa	Mountain	4.29	28.0	81.3	NA	A2,B1	A
15	Kalikot	Mountain	4.42	78.7	58	18.83	A1,A2	A
16	Gorkha	Hill	4.91	75.1	51.6	8.41	A1,B1	A,C
17	Ramechhap	Hill	4.98	131.1	28.1	NA	A2,B1	B
18	Mustang	Mountain	5.07	35.7	210.2	18.79	A1,A2	A
19	Jajarkot	Hill	5.29	76.8	63.7	12.00	A1,A2	A
20	Kaski	Hill	5.60	244.0	41.2	NA	B2,C1	D
21	Dolakha	Mountain	6.24	85.1	39.8	NA	A1, A2	A,B
22	Rukum	Hill	6.44	72.5	65.4	12.37	A1,A2	A
23	Okhaldhunga	Hill	6.68	137.8	19.2	17.69	A2,B1	B
24	Bhojpur	Hill	7.70	121.1	23.5	14.73	B1, B2	B
25	Rolpa	Hill	8.32	119.	36.1	11.59	A1,A2	A

ANNEX 5: OTHER BACKGROUND INFORMATION ON PROGRAMMES, STRATEGIES AND POLICIES TO IMPROVE HEALTH SERVICE UPTAKE IN REMOTE AREAS OF NEPAL

	Policies and programmes	Description of relevance to remote areas
	Female community health volunteers (since the late 1980s)	FCHVs provide health education and home based maternal and child health and family planning services. The about 50,000 FCHVs work as a bridge between communities and health facilities. They play an important role in community based MNCH services such as distributing vitamin A and deworming tablets to children, national immunisation days, and supplying condoms and oral contraceptives. They mobilise women and form women's groups as a basis for education and motivation. A number of health interventions in Nepal are provided through FCHVs including the Community Based Integrated Management of Childhood Illness (CB-IMCI), the Community Based Newborn Care Package (CB-NCP), and the birth preparedness package.
	The Equity and Access Programme (since 2006)	EAP is a targeted programme to reach the unreached built on a tried and tested package of the following inputs: 1. Form and strengthen women's and mothers' groups and networks. 2. Increase women's and their family's knowledge and confidence to identify and take action against maternal and newborn health problems, and facilitate their access to health services and incentives provided by the government. 3. Develop localised behaviour change communications to mobilise communities. 4. Support women and communities to mobilise local resources to prepare for health emergencies (such as by establishing community emergency funds), and to establish community-led transport mechanisms for increasing access to health care. 5. Orientate health service providers and managers on rights based development and strengthen their communication skills to deliver non-discriminatory services and to respond to communities' health needs. 6. Build the capacity of local organisations, including HFOMCs and NGO implementing partners. 7. Strengthening linkages between communities and their local health service providers, HFOMCs and local governments to demands more health resources and greater responsiveness. 8. Foster local change agents and forge local coalitions for change including in DDCs, reproductive health coordination committees (RHCCs), VDCs, political parties, NGOs, community based organisations (CBOs) and women's groups and among FCHVs.
	Primary health care outreach clinics (from 1994)	These outreach clinics have increased access to family planning, MNCH and child health services in rural areas. Local health workers provide basic services at these clinics such as ANC, PNC, newborn care, family planning, growth monitoring, pneumonia treatment and diarrhoea treatment, plus health education and counselling.
	The National Newborn Health Strategy (2004)	This strategy calls for providing essential newborn care to improve the health and survival of newborns by improving health practices, reducing harmful practices and strengthening the quality of promotive, preventive and curative newborn care. The Community Based Newborn Care Package (2008/09) (see below) was a key initiative for implementing this strategy..
	National Neonatal Health Strategy (2004)	Health education and behaviour change communication is a major component of this strategy.

	Policies and programmes	Description of relevance to remote areas
	The Safe Motherhood and Neonatal Health Long Term Plan (2006-2017)	This plan calls for training skilled birth attendants and expanding CEONC services to 60 districts, BEONC services to 80% of PHCCs, and having birthing centres in 70% of health posts.
	Incentives for delivering in health facilities (since 2006)	The demand for institutional delivery was initially increased by the introduction of the Maternity Incentives Scheme (2006), which covered the transport costs of women who delivered in a health facility. This became the Safe Delivery Incentive Programme (SDIP) in 2007 adding incentives for health workers to care for institutional and home deliveries, with free institutional delivery care in 25 low HDI districts. The resulting increase in institutional deliveries in these districts led to the launching of the more comprehensive Aama Programme in 2009.
	The Community Based Newborn Care Package (CB-NCP) (2008/09)	This package delivers and promotes behaviour change communication for newborn health, institutional deliveries and clean delivery practices, postnatal home visits, community case management of neonatal infections, care of low birth weight newborns, prevention and management of hypothermia, and the recognition of asphyxia and resuscitating asphyxia cases. FCHVs are expected to manage necessary interventions.
	MNCH Communication Strategy (2011)	Health education and behaviour change communication is a major component of this strategy.

ANNEX 6: OTHER DATA ON POLICIES, STRATEGIES AND PROGRAMMES TO IMPROVE SERVICES IN REMOTE AREAS

Note: this data relates to Section 2.4 of this report.

Annex Table 6.1 District coverage of partner support for MNCH services in Nepal, 2011/12*

Note: This is not a full list of partners, as those who provide support at the national level (such as WHO) are not included.

			Programme coverage		
Partner	**Support programme**	**No. of districts**	**% of mountain districts (n = 16)**	**% of hill districts (n = 39)**	**% of Terai districts (n = 20)**
UNICEF	MNCH	15	44% (n=7)	8% (n=3)	25% (n=5)
UNFPA	ASRH/RH	18	13% (n=2)	21% (n=8)	40% (n=8)
Health for Life	MNCH	14	19% (n=3)	21% (n=8)	15% (n=3)
GIZ	ASRH	10	6% (n=1)	13% (n=5)	20% (n=4)
Su-ahaara	Nutrition	20	69% (n=11)	18% (n=7)	10% (n=2)
Save the Children International	MNCH/ASRH	8	6% (n = 1)	8% (n = 3)	20% (n = 4)
Care Nepal	MNCH	3	0	5% (n=2)	5% (n=1)
One Heart International	MNH	1	6% (n=1)	0	0
Health Rights International	MNCH	2		3% (n=1)	5% (n=1)
Family Planning Association of Nepal	RH	32	19% (n=3)	49% (n=19)	100% (n=20)
Population Services International (PSI)	Social franchising IUCD	47	38% (n = 6)	54% (n = 21)	100% (n = 20)
CRS Nepal	Social marketing of family planning (CRS)	75	100% (n=16)	100% (n=39)	100% (n=20)
Ipas	Abortion	75	100%	100%	100%

Acronyms: ASRH = adolescent sexual and reproductive health, RH = reproductive health
Sources: FHD, CHD and partners

Annex Table 6.2: The phased scaling up of the Community based Newborn Care Package (CB-NCP) (2008/09 to 2012/13)

Implementing districts	Mountain (16)	Hill (39)	Terai (20)
Piloting 2008/09	0	4	6
2009/10	4	4	7
2010/11	2	4	4
2011/12	0	7	2
2012/13	1	2	0
Total districts (%)	**7 (44%)**	**21 (54%)**	**19 (95%)**

Source: IMCI section of CHD