Assessment of the Community-Based Newborn Care Package

August 2012

Government of Nepal
Ministry of Health and Population
Department of Health Services
Child Health Division
Teku, Kathmandu

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PREFACE

There has been significant improvement in the health status of children in Nepal with continued support of multiple donors and partners. The Government of Nepal has been successful in developing and implementing high-impact, community-based interventions as a result of which, there has been a drastic reduction in child and infant mortality rates. However, owing to high neonatal deaths, which was 53 percent of under-five mortality in 2006, the Ministry of Health and Population (MoHP) and partners developed a community-based newborn care package (CB-NCP) based on the international, regional and in-country evidence which addressed major conditions contributing to newborn deaths. It contained a set of complementary strategies and interventions to promote newborn health in Nepal.

Although CB-NCP was intended to be piloted in 10 districts with careful management and monitoring, it was quickly scaled up. An assessment was initiated in 2011 to synthesize learning to date and evaluate the effectiveness of the package. An advisory group led by the Director General of the Department of Health Services (DoHS) was formed which provided overall leadership and guidance to the process. An assessment reference group (ARG) consisting of members from key partner agencies and implementing partners worked in developing terms of reference for the CB-NCP assessment, finalization of the assessment tools and overall monitoring of the process

The aim of the assessment was to strengthen the on-going and future newborn programmes by systematically generating and disseminating evidence on CB-NCP experiences from the pilot districts. The focus was to examine overall CB-NCP programme planning, implementation process, achievements and results and to generate recommendations for effective implementation. It was agreed that the recommendations from the assessment would be used by MoHP, UN agencies, donors, I/NGOs for strengthening existing programmes as well as for advocating for leveraging resources for effective newborn strategies and interventions in new districts.

An independent international consultant was hired for the assessment as a team leader and worked with a team of local consultants to support the qualitative study and analysis of HMIS data. Data from 10 pilot districts were used for from variety of sources including the Household Survey, Newborn Health Information System, National Demographic Health Survey 2011, Health Management and Information System, post-training follow-up, technical support visits and CB-NCP qualitative study. The assessment was managed by CHD and jointly funded by UNICEF, the United States Agency for International Development (USAID)-funded Maternal and Child Health Integrated Program (MCHIP)-Jhpiego, USAID, Save the Children, and USAID-funded Nepal Family Health Program II (NFHP II).

During its development, there was involvement of wider group of stakeholders with representatives from different Divisions and Centers of Department of Health Services (Family Health Division/ Child Health Division/ Health Management Information System/ National Health Education Information and Communication Center/ Logistic Management Division /National Health Training Center), external development partners, I/NGOs, implementing partners, academicians though series of workshops, meetings and group work.

This report summarized the assessment findings and its conclusions which will guide the country to institutionalize effective interventions and strengthen others to maximize the impact on newborn health.

It is a very useful resource document to rethink our national strategies on newborn health—balancing community-based and facility-level services to reach mothers and newborns in need.

Child Health Division and Family Health Division are very thankful to the Director General of DoHS for the guidance and leadership in this process. We would like to acknowledge the efforts and support of Robert McPherson (assessment team leader) the local consultants, members of the technical working groups and all the other stakeholders involved in the process. We are thankful to UNICEF, MCHIP-Jhpiego, USAID, Save the Children and NFHP II for providing funds and technical assistance for this assessment. We also appreciate the role of CB-NCP Secretariat in coordinating the assessment process.

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Abbreviations

ANC	Antenatal Care
ANM	Auxiliary Nurse Midwife
ARG	Assessment Reference Group
BA	Birth Asphyxia
BCC	Behavior Change Communication
BL	Baseline
BPP	Birth Preparedness Package
CB-IMCI	Community-based Integrated Management of Childhood Illnesses
CB-NCP	Community-based Newborn Care Package
CDK	Clean Delivery Kit
CDO	Chief District Officer
CHD	Child Health Division
CHW	Community Health Worker
CHX	Chlorhexidine
CMA	Community Medical Assistant
DDC	District Development Committee
DFP	DHO Focal Person
DHO	District Health Office/Officer
DoHS	Department of Health Services
DPHO	District Public Health Office/Officer
DTOT	District Training of Trainers
EDD	Expected Date of Delivery
EL	Endline
ENC	Essential Newborn Care
EQ	Evaluation Question
FCHV	Female Community Health Volunteer
FHD	Family Health Division
FUT	Follow-up after training
GoN	Government of Nepal
HF	Health Facility
HFOMC	Health Facility Operation Management Committee
HHS	Household Survey
HiC	Hospital in-charge
HMIS	Health Management Information System
HW	Health Worker
IMCI	Integrated Management of Childhood Illnesses
IH	Infection-related Hypothermia
IRHDTC	Integrated Rural Health Development Training Center

KMC	Kangaroo Mother Care
KPC	Knowledge Practice Coverage
LBI	Local Bacterial Infection
LBW	Low birthweight
LMD	Logistics Management Division
LMP	Last Menstrual Period
MCHW	Maternal Child Health Worker
MINI	Morang Innovative Neonatal Intervention Program
MNCHN	Maternal Neonatal Child Health and Nutrition
MNH	Maternal and Newborn Health
MoHP	Ministry of Health and Population
MT	Master Trainers
NCP	Newborn Care Package
NDHS	Nepal Demographic and Health Survey
NDM	NGO District Manager
NEPAS	Nepal Pediatric Society
NESOG	Nepal Society of Obstetricians and Gynecologists
NFHP II	Nepal Family Health Program II
NGO	Nongovernmental Organization
NHEICC	National Health Education, Information and Communication Center
NHIS	National Health Information System
NHTC	National Health Training Center
NR	Nepali Rupee
PHC	Primary Health Care
PHCC	Primary Health Care Center
PNC	Postnatal Care
PSBI	Possible Severe Bacterial Infection
PWG	Pregnant Women Group
QS	Qualitative Study
RR	Relative Risk
SBA	Skilled Birth Attendant
TH	Thermal Hypothermia
TSV	Technical Support Visits
TWSG	Technical Working Sub-Group
UNICEF	United Nations Children's Fund
USD	United States Dollar
VDC	Village Development Committee
VHW	Village Health Worker
VLBW	Very Low Birthweight
WHO	World Health Organization

Executive Summary

Background

The Community-Based Newborn Care Package (CB-NCP) is a set of complementary strategies and interventions that aims to reduce neonatal mortality in Nepal. The CB-NCP has been designed and implemented by the Department of Health Services (DoHS) of the Ministry of Health and Population (MoHP) with the support of a wide range of partner agencies. At the heart of the CB-NCP are seven interventions that are designed to reduce neonatal mortality: behavior change communication, promotion of facility delivery, postnatal care, and management of newborns that suffer from one of four conditions that contribute substantially to newborn mortality: birth asphyxia, hypothermia, low birthweight, and infection. The CB-NCP implements interventions through community-based strategies and has expanded the role of the FCHV in managing newborns with health problems. The CB-NCP was initially introduced in ten "pilot" districts in the terai and middle hill regions of Nepal. This report documents the results of an assessment of the first two years of implementation of the CB-NCP in those ten districts and seeks to provide guidance for the next stage of the program.

Structure of the report

The assessment was designed by the CB-NCP Assessment Reference Group (ARG). The ARG identified 54 evaluation questions that have been grouped into 17 thematic chapters. The summary findings and conclusions for each of the 17 thematic chapters in this document have been placed at the beginning of the chapters for convenient reference. Detailed findings for each evaluation question in the chapter follow the summary findings and conclusions. The report concludes with the presentation of a set of overarching conclusions.

Due to the large number of evaluation questions and length of the summary findings, this executive summary is limited to the presentation of a succinct overview of the findings and conclusions of the assessment. Readers are referred to the individual chapters for content-specific summary findings and conclusions.

Overarching findings and conclusions

Overarching findings and conclusions from the CB-NCP assessment include the following:

- **Value of the assessment:** The CB-NCP represents the most important effort to date to reduce newborn mortality in Nepal. The assessment of the CB-NCP has yielded a wealth of information that can be used to revise and strengthen the program in the future.

- **Rapidly moving from pilot to scale up:** A pilot project is generally characterized by carefully managed implementation supported by a strong monitoring component. Although the initial phase of the CB-NCP was planned to be a "pilot", it was accelerated quickly into a scale-up—a scale-up based on a model that had not been piloted and evaluated.

- **Caretakers' preferences for trained providers:** Evidence from this assessment suggests that most caretakers prefer to receive newborn care services at health facilities and from more highly trained health workers. The CB-NCP may increase its effectiveness if it focuses more future effort on increasing the capabilities of facility based health workers and devotes fewer resources to training FCHVs to provide basic case management.

- **Role of FCHVs in CB-NCP:** What is the most appropriate role of FCHVs in districts where clients are increasingly going directly to health facilities or other providers for health care? The rationale for strong community-based approaches is changing in much of Nepal, and the value of FCHVs' engagement as health care providers may be decreasing, depending on the district. Depending on the district and the health issue, FCHVs provide services that can be placed on a continuum between health care provider and health motivator. It would be a mistake to assume that one role is appropriate for all FCHVs across Nepal—just as it would be a mistake to assume that FCHVs do not have an important role in the CB-NCP. Flexibility is called for in determining the most effective role for FCHVs, and that role will most certainly vary by district.

- **Positive achievements in selected components:** Notable improvements were observed in selected program components following the introduction of the CB-NCP. Mothers' exposure to essential newborn care (ENC) messages increased markedly as did their knowledge and practice of the associated ENC behaviors. The percentage of children born in facilities almost doubled, and there were important increases in the percentage of newborns who received postnatal care from a qualified provider.

- **Underperforming strategies and components:** Some important aspects of the CB-NCP are not performing as anticipated including the birth asphyxia and low birthweight (LBW) management components and FCHVs' role as health care provider. The resulting conclusion is that some of the most central strategies of the CB-NCP need to be reconsidered and revised as appropriate. This assessment represents a crucial opportunity to adjust the strategic direction of the program so that its goals can be achieved.

- **Flexibility in programming at the district level:** The CB-NCP was developed in the center and implemented in all districts through a one-size-fits-all approach to programming. Findings suggest that taking a more flexible approach to programming, including different approaches between districts, will achieve multiple benefits.

- **Strengthening the monitoring component of the CB-NCP:** CB-NCP monitoring data could have been more useful and more effectively used, especially given that the CB-NCP was supposed to be implemented as a pilot (during which monitoring data are usually carefully collected and used to revise program strategies and inform program management). Using key CB-NCP monitoring data to calculate the amount of the FCHV performance incentive appears to have resulted in low data quality for selected indicators and is a barrier to reducing the size of the monitoring system. Program performance will benefit if the approach to monitoring in the CB-NCP is revised as the program moves forward.

- **Shifting focus to quality implementation:** The focus of the CB-NCP to date has been on rapid scale-up. The benefit of the CB-NCP to newborns will be increased by a reduced emphasis on expansion and a renewed focus on improving the quality of programming and implementation in districts where the CB-NCP is currently being implemented.

Overview of the Assessment

The Community-Based Newborn Care Package (CB-NCP) was designed and implemented by the Department of Health Services (DoHS) of the Ministry of Health and Population (MoHP) with the support of a wide range of partner agencies. The CB-NCP has been introduced at a time of rapid demographic change in Nepal. This change has taken place in the context of a health system that is developing new infrastructure and instituting policies that improve access to key services. Although notable improvements in a wide range of health indicators have been observed across the country over the past two decades, reductions in newborn mortality have lagged, as many newborn deaths occur due to problems and conditions that are difficult to address when most births take place at home.

The stated aim of the CB-NCP is to reduce neonatal mortality as part of the effort to achieve Millennium Development Goal (MDG) 4. The rationale for the CB-NCP, as well as a description of the component interventions that form its core, are documented in the official Government of Nepal endorsement of the program. The CB-NCP was developed as a uniform package—to be implemented through an identical model in every district of the country—with a focus on community-based interventions and an expanded role of the FCHV in managing newborns with health problems. At the heart of the CB-NCP are seven interventions that are designed to reduce neonatal mortality: 1) behavior change communication (BCC); 2) promotion of facility delivery; 3) postnatal care; and management of newborns that suffer from one or more of four conditions that contribute substantially to newborn mortality: 4) birth asphyxia, 5) hypothermia, 6) low birthweight, and 7) infection. Although many of the interventions are evidence-based, they have not all been tested in Nepal—nor have they been assessed when they are combined together as components of a single complex package. Some CB-NCP components (e.g., promotion of facility delivery) are supported by other national-level programs (e.g., the maternal delivery incentive scheme).

The original vision was for the CB-NCP to be introduced as a pilot initiative in a limited number of districts. The pilot was to be carefully monitored and managed during the initial period in order to assess its progress and learn what works and what does not work. The pilot however was quickly accelerated into a scale-up, based on the original (unevaluated) pilot design—without ever passing through a true pilot phase. Stakeholders have noted significant variation in the quality and intensity of implementation among the pilot districts. This assessment is the first serious attempt to evaluate a program that is now at an accelerated stage of implementation and scale-up in close to one-third of Nepal's districts.

The assessment documented in this report was designed to measure the progress to date of the CB-NCP in the ten pilot districts and provide guidance for the next stage of the program. An Assessment Reference Group (ARG) was formed in early 2011 that included representatives from organizations and agencies that support the CB-NCP. The ARG developed a Terms of Reference (Annex 1) for the CB-NCP assessment that included a lengthy list of 54 evaluation questions. These questions, grouped into thematic groups, form the framework of this assessment.

Findings from the CB-NCP assessment that are reported below should be interpreted carefully. The CB-NCP is a FCHV-focused intervention that has been implemented at a time when the demand for facility-based care is increasing in most parts of the country. The CB-NCP is composed of a number of components, some of which are new, others which are ongoing in some or all districts in Nepal; this has implications for the interpretation of the program's impact, as it raises questions regarding how much change is reasonable to expect, and what this change should be attributed to. The

results of the assessment represent findings from ten districts of Nepal that may not be representative of all districts in Nepal and should be generalized with care.

This introductory chapter leads into a brief description of the data sources that contribute to this assessment. That is followed by main body of this report: a detailed presentation of results for 17 thematic chapters and 54 evaluation questions. Each chapter begins with a summary of the major findings and overall conclusions for the theme. This is followed by a documentation of the detailed findings, ordered by evaluation question. The last of the 17 thematic chapters is followed by a closing description of the overarching conclusions of the assessment effort.

Data Sources

The data that are presented in this report come from a variety of sources that are listed and briefly described below.

Household survey

Baseline (BL) and endline (EL) household surveys (HHS) were conducted in eight of the ten CB-NCP pilot districts. Surveys were not conducted in any control districts although the before-after survey design allows each CB-NCP district to serve as a self-control. Respondents in the surveys were mothers who had delivered in the 12 months prior to the survey. There was some variation in the approach to the surveys depending on the district. The CB-NCP was supported in Doti district by CARE under a USAID-funded Child Survival grant; surveys there were conducted using a modified version of the standard Child Survival Knowledge Practice Coverage (KPC) questionnaire. The same was done in Sunsari and Parsa districts where PLAN Nepal supported the implementation of the CB-NCP; PLAN used an LQAS approach to conduct HHS in both districts, again using a modified version of the KPC questionnaire. UNICEF supported the conduct of HHS in Dang, Chitwan, Palpa and Kavre districts, and both BL and EL surveys in those four districts were conducted as part of a single survey effort using a questionnaire specifically designed for the CB-NCP. Finally, the conduct of the BL and EL surveys in Bardiya were supported by Save the Children, where the standard CB-NCP questionnaire was used at BL and a modified version was used at EL. Thus, the questionnaires were not uniform across districts or time, resulting in a situation where most indicators were not measured in all districts.

Newborn Health Information System (NHIS)

The NHIS was developed and introduced concurrent with the implementation of the CB-NCP in the pilot districts. The NHIS serves as the key source of monitoring data for the CB-NCP and was intended to be used to assess program performance and guide program management during the pilot phase of the program. The key forms that are used to collect data for the NHIS also serve as job aids for community level health workers, especially FCHVs. Data from the NHIS are used to calculate the amount of the performance incentive for each FCHV that works in the CB-NCP.

The NHIS data that are presented in this report are from fiscal year 2067/68 (July 2010-June 2011). A number of "core indicators" and "expanded indicators" that were defined using NHIS data in the CB-NCP Monitoring and Evaluation Plan are calculated and presented in this document, as are other "new" indicators that have been constructed using NHIS data. There are a number of concerns regarding the quality of NHIS data, especially among those data that are used to calculate the FCHV incentive; these concerns are discussed in the relevant sections of the report. Results from the assessment that are based on NHIS data must therefore be interpreted carefully. Depending on the evaluation question, NHIS data are at times the only viable source of information, and thus these data must be used as appropriate, albeit with care. Although almost all NHIS data are aggregated at the district level, a special "raw database" was constructed using data entered for individual clients from a limited time period from CB-NCP-2 and CB-NCP-3 forms. This database can thus be manipulated at the level of the individual to address some evaluation questions.

Nepal Demographic Health Survey 2011 analysis (NDHS-2011)

Results from a special study that was conducted by Deepak Paudel (PhD candidate) as part of his dissertation research were graciously made available to the CB-NCP team for use in the assessment. This study examined NDHS-2011 indicators in the ten CB-NCP

pilot districts in the content areas of birth preparedness, antenatal care (ANC), delivery care, postnatal care (PNC), nutrition, and essential newborn care (ENC) to explore the difference in key indicators prior to and following the introduction of the CB-NCP. The pre-post cutoff date varied by district and was set based on the end date of the FCHV CB-NCP training in each district. A set of ten matched control districts were selected using a score based on propensity analysis[1] and are listed in Table 1. The combination of the strong study design (pre-post quasi-experimental control) with the high data quality of DHS surveys means that the results of this analysis should be among the most accurate and powerful data presented in this report.

Table 1: Intervention and control districts for NDHS-2011 study

CB-NCP districts	Matched Comparison (control) districts
Morang	Jhapa
Sunsari	Udayapur
Dhankuta	Sindhuli
Kavre	Lalitpur
Parsa	Dhanusha
Chitwan	Makawanpur
Palpa	Baglung
Dang	Syangja
Bardiya	Surkhet
Doti	Kanchanpur

Health Management Information System (HMIS)

The HMIS collects data that are used to calculate and report indicators that describe government health system performance in areas relevant to the CB-NCP that include ANC, delivery care, PNC, nutrition, and sick newborn (less than two months of age) management. The CB-NCP assessment team designed and conducted an analysis using HMIS data that is identical to the design of the analysis described immediately above using NDHS-2011 data, including the use of the same ten control districts and month-wise cutoffs for the pre-post periods set individually by district based on the timing of the completion of FCHV CB-NCP training. The primary limitation to these data is (potentially) their quality, although the accuracy of the HMIS data has improved steadily over time and often triangulates well with results from high-quality survey data. An overall summary of the results of this analysis can be found in Annex 2.

Follow-up after training

A CB-NCP follow-up after training (FUT) exercise was conducted in each pilot district from 3-12 months following the completion of the CB-NCP FCHV training. The FUT gathered information on the skills and knowledge of health cadres including health workers, community health workers (CHWs; i.e., Village Health Workers (VHWs) and Maternal Child Health Workers (MCHWs)) and FCHVs. The FUT also assessed a variety of logistical variables related to commodities and equipment. Almost all facilities and most health workers and CHWs were assessed through the FUT but only ten to

[1] The propensity score was calculated using variables that include geography (hill / terai); life expectancy at birth; adult literacy; mean years of schooling; GDP per capita; donor presence (USAID / UNICEF / Save the Children); percentage of rural population; district leadership (2009 district performance ranking as proxy); and road density.

twenty percent of FCHVs were included in most districts. A common set of assessment tools and analytical techniques were used across the pilot districts although the methods used to apply the tools may have varied somewhat between districts. The FUT scores should be interpreted with some caution; the criteria for achieving a "correct" score for knowledge or skills was quite rigorous (as described in Chapter H) and the low scores that were achieved may not be indicative of the ability of health workers to provide a given service. A special study that was conducted to explore the effect of modifying scoring criteria found that scores increased markedly when scoring criteria were modestly relaxed.

Technical support visits (TSV)

District Health Office (DHO) personnel and NGO partner agency staff members conducted TSVs in the field in the pilot phase during which standardized CB-NCP TSV monitoring forms were used to gather monitoring data for a variety of topics including knowledge and skills of various health cadres as well as logistics and supplies. TSV data that were gathered in Bardiya, Dang and Kavre districts were entered into databases that were made available to the CB-NCP assessment team.

CB-NCP qualitative study

The Assessment Reference Group commissioned a qualitative study (QS) of the CB-NCP that was conducted under the direction of the independent consultant who was contracted to lead the assessment effort. The QS was conducted in five of the pilot districts: Bardiya, Doti, Parsa, Palpa, and Chitwan. Interviews were conducted with six respondent groups at the district level (District Health Officer [DHO]; Hospital in-charge; DHO CB-NCP Focal Person; CB-NCP NGO District Manager; DHO Statistical Assistant; and, DHO Storekeeper). Research assistants from the QS team traveled to three VDCs in each of the five districts where they interviewed members of the Health Facility Management Committee (HFMC); members of the health facility staff; two FCHVs per VDC; and, two mothers per VDC. The question guides that were developed for each respondent group focus on trying to answer or explain the evaluation questions that were developed for the CB-NCP assessment. The question guides that were used for the ten respondent groups can be found in Annex 3.

Chapter A: Commodities

Evaluation Questions and Summary Findings

EQ-A-1 What is the logistics system for the CB-NCP: supply list, procurement, distribution, inventory list and forecasting?

Summary Findings

1. Some CB-NCP supplies are not provided to VHWs and MCHWs in some districts, and extra supplies are not stocked at health facilities. Both of these policies lead to difficulties in supply and have a negative effect on program implementation.
2. Procurement and distribution of CB-NCP supplies are carried out through a variety of models in which partner agencies often play a significant role.
3. Inventory lists of CB-NCP supplies are generally not maintained according to standard practice, leading to inaccurate forecasting of stock-out/over.

EQ-A-2 How have logistics for the CB-NCP been managed and what were the strengths, challenges, and modifications as required?

Summary Findings

1. Logistics have been managed in the CB-NCP under a number of models with varying contributions from government and partner agencies.
2. Strengths of the logistic system include a generally effective distribution process. Challenges include resupply of out-of-stock commodities.
3. In Chitwan, the partner NGO has assumed near-complete control of the logistics system. The lack of involvement of the DHO in logistics management is striking and may lead to problems when the role of the partner agency is reduced or key personnel from the partner are transferred.

EQ-A-3 How effective are logistic management and supervision and monitoring (through internal and/or external support) in the CB-NCP?

See detailed results below.

Conclusion

As might be expected in any pilot effort involving government-NGO collaboration, logistics have been managed through a joint effort, with NGO partner agencies reluctant to allow logistical issues to impede program implementation. The delay in supplying commodities in Palpa and the excessive role of the NGO in Chitwan in logistics management serve as warning that a balanced collaboration that produces the best results is not guaranteed, and must be planned for.

Overview of Commodities

The DoHS of the MoHP in Nepal has made a significant investment over the past two decades to strengthen the provision of logistical support to the government health services. The government's commodities and drug supply is managed through the Logistics Management Division (LMD). The LMD is widely acknowledged as a provider of high-quality logistical support to the government health system.

This chapter reports qualitative data that have been gathered to address three evaluation questions that explore the role of commodities in the CB-NCP pilot effort. Quantitative issues related to commodities are reported in Chapter G. Availability of Newborn Services. Data sources used to address the evaluation questions for commodities were 1) qualitative study and 2) stakeholder discussion

Detailed Results for Evaluation Questions regarding Commodities

EQ-A-1 What is the logistics system for the CB-NCP: supply list, procurement, distribution, inventory list and forecasting?

Supply list

There is a well-defined list of supplies for CB-NCP. Many supplies are provided through LMD except for equipment that is provided on a one-off basis at the end of the health worker training such as the bag-and-mask and the Salter scale.

The supplies that are provided to health workers to support the CB-NCP include the items shown in Box 1.

Box 1: Supplies provided to HWs to support CB-NCP

1	Salter scale	9	Cotrim P tables
2	Thermometer	10	Gentamicin
3	Dee Lee Suction	11	Clean delivery kit
4	Bag-and-mask	12	Recording and reporting forms
5	Timer	13	Aluminum box to safeguard the CB-NCP-related commodities given to FCHVs
6	Flip chart	14	Training materials including a carrying bag
7	Job Aid		
8	Action Card		

Most of the supplies are distributed to FCHVs during the initial CB-NCP training. Supplies are also provided to all health facilities but some supplies are not given to individual MCHWs and VHWs in some districts. Whenever MCHWs or VHWs need certain CB-NCP supplies or commodities they have to obtain them either from a FCHV or a health facility. Some personnel who were interviewed in the qualitative study highlighted the need for all MCHWs and VHWs to be provided with job aids, action cards and flip charts to enable them to more easily perform their work. They noted that MCHWs and VHWs have roles in the community that are similar to FCHVs but they have not been as effective in the CB-NCP as they could have been due to lack of commodities and supplies.

Health facility staff note that the slogan "No commodities, no program" is well known and the timely provision of commodities is crucial to the success of CB-NCP. These staff noted that health facilities should be provided with some extra CB-NCP commodities so that they can maintain them in stock and easily replace any equipment belonging to a FCHV or the health facility that is missing or does not work.

Procurement

Implementing partners carry out procurement and supply commodities in some districts through their own procurement protocols and channels. Partners generally purchase commodities in Kathmandu and then transport them directly to the district. The government manages procurement and supply (with some assistance from UNICEF) in districts where implementing partners do not provide support. In these districts the government supplies some commodities from the central store, others from the regional medical store while other commodities are purchased in the district itself. Medicines for the CB-NCP such as cotrim and gentamicin are procured and supplied through the government regular system through LMD. Implementing partners supply training materials.

Distribution

Distribution of CB-NCP supplies is carried out through several different models. In "government districts" the DHO distributes supplies through normal DHO channels. In districts where a NGO partner supports CB-NCP implementation, the partners bring commodities from Kathmandu to the respective districts where they are kept in the DHO store. Either NGO field staff (in coordination with the DHO) or DHO staff distributes CB-NCP supplies as required. A third model is followed in Chitwan, where the NGO partner manages all aspects of procurement, storage and distribution. Challenges in the timely distribution of commodities vary depending on the distribution system.

Commodities were distributed in most districts during or at the end of the initial CB-NCP training. Commodities were supplied much later in Palpa district due to problems with initial procurement and supply.

Inventory list

Personnel from the qualitative study team asked DHO storekeepers in the five study districts to show them how the inventory list of CB-NCP commodities is maintained. The study team found that the inventory list is not maintained in an up-to-date, standardized manner and that it was not possible to use it to obtain clear information regarding the stocking status of CB-NCP commodities. DHO storekeepers manage CB-NCP commodities in all districts except Chitwan and stated that they provide information to the DHO CB-NCP Focal Person and District Health Officer when any commodity is out of stock.

Forecasting

The qualitative study team learned that there is a stock-out/forecasting system for CB-NCP commodities that are already part of the GoN system (such as the timer). The inventory list provides the basis for the forecasting system; given that the maintenance of the CB-NCP inventory list has been haphazard, forecasting of stock-out/over for CB-NCP commodities has not been adequate. Study team members were told that there is no forecasting system for CB-NCP commodities and the ordering of equipment is carried out on an "as and when needed" basis.

EQ-A-2 How have logistics for the CB-NCP been managed and what were the strengths, challenges, and modifications as required?

Logistics management models

Depending on the district, logistics have been managed under one of the following four different models in the ten CB-NCP pilot districts:

1. Government manages all aspects of logistics including procurement, supply and distribution (e.g., Palpa, Dhankuta, Morang).
2. Partner organization procures commodities, transfers them to government in Kathmandu, and government then manages transport to district, supply and distribution.
3. Partner organization procures commodities and transports them to district, where they are handed over to DHO, which then manages storage and distribution (e.g., Parsa, Doti, Bardiya).
4. Partner organization manages all aspects of logistics including procurement, supply and distribution (e.g., Chitwan).

Strengths of the logistics management system

The strengths of the logistics management system for CB-NCP commodities in the ten pilot districts include the following points:

1. Commodities are effectively distributed, either by field assistants from the partner organization or by the peons (office assistants) from the health facilities.
2. The DHO has provided funds for local transportation in some districts to supply CB-NCP commodities to health facilities.
3. Health facility staff and DHO staff communicate effectively using mobile phones regarding issues related to logistic management for the CB-NCP.
4. Most of the FCHVs received CB-NCP commodities during the training period and these commodities are generally still in working condition one or more years later

Challenges to the logistics management system

Challenges in the logistics management system for CB-NCP that have been faced in the pilot districts include the following:

1. There are often long delays in supplying out-of-stock commodities from the center (Kathmandu) to the districts. Colleagues from one district report that the only way to obtain supplies is for the NGO District Manager to visit Kathmandu to personally "push" the supply request—otherwise, there is no action.
2. Adequate stock is often not available at health facilities to replace used or broken commodities that FCHVs might need.
3. There is a need to standardize the minimum quality level for key CB-NCP commodities such as the Salter scale, Clean Delivery Kit, etc.. The lack of uniformity in the procurement process across districts and procuring agencies results in commodities being purchased that are of varying specifications and quality.

Modifications to the logistics management system

Field staff has encountered problems with logistics because the CB-NCP is a pilot program and the lack of established procedures for procurement, supply and distribution

has led to shortages of key commodities. For this reason, some modifications have been made with regards to logistics management that include the following:

1. FCHVs have used the timer that they were given under the IMCI program to provide CB-NCP services.
2. A simple thermometer has been used rather than the color-coded thermometer that FCHVs were trained to use.
3. Government channels for logistics management have not been used or have been bypassed in some districts such as Chitwan.

Management of commodities at district level: DHO working with partner agency

Commodity management is an area where the DHO and the supporting partner agency (if there is one) must find a way to work together effectively during the pilot phase. Issues that must be balanced include ensuring that logistical issues do not negatively affect program implementation while also making sure that the roles of each organization are defined to ensure sustainability when the partner eventually ceases providing support to the CB-NCP.

The CB-NCP experience in Chitwan offers an example where the NGO partner agency has played a major role in logistics management. Personnel from the NGO partner agency say that the DHO storekeeper is so busy that the partner agency had to manage all CB-NCP commodities. The Storekeeper however said that his work load is manageable and he feels isolated from the CB-NCP because he did not participate in the training and has no role in management of commodities. Problems can develop when the NGO partner plays too large a role in commodity management as the transfer or absence of key NGO personnel can result in stock shortages. When members of the qualitative study team asked the DHO Storekeeper to supply them with information about the inventory, the Storekeeper could not do so because (i) all CB-NCP supplies were kept in a separate room that was locked and the key was with the NGO District Manager and (ii) there was no practice of maintaining an up-to-date inventory list.

The strength of the Chitwan model is that commodity resupply is carried out relatively smoothly in all areas of Chitwan including remote mountainous VDCs. The NGO District Manager obtains necessary commodities from the central office in Chitwan and then distributes them to the six NGO Field Assistants. These personnel visit their respective VDCs once per month and supply commodities as needed. Conversely, the weakness of this model is that once the CB-NCP program is managed completely by the DHO, the logistics management process will need to start from the scratch. Some stakeholders note that the Chitwan model is not ideal and that the DHO should always be in the lead with regards to logistics management, with the NGO playing a supporting role to the DHO from the beginning.

EQ-A-3 How effective are logistic management and supervision and monitoring (through internal and/or external support) in the CB-NCP?

The information reported below was gathered from key informants during the qualitative study of the CB-NCP.

Respondents in one district reported that there is no supervision of how commodities are being used and stored at health facilities and by FCHVs. They noted that this lack of supervision and monitoring is reflected in the fact that many FCHVs have date-expired cotrim in their possession.

Respondents from Bardiya reported that a checklist was developed by local colleagues to supervise the supply of commodities to health facilities and community health workers in order to increase the efficiency of FCHVs. They noted that FCHVs are frequently monitored and supervised in order to check their knowledge and skills. During the supervision visits the supervisors check the stock of commodities that are available with the FCHVs and new commodities are supplied as required.

Respondents from Chitwan stated that the presence of six field workers on the staff of the partner NGO had made logistic management and supervision relatively easy, but that there was still a need to increase supervision and monitoring of FCHVs. It was noted that since the NGO District Manager was responsible for management of logistics in Chitwan, the transfer or change of this individual can create problems in the distribution of commodities.

Respondents from Parsa said that four Health Officers have been given the responsibility of supervising VHWs, MCHWs and FCHVs by dividing the district into four quadrants. These Health Officers visit their respective areas and inquire about the CB-NCP program. Each Health Officer is responsible for 20-22 VDCs and they focus on VDCs that have weaker performance records and need extra attention.

Chapter B: Human Resources

Evaluation Questions and summary findings

EQ-B-1 What is the supervision system for the CB-NCP program with regards to types, frequency, documentation, quality, tools and feedback system?

Summary Findings

Some stakeholders feel that the intensity of central-level supervision and monitoring of the CB-NCP during the first two years of its implementation was lower than what was required for a major program during its pilot phase. At the district level, the supervision of the CB-NCP must compete with other programs that are conducted by the DHO—all of which require supervision. Most supervision takes place from the DHO to the health facilities, and then again from the health facilities to the FCHVs. Supervision by government (DHO) personnel is primarily done through an integrated approach without a specific focus on the CB-NCP. NGO partner agencies provide more direct and focused supervision, although this varies by district. The primary tool that is used in the supervision of the CB-NCP is the CB-NCP standard checklist from the CB-NCP Management Manual. There are two levels at which feedback is given regarding CB-NCP activities: (i) from VHW/MCHW to FCHVs at the health facility level (based on CB-NCP-2 form data) and (ii) from the district level to the health facilities (usually by the DHO CB-NCP Focal Person).

EQ-B-2 How are the DHO CB-NCP Focal Person, the NGO District Manager and health workers performing their CB-NCP-related duties with regards to roles and responsibilities?

Summary Findings

See detailed description below.

EQ-B-3 What are the human resource issues in the CB-NCP (e.g., trained and untrained staff, local hires, retention and transfer of staff)?

Summary Findings

With regards to training new staff, all districts must face the issue of how to train staff members from different cadres that have come to work in the district following the initial CB-NCP training. Some districts hold periodic repeat trainings for newly arrived health workers. Many districts are having problems retaining staff members that hold key positions in the CB-NCP. This problems exists both with government (DHO) staff members as well as personnel who work for the NGOs that support the implementation of the CB-NCP.

Evaluation Questions and summary findings

EQ-B-4 What has the effect of the CB-NCP program been on local capacity building and ownership?

Summary Findings

The CB-NCP has been implemented in the ten pilot districts under two basic models: (i) the DHO implements CB-NCP with support of a partner agency; and, (ii) the DHO implements CB-NCP without support. The relative intensity of effort under the first model is important to success and sustainability. Some stakeholders feel that the quality of implementation of the CB-NCP in government-only districts has not been sufficient to produce adequate results. Stakeholders note that adequate capacity-building takes place under both models and feel that the CB-NCP program has increased local capacity significantly except in the area of information systems. Stakeholders who participated in the group discussion felt that there is a higher level of ownership of CB-NCP in government-only districts than in districts where NGOs support the government. There seemed to be less ownership of the program at the community level and at district hospitals as compared to the DHO.

Conclusions

Taken together, the DHOs' and partner agencies' combined efforts to provide field-level supervision of the CB-NCP have been adequate although this level of supervision will most likely not be maintained as the program is scaled up. In districts where a NGO partner agency works with the DHO to support implementation of the CB-NCP, issues emerge regarding the intensity of the role of the partner as it relates to ownership and capacity building. The role of the NGO is most effective when it is supportive rather than directive and DHO ownership of the CB-NCP is maximized.

Overview

The development of adequate human resources to support the implementation of the CB-NCP is central to the effectiveness of the program. This chapter of the report explores issues related to human resources that include supervision, performance of duties, capacity building, and program ownership. Data sources used to address the evaluation questions for human resources were: 1) qualitative study; and 2) stakeholder discussion.

Detailed Results for Evaluation Questions Regarding Human Resources

EQ-B-1 What is the supervision system for the CB-NCP program with regards to types, frequency, documentation, quality, tools, and feedback system?

General

Stakeholders noted that the center had provided relatively low levels of supervision of the CB-NCP and that the program has not been as carefully monitored and supervised as might be expected for a major program during its pilot phase.

At the district level, the supervision of the CB-NCP must compete with other programs that are conducted by the DHO—all of which require supervision. Staffing patterns and numbers in the DHO have not been updated adequately concurrent with the increase in population over the past several decades. The design of the CB-NCP supervision system varied by district and depended somewhat on whether a NGO partner was present and supported field activities such as supervision. In general, in districts where a NGO partner was present, the NGO staff has conducted field supervision using the standardized CB-NCP supervision form that can be found in the CB-NCP Management Manual. Government staff has provided supervision to FCHVs for CB-NCP through monthly meetings at the health facilities and also through field visits using the standard supervision form. It is reported that government and NGO staff generally conduct supervision and monitoring separately. Government supervisors usually conduct integrated supervision and supervise several programs (including CB-NCP) when they go to the field. Stakeholders report that in Palpa district, in the absence of a NGO partner, supervision and monitoring has suffered.

Most health facilities have a dedicated focal person for CB-NCP. Stakeholders feel that this focal person is the only person who pays specific attention to the CB-NCP program although VHWs and MCHWs provide ongoing supervisory support for all activities carried out by FCHVs, including CB-NCP.

HFOMC members conduct general supervision of the health facility in most VDCs but their supervision is very seldom program-specific and usually involves checking supplies of medicine, infrastructure management, supporting timely reporting by FCHVs and clarifying the role and responsibilities of health workers in the health facilities. HFOMC members do not have a specific role in the monitoring and supervision of the CB-NCP and several members who were interviewed didn't even realize that the program existed.

Types of supervision

Most supervision takes place from the DHO to the health facilities, and then again from the health facilities to the FCHVs. District-level officials rarely go to the community to meet with FCHVs and mothers. NGO staff is generally the only personnel that conduct field-level supervision of FCHVs; supervision by health facility staff and VHWs generally takes place at the monthly meetings at the health facilities. A color-coded monitoring and supervision tool was recently developed and has been introduced by the

DHO in Chitwan district. Based upon the performance of the health facility and the FCHVs in a given VDC, the supervisor assigns a red, yellow, or green mark that signifies the quality of the work being done at the health facility. In areas where the color-coded monitoring tool has been introduced, this has helped standardize supervisory meetings at the ilaka and health facility levels.

Frequency of supervision

In most districts the DHO CB-NCP Focal Person supervises at least one ilaka per month. FCHVs meet at the health facility once a month to discuss recording and reporting issues and receive supervisory support at this time. NGO field assistants go to VDCs frequently to supervise field activities.

Documentation of supervision

In districts such as Chitwan where color-coded supervision is conducted, the result of a supervision visit (red/yellow/green) is documented. The supervision form is completed in some districts and databases have been constructed—especially in Kavre, Dang and Bardiya—that contain the results of supervision visits.

Quality of supervision

Supervision by government (DHO) personnel is primarily done through an integrated approach without a specific focus on the CB-NCP. This lack of focus, as well as the infrequent timing of supervision, is felt by stakeholders to have compromised the quality of supervision of the CB-NCP. Colleagues from the Bardiya DHO office note that the quality of supervision has been negatively affected by the lack of human resource and budget.

Supervision tools

As described above, the primary tools that are used in the supervision of the CB-NCP are the color-coded checklist in Chitwan and the CB-NCP standard checklist from the CB-NCP Management Manual.

Supervision feedback system

There are two levels at which feedback is given regarding CB-NCP activities: (i) from VHW / MCHW to FCHVs at the health facility level (based on CB-NCP-2 form data) and (ii) from the district level to the health facilities (usually by the DHO CB-NCP Focal Person). At times it has been difficult to provide feedback to wards and VDCs as the CB-NCP-2 form does not have a place on it to write the name of the VDC and the ward number. Respondents noted that giving feedback is more common in Chitwan district (where health facility staff has started to write the name of the VDC and the ward number on Form 2) while giving feedback is quite rare in Palpa and Doti districts.

EQ-B-2 How are the DHO CB-NCP Focal Person, the NGO District Manager and health workers performing their CB-NCP-related duties with regards to roles and responsibilities?

The CB-NCP DHO Focal Person is the staff member in the DHO office that does most of the work related to the CB-NCP. The focal person has a major role in planning for CB-NCP training activities, inviting participants to CB-NCP trainings, and serving as a trainer at health facility and FCHV-level trainings. The DFP also spends considerable time maintaining databases and records related to the CB-NCP.

The CB-NCP NGO District Manager (NDM) supports the focal person and the CB-NCP program by determining the number of trainings that are required, managing budget issues as appropriate, arranging for Master Trainers to be hired, and ensuring quality control of training activities. The NDM may also manage and provide intensive supervision to field personnel. Depending on the district, the NDM may help to manage CB-NCP commodities and their distribution.

Both the DFP and the NDM assess the performance of FCHVs in relation to the CB-NCP program regularly by reviewing aggregated data from forms CB-NCP-2 and CB-NCP-3.

Health workers supervise FCHVs during the monthly meetings at the health facilities during which they receive and check the forms and reports that FCHVs submit and then provide feedback as appropriate. Depending on the health facility, VHWs / MCHWs may be more (or less) involved in supervising FCHVs in CB-NCP activities in comparison with other health facility staff. Stakeholders and other informants note that trained health workers collect CB-NCP data from FCHVs but usually do not verify it as they are supposed to do.

EQ-B-3 What are the human resource issues in the CB-NCP (e.g., trained and untrained staff, local hires, retention and transfer of staff)?

Training of new staff

All pilot districts have conducted the basic introductory cascade training for CB-NCP and are now facing the issue of how to train staff members from different cadres that have come to work in the district following the initial CB-NCP training. Staff members in need of training include newly appointed FCHVs, health facility staff that have transferred into the district, Auxiliary Nurse Midwives (ANMs) who have been hired on local contracts to work in birthing centers, and ANMs that have been hired by the government on short-term contracts to provide services in community-level health facilities. Key national-level stakeholders who are involved in managing and organizing CB-NCP training activities note that there is a need for a CB-NCP human resource training database to track training that health workers have participated in and avoid double-training of health workers.

Local hires

District-level NGO partners generally hire trainers from Kathmandu to conduct CB-NCP training activities for DHO staff members and health post in-charges. NGO partners usually hire local trainers to train VHWs and MCHWs. Participants in the CB-NCP trainings for health facility in-charges who do well in micro-teaching are often hired as trainers for the CB-NCP training program for MCHWs and VHWs. These trainers often include physicians from the primary health care centers (PHCC).

Transfer and retention of key staff

Many districts are having problems retaining staff members that hold key positions in the CB-NCP. This problem exists both with government (DHO) staff members as well as personnel who work for the NGOs that support the implementation of the CB-NCP.

EQ-B-4 What has the effect of the CB-NCP program been on local capacity building and ownership?

Program models

The CB-NCP has been implemented in the ten pilot districts under two basic models:

1. The DHO implements CB-NCP with support of a partner agency; and,
2. The DHO implements CB-NCP without support.

Stakeholders feel that the mix of efforts under the two models is important. If the NGO plays too central a role in implementation, there can be a lack of ownership and capacity-building on the government side. At the same time, an appropriate level of NGO presence is felt to be beneficial, as it supports the government and maintains a higher standard of implementation. Some stakeholders feel that the quality of CB-NCP implementation in government-only districts has not been sufficient to produce adequate results.

Capacity building

Stakeholders note that adequate capacity-building takes place under both models and feel that the CB-NCP program has increased local capacity significantly except in the area of information systems. Health facility staff notes that the current training courses for Health Assistant, Community Medical Auxiliary (CMA) or Auxiliary Nurse Midwife (ANM) do not include content regarding newborns and newborn care and thus the CB-NCP training has increased their capacity regarding newborn health and care. They note that FCHVs have also increased their capacity in terms of knowledge and skills related to newborns although FCHVs still need to further improve their ability to manage sick newborns.

Ownership issues

Stakeholders who participated in the group discussion felt that there is a higher level of ownership of CB-NCP in government-only districts than in districts where NGOs support the government. The CB-NCP program's status as a "pilot program", with its own independent information system, seems to make some government staff members feel less ownership towards it. District staff feel that the DHO has accepted ownership of the CB-NCP but the district hospital has not due to the minimal role of the hospital and its staff in the CB-NCP.

DHO Focal Persons noted that there was little ownership of the program at the local (community) level. These respondents recommended strengthened orientation of the District Development Committee (DDC), local leaders and respected community members in order to enhance ownership at the community level.

In some districts, doctors at the district hospital are unaware that FCHVs can give cotrim to sick newborns and use the bag-and-mask to resuscitate newborns with birth asphyxia. Furthermore, many hospital physicians appear to lack general information about the CB-NCP program and are not well informed about FCHVs' ability to refer newborns to the hospital or FCHVs' roles in newborn health care at the community level.

Some DHOs who were interviewed during the qualitative study feel that the CB-NCP is clearly a government initiative, that there is no question of ownership as it is a government program, and that eventually donor organization support will be limited to the central level only.

Chapter C: Training

Evaluation Questions and Summary Findings

EQ-C-1 What is the CB-NCP training design and what is the training strategy with regards to duration, types of trainers, availability of training materials, methodology and trainers-to-participants ratio?

EQ-C-2 How has the training been implemented? Has the recommended methodology been followed and what were the strengths, challenges and modifications as required?

EQ-C-3 Has the follow-up after training activity been done and what were the strengths, challenges and modifications as required?

Summary findings

The standard introductory training plays a critical role in the success of the CB-NCP. The challenges to successful training in the CB-NCP that have been documented in this report include finding adequate time to conduct the full training cycle, assembling a qualified and talented training team, arranging for supplies to be available during and immediately following the training, creating realistic opportunities for participants to practice new skills, training FCHVs effectively, and involving hospital staff in the training effort to build a sense of program ownership. While most participants praise the training, low post-training levels of knowledge and skills among health workers (as measured by the FUT activity) coupled with low program performance in key technical areas suggest that the quality and effectiveness of the CB-NCP training program may need to be increased substantially.

Conclusions

The CB-NCP training program will need to be strengthened; the weaknesses documented in this report provide some guidance regarding improvements that are required. A significant number of changes to the CB-NCP approach and strategies will be required based on the findings of this assessment; the revised training program will need to reflect those changes as well and will need to be supported by effective supervision if the CB-NCP is to achieve its full potential.

Overview

The CB-NCP training program encompasses an intensive set of activities that are implemented when the CB-NCP is introduced into a new district. Conducting the training for all health workers in a district is a huge endeavor that can easily take between four and six months. This chapter describes the design and approach of the training program, presents the opinions of personnel from a variety of levels regarding the strengths and challenges of the CB-NCP training program, and also reviews the follow-up after training activity that is conducted in the year following the introduction of the CB-NCP. Data used to address the evaluation questions in this chapter included 1) Qualitative study, 2) Stakeholder discussion and 3) FUT exercise.

Detailed Results for evaluation questions regarding training

EQ-C-1 What is the CB-NCP training design and what is the training strategy with regards to duration, types of trainers, availability of training materials, methodology and trainers-to-participants ratio?

Training design

The CB-NCP training program in a district where CB-NCP is going to be introduced is based on a four-stage "cascade" model. The four stages are described below.

Stage One: A certified CB-NCP Master Trainer leads a team of senior trainers that conducts a seven-day District Training of Trainers (DTOT) for DHO supervisors, hospital staff, and any senior staff members from PHCCs and health posts who are felt to be potentially qualified to serve as a trainer for the CB-NCP. This training is conducted at the district level.

Stage Two: A team of senior trainers composed of DTOT participants leads a seven-day training for health facility staff including Health Assistants, Staff Nurses, ANMs and Auxiliary Health Workers. Depending on the number of participants, this training may be conducted in several batches. Given that most of the participants will later serve as trainers of FCHVs in their own health facility catchment area, the final two days of this training consist of micro-teaching.

Stage Three: A team of senior trainers composed primarily or completely of DTOT participants conducts a five-day training for VHWs and MCHWs. Depending on the number of participants, this training may be conducted in several batches. Given that VHWs and MCHWs are the primary supervisors of FCHVs, the final day of this training is devoted to practicing how to train and supervise FCHVs in CB-NCP. This training is usually conducted at the district level.

Stage Four: A team of local trainers leads a seven-day training for FCHVs in each VDC. The training teams may include one or more of the following individuals: a health facility staff member, the local VHW/MCHW, a representative from the DHO, a staff member from the NGO that has been contracted to support the training, and a staff member from the NGO that supports the overall CB-NCP program in the district. This training is sometimes conducted at a centrally-located health facility for FCHVs from 2-3 adjoining VDCs. During the training period there is a half-day introduction and orientation to the CB-NCP for HFMC members. On the last day of the training each FCHV conducts a half-day orientation regarding the CB-NCP for her mothers' group. This orientation is supposed to be conducted in the presence of a health facility staff member or trainer although this often does not happen. In case a FCHV is unable to attend the training in her own VDC, efforts are made to include her in the training of another VDC.

Duration of training

The planned duration of the training for each stage has been noted above. During the qualitative study some discrepancies were discovered regarding the training duration. For example, in some VDCs in Chitwan the FCHV training was completed in four or five days rather than the planned seven days. Some FCHVs in Palpa and Doti also reported that the duration of their initial training was five days. Given that several respondents reported that the training tried to cover too much material within the allotted seven days, shortening this time further would presumably have a negative effect on training quality.

Types of trainers

Details have been provided above regarding the types of trainers in each training stage. A large number (approximately 20) of CB-NCP Master Trainers (MT) have been certified to provide leadership to district-level CB-NCP training programs. Relatively few of these MTs are actively involved in CB-NCP training. Many districts have begun their CB-NCP training by first bringing a group of potential trainers from the district to Kathmandu. For example, the Public Health Nurse, District Health Officer and the Hospital in-charge from Bardiya district traveled to Kathmandu to participate in an initial orientation to CB-NCP and then returned to Bardiya to conduct Stage One trainings for district staff. Training guidelines stipulate that the training team for Stage One should include a skilled birth attendant (SBA) but this requirement has not been met in all districts. Hospital staff in several districts complained to the qualitative research team about not being coordinated with regarding CB-NCP training plans nor included on the training teams. The approach to selecting trainers varied by district; some districts treated the Stage One DTOT as a competition and selected trainers for subsequent stages based on demonstrated training skills, while other districts selected trainers on the basis of qualifications and experience.

Availability of training materials

Key equipment that health workers need to perform their duties under the CB-NCP are available to practice with during the training and then are distributed to individual participants during or at the end of the training activity. Materials are thus provided to participants in a one-off distribution at the health facility and community levels. The exact amount that is needed for all health workers is what is supplied and usually extra stock is not supplied to the health facility for future distribution as needed. Some NGOs that support training activities send equipment and materials to training sites ahead of time in order to ensure prompt supply following the training.

Training methods

The primary training methods that are used include lecture accompanied by PowerPoint/chart presentation, group discussion, video presentation and practical exercises using a patient dummy as appropriate. Trainings that take place at the district level have the advantage of being able to review case management at the district hospital and can use any cases that are available in the hospital. However, practical sessions in community-level trainings for FCHVs have to use dolls for practice sessions. CB-NCP trainers in some districts made use of CB-IMCI videos that demonstrate how to manage sick newborns.

It can be a challenge to train qualified health workers how to use basic equipment such as a thermometer or weighing scale as participants may feel that they are already qualified to use the equipment and the training activity is “beneath them”. CB-NCP trainers work around this barrier by focusing training activities for trained health workers on “how to teach FCHVs to weigh newborns, use the thermometer, etc.”

Participants take a pre-test at the beginning of the training and must achieve a minimum score on the post-test in order to become certified.

Trainer-to-participant ratio

Normally there are four trainers for a group of 20 and 40 participants in a FCHV training. The number of participants may increase in VDCs where there is a higher number of FCHVs due to high population density. Training staff try to limit the number of participants in trainings for health facility staff and VHWs/MCHWs to 15 to 20 participants.

Alternate training models

The Nepal Family Health Program II (NFHP II) designed and implemented an alternative approach to the CB-NCP training modality in districts where NFHP supports the implementation of the CB-NCP. The Stage One DTOT began in these districts with a two-day training on training facilitation techniques. Trainers for subsequent stages were then selected on a competitive basis based on their demonstrated capability as training facilitators. NFHP hired individual training experts (not a NGO specializing in training) for the Stage One/Two/Three trainings and only hired a NGO to support FCHV trainings during Stage Four. For the Stage Four trainings, teams of trainers were formed that were composed of a NGO representative, a DHO supervisor, two local trainers (from health facility staff) and a NFHP staff member. This resulted in a participant-to-trainer ratio of 4:1 (20 participants to 5 trainers).

EQ-C-2 How has the training been implemented? Has the recommended methodology been followed and what were the strengths, challenges, and modifications as required?

The National Health Training Center (NHTC) worked with colleagues from Child Health Division (CHD), the Family Health Division (FHD) and other partner agencies to design the CB-NCP training and develop curricula and training tools for the different training stages. Following the development of the training approach and curricula, a decision was taken to conduct the CB-NCP trainings using a model similar to that used for CB-IMCI trainings. Under this model, the formation of the training team is done on a district-by-district basis, usually under the leadership of (or with the support of) a NGO that specializes in conducting training programs. NHTC has not been involved in the implementation of the CB-NCP training program.

How has the training been implemented?

The CB-NCP trainings have been implemented according to the standard curricula that were developed. Those involved in conducting the training as well as training participants note that the CB-NCP training is somewhat different from other trainings they have participated in because of the extremely tight training schedule coupled with the large amounts of technical detail and skill development sessions.

One of the recurring issues with the implementation of the CB-NCP training package in a district has been the time required to implement all stages of the training and the issues that arise with regards to having to finalize training activities within the fiscal year for budgetary reasons. The process of planning and then conducting the complete training package for CB-NCP in a district takes four to six months if it is done carefully and with attention to quality and detail. For a variety of reasons, this process is often begun relatively late in the fiscal year, with the result that the trainings are conducted hurriedly at a lower level of quality than desired. In addition, the end of the fiscal year corresponds to the time of year when rice is planted in most parts of Nepal; some health workers, especially FCHVs, have trouble making themselves available at this time of year. These issues have created substantial problems in training implementation in some districts.

To what extent has the recommended methodology been followed?

The training appears to have been mostly conducted according to training management guidelines in the areas visited by the qualitative study team. The only compromises that have been noted are with regards to training duration, as described in the previous section.

Strengths of the training process

Information about the strengths and challenges of the CB-NCP training process was collected through the qualitative study. Respondents were generally positive regarding the training although they did not provide many specifics. All of the focal persons and NGO DMs had positive impressions regarding the implementation of CB-NCP training in their respective districts. Health facility staff in some districts noted that provisions had been made to provide training to staff members who transferred into the district following the initial training; this flexibility was viewed as a strength of the training program. FCHVs are similarly positive about their training experience; 26 of the 30 respondents in the qualitative study said that they had a good impression of the training and ten respondents said they would not change anything about the training.

Challenges of the training process

Interviews with representatives of stakeholder groups produced information about the challenges of the CB-NCP training process from a variety of perspectives. These findings are presented below.

Overload of training content

Several respondents noted that the CB-NCP training attempts to convey too much information and too many new skills in too short a time. They question whether the training is overloaded and feel that something should be done to make the schedule less crowded and thus make the training more effective.

Training FCHVs

The CB-NCP is a technically challenging program for FCHVs and requires them to perform a number of new tasks that require new knowledge and skills. Some DHO personnel noted that the number of days devoted to practical sessions, where FCHVs actually practice their new skills, was too low. It was felt that the amount of time devoted to theoretical learning was adequate. Given the relatively complex nature of what FCHVs need to learn, the illiteracy of many FCHVs poses a unique challenge for the CB-NCP training. Finally, some respondents stated that the demands of serving as a FCHV with the increased duties given by the CB-NCP program has led some FCHVs to resign from their positions, creating a need for retraining their replacements.

FCHVs also have preferences that are not being met regarding who trains them. A number of the FCHVs that were interviewed said that they prefer to be trained by females but they are usually trained by males. Some FCHVs mentioned that they are reluctant to ask questions to male trainers.

Creating realistic opportunities to practice new skills

There are a number of new skills that FCHVs and other health workers must learn for the CB-NCP such as providing birth asphyxia resuscitation services (including use of the bag-and-mask), taking the temperature of newborns using a thermometer and assessing a newborn for danger signs of infection. Although training materials including dummies are available, many participants noted that practice using a doll does not represent real case management and say that they are being asked to perform services that they never have practiced in a “real world” setting. They note that health facility staff members are able to tour the hospital and be exposed to some case management during their CB-NCP training but FCHVs only practice with dummies.

Training health workers to recognize and manage hypothermia

Chapter N of this report presents issues related to hypothermia in the context of the CB-NCP. Assessment findings suggest that the program has not made a clear distinction between the two types of hypothermia—thermal hypothermia and infection-related hypothermia—that may appear in newborns and that this lack of clarity is reflected in how hypothermia is presented to FCHVs and other health workers during the CB-NCP training. This issue will need to be reviewed in the near future and the training curricula will need to be modified accordingly.

Getting equipment and commodities in place before the training

It has been documented elsewhere in this report that CB-NCP equipment and supplies did not arrive in Palpa until many months after the completion of the training. The performance of the CB-NCP appears to be lower in Palpa than in most of the other pilot districts and the lengthy time gap between the training and the provision of equipment may have contributed to the low program performance there. Putting commodities and equipment in place before the training is a key and absolutely necessary step but is not easy, especially in districts where the government is the sole implementing organization.

Participation of district hospital personnel as CB-NCP trainers

It is an ongoing challenge for the DHO to involve hospital colleagues in the CB-NCP and coordinate with them adequately so that they feel ownership in the CB-NCP program and training process. The use of hospital staff as trainers is clearly one way to bring them into the CB-NCP "team" but hospital personnel in several districts complained of not being invited to be members of the training team. At the same time, DHO and NGO personnel have noted that when hospital doctors are included as trainers, they often are unable to participate despite their willingness to serve, due to heavy demands on their time.

Developing high-quality technical skills

This assessment has shown (as documented in other chapters) that there are significant concerns regarding FCHVs' abilities to perform the skills and tasks that are necessary if the CB-NCP is going to achieve its objective of reducing newborn mortality. This assessment has also documented low scores on the FUT exercise as well as low capture rates of low birthweight infants and newborns with birth asphyxia. While there is no concrete proof that these problems are due to the training program, it is certainly possible that the training program has not prepared FCHVs and others adequately to do what is expected of them.

Training mothers group members

Each FCHV conducts a one-half day orientation of her mothers group on the last day of the CB-NCP FCHV training. Many participants noted that this activity has not been effective. Program management guidelines state that a trainer or health facility staff member must be present during the orientation but in practice this does not occur.

How has the training process been modified?

Qualitative study respondents did not note any modifications that had been made to the training process other than those already documented above.

Recommendations

Stakeholders who were interviewed regarding the CB-NCP training program were asked for recommendations to improve it. Their suggestions included the following points:

1. Given the large amount of complex material that is conveyed in the training, program managers should consider conducting the CB-NCP training in two phases (as is done for Community Based Integrated Management of Childhood Illness (CB-IMCI). This will allow for the content to be divided and made more manageable, and those areas that are especially important and/or difficult can be covered during the first phase and then reviewed and reinforced during the second phase.
2. In a comment related to the previous recommendation, a colleague from Doti feels that there is too much content to be covered in the allotted number of training days and suggested that the training either needs to be started from early in the morning or else the number of days for the training should be increased.
3. A colleague from Palpa feels that the government must ensure that supplies and equipment for the CB-NCP are on-hand in the district before the training is started or else the training should not be conducted. He also suggested that the quantity of visual materials that are used to support the training should be increased.
4. Many respondents felt that a refresher training should be conducted due to the complex nature of the intervention.
5. A number of FCHVs suggested that efforts be made to increase the number of female trainers for FCHV training programs. They also recommended that senior FCHVs be included on training teams as trainers if possible for FCHV training programs.

EQ-C-3 Has the follow-up after training (FUT) activity been done and what were the strengths, challenges and modifications as required?

The FUT exercise was conducted in all ten CB-NCP pilot districts. The information presented below was collected during the CB-NCP qualitative study as well as through interviews with stakeholders in Kathmandu.

The FUT was conducted in individual health facilities in a series of half-day programs and took from 2-3 hours to complete. The team that conducted the FUT was usually composed of a representative from the DHO office, another individual from the NGO partner agency, and a representative from the ilaka health post. Selected FCHVs were called to the health facility to participate and all health facility staff members who were present participated as well. Information was gathered through the application of a quantitative questionnaire to assess availability of supplies and equipment as well as through an assessment of health workers' knowledge and skills related to the CB-NCP. Health facility staff members and FCHVs were placed in groups and asked to demonstrate practical tasks such as kangaroo-mother care, handwashing, use of the bag-and-mask and use of the thermometer. One FCHV that took part in the FUT described the activity as follows: "*During the refresher (FUT) they asked us many questions and also asked us to demonstrate our skills practically. They asked us to demonstrate how to weigh a newborn, how to use bag-and-mask and how to use the Dee Lee suction. They also made groups of 5 FCHVs and showed us how to use the equipment and then asked us individual questions.*"

Almost all of the health facilities in each pilot district were covered during the FUT while between 10 and 50 percent of the FCHVs were assessed, depending on the district[2]. Many of the respondents in the qualitative study described the FUT as a helpful exercise that they compared to a refresher training. This characterization is accurate as far as the benefit of the FUT for health facilities and trained health workers

[2] The norm was to include 10 to 20 percent of FCHVs in the FUT—with the exception of Kavre (35%) and Chitwan (50%).

is concerned, as they were all included in the exercise and coverage approached 100 percent. However, the percentage of FCHVs who participated in the FUT was so low that it cannot be considered to be a refresher training, as coverage of FCHVs was minimal. At the level of the FCHV, the FUT was more like a survey than a training, although it should be noted that the FCHVs who did participate were purposively selected, and the FUT results should thus not be generalized to all FCHVs.

When was the FUT conducted?

Table 2 outlines the number of months post-training that the FUT was conducted in each pilot district.

Table 2: Number of months following CB-NCP training when FUT exercise was done, by district

	Doti	Bardiya	Dang	Palpa	Chitwan	Kavre	Parsa	Sunsari	Morang	Dhankuta
Number of months	3	6	5	12	12	12	12	7	12	12

The FUT was conducted between three and twelve months post-training, depending on the district.

Strengths of the training process

Respondents felt that there were two positive outcomes from the FUT. The first was that senior program staff members (those who were conducting the FUT) realized the limitations in the skills and knowledge of the health workers and came to a better understanding of where gaps exist. These personnel were able to observe what the FCHVs had learned (and remembered), the difficulties they were facing and their degree of skill to use various types of equipment. The district focal person in one district perceived that the FCHVs mainly faced problems in how to fill out CB-NCP forms and in the treatment of newborns. He stated that "*they (FCHVs) still could not identify newborn danger signs with confidence and rather than conduct case management, they prefer to refer newborns to the health facility*". Similarly a NGO DM stated that "*although the FCHVs can tell us verbally how and when to use the bag-and-mask, they cannot operate them skillfully. This is mainly due to the fact that they do not use the bag-and-mask often, as cases of birth asphyxia are not identified frequently and FCHVs have neither the skill nor confidence to use the bag-and-mask.*"

The second positive outcome of the FUT was that it served as a refresher training and encouragement for those health workers who took part.

Challenges of the training process

Respondents cited two major challenges or limitations to the FUT exercise. The first was that it was done hurriedly and the team only spent two hours at each site. In that sense, the exercise felt more like an assessment, and less like a training activity. The second limitation was that only 10-20 percent of FCHVs were able to participate, with the result that most FCHVs were not able to benefit from the activity.

How has the process of conducting the FUT been modified?

Qualitative study respondents did not note any modifications that were made to the FUT process.

Chapter D: Communication

Evaluation Questions and Summary Findings

EQ-D-1 What is the CB-NCP communication strategy? What approaches were used for advocacy, social mobilization and BCC in the CB-NCP? What were the key messages promoted through the CB-NCP and what materials were developed and used?

EQ-D-2 What has worked well during the implementation of the CB-NCP communication strategy? Which approaches were less successful and why?

EQ-D-3 What changes should be made going forward, if any, to the CB-NCP communication strategy and materials?

Summary Findings

Among the three components of the CB-NCP communication strategy, BCC is easily the most developed and effective. Advocacy and social mobilization activities are implemented to a much lesser extent than BCC. Stakeholders at times have difficulty differentiating between "training, "planning", "advocacy" and "social mobilization." The CB-NCP would benefit from a clearer differentiation of the three components and a more locally-oriented and intensive effort in order to invigorate the advocacy and social mobilization components.

Conclusions

While behavior change activities appear to be comprehensive and relatively effective in the CB-NCP, social mobilization and advocacy components have not achieved their potential. These components would benefit from review and revision, especially in light of the new Maternal Newborn Child health and Nutrition (MNCHN) communication strategy.

Overview

Communication of information is the central strategy that, along with provision of key services, underlies the approach of the CB-NCP to improving newborn health. Planners of the CB-NCP realized that information needs to be communicated to a variety of stakeholders and that this communication should be guided by a dedicated plan.

This chapter documents the experience of the CB-NCP with regards to the implementation of its communication strategy. Quantitative results related to behavior change communication activities are reported in Chapter I. Behavior Change Communication. Data sources used to address the evaluation questions in this chapter included 1) Qualitative study, 2) Stakeholder discussion and 3) Project documents.

Detailed Results for evaluation questions regarding communication

EQ-D-1 What is the CB-NCP communication strategy? What approaches were used for advocacy, social mobilization and BCC in the CB-NCP? What were the key messages promoted through the CB-NCP and what materials were developed and used?

CB-NCP communication strategy

During the planning stage of the CB-NCP a technical working sub-group (TWSG) was formed to develop strategies and an implementation plan for BCC in the CB-NCP. This TWSG recorded their work in the document Behavior Change Communication Strategy for Community-Based Newborn Care Package (CB-NCP). This document notes that *"the (BCC) strategy will have a combination of mutually reinforcing approaches: Advocacy, Social Mobilization and Behavior Change Communication. Localized advocacy, social mobilization and BCC activities, linked to increased availability of newborn care services, will help in implementing the CB-NCP effectively."* The text below describes the approaches that were used during the pilot phase of the CB-NCP for advocacy, social mobilization and BCC.

A Maternal Neonatal Child Health and Nutrition (MNCHN) communication strategy has just been developed by the National Health Education, Information and Communication Center (NHEICC) but has not been implemented. This strategy will guide future communication activities that are implemented under the CB-NCP.

Approaches used for advocacy

UNICEF documents define advocacy as *"the continuous and adaptive process of gathering, organizing and formulating information and data into argument, which is then communicated to policy-makers through various interpersonal and mass media communication channels. Through advocacy, UNICEF seeks to influence policy-makers, political and social leaders, to create an enabling policy and legislative environment and allocate resources equitably[3]."*

CB-NCP stakeholders feel that a relatively small amount of effort was put into advocacy for the program. Advocacy activities took place at the national, district and—to a lesser extent—community levels. At the national level, the official launch of the CB-NCP was attended by the Prime Minister and was the most high-profile advocacy activity that was conducted. Special CB-NCP orientation events were also organized and presented to organizations such as Nepal Pediatric Society (NEPAS) and Nepal Society of Obstetricians and Gynecologists (NESOG); these meetings served as advocacy events as well. At the district level, the second day of the CB-NCP "planning activity"[4] involved calling in a wide range of district stakeholders to orient them regarding the upcoming introduction of the CB-NCP; this event likewise served a wider advocacy purpose, although some DHO staff members who were interviewed did not feel it was very effective. At the community level, a half-day orientation event was held in each VDC for members of the Health Facility Operation Management Committee (HFOMC) and other VDC stakeholders. Each FCHV conducted a half-day orientation for mothers group members on the final day of the FCHV CB-NCP training; respondents interviewed during the qualitative study reported that these orientations were not very effective. The primary aim of all of the activities described above was to enhance the profile of newborn care activities, especially at the community level, and to advocate for stakeholder support in implementing the CB-NCP.

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[3] Communication for development (UNICEF): http://www.unicef.org/cbsc/index_42346.html

[4] Further details are provided in Chapter F. Program Planning.

Some NGO partner agencies conducted additional advocacy activities such as orientation of traditional healers, advocacy for institutional delivery at appropriate district and VDC-level forums, and through sharing the results of operational research with district managers and national policy makers.

Some CB-NCP stakeholders felt that the implementing partners themselves were not clear regarding the role of advocacy and the benefits of a multi-sectoral approach to improving newborn health. They saw this as an area of the project where more should have been done.

Approaches used for social mobilization

UNICEF defines social mobilization as *"a process that engages and motivates a wide range of partners and allies at national and local levels to raise awareness of and demand for a particular development objective through face-to-face dialogue. Members of institutions, community networks, civic and religious groups and others work in a coordinated way to reach specific groups of people for dialogue with planned messages. In other words, social mobilization seeks to facilitate change through a range of players engaged in interrelated and complementary efforts[5]."*

Mothers groups supported CB-NCP activities across pilot districts although the intensity and effectiveness of their support is unclear; many feel that it was relative ineffective. In districts where NGO partners assisted the implementation of the CB-NCP, the partners supported the conduct of social mobilization activities. Activities included working with mothers groups and schools (both teacher and students) to support the CB-NCP. Stakeholders feel that it was a mistake to not have worked more closely with community savings and credit groups, which are more active than mothers groups in many parts of Nepal. Stakeholders also noted that one of the goals of social mobilization activities is to help the program reach disadvantaged and marginalized groups within society; those who were interviewed do not feel that this goal was achieved. Relatively little was done in the area of social mobilization in districts where the DHO implemented the CB-NCP without NGO support.

Stakeholders that participated in discussions about communication activities under the CB-NCP felt that, compared to the structured activities described above that contributed to advocacy for the CB-NCP, comparatively less effort was made to support social mobilization activities under the CB-NCP.

Approaches used for behavior change communication

Behavior change communication (BCC) has been defined as *"the strategic use of communication to promote positive health outcomes, based on proven theories and models of behavior change. BCC employs a systematic process beginning with formative research and behavior analysis, followed by communication planning, implementation, and monitoring and evaluation. Audiences are carefully segmented, messages and materials are pre-tested, and both mass media and interpersonal channels are used to achieve defined behavioral objectives[6]."*

The government and its partners designed and implemented BCC activities at both the national and local levels. A summary of these activities is presented below.

<u>National-level BCC activities</u>

The following BCC activities were or will be carried out at the national level:

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[5] Communication for development (UNICEF): http://www.unicef.org/cbsc/index_42347.html

[6] http://www.globalhealthcommunication.org/strategies/behavior_change_communication/

- Twenty-six radio dramas on newborn health and survival were developed and broadcast through Radio Nepal, the national radio station.
- The NHEICC designed and is now in the process of broadcasting a television serial of 52 episodes on the topic of child health. Five of these episodes focus on newborn health issues.
- The NHEICC is currently broadcasting CB-NCP messages through FM radio stations or Radio Nepal once a day. Messages are broadcast by television on a weekly basis.
- A news item on CB-NCP is published in newspapers on an annual basis.
- The NHEICC has developed a national newborn health campaign based on the new MNCHN communication strategy. This campaign will be implemented in the coming fiscal year.
- The NHEICC has supported the design and printing of 200,000 copies of pamphlets on the CB-NCP. They will be distributed in the field during the coming fiscal year.

Community-level BCC activities

The standard BCC approach that was followed at the community level in all ten CB-NCP pilot districts was for health workers—both FCHVs as well as formally trained health providers—to disseminate key messages from the Birth Preparedness Package (BPP) through interpersonal communication, using the CB-NCP flipchart and Job Aid and BPP Action Card as counseling aids.

Implementing partner agencies worked with government colleagues in some of the pilot districts to conduct additional BCC activities. The range of BCC activities that were implemented in one or more of the ten CB-NCP pilot districts are listed below. Interested readers can review the relevant project documents for additional details.

1. Broadcast of CB-NCP messages through local FM radio.
2. School-based BCC activities:
    - Healthy Pregnant Women and Health Baby competitions.
    - School Health Education Program: School-based orientation of adolescents (especially girls) about essential newborn care and handwashing.
    - Promotion of home visits to pregnant and recently delivered women by FHCVs and adolescent female students (School-to-Home approach).
3. Birth plan development: pregnant women, their husbands and mothers-in-law are counseled together at a community meeting regarding maternal and newborn health (MNH) and then take an oral public commitment to utilize MNH services. FCHVs and local health facility staff likewise take commitments to provide services.
4. Formation of Pregnant Women Groups (PWGs): PWGs are formed primarily in hard-to-reach areas among Dalits and other disadvantaged community groups. Members of PWGs self-monitor their utilization of MNH services by using a behavioral map and then participate in health education sessions led by FCHVs.
5. Development and display of hoarding boards and posters related to danger signs of neonatal infection.
6. Interaction program focussing on newborn issues with husbands, fathers-in-law and mothers-in-law.
7. Publication and dissemination of newsletters with information regarding newborn health issues.

Key messages

The CB-NCP promoted a large number of messages that are listed in the counseling tools such as the CB-NCP flipchart. Among these many important messages are five core messages:

1. Wipe the newborn with a soft, clean and dry cloth immediately after birth.
2. Put the newborn on the mother's chest and initiate skin-to-skin contact immediately after drying.
3. Advice and support the mother to begin early breastfeeding (within one hour of birth) and then practice exclusive breastfeeding until the infant reaches six months of age.
4. Do not put anything on the cord stump, keep it clean and dry to protect the newborn from infection.
5. Bathe the newborn only after 24 hours from the time of birth.

After the application of chlorhexadine to the cord stump immediately following birth was officially incorporated into the CB-NCP, message number 4 was revised to read "Do not put anything on the cord stump except for chlorhexadine immediately after birth, keep the stump clean and dry to protect the newborn from infection."

Communication materials

The communication materials that were developed for use in the CB-NCP include the following:

1. Flip chart
2. Job Aid (for use by FCHVs, MCHWs and VHWs)
3. Action Card (officially this is a BPP material, not developed under the CB-NCP)
4. Essential newborn care posters, pamphlets and hoarding boards
5. CB-NCP brochures
6. Training videos
7. Radio and television dramas
8. Television commercials

EQ-D-2 What has worked well during the implementation of the CB-NCP communication strategy? Which approaches were less successful and why?

The aspect of the communication strategy that worked best was clearly the BCC component. The foundation of the BCC strategy followed under the CB-NCP—interpersonal communication between health workers and mothers and their family members is based on the BPP, a tried and proven approach to promoting maternal and newborn messages. The government and CB-NCP implementing partners developed and implemented a number of additional BCC activities at the national and community levels that clearly were successful at exposing mothers and family members to messages that promote desired behaviors. Data presented in Chapter I show that the target audience heard the messages and that the practice of desired behaviors increased. The only negative comment regarding the BCC component was that there were too many messages and the five main CB-NCP messages became "lost in the crowd".

The less successful aspects of the communication strategy were primarily in its advocacy and social mobilization components. Issues related to the implementation of advocacy and social mobilization activities are documented above.

EQ-D-3 What changes should be made going forward, if any, to the CB-NCP communication strategy and materials?

The overarching framework for the future strategic direction of communication activities in the CB-NCP is provided by the MNCHN communication strategy.

Respondents from the CB-NCP qualitative study and participants in the CB-NCP assessment meetings provided the following inputs regarding recommended changes to the CB-NCP communication strategy in the coming years:

Making advocacy more effective

Most of the advocacy and social mobilization activities described above that take place at the district and community levels occur during what are called "planning" (at the district level) or "training" (at the community level) activities. This suggests that there may be some confusion among those who have designed and implemented the CB-NCP regarding what is meant by "planning", "training" and "advocacy" in the context of the CB-NCP.

Stakeholders say that the meetings that take place during the first two days of the introduction of CB-NCP into a new district are called "planning" activities but note that they are primarily focused on "arranging logistics for training" and presenting generic information to stakeholders on newborn health in Nepal and the CB-NCP. These stakeholders would like to see more effective implementation of the advocacy component among relevant district-level offices that leads to increased collaboration and coordination among key stakeholders such as the District Hospital, the District Development Committee, and the District Health Office.

Stakeholders suggest that the approaches to advocacy and social mobilization that are followed at the district and community levels would benefit from review and a more dedicated effort to ensure that these activities achieve their intended result.

Behavior change communication

The primary recommendation given by district-level staff that supports CB-NCP implementation is that the BCC approach needs to be more targeted at disadvantaged groups. They note that the current BCC strategy is a blanket approach that needs to be contextualized for areas of Nepal where Nepali language is not widely used, utilization of health services varies from the norm or where cultural differences may require different approaches to health promotion or service delivery. Respondents noted that many mothers in Parsa district could not understand the BCC materials because they are written in Nepali and the illustrations are not understandable. A translated version of these materials was developed in Sunsari; stakeholders feel that this needs to become a standard part of the BCC approach to new districts.

FCHVs were asked to make suggestions regarding changes that they feel should be made to the flipchart and Action Card that they use when they counsel community members. Most FCHVs feel that no changes are needed in the flipchart. Some FCHVs felt that the flipchart should be in the local language while one FCHV suggested that the flipchart contain a page with a photo of an entire family giving love and affection to a recently delivered mother. With regards to the Action Card, FCHVs suggested that supplies should be sufficient so that all pregnant women can receive their own copy of the Action Card. Some FCHVs suggested that the Action Card show more specific information regarding what types of food should be given to a pregnant woman. Many of the FCHVs said that the pictures and text on the Action Card should be enlarged as they are too small to be easily understood in their current form.

Chapter E: The Newborn Health Information System

Evaluation Questions and Summary Findings

EQ-E-1 How has the monitoring and information flow for the CB-NCP program been managed? What were the strengths and challenges of the monitoring system and what modifications were required? What should be changed going forward?

EQ-E-2 To what extent does the monitoring system provide information required for program management? Is the information from the monitoring system perceived to be timely, reliable and useful for supporting program implementation? How are data being used at various levels?

EQ-E-3 How properly is the NHIS recording and reporting handled at the community and facility levels? How timely is reporting?

Summary findings

1. **Positive aspects:** The implementation of the NHIS has resulted in a number of positive systemic effects that include strengthened working relationships between community-level health workers, a greater awareness among these workers of maternal and newborn health issues, and an increase in the effectiveness of FCHVs' work outside of the CB-NCP.
2. **Downsizing the NHIS:** The CB-NCP was originally designed to be piloted initially in a limited number of districts, assessed, and revised based on results of the assessment—and only then scaled up to additional districts. It was anticipated that the pilot NHIS would be reduced in size as part of that process. In reality, the CB-NCP essentially moved directly from a "pilot" to a "scale-up" without ever having been a "true pilot"; the scale-up began very quickly after the pilot was introduced, based on the (unevaluated) original pilot design. As a result, the "pilot-sized" (i.e., large and comprehensive) NHIS was never downsized, with the result that an unsustainably comprehensive NHIS has now been or is in the process of being scaled-up in 35 districts.
3. **Effect of incentive component on NHIS:** The use of the NHIS to calculate (and determine the size of) performance-based incentives appears to have resulted in unintended consequences. There is substantial evidence that FCHVs' reported performance has been inflated for some indicators that are used to calculate the incentive. In addition, the necessary downsizing of the NHIS has been made more difficult because NHIS data are used to calculate the amount of the incentive.
4. **Use and usefulness of NHIS data:** The NHIS collects and reports data that vary widely in their usefulness. Stakeholders from the center who were interviewed felt that relatively little use has been made of the NHIS data at the national and district levels and that most use of the data had been made at the community level. A vocal group of stakeholders stated a summary opinion that the primary use of NHIS is to report and enter data and that the failure to effectively use NHIS data for program management is a notable weakness of the CB-NCP program.

Summary Findings (continued)

5. **Recommendations for strengthening the NHIS:** A summary of the primary recommendations put forth by stakeholders includes the following:

- Reduce the size and comprehensive nature of the NHIS (as was originally planned).
- Stop using data from the NHIS to calculate incentives.
- Strengthen and implement the use and feedback of NHIS by health system personnel.
- Ensure that the DHO has taken adequate ownership and responsibility for the NHIS in all districts where a NGO partner agency supports the implementation of the CB-NCP.
- Incorporate relevant aspects of the NHIS into the HMIS as soon as appropriate.
- Improve the NHIS software.

Conclusions

The management and use of the NHIS has been somewhat neglected as much effort at the central level has been devoted to scaling up the CB-NCP rather than managing the pilot. Given the rush to scale up and the use of the NHIS as the basis for the incentive component, many stakeholders seem unable to imagine downsizing the NHIS—even though that has always been the plan. Lost amid the discussion is the fact that the NHIS is woefully underused—and to some extent, unusable—for its primary purpose: program management. As much or more than any other component of the CB-NCP, the NHIS needs to be reviewed and revised—or perhaps, reinvented—as stakeholders review the findings of this assessment of the CB-NCP and plan for its future.

Overview

CB-NCP stakeholders realized that it would be critically important to monitor the performance of the CB-NCP during its pilot phase. The CB-NCP Monitoring and Evaluation Technical Working Group developed the comprehensive NHIS to achieve this objective. The NHIS was designed to allow program managers to monitor program performance during the pilot phase of the CB-NCP as well as to provide information that can be used to calculate FCHV performance incentives.

The ARG developed three evaluation questions pertaining to the NHIS. The first question explores its design, strengths and weaknesses, and presents stakeholders' recommendations for its improvement. The second question investigates its use and usefulness, while the third question looks at how CB-NCP recording and reporting are handled at the community and facility levels. Details are presented below. Data sources used to address the evaluation questions in this chapter included 1) Qualitative study, 2) Stakeholder discussion, 3) FUT exercise and 4) Technical support visits (TSV).

Detailed Results for evaluation questions regarding the NHIS

EQ-E-1 How has the monitoring and information flow for the CB-NCP program been managed? What were the strengths and challenges of the monitoring system and what modifications were required? What should be changed going forward?

The NHIS was created to generate information that could be used to monitor the CB-NCP. Information presented below that describes the NHIS was collected during the qualitative study from respondents that include District Health Officers, DHO CB-NCP Focal Persons, NGO District Managers, Statistical Assistants, health facility staff and FCHVs.

The Newborn Health Information System

The NHIS was designed to be a comprehensive information system that would operate parallel to and separately from the government Health Management Information System (HMIS). The highly comprehensive structure of this "pilot NHIS" was felt by stakeholders to be necessary to inform the pilot; however, it was envisioned that the NHIS would be "slimmed down" and integrated into the HMIS once the pilot phase of the CB-NCP was completed.

The pictorial recording forms that FCHVs use to record the newborn services that they provide serve three functions: (i) a record of services provided/utilized for program monitoring purposes; (ii) a job aid that guides the FCHV in the provision/promotion of services; and, (iii) a record of key services provided that is used to calculate the FCHV's performance incentive.

NHIS data are collected and reported parallel with the existing HMIS system. FCHVs collect data from their individual clients at the community level and record the services they provide on pictorial recording forms that they then submit at the monthly meeting at their health facility. Health facility staff members, the VHW and the MCHW provide support to FCHVs as necessary to ensure accurate recording and reporting. Health facility staff members and VHWs/MCHWs likewise record the CB-NCP services that they provide. All of the services provided by health facility staff, VHWs/MCHWs and FCHVs in a given health facility are then reported to the ilaka health facility, where they are summarized and in turn reported to the district. The DHO Statistical Assistant manages the CB-NCP NHIS data at the district level in most districts although there are some districts where personnel from the NGO partner agency play a major role in NHIS data management.

Data from the CB-NCP (as well as data from other DHO programs) are discussed by health facility staff at review meetings at the ilaka and district levels on a monthly basis. At the community level, members of the Health Facility Management Committee report that one of their major duties is to provide support and encouragement to FCHVs for regular and timely reporting.

<u>DHO-NGO dynamics with regards to NHIS</u>

Management of the CB-NCP information system is an area where organizational responsibilities must be carefully negotiated. The NHIS demands a lot of time to manage and any assistance given by the NGO partner agency (if there is one in the district) to the DHO in the area of information management should promote sustainability and avoid unsustainable overreliance. Among the ten CB-NCP pilot districts, there was a wide variation in this regard, from complete management and ownership by the DHO to near-complete management by the NGO partner agency and little ownership by the DHO. Some of the DHO Statistical Assistants felt that they

should receive incentive payments for their work on the NHIS and the NGO partner agencies had to support the NHIS in these districts to ensure its functionality.

NHIS and incentives

Some stakeholders have pointed out that using data from the monitoring system to calculate performance-based incentives can have unintended consequences. First, if a FCHV is paid an incentive based on self-reported performance, this introduces an incentive to over-report performance, with the result that the data on which the incentive is based may be inflated and are not useful (i.e., invalid) for program monitoring. Second, if the original intent was to "slim down" or even eliminate the monitoring system following the pilot, this becomes more difficult if the monitoring system is the basis of the incentive calculation—because the incentive is not going to be eliminated or slimmed down.

Some health facility staff did note that it would be difficult for FCHVs to over-report the number of newborns that they registered as this number can be triangulated and verified using BCG vaccination data. While some respondents feel that basing incentive payments on the monitoring data has had a negative effect on data quality, others feel that it has had a positive effect, as it makes reporting more thorough. Those personnel who took the latter viewpoint acknowledged the possibility that FCHVs may submit inflated data.

Strengths of the NHIS

Respondents were asked to list the strengths of the NHIS as they perceived them. Their responses are summarized below.

1. The data come from the community level and are checked and approved by supervisors and colleagues at the community level. This approach makes local staff more aware of what the data are showing and increases their reliability and use in local-level planning.
2. Another positive aspect of the NHIS is that the pictorial recording format had made it easy to fill up the CB-NCP-2 and CB-NCP-3 forms and has raised FCHVs' awareness regarding public health. As FCHVs fill out these forms, they become more aware about the situation in their wards with regards to safe motherhood, newborns and the identification of sick newborns.
3. The NHIS focus on encouraging FCHVs to identify and register pregnant women prior to delivery has increased their effectiveness in the provision of other services such as iron distribution, promotion of vaccination and vitamin A distribution.

Challenges to the NHIS

Respondents were likewise asked to list the challenges and weaknesses of the NHIS as they saw them. A summary of their responses can be found below.

Challenges regarding rapid movement from "pilot" to "scale-up" without revision of NHIS

The initial vision for the start-up of the CB-NCP was to introduce it in ten pilot districts with a comprehensive, labor-intensive monitoring system (i.e., the NHIS). According to this vision, once the pilot had been conducted and evaluated, the NHIS would be downsized and the CB-NCP would be scaled up in other districts. What happened in reality was somewhat different. The introduction of the CB-NCP went directly from a "pilot" to a "scale-up" without ever having been a "true pilot"; the scale-up began almost immediately, without waiting for results from the pilot. As a result, the "pilot-sized" (i.e., large and comprehensive) NHIS was never downsized, with the result that an unsustainably comprehensive NHIS has now been or is in the process of being scaled-up

in 35 districts. Kathmandu-based stakeholders point out that a huge amount of effort over the past two years has gone into scaling up the CB-NCP to new districts and that the NHIS has therefore not received the attention it needed nor has it been used as intended.

Challenges regarding recording performance that is linked to incentive payments

There is some confusion among FCHVs regarding how to record performance of services that are linked to the incentive. Respondents specifically noted issues regarding FCHVs' recording of the PNC services that they provide. The following issues emerged:

- Some FCHVs are confused regarding whether or not to circle the PNC visit on the "day of birth" when the baby is delivered at the health facility. Part of the reason for the confusion is that the incentives conflict for this issue—FCHVs receive an incentive if the mother delivers in a facility (which makes it almost impossible for the FCHV to make a home visit on the day of birth), but they also receive an incentive for making a home visit on the day of birth.
- Some cultural practices such as the mother going to her parents' home make it difficult to provide PNC services according to the prescribed schedule of visits. FCHVs are unsure how to record their performance in this situation.
- Some FCHVs conduct PNC visits "over the phone" (against protocol) and then record the visit as having been provided on the monitoring form.

Challenges regarding analysis and feedback of results

While respondents voiced different opinions in regard to this issue, there was a group of respondents whose opinion can perhaps best be summarized as "the NHIS is used only for data entry, the lack of its use for analysis and feedback to program managers and implementers is a weakness of the CB-NCP program." Stakeholders noted that they felt the NHIS system and data collection/reporting tools are well-designed but that the system does not function well once data are reported. They noted that there is a feedback mechanism in the NHIS but that it does not function well.

Challenges regarding older FCHVs using a complex monitoring system

Respondents in the qualitative study noted that old and/or illiterate FCHVs have problems with many aspects of their duties in the CB-NCP. With regards to the NHIS, several respondents said that some old or illiterate FCHVs are unable to record or report correctly and that they introduce errors into the NHIS. They felt that if these FCHVs were replaced the quality of the NHIS would improve.

Challenges regarding other issues

Respondents also described the following challenges to the NHIS:

- The software that was developed to support data entry and analysis for the NHIS has many problems and it is difficult to generate results using this software.
- Data are often not reported in a timely manner which has a negative effect on the ability to analyze and report program achievements.
- There have been shortages recently of some of the basic CB-NCP forms (such as CB-NCP-2 and CB-NCP-3 forms) that have affected the ability of the program to record and report results in some districts.

Modifications to the NHIS

The only modifications that have been made to the NHIS during the first two years of its implementation have been with regards to revising the forms to reflect changes in the program:

1. After the application of chlorhexadine to the cord stump became a standard intervention within the CB-NCP, the CB-NCP-2 form was revised so that the application of chlorhexadine could be recorded on the form.
2. The CB-NCP-2 and CB-NCP-3 forms were revised by removing some parts of the forms that were related to process.

Recommendations for strengthening the NHIS

Conversations among stakeholders produced the following recommendations for the NHIS.

Reducing the size and scope of the NHIS

One of the central recommendations that emerged was that the NHIS system needs to be slimmed down and reduced in scope. Stakeholders note that this was the original plan but it has not been implemented. Too much effort is currently going into collecting data of questionable quality that is not being used effectively to manage the CB-NCP program.

The use of monitoring data to determine the amount of incentive payments for FCHVs has made it difficult to change or reduce the size of the NHIS. There are ways to provide incentives to FCHVs that do not require linking them with performance monitoring data. Strong consideration should be given to delinking the NHIS from the incentive calculation process.

This assessment has not attempted to produce concrete recommendations regarding how the NHIS should be reduced in size and scope; conversations among stakeholders showed that this would not be easy and would need to be done through a carefully designed process with clear, agreed-upon objectives. What was clear and agreed upon (by most stakeholders) during the assessment was that the NHIS needs to be redesigned and downsized.

Incorporating the NHIS into the HMIS

There was a call from many stakeholders to incorporate relevant aspects of the NHIS into the HMIS. It was noted that this would improve the sustainability of CB-NCP monitoring activities by making them part of the regular system and strengthening the way that monitoring information can be used for CB-NCP program management.

Respondents noted that planning within the public health system is done on the basis of HMIS data. Until now, the NHIS has not been included in HMIS system, with the result that DHO and health facility staff need to report NHIS data separately. To some people within the health system, the NHIS is an unwanted burden.

Some respondents feel that it should be relatively easy and straightforward to transfer key indicators from the NHIS into the HMIS and eliminate the current parallel NHIS structure. Other stakeholders felt that it would be difficult to incorporate NHIS or other newborn-related indicators into the HMIS at this time. They noted that issues arise when new HMIS indicators are only measured in selected districts (where the CB-NCP has been introduced) as the HMIS is a national program. These stakeholders feel that it will not be possible to incorporate the NHIS into the HMIS in the near future—until the CB-NCP is scaled up to all 75 districts.

Other recommendations

The following recommendations regarding the NHIS were also put forward by CB-NCP stakeholders.

- *Improve the NHIS software*: Several respondents suggested that new NHIS software should be developed once the NHIS is redesigned. They would like to see the NHIS

data entry program be similar to the HMIS database which automatically warns when inconsistent data have been entered.

- *Strengthen the feedback system*: It was suggested that feedback system should be strengthened so that data and results from the NHIS are used more effectively.
- *Transfer ownership of the NHIS from NGOs to DHOs*: Some respondents said that ownership of the NHIS should be transferred from the NGO to the DHO in districts where the NGO is playing too intensive a role in data management.
- *Revise the NHIS forms*: Stakeholders felt that—concurrent with the revision of the NHIS—the NHIS forms should also be revised. It was noted that fields for ward and VDC need to be added to the CB-NCP–2 form.

EQ-E-2 To what extent does the monitoring system provide information required for program management? Is the information from the monitoring system perceived to be timely, reliable and useful for supporting program implementation? How are data being used at various levels?

This evaluation question focuses on the use of NHIS data. The three major areas of inquiry are the following:

1. Does the NHIS produce the data that are needed to manage the program?
2. Are the NHIS data that are produced useful?
3. How are the NHIS data used?

Information presented below was collected during the qualitative study from respondents that included DHOs, DHO CB-NCP Focal Persons, NGO District Managers, Statistical Assistants, health facility staff and members of HFMCs.

1. Does the system produce the information that is needed?

The qualitative study team had difficulty gathering meaningful responses to this question. Respondents are used to working within the HMIS system and had difficulty conceptualizing what type of information is "truly needed" in order to better manage the CB-NCP program.

The three groups of examples below represent comments from the perspective of the CB-NCP assessment team regarding what data are needed for monitoring the CB-NCP. Data from Groups A and C represent "information that is needed."

A. Examples of data collected through the NHIS that appear to be valid and useful

i. Data that describe the number of birth asphyxia cases managed (by type of management).

ii. Data that describe the number of low birthweight newborns identified.

iii. Data that describe the number of newborns registered.

B. Examples of data collected through the NHIS that have low validity and/or are not useful

i. Data of questionable validity: All data that are used to calculate incentives such as PNC visits and number of children weighed. Data that are incomplete such as data on sick children from CB-NCP-3 form. Some of the data on treatment completion from the health facility or VHW/MCHW forms that are simply not very believable.

ii. Not very useful data: Counseling during pregnancy, immediate newborn care.

C. Examples of data not collected through the NHIS that would be useful

In principle it is useful to collect data about components that hold the potential to have substantial impact but about which (i) there is reason to question the performance of the component and/or (ii) there are currently no valid data available that describe performance.

i. It would be very helpful to have data on PNC visits and number of children weighed that are not linked to performance incentives and thus more valid.

ii. The data from CB-NCP-3 form would be much more useful if it represented all (or almost all) cases seen and referred by FCHVs.

2. Is the information that is produced by the NHIS timely, reliable and useful?

Almost all respondents who were asked this question replied affirmatively that yes, the data are timely, useful and accurate. Comments from the CB-NCP assessment team on the usefulness of NHIS data can be found immediately above in Groups A and B.

3. How are the NHIS data being used?

The text below describes the context for the use of NHIS data within the health system in Nepal. Specific details are given regarding the use of the data at the national, district and community (health facility) levels.

CB-NCP personnel who were interviewed during the qualitative study made some wide-ranging general observations regarding the use of data in the government health system. These observations, which provide an explanatory context for some of the findings that are documented below, include the following:

1. The Nepal health system uses a top-down, centralized approach for analysis and planning. Although data are produced at the community and district levels, they are then sent to Kathmandu where they are used for centralized planning. Data are analyzed and used for program management to a minimum extent within districts.
2. The primary use of data in the Nepal health system appears to be collecting and verifying them but not using them for program management. There is an overemphasis on the certification of data and an under-emphasis on their use for management.
3. Integration of the NHIS into the HMIS will increase the quality and usefulness of the data.

Use of NHIS data at the central level

District-level stakeholders say that one of the ways that they "use" the data is to report it to the center. In their view, NHIS data are analyzed in the center and the program plan is then formulated in government and donor offices in Kathmandu. District personnel feel uninvolved in the data analysis and planning process and say that they do not receive feedback from the center on program performance in their district. One respondent from a CB-NCP district noted that the use of data for program management was supposed to be decentralized but "in our system theory is one thing and practice is something else."

Stakeholders from the center who were interviewed felt that little use has been made of the NHIS data at the national and district levels and that most use of the data had been made at the community level. It was noted that only recently had NHIS data been analyzed and reported at the national level (in the 2067-68 DoHS Annual Report).

Use of NHIS data at the district level

District personnel noted that data are used at district level to support the CB-NCP program by allowing DHO staff members to understand the actual situation of the program. Examples that were given regarding how data were used include (i) to identify the number of cases in different program areas and (ii) to calculate the extent of coverage and whether targets had been met. NHIS data are also used for various aspects of program planning including procurement of commodities and equipment.

Some respondents agree that data can be useful for planning but feel that CB-NCP plans are developed at the central level without consulting the district team. Colleagues from Doti district gave the following example: financial data showing the amount that had been spent on FCHV incentives during the previous fiscal year was provided by Doti to the center, but the center had reduced the needed amount by 50 percent without explanation.

Use of NHIS data at the health facility level

Health facility staff describes the following ways through which they use NHIS data at the community level.

i. The process of health facility staff sitting down with FCHVs at the monthly review meeting and reviewing the forms and reports that FCHVs submit allows them to have valuable interaction with FCHVs about a variety of issues related to the provision of CB-NCP services and provides an opportunity to review how to record and report data that describe those services with FCHVs.

ii. The NHIS provides accurate information at the ward level about home and institutional delivery, number of children born, PNC services, etc.. These data describe the level of FCHVs' activity and newborn infection and are useful for health facility staff to know.

iii. At a broader, more general level, the NHIS data describe what has happened with newborns within the VDC, how the health system is performing, and guides planning for newborn services. All of this information is useful for health facility staff.

iv. Health facility staff uses NHIS data during the quarterly review to explain why targets for MCH services have or have not been met (for example, targets might not be met if there are less than the expected number of births, as documented in the NHIS).

v. Some respondents at the community level stated that data generated from the NHIS are used to create awareness among family members and local leaders regarding the need for improving child health. One health facility staff member said that "We present NHIS data during VDC meetings. We are planning to open a birthing center in our VDC so these data have helped us to counsel mothers to use health facility delivery service."

EQ-E-3 How properly is the NHIS recording and reporting handled at the community and facility levels? How timely is reporting?

Qualitative information presented below has been collected through interviews with DHO CB-NCP Focal Persons, NGO District Managers, DHO Statistical Assistants and health facility staff. Results from the FUT exercise and TSV are also described.

How is the NHIS recording and reporting handled at the community / facility levels?

Most of the comments made on recording and reporting were made with regards to FCHVs' performance. Health facility staff say that FCHVs faced problems with recording and reporting in the beginning of the program but that now most FCHVs are more comfortable with these tasks. Some of the problems are experienced by FCHVs belonging to certain ethnic groups; for example, it was reported that FCHVs from the Awadhi and Muslim communities in Bardiya face some problems with recording but that FCHVs from the Tharu community do better. Most respondents said that illiterate FCHVs face problems with recording and that they require support from health facility staff in order to report their performance correctly.

Respondents reported that some FCHVs have difficulty with specific aspects of recording, such as calculating the last menstrual period (LMP) and expected date of delivery (EDD) and in determining which parts of the form to circle when recording birthweight, PNC visits and place of delivery.

Field workers that support the CB-NCP in Bardiya and Doti districts collected data during TSVs that describe the percentage of FCHVs that can use key CB-NCP forms correctly. These data, which are presented in Table 3 below, suggest that some FCHVs face difficulties completing the infection treatment and referral form (CB-NCP-3 form) correctly.

Table 3: Percentage of FCHVs who can use CB-NCP forms correctly *(source: TSV)*

Indicator	District	
	Bardiya	Doti
Percentage of FCHVs who can correctly use CB-NCP–2 form	93	--
Percentage of FCHVs who can correctly use CB-NCP–3 form	63	88

Health workers in some facilities said that they do not have adequate human resources to support all of the requirements of the NHIS and they feel that duties related to the NHIS have caused problems by increasing their workload. Because of this, at times health facilities submit uncorrected data from FCHVs.

How timely is reporting?

Most of the respondents said that reporting of CB-NCP data has been done in a timely manner. Table 4 below presents data from the FUT exercise that describe the percentage of health facilities that submitted CB-NCP-6 and CB-NCP-7 forms during the month prior to the FUT.

Table 4: Percentage of health facilities that submitted CB-NCP-6 and CB-NCP–7 forms in previous month *(source: FUT, 10 districts)*

Indicator	Doti	Bardiya	Dang	Palpa	Chitwan	Kavre	Parsa	Sunsari	Morang	Dhankuta		Mean*
Health facility submitted CB-NCP-6 and CB-NCP-7 forms in the previous month	97	94	53	--	100	89	79	94	94	100		89

Note: * = unweighted mean

An average of 89 percent of health facilities submitted CB-NCP reports for the month preceding the FUT exercise. The percentage of health facilities that submitted reports is equal to or greater than 89 percent in all districts except for Dang (53 percent) and Parsa (79 percent).

Table 5: FCHVs attendance at monthly meetings *(source: TSV)*

Indicator	Bardiya	Doti
Did you attend last monthly review meeting?	92	85

TSV data that describe timeliness of reporting are presented in Table 5. FCHVs submit their monthly reports during the monthly review meetings and thus this indicator can be taken as a proxy for timely reporting. An FCHV attendance level of 90 percent at this meeting would seem to be quite satisfactory given the volunteer nature of their jobs and the many competing demands on their time.

Chapter F: Program Planning

Evaluation Qestions and Summary Findings

EQ-F-1 How has planning for the CB-NCP program been carried out at the district and sub-district levels? How have CB-NCP stakeholders been involved in program planning and implementation? What are the strengths and challenges of these processes and were any modifications required?

Summary findings

The CB-NCP program is planned and implemented based on decisions taken in Kathmandu. The "planning process" at the district and sub-district levels consists of a process to orient and train local stakeholders and staff and obtain required commodities and equipment from the center. The district planning event is framed as a two-day workshop consisting of one day devoted to planning for the upcoming CB-NCP training and conducting a basic orientation for DHO supervisors. The second day consists of an orientation for district stakeholders. Stakeholders note that the district orientation has little two-way communication and is more accurately described as a presentation of information. At the VDC level, the planning process consists of orienting members of the HFOMC and members of the mothers groups.

Conclusions

The planning that takes place at the district and community levels for the CB-NCP is quite limited in nature and might be more accurately called "implementation of scale-up activities", as the "planning" activities focus on orientation and training activities that support the introduction of a centrally-developed package.

Overview

Planning processes are a key element of any program, perhaps even more so during the pilot and scale-up phases. The CB-NCP was conceived as a centrally-defined "package" of interventions that was not allowed to be revised or modified at the district and local levels. Program "planning" at the district level and below was thus limited to organizing the introduction of the CB-NCP in new districts according to centrally-defined protocols. This chapter documents various stakeholders' perceptions and accounts of the CB-NCP planning process. Data sources used to address the evaluation question for program planning were 1) Qualitative study and 2) Stakeholder discussion

Detailed Results for evaluation question regarding program planning

Results are presented below for the evaluation question related to program planning. It should be noted that the frequent transfer of key district officials (i.e., the DHO) and the hospital in-charge affected the qualitative study team's ability to collect relevant data for this question. Three of the four DHOs and four of the five HiCs that were interviewed had been transferred to their current post following the introduction of CB-NCP in their districts. These officials shared second-hand information on how the CB-NCP program had been introduced and how planning activities had been structured prior to their arrival.

EQ-F-1 How has planning for the CB-NCP program been carried out at the district and sub-district levels**.** How have CB-NCP stakeholders been involved in program planning and implementation? What are the strengths and challenges of these processes and were any modifications required?

Overview of the CB-NCP planning process

The CB-NCP program has been designed and is planned and implemented based on decisions taken in Kathmandu. Although there is a "planning process" at the district and sub-district levels, this is more a process to orient and train local stakeholders and staff and obtain required commodities and equipment from the center, rather than a "planning process" in the true sense of the term.

District-level planning for the CB-NCP involves government health representatives from the center working together with district-level health officials from the DHO along with representatives from relevant NGOs. The CB-NCP Secretariat, supported by Save the Children, provides considerable support to this effort. Respondents noted that there is a lack of written guidelines for the planning and orientation process at the district level.

The district planning event is framed as a two-day workshop. The first day is called "planning" and is devoted to planning for the upcoming CB-NCP training and conducting a basic orientation for DHO supervisors. An orientation to the CB-NCP is conducted on the second day that is attended by major district stakeholders that include the Chief District Officer (CDO) and representatives from other government departments and line agencies, local NGOs, and the district hospital. This orientation, which includes a discussion of all issues related to the CB-NCP, is generally attended by 30-60 participants.

Stakeholders note that the district orientation has little two-way communication and is more accurately described as a presentation of information. Stakeholders also note that the presentation has been developed in the center and presents the national situation with regards to newborn health but does not include information about the local situation for newborns.

At the VDC level, the planning process consists of calling in members of the HFOMC on last day of the FCHV training for a half-day orientation (conducted by the trainers of FCHVs) on basic issues related to the CB-NCP. FCHVs conduct a half-day CB-NCP orientation for members of the mothers groups that they work with on that same day.

Challenges to conducting an effective CB-NCP planning process at the district level

A variety of stakeholders and respondents to the qualitative study were asked to comment on challenges to an effective planning process. These individuals noted that barriers include budgetary limitations, political instability, turnover of key staff involved in leadership of the program, and lack of locally elected bodies in the district. They also stated that planning for monitoring and supervision is especially weak and needs to be strengthened.

Some of the DHOs, hospital incharges and HFOMC members who were interviewed feel that CB-NCP planning should be done through a bottom-up approach and the program should be designed according to the recommendations and feedback from the community. They noted that the program planning process is currently directed from the center and is top-down.

Local-level versus centralized planning: Issues and constraints

The statement below was made by a respondent in the qualitative study from the District Health Office in Chitwan district and sums up the various issues and forces that compete to drive health planning processes at the district level:

> *"Decentralization and devolution are the key principles that we follow in our planning process and Chitwan is a full devolution district. Hence, all of our planning processes aim to be locally-based. The DHO makes an annual health plan and submits it to the Chitwan District Development Committee for approval. Health services have been handed over to community so that makes planning a bottom-up approach. But in practice this approach is not always followed. What actually ends up happening is that the planning process takes place somewhere in middle, with some elements of planning coming from the center and others coming from community. We must keep in mind that health is a technical area and the community cannot drive the entire process. In addition, when there are no local elected bodies, it becomes difficult to achieve true local involvement in program planning. Locals are generally more interested in the curative aspect of health, while the DHO is more interested in preventive activities. This issue creates a mismatch between local-level interests and planning and the DHO's interests. We all agree that in principle, planning should come from local level and budget allocation should be carried out accordingly, but it doesn't always work out that way."*

Chapter G: Availability of Newborn Services

Evaluation Questions and Summary Findings

EQ-G-1 What is the availability of health workers trained in CB-NCP?

Summary findings

1. There is a wide variation across CB-NCP pilot districts in terms of the ratio between population and health workers.
2. The influx over time of health workers that have not participated in CB-NCP training needs to be addressed through the timely provision of training courses.

EQ-G-2 What is the logistic stock situation of key CB-NCP commodities at health facility and community levels?

Summary findings

1. Data from FUT and TSV describe an adequate stocking situation with the exception of the Clean Delivery Kit (CDK) which is known to have supply problems. Stocks of key commodities are somewhat higher with FCHVs and in health facilities than with CHWs. FUT data were gathered early in the program and may be unrepresentative of the current situation. TSV data are only available from districts where there is substantial NGO support to the CB-NCP.
2. Partners note that there are problems with the resupply of key CB-NCP equipment and commodities and that shortages are ongoing. CB-NCP equipment and supplies were provided late in a number of districts including Morang, Palpa, Kavre, and Dhankuta. It seems clear that there are more problems with supply of equipment and commodities in districts where the government implements the CB-NCP without the support of an implementing partner.
3. Available data suggest that ongoing supply of equipment and commodities appears to be adequate and most likely has not had a major negative effect on the functionality of the CB-NCP.
4. Supplies and equipment were not provided until six months after the initial training in Palpa district. Program performance was subsequently low in Palpa. Although it cannot be definitively concluded that delays in the initial supply of equipment is a major contributing cause of low program performance in Palpa, it seems reasonable to conclude that the two issues are linked to some extent.

EQ-G-3 What is rate of FCHV capture for birth, low birthweight (LBW), infections and birth asphyxia?

Summary findings

Birth capture rate: FCHVs capture and register approximately three in five newborns (59 percent) in rural VDCs of the CB-NCP pilot districts. The birth capture rate ranges across districts from 27 percent in Dhankuta to 88 percent in Doti. The FCHV capture rate is 46 percent in the three "government-only districts" (Dhankuta, Morang, Palpa) and 60 percent in the other seven districts that receive support from non-governmental partners. CB-NCP stakeholders feel that a FCHV capture rate of 60-70 percent is acceptable and these results need to be strengthened in the low-performing districts.

Evaluation questions and summary findings (continued)

EQ-G-3 What is rate of FCHV capture for birth, low birth weight, infections and birth asphyxia?

Summary findings (continued)

FCHV LBW capture rate: FCHVs only capture an estimated 29 percent of the LBW newborns that they weigh. In other words, if FCHVs were asked to weigh 100 newborns who are LBW, they would identify 29 of them as LBW and mis-identify the other 71 LBW newborns as normal birthweight. At the population level, FCHVs are only identifying 15 percent of all LBW babies born at home in rural VDCs of CB-NCP pilot districts. These results are based on the assumption that 15 percent of newborns in the pilot districts are V/LBW. This assumption is felt to be conservative and it is doubtful that the true percentage of very low birthweight (LBW) newborns is much lower than this—and it may be higher.

FCHV newborn infection capture rate: The FCHV newborn infection capture rate increased from 1 percent prior to the introduction of the CB-NCP to 11 percent following its introduction as measured in the endline household surveys in Bardiya, Palpa, Chitwan, Dang and Kavre districts. This FCHV capture rate ranges from zero percent in Palpa to 17 percent in Bardiya and Chitwan. The capture rate by any appropriate provider is much higher at 86 percent. These data suggest that the any-appropriate-provider capture rate is quite high while the FCHV capture rate of 11 percent suggests that FCHVs play a relatively minor role in the "capture" of infected newborns.

FCHV birth asphyxia capture rate: Among babies whose births are attended by FCHVs and who experience birth asphyxia, FCHVs identify and treat one in three newborns (36 percent) who needs stimulation and only one in ten newborns (10 percent) who need bag-and-mask resuscitation. These findings are based on the most conservative estimate of prevalence of mild and moderate BA and suggest that even when FCHVs are present at the delivery, they are missing the opportunity to provide BA resuscitation services to the vast majority of newborns with BA that require assistance. At the population level, among all babies born at home in rural VDCs of CB-NCP pilot districts that experience BA—including home births where the FCHV is not present—FCHVs identify and treat 18 percent of newborns who need stimulation and only one in 20 newborns (5 percent) who need bag-and-mask resuscitation.

Conclusions

FCHV capture rates were estimated for births, newborns with infection, LBW newborns and newborns with birth asphyxia. All four rates were lower than envisioned. Birth capture rates are low but border on acceptable, while trained health workers' capture rate of newborns with possible infection is so high that there isn't much left for FCHVs to capture. FCHVs are not capturing a sufficient percentage of newborns who are low birthweight or who have birth asphyxia to achieve important public health impact.

These results suggest that the program strategy of giving FCHVs the responsibility for identifying and managing newborns with severe health problems linked with mortality is not achieving a high enough capture rate to achieve a meaningful impact on mortality. Program planners need to seriously consider what next steps should be in this regard—especially for FCHVs' roles in identification and management of LBW newborns and newborns with birth asphyxia.

Overview

The term availability of service is often used in terms of personnel and supplies. The first two evaluation questions of this theme follow this definition of availability and ask if trained personnel are in place to provide CB-NCP services, and do they have the supplies that are needed to provide the service? But availability can be thought of in other contexts as well. An alternate definition of the availability of health services is the following:

> *"The degree to which individuals are inhibited or facilitated in their ability to gain entry to and to receive care and services from the health care system. Factors influencing this ability include geographic, architectural, transportation, and financial considerations, among others.[7]"*

The third evaluation question of this chapter is perhaps more closely aligned with this definition of service availability. Key CB-NCP services—those designed specifically to reduce newborn mortality—were designed to be delivered through community-based providers including FCHVs in order to make them more available to community members who are unable or have difficulty "gaining entry to and receiving care and services from the health care system." This third and final evaluation question asks to what extent these services were made available through FCHVs to the newborns that need them. Data sources used to address the evaluation questions for delivery practices included 1) Project training records, 2) HHS, 3) NHIS, 3) FUT, 5) TSV and 6) Qualitative Study (QS).

Detailed Results: Evaluation questions regarding availability of newborn services

EQ-G-1 What is the availability of health workers trained in CB-NCP?

Table 6 describes the number of health workers that have participated in the CB-NCP training in the ten CB-NCP pilot districts. The wide variation between districts in the population per FCHV is notable.

Discussions that were held during the CB-NCP assessment process revealed a number of issues that affect the availability of health workers trained in CB-NCP.

1. FCHV attrition averages around four percent per year and new FCHVs need to be trained in a number of areas including CB-NCP. Some of the pilot districts have already provided training for new FCHVs while others have yet to do so.
2. Similarly, approximately five to ten percent of health facility staff is transferred annually. Health facility staff that transfers into a CB-NCP district needs to participate in CB-NCP training as soon as possible. As with FCHVs, some CB-NCP pilot districts have provided training for newly transferred-in health facility staff while others have not yet done so.
3. Birthing centers are being opened across Nepal using government and local resources. Given the key role for delivery staff in CB-NCP, newly hired staff in these birthing centers has an urgent need to participate in CB-NCP training. CB-NCP partners report that there are numerous untrained staff members in birthing centers, especially in districts where the government is implementing CB-NCP without the support of an implementing partner.
4. In summary, the influx into CB-NCP districts over time of health workers that have not participated in CB-NCP training is a problem that needs to be addressed in an ongoing, sustainable manner.

[7] http://de.dict.md/definition/treatment

Table 6: Availability of trained health workers in CB-NCP districts *(source: Training Tracker, CB-NCP Secretariat)*

District	District Population	Number of VDCs	Year CB-NCP introduced	# VDCs with CB-NCP package	# CHWs trained	# FCHVs trained	# facility-based HWs trained	Population per trained FCHV	Partners conducting trainings (list)
Kavre	442,395	87	July, 2010	87	128	923	244	479	UNICEF
Bardiya	475,766	31	Dec., 2009	31	56	842	132	565	Save the Children
Dhankuta	184,456	35	July, 2010	35	60	315	91	586	GoN
Morang	1,005,930	65	July, 2010	65	114	594	184	1693	GoN
Sunsari	1,068,166	49	Feb, 2010	49	99	981	161	1089	Plan Nepal
Palpa	297,322	65	March, 2011	65	93	585	130	508	GoN
Chitwan	591,505	36	March, 2011	36	74	340	136	1740	UNICEF
Parsa	624,501	82	July, 2010	82	132	999	231	625	Plan Nepal
Dang	570,439	39	Dec, 2009	39	62	840	179	679	UNICEF
Doti	330,731	50	July, 2010	50	84	653	127	506	Care Nepal
TOTAL	**5,591,211**	**539**	**--**	**539**	**902**	**7072**	**1615**	**847**	--

Table 7: Availability of CB-NCP commodities with health workers during FUT exercise, by cadre and district *(source: FUT, 10 districts)*

	Indicator	Doti	Bardiya	Dang	Palpa	Chitwan	Kavre	Parsa	Sunsari	Morang	Dhankuta		Mean
Percentage of commodities available at HF													
1	Cotrim P	100	100	100	99	100	100	95	100	100	100		99
2	Gentamicin	98	97	100	89	100	96	94	98	84	95		95
3	Insulin Syringe	99	97	100	82	97	99	88	100	97	97		96
4	CDK	96	97	39	--	--	21	87	61	95	100		75
5	Dee-Lee suction	100	94	94	100	97	93	94	83	86	100		94
6	Functioning Bag & Mask	100	100	100	90	100	89	85	89	86	100		94
Percentage of commodities available with CHWs													
1	Cotrim P	71	100	83	62	100	94	87	85	89	99		87
2	Gentamicin	93	97	80	59	100	77	54	55	80	83		78
3	Insulin Syringe	100	97	80	48	100	77	49	58	82	83		77
4	Functional Salter Scale	88	97	100	62	100	89	88	77	--	--		88
5	Functional Timer	79	100	80	93	76	88	71	77	84	83		83
6	Functional Thermometer	83	100	81	73	90	91	49	72	--	79		80
7	CB-NCP 4 register	85	100	--	72	91	--	--	--	--	--		87
8	Job Aid	85	91	--	78	94	--	--	--	--	--		87

Table 7: Availability of CB-NCP commodities with health workers during FUT exercise, by cadre and district *(source: FUT, 10 districts)*

	Indicator	Doti	Bardiya	Dang	Palpa	Chitwan	Kavre	Parsa	Sunsari	Morang	Dhankuta		Mean
Percentage of commodities available with FCHVs													
1	Cotrim P	85	92	96	85	100	86	64	92	98	90		89
2	CDK	55	97	28	--	--	7	20	18	27	14		33
3	Dee-Lee Suction	90	96	100	97	99	99	92	94	94	100		96
4	Functioning Bag & Mask	93	96	100	99	100	99	95	96	91	100		97
5	Functional Salter Scale	99	99	100	100	100	98	88	91	94	100		97
6	Functional Timer	90	94	97	97	84	87	69	91	94	91		89
7	Functional Thermometer	90	98	99	85	90	84	78	81	94	66		87
8	CB-NCP 1-3 register	93	100	--	89	100	--	--	--	--	--		96
9	Job Aid	95	99	--	97	98	--	--	--	--	--		97

Table 8: Availability of CB-NCP commodities with FCHVs during technical support visits (TSVs) by cadre and district *(source: TSV, 4 districts)*

Indicator	Bardiya	Doti	Dang			Kavre		
Cadre	**FCHV**	**FCHV**	**HF staff**	**CHWs**	**FCHV**	**HF staff**	**CHWs**	**FCHV**
Stocks of cotrim maintained (100 tablets)	99	98						
Stocks of Clean Delivery Kit maintained (5sets)	98	44						
Availability of Dee Lee suction tube (1 set)	100	69	100	77	97	71	61	100
Functioning ARI timer	100	92	90	91	88	63	78	88
Functioning color-coded thermometer	100	89	80	91	84	78	76	94
Functioning Salter scale	100	97	97	94	97	76	82	100
Functioning bag-and-mask	100	96	97	86	97	78	84	100
FCHV Job Aid	100	91						
BPP flip chart	100	91						
Newborn service and treatment register	100	88						

EQ-G-2 What is the logistic stock situation of key CB-NCP commodities at health facility and community levels?

The results for this evaluation question are informed by both quantitative and qualitative data.

Information from quantitative data sources

There are two sources of quantitative data that provide information about the stock situation of key CB-NCP commodities at health facilities and with community-level health workers.

The first source is the FUT exercise, through which data were gathered that describe the availability of supplies and commodities at health facilities, with CHWs (i.e., VHWs and MCHWs), and with FCHVs. Limitations to these data are that it was a one-off exercise that represents the stock situation soon after the introduction of the CB-NCP and may not be representative of the current situation.

The second source of data is TSVs. Staff members from implementing partners in Bardiya, Doti, Kavre and Dang districts conducted TSVs during the implementation period of the CB-NCP and gathered information during these visits on a number of issues including supply of equipment and commodities.

Data from both of these sources are presented in Table 7 and Table 8. The FUT data describe an adequate stocking situation with the exception of the clean delivery kit (CDK) which is known to have supply problems. Stocks of key commodities are somewhat higher with FCHVs and in health facilities than with CHWs.

TSV data portray a similar picture. Stocks are generally adequate although they are somewhat lower in Kavre district at the health facility and CHW levels. The stock of the Dee Lee suction appears to be slightly lower than other equipment.

Information from the qualitative study

The CB-NCP qualitative study revealed a number of issues regarding the logistic stock situation of key CB-NCP commodities at health facility and community levels. Discussions that were held with stakeholders during the CB-NCP assessment process have contributed further information.

The CB-NCP program provided job aids and equipment to FCHVs, CHWs and health facility staff that included bag-and-mask, DeLee suction, thermometer, cotrim, CB-NCP forms, CDKs, training manual, flip charts, action card, job aid, gentamicin, and the Salter scale.

FCHVs received the job aids and equipment during or at the end of their initial training in Bardiya, Parsa, Chitwan and Doti districts. FCHVs in Palpa who were interviewed stated that they received their job aids and equipment many months after the training was completed. Health facilities received equipment and supplies in a less timely manner than FCHVs. Among the 15 health facilities across five districts that were visited during the qualitative study, job aids and equipment were provided during or at the end of the training in eight facilities (two each in Bardiya, Parsa, Chitwan and Doti districts). Some or all commodities arrived late in all facilities in Palpa (several months late) and one VDC each in the other four districts (one week late in one VDC, ten days late (Gentamicin only) in one facility, one month late in two facilities).

The qualitative study team also reviewed the current stocks of key CB-NCP commodities at the district level as well as the supply of commodities to health facilities over last year. The availability of key commodities appeared to be adequate at the district level and the supply to health facilities during the previous fiscal year appeared

to be satisfactory although the current stock of gentamicin and insulin syringes was lower than other commodities in Palpa district.

Information from stakeholder discussions

Concerned stakeholders held discussions during the CB-NCP assessment process and contributed the following information and analysis regarding the supply of commodities and equipment:

1. CB-NCP equipment and supplies were provided late in a number of districts including Morang, Palpa, Kavre, and Dhankuta. It seems clear that there are more problems with supply of equipment and commodities in districts where the government implements the CB-NCP alone without the support of an implementing partner.
2. There have been problems with resupply of key equipment and commodities and shortages are ongoing. For example, forms CB-NCP–1, CB-NCP–2 and CB-NCP–3 are not available now in many CB-NCP districts. Insulin syringes, gentamicin and gentian violet are all out of stock in Dailekh district (Dailekh is not a pilot district but CB-NCP is being implemented there and the example is relevant for this point).
3. The FUT data were gathered early in the program and are unrepresentative of the current situation.
4. Ultimately, the primary query of interest for this evaluation question is "has lack of supplies affected service availability and the overall effectiveness of the CB-NCP?" Although data that could be used to conclusively answer this question are not available, it may be most helpful to frame this question in two parts with regards to ongoing supply and initial supply:
    - Ongoing supply: Available data suggest that although there are weaknesses in the supply of equipment and commodities, it hasn't had a major negative effect on the functionality of the CB-NCP.
    - Initial supply: Among the ten pilot districts, Palpa stands out as the one district where supplies and equipment arrived exceedingly late—approximately six months following the completion of training, according to key informants. This resulted in a long delay in the provision of many CB-NCP services that are dependent on equipment and supplies. Review of the NHIS data shows that Palpa ranks low or last among CB-NCP pilot districts in many measures of program outcome including birth capture rate, infection capture rate, birth asphyxia capture rate, weighing of newborns at home births and LBW capture rate. Although it cannot be definitively concluded that delayed initial supply of equipment is the cause of low program performance in Palpa, it does seem logical that the two issues are linked to some extent.

EQ-G-3 What is rate of FCHV capture for birth, low birthweight, infections and birth asphyxia?

A capture rate is defined in this assessment as follows: among a population that needs or is targeted for a specific service, the percentage of the population that actually receives that service.

This evaluation question seeks to estimate the FCHV capture rate for births (i.e., newborns), low birth weight newborns, newborns with infection and newborns suffering from birth asphyxia. Other health workers may also contribute to the overall capture rate, and if the quality of the service they provide is higher than FCHVs, their contribution may be more effective than that of FCHVs.

The approach that will be followed in measuring these four capture rates is outlined in Table 9. It should be noted that the approach and source of the data varies depending on the type of capture rate. The range of values for the various capture rates can be from zero (no contribution from FCHVs in providing the service) to 100 percent (FCHVs provide the service to all who need it).

Under the CB-NCP, only FCHVs who serve rural areas were trained, with the exception of Bardiya district, where FCHVs from the municipalities were also trained. The analyses below that calculate coverage and capture rates are based on the areas where trained FCHVs provide CB-NCP services and do not include municipalities, except for Bardiya district.

Table 9: Definition of FCHV capture rates

Capture rate	Numerator (source)	Denominator (source)	Notes and standard
I. Birth	Number of newborns registered using CB-NCP-2 form (NHIS)	Number of expected live births (HMIS) in rural VDCs	--
II. LBW **Approach A** *(among weighed newborns)*	Number of newborns identified as LBW or VLBW by FCHVs as recorded on CB-NCP-2 form (NHIS)	Number of expected V/LBW babies among babies weighed by FCHVs within 3 days of birth in rural VDCs of CB-NCP pilot districts (NHIS)	Assume 15 percent prevalence of LBW/VLBW among weighed babies.
Approach B *(population level)*	Number of newborns identified as LBW or VLBW by FCHVs as recorded on CB-NCP-2 form (NHIS)	Number of expected LBW/VLBW newborns in all home births in rural VDCs of CB-NCP pilot districts (HMIS)	Assume 40 percent home births and 15 percent prevalence of LBW/VLBW.
III. Infections	Number of sick newborns that make first contact with FCHV (HHS)	Number of newborns with danger sign (HHS)	Data quality issues prevent use of NHIS data for this question.
IV. Birth asphyxia (BA) **Approach A** *(among attended home births)*	Number of newborns for whom FCHVs provided birth asphyxia management services as recorded on CB-NCP-2 form (NHIS)	Number of expected birth asphyxia cases among home births attended by FCHVs in rural VDCs of CB-NCP pilot districts (NHIS)	Separate analysis for (i) stimulation and (ii) bag-and-mask. Among home births attended by FCHVs, assume 5 percent prevalence of BA requiring stimulation and 3 percent BA requiring bag-and-mask.
Approach B *(among all home births)*	Number of newborns for whom FCHVs provided birth asphyxia management services as recorded on CB-NCP-2 form (NHIS)	Number of expected birth asphyxia cases among all home births in rural VDCs of CB-NCP pilot districts (HMIS)	Separate analysis for (i) stimulation and (ii) bag-and-mask. Assume 40 percent home births, 5 percent prevalence of BA requiring stimulation, and 3 percent BA requiring bag-and-mask.

FCHV birth capture rate

The birth capture rate is a measure of the percentage of live newborns that are registered by FCHVs. The numerator of this indicator is the number of newborns registered using CB-NCP-2 form (from the NHIS), while the denominator is the number of expected live births in rural VDCs (from the HMIS). This indicator is calculated using 2067/68 data (July 15, 2010-July 14, 2011) for both NHIS and HMIS data. The denominator has been adjusted recently to take into account declining fertility rates in Nepal and is felt to be reasonably accurate. Results outlining the by-district and overall FCHV birth capture rate are presented in Table 10.

Table 10: FCHV birth capture rate *(source: NHIS & HMIS, 10 districts)*

Indicator	Bardiya	Dang	Sunsari	Doti	Kavre	Morang	Chitwan	Palpa	Dhankuta	Parsa		Weighted mean
Percentage of (estimated) live-born newborns who are registered in CB-NCP NHIS system	64	67	77	88	30	52	50	39	27	80		59

Note: numerator = # CB-NCP 2 forms closed; denominator = estimated # of live births.

The mean FCHV capture rate across the ten pilot districts is 59 percent and ranges from 27 percent in Dhankuta to 88 percent in Doti. The weighted FCHV capture rate is 46 percent in the three "government-only districts" (Dhankuta, Morang, Palpa) and 60 percent in the other seven districts that receive support from non-governmental partners. Stakeholders who discussed these findings noted that a FCHV capture rate of 60-70 percent is acceptable and feel that these results need to be strengthened, especially in the low-performing districts.

FCHV low birthweight (LBW) capture rate

The FCHV LBW capture rate can be conceptualized using two different approaches—an "among weighed newborns" approach as well as a "population-level" approach. These approaches are outlined in the text and Table 11.

Approach A: The "*among weighed newborns*" FCHV LBW capture rate is calculated as the number of V/LBW babies identified by FCHVs divided by the number of expected V/LBW babies among babies who are weighed by FCHVs within three days of birth. This indicator answers the question "to what extent do FCHVs identify V/LBW babies among those V/LBW babies that they weigh?" This approach to analysis requires that a certain prevalence of LBW be assumed among the newborn population; a prevalence of 15 percent has been assumed for these calculations[8]. The optimum result for this indicator is 100 percent and is dependent on FCHVs' skills to accurately and correctly weigh newborns and recognize low birthweight.

Approach B: The "*population level*" FCHV LBW capture rate is calculated as the number of V/LBW babies identified by FCHVs divided by the number of expected V/LBW newborns among all babies born at home in the pilot districts. This indicator answers the question "what percentage of all home-born V/LBW newborns do FCHVs capture at the population level?" and the target result is 100 percent. The achievement of a good

[8] A description of how an anticipated prevalence of LBW of 15 percent has been determined can be found in the discussion of Chapter N. Low birthweight.

result for this indicator is dependent on two factors: (i) FCHVs' skills to identify LBW newborns and (ii) the percentage of home-born babies that FCHVs are able to weigh.

Table 11: Approaches to and results from calculating FCHV LBW capture rates

Approach	Numerator	Denominator	FCHV capture rate
A (finding LBW among weighed newborns)	Number of newborns identified as LBW or VLBW by FCHVs	Number of expected V/LBW babies among babies weighed by FCHVs within 3 days of birth in rural VDCs of CB-NCP pilot districts	**29 percent** (target = 100 percent)
	994	**3456**	
B (finding LBW among all home-born newborns)	Number of newborns identified as LBW or VLBW by FCHVs	Number of expected LBW/VLBW newborns in all home births in rural VDCs of CB-NCP pilot districts	**15 percent** (target = 100 percent)
	994	**6630**	

Assumptions and calculations

The calculation of the FCHV LBW capture rate(s) is based on the following assumptions and calculations:

1. The number of expected V/LBW babies **among babies weighed by FCHVs within 3 days of birth** in CB-NCP pilot districts is calculated as the number of babies that FCHVs report that they weighed within three days of birth during 2067/68 (23,040, from NHIS) multiplied by 15 percent. This yields an estimate of **3,456 V/LBW newborns**.
2. The estimated number of home births in rural VDCs of CB-NCP pilot districts in 2067/68 is calculated as the expected number of live births in the ten pilot districts (110,499) multiplied by the estimated percentage of home births (40 percent) as measured in the ten districts in the NDHS 2011 survey during the 2067/68 fiscal year. This yields an estimate of the number of home births in rural VDCs of CB-NCP pilot districts of 44,200.
3. The estimated number of V/LBW babies **among all babies born at home** in the ten pilot districts during 2067/68 is calculated as the estimated number of home births (44,200) multiplied by 15 percent. This approach yields an estimate of **6,630 V/LBW babies**.

Results

FCHV LBW capture rates among LBW newborns weighed by FCHVs

Approach A measures the percentage of LBW babies that FCHVs weigh and correctly identify as LBW within three days following home births. For example, suppose that a group of FCHVs weighs 1000 newborns, among which are 150 LBW babies. What percentage of those 150 LBW babies do the FCHVs correctly identify (i.e., "capture") as LBW? That is what this capture rate seeks to measure.

This analysis estimates that FCHVs only capture an estimated 29 percent of the LBW newborns that they weigh. In other words, this finding says that if FCHVs were asked to weigh 100 newborns who are LBW, they would identify 29 of them as LBW, and tell the

caretakers of the other 71 LBW newborns that "your weight is normal". It is not clear if this is due to incorrect weighing technique, malfunctioning equipment, or some other reason.

It should be noted that weighing the newborn is tied to the FCHV incentive and thus the denominator for this indicator may be somewhat inflated. The accuracy of the numerator is believed to be reasonably high.

FCHV LBW capture rates among all LBW newborns born at home

Approach B shows the population-level FCHV capture rate and quantifies the potential impact of FCHVs on the public health problem of low birthweight among home births. This finding suggests that FCHVs are only identifying 15 percent of LBW babies among those LBW newborns who are born at home. This result is low for two primary reasons: (i) FCHVs only weigh 52 percent (23040/44200) of babies delivered at home, and (ii) FCHVs find a low percentage (four percent; 994/23040) of those babies that they do weigh to be LBW.

These results are based on the assumption that 15 percent of newborns in the pilot districts are V/LBW. This assumption is felt to be conservative and it is doubtful that the true percentage of LBW newborns is much lower than this although it may be higher. Changing this assumption will affect the results presented above.

FCHV newborn infection capture rate

The approach described below that is used to calculate the FCHV newborn infection capture rate differs from the approach used for LBW due to the nature of the data that are available—the NHIS infection data are low quality, while the household survey (HHS) data regarding infection are quite useful. The analysis of the FCHV newborn infection capture rate is therefore carried out using HHS data and is similar to "Approach B" that was used above for LBW, in that a population-level estimate of the FCHVs' newborn infection capture rate is generated.

Table 12: FCHV newborn infection capture rate (source: HHS, 5 districts)

Indicator	Numerator	Denominator	Bardiya		Chitwan		Palpa		Dang		Kavre		Mean*	
			BL	EL	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL
FCHV newborn infection capture rate	# sick newborns taken first to a FCHV	# newborns with at least one danger sign in first month	1	17	2	17	0	0	3	16	1	6	1	11

Indicator	Numerator	Denominator	Bardiya		Chitwan		Palpa		Dang		Kavre		Mean*	
			BL	EL	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL
Newborn infection capture rate by any appropriate provider	# sick newborns taken first to any appropriate provider (doctor, nurse, ANM, HA / AHW, MCHW, CMA, VHW or FCHV)	# newborns with at least one danger sign in first month	76	99	84	92	65	70	79	92	80	78	77	86

Results

The FCHV newborn infection capture rate is 11 percent following the introduction of the CB-NCP (i.e., at endline (EL)) as measured in the five districts represented in Table 12. The EL FCHV capture rate ranges from zero percent in Palpa to 17 percent in Bardiya and Chitwan. The EL capture rate by any appropriate provider at first contact point is 86 percent.

These data suggest that the overall capture rate by any appropriate provider is quite high while the FCHV capture rate of 11 percent suggests that FCHVs play a relatively minor role in the "capture" of infected newborns. The approximately ten percent increase from BL to EL in newborn capture rate by any appropriate provider appears to be completely due to the expanded role of FCHVs in sick newborn management.

FCHV birth asphyxia (BA) capture rates

The FCHV birth asphyxia (BA) capture rate can be conceptualized using two different approaches—an "attended birth" approach as well as a "population-level" approach—that are identical to the approaches used above for the FCHV LBW capture rate. In addition, it is important to differentiate between capture rates for "mild BA" (that requires some degree of resuscitation such as tactile stimulation or airway clearing) and "moderate/severe BA" (that requires assisted ventilation such as bag-and-mask) as the latter cases are where more significant impact on newborn mortality might be achieved. These approaches are outlined in the text and Table 13.

Approach A: The "*attended birth*" BA capture rate is calculated as the number of babies to whom FCHVs provide birth asphyxia management divided by the number of expected cases of birth asphyxia among babies born at home in rural VDCs of CB-NCP pilot districts whose birth is attended by FCHVs. This indicator answers the question "to what extent do FCHVs identify babies with birth asphyxia among all babies with BA at the births that they attend?" This approach to analysis requires that a certain prevalence of BA be assumed among the newborn population; a prevalence of five percent mild BA and three percent moderate/severe BA has been assumed for these

calculations[9]. The optimum result for this indicator is 100 percent and is dependent on FCHVs' skills to identify newborns suffering from BA and then FCHVs' willingness to intervene to manage the condition.

Approach B: The "*population level*" BA capture rate is calculated as the number of babies to whom FCHVs provide birth asphyxia management divided by the number of expected cases of birth asphyxia among all babies born at home in rural VDCs of the pilot districts. This indicator answers the question "what percentage of all home-birth BA cases are FCHVs capturing at a population level?" The optimum result for this indicator is 100 percent and is dependent on two factors: (i) FCHVs' skills to identify and manage newborns suffering from BA, and (ii) the percentage of home births that FCHVs attend.

Table 13: Approaches to and results from calculating FCHV birth asphyxia capture rates

Approach	Numerator	Denominator	FCHV capture rate	
			for BA stimulation	for BA bag-and-mask
A (finding cases among attended home births)	Number of newborns for whom FCHVs provided birth asphyxia management (NHIS)	Number of expected birth asphyxia cases among home births attended by FCHVs in rural VDCs of CB-NCP pilot districts	**36 percent** (388/1074) *(target = 100 percent)*	**10 percent** (66/644) *(target = 100 percent)*
	Stimulation = 388 **Bag-and-mask = 66**	**Stimulation = 1074** **Bag-and-mask = 644**		
B (finding cases among all home births)	Number of newborns for whom FCHVs provided birth asphyxia management (NHIS)	Number of expected birth asphyxia cases among all home births in rural VDCs of CB-NCP pilot districts	**18 percent** (388/2210) *(target = 100 percent)*	**5 percent** (66/1326) *(target = 100 percent)*
	Stimulation = 388 **Bag-and-mask = 66**	**Stimulation = 2210** **Bag-and-mask = 1326**		

Assumptions and calculations

The calculation of the FCHV BA capture rate is based on the following assumptions and calculations:

1. The estimated number of babies experiencing birth asphyxia **among home births attended by FCHVs** in rural VDCs of the ten pilot districts during 2067/68 is calculated as the number of home births attended by FCHVs (21,472; from the NHIS) multiplied by five percent for stimulation and three percent for bag-and-

[9] A description of how an anticipated prevalence of mild BA of five percent and moderate/severe BA of three percent has been determined can be found in the discussion of Chapter P. Birth Asphyxia.

mask. This approach yields an estimate of 1,074 babies who required stimulation and 644 who required bag-and-mask.

2. The estimated number of home births in CB-NCP pilot districts in 2067/68 is calculated as described above in the LBW capture rate section. The estimated number of home births in CB-NCP pilot districts in 2067/68 is 44,200.
3. The estimated number of babies experiencing birth asphyxia **among all home births** in rural VDCs of the ten pilot districts during 2067/68 is calculated as the estimated number of home births (44,200) multiplied by five percent for stimulation and three percent for bag-and-mask. This approach yields an estimate of 2,210 babies who require stimulation and 1,326 who require bag-and-mask.

Results

FCHV birth asphyxia capture rates when FCHVs are present at home births

Approach A measures the percentage of newborns experiencing BA that FCHVs will recognize as BA and manage when the FCHVs are present at home births. For example, suppose that a group of FCHVs attends 1000 home births, and during these 1000 births 50 newborns experience mild BA and need stimulation while 30 newborns experience moderate/severe BA and need bag-and-mask. What percentage of those fifty newborns with mild BA do FCHVs identify and stimulate? What percentage of the thirty newborns with moderate/severe BA do FCHVs manage with bag-and-mask? The results presented in the table suggest—among babies experiencing BA that are seen by FCHVs— that FCHVs identify and treat one in three newborns (36 percent) who needs stimulation and only one in ten newborns (10 percent) who need bag-and-mask resuscitation.

It should be recalled that these findings are based on the most conservative estimate of prevalence of mild and moderate BA; the use of a less conservative estimate would result in capture rates of 18 and 5 percent, respectively. These findings suggest that even when FCHVs are present at the delivery, they are missing the opportunity to provide BA resuscitation services to the vast majority of newborns with BA that require assistance. The quality of the data used to calculate these findings is considered to be adequately high to support these findings.

FCHV birth asphyxia capture rates on the basis of all home births

Approach B shows the population-level FCHV birth asphyxia capture rate and quantifies the potential impact of FCHVs on the problem of mortality due to birth asphyxia at a population level. These results suggest—among all babies born at home that experience BA, and at whose births FCHVs are supposed to be present— that FCHVs identify and treat 18 percent who need stimulation and only one in 20 newborns (5 percent) who need bag-and-mask resuscitation. As was noted above, these findings are based on the most conservative estimate of prevalence of mild and moderate BA.

Chapter H: Quality of Newborn Services

Evaluation Questions and Summary Findings

EQ-H-1 What is the competency of FCHVs, community health workers and health workers with respect to skills and knowledge in core areas of the CB-NCP?

Summary findings

1. Health workers' knowledge and skill levels, as measured in the FUT, are lower than desired. Some respondents feel that these findings are an accurate reflection of the situation and can be attributed in part to low case numbers and subsequent lack of practice. Other respondents dispute the validity of the FUT results, saying that the scoring criteria are overly rigorous. Concern was expressed by a number of respondents that some of the older FCHVs do not have adequate skills to deliver CB-NCP services properly.
2. Among cadres, knowledge and skill levels are generally highest among health facility staff and are then lower among VHWs/MCHWs and lower still among FCHVs. Skill levels are slightly lower than knowledge levels.
3. There is a general feeling among health personnel that FCHVs' and health workers' knowledge and skills are adequate. Respondents note that FUT knowledge and skill scores may be low but that FCHVs and health workers are able to perform their duties.
4. When FCHVs were asked how they would manage newborns with danger signs their responses were diverse and several FCHVs stated they would manage the newborn in ways that contradict the CB-NCP infection case management algorithm and are potentially dangerous to newborns' health.

EQ-H-2 What is supervision coverage for the CB-NCP?

Summary findings

1. FCHVs are supervised during the regular monthly meetings that take place at health facilities in the pilot districts as well as during technical support visits (TSVs) conducted by DHO or partner agency staff members at the community level.
2. FCHVs say that they are primarily supervised by VHWs and ANMs and that they like the supervision that they receive.
3. The only quantitative data that describe coverage of supervision are from TSV visits from Bardiya. These data show that 62 percent of FCHVs received a field-level supervision visit during the six months prior to the TSV.

Evaluation Questions and Summary Findings (continued)

EQ-H-3 How are services that are provided by FCHVs in the CB-NCP perceived by mothers and other stakeholders?

Summary findings (continued)

1. Some DHO CB-NCP Focal Persons, NGO District Managers and health facility staff reported that FCHVs seem to be identifying cases of LBW well and also refer LBW newborns to the health facilities or counsel mothers on Kangaroo Mother Care (KMC). However it was mentioned by the DHO Focal Person in Bardiya that even though FCHVs counsel mothers on KMC, mothers do not seem to be following their advice.
2. Most mothers say that if their newborn were to show a danger sign, they would take the newborn directly to a health facility and not to the FCHV, although several mothers said they would go to the FCHV first.
3. There was mixed opinion among hospital in-charges regarding how well FCHVs are carrying out their responsibilities in the CB-NCP program. Some were positive about the involvement of the FCHVs, noting that FCHVs were carrying out their responsibilities well, while others did not think the FCHVs were capable of carrying out their duties related to the CB-NCP to an adequate standard of quality.

Conclusions

Based on a limited amount of quantitative and qualitative data that were available to the assessment team, some health providers appear to have adequate skills and knowledge to provide quality services while others do not. Clients state their satisfaction with services provided by FCHVs although their preference for services provided by trained health workers is most likely based on their higher perceived quality. More information is needed in order to assess the quality of services provided through CB-NCP.

Overview

The term quality of health services is widely used and can cover a wide range of issues related to health care. Some of the most commonly accepted uses link quality of care to best practices and desired health outcomes. In terms of the CB-NCP assessment, the evaluation questions that pertain to quality of newborn services address the issues of (i) health workers' skills and knowledge, (ii) supervision coverage of FCHVs and (iii) mothers' and other health personnel's perceptions regarding care provided by FCHVs in the CB-NCP. Data sources used to address the evaluation questions related to quality of newborn services include 1) FUT, 2) TSV, 3) QS.

Detailed Results: Evaluation questions regarding quality of newborn services

Detailed findings are presented below regarding the three evaluation questions related to the quality of newborn services.

EQ-H-1 What is the competency of FCHVs, community health workers and health workers with respect to skills and knowledge in core areas of the CB-NCP?

The data that are used to answer this evaluation question come from several sources. Quantitative data that measure health workers' skills and knowledge are available from the FUT exercise as well as from TSV conducted by field supervisors in several pilot districts. In addition, the qualitative study gathered information from FCHVs, DHO personnel and health facility staff members regarding health worker competency.

Table 14: Skills and knowledge of health workers regarding clean delivery, ENC and newborn infection, by cadre *(source: FUT, 10 districts)*

Indicator	% with correct knowledge in ..... district										Mean*
	Doti	Bardiya	Dang	Palpa	Chitwan	Kavre	Parsa	Sunsari	Morang	Dhankuta	
Clean delivery											
Knowledge of all six cleans											
Health workers	68	57	68	63	53	57	41	75	87	86	66
CHWs (MCHWs/VHWs)	36	25	36	47	33	52	30	58	67	53	44
FCHVs	25	30	25	35	28	13	22	37	72	24	31
Skills on hand-washing											
Health workers	76	81	86	73	71	86	90	--	97	67	81
CHWs (MCHWs/VHWs)	57	65	81	70	51	66	96	--	85	42	68
FCHVs	38	67	69	55	58	52	92	50	63	58	60
Essential newborn care											
Knowledge of ENC (all 5 messages)											
Health workers	--	76	95	70	43	62	51	59	86	87	70
CHWs (MCHWs/VHWs)	--	56	80	59	46	56	51	67	82	57	62
FCHVs	--	80	90	61	49	18	38	55	84	37	57
Newborn infection											
Knowledge of newborn danger signs (5 or more)											
Health workers	81	88	--	57	--	--	--	--	--	--	75
CHWs (MCHWs/VHWs)	90	94	--	62	--	--	--	--	--	--	82
FCHVs	88	98	--	64	--	--	--	--	--	--	83
Knowledge of correct dose of cotrim for newborn											
Health workers	82	98	93	90	58	91	86	98	91	89	88
CHWs (MCHWs/VHWs)	95	95	90	87	78	92	88	95	94	96	91
FCHVs	84	97	97	59	69	82	53	97	97	86	82
Knowledge of correct dose of gentamicin											
Health workers	66	92	100	79	61	62	57	76	84	93	77
CHWs (MCHWs/VHWs)	72	97	100	78	61	57	57	64	87	70	74

Indicator	% with correct knowledge in ..... district										Mean*
	Doti	Bardiya	Dang	Palpa	Chitwan	Kavre	Parsa	Sunsari	Morang	Dhankuta	
Skills in measuring temperature using thermometer											
Health workers	73	66	63	40	63	68	25	--	93	69	62
CHWs (MCHWs/VHWs)	47	75	60	30	33	43	20	--	82	40	48
FCHVs	21	69	51	24	21	26	1	33	29	56	33

Note: * = unweighted mean

Table 15: Skills and knowledge of health workers regarding birth asphyxia, low birthweight, and hypothermia, by cadre *(source: FUT, 10 districts)*

Indicator	% with correct knowledge in ..... district										Mean*
	Doti	Bardiya	Dang	Palpa	Chitwan	Kavre	Parsa	Sunsari	Morang	Dhankuta	
Birth asphyxia											
Knowledge of steps to manage birth asphyxia											
Health workers	89	84	100	57	67	87	75	79	83	97	82
CHWs (MCHWs/VHWs)	84	81	94	73	56	82	66	67	70	95	77
FCHVs	67	88	94	68	46	64	46	57	78	86	69
Skills to manage birth asphyxia (using doll)											
Health workers	43	47	48	42	76	48	22	--	88	61	53
CHWs (MCHWs/VHWs)	24	43	30	23	61	30	17	--	66	39	37
FCHVs	9	39	52	19	39	20	1	18	--	47	27
Low birthweight											
Knowledge of KMC (Mayo ko Angalo)											
Health workers	13	66	83	25	31	--	46	30	--	86	48
CHWs (MCHWs/VHWs)	18	31	50	20	26	--	20	15	--	65	31
FCHVs	5	48	57	24	11	--	8	10	--	69	29

Indicator	% with correct knowledge in ..... district										Mean*
	Doti	Bardiya	Dang	Palpa	Chitwan	Kavre	Parsa	Sunsari	Morang	Dhankuta	
Skill on Mayo ko Angalo (using doll)											
Health workers	74	58	74	49	59	75	50	--	85	65	65
CHWs (MCHWs/VHWs)	49	65	78	32	58	62	42	--	68	44	55
FCHVs	70	46	76	31	38	42	33	43	14	43	44
Knowledge of weight classification											
Health workers	56	71	93	79	61	--	75	79	83	94	77
CHWs (MCHWs/VHWs)	88	62	83	63	70	--	78	89	82	95	79
FCHVs	75	90	--	76	79	--	76	84	91	84	82
Skills for weighing baby											
Health workers	77	74	79	63	59	--	45	--	94	69	70
CHWs (MCHWs/VHWs)	48	78	75	56	61	--	25	--	86	40	59
FCHVs	43	73	86	38	42	--	7	49	57	56	50
Hypothermia											
Knowledge of management of hypothermia											
Health workers	45	30	98	57	47	--	76	90	78	92	68
CHWs (MCHWs/VHWs)	33	68	97	44	32	--	70	86	79	95	67
FCHVs	30	22	94	50	36	--	26	33	77	84	50

Note: * = unweighted mean

Health workers' skills and knowledge: Quantitative data

Results from FUT

The most comprehensive quantitative data that describe health workers' skills and knowledge come from the FUT exercise. Data are presented in the tables on the preceding pages for three different health worker cadres—health facility staff, MCHWs/VHWs, and FCHVs—for the content areas of clean delivery, essential newborn care (ENC), newborn infection, birth asphyxia (BA), low birthweight, and hypothermia. These data were gathered in a one-off exercise conducted (depending on the district) between three and twelve months following the initial CB-NCP training.

Among cadres, knowledge and skill levels are generally highest among health facility staff and are then lower among VHWs/MCHWs and lower still among FCHVs. Skill levels are slightly lower than knowledge levels overall although there is no clear pattern. Skill and knowledge levels do not differ notably across the content areas.

The finding that does emerge is that knowledge and skill levels, as measured in the FUT, are somewhat lower than desired. Table 16 presents average skill and knowledge levels, unweighted, for the five skill areas and nine knowledge areas (eight for FCHVs) that are described in Table 14 and Table 15.

Table 16: Average knowledge and skill levels across content areas, by cadre *(source: FUT, 10 districts)*

Health worker cadre	Average knowledge (%)	Average skill (%)
Health facility staff	72	66
VHWs/MCHWs	67	53
FCHVs	60	43

The scores that have been achieved are low, due in part to the rigorous scoring protocols that were used. For each content area, a number of "key skills" (as many as 13, depending on the content area) or "key knowledge points" (as many as six) were identified. The health worker had to correctly demonstrate all skill or knowledge points in order to achieve a "correct" score; health workers who missed one point and demonstrated "almost perfect" knowledge or skills still received a zero. These scores should thus be interpreted taking the scoring approach into account.

Table 17 shows the results of an analysis that was conducted with support from Integrated Rural Health Development Training Center (IRHDTC). This analysis demonstrates that the percentage of health workers with "correct skills" or "correct knowledge" increases dramatically if scoring criteria are relaxed slightly.

Table 17: Variation in FUT skills and knowledge scores according to scoring criteria

Indicator	Modification	Cadre	Dang	Kavre	% correct
Knowledge of the six cleans	Knows 4 or more	HWs	56/57		98
		CHWs	35/36		97
		FCHVs	137/141		97
	Knows 5 or more	HWs	56/57		98
		CHWs	33/36		92
		FCHVs	132/141		94
	Knows all 6	HWs	50/57		88
		CHWs	25/36		69
		FCHVs	115/141		82
Knowledge of the 5 ENC messages	Knows 3 or more	HWs		85/92	92
		CHWs		93/98	95
		FCHVs		330/370	89
	Knows 4 or more	HWs		76/92	83
		CHWs		78/98	80
		FCHVs		235/370	64
	Knows all 5	HWs		57/92	62
		CHWs		55/98	56
		FCHVs		65/370	18
Skill in measuring temperature using thermometer	Knows 4 or more key skills	HWs		82/86	95
		CHWs		68/77	88
		FCHVs		272/359	76
	Knows 5 or more key skills	HWs		76/86	88
		CHWs		52/77	68
		FCHVs		188/359	52
	Knows all 6 key skills	HWs		62/86	72
		CHWs		35/77	45
		FCHVs		94/359	26
Skill in managing birth asphyxia	Knows 10 or more key skills	HWs	52/57		91
		CHWs	28/36		78
		FCHVs	120/141		85
	Knows 12 or more key skills	HWs	47/57		82
		CHWs	25/36		69
		FCHVs	87/141		62
	Knows all 13 key skills	HWs	34/57		60
		CHWs	19/36		53
		FCHVs	54/141		38

Results from TSV

Personnel from the DHO, health facilities and partner agencies make supervision visits to the field to support community-level health workers in their performance of tasks related to the CB-NCP. During these visits supervisors are supposed to complete the standard TSV checklist to record a range of key information regarding the health worker who is being supervised. The TSV checklist is used to collect information regarding the knowledge and skills of the health worker. Information on these topics was collected by personnel from Save the Children (in Bardiya district) and IRHDTC (in Dang and Kavre districts) and is presented in Table 18.

Table 18: Percentage of health worker cadre with correct knowledge or skill during TSV visit

	Percentage of cadre with correct knowledge / skill						
	Bardiya	Dang			Kavre		
	FCHV	HW	VHW/MCHW	FCHV	HW	VHW/MCHW	FCHV
n	2281	45	35	278	49	45	333
Newborn danger signs							
Knows 7 of 7 newborn danger signs (using job aid)	86	--	--	--	--	--	--
By sign:							
1. Fast breathing (60 or more per minute)	96	--	69	81	--	87	89
2. Severe chest in drawing	94	--	69	76	--	87	89
3. Lethargic/unconscious	93	--	77	73	--	82	88
4. Unable to breast feed	95	--	80	74	--	82	87
5. Hypothermia	97	--	83	82	--	87	87
6. Fever	99	--	86	88	--	84	93
7. Umbilicus red/extended to skin/pus	99	--	100	93	--	87	92
Essential newborn care							
Knows all 5 ENC messages	87	--	--	--	--	--	--
By message:							
1. Immediate drying	98	--	80	91	--	84	96
2. Maintain skin-to-skin	95	--	69	85	--	87	93
3. Nothing on cord	91	--	77	84	--	87	94
4. Immediate breastfeeding	96	--	66	86	--	82	86
5. Delay bathing	95	--	83	87	--	84	93
Skills using equipment							
ARI timer	--	23	66	92	63	87	87
Thermometer	81	23	69	65	65	87	65
Salter scale	91	21	63	85	61	84	87
Demonstrate correct technique for management of birth asphyxia							
By step:							
1. Initial stimulation	86	--	52	72	--	76	70
2. Use of Dee Lee suction	92	--	83	86	--	87	75
3. Use of bag-and-mask	90	--	80	88	--	82	65
4. Can perform all steps	86	--	--	--	--	--	--

The TSV data show generally high levels of knowledge regarding newborn danger signs and essential newborn care. Knowledge levels are roughly equivalent across danger signs / messages and cadres. Knowledge and skill levels (as recorded) do appear to be higher in Bardiya than in Dang or Kavre districts. FCHVs' skills using the thermometer appear to be lower than for using the ARI timer, the Salter scale, or demonstrating correct technique for management of birth asphyxia.

Health workers' skills and knowledge: Qualitative data

There is a general feeling across DHO personnel, health facility staff and FCHVs that FCHVs' and health workers' knowledge and skills are good or adequate. Respondents note that FUT knowledge and skill scores may be low but that FCHVs and health workers can perform their duties adequately. Respondents cite KMC as a specific example of an area where FUT knowledge and skill scores are low but health providers still provide good services.

Some respondents feel that the low knowledge and skill levels revealed by the FUT are an accurate reflection of the situation and are attributable in part to low case numbers and subsequent lack of practice. It is not clear to respondents if the low number of cases is due to low prevalence of the conditions or the inability of FCHVs to identify cases. Other respondents dispute the validity of the FUT results, saying that the scoring criteria are overly rigorous, or that the FUT was conducted too long after the training. A few respondents feel that what some would term "poor performance" is actually perfectly acceptable, such as only 50 percent of FCHVs (in some districts) knowing the correct dosage of cotrim for a newborn with infection. Concern was expressed by a number of respondents that some of the older FCHVs do not have adequate skills to deliver CB-NCP services properly, due to their technical difficulty.

Some of the FCHVs who served as respondents stated that the CB-NCP training they received effectively taught them knowledge and skills in areas including ENC, PNC, LBW management, use of Dee Lee suction, use of the thermometer and management of hypothermia. Some FCHVs noted that although they were trained to use the bag-and-mask, they are not confident to use it due to lack of practice.

<u>FCHVs' management of newborns with danger signs</u>

When FCHVs were asked how they would manage newborns with danger signs their responses were diverse:

i. Most said they would give cotrim and refer immediately.
ii. A few said they would refer directly without giving cotrim.
iii. Some said they would give cotrim, "hold" the newborn while they monitor progress for 1-3 days and then refer as necessary.

It should be noted that points 'ii' and 'iii' above contradict the CB-NCP infection case management algorithm.

EQ-H-2 What is supervision coverage for the CB-NCP?

The discussion below focuses on supervision of FCHVs under the CB-NCP. Other health worker cadres that implement the CB-NCP also receive supervision—primarily during the monthly meetings that take place at the time when the monthly HMIS reporting is compiled and submitted.

There are two major types of supervision of FCHVs that take place: (i) at the regular monthly meetings that take place at the health facility that all FCHVs are supposed to attend, and (ii) during technical support visits (TSVs) conducted by DHO or partner agency staff members at the community level.

FCHV respondents report that the amount of supervision they receive varies between regular monthly supervision (at the health post monthly meetings) to no supervision at all. FCHVs say that they receive the majority of their supervision from VHWs and ANMs. FCHVs state that they like the supervision that they receive as it provides them with an opportunity to recall what they have learned, gives them opportunities to improve their work, and encourages them to work harder.

Table 19: Personnel making technical support visits (TSV) to FCHVs *(source: TSV, Bardiya)*

Personnel conducting supervision visit (during past 6 months)	Percentage of FCHVs who received supervisory visit in last 6 months *(n = 2281)*
Visit by central or regional staff	3
Visit by DHO staff	2
Visit by health facility staff	2
Visit by VHW/MCHW	42
Visit by Save the Children staff	54
Any visit by government staff	43
ANY visit by Save the Children or government staff	62

The CB-NCP supervision protocol states that 20 percent of all FCHVs should be supervised in the field every month—a level of supervision that is clearly not being achieved—using the supervision tool from the CB-NCP Management Manual. The only data that are available regarding TSV visits come from Bardiya and are presented in Table 19. These data were gathered during TSV visits and do not represent a random sample of all FCHVs. The data show that coverage of supervision through field visits is reasonably high (62 percent in prior six months) and that both government and Save staff conduct field-level supervision. CB-NCP stakeholders who reviewed these data noted that the relative lack of data that describe field-level supervision is a sign of an under-supervised program—especially for a pilot program.

EQ-H-3 How are services that are provided by FCHVs in the CB-NCP perceived by mothers and other stakeholders?

Data were gathered during the qualitative study from a variety of stakeholders—including mothers, health workers, DHO and NGO managers, and FCHVs themselves—regarding perceptions of the services that FCHVs provide in the CB-NCP.

Perception of mothers towards newborn care services from FCHVs and CHWs

Apart from a few mothers who were not sure, mothers generally liked the newborn care services provided by the FCHV. A few of the mothers who were interviewed stated that women in their community had started going to the health facility for ANC and PNC due to the advice from the FCHV. They also stated that the FCHV provides useful information, some of which they were not aware of before. A few of the mothers stated that their child was in good health due to the FCHV and one woman from Chitwan stated that she trusts the FCHV a lot. As is described in Chapter L, most mothers say that if their newborn were to show a danger sign, they would take the newborn directly to a health facility and not to the FCHV, although several mothers said they would go to the FCHV first.

Perceived capability of FCHVs in provision of newborn services

The DHO CB-NCP Focal Persons and NGO District Managers reported that FCHVs seem to be identifying cases of LBW well and also refer LBW newborns to the health facilities or counsel mothers on KMC. This effort was perceived to be going on well in all the districts by health facility staff as well. However it was mentioned by the DHO Focal Person in Bardiya that even though FCHVs counsel mothers on KMC, mothers do not seem to be following their advice. Some health providers stated that most mothers who do not deliver at the health facility are referred to the health facility by the FCHV if the newborn is VLBW or has an infection. On the other hand, a provider from Doti stated that due to the low education level and advanced age of many FCHVs, they could not carry out these tasks well.

There was mixed opinion among hospital in-charges regarding how well FCHVs are carrying out their responsibilities in the CB-NCP program. The hospital in-charges from Doti, Palpa and Parsa districts were positive about the involvement of the FCHVs, noting that FCHVs were carrying out their responsibilities well, especially after receiving training and were referring women and newborns to the hospital after identifying cases with danger signs. However, the in-charges from Bardiya and Chitwan districts did not think the FCHVs were capable of carrying out their responsibilities to an adequate standard of quality.

The hospital in-charge from Chitwan stated the following:

> "*The community needs FCHVs and I think they are good. However, it is not enough to prescribe medicines just by checking temperature or respiratory rate (as FHCVs do)—at least not in our district, where there are plenty of doctors. Maybe this approach is fine in places such as Humla where there are no doctors, but not in Chitwan and Kathmandu. When a patient comes to us, we don't know if a FCHV has referred her or not as there is no written proof. They say that this is a government program but they have not coordinated with us.*"

Similarly, the Hospital in-charge from Bardiya feels that FHCVs' skills are not going to improve notably attending one (CB-NCP) training. He does not think that FCHVs are qualified to do the work that they have been given in the CB-NCP.

Chapter I: Community-level Behavior Change Communication for Improving Newborn Health

Evaluation Questions and Summary Findings

EQ-I-1 To what extent have mothers been reached with messages on maternal and newborn health?

Summary findings

1. Counseling coverage on maternal and newborn health issues has increased across all districts following the introduction of the CB-NCP—both by FHCVs as well as "any source" counseling. Seventy to eighty percent of pregnant women are exposed to key messages, depending on the message.
2. Mothers receive key messages from multiple sources. Taking the message on delayed bathing in Bardiya as an example, the promotion of this message has increased between baseline and endline surveys through sources that include FCHVs (39 percent at BL → 86 percent at EL), other health workers (34 → 79 percent), other persons (34 → 70 percent), TV, radio or street drama (40 → 57 percent), and written educational materials (10 → 20 percent).
3. The CB-NCP qualitative study found that mothers are being reached with maternal and newborn care messages during pregnancy. Most FCHVs use the CB-NCP flipchart while explaining messages.

EQ-I-2 What change has been observed in knowledge about maternal and neonatal health among health workers (including FCHVs) and their clients (e.g., mothers)?

Summary findings

1. Mothers' knowledge about key maternal and newborn health issues increased notably following the introduction of the CB-NCP for some issues and remained unchanged for others.
2. Many mothers are visited and counseled by a FCHV during pregnancy and exposed to messages regarding birth preparedness, neonatal care, hospital delivery, and maternal and newborn danger signs. FCHVs appear to be conveying the messages accurately and appropriately. Other major sources of information for mothers about newborn health include trained health workers, friends, radio, teaching aids such as flip charts and pamphlets, and TV.
3. Overall levels of health workers' correct knowledge about selected newborn health issues—as measured in the FUT—are lower than desired, especially among FCHVs. Variation among districts is striking and ranges (for FCHVs) from 18 percent in Kavre to 90 percent in Dang. On the other hand, TSV data show acceptable levels of health workers' knowledge regarding newborn danger signs and essential newborn care. Knowledge levels are roughly equivalent across danger signs / messages and cadres.
4. Findings from the qualitative study suggest that while most mothers have correct knowledge regarding desired practices, fewer mothers (and FCHVs) understand the rationale behind the message. Most mothers report that they followed desired practices such as delayed bathing and nothing on the cord although some mothers said that they had not followed the recommended practices.

Evaluation questions and summary findings (continued)

EQ-I-3 What change has been observed in key behaviors that mothers and household members are counseled to practice?

Summary findings

1. There have been clear improvements across all surveyed districts in the practice of birth preparedness and essential newborn care following the introduction of the CB-NCP. The newly-introduced practice of skin-to-skin care immediately after birth is practiced by more than half of mothers in four surveyed districts at endline.
2. The observed increase in the practice of birth preparedness and essential newborn care is consistent with past results in other districts from the BPP, which forms the basis of BCC activities under the CB-NCP.
3. Findings from the qualitative study suggest the need for additional reinforcement of the recommended practice of delayed bathing. Among the 30 recently delivered women who were interviewed, three did not practice delayed bathing because the FCHV did not visit during the first 24 hours (suggesting that the physical presence of the FCHV is important to support this practice) while seven respondents stated they did not know about the need for delayed bathing due to confusion or lack of adequate information.

Conclusions

Recommended ENC behaviors and birth preparedness practices have increased following the introduction of the CB-NCP, consistent with past results from BPP. The data show a clear progression of increased exposure to messages, increased knowledge regarding desired behaviors and increased practice of behaviors, consistent with standard behavior change models.

Overview

The official MoHP document that endorsed the CB-NCP notes that behavior change communication (BCC) is one of seven key interventions included in the CB-NCP. This document states that *"home-based, ward-based and facility-based BCC activities will be implemented through FCHVs, skilled birth attendants (SBAs), other health facility staff and community leaders. The well-tested Birth Preparedness Package (BPP) will be adapted and modified for the CB-NCP. It will be used for interpersonal and group education through mothers' groups and for one-on-one communication by FCHVs, SBAs and other health staff. Focused social and communication campaigns will be initiated in pilot districts, while a mass media campaign will be developed through the National Health Education, Information Communication Center (NHEICC) for nationwide awareness-raising of key neonatal messages."*

The BCC component is where essential newborn care (ENC) practices such as thermal care, cord care and immediate breastfeeding are promoted in the CB-NCP. The BCC component thus represents the core of the preventive aspects of the CB-NCP. The BPP, which has been implemented nationally, is the foundation of the BCC component of the CB-NCP. While the BPP has been modified slightly for use in the CB-NCP, it should be noted that the majority of the BCC activities that are implemented under the CB-NCP are also implemented through the BPP in other districts. It is not clear if implementing these activities under the aegis of the CB-NCP will provide any "added value" and enhance their effectiveness above and beyond what they achieve when implemented as "BPP" elsewhere.

District and national-level communication activities that are implemented under the CB-NCP are described in Chapter D: Communication. Data sources used to address the evaluation questions related to community-level behavior change communication for improving newborn health include 1) HHS, 2) Nepal Demographic Health Survey 2011 (NDHS 2011), 3) FUT, 4) TSV, 5) QS.

Detailed Results: Evaluation questions regarding BCC for improving newborn health

Detailed findings are presented below regarding the three evaluation questions related to community-level behavior change communication for improving newborn health. These questions follow a natural progression of a behavior change model from (i) exposure to message to (ii) knowledge of message to (iii) practice of desired behavior.

EQ-I-1 To what extent have mothers been reached with messages on maternal and newborn health?

Mothers' exposure to messages on maternal and newborn health (MNH): Quantitative findings

Data are available for a number of indicators that measure mothers' exposure to messages. In Table 20, exposure indicators are presented for which both baseline and endline data are available.

Table 20: Mothers' report on counseling received during pregnancy *(source: HHS, 6 districts)*

Indicator	Doti		Bardiya		Chitwan		Palpa		Dang		Kavre			Mean*	
	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL		BL	EL
Counseling of any type from FCHV	--	--	69	97	32	64	64	72	59	73	43	68		53	75
Mother told pregnancy danger signs (any source)	33	39	75	96	75	96	70	98	59	90	75	96		65	86

Note: * = unweighted mean

These data show that counseling coverage has increased across all districts following the introduction of the CB-NCP—both by FHCVs as well as by "any source" counseling—and that most pregnant women are exposed to key messages and sources of information.

Table 21: Mothers' report on exposure to messages during pregnancy *(source: HHS, 5 districts)*

Message	Bardiya		Chitwan		Palpa		Dang		Kavre			Mean*	
	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL		BL	EL
Specific information from FCHV about where to go for ANC checkup	--	--	--	64	--	72	--	73	--	68		--	69
Specific information from FCHV about where to go for delivery	65	97	--	68	--	71	--	74	--	66		--	70
Received message on early breastfeeding (any source)	59	83	--	80	--	84	--	82	--	72		--	80
Received message on delayed bathing (any source)	52	88	--	78	--	79	--	74	--	73		--	76
Request from FCHV to call her at time of delivery	44	94	--	52	--	39	--	67	--	49		--	52
Received message regarding attendance of FCHV during delivery (any source)	29	86	--	78	--	74	--	65	--	63		--	70

Note: * = Unweighted mean, results from Bardiya not included for any indicators in calculation of mean.

Survey-based data are presented in Table 21 regarding mothers' exposure to messages for which only endline data are available (except for Bardiya district). These data show a consistent level of exposure to messages of between 70-80 percent, with the exception of the message from the FCHV regarding calling her at the time of delivery.

Sources of exposure to CB-NCP messages

Table 22 presents information on the source of key ENC and safe motherhood messages that pregnant women were exposed to in Bardiya district prior to and following the introduction of the CB-NCP program. The degree of exposure to messages through multiple sources is striking. The primary sources of messages as reported by mothers include FCHVs, other health workers, other persons, TV, radio or street drama, and print media.

Table 22: Exposure to messages on newborn health, by source, in Bardiya district (source: HHS)

Percent of women with live births within 12 months before the survey that reported hearing, seeing, or reading messages about newborn health in the 3 months prior to the survey				
	Baseline (N=625)		**Endline (N=615)**	
	n	%	n	%
Received message on early breastfeeding	**370**	**59.2**	**510**	**82.9**
Received message from[1]:				
FCHV	273	43.7	497	80.8
Other health worker	229	36.6	452	73.5
Other person (TBA, NGO worker, friends)	257	41.1	405	65.9
TV, Radio, or Street drama	254	40.6	334	54.3
Print media (posters/pamphlets, BPP flip chart)	62	9.9	328	53.3
Other	5	0.8	0	0.0
None	255	40.8	105	17.1
Received message on delayed bathing	**328**	**52.5**	**543**	**88.3**
Received message from:				
FCHV	245	39.2	528	85.8
Other health worker	213	34.1	484	78.7
Other person (TBA, NGO worker, friends)	214	34.2	430	69.9
TV, Radio, or Street drama	251	40.2	351	57.1
Print media (posters/pamphlets, BPP flip chart)	62	9.9	125	20.3
Other	8	1.3	0	0.0
None	297	47.5	72	11.7
1. Received message on skilled birth attendance	**255**	**40.8**	**528**	**85.9**
2. Received message on attendance of FCHV during delivery	**181**	**29.0**	**529**	**86.0**
Received message (one or both) from:				
FCHV	167	26.7	507	82.4
Other health worker	155	24.8	468	76.1
Other person (TBA, NGO worker, friends)	169	27.0	436	70.9
TV, Radio, or Street drama	203	32.5	363	59.0
Print media (posters/pamphlets, BPP flip chart)	48	7.7	336	54.6
Other	3	0.5	0	0.0
None	363	58.1	83	13.5

Taking the message on delayed bathing as an example, the CB-NCP appears to have successfully increased the promotion of this message through channels that include FCHVs (39 percent at BL → 86 percent at EL), other health workers (34 → 79 percent), other persons (34 → 70 percent), TV, radio or street drama (40 → 57 percent), and written educational materials (10 → 20 percent).

Mothers' exposure to messages on maternal and newborn health: Qualitative findings

All mothers interviewed in the qualitative study had been visited by the FCHV during their pregnancy period. Apart from one mother in Bardiya, all the mothers stated that they had been counseled about maternal and newborn health during their pregnancy. These women stated that they were informed about the importance of taking iron tablets, eating nutritious food, birth preparedness, neonatal care, maternal and newborn danger signs, ANC and health facility delivery. Some of the women also stated that they were told about KMC and were told not to put oil on the cord stump. FCHVs also contacted most (26) of the respondents' family members and informed them about key MNH issues.

Most of the mothers from Parsa, Doti and Chitwan and few mothers from Palpa stated that the FCHV had counseled them with the help of flipchart. A few mothers from Palpa and all of the mothers from Bardiya stated that the FCHV had counseled them orally without using a counseling aid. A few mothers from Chitwan and Doti mentioned that the FCHV shares information about newborn health during the mothers group meetings. Only few mothers from Chitwan (2), Palpa (1), Bardiya (2), Doti (2) and some mothers from Parsa (5) had been given the action cards. Those who had the cards in Chitwan and Parsa stated that they had looked at the card for danger signs. The mothers who were illiterate said that the Action Cards had not been useful as they could not read it and they noted that even the pictures were difficult to understand. Mothers from Parsa said that since the Action Card was in Nepali language they could not understand the messages.

EQ-I-2 What change has been observed in knowledge about maternal and neonatal health among health workers (including FCHVs) and their clients (e.g., mothers)?

This section of the report presents quantitative and qualitative data that describe mothers' and health workers' knowledge regarding maternal and newborn health.

Mothers' knowledge about maternal and neonatal health: Quantitative results

Mothers' knowledge prior to and following the introduction of the CB-NCP as measured using illustrative maternal and newborn health indicators can be found in Table 23. Two of the three knowledge indicators increased notably between baseline (BL) and endline (EL) while the third (immediate breastfeeding) has essentially remained unchanged following the introduction of the CB-NCP. A high percentage of mothers responded at EL that a newborn should be breastfed after the placenta comes out, rather than "immediately". It is not clear why so many mothers gave this response, which is technically incorrect—although if breastfeeding begins after the placenta comes out, but within the first hour after birth, the desired practice is achieved.

Table 23: Change in mothers' knowledge about maternal and newborn health issues
(source: HHS, 8 dist.)

Knowledge indicator	Doti		Bardiya		Parsa		Sunsari		Chitwan		Palpa		Dang		Kavre			Mean*	
	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL		BL	EL
Maternal knowledge of 2+ newborn dangers signs	48	76	100	100	77	98	22	94	94	99	97	100	96	99	92	99		78	96
Newborn should be breastfed immediately after birth	--	--	--	--	--	--	--	--	48	44	45	67	32	23	47	46		43	45
Bathing should be delayed 24+ hours	--	--	63	89	--	--	--	--	41	84	29	76	23	67	33	81		38	79

Note: * = unweighted mean

Health workers' knowledge about maternal and neonatal health: Quantitative results

Information about health workers' knowledge regarding MNH was collected during the FUT exercise in all ten pilot districts as well as through TSV in Bardiya, Dang and Kavre districts. These data can be used to generate fixed-point estimates of health workers' knowledge but cannot be used to assess change in knowledge among health workers. Data in Table 24 describe the percentage of health workers who know all five key essential newborn care messages at the time of the FUT exercise.

Table 24: Percentage of health workers that know all five ENC messages, by cadre
(source: FUT)

Cadre	% with correct knowledge in ..... district											Mean (unweighted)
	Doti	Bardiya	Dang	Palpa	Chitwan	Kavre	Parsa	Sunsari	Morang	Dhankuta		
Health workers	--	76	95	70	43	62	51	59	86	87		70
CHWs (MCHWs/VHWs)	--	56	80	59	46	56	51	67	82	57		62
FCHVs	--	80	90	61	49	18	38	55	84	37		57

Overall levels of health workers' knowledge of all five ENC messages—as measured in the FUT—are lower than desired, especially among FCHVs. Variation among districts is striking and ranges (for FCHVs) from 18 percent in Kavre to 90 percent in Dang. Health workers' knowledge in these two districts, as well as in Bardiya, are represented in Table 25 that presents TSV data on knowledge of newborn danger signs and essential newborn care. These TSV data show levels of knowledge regarding newborn danger signs and essential newborn care that are acceptably high. Knowledge levels are roughly equivalent across danger signs / messages and cadres.

Table 25: Percentage of health worker cadre with correct knowledge *(source: TSV, 3 districts)*

	Percentage of cadre with correct knowledge / skill				
	Bardiya	**Dang**		**Kavre**	
	FCHV	**VHW/MCHW**	**FCHV**	**VHW/MCHW**	**FCHV**
n	2281	35	278	45	333
Newborn danger signs					
Knows 7 of 7 newborn danger signs (using job aid)	86	--	--	--	--
By sign:					
8. Fast breathing (60 or more per minute)	96	69	81	87	89
9. Severe chest indrawing	94	69	76	87	89
10. Lethargic/unconscious	93	77	73	82	88
11. Unable to breastfeed	95	80	74	82	87
12. Hypothermia	97	83	82	87	87
13. Fever	99	86	88	84	93
14. Umbilicus red/extended to skin/pus	99	100	93	87	92
Essential newborn care					
Knows all 5 ENC messages	87	--	--	--	--
By message:					
6. Immediate drying	98	80	91	84	96
7. Maintain skin-to-skin	95	69	85	87	93
8. Nothing on cord	91	77	84	87	94
9. Immediate breastfeeding	96	66	86	82	86
10. Delay bathing	95	83	87	84	93

Mothers' knowledge and behaviors about maternal and neonatal health: Qualitative results

Thirty women who had delivered within the previous three months were interviewed during the qualitative study. Most mothers knew at least two newborn danger signs such as unable to breastfeed and fast breathing. However five mothers (out of 30) did not recall any of the newborn danger signs. Most mothers knew that newborns should not be bathed within the first 24 hours and also knew that the cord should be kept clean and dry and had followed both of these practices. The most commonly mentioned danger signs were not sucking well and fast breathing. Lethargy, high fever and blisters on body were also mentioned by some of the mothers.

Mothers were also asked about the rationale for behaviors such as not bathing newborns within the first 24 hours and keeping the cord clean and dry. Although many mothers had followed these two messages, most were generally not aware of the reasons for following these messages. For instance, a few mothers from Chitwan (2), Palpa (3) and Doti (1) stated that you should avoid bathing newborns due to fear of catching pneumonia. Some of the mothers from all the districts stated that the FCHV had told them not to bathe the newborn during the first 24 hours as the baby will become cold ("*chiso lagchha*"). One woman from Bardiya and two from Doti said that they had bathed their newborn with warm water. Messages on keeping the cord clean had also been conveyed to the mothers although some mothers stated that they were not aware of rationale behind the practice. Some mothers from Chitwan, Palpa, Parsa and Doti stated that the cord should be kept clean to avoid infection. A few mothers from Bardiya, Doti and Parsa stated that they had applied oil on the cord as soon as the cord was cut.

EQ-I-3 What change has been observed in key behaviors that mothers and household members are counseled to practice?

The goal of behavior change interventions is for the target population to adopt desired behaviors that lead to improved health outcomes. Information about mothers' knowledge of desired behaviors was presented above (in the previous evaluation question); correct knowledge is considered to be "prerequisite but not sufficient" to adoption of the practice of desired behaviors. These behaviors have been promoted by FCHVs and other health workers using materials that comprise the BPP.

Information is presented below on the practice of behaviors that have been promoted through the CB-NCP. Data sources include (i) the baseline and endline household surveys that were conducted in eight of the pilot districts and (ii) the NDHS 2011.

Behavior change as measured through household surveys

<u>Birth preparedness practices</u>

Under the CB-NCP, FCHVs advise pregnant women and their family members to prepare for safe delivery by first deciding to deliver at a health facility, and then making arrangements for a delivery site, birth attendant, transportation to the delivery site, and adequate finances in case of an emergency. Information on these birth preparedness practices prior to and following the introduction of the CB-NCP is presented in Table 26.

Table 26: Change in birth preparedness practices *(source: HHS, 7 districts)*

Indicator	Bardiya		Parsa		Sunsari		Chitwan		Palpa		Dang		Kavre		Mean*	
	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL
Decided to deliver at health facility	24	91	--	--	--	--	59	81	43	54	41	73	33	68	40	73
Women with complete birth plan (place of delivery, attendant, transport, & finance)	10	49	39	61	37	56	30	55	7	19	9	48	10	25	20	45

Note: * = unweighted mean

There have been clear improvements in birth preparedness practices following the introduction of the CB-NCP. Improvements are observed across all surveyed districts although practice levels at endline in Palpa and Kavre districts remain low.

Change in ENC behaviors

FCHVs and health workers also advised pregnant women and their family members to practice key ENC behaviors that have been shown to lead to positive newborn health outcomes. Information on the practice of these behaviors prior to and following the introduction of the CB-NCP is presented in Table 27.

Table 27: Change in practice of essential newborn care behaviors *(source: HHS, 8 districts)*

Indicator	Doti		Bardiya		Parsa		Sunsari		Chitwan		Palpa		Dang		Kavre		Mean*	
	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL
Breastfeeding within 1 hour	56	77	64	90	17	75	33	84	42	62	48	77	50	66	43	65	44	75
Drying/ wiped immediately after birth	--	--	61	89	--	--	--	--	63	94	62	87	61	68	48	73	59	82
Cord cut with clean blade	74	79	63	99	--	--	--	--	69	87	82	84	79	79	59	70	71	83

Indicator	Doti		Bardiya		Parsa		Sunsari		Chitwan		Palpa		Dang		Kavre			Mean*	
	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL		BL	EL
Nothing put on cord immediately	91	83	70	86	36	20	62	81	71	87	89	71	76	71	92	92		73	74
Bath delayed 24+ hours	22	67	38	54	57	74	50	60	56	94	34	82	46	75	42	81		43	73
Skin-to-skin immediately after birth	--	--	--	--	--	--	--	--	--	63	--	62	--	49	--	52		--	56

Note: * = unweighted mean

Survey results show that the practice of desired ENC behaviors following the implementation of the CB-NCP has increased for all practices with the exception of nothing put on cord immediately (after birth). The finding of no change in this indicator is distorted slightly by the field trial for chlorhexadine application to the cord stump that was conducted in Parsa district concurrent with the CB-NCP. The newly introduced practice of skin-to-skin care immediately after birth is practiced by more than half of mothers in four surveyed districts at endline.

Change in practice of ENC behaviors as measured through DHS comparative study

The effectiveness of BCC activities conducted under the CB-NCP can also be assessed through a comparative before-after study of the practice of ENC behaviors in the ten CB-NCP pilot districts as compared to ten matched control districts as measured in the NDHS 2011. The methods used for this analysis are described elsewhere in this report. Results of the analysis are presented in Table 28.

Table 28: Essential newborn care practices: NDHS 2011 Controlled Comparison Analyses *(source: NDHS 2011; 10 CB-NCP districts & 10 control districts)*

Indicator	Intervention		Control		Difference: intervention	Difference: control	Diff. of diffs
	B	A	B	A			
Bathed after 24 hours	34 18/55	37 25/67	33 20/62	24 22/89	3	-9	12
Dried newborn before placenta delivered	55 30/55	59 40/67	63 39/62	68 61/89	4	5	-1
Wrapped in cloth	56 30/55	56 37/67	71 44/62	83 74/89	0	11	-11

Indicator	Intervention		Control		Difference: intervention	Difference: control	Diff. of diffs
	B	A	B	A			
Placed in belly or breast	9 5/55	14 10/67	17 10/62	19 17/89	5	3	2
Applied nothing on the cord	49 27/55	64 43/67	74 45/62	50 44/89	15	-24	39
Initiated breastfeeding within one hour	52 47/90	51 86/168	45 43/96	53 93/175	-1	8	-9

Note 1: B=before (CB-NCP); A=after (CB-NCP); diff of diff = difference of differences, for example, for bathed after 24 hours, [(37-34) – (24-33)] = 12.

Note 2: Some diff-of-diff calculations my not "add up" due to rounding error.

The results of this controlled comparison analysis are mixed. Due to (i) the methods that were used to apply the questionnaire during the NDHS survey[10] and (ii) the analysis protocols, there is a relatively short time gap of approximately one year between average "before" and "after" measurements. Because of this, there was little time for "change to take place" which may explain part or most of the apparent lack of behavior change. The small sample size in each of the four groups (intervention before & after, control before & after) further limits the power of the analysis to detect true differences between groups.

This may explain why the impressive increases in positive behavior change that have been measured through the household surveys are not reflected in the NDHS results.

Behavior change findings from the CB-NCP qualitative study

Researchers from the qualitative study team interviewed thirty recently delivered women to gather information about their preparation for safe delivery and their practice of recommended ENC behaviors. Relevant findings from the study are summarized below.

Planning for safe delivery

Promotion of facility delivery: Most of the respondents (23) were informed about the safety of delivering in a facility and the incentives they would receive if they did so. Three respondents (one each from Bardiya, Doti, and Palpa districts) say they did not receive any information regarding facility delivery.

Reasons for not delivering in a health facility: Fifteen of the thirty respondents delivered at home (5 in Parsa) and gave various reasons for doing so. Four women delivered at home because of short labor pain while two women (both from Doti) did not think it necessary to deliver in a facility because they thought it would be easier to deliver at home. One woman from Parsa did not have the support of her family for a facility delivery while one women from Doti delivered at night and it was too difficult to travel to the facility.

[10] Questions on ENC behaviors were only asked to mothers who had last delivered in the two years preceding the survey. CB-NCP was introduced (depending on the district) between 8 and 15 months prior to the DHS survey, thus leaving a fairly narrow "window of respondents" whose responses can be used for this analysis.

Practice of essential newborn care

Prevention of hypothermia: Most (25) of the respondents were aware of the need to keep the newborn warm after delivery. Many (16) were aware of one or more methods for keeping the baby warm such as keeping the baby close to the mother (skin-to-skin or KMC) or covering the baby's head. Four mothers either did not remember or know any recommended behaviors. One mother in Parsa was never visited by a FCHV while another mother in Parsa knew about the recommendations but chose not to follow them.

Delayed bathing: Many (13) mothers knew that it was important to delay bathing the newborn until at least 24 hours post-delivery. Three mothers bathed their baby earlier than that because the FCHV did not visit during the first 24 hours. Seven respondents stated they did not know about the need for delayed bathing either because they were confused or did not remember the information that was given to them or had not been informed by FCHVs.

Immediate breastfeeding: Most (24) of the mothers were aware of the recommendation to practice early breastfeeding. Eleven mothers said they knew the method for initiating breastfeeding, nine mothers stated that they knew it was important to begin breastfeeding immediately while three mothers noted the importance of feeding colostrum to the newborn. Five respondents said they have not been informed about the importance of immediate breastfeeding while one mother from Chitwan had been advised by her FCHV not to feed colostrum to the newborn as it was not good for the baby.

Chapter J: Promotion of Iinstitutional and Clean Delivery Practices

Evaluation Questions and Summary Findings

EQ-J-1 Has there been an increase in institutional deliveries in CB-NCP pilot districts above and beyond the background trend?

Summary findings

1. The percentage of institutional deliveries has increased dramatically between baseline (33 percent) and endline (64 percent) household surveys. Facility delivery rates have increased substantially in each of the eight surveyed CB-NCP pilot districts.
2. Both NDHS 2011 and HMIS data show that the percentage increase in facility births in CB-NCP pilot districts is matched by an equal increase in control districts. This finding suggests that there has not been an increase in institutional deliveries in CB-NCP pilot districts above and beyond the background trend.

EQ-J-2 What is the level of attendance of FCHVs in CB-NCP pilot districts during home deliveries? What are the factors that affect this?

Summary findings

1. Endline household survey data from five districts indicate that FCHVs attend 22 percent of home births, 17 percent of facility births, and 18 percent of all births. The figures are slightly inflated by the extraordinarily high attendance figures from Bardiya district and drop to 15, 12 and 13 percent for home, facility and all births, respectively, if Bardiya figures are removed from the analysis.
2. Household survey data from Bardiya district show a strong association between calling the FCHV at the time of delivery and her attendance at delivery; 88 percent (50/57) of FCHVs who were called at the time of the home delivery attended the delivery while only 18 percent (11/61) of FCHVs who were not called at the time of the home delivery attended the delivery. The three primary reasons for not calling the FCHV were “delivery at night”, “FCHV out of village” and “not necessary”.
3. NHIS monitoring data show that 40 percent of registered women delivered at home and that FCHVs reported attending 83 percent of these home deliveries. Even when the finding is taken into account that only 60 percent of expected live births are registered in the NHIS, this self-reported level of attendance by FCHVs is more than double the level of attendance measured through the household surveys.

EQ-J-3 Has there been a change in clean delivery practices (in particular regarding use of the clean delivery kit) following the introduction of CB-NCP?

Summary findings

1. The use of the CDK at home births has only increased in pilot districts where the partner NGO has provided them free-of-charge. Government personnel report that there are chronic shortages in the supply of this commodity in the government system.
2. The presence of a FCHV at a home delivery is strongly associated with use of the CDK.
3. Health workers’ knowledge and skills regarding clean delivery are low according to FUT data.

Evaluation Questions and Summary Findings (continued)

EQ-J-4 Has there been a change in the ANC1 and ANC4 rates following the introduction of the CB-NCP? To what extent are FCHVs able to counsel to improve ANC visits?

Summary findings

1. Mothers discuss their pregnancy with FCHVs (72 percent, 4-district HHS) and 61 percent of mothers are advised by the FCHV to make four ANC visits.
2. The utilization of ANC has increased in the pilot districts following the introduction of the CB-NCP. Overall visit rates have increased as well as tetanus toxoid protection. The timing of the first ANC visit has become earlier (3.5 months post-conception following the introduction of the CB-NCP versus 3.8 months post-conception prior to the CB-NCP).
3. Although the utilization of ANC services has increased in the CB-NCP pilot districts, these increases are matched by an approximately equivalent increase in districts where CB-NCP has not been introduced. This finding suggests that there has not been an increase in the utilization of ANC services in CB-NCP pilot districts above and beyond the background trend.

Conclusions

CB-NCP activities—especially those implemented through the BPP component—almost certainly contributed to the substantial increase in institutional delivery that was observed. These activities were supported by other initiatives outside of the CB-NCP and clearly did not lead to achievements that exceeded the national trend towards increased institutional deliveries.

FCHVs' attendance at home deliveries is low. This is unfortunate, as the data suggest that when FCHVs are called to the delivery, they attend—and when FCHVs attend home deliveries, they make a difference. Some may interpret these findings as a sign that efforts to increase the attendance of FCHVs at home deliveries should be intensified, while others will see it as proof that requiring FCHVs to attend home deliveries is an unfeasible idea that should be dropped.

The inability of the DoHS logistics system to maintain an adequate supply of CDKs highlights the central role of logistics management in achieving program goals.

The promotion of antenatal care is not a central focus of the CB-NCP, and the finding that there is no increase in ANC attendance above and beyond the background trend is not surprising. Many safe motherhood indicators are improving across Nepal, independent of the CB-NCP.

Overview

Safe delivery practices are fundamentally important for the health of the mother and her newborn child. The government of Nepal has developed and implemented a variety of programmatic activities to increase the public's access to institutional deliveries and to encourage their use of these services. The CB-NCP sought to build on these initiatives to further promote institutional and clean delivery practices.

The official MoHP document that endorsed the CB-NCP noted that the promotion of institutional and clean delivery practices was one of seven key interventions included in the CB-NCP. This document notes that *"Skilled birth attendants, health facility staff and FCHVs will be encouraged to promote institutional deliveries, including the importance of clean delivery practice through awareness-creation messages in the Birth Preparedness Package (BPP). Performance-based incentives will also be provided to FCHVs for accompanying the woman to a health facility for delivery. Where institutional deliveries are not undertaken by the family members, FCHVs will encourage the presence of a SBA at home delivery and will be provided performance-based incentives for attending those births to ensure conduct of clean deliveries by providing free Clean Delivery Kits. Social marketing of Clean Delivery Kits will be encouraged, to ensure reach to those home deliveries not reached by FCHVs."*

Some of the activities listed in the previous paragraph are unique to the CB-NCP—for example, the provision of incentives to FCHVs to promote facility delivery and attend home deliveries. Other activities listed above, such as the BPP, are included within approaches and programs that are implemented not only in the ten CB-NCP pilot districts, but also in most or all of the remaining 65 districts of Nepal. Additional programs implemented or supported by the government and its partners at a regional and/or national scale to promote facility delivery include the following:

1. The Safe Delivery Incentive Program that provides monetary incentives to women and health providers for institutional deliveries.
2. A national effort to train skilled birth attendants (SBAs) to provide safe, high-quality delivery services at health facilities.
3. Provision of support for the construction and staffing of 24x7 delivery sites and birthing centers that aim to improve women's access to quality delivery services.
4. Mass media and interpersonal communication programs to promote various maternal and newborn health issues including institutional delivery.
5. Mobilization of different community-based organizations such as Watch Groups, savings and credit groups, and mothers groups to promote issues that include institutional delivery.

While there does appear to be an expectation among some CB-NCP stakeholders that CB-NCP efforts in this area will result in an increase in institutional deliveries above and beyond the background trend, it is not clear if these expectations are justified. Given the multiple programmatic inputs in this area, it is difficult to attribute specific achievements to any one program. Data sources used to address the evaluation questions for delivery practices include 1) HHS, 2) NHIS, 3) HMIS, 4) NDHS 2011, 5) FUT, 6) TSV and 7) QS.

Detailed Results: Evaluation questions regarding institutional and clean delivery practices

Results are presented below for the four evaluation questions related to the promotion of institutional and clean delivery practices.

EQ-J-1 Has there been an increase in institutional deliveries in CB-NCP pilot districts above and beyond the background trend?

The evaluation question specifically asks how any change in the percentage of institutional deliveries in CB-NCP pilot districts compares with change in other comparable non-CB-NCP districts. Data from three sources are available to answer this question:

1. Household surveys: Baseline (BL) and endline (EL) household survey (HHS) data are available from eight of the ten pilot districts and can be used to quantify the change in institutional delivery rates in CB-NCP districts alone through a pre-post analysis.
2. NDHS 2011: Data from the 2011 Nepal DHS have been analyzed for the 10 CB-NCP pilot districts and 10 matched comparison districts to assess the pre-to-post-CB-NCP change in institutional delivery rates in the two groups of districts. Additional details regarding the methodology of this analysis have been provided previously.
3. HMIS: An analytical approach that is identical to that used for the NDHS 2011 analysis described in the previous paragraph has been employed to process and analyze HMIS data on delivery services in order to triangulate the NDHS findings.

While all of these data are informative, results from the analyses described in paragraphs 2 and 3 above directly address the intent of the evaluation question. Data are presented in Table 29 and Table 30.

Findings from the quantitative data

The table describing data from the HHS clearly shows that the percentage of institutional deliveries has increased dramatically between BL (33 percent) and EL (64 percent). Facility delivery rates have increased substantially in each of the eight surveyed districts.

Information in the table describing data from NDHS and HMIS also shows that the percentage of institutional deliveries has increased markedly following the implementation of the CB-NCP. However, data from both sources show that an equivalent increase has been observed in the ten comparison districts. This finding suggests that there has not been an increase in institutional deliveries in CB-NCP pilot districts above and beyond the background trend.

It should be noted that there are two principal reasons why the magnitude of the HMIS result is lower than data from the other sources—the HMIS indicators are based on a denominator of expected pregnancies that is generally felt to be an overestimate, and the HMIS data do not include births at private facilities.

Findings from the qualitative data

Thirty FCHVs and 30 mothers of babies delivered in the previous three months were interviewed during the CB-NCP qualitative study. Most of the interviewed FCHVs report that they counsel mothers during pregnancy regarding danger signs of mothers and newborns, the risk of home delivery, benefits of health facility delivery, and the incentive that mothers will receive if they deliver in a health facility. Most FCHVs said that the trend of health facility delivery is increasing in their VDC. They feel this has

happened because women are now more aware that it is safer for both the mother and newborn if the delivery takes place in a health facility. Ten of the 30 FCHVs who were interviewed reported that they accompany mothers to the health facility. During this period they provide support to mothers that includes bringing food and clothes and helping to bring the baby safely back home. One FCHV reported that she gave money to the mother so that she could go to the health facility for her delivery.

Most of the mothers who were interviewed said that they received information regarding the importance of facility delivery from both FCHVs and school teachers. Mothers said that they were initially unaware of the importance of facility delivery and did not know that an incentive was available but now they know about it. Almost all mothers want to deliver at the health facility but some are unable to do so due to lack of support from family members.

Table 29: Delivery services in CB-NCP districts *(source: HHS, 8 districts)*

Indicator	Numerator	Denom	Doti		Bardiya		Parsa		Sunsari		Chitwan		Palpa		Dang		Kavre			Mean*	
			BL	EL	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL		BL	EL
Facility delivery (public or private)	# women who delivered at a health facility (public or private) during last pregnancy	# women with live birth	11	30	34	8 2	32	54	39	67	56	87	29	56	32	68	34	67		33	64
Home delivery	# women who delivered at home during last pregnancy	# women with live birth	88	63	66	19	68	46	61	33	44	13	71	44	66	32	65	34		66	36
Skilled birth attendance (doctor, nurse, ANM)	# women who delivered with a skilled attendant (doctor, nurse, or ANM) at last pregnancy	# women with live birth	13	37	30	75	30	51	43	67	55	87	29	54	31	59	33	61		33	61

Note: * = unweighted mean

Table 30: Delivery services: NDHS 2011 & HMIS Controlled Comparison Analyses *(source: NDHS 2011 and HMIS 2067/68; 10 CB-NCP districts & 10 control districts)*

Indicator	NDHS 2011						HMIS				
	CB-NCP districts		Control districts		Difference of differences		CB-NCP districts		Control districts		Difference of differences
	Before	After	Before	After			Before	After	Before	After	
Delivery by SBA	44	58	34	47	1		27	38	25	36	0
Institutional delivery	40	60	33	49	4		26	40	23	37	0
Delivery by SBA or HW							34	42	37	47	-1

Note: "Difference of differences" can be calculated by subtracting the before-after difference in the control districts from the before-after difference in the CB-NCP districts. For example, for the indicator institutional delivery as measured in NDHS 2011, difference of differences is calculated as (60-40) – (49-33) = (20-16) = 4.

EQ-J-2 What is the level of attendance of FCHVs in CB-NCP pilot districts during home deliveries? What are the factors that affect this?

There are two sources of data through which the attendance of FCHVs at home deliveries can be assessed. Data are available from the HHS conducted in five districts regarding FCHVs' attendance at home births, facility births, and all births. As the household surveys were conducted using a random sample of the entire population, these results can be generalized to the general population. Data are also available from the NHIS monitoring system, although these data reflect FCHVs' self-reports of their attendance at home births among the mothers whose newborns they registered. Data presented elsewhere suggest that FCHVs' capture rate of births (and thus registration of newborns) is approximately 60 percent. FCHVs' attendance at the deliveries of registered newborns is most likely quite different than their attendance at the deliveries of non-registered newborns and thus the NHIS data are not representative of the general population.

Results from the HHSs

Table 31 presents data from the HHS regarding FCHVs' attendance at delivery.

Table 31: FCHVs' attendance at delivery in CB-NCP pilot districts *(source: HHS, 5 districts)*

Indicator	Numerator	Denominator	Bardiya		Chitwan		Palpa		Dang		Kavre			Mean*	
			BL	EL	BL	EL	BL	EL	BL	EL	BL	EL		BL	EL
FCHV present at delivery - home births	# women who delivered at home who reported an FCHV was present during last delivery	# women with live birth who delivered at home	16	51	5	20	12	10	7	17	9	13		10	22
FCHV present at delivery – facility births	# women who delivered at health facility who reported an FCHV was present during last delivery	# women with live birth who delivered at health facility	0	38	4	12	8	5	9	18	6	13		5	17

Table 31: FCHVs' attendance at delivery in CB-NCP pilot districts *(source: HHS, 5 districts)*

Indicator	Numerator	Denominator	Bardiya		Chitwan		Palpa		Dang		Kavre			Mean*	
			BL	EL	BL	EL	BL	EL	BL	EL	BL	EL		BL	EL
FCHV present at delivery - all births	# women who reported an FCHV was present during last delivery	# women with live birth	10	41	4	13	11	7	8	18	8	13		8	18

Note: * = Unweighted mean

The HHS data indicate that FCHVs attend 22 percent of home births, 17 percent of facility births, and 18 percent of all births at endline. The figures are slightly inflated by the extraordinarily high attendance figures from Bardiya district and drop to 15, 12 and 13 percent for home, facility and all births, respectively, if Bardiya figures are removed from the analysis.

The evaluation question also asks what factors affect FCHVs' attendance at home deliveries. FCHVs are supposed to give instructions to pregnant women and their families to call them (the FCHVs) at the time of delivery. The Bardiya endline survey added a question (not asked in other districts) regarding whether the FCHV was called to each mother's delivery, and if not, why not? The responses for the 118 home deliveries that were reported by the endline survey respondents in Bardiya district can be found in Table 32.

Table 32: Reasons why FCHV was not called at time of home delivery *(Bardiya EL HHS)*

Variable	n	%
Total number of home births	118	--
FCHV called at time of delivery – home births	57	48
FCHV not called at time of delivery – home births	61	52
Why FCHV not called	**61**	**--**
Delivery at night	30	49
FCHV out of village	12	20
Not necessary	11	18
Do not trust FCHV	3	5
Husband/family did not allow	2	3
Living in different village	2	3
Too far	1	2

The three primary reasons for not calling the FCHV were "delivery at night", "FCHV out of village" and "not necessary." Calling the FCHV at the time of delivery is highly associated with ensuring her attendance at delivery; only 18 percent (11/61) of FCHVs who were not called at the time of the home delivery attended the delivery while 88

percent (50/57) of FCHVs who were called at the time of the home delivery attended the delivery.

Results from the NHIS monitoring data

Data from CB-NCP-2 form is aggregated to report two indicators pertinent to this evaluation question. Data in Table 33 are from the fiscal year 2067/68 and describe women and newborns that were registered by FCHVs in the NHIS.

Table 33: Percentage of home deliveries attended by FCHVs *(source: NHIS, 2067/68, 10 districts)*

Indicator	Numerator	Denominator		Weighted mean
Percentage of home deliveries among registered women	# of women who delivered at home	# CB-NCP-2 forms closed		40.0
Percentage of home births that were attended by FCHV among registered women	# of women whose home birth was attended by FCHV	# home births registered in CB-NCP-2 form		82.6

These data show that 40 percent of registered women delivered at home and that FCHVs reported attending 83 percent of these home deliveries. Even when the finding is taken into account that only 60 percent of expected live births are registered in the NHIS, this self-reported level of attendance is more than double the level of FCHVs' birth attendance as measured through the household surveys.

Data from the CB-NCP qualitative study

Most FCHVs who were interviewed reported that they had attended home deliveries. FCHVs who had attended home deliveries say that they support the preparation of a clean delivery site during the delivery. All FCHVs who had attended a home delivery said they assisted with the delivery, cleaned the baby, wrapped the baby, and promoted skin-to-skin contact and early breast feeding within one hour of birth. In Parsa district most of the FCHVs who were interviewed reported that they applied KABACH (chlorhexadine) after cord cutting. Some of the FCHVs reported they took the birthweight at the time of delivery and counseled the mother to exclusively breast feed her newborn.

The majority of mothers noted that the attendance of FCHVs at delivery is higher than it was previously. Mothers stated that nowadays FHCVs even support pregnant women by accompanying them to the health facility for delivery. According to those mothers at whose delivery FCHVs were present, FCHVs helped ensure the practice of essential newborn care (e.g., wrap and dry the newborn with clean and soft cloth, use a clean blade for cutting the cord, help keep the newborn warm). FCHVs also encouraged mothers to feed their newborn babies colostrum.

EQ-J-3 Has there been a change in clean delivery practices (in particular regarding use of the clean delivery kit) following the introduction of CB-NCP?

Under the CB-NCP, all health workers were trained in clean delivery technique including "the six cleans." FCHVs were told to attend home births so that they could help to ensure clean delivery practices including the provision of CDKs. There were problems with supplying CDKs through the government system in the CB-NCP pilot

districts and adequate supply was only achieved in two districts (Bardiya and Doti) where the supporting partners (Save the Children and CARE, respectively) provided CDKs free-of-charge through their own project funding. These issues are reflected in the results presented in Table 34.

Table 34: Use of Clean Delivery Kit during home births in CB-NCP pilot districts *(source: HHS, 6 districts)*

Indicator	Numerator	Denom.	Doti		Bardiya		Chitwan		Palpa		Dang		Kavre			Mean*	
			BL	EL	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL		BL	EL
Clean delivery kit use (home births)	# women who delivered at home who reported use of a CDK during last delivery	# women with live birth who delivered at home	5	62	34	70	30	35	20	22	19	20	17	14		21	37

Note: * = Unweighted mean

These data make it clear that increases in the use of the CDK are limited to the two districts where the NGO partner made it available on a cost-free basis. Government personnel report that there are chronic shortages in the supply of this commodity in the government system.

Relationship between FCHV attendance at home birth and use of CDK

A separate analysis demonstrates that the presence of FCHVs at home births is associated with use of the CDK. Endline HHS data from Kavre/Chitwan/Palpa/Dang districts show that:

1. The use of CDK was 20 percent (145/721) across all home births.
2. The use of CDK was 50 percent (49/98) for home births where FCHV was present.
3. The use of CDK was 15 percent (96/623) for home births where FCHV was not present.

Health worker knowledge and skills regarding clean delivery

The FUT exercise measured health workers' skills and knowledge in two areas related to clean delivery: knowledge of "the six cleans" and hand-washing skills. Findings regarding these two areas are presented in Table 35.

Table 35: FUT results for clean delivery *(source: FUT, 10 districts)*

Cadre	Range of scores (by district)	Mean (unweighted)
Knowledge of all six cleans		
Health workers	41-87	66
CHWs (MCHWs/VHWs)	25-68	44
FCHVs	13-72	31
Skills on hand-washing		
Health workers	67-97	81
CHWs (MCHWs/VHWs)	42-96	68
FCHVs	38-92	60

These findings suggest that knowledge regarding the six cleans is significantly less than optimal and that skills on hand-washing also have room for improvement.

Table 36: Antenatal care in CB-NCP pilot districts *(source: HHS,8 districts)*

Indicator	Numerator	Den.	Doti		Bardiya		Parsa		Sunsari		Chitwan		Palpa		Dang		Kavre			Mean*	
			BL	EL	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL		BL	EL
At least 1 ANC visit with skilled provider	# women reporting at least 1 ANC visit with a skilled provider (doctor, nurse, or ANM) during last pregnancy	# women with live birth	34	56	55	66	73	73	67	67	65	85	51	65	57	63	50	77		57	69
4 or more ANC visits (any provider)	# women reporting at least 4 ANC visits with any provider during last pregnancy	# women with live birth	--	--	58	81	45	68	69	79	69	78	43	67	47	66	45	82		54	74
4 or more ANC visits with skilled/trained provider	# women reporting at least 4 ANC visits with a skilled or trained (HA, AHW, CMA, MCHW or VHW) provider during last pregnancy	# women with live birth	15	54	--	--	25	62	29	74	69	78	42	66	47	66	44	81		39	69
Tetanus toxoid protection	# of women who received at least 2 tetanus toxoid injections during most recent preg.	# women with live birth	51	64	--	--	89	98	94	94	84	89	49	45	53	71	45	67		66	75
Timing of first ANC visit	Mean number of months pregnant when woman first received ANC during most recent pregnancy	N/A	--	--	3.9	3.8	4.2	3.8	3.7	3.5	3.5	3.5	3.9	3.4	4.0	3.7	3.6	3.1		3.8	3.5

Note: * = Unweighted mean

EQ-J-4 Has there been a change in the ANC1 and ANC4 rates following the introduction of the CB-NCP? To what extent are FCHVs able to counsel to improve ANC visits?

Data presented below describe FCHVs' ability to counsel to promote ANC visits as well as change in ANC1 and ANC4 visit rates following the introduction of the CB-NCP.

Promotion of ANC by FCHVs

Results from the endline 4-district household survey in Kavre / Dang / Chitwan / Palpa districts show that 72 percent (1717/2400) of mothers reported that they discussed their pregnancy with the FCHV and that 61 percent (1461/2400) of mothers were advised to make four ANC visits by the FCHV.

Changes in utilization of ANC services (data from HHS)

Table 36 presents HHS data that show that the use of ANC has increased in the pilot districts following the introduction of the CB-NCP. Overall visit rates have increased as well as tetanus toxoid protection. The timing of the first ANC visit has become earlier (3.5 months post-conception following the introduction of the CB-NCP versus 3.8 months post-conception prior to the CB-NCP).

Changes in utilization of ANC services above and beyond background trend

Table 37 presents the results of a comparative controlled analysis that is identical in approach to the analysis that was described above for delivery services. In this approach, both DHS and HMIS data are used to compare the pre-post utilization of ANC services in CB-NCP pilot districts with utilization in a matched group of control districts.

Table 37: Antenatal care services: NDHS 2011 & HMIS Controlled Comparison Analysis
(source: NDHS 2011 and HMIS 2067/68; 10 CB-NCP districts & 10 control districts)

Indicator	NDHS 2011					HMIS				
	Intervention		Control		Diff of diff	Intervention		Control		Diff of diff
	B	A	B	A		B	A	B	A	
ANC										
ANC by skilled provider	63	70	58	69	-3	69	81	73	78	8
at least four ANC visits	52	64	44	61	-4	36	43	35	46	-5
blood pressure taken	89	89	83	91	-7					
urine sample taken	63	68	53	60	-3					
blood sample taken	49	51	44	48	-2					
told about pregnancy complication	76	82	74	74	6					
told where to go in complication	77	82	72	78	-1					
iron tablet taken	78	87	79	88	0	74	62	73	58	3

Note 1: B=before (CB-NCP); A=after (CB-NCP); diff of diff = difference of differences, for example, for the NDHS 2011 indicator blood sample taken, [(51-49) – (48 – 44)] = -2.
Note 2: Some diff-of-diff calculations may not "add up" due to rounding technique.

These analyses suggest that although the utilization of ANC services has increased in the CB-NCP pilot districts, these increases are matched by an approximately equivalent increase in districts where CB-NCP has not been introduced. It should be noted that the NDHS results are based on survey data with a relatively low sample size. As such, although the diff of diff values are not zero, the confidence intervals overlap and there is no statistically significant difference between change in the intervention and control districts.

Evaluation Questions and Summary Findings

EQ-K-1 What are the timing and frequency of postnatal coverage from FCHV and to what extent is it according to the schedule?

Summary findings

The portrait that emerges from the data presented above regarding the postnatal care that newborns receive can be summarized as follows:

1. **Dramatic overall increase in provision of PNC:** The provision of PNC to newborns has increased notably following the introduction of the CB-NCP. An analysis of survey data from seven pilot districts shows that the PNC utilization rate within two days of birth has more than doubled from 36 percent at baseline to 78 percent at endline.
2. **Timing of first PNC visit:** A separate analysis of survey data from four districts shows that 75 percent of newborns receive PNC within two days of birth, an additional nine percent receive PNC for the first time between days 2 and 28 following birth, and 16 percent of newborns never receive PNC.
3. **The primary contributor to postnatal care is pre-discharge PNC**: In the four-district analysis of household survey data, 74 percent of newborns receive PNC prior to discharge (97 percent for facility births and 20 percent for home births (see detailed findings below for definition of "pre-discharge PNC visit following home birth")).
4. **Relatively low levels of post-discharge PNC:** Only 43 percent of newborns in the four-district analysis receive PNC at any time following discharge. This indicator varies widely between districts from 16 percent in Palpa to 59 percent in Kavre.
5. **Low provision of post-discharge PNC from providers other than FCHVs:** Only 18 percent of newborns receive post-discharge PNC in the first month of life from a provider other than FCHVs.
6. **One in three newborns receives PNC services from FCHV at some point:** FCHVs provide PNC at some point to a minimum of 33 percent of newborns—and possibly more (note that FCHVs' provision of PNC cannot be precisely measured due to problems with survey questionnaire design).
7. **Wide variability in role of FCHV in provision of PNC between districts:** The minimum percentage of newborns that receive PNC from FCHVs varies dramatically between districts, from 13 percent in Palpa to 50 percent in Kavre.

Evaluation Questions and Summary Findings (continued)

EQ-K-2 How effective are the PNC home visits by FCHVs with regard to identifying problems requiring referral and ensuring compliance with best practices for newborn care (e.g., early initiation of breastfeeding)?

Summary findings

Two analyses were conducted to measure the effectiveness of home visits by FCHVs in ensuring that (i) ENC best practices are followed and (ii) newborn problems, including those that require referral, are identified.

1. There were strong positive associations between the presence of the FCHV at home deliveries and the performance of ENC practices. While associations do not prove causality, they do suggest that FCHVs' attendance at home births may result in improved practice of key ENC behaviors.
2. The effectiveness of FCHVs at identifying newborn problems was assessed by reviewing FCHVs' efforts to identify LBW newborns. FCHVs identify an estimated 29 percent of the LBW newborns that they weigh as "low birthweight" and mis-identify an estimated 71 percent of LBW newborns that they weigh as "normal weight". At the population level, FCHVs identify only 15 percent of all LBW newborns that are born at home as low birthweight. This latter result is low for two reasons: (i) FCHVs only weigh 52 percent of babies delivered at home, and (ii) FCHVs identify a low percentage (four percent, compared to an assumed standard of 15 percent) of newborns that they do weigh to be LBW.

Conclusions

The data that describe PNC has significant quality problems, and the findings regarding PNC must be interpreted in that light. The encouraging finding that 78 percent of newborns receive PNC within two days of birth at endline must be interpreted with care, as most of the PNC occurs prior to discharge following facility deliveries. The percentage of home-delivered newborns that receives timely PNC is far lower—and this group of newborns is likely to be more disadvantaged, and may have increased care needs.

Once a newborn is "discharged" from either a home or facility delivery, only 43 percent receives a further PNC visit. Data that accurately describe PNC provided by FCHVs were not available, and thus this percentage may be somewhat higher. However, it does appear that a sizable percentage of newborns—probably more than half—does not receive post-discharge PNC, and this remains a major concern.

Relatively little is known about the quality of the PNC that is provided. Further research in this area is vital to guide future program activities with regard to PNC.

There were strong positive associations between the attendance of the FCHV at home deliveries and the performance of ENC behaviors. This suggests that FCHVs may play an effective role in the promotion of ENC when they are present at home deliveries. This effectiveness is not matched by FCHVs' ability to identify LBW newborns; they perform much more poorly in this regard. CB-NCP program managers will need to determine how to increase the percentage of FCHVs that attend home deliveries—and how to improve their detection of low birthweight newborns—if the quality and effectiveness of PNC offered to the most needy groups in Nepal is to be strengthened.

Overview

The official MoHP document that endorsed the CB-NCP noted that postnatal care was one of seven key interventions included in the CB-NCP. This document states that *"Skilled birth attendants and health facility staff will be encouraged for facility-based postnatal care of both the mother and her newborn. They will also be encouraged to provide home-based postnatal care. FCHVs will be trained to provide 3 postnatal visits at home for both the mother and her newborn and the performance-based incentive provided for attendance of home deliveries, will only be provided on the completion of the required number of visits and care. Functional linkages between the FCHVs and health workers and health facilities will be established to ensure effective referral."*

The basis for providing FCHVs with incentives was later modified so that FCHVs were given incentives to encourage facility delivery and to conduct four PNC visits on the first, third, seventh and twenty-eight days following delivery. During PNC home visits, FCHVs have been trained to counsel mothers and family members regarding any problems they might face, promote recommended behaviors, assess the mother and newborn for danger signs, and weigh the newborn. Data sources used to address the evaluation questions for delivery practices include 1) Household survey (HHS), 2) Newborn Health Information System (NHIS), 3) Health Management Information System (HMIS), 4) Nepal Demographic Health Survey 2011 (NDHS 2011), 5) Follow-up After Training exercise (FUT) and 6) Qualitative Study (QS).

Detailed Results: Evaluation questions regarding postnatal care

The ARG developed two evaluation questions related to PNC. Both questions are explicitly focused on PNC provided by FCHVs and do not explore PNC provided by other providers.

The presentation of findings below differs somewhat from the focus of those two evaluation questions for two reasons. First, there are important aspects of PNC—such as PNC provided by health workers other than FCHVs—that are important, are reasonably well-described by the data, and thus need to be presented. Second, there are few data of acceptable quality that are available to answer the evaluation questions as they are stated, and therefore the questions as stated will go unanswered to a certain extent.

The findings that are presented below therefore represent an effort to make the best use of the data that are available so that meaningful conclusions can be drawn regarding PNC.

EQ-K-1 What are the timing and frequency of postnatal coverage from FCHVs and to what extent is it according to the schedule?

The evaluation question as stated directly above is quite explicit in terms of what it asks. There are two data sources—HHS and NHIS—that generate data regarding the timing and frequency of PNC. Unfortunately, neither of them contributes data that can be used to answer this question in a meaningful way. The NHIS data that describes PNC are self-reported by FCHVs, and these data are then used as the basis for calculating FCHV incentives. The data show that (self-reported) performance is high—as are the incentive payments—but these findings cannot be relied on to be accurate. The HHS provides more valid data, but the survey questionnaire was unfortunately not designed to generate detailed information about the timing and frequency of PNC provided by FCHVs—indeed, it provides very little information about the PNC visits conducted by FCHVs.

This section will thus present four different aspects of data that describe postnatal care:

I. PNC provided by any health care worker

II. A comparative analysis of the intensity of PNC (by any provider) in CB-NCP pilot districts as compared to ten matched control districts

III. A review of existing quantitative data that describe PNC provided by FCHVs

IV. Findings regarding postnatal care from the qualitative assessment of the CB-NCP

Postnatal care provided by any health care worker

Data were collected during the household surveys regarding whether the newborn "was examined" (i.e., received postnatal care) at three points in time following birth:

1. Point 1: Prior to discharge from the health facility (for institutional deliveries), or before a health worker who was present at delivery left the home (for home deliveries);
2. Point 2: First visit/exam (if any) following discharge (for institutional deliveries) or after the health worker left the home (for home deliveries) within one month post-delivery;
3. Point 3: Second visit/exam (if any) following discharge (for institutional deliveries) or after the health worker left the home (for home deliveries) within one month post-delivery.

Information was not gathered for more than two post-discharge visits, even though FCHVs were supposed to make up to four PNC home visits. For each PNC visit that the respondent (mother) reported, she was asked which provider(s) was present, and only the most highly qualified provider was recorded. In addition, the question sequence was phrased in such a way that it is not clear if all mothers understood that postnatal care from a FCHV should be reported.

While the survey data cannot be used to accurately map and describe PNC visits made by FCHVs, the data can be used to describe postnatal care from other perspectives. The standard global indicator with regards to postnatal care for newborns is percentage of newborns that received a postnatal checkup in the first two days after birth. This indicator is reported by district and then deconstructed by place of birth and timing of visit in the tables below.

Results

Date in Table 38 show that PNC for newborns within two days of birth has increased dramatically following the introduction of the CB-NCP from 36 percent at baseline (BL) to 78 percent at endline (EL). PNC utilization rates within two days of birth at EL vary across the seven surveyed districts from 60 to 96 percent.

Table 39 breaks down the timing and context of PNC for newborns into elements of care provided prior to and following discharge. Data in this table are also stratified by delivery site. These data make it clear that the primary contributor to early postnatal care is pre-discharge PNC, for both home[11] and facility deliveries—and thus, the

[11] The concept of a "pre-discharge PNC visit at a home delivery" is somewhat counterintuitive, as the term "pre-discharge" is usually associated with a facility-based service. In the CB-NCP household surveys, a pre-discharge PNC visit following a home delivery was defined as a "yes"

increase in facility deliveries has clearly contributed to an increase in PNC (pre-discharge). Forty-four percent of newborns are reported to receive PNC at least one time following discharge although this may be an underestimate if mothers have under-reported PNC by FCHVs. If this finding is accurate 56 percent of newborns do not receive any PNC following discharge. Table 40 presents data that describe the timing of the first PNC checkup for newborns. These data are related to the findings presented in the preceding paragraph and show that 75 percent of newborns receive PNC within two days of birth, an additional nine percent receive PNC for the first time between days 2 and 28 following birth, and 16 percent of newborns do not receive PNC during the first 28 days of life.

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answer in response to the question "Before the Health Professional, FCHV or traditional birth attendant left your house, after [NAME] was born, did he/she check on your baby's health?"

Table 38: Postnatal care for newborns from any provider *(source: HHS, 7 districts)*

Indicator	Numerator	Den.	Bardiya		Parsa		Sunsari		Chitwan		Palpa		Dang		Kavre			Mean*	
			BL	EL	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL		BL	EL
PNC check for newborn within 2 days by <u>any</u> provider	# women with live birth whose newborn received a PNC check within 2 days (48 hours) after delivery	# women with live birth	65	96	30	71	37	79	42	90	23	60	25	76	29	73		36	78

Note: * = unweighted mean

Table 39: Postnatal care utilization rates at different points in time *(source: HHS, 4 districts – Kavre, Dang, Palpa, Chitwan)*

	Site of delivery	Pre-discharge PNC	Post-discharge PNC on Day 0	Post-discharge PNC on Day 1	Any post-discharge PNC within 28 days of delivery	PNC (pre or post-discharge) within 2 days of delivery
Health facility	70 (1668/2379)	97 (1611/1668)	2 (30/1668)	1 (17/1668)	44 (743/1668)	97 (1614/1668)
Home	30 (711/2379)	20 (141/711)	1 (9/711)	6 (40/711)	39 (278/711)	24 (170/711)
Total	100 (2379/2379)	74 (1752/2379)	2 (39/2379)	2 (57/2379)	43 (1021/2379)	75 (1784/2379)

Note: Estimates unweighted by district

Table 40: Timing of first postnatal checkup for the newborn including pre- & post-discharge *(source: HHS, 4 districts – Kavre, Dang, Palpa, Chitwan)*

	Less than 24 hours	1-2 days (25-72 hours)	3-6 days	7-13 days	14-20 days	21-28 days	Any PNC in first 28 days
Timing of first postnatal checkup	**72** (1714/2379)	**3** (70/2379)	**4** (105/2379)	**1** (33/2379)	**2** (46/2379)	**1** (19/2379)	**84** (1987/2379)

Note: Estimates unweighted by district

A comparative study of the intensity of postnatal care in CB-NCP pilot districts as compared to ten matched control districts

The CB-NCP has devoted considerable program resources to increase the provision of PNC to newborns. The NDHS 2011 analysis that has contributed to this assessment of the CB-NCP included an analysis of the indicator percentage of newborns that received a postnatal checkup in the first two days after birth. The results of this analysis are presented in Table 41.

Table 41: Newborn PNC checkup within 48 hours of birth: NDHS 2011 Comparison Analysis

	CB-NCP districts			Control districts			Difference of differences
Indicator	**Before**	**After**	**Difference**	**Before**	**After**	**Difference**	
Newborn PNC checkup within 48 hours of birth	29	45	16	28	27	-1	17

The results of this controlled comparison analysis provide strong evidence that CB-NCP program activities have resulted in an increase in the utilization of postnatal care by newborns in pilot districts. The value of this indicator has essentially remained level in the control districts but has increased substantially in CB-NCP districts, resulting in a "difference of differences" of 17 percent.

A review of existing data that describe PNC provided by FCHVs

As discussed above, it is not possible to adequately describe the postnatal care provided by FCHVs in CB-NCP districts due to limitations—described in the box below—regarding the HHS and NHIS data. The existing data are presented below, but much care should be taken in interpreting them and drawing conclusions.

NHIS data describing PNC home visits by FCHVs

The NHIS data that describe PNC home visits made by FCHVs are presented in Table 42. Anecdotal information and small-scale studies that have been carried out during the CB-NCP suggest that these data exceed actual performance due to over-reporting. It should be recalled that these data only pertain to registered newborns; data that describe the newborn capture rate that are presented in the chapter on Availability of PNC services suggests that only 60 percent of all newborns are registered by FCHVs.

Data presented in the table show only 45 percent of registered newborns are visited by FCHVs on their day of birth (presumably due to high levels of facility births), but thereafter FCHVs report visiting 87, 95 and 100 percent of registered newborns on PNC visits on the third, seventh and twenty-eighth days following delivery, respectively.

Table 42: Provision of postnatal care to newborns by FCHVs, by day of service *(source: NHIS, 10 districts)*

Indicator	Bardiya	Dang	Sunsari	Doti	Kavre	Morang	Chitwan	Palpa	Dhankuta	Parsa		Weighted mean
Percentage of newborns receiving care from FCHV on day of birth among registered women	23	40	27	83	60	47	19	49	76	77		45
Percentage of newborns receiving care on Day 3 from FCHV after delivery among registered women	97	95	98	95	94	61	71	94	93	95		87
Percentage of newborns receiving care from FCHV on Day 7 after delivery among registered women	99	97	99	97	96	95	75	98	97	96		95
Percentage of newborns receiving care from FCHV on Day 28 after delivery among registered women	100	100	101	100	100	100	100	100	100	100		100

Note: numerator = # newborns reported as healthy, referred or dead at PNC visit by FCHV on specified day; denominator = # CB-NCP-2 forms closed.

Box 2: Limitations of HHS & NHIS data with regards to measuring PNC from FCHVs

HHS data

1. The screening question that was used to begin the sequence of questions that explores PNC for newborns asked mothers (respondents) the following: *"After [name] was born and the health care provider, FCHV or traditional birth attendant left your home, did any health care provider or a traditional birth attendant check on his/her health?"* Note that "FCHV" was not mentioned in the second part of the question, after the comma. The exclusion of "FCHV" from the second part of the question was unfortunate and may have led respondents to believe that care from FCHVs should not be reported.
2. Respondents were only asked about one pre-discharge check and two post-discharge checks. Information about all PNC visits that took place in the first month is not recorded.
3. For the question *"Who checked on [name]'s health at that time?"*, interviewers were instructed to probe to determine the most qualified provider that was present and only record that provider.

(NHIS monitoring data

1. Data on FCHVs' provision of PNC care for newborns represents self-reported performance data that is then used to calculate the amount of the incentive that the FCHV receives for providing that service. As such, there is an additional "incentive" to record maximum performance, even if it was not performed.
2. These data represent FCHVs' provision of care only to newborns that FCHVs have registered. Data reported elsewhere in this report suggest that FCHVs register approximately 60 percent of all newborns.

HHS data describing PNC home visits by FCHVs

Due to the limitations described above, HHS data cannot be used to generate an accurate estimate of FCHVs' provision of PNC to newborns. Despite the questionnaire construction that may have led mothers to under-report care by FCHVs, some mothers did report care provided by FCHVs. Thus, data from the HHS can be used to create an estimate of that minimum level of care that FCHVs provided. These results must be interpreted with the understanding that the actual level of care that FCHVs provided is almost certainly higher—although we do not know by how much. In the table below, the data have been analyzed so as to present a picture of (i) the contribution of FCHVs (to the extent that it can be measured) to post-discharge PNC as well as to overall PNC and (ii) the overall percentage of newborns who receive post-discharge PNC.

Table 43: Various aspects of provision of postnatal care to newborns by FCHVs *(source: HHS, 4 districts)*

Indicator	Kavre	Chitwan	Palpa	Dang	Total
Percentage of newborns that receive PNC from FCHV (post-discharge only)	48 (286/594)	46 (274/599)	10 (59/594)	17 (99/592)	30 (718/2379)
Percentage of newborns that receive PNC from other than FCHV (post-discharge only)	17 (100/594)	25 (150/599)	7 (40/594)	25 (146/592)	18 (436/2379)
Percentage of newborns that receive PNC from any provider (post-discharge only)	59 (350/594)	58 (350/599)	16 (98/594)	38 (223/592)	43 (1021/2379)
Percentage of newborns that receive PNC from FCHV (pre & post-discharge)	50 (294/594)	47 (283/599)	13 (76/594)	21 (123/592)	33 (776/2379)

Review of the data in Table 43 yields the following tentative findings:

1. **Low provision of post-discharge PNC from providers other than FCHVs:** Only 18 percent of newborns receive post-discharge PNC in the first month of life from a provider other than FCHVs. There are no quality concerns with this indicator and it should be a reasonably accurate estimate.
2. **One in three newborns receives PNC services from FCHV at some point:** FCHVs provide PNC at some point to a minimum of 33 percent of newborns—and possibly more. While this level of coverage is not high, neither is it extremely low.
3. **Wide variability in role of FCHV in provision of PNC between districts:** The minimum percentage of newborns that receive PNC from FCHVs varies dramatically between districts, from 13 percent in Palpa to 50 percent in Kavre.
4. **Wide between-district variability in percentage of newborns that receive post-discharge PNC from any provider:** This indicator varies from 16 percent in Palpa to 59 percent in Kavre.

Findings regarding PNC from the qualitative assessment of the CB-NCP

Most FCHVs are aware of the importance of visiting the mother and child on the first, third and seventh day after delivery. Most FCHVs reported visiting according to this schedule although some noted that if they could not go on the exact day they go one or two days later. FCHVs are also aware that they should visit the newborn on the 28th day following delivery and most report doing so. During PNC visits, FCHVs report that they provide counseling and observe the mother and child. Most FCHVs say that they observe the general health status of the mother and baby, assess the baby, and advise the mother to maintain hygiene. Several FCHVs report that they also provide advice on family planning services. FCHVs say that their advice is focused on essential newborn care such as delayed bathing or keeping the baby warm. FCHVs also weigh the baby, provide advice regarding breast feeding and about danger signs. Three FCHVs said that they register births during PNC visits while two others noted that they counsel family members as well as the mother.

Mothers who were interviewed during the qualitative study report that they were advised by FCHVs to keep the baby warm through skin-to-skin contact, by delaying bathing or performing kangaroo mother care. They also report that FCHVs weigh the baby and teach about breast feeding and the importance of colostrum. Three of the mothers said that the FCHV helped to take care of the mother after delivery by providing food and two mothers said that the FCHV helped with hygienic cord cutting. Four mothers who had delivered previously said they did not notice any change in the services provided by FCHVs while seven mothers who had delivered previously felt that they had received better services from the FCHV and better information on ENC in the present delivery compared to the previous delivery.

EQ-K-2 How effective are the PNC home visits by FCHVs with regard to identifying problems requiring referral and ensuring compliance with best practices for newborn care (e.g., early initiation of breastfeeding)?

There is a limited amount of data available that can be used to measure the effectiveness of home visits by FCHVs in ensuring that (i) ENC best practices are followed and (ii) newborn problems, including those that require referral, are identified. Given the data that are available to work with, the best way to explore this area is to conduct the following analyses:

1. Explore the associations between FCHV presence at home births and practice of key ENC best practices such as delayed bathing, immediate skin-to-skin contact between mother and newborn, immediate wrapping of newborn, early initiation of breastfeeding, and use of the CDK.
2. Explore FCHVs' performance with regards to identification of low LBW.

Associations between FCHV presence at home births and practice of key ENC behaviors

Table 44 presents information from HHS data in four districts regarding the practice of key ENC behaviors at live home births, stratified by whether or not a FCHV was present at the delivery. The chi-squared test is used to test the statistical significance of differences between practices at FCHV-attended and FCHV-non-attended births.

Table 44: Performance of key best practices for newborn care at live home births, by FCHV presence at birth *(source: HHS, 4 districts)*

Practice	% correct practice when FCHV present	% correct practice when FCHV not present	p-value[12]
Use of clean delivery kit	51 (50/98)	16 (96/613)	0.000
Bathing delayed more than 24 hours	79 (77/98)	49 (301/613)	0.000
Skin-to-skin immediately after birth	49 (48/98)	25 (153/613)	0.000
Wrapped with cloth before placenta delivered	85 (83/98)	58 (355/613)	0.000
Cord cut with new blade	93 (91/98)	76 (466/613)	0.000
Early initiation of breast feeding	71 (70/98)	50 (304/613)	0.000

All six practices are notably higher (in a positive direction) at births when the FCHV was present. While these are associations and do not represent evidence that the presence of FCHVs caused this improvement, it does suggest that FCHVs' attendance at home births may result in improved practice of key ENC behaviors.

[12] Note: chi-squared test used to assess p-value.

FCHVs' performance with regards to identification of low birthweight newborns

Perhaps the most straightforward way that the effectiveness of FCHVs at identifying newborn problems can be assessed is through reviewing their efforts to identify low birthweight (LBW) newborns. Table 45 is taken from Chapter G. Availability of Newborn Services and summarizes FCHVs' efforts to identify LBW newborns.

Table 45: Approaches to and results from calculating FCHV low birthweight capture rates

Indicator	Numerator	Denominator	FCHV capture rate
FCHVs' effectiveness at finding LBW among weighed newborns	Number of newborns identified as LBW or VLBW by FCHVs	Number of expected V/LBW babies among babies weighed by FCHVs within 3 days of birth in CB-NCP pilot districts	**29 percent** (target = 100 percent)
	994	**3456**	
FCHVs' effectiveness at finding LBW among all newborns born at home	Number of newborns identified as LBW or VLBW by FCHVs	Number of expected LBW/VLBW newborns in all home births in CB-NCP pilot districts	**15 percent** (target = 100 percent)
	994	**6630**	

The analysis in the first row of the table suggests that FCHVs identify an estimated 29 percent of the LBW newborns that they weigh and mis-identify 71 percent of LBW newborns as "normal weight". It is not clear if this is due to incorrect weighing technique, malfunctioning equipment, or some other reason.

The analysis in the second row of the table suggests that among all LBW newborns that are born at home, FCHVs identify only 15 percent of them as low birthweight. This result is low for two reasons: (i) FCHVs only weigh 52 percent of babies delivered at home, and (ii) FCHVs identify a low percentage (four percent) of newborns that they do weigh to be LBW.

These results are based on the assumption that 15 percent of newborns in the pilot districts are V/LBW. This assumption is felt to be conservative and it is doubtful that the true percentage of LBW newborns is much lower than this—and it may be higher. Changing this assumption will affect the results presented above.

Chapter L: Community and Facility-Based Case Management of Neonatal Infections

Evaluation Questions and Summary Findings

EQ-L-1 To what extent is the prevalence of neonatal infection, and the proportion of newborns who are diagnosed with infection, within the expected range? To what extent do mothers seek care for sick newborns from FCHVs and CHWs?

Summary findings

1. The percentage of caretakers that seek care from an appropriate provider for sick newborns at first contact point with health system increased from 77 percent at BL to 86 percent (75 percent from trained health workers, 11 percent from FCHVs) at EL. Changes that took place following the implementation of the CB-NCP include (i) an increase in the percentage of sick newborns seen by more highly qualified providers and (ii) a modestly increased role for FCHVs in case management of sick newborns.
2. The role of FCHVs in providing infection case management services varies from modest to almost nil, depending on the district.
3. Among caretakers that seek care for their sick newborns, 66 percent seek care from a government health facility while 14 and 10 percent seek care from a private facility and FCHVs, respectively.

EQ-L-2 How are the infection management services that are provided by FCHVs perceived by mothers?

Summary findings

Newborn danger signs were usually identified by the FCHV when women delivered at home.

Mothers were aware that if newborn danger signs appear then they need to take the newborn to the health facility. Most mothers interviewed in the qualitative study reported that they will take sick newborns directly to the health facility for treatment and not go to the FCHV first. Mothers said that in general they are happy with the newborn services provided by FCHVs.

EQ-L-3 What proportion of infection cases is appropriately assessed through the correct use of the algorithm? Has the algorithm (which has been adapted to be more in line with the IMCI algorithm—and thus differs from the algorithm used under Morang/ MINI) resulted in over-diagnosis? What signs are the most commonly reported, and are these consistent with the findings from MINI and other estimates?

Summary findings

1. There are concerns regarding the ability of some FCHVs to correctly follow the protocol for management of sick newborns including correct use of the thermometer. Some FCHVs report that they do not follow the protocol and thereby may inadvertently endanger newborns' health.
2. The current caseload of sick newborns per FCHV (one case per FCHV every 2.6 years) is low enough to raise concerns regarding whether or not their skills can be maintained to provide quality services.

Evaluation questions and summary findings (continued)

EQ-L-3 What proportion of infection cases is appropriately assessed through the correct use of the algorithm? Has the algorithm (which has been adapted to be more in line with the IMCI algorithm—and thus differs from the algorithm used under Morang/MINI) resulted in over-diagnosis? What signs are the most commonly reported, and are these consistent with the findings from MINI and other estimates?

Summary findings (continued)

3. There is some evidence that the CB-NCP sick newborn protocol may be resulting in over-diagnosis of Possible Severe Bacterial Infection (PSBI) although the data are not conclusive.

EQ-L-4 Is referral effective and do mothers respond to it? Are cases of infection receiving gentamicin? Is there any discrepancy between FCHV assessment and health facility staff assessment—and, if so, is this appropriate or risky? What proportion of newborns that begin gentamicin treatment complete their course—and are these data reliable?

Summary findings

1. Most sick newborns are taken directly to trained health providers by their caretakers. Referral from FCHVs seems to play a relatively minor part in this process.
2. Some caretakers are reluctant to have their newborn be given drugs or injections even if this treatment may be life-saving.
3. Household survey data suggest that only one-third (34 percent) of sick newborns are treated with cotrim or gentamicin by the first provider who examines them.
4. Household survey data further suggest that the percentages of newborns who complete full courses of cotrim and gentamicin are 76 and 26 percent, respectively.

EQ-L-5 What has been the response from VHWs/MCHWs/ANMs with regard to the need for daily gentamicin administration? How has this been done—through home visits, negotiated intermediate locations, or at health facilities? How have mothers reacted to these arrangements, and to what extent do they comply with referral?

Summary findings

1. Health workers report that the provision of gentamicin injections is going smoothly.
2. This service is provided to sick newborns at the health facility rather than at the newborn's home.
3. Most mothers of sick newborns report that they are happy with the infection management service they receive at the health facility.

Evaluation Questions and Summary Findings (continued)

EQ-L-6 Does the monitoring system allow us to differentiate between cases referred by FCHVs to health facilities and those cases that go directly to the health facility or to VHWs or MCHWs? If the data are merged, how can we determine the outcomes for cases referred by FCHVs?

Summary findings

1. The NHIS monitoring system merges infection cases referred from FCHVs with cases that go directly to the health worker for treatment; it is therefore not possible to track outcomes separately for cases referred by FCHVs.
2. Due to concerns with data quality, it is not advisable to use outcome data from the infection management component of the NHIS to draw conclusions about the effectiveness of the intervention.

Conclusions

The percentage of sick newborns in the pilot districts that were taken to see a trained health provider was high both prior to and following the introduction of the CB-NCP. Sick newborns are seen primarily by government health providers, with the private sector playing a modest role. In districts where the CB-NCP has been implemented, the role of FCHVs in providing infection case management services varies from modest to almost nil, depending on the district. This latter finding may indicate that the role of FCHVs in the provision of case management is somewhat fragile and requires nurturing at the district level. While FCHVs in the pilot districts appear to play a minor role in actual case management of sick newborns, they may contribute to greater awareness among caretakers and contribute to their use of health facilities. In districts where access to health facilities is more limited, FCHVs may have different role—one more similar to the role FCHVs played in the MINI field trial.

This assessment has identified concerns with the quality of case management provided by FCHVs. Perhaps sensing this, caretakers with sick newborns state a clear preference for services from a trained health worker over a FCHV. If an infant has sepsis, full treatment is needed, as partial treatment may result in the development of resistance. The data do not provide confidence that cases are being treated appropriately—although data quality is poor. A stronger system to review case management is needed.

PSBI and Local Bacterial Infection (LBI) reflect different risks for the neonate, and the combination of the two in the same algorithm may require further thought. PSBI has the potential to result in rapid deterioration and death—and thus needs to be identified and treated as quickly as possible. To do so requires effective education of caretakers, good case management by FCHVs, and high-quality provision of care by trained health workers. While mothers appear to have adequate knowledge of danger signs, the data presented in this chapter suggests that the case management of newborns with infection is well short of optimal.

Overview

The official MoHP document that endorsed the CB-NCP notes that community case management of pneumonia / PSBI is one of seven key interventions included in the CB-NCP. This document states that *"FCHVs will use algorithms to identify neonatal infections during postnatal visits or when called upon by the families. If they diagnose infection they will initiate and provide 5 days of oral cotrimoxazole treatment and refer to health facility staff for provision of injectable gentamicin, as per protocol."*

It is estimated that approximately one-quarter of newborn deaths is caused by infection[13]. The CB-NCP infection management intervention is therefore a central component of the CB-NCP's effort to reduce newborn mortality. The CB-NCP's approach to infection management was modeled on the strategy used in the MINI field trial that was conducted in Morang district in Nepal from 2005-2009. The CB-NCP case management algorithm for infection is slightly different than the model that was used in MINI. Under the CB-NCP approach and algorithm, FCHVs are supposed to check newborns for seven specific danger signs (of infection) when they make home-based PNC visits on the first, third, seventh and twenty-eighth day following delivery. A newborn with one or more danger signs is presumed to have either a local bacterial infection (LBI) or a possible severe bacterial infection (PSBI). If the FCHV observes one or more danger signs, she is supposed to provide the newborn with a five-day course of cotrimoxazole and refer the newborn immediately to a trained health worker. Trained health workers then reassess newborns referred by FCHVs and classify them as having PSBI, LBI or "no sign of infection" and treat accordingly. These health workers also manage newborns whose caretakers approach them directly without referral. Newborns that are diagnosed with PSBI are treated with a seven-day course of injectable gentamicin. These injections can only be provided by a trained health worker and not by a FCHV unless a Uniject approach is used.

The MINI model was designed for a terai district with low levels of institutional deliveries and very low utilization rates of facility-based curative services for sick newborns—that is, for districts similar to Morang approximately ten years ago. The MINI field trial postulated that community-based care for sick newborns had the potential to fill a key gap in service delivery that might reduce newborn mortality and that FCHVs might play a prominent role in providing this service. In contrast, the CB-NCP has been piloted in both terai and hill districts in the context of rapidly increasing levels of institutional deliveries as well as rising utilization of facility-based services for sick newborns. Thus, while it was felt that the positive results that have been achieved in Nepal by CB-IMCI and the MINI field trial represented a reasonably strong basis for including the infection management component in the CB-NCP, it was realized that CB-NCP was being introduced into districts that were quite different than Morang was in 2005 when the MINI field trial was initiated and that the CB-NCP infection management intervention might not function as envisioned.

The expected prevalence of PSBI/LBI among newborns in Nepal is central to several of the evaluation questions that pertain to this intervention. Depending on the algorithm that is used to define PSBI, between 7 and 15 percent of newborns can be expected to develop PSBI during the first month of life (Abdullah Baqui, personal communication).

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[13] Lawn JE, Cousens S, Zupan J for the Lancet Neonatal Survival Steering Team. 4 million neonatal deaths: When? Where? Why? Published online March 3, 2005. http://image.thelancet.com/ extras/05art1073web.pdf.

The MINI field trial found that 9 percent of newborns aged 0-28 days in the study area developed PSBI and 14 percent developed LBI[14]. Research in Sylhet, Bangladesh and Gadchiroli, India has found that approximately 11 percent of newborns develop PSBI[15]. In this assessment of the CB-NCP, it has therefore been assumed that the expected prevalence levels of PSBI and LBI are ten and fifteen percent, respectively (cumulatively 25 percent). These assumptions can be compared with the percentage of mothers who, serving as respondents in the household surveys conducted in CB-NCP pilot districts, reported that their infants had danger signs during the first month of life. Data sources used to address the evaluation questions for newborn infection include 1) HHS, 2) NHIS, 3) HMIS, 4) FUT, 5) TSV and 6) QS.

Detailed Results: Evaluation questions regarding case management of newborn infections

EQ-L-1 To what extent is the prevalence of neonatal infection, and the proportion of newborns who are diagnosed with infection, within the expected range? To what extent do mothers seek care for sick newborns from FCHVs and CHWs?

Estimated prevalence of newborn infection

Available data from the HHS can be used to roughly estimate the prevalence of newborn infection in the CB-NCP pilot districts as perceived by mothers of newborns. Mothers were asked if their infant was sick and had one or more danger signs during the first month of life. This question, which was asked at both baseline and endline in all eight surveyed districts, can be used as a rough proxy for newborn infection. Results of this inquiry can be found in Table 46.

Table 46: Prevalence of newborn infection (LBI or PSBI) *(source: HHS, 7 districts)*

Indicator	Numerator	Denominator	Range @ BL among districts		Range @ EL among districts			Mean*	
			Low	High	Low	High		BL	EL
Proportion of newborns experiencing one or more danger signs during first month	# of newborns experiencing one or more danger signs during first month	# live births	11	28	7	31		20	22

Note: * = Unweighted mean

The finding that approximately 20-22 percent of newborns suffered from possible infection is in line with the expected prevalence of infection of 25 percent (PSBI and LBI

[14] K.C. G. Community-based management of neonatal infections in Nepal: Establishing a model in one district – Final Report: Morang Innovative Neonatal Intervention Program. USAID, JSI, Save the Children, Nepal Family Health Program, and Government of Nepal. 2009.

[15] Bang AT et al. Is Home-Based Diagnosis and Treatment of Neonatal Sepsis Feasible and Effective? Seven Years of Intervention in the Gadchiroli Field Trial (1996 to 2003). Journal of Perinatology (2005) 25, S62–S71. doi:10.1038/sj.jp.7211273.

together) as discussed above. This finding confirms that there are numerous cases of newborn infection in the CB-NCP pilot districts that require diagnosis and treatment.

Identification and management of newborn infection

Data from the HHS as well as the NHIS can be used to quantify the percentage of sick newborns who receive treatment from appropriate providers. There are limitations to both data sources. The question sequence in the HHS asked mothers if they sought care for their sick newborn and, if so, who was the first provider that they contacted. The survey did not explore subsequent contacts with providers. NHIS data for infection management have significantly greater limitations and entirely dependent on (for care provided by FCHVs) the FCHV completing and submitting a copy of CB-NCP-3 form for a newborn with danger signs. The NHIS system only collects information about infection management provided by FCHVs and community-level health providers at government facilities; care provided from public hospitals and private facilities is not recorded.

Household survey data

Table 47 presents data from the HHS that describes care-seeking for sick newborns. Data in the table above suggest that most sick newborns (77/86 percent at BL/EL) received care from an appropriate provider at their first point of contact with the health system both before and after the introduction of CB-NCP. There has been little change between BL and EL regarding the total percentage of sick newborns that receive care from a medically skilled or trained provider (76 percent at BL vs. 75 percent at EL) although the percentage of cases seen first by a medically skilled provider is higher at EL. The ten percent increase in care provided by an appropriate provider appears to be due to the increased role of the FCHV in providing first-contact infection management care for newborns. This role varies notably by district, from 0 percent in Palpa to 16-17 percent in Bardiya, Chitwan and Dang.

Table 48 shows the location where caretakers sought care for sick newborns. These data are from the 490 sick newborns from the EL surveys in Dang, Chitwan, Palpa and Kavre for whom care was sought outside the home.

Table 47: Care-seeking patterns for sick newborns (LBI or PSBI) (source: HHS, 5 districts)

Indicator	Numerator	Denominator	Bardiya		Chitwan		Palpa		Dang		Kavre			Mean*	
			BL	EL	BL	EL	BL	EL	BL	EL	BL	EL		BL	EL
Care-seeking from medically skilled provider (first provider seen)	# sick newborns taken first to a medically skilled provider (doctor, nurse, ANM)	# newborns with at least one danger sign in first month	19	41	41	50	32	51	38	46	49	44		36	46
Care-seeking from trained provider (first provider seen)	# sick newborns taken first to a trained provider (HA, AHW, CMA, MCHW or VHW)	# newborns with at least one danger sign in first month	57	41	41	26	32	19	38	30	30	29		40	29
Care-seeking from FCHV (first provider seen)	# sick newborns taken first to an FCHV	# newborns with at least one danger sign in first month	1	17	2	17	0	0	3	16	1	6		1	11
Care-seeking outside home for sick newborn from any appropriate provider (first provider seen)	# sick newborns taken first to any appropriate provider (doctor, nurse, ANM, HA / AHW, MCHW, CMA, VHW or FCHV)	# newborns with at least one danger sign in first month	76	99	84	92	65	70	79	92	80	78		77	86

Note: * = unweighted mean

Table 48: Site of first-contact care for sick newborns *(source: HHS, 4 districts)*

Site of care	n	percentage
Hospital	161	33.9
PHCC	27	5.5
Health post	51	10.4
Sub-health post	80	16.3
Private clinic / nursing home	71	14.5
FCHVs' home	50	10.2
Pharmacy/Ayurvedic	27	5.5
Medical college	3	0.6
Called health provider home	15	3.1
Community hospital	1	0.2
Social welfare service	1	0.2
Other	3	0.6
Total	**490**	**100.0**

The four major categories of sites where caretakers seek care for sick newborns can be classified as public hospitals (34 percent), community-level health facilities (PHCC, health post, sub-health post; 32 percent), private clinics (14 percent), and FCHVs' homes (10 percent).

NHIS data on management of sick newborns

NHIS data can also be used to estimate the percentage of sick newborns that is seen by FCHVs and health workers in community-level health facilities. Our ability to use these data to make definitive statements about infection case management under the CB-NCP is limited by issues that include the following:

1. An undetermined number of cases of newborn infection are seen by FCHVs and community-level health workers that are not recorded in the NHIS for various reasons.
2. The denominator for any estimates of "capture rate" is estimated live births which introduces inaccuracies into the estimate.
3. Cases seen at hospitals and by private sector providers are not included.

Indicators in Table 49 have been constructed using the number of cases of LBI/PSBI reported by different health worker cadres as the numerator and 25 percent of the number of expected live births as the denominator. This approach to analysis yields the percentage of anticipated cases of newborn infection that are managed by FCHVs and community-level health workers. Indicator 1 shows that two percent (out of an expected 25 percent) of registered newborns are identified as having possible infection and are referred by FCHVs using CB-NCP Form 3. Indicators 2 through 5 show the relative percentage of total anticipated population burden that are managed and recorded by different health worker cadres. The huge variation in these indicators among districts, coupled with anecdotal information from implementing partners, suggest that the between-district differences make be partly due to differences in thoroughness of recording as opposed to true differences in levels of service provision.

Table 49: Coverage of population burden of newborn infection (LBI + PSBI), by cadre *(source: NHIS, 10 districts)*

#	Indicator	Numerator	Denominator	Bardiya	Dang	Sunsari	Doti	Kavre	Morang	Chitwan	Palpa	Dhankuta	Parsa		Weighted mean
1	Percentage of neonates recorded by FCHVs with infection among registered NNs	# CB-NCP 3 forms closed with at least one danger sign circled	# CB-NCP-2 forms closed	10.4	0.6	0.5	1.0	0.3	0.5	1.1	0.3	0.5	2.2		2.0
2	Percentage of estimated combined PSBI & LBI burden (25% of NN population) identified by FCHVs	# CB-NCP 3 forms closed for newborns aged 0-28 days	# estimated cases of LBI & PSBI in newborn population (= estimated # of live births X (0.25))	26.7	1.4	1.2	3.2	0.3	0.9	1.5	0.5	0.5	5.3		3.9
3	Percentage of estimated combined PSBI & LBI burden (25% of NN population) identified by VHWs	# newborns treated by VHWs for LBI or PSBI who contacted VHW directly without referral from FCHV	”	2.7	0.1	2.4	1.3	0.0	1.5	0.1	0.0	0.0	0.5		1.0
4	Percentage of estimated combined PSBI & LBI burden (25% of NN population) identified by MCHWs	# newborns treated by MCHWs for LBI or PSBI who contacted MCHW directly without referral from FCHV	”	3.7	0.5	3.6	2.6	0.2	2.6	0.5	0.5	0.4	0.2		1.7
5	Percentage of estimated combined PSBI & LBI burden (25% of NN population) identified by health facility staff	# newborns treated by health facility staff for LBI or PSBI who contacted health facility staff directly without referral from FCHV	”	29.1	0.5	16.7	2.9	1.0	12.3	2.7	1.0	5.2	0.8		8.5

#	Indicator	Numerator	Denominator	Bardiya	Dang	Sunsari	Doti	Kavre	Morang	Chitwan	Palpa	Dhankuta	Parsa		Weighted mean
6	Percentage of estimated combined PSBI & LBI burden (25% of NN population) identified by community-based health care workers *(note: this indicator is the sum of indicators 2, 3, 4 and 5)*	# newborns treated for LBI or PSBI by FCHVs, VHWs, MCHWs and health facility staff	”	62.2	2.4	24.0	10.0	1.5	17.3	4.9	1.9	6.1	6.8		15.1

EQ-L-2 How are the infection management services that are provided by FCHVs perceived by mothers?

Newborn danger signs are often identified by FCHVs when women deliver at home. Research associates in the qualitative study asked mothers (n=30) about their knowledge of newborn danger signs and what they would do (or did) if their newborn showed a danger sign. Almost all the mothers who could recall some newborn danger signs stated that they would take their newborn to the health facility if their newborn showed one or more signs. A few mothers from Bardiya, Chitwan and Palpa districts stated that they would call the FCHV if their newborn showed danger signs, but these mothers were in the minority. One mother from Chitwan mentioned that she would take her newborn to a traditional healer if danger signs appeared. Apart from few mothers who were not sure, mothers generally liked the newborn care services provided by the FCHV.

EQ-L-3 …. regarding use of the infection algorithm:

What percentage of infection cases are appropriately assessed through the correct use of the CB-NCP infection case management algorithm?

Has the algorithm (which has been adapted to be more in line with the IMCI algorithm—and thus differs from the algorithm used under Morang/MINI) resulted in over-diagnosis?

What signs are the most commonly reported, and are these consistent with the findings from MINI and other estimates?

What percentage of infection cases are appropriately assessed through the correct use of the CB-NCP infection case management algorithm?

There are no data available to directly determine the percentage of infection cases that are appropriately assessed through the correct use of the CB-NCP infection management algorithm. However, data are available from a variety of sources that relate tangentially to this question. These data include the following:

1. Trained health workers and FCHVs have reasonably high knowledge of newborn danger signs but their skills in using the thermometer are lower than acceptable (see table in Theme H: Quality of Newborn Services).
2. The qualitative study (QS) found substantial diversity in FCHVs' reports of how they would manage newborns with danger signs. When FCHV respondents were asked what they do if/when they identify a newborn with danger signs, they answered as follows:

iv. Most would give cotrim and refer immediately.
v. A few would refer directly without giving cotrim.
vi. Some would give cotrim, "hold" the newborn while they monitor progress for 1-3 days and then refer as necessary.

Points 'ii' and 'iii' above contradict the CB-NCP infection case management algorithm, although it should be noted that the approach outlined in bullet 'iii' is standard practice under the IMCI protocol for infants older than two months. FCHVs may be (mistakenly) applying IMCI protocols for older children to newborns.

3. Some respondents to the QS felt that the low number of infection cases identified, managed and reported by FCHVs has led to the deterioration[16] of FCHVs' knowledge and skills in this area through lack of opportunity to practice their skills. It was not clear to respondents if the low number of cases is due to low prevalence, the inability of FCHVs to identify infection cases, or other reasons.
4. Respondents in the QS including staff members from the DHO and health facilities noted that the majority of the FCHVs are able to follow the infection case management algorithm due to the similarities between this algorithm and the CB-IMCI algorithm (with which they have substantial previous experience). Most FCHVs reported that they are able to assess infected newborns using the CB-NCP infection algorithm.
5. A health worker must practice a skill frequently in order to be able to perform it at an adequate quality standard (i.e., according to the algorithm). A simple calculation illustrates the challenges with maintaining FCHVs' skills in infection case management. There are 134,604 expected live births in the ten pilot CB-NCP districts in one year (HMIS 67/68). If 20 percent of newborns have danger signs (from HHS data above) then in one year 26,921 newborns will have danger signs. If 10 percent of sick newborns are seen by FCHVs (from HHS data above) then 2,692 sick newborns will be seen each year by FCHVs in the ten pilot districts. There are 7072 FCHVs in the ten pilot districts. Thus, there are 0.38 cases of newborn infection (2692/7072) per FCHV per year. In other words, the average FCHV will manage one case of newborn infection every 2.6 years.

Has the algorithm (which has been adapted to be more in line with the IMCI algorithm—and thus differs from the algorithm used under Morang/MINI) resulted in over-diagnosis?

There are no data available to directly answer this question. The concern in this case is that the CB-NCP algorithm may lead to the over-diagnosis of LBI as PSBI, with subsequent unnecessary administration of gentamicin to newborns.

One way to assess whether this is taking place is to examine the percentage of PSBI cases among all newborn infection cases that are diagnosed by health facility staff. According to these NHIS data, 60 percent of all diagnosed newborn infection cases were found to be PSBI. In contrast, in the MINI field trial, approximately 40 percent of all diagnosed newborn infection cases were found to be PSBI. This suggests that there may be some over-diagnosis of LBI as PSBI under the CB-NCP. Table 50 presents information in this regard.

According to these NHIS data, 60 percent of all diagnosed newborn infection cases were found to be PSBI. In contrast, in the MINI field trial, approximately 40 percent of all diagnosed newborn infection cases were found to be PSBI. This suggests that there may be some over-diagnosis of LBI as PSBI under the CB-NCP.

[16] Note: Stakeholders noted that this hasn't been observed with other interventions such as IMCI—where FCHVs' algorithm skills seem to be sustained—often more so than skills of health workers.

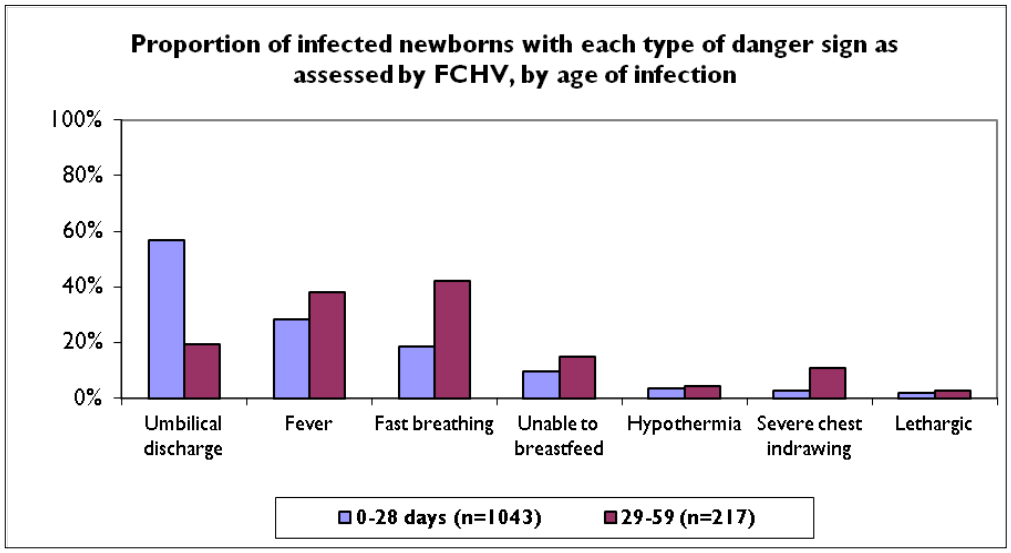
Table 50: Percentage of PSBI cases among all newborn infection cases *(source: NHIS, 10 districts)*

Indicator	Numerator	Denominator	Weighted mean
Percentage of PSBI cases among combined total of LBI cases and PSBI cases identified by VHWs	# PSBI cases identified by VHWs	Sum of # of LBI and PSBI cases identified by VHWs	68.0
Percentage of PSBI cases among combined total of LBI cases and PSBI cases identified by MCHWs	# PSBI cases identified by MCHWs	Sum of # of LBI and PSBI cases identified by MCHWs	72.3
Percentage of PSBI cases among combined total of LBI cases and PSBI cases identified by health facility staff	# PSBI cases identified by health facility staff	Sum of # of LBI and PSBI cases identified by health facility staff	56.7
Percentage of PSBI cases among combined total of LBI cases and PSBI cases identified by community-based health care workers	# PSBI cases identified by VHWs, MCHWs and health facility staff	Sum of # of LBI and PSBI cases identified by VHWs, MCHWs and health facility staff	60.2

What signs are the most commonly reported, and are these consistent with the findings from MINI and other estimates?

This question can be best answered by using data from a special database that was constructed from CB-NCP data in Bardiya district. This database contains data abstracted from individual CB-NCP-3 forms (not aggregated) for 1043 sick neonates (and 217 sick infants aged 29-59 days) that were identified by FCHVs as having suspected infection (LBI or PSBI). These results are particular to Bardiya district and should be generalized with caution. Figure 1 illustrates the relative percentages of sick newborns with each danger sign as assessed by FCHVs, by age of infection.

Figure 1: Percentage of danger signs among sick infants aged 0-59 days, by sign and age of infant



The most common danger signs among sick newborns (aged 0-28 days) are umbilical discharge (57 percent), fever (28 percent), and fast breathing (19 percent).

Data that describe the signs and symptoms of sick newborns from the MINI study are not comparable with data from the CB-NCP due to differences in the age of the sick newborns as well as differences in the algorithms used by the two programs.

EQ-L-4 ….regarding referral and the use of gentamicin:

Is referral effective and do mothers respond to it?

Are cases of infection receiving gentamicin?

Is there any discrepancy between FCHV assessment and health facility staff assessment—and, if so, is this appropriate or risky?

What proportion of newborns that begin gentamicin treatment complete their course—and are these data reliable?

Is referral effective and do mothers respond to it?

Data presented above show that only 11 percent of sick newborns are taken to see the FCHV first while 75 percent of sick newborns are taken directly to a trained health worker for examination. Referral (from FCHVs) is thus playing a relatively minor role in case management of newborn infection.

In the four-district endline household survey in Dang, Kavre, Chitwan and Palpa, among the 61 mothers of sick newborns who reported that they first took their newborn to be seen by the FCHV, only 34 (56 percent) reported that the FCHV gave them a referral slip (CB-NCP-3 form) to take to the health facility.

Most of the DHOs who were interviewed in the qualitative study said that the referral mechanism between FCHVs and community-level health facilities (SHP/HP/PHCC) is very strong but that the referral mechanism between community-level providers (including FCHVs, VHW/MCHWs, and health facility staff) and the district and zonal-level hospitals needs to be improved. DHO CB-NCP Focal Persons who were interviewed in this study stated that FHCVs are aware of how to identify newborns with infection and understand the need to refer sick newborns for possible gentamicin treatment.

Health facility (HF) staff were interviewed during the qualitative study and provided additional information regarding the referral system for sick newborns. Most HF staff members feel that FCHVs identify cases of infection well, treat with cotrim according to the algorithm and then refer the newborn to the health facility. HF staff members feel that they themselves are capable of identifying and managing PSBI cases. HF staff report that some FCHVs complete the CB-NCP Referral Form (Form 3) while other FCHVs refer orally without completing the form.

The majority of mothers of sick newborns that were managed by FCHVs and interviewed in the qualitative study said that the FCHVs advised them to go to the health facility or hospital for further treatment for their newborns. These mothers appreciated the FCHVs' service and complied with the referral. However, some FCHVs who were interviewed noted that some mothers do not comply with the referral. One FCHV reported that *"when I told one mother to take her child to the health facility to receive gentamicin injections, she did not follow my advice because she said that the child is too small to get such an injection.*" Other FCHVs reported that some mothers do not

want to give cotrim or gentamicin to their newborns at such a young age and prefer to give them vitamins or syrups.

Are cases of infection receiving (cotrimoxazole and) gentamicin?

Data from the NHIS and the HHS can be used to answer this question. Table 51 shows that NHIS data suggest that almost all sick newborns receive the appropriate medication.

Table 51: Percentage of newborn infection cases treated with antibiotics, by cadre

Indicator	Numerator	Denominator		Weighted mean
Percentage of newborns diagnosed by FCHV with infection who receive cotrim	# newborns with infection treated with cotrim by FCHV	# CB-NCP 3 forms closed for newborns aged 0-28 days		97.4
Percentage of infants aged 0-59 days diagnosed by VHW with PSBI who receive gentamicin	# infants aged 0-59 days treated with gentamicin by VHW	# infants aged 0-59 days diagnosed with PSBI by VHW		109.6
Percentage of infants aged 0-59 days diagnosed by MCHW with PSBI who receive gentamicin	# infants aged 0-59 days treated with gentamicin by MCHW	# infants aged 0-59 days diagnosed with PSBI by MCHW		99.7
Percentage of infants aged 0-59 days diagnosed by health facility staff with PSBI who receive gentamicin	# infants aged 0-59 days treated with gentamicin by health facility staff	# infants aged 0-59 days diagnosed with PSBI by health facility staff		98.3

Data from the four-district EL HHS portray a very different picture of treatment of sick newborns with cotrim and gentamicin. Questions in the survey asked about the medicine that the newborn received at his/her point of first contact with a health provider; any medicine that the newborn received later is not reflected in the data.

Table 52: Percentage of sick newborns who receive antibiotic from first provider *(source: HHS, 4 districts)*

Indicator	Numerator	Denominator	Percentage
Percentage of newborns with danger sign (DS)	569	2400	24
Percentage of newborns with DS who seek care	490	569	86
Percentage of newborns with DS who receive cotrim from first provider contacted	119	490	24
Percentage of newborns with DS who receive gentamicin from first provider contacted	49	490	10

Data presented in Table 52 show that only one-third (34 percent) of sick newborns are treated with cotrim or gentamicin by the first provider who saw them. Some newborns may have received antibiotics at subsequent meetings with providers while others may not have required treatment with antibiotics in the judgment of the provider.

What proportion of newborns that begin gentamicin treatment complete their course—and are these data reliable?

Data from both the NHIS and the HHS are available to answer this question. Table 53 shows that NHIS data suggest that (more than!) 100 percent of newborns who are given gentamicin by VHWs and MCHWs receive the full course.

Table 53: Percentage of sick newborns diagnosed with PSBI by VHW/MCHW who take complete course of gentamicin *(source: NHIS, ten districts)*

Indicator	Numerator	Denominator	Weighted mean
Percentage of infants aged 0-59 days with PSBI diagnosed by VHW/MCHW who completed the full course of gentamicin	# infants aged 0-59 days who completed full course of gentamicin as registered in VHW/MCHW treatment register	# infants aged 0-59 days with PSBI as registered in VHW/MCHW treatment register	103.7

Survey data presented in Table 54 suggest that the percentage of newborns who complete full courses of cotrim and gentamicin is actually much lower: 76 percent for cotrim and 26 percent for gentamicin.

Table 54: Course completion rates of cotrim and gentamicin *(source: HHS, 4 districts)*

Indicator	Numerator	Denominator	Percentage
Percentage of newborns with DS who receive cotrim from first provider contacted	119	490	24
Percentage of sick newborns who took cotrim for 5 or more days	91	119	76
Percentage of newborns with DS who receive gentamicin from first provider contacted	49	490	10
Percentage of sick newborns who received gentamicin for 7 or more days	13	49	26

Mothers and FCHVs were asked during the qualitative study regarding whether sick newborns take a complete course of gentamicin. It was noted that most sick newborns referred by FCHVs go to the health facility for further treatment. Some newborns do not complete the full course of gentamicin even after being counseled regarding the need for doing so. Respondents stated that this happens because the health of the newborn improves during the treatment and mothers do not want to subject their newborns to further injections.

Is there any discrepancy between FCHV assessment and health facility staff assessment—and, if so, is this appropriate or risky?

There are no data available that can be used to directly answer this question. Health facility staff and FCHVs both report that FCHVs are not having problems managing newborn infection. The most inappropriate or risky behavior that appears in the data regarding management of newborn infection is FCHVs' reports that some FCHVs will not refer a sick newborn immediately but will instead give the newborn cotrim for several days and hold him/her to see if there is improvement and only refer if there is no improvement.

EQ-L-5 ….regarding community-based administration of gentamicin:

What has been the response from VHWs / MCHWs / ANMs with regard to the need for daily gentamicin administration?

How has this been done—through home visits, negotiated intermediate locations, or at health facilities?

How have mothers reacted to these arrangements, and to what extent do they comply with referral?

What has been the response from VHWs / MCHWs / ANMs with regard to the need for daily gentamicin administration?

Health workers were asked during the qualitative study to describe their work providing gentamicin to sick newborns. Most health facility staff members said that they provide gentamicin treatment for between 3 and 12 sick newborns annually (total for the facility). Staff members noted that most newborns complete a full course of gentamicin but that some do not do so due to improvement in the newborn's health. Respondents stated that health workers are providing this service at health facility without any problems.

How has this been done—through home visits, negotiated intermediate locations, or at health facilities?

Health workers who were interviewed during the qualitative study stated that VHWs, MCHWs and ANMs provide gentamicin to sick newborns at the health facility rather than providing it through a field visit at the newborn's home.

How have mothers reacted to these arrangements and to what extent do they comply with referral?

Most of the mothers of sick newborns who were interviewed during the qualitative study stated that they are happy with the infection management service they received at the health facility. One mother from Doti was not satisfied with the service as the health facility was not able to provide gentamicin for her child.

EQ-L-6 ….regarding the NHIS system as it pertains to monitoring infection-related issues:

Does the monitoring system allow us to differentiate between (i) cases referred by FCHVs to health facilities and (ii) those cases that go directly to the health facility or to VHWs or MCHWs?

If the data are merged, how can we determine the outcomes for cases referred by FCHVs?

The monitoring system (NHIS) generates aggregated summary data that describe infection case management processes and outcomes separately for VHWs, MCHWs and health workers. At an aggregated level for each of these cadres, the monitoring system provides information regarding (i) the number of sick newborns that sought treatment from the provider after referral from FCHVs and (ii) the number of sick newborns that sought care directly from the health worker. These data are then aggregated when reporting all other indicators and it is not possible to track outcomes separately for cases referred by FCHVs.

In general, the quality of the data produced by the NHIS does not appear to be very high and it is not advisable to use outcome data from the infection management component of the NHIS to draw conclusions about the effectiveness of the intervention.

Chapter M: Care of Low Birthweight Newborns

Evaluation Questions and Summary Findings

EQ-M-1 Is the prevalence of LBW that is identified among newborns in CB-NCP pilot districts within the expected range? Are LBW babies receiving extra care?

Summary findings

1. Available evidence suggests that the prevalence of LBW among newborns in Nepal is fifteen percent or higher, depending on the district.
2. A high percentage (76%, HHS) of newborns is weighed at birth; 72 percent of newborns are weighed at health facilities and four percent are weighed at home.
3. According to data from the NHIS, only 3.7 percent of newborns weighed by FCHVs are LBW while only 2 percent of newborns weighed by FCHVs are LBW. These figures are well below the anticipated prevalence of LBW (15 percent).
4. The findings from the HHS that only 36 percent of births take place at home, that FCHVs are present at only 22 percent of home births, that only 43 percent of children born at home are weighed within three days of birth, and that only 3.7% of newborns weighed by FCHVs are found to be LBW, raises questions regarding how to most effectively involve FCHVs in the effort to identify LBW newborns.
5. Among the 6,630 expected annual number of LBW cases in rural home births in the 10 CB-NCP pilot districts, only 15 percent (n=994) were identified or "captured" by FCHVs.
6. Home-based care for LBW newborns such as skin-to-skin and more frequent breastfeeding is practiced at a higher level than facility-based solutions such as extra visits from a provider. The practice of all types of care for LBW newborns has increased following the introduction of the CB-NCP.
7. While the main messages regarding management of LBW newborns appear to be promoted and understood, there appears to be room for substantial improvement in practices. Weaknesses were noted in FCHVs' understanding and demonstration of correct KMC procedures as well as mothers' practice of recommended management.
8. Data from the FUT exercise suggest that FCHVs' skills in using scales identifying LBW newborns may be lower than acceptable.

Evaluation Questions and Summary Findings (continued)

EQ-M-2 Are scales being used effectively and accurately? Is it necessary to zero the scales—or is this step too complicated? Is the timing of weighing recorded accurately—thus providing an accurate birth-weight? Or are newborns weighed later than 3 days post-delivery, thus confusing the prevalence?

Summary findings

1. Although FCHVs and health workers report that they are able to use the scales without problems, FUT data suggest that skills in weighing newborns are deficient. This finding is supported by the low percentage of weighed newborns who are identified as LBW by FCHVs and health workers.
2. NHIS data suggest that the average FCHV only uses the scale once every four months and identifies one LBW newborn every eight years. These findings may have repercussions for the maintenance of skills over time.
3. Almost all FCHVs are aware of the need to zero the Salter Scale prior to its use and most FCHVs demonstrated the process of zeroing the scale to the qualitative study interviewers.
4. There is limited information available regarding whether the timing of weighing is recorded accurately. FCHVs report that they weigh newborns frequently and more than the protocol requires.
5. There are certainly some newborns that are weighed for the first time later than three days post-delivery. However, there is no information on whether, where or how accurately these data are recorded, and whether the prevalence of LBW is confused by this practice.

Conclusions

FCHVs and health workers are identifying LBW newborns at well below the expected rate of 15 percent of all children who are weighed. When low attendance at home deliveries is taken into account, FCHVs appear to be playing a very minor role in the identification of LBW newborns. Given that the MINI field trial demonstrated that FCHVs can identify much higher levels of low birthweight in newborns, the low observed levels of LBW identification by health workers and FCHVs suggests issues with training and awareness, equipment and/or with data quality. The current high levels of facility births (in most districts) and weighing at birth (at facilities) should be considered as component is revised. The limited options for management of VLBW newborns at referral sites are a major concern. The value of identification and referral of VLBW may be even more important where facility deliveries are low.

Overview

The official MoHP endorsement document for the CB-NCP states that care of low birth weight (LBW) newborns was one of seven central interventions included in the CB-NCP. This document notes that *"FCHVs, SBAs and other health facility staff will be trained to weigh all newborns at birth to identify low birthweight babies. LBW babies will be provided home-based or facility care, including KMC, feeding support, etc.. For all LBW babies receiving care at homes, the FCHVs will establish a functional linkage with health workers and health facilities for effective referral of very low birth weight (VLBW) babies and LBWs with danger signs."* It should be noted that this strategy has been implemented at a time when institutional delivery rates are rising rapidly across Nepal.

Low birthweight is an important indirect cause of newborn mortality and there is evidence to support the efficacy of kangaroo mother care (KMC) to reduce newborn mortality due to low birthweight[17]. The importance of providing extra care to LBW newborns, and the lack of such care-giving practices in Nepal, led CB-NCP to include a specific intervention for care of LBW newborns in order to reduce newborn mortality. Under the CB-NCP's approach to identification and management of LBW newborns, FCHVs and other cadres identify LBW and VLBW newborns within three days of birth. Home-based care and management is prescribed for LBW newborns while VLBW newborns are referred to health facilities for special treatment. While the CB-NCP taught providers to identify VLBW newborns and to then refer them for further care, it did not support the development of specialized care centers for VLBW newborns at referral sites in the pilot districts.

The prevalence of low birthweight is high in South Asia and Nepal. Studies in Sarlahi district in Nepal during the past decade have consistently documented LBW levels of approximately 30 percent[18][19]. This matches the estimate of LBW prevalence among newborns across South Asia (31 percent) as reported in the State of the World's Newborns[20]. Bang found 42 percent of newborns to be LBW in Gadchiroli, India in 1995[21] while more recent research in Sylhet, Bangladesh found 14.4 percent of newborns to be LBW and 3.4 percent to be VLBW *(personal communication with Abdullah Baqui, unpublished data).*

The MINI field trial, conducted in Morang district in Nepal from 2005-09, demonstrated that FCHVs can use portable scales to weigh newborns at home and identify those who are LBW. FCHVs found eleven percent of the newborns that they weighed to be LBW. In the relevant analyses that are presented below, it has been assumed that the expected prevalence of LBW among newborns in the CB-NCP pilot districts is 15 percent. Data sources used to address the evaluation questions for care of LBW newborns include 1) Household survey (HHS), 2) Newborn Health Information System (NHIS), 3) Health

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Management Information System (HMIS), 4) Follow-up After Training exercise (FUT), 5) Technical Support Visit (TSV), and 6) Qualitative Study (QS).

Detailed Results: Evaluation questions regarding care of LBW newborns

EQ-M-1 Is the prevalence of LBW that is identified among newborns in CB-NCP pilot districts within the expected range? Are LBW babies receiving extra care?

Estimated prevalence of low birthweight among newborns

The brief literature review documented above suggests that an estimated prevalence of 15 percent LBW among newborns in CB-NCP pilot districts is justifiable. Data from the HHS can also be used to roughly approximate the percentage of newborns who are LBW. In the HHS, mothers were asked if their newborn was very large, larger than average, average, smaller than average, or very small. The percentage of mothers who responded that their newborn was smaller than average or very small—which can be used as a proxy for LBW—is presented in Table 55.

Table 55: Prevalence of LBW among newborns in CB-NCP pilot districts *(source: HHS, 5 districts)*

Indicator	Numerator	Denominator	Bardiya		Chitwan		Palpa		Dang		Kavre			Mean*	
			BL	EL	BL	EL	BL	EL	BL	EL	BL	EL		BL	EL
Babies identified as small/very small by mother	# newborns identified as small/very small by mother	# live births	8	12	13	6	9	8	12	6	14	13		11	9

Note: * = Unweighted mean

The finding that approximately ten percent of mothers classify their newborns as small or very small suggests that there is a substantial population of LBW newborns in the pilot districts. This finding can be compared with the national-level result from NDHS 2011 that 12 percent of newborns were small and four percent were very small at birth according to mothers' report.

Identification and management of low birthweight newborns

Data are presented below on the following four topics:

1. Weighing newborns at birth
2. Identification of LBW newborns and comparison with anticipated prevalence
3. Capture rate of LBW in home births
4. Management of LBW newborns

<u>Weighing newborns</u>

Data from the HHS as well as the NHIS can be used to quantify the percentage of newborns that are weighed at birth. Mothers who served as respondents on the HHS were asked if their newborns were weighed at any time after birth and, if so, how many days following birth? Table 56 shows that over three-quarters of newborns at EL are weighed for the first time within 24 hours of delivery.

Table 56: Weighing newborns within 24 hours of birth (source: HHS, 5 districts)

Indicator	Numerator	Denominator	Bardiya		Chitwan		Palpa		Dang		Kavre			Mean*	
			BL	EL	BL	EL	BL	EL	BL	EL	BL	EL		BL	EL
Newborn weighed at birth	# newborns weighed within 24 hours of delivery	# live births	24	90	69	88	33	59	42	71	43	71		42	76

Note: * = unweighted mean

Supplementary analyses of the HHS data at EL provide further information about weighing newborns that are born at home:

- Among the newborns that were weighed within 24 hours of delivery, only six percent (142/2267) were weighed at the newborn's home. Timely weighing occurs almost exclusively at health facilities.
- Among the 839 surveyed newborns who were born at home in the five districts represented in the table above, 43 percent (364/839) were weighed within three days of birth.
- According to mothers' reports, FCHVs are present at 22 percent of home deliveries in the same five districts—only 15 percent if Bardiya is not included.

This latter finding can be contrasted with data from Indicator # 1 from Table 57 (NHIS data) according to which 82 percent of newborns born at home in the same 5 districts are weighed within three days of birth. The discrepancy between the survey-based indicator (43 percent) and the NHIS indicator (82 percent) can be at least partially explained by the fact that only an estimated 59 percent of all newborns are registered in the NHIS system, whereas the survey results are based on all newborns—not just registered newborns.

Table 57: Identification of LBW newborns, by cadre *(source: NHIS, 10 districts)*

Indicator	Numerator	Denominator	Bardiya	Dang	Sunsari	Doti	Kavre	Morang	Chitwan	Palpa	Dhankuta	Parsa		Weighted mean
Percentage of newborns born at home whose birth weight is taken within 3 days of birth	# of newborns born at home whose birth weight is taken within 3 days of birth	# home births registered in CB-NCP 2 form	90.4	89.1	89.6	92.1	88.3	90.7	91.7	49.7	56.4	98.6		88.6
IDENTIFICATION OF LBW NEWBORNS BY FCHVs														
Percentage LBW babies among all live births weighed by FCHV	# LBW babies registered on CB-NCP-2 form	# babies whose birth weight was taken according to CB-NCP-2 form	2.9	5.0	1.6	4.0	7.9	2.5	11.7	2.7	1.2	2.9		3.7
Percentage VLBW babies among all live births weighed by FCHV	# VLBW babies registered on CB-NCP-2 form	# babies whose birth weight was taken according to CB-NCP-2 form	0.7	1.0	0.3	0.2	2.3	0.5	0.2	0.1	0.4	0.8		0.6
IDENTIFICATION OF LBW NEWBORNS BY HF STAFF														
Percentage of newborns born at health facility who are identified as LBW	# LBW babies registered on CB-NCP-5 form	# babies whose birth weight was taken and reported on CB-NCP-5 form	5.5	1.8	0.2	4.4	1.6	0.2	0.4	0.0	7.9	0.7		1.6
Percentage of newborns born at health facility who are identified as VLBW	# VLBW babies registered on CB-NCP-5 form	# babies whose birth weight was taken and reported on CB-NCP-5 form	0.7	0.2	0.0	0.6	0.6	0.0	0.2	0.0	2.4	0.5		0.3

Identification of LBW newborns and comparison with anticipated prevalence

Both FCHVs as well as health facility staff record information regarding any newborns that they weigh including whether the newborn was weighed within three days of delivery and whether the newborn was LBW or VLBW if s/he was weighed. This information is presented in the table above.

Indicators 2 and 3 in Table 57 measure the percentages of newborns weighed by FCHVs that are found to be LBW/VLBW while Indicators 4 and 5 measure the same percentages as identified by health facility staff. The percentages of LBW newborns identified by both cadres are well below the anticipated 15 percent level of prevalence of LBW in the newborn population. It should be noted that weighing a newborn born at home within three days of birth is a task that is linked to the incentive payment that FCHVs receive for their role in CB-NCP. It is therefore possible that the denominator for Indicators 2 and 3 may be inflated so that FCHVs can claim the incentive, although it is doubtful that the numerator would be inflated.

Capture rate of LBW in home births

Another way to process data from the table above is to calculate the percentage of all LBW newborns that are born at home that are "captured" by FCHVs—that is, that are identified by FCHVs as being LBW. This analysis is based on the following information and assumptions:

1. There were 110,499 expected live births in rural VDCs of the pilot districts in 2067/68 (HMIS 2067/68). If we assume that 40 percent of births took place at home, and that 15 percent of newborns were LBW, there were then 6,630 expected LBW newborns among rural home births in the 10 pilot districts.
2. A total of 994 LBW/VLBW newborns were identified by FCHVs in the ten CB-NCP pilot districts during the fiscal year 2067/68. FCHVs therefore identified, or "captured", 15 percent (994/10,095) of the anticipated number of LBW newborns born at home in rural areas of the pilot districts. The target capture rate is 100 percent.

Management of LBW newborns

Information is available regarding how LBW newborns were managed from three sources: (i) the household surveys (HHS) conducted before and after the introduction of the CB-NCP, the FUT exercise, and (iii) the qualitative study of the CB-NCP. The table below outlines information that is available from the HHS regarding different aspects of care that can be provided to a LBW newborn. These indicators are based on care provided to newborns that were identified as small or very small by their mothers. Results presented in Table 58 show that home-based care for LBW newborns such as skin-to-skin and more frequent breastfeeding is practiced at a higher level than facility-based solutions such as extra visits from a provider. The practice of all types of care for LBW newborns has increased from BL to EL.

Table 58: Provision of care for LBW newborns (source: HHS, 5 districts)

Indicator	Numerator	Denominator	Bardiya		Chitwan		Palpa		Dang		Kavre			Mean*	
			BL	EL	BL	EL	BL	EL	BL	EL	BL	EL		BL	EL
Small babies receiving extra visits from a health provider	# small/very small babies who received extra visits from a health provider	# babies identified as small/very small by mother	19	63	15	32	12	30	6	44	19	47		14	43
Small babies receiving skin-to-skin	# small/very small babies who received skin-to-skin	”	19	74	4	91	4	85	6	88	2	81		7	84
Small babies receiving more frequent breastfeeding	# small/very small babies who received more frequent breastfeeding	”	69	87	56	79	62	77	61	79	57	87		61	82
Referral of very small babies to hospital	# very small babies who were referred to hospital	# babies identified as very small by mother	20	33	0	50	20	20	16	71	0	30		11	41

Note: * = unweighted mean

Health workers' knowledge and skills regarding management of LBW babies

Data from the follow-up after training (FUT) exercise provide information about health workers' knowledge and skills regarding the management of LBW newborns. These data are presented in Table 59.

These FUT data suggest that health workers' knowledge and skills regarding kangaroo-mother care are low.

Table 59: Health workers' knowledge and skill regarding management of LBW newborns *(source: FUT)*

Indicator	Doti	Bardiya	Dang	Palpa	Chitwan	Kavre	Parsa	Sunsari	Morang	Dhankuta		Mean
Knowledge of KMC												
FCHVs	13	66	83	25	31	--	46	30	--	86		48
HWs	18	31	50	20	26	--	20	15	--	65		31
CHWs (MCHWs/VHWs)	5	48	57	24	11	--	8	10	--	69		29
Skill at demonstrating KMC												
HWs	74	58	74	49	59	75	50	--	85	65		65
CHWs (MCHWs/VHWs)	49	65	78	32	58	62	42	--	68	44		55
FCHVs	70	46	76	31	38	42	33	43	14	43		44

Information regarding the management of LBW newborn from the qualitative study

The qualitative study gathered a large amount of information regarding the management of LBW newborns. Almost all of the 30 FCHVs that were interviewed reported that they were trained to identify LBW newborns and counsel mothers of LBW newborns to perform kangaroo-mother care (KMC). FCHVs advise mothers regarding the advantages of KMC and how it will improve the newborn's health. FCHVs also promote frequent breast feeding and nutritious food to mothers of LBW infants by saying "if mother takes nutritious food, then it will help her produce excessive milk and increase breast feeding." FCHVs also teach mothers of LBW newborns about how to keep the child warm by appropriately wrapping the baby with cloth. They recommend that all practices be continued until the baby's weight improves.

For the management of VLBW, some FCHVs noted that cotrim should be given to the child (n = 5) while a larger number of respondents stated that the mother of a VLBW newborn is asked to take the infant to the HF (n = 15) while keeping the child in KMC.

Some FCHVs state that it was difficult to demonstrate KMC and convince mothers to practice it at the beginning of CB-NCP but now it has become easy. According to an FCHV from Doti district, "the easiest thing about KMC is that it can be done at any time, while you are working, lying down, standing or sitting. It can be even done by the father or mother-in-law, which makes it even easier." FCHVs report that family members generally agree and cooperate to help practice KMC.

FCHVs noted that in some cases mothers do not follow their advice. A FCHV from Bardiya identified a VLBW baby and referred him to the hospital but the mother didn't take the newborn to the hospital and the baby subsequently gained weight while being kept in KMC at home.

The study team noted that although all respondents were aware that the management of LBW babies involved the practice of KMC and frequent breastfeeding, it also appears that FCHVs' understanding regarding the process of KMC and breastfeeding varies among FCHVs. For example, the recommended timing of KMC and/or breastfeeding for LBW newborns differs between FCHVs. Some FCHVs state that KMC should be practiced 24 hours a day, while others mention that it should be done three hours a day. Some respondents said that KMC should be practiced for 7 days while others stated it should be done until the newborn's weight improves.

Health facility staff reported that they teach mothers of LBW newborns to practice KMC along with frequent breastfeeding and refer VLBW newborns to the hospital for further management.

Mothers' response to provision of services to manage LBW newborns

Mothers of eight babies that were identified as LBW (n=6) or VLBW (n=2) by FCHVs were interviewed during the qualitative study. All mothers said that they knew that KMC and frequent breast feeding are beneficial for LBW babies but that they sometimes did not follow the advice due to hot/humid environment. Four of the eight mothers stated that the FCHVs demonstrated how to practice KMC while the other four mothers said that the FCHVs only provided oral information and instructions. Two of the mothers kept their babies in KMC for three-four hours per day while two other mothers performed KMC for only 15-20 minutes per day. One mother stated she performed KMC for five days while another mother did KMC for 10-12 days (time per day not stated).

Both of the mothers of VLBW newborns said that the FCHV advised them to take their babies to a health facility for better service. The mother who complied with this advice reported that the health facility staff weighed the baby, found the weight had increased by one-half kilogram and told the mother to "keep doing what you're doing." The mother of the other VLBW said that she had to take care of her mother-in-law and that she was too weak to take her baby to the health facility. Nobody else in the family volunteered to take the child to the health facility and the baby died soon thereafter. In total, three of the five mothers who were referred to the health facility for management of their LBW/VLBW baby (one of two mothers of VLBW babies and two of three mothers of LBW babies) did not take their babies to the health facility for various reasons.

All of the mothers who were interviewed expressed their satisfaction with the advice provided by the FCHVs regarding care for LBW babies due to their trust in the FCHVs.

EQ-M-2 …. regarding quality and accuracy of weighing process:

Are scales being used effectively and accurately?

Is it necessary to zero the scales—or is this step too complicated?

Is the timing of weighing recorded accurately—thus providing an accurate birthweight? Or are newborns weighed later than 3 days post-delivery, thus confusing the prevalence?

Are scales being used effectively and accurately?

FCHVs use of scales

Most of the FCHVs interviewed during the qualitative study reported they used the Salter scale to measure the birth weight of newborns. Some FCHVs reported that they had used the scale ten or more times while one FCHV from Parsa said that she had never used it. Most FCHVs say that they have good skills to identify, manage and refer LBW newborns. When asked to describe the procedure for weighing a newborn, some (but not all) FCHVs note that they need to weigh the "weighing bag" first, then the clothes of the child, and finally the child. Respondents stated that due to the increased rate of facility delivery most newborns are weighed at the health facility.

One FCHV in Parsa District said that she takes extra care so that children do not fall from the cloth during the weighing process. She has heard that some children have fallen while being weighed and said that "I sometimes worry that if the child moves while I am weighing him, he/she will fall out and break his head."

Identification of LBW

Most FCHVs correctly reported that a child is LBW if his/her weight is below 2.5 kilograms and falls in the yellow band on the scale. They also noted that the weight of a child who is VLBW will be less than 2 kilograms and child falls in the red band on the scale. Respondents noted that most of the children they weigh fall between 2.5 to 3 kilograms in the green band.

Accuracy of use of scale

Many FCHVs mentioned that the weighing scales were simple to use and the color coding makes it easy to determine birthweight status. All FCHVs except for two had correct knowledge regarding the classification of birthweight. One FHCV reported (inaccurately) that green color on the scale signifies danger and red is fine, while another FCHV reported that a baby weighing less than 2200 gram should be classified as LBW.

Opportunities for using the scales

Health workers must use scales consistently in order to maintain their skills to both use the scales correctly as well as to identify LBW newborns. Table 60 presents data on the number of newborns that were reported weighed by FCHVs in 2067/68 and the number of LBW babies that were identified.

Table 60: Frequency of FCHVs' use of scales and identification of LBW newborn *(source: NHIS)*

Skill	# cases	# FCHVs	# cases / FCHV per year	One case per FCHV every ...
Weighing newborns	23040	7072	3.2	4 months
Identifying LBW newborns	848	7072	0.12	8 years
Identifying VLBW newborns	146	7072	0.02	48 years

These data suggest that the average FCHV uses the scale once every four months and only identifies one LBW newborn every eight years. These findings may have repercussions for the maintenance of skills over time.

Health workers' knowledge and skills regarding identification of LBW babies

Data from the follow-up after training (FUT) exercise provide information about health workers' knowledge and skills regarding the identification of LBW newborns. These data are presented in Table 61. These FUT data suggest that while health workers' knowledge regarding weight classification is satisfactory, their skills for weighing the newborn are lower than desired.

Table 61: Health workers' knowledge and skill regarding management of LBW newborns *(source: FUT)*

Indicator	Doti	Bardiya	Dang	Palpa	Chitwan	Kavre	Parsa	Sunsari	Morang	Dhankuta		Mean
Knowledge of weight classification												
HWs	56	71	93	79	61	--	75	79	83	94		77
CHWs (MCHWs/VHWs)	88	62	83	63	70	--	78	89	82	95		79
FCHVs	75	90	--	76	79	--	76	84	91	84		82
Skills for weighing baby												
CHWs (MCHWs/VHWs)	77	74	79	63	59	--	45	--	94	69		70
FCHVs	48	78	75	56	61	--	25	--	86	40		59
HWs	43	73	86	38	42	--	7	49	57	56		50

Is it necessary to zero the scales—or is this step too complicated?

Almost all FCHVs are aware of the need to zero the Salter Scale prior to its use and most FCHVs demonstrated the process of zeroing the scale to the qualitative study interviewers. The study team also found that those FCHVs who cannot zero the scale themselves ask their children or grandchildren to help them with it.

Is the timing of weighing recorded accurately—thus providing an accurate birth-weight? Or are newborns weighed later than 3 days post-delivery, thus confusing the prevalence?

Is timing of weighing recorded accurately?

There are no data available that can be used to answer the question "is the timing of weighing is recorded accurately?" According to CB-NCP documented protocols, FCHVs are supposed to weigh newborns who are born at home within 3 days of birth and record the results (normal, LBW or VLBW) on the CB-NCP-2 form. FCHVs are not supposed to record the weight of babies who are born at health facilities.

FCHVs who were interviewed during the qualitative study reported that they weigh newborns primarily on the first, second, third and seventh day following delivery. Some FCHVs say that in case of home delivery, they have to weigh the newborn within 24 hours of birth, while in the case of a hospital delivery, they have to weigh the newborn on the 3rd day after delivery. If the FCHV is absent during delivery for whatever reason, she tries to take the weight on the second day following delivery. FCHV respondents noted that they are called by mothers for delivery and thus newborns are weighed not only because it is the duty of the FCHV, but also due to demand by family members and mothers.

One FCHV respondent noted that "the timing of weighing depends upon whether it is home delivery. If it is home delivery, then we have to weigh immediately. In case of a hospital delivery, the baby is weighed there. If the family of the newborn lives near my home, I have to weigh the baby almost daily. Otherwise I weigh on the 1st day, 3rd day, 7th day and 28th day following delivery. If the weight has declined, we have to weigh more often. It is important to weigh the child until 45 days after birth."

Are newborns weighed later than three days post-delivery?

With regards to the second part of this evaluation question, there are certainly some newborns that are weighed for the first time later than three days post-delivery. However, there is no information on whether, where or how accurately these data are recorded, and whether the prevalence of LBW is confused by this practice.

Data from the HHS can be analyzed to demonstrate that some babies are weighed for the first time later than three days post-delivery. The findings presented below are from the 4-district endline HHS conducted in Kavre, Dang, Chitwan and Palpa districts.

- 305 of 2400 newborns (13 percent) were weighed for the first time more than three days post-delivery.
- 122 of these 305 newborns (40 percent) were weighed at home.
- 114 of the 122 newborns (93 percent) weighed for the first time at home more than three days post-delivery were weighed by FCHVs.

There is no information regarding whether or not these newborns were reported by FCHVs as weighed within three days of birth.

Chapter N: Prevention and Management of Hypothermia

Evaluation Questions and Summary Findings

EQ-N-1 To what extent are hypothermia cases being identified? Are they identified by feel or by using the thermometer?

Summary findings for EQ-N-1

1. For most health workers, identifying hypothermia in the context of the CB-NCP appears to mean finding a sick newborn who has hypothermia as a symptom of infection. Thermal hypothermia is prevented but is not searched for and identified as such.
2. Relatively few newborns with hypothermia are being identified in CB-NCP pilot districts. An analysis of sick newborn referral slips in Bardiya district shows that FCHVs identified four percent of sick newborns as hypothermic. This finding is not unexpected, as hypothermia is a relatively rare symptom of newborn infection. Only two of the thirty FCHVs who were interviewed during the qualitative study had ever identified a newborn with hypothermia.
3. FCHVs appear to make roughly equal use of "feel" and the thermometer to assess for hypothermia. Many FCHVs stated that they use both methods. A few FCHVs described several other (incorrect) techniques for identifying hypothermia in newborns.

EQ-N-2 To what extent do FCHVs use thermometers correctly?

Summary findings for EQ-N-2

1. Health workers—especially FCHVs and CHWs—demonstrated low skill levels for correct use of the thermometer in the FUT exercise. There are only three districts where more than 50 percent of FCHVs are able to demonstrate correct use of the thermometer. Some DHO personnel feel these findings understate the capability of health workers to use the thermometer correctly while other feel that the data reflect reality.
2. The major problems reported by FCHVs with regards to the identification of hypothermia are associated with the availability and use of thermometer. With regards to availability, out of 30 FCHVs who were interviewed during the qualitative study, eight either did not have a working thermometer or had lost their thermometer.
3. Sixteen of the FCHVs who were interviewed during the qualitative study were comfortable using the thermometer as taught during their training. The FCHVs who said that they have difficulties using the thermometer can be divided into three groups. Members of the first group state general difficulty with using the thermometer. The second group of FCHVs has problems using the thermometer due to poor vision. The third group of FCHVs has problems using the thermometer because they don't understand the temperature ranges that correspond to fever, normal temperature and hypothermia.

Evaluation Questions and Summary Findings (continued)

EQ-N-3 What care do babies with hypothermia receive?

Summary findings

Health workers' scores from the FUT exercise are fairly low for knowledge and skill areas related to management of hypothermia and use of KMC. Scores are lowest among FCHVs and highest among health workers.

Among the 30 FCHVs interviewed during the qualitative study, when asked when they normally take a newborn's temperature to check for hypothermia, three FCHVs said that they measured the temperature within 24 hours in the case of a home delivery. Ten FCHVs said they measured the temperature of the newborn on the third and the seventh day after delivery to check for fever.

When FCHVs' were asked about the care they would provide to a newborn with hypothermia, the most common response (n=18) they made was to refer the newborn to a health facility. Ten FCHVs said they would teach the mother to practice KMC while eight FCHVs said that they provide cotrim to the baby. Eight FCHVs said that they would advise the mother to dress the baby warmly and five said they would advise the mother to practice frequent breastfeeding. These findings are relatively encouraging and suggest that FCHVs are aware of both infection-related as well as thermal aspects of hypothermia management.

Conclusions

Hypothermia in newborns presents a challenge to designers of newborn care programs. Hypothermia manifests in two forms: as a result of an otherwise healthy newborn becoming chilled (thermal hypothermia) and also as a symptom of infection. Health workers take different approaches towards addressing these two forms as well—they primarily seek to prevent thermal hypothermia, rather than identify and manage it, while they seek to identify infection-related hypothermia, and then manage the underlying infection.

The CB-NCP has not adequately differentiated between these two types of hypothermia in its strategy and training, with the result that health workers, to a certain extent, lump these two types of hypothermia together, even though they are quite different in origin. For most health workers, identifying hypothermia in the context of the CB-NCP appears to mean identifying a sick newborn that has hypothermia as a symptom of infection. Thermal hypothermia is less of an overt concept, although FCHVs and other health workers make many efforts to prevent it through the promotion of healthy behaviors.

The low skill level that many health workers, especially FCHVs, seem to have with regard to using the thermometer complicates the search for an optimal strategy for managing hypothermia. In addition, it appears to be difficult to maintain supplies of thermometers, as they break or are lost frequently, and are often not replaced. CB-NCP program designers and managers clearly need to review and revise the approach to hypothermia. A revised approach should acknowledge the two types of hypothermia and determine the best way to address each type, based on the data and the needs. A revision of the CB-NCP strategy towards hypothermia might begin by questioning the value of providing thermometers to FCHVs. If thermal hypothermia peaks in the first three days of life, a strategy of promoting universal KMC may prevent a great deal of thermal hypothermia. Any revisions in the strategy must ultimately take into account the reality that one-third of newborn deaths are due to infection; the ability of health workers to detect and manage possible infection should not be unduly compromised.

Overview

The official MoHP document that endorsed the CB-NCP notes that prevention and management of hypothermia was one of seven key interventions included in the CB-NCP. This document states that *"SBAs, health facility staff, FCHVs and families will be made aware of the importance and prevention of hypothermia in newborns through BPP. Peripheral health facility staff will be trained to manage hypothermic newborns and refer to an appropriate health facility for higher level of care."*

A series of studies that were conducted in Sarlahi district characterize the serious nature of the problem of hypothermia among newborns in Nepal. Among a cohort of 21,459 newborns, almost half (49 percent) experienced moderate or severe hypothermia during the first 28 days of life; risk peaked in the first 24 to 72 hours after delivery[22]. Newborn mortality was strongly associated with degree of severity of hypothermia; compared to newborns who never experienced hypothermia, the relative risk (RR) of mortality steadily increased among newborns who experienced mild (RR, 1.70; 95% confidence interval (CI), 1.23-2.35), moderate (RR, 4.66; 95% CI, 3.47-6.24), and severe hypothermia (RR, 23.36; 95% CI, 4.31-126.70)[23]. In addition to the season in which the babies were born, birthweight was found to be an important risk factor for hypothermia. The study concluded that newborn care programs should emphasize the need for year-round thermal care, early breastfeeding and maternal thermal care[24].

There are two aspects to hypothermia within the context of the CB-NCP: thermal hypothermia (TH) and infection-related hypothermia (IH). TH occurs when a newborn becomes chilled after being thermally compromised, while IH occurs when a sick newborn becomes hypothermic as a sign of infection. Newborns are extremely susceptible to becoming hypothermic; immediately after birth, with the shock of new, unregulated environment, a newborn suddenly needs to regulate his/her own temperature through consuming breast milk and then use it to generate heat. LBW newborns find it harder to eat, and thus harder to generate heat, and are therefore even more susceptible to suffering from TH. Many of the behaviors that are promoted through the CB-NCP (e.g., delayed bathing, skin-to-skin, kangaroo-mother care and increased breast feeding for LBW newborns) are intended to prevent a newborn from suffering from TH, while the intent of a FCHV taking a newborn's temperature during a home PNC visit is to determine if a newborn is suffering from infection-related hypothermia.

As will become clearer in the presentation of findings below, there appears to be some confusion about the different causes of hypothermia in the context of the CB-NCP and how they need to be managed. There is perhaps a stronger perceived focus in the CB-NCP on hypothermia as a symptom of infection than on thermal hypothermia, as many FCHVs respond to the question "how do you manage a newborn with hypothermia?" by saying "give the newborn cotrim and refer"—the correct response for a hypothermic newborn with infection, but not the correct way to manage a newborn with thermal hypothermia. Data sources used to address the evaluation questions in this chapter include 1) Newborn Health Information System (NHIS), 2) Follow-up After Training exercise (FUT), 3) Technical Support Visit (TSV). 4) Qualitative study and 5) Stakeholder discussion.

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[22] Mullany et al. Incidence and seasonality of hypothermia among newborns in southern Nepal. Arch Pediatr Adolesc Med. 2010;**164**(1):71-77.

[23] Mullany et al. Risk of mortality associated with neonatal hypothermia in southern Nepal. Arch Pediatr Adolesc Med. 2010;**164**(7):650-656.

[24] Mullany et al. Neonatal hypothermia and associated risk factors among newborns of southern Nepal. BMC Medicine 2010, **8**:43.

Detailed Results: Evaluation questions regarding prevention and management of hypothermia

EQ-N-1 To what extent are hypothermia cases being identified? Are they identified by feel or by using the thermometer?

The results from interviews that were conducted during the CB-NCP qualitative study suggest that FCHVs (and some other health workers) associate "identifying hypothermia" with the concept of hypothermia as a symptom of infection. While FCHVs might counsel mothers of newborns with hypothermia to keep their children warm through a variety of techniques, many FCHVs seem to classify hypothermic newborns as sick with possible infection and thus would give them cotrim and refer them.

To what extent are hypothermia cases being identified?

Relatively few newborns with hypothermia are being identified in CB-NCP pilot districts. An analysis of over two thousand CB-NCP-2 forms that were collected through the NHIS in Bardiya district shows that FCHVs identified four percent of these babies as hypothermic. This finding is not unexpected, as hypothermia is a relatively rare symptom of infection.

Only two of the thirty FCHVs who were interviewed during the qualitative study had ever identified a newborn with hypothermia. When asked why cases of hypothermia were not being identified, some FCHVs made statements such as they had heard about hypothermia and newborns being cold in past (from their parents) but now, perhaps because of tetanus toxoid injections or some reason, hypothermia is uncommon in their communities.

While the identification of thermal hypothermia (unrelated to infection) does not appear to be a concept among FCHVs who were interviewed, this assessment has shown that high rates of preventive behaviors for thermal hypothermia are practiced.

Is hypothermia identified by feel or by using the thermometer?

FCHVs appear to make roughly equal use of "feel" and the thermometer to identify hypothermia. Most (25) of the FCHV respondents in the qualitative study said they would use the thermometer to identify a case of hypothermia while 19 said they would identify hypothermia through feel (feeling the feet). Many respondents said they would use both methods in making their assessment. The use of touch to identify hypothermia is widespread; two DHO CB-NCP Focal Persons stated that they would identify hypothermia by feel rather than by using a thermometer. There are no quantitative data available that describe which technique was used to identify actual hypothermia cases.

How FCHVs identify hypothermia

As noted above, FCHVs that were interviewed in the qualitative study report that the two primary methods they use to identify hypothermia are to use the thermometer and touch the child's feet. However, FCHVs provided a variety of other responses regarding how to identify hypothermia. Their responses included the following:

1. Use the timer to record the respiratory rate.
2. Observe whether the baby was suckling properly or not.
3. Clap and see whether the newborn opens his eye or not. If the newborn cannot open his/her eye, it could be hypothermia.

4. If a newborn has hypothermia his/her body will become yellow and have rashes. The skin will be rough and the legs cold. The FCHV noted that the thermometer should then be used to confirm the low temperature.

Some FCHVs clearly have misconceptions regarding how to identify hypothermia.

EQ-N-2 To what extent do FCHVs use thermometers correctly?

Data that can be used to describe the extent to which thermometers are being used correctly by FCHVs include Follow-up After Training (FUT) results, findings from technical support visits (TSV) and the qualitative study, and observations from CB-NCP stakeholders.

Follow-up after training (FUT) results

In order for a health worker to get a correct score during the FUT exercise for measuring temperature using a thermometer, s/he had to perform each of the following six steps correctly during the demonstration of how to use the thermometer:

1. Wash hands before taking temperature.
2. Hold the broad end of the thermometer and then clean its shining tip with a cotton ball soaked with soap and water.
3. Hold the thermometer by its broad end and shake it down so that it reads less than 35^0C.
4. Place the pointed end of the thermometer under the arm pit of the baby.
5. Keep the thermometer in place for 3 minutes.
6. Remove the thermometer and holding the broad end accurately read the mercury line.

Table 62 presents the percentage of health workers who correctly demonstrated use of the thermometer, by district.

Table 62: Percentage of health workers that demonstrates correct use of thermometer to measure temperature, by district *(source: FUT, 10 districts)*

Health worker cadre	Doti	Bardiya	Dang	Palpa	Chitwan	Kavre	Parsa	Sunsari	Morang	Dhankuta		Mean*
Health workers	73	66	63	40	63	68	25	--	93	69		62
CHWs (MCHWs/VHWs)	47	75	60	30	33	43	20	--	82	40		48
FCHVs	21	69	51	24	21	26	1	33	29	56		33

Note: * = unweighted mean.

Health workers' scores—especially FCHVs' and CHWs'—are low for this skill. There are only three districts where more than 50 percent of FCHVs demonstrate correct use of the thermometer. Some personnel in the DHO offices feel that these findings understate the capability of health workers to use the thermometer correctly. Others feel that the data reflect the real situation and that many FCHVs are unable to use the thermometer correctly.

Findings from technical support visits (TSV)

Data were also collected during routine TSVs in Bardiya, Dang and Kavre districts regarding health workers' abilities to demonstrate correct use of the thermometer. Table 63 presents the findings of this exercise.

Table 63: Percentage of health workers that demonstrates correct use of thermometer to measure temperature, by district (source: TSV, 3 districts)

	Bardiya	Dang			Kavre		
	FCHV	HW	VHW/MCHW	FCHV	HW	VHW/MCHW	FCHV
Percentage of (cadre) that demonstrates correct use	81	23	69	65	65	87	65

These findings show a higher level of competence than the FUT results with regards to demonstrating correct use of the thermometer, although skill levels are still less than desired.

Observations from the qualitative study and CB-NCP stakeholders

The major problems reported by FCHVs with regards to the identification of hypothermia are associated with the availability and use of thermometer.

Availability of thermometer

With regards to availability, out of 30 FCHVs who were interviewed during the qualitative study, eight either had a thermometer that was not working or had lost their thermometer. Some of them have asked for a replacement thermometer but the DHO has yet to replace it. These FCHVs only have the option of "feeling" a newborn in order to identify hypothermia. Three of the eight FCHVs without thermometers (one each from Doti, Palpa and Parsa) stated that they had never received a thermometer to date. Three other FCHVs stated that they did not feel the need to use a thermometer for small children such as newborns.

Problems using the thermometer

Sixteen of the FCHVs who were interviewed during the qualitative study were comfortable using the thermometer as taught during their training. Four of these FCHVs said that color-coded thermometers were easier to use than the regular thermometers.

The FCHVs who said that they have difficulties using the thermometer can be divided into three groups. Members of the first group state general difficulty with using the thermometer. As one FCHV in Parsa district said, *"I have not yet used thermometer. I do not know when or on what occasion to take the temperature of the child."*

The second group of FCHVs has problems using the thermometer due to poor vision. One FCHV from Doti said she obtains help from her children to use the thermometer. Although this FCHV can explain verbally how to use thermometer, she says she lacks the practical skills to use it herself. When the research assistant asked her how her children can do it for her, she replied, *"When I visit a newborn, I ask my children to take the temperature. Since I can't see properly, I cannot use the thermometer myself. When I was in training I have been told that the red mark indicates high fever, for yellow they have said something but now I have forgotten. Basically my children help me."* Another FCHV from Parsa says that she originally had a color-coded thermometer but she lost it so now she has a simple thermometer. The color-coded thermometer was easy for her to

use but she has trouble with the standard thermometer. She cannot see where the mercury is exactly so she says *"if the mercury is low the baby has hypothermia, if it is in middle it's OK and if it is high, the baby has fever."*

The third group of FCHVs has problems using the thermometer because they don't understand the temperature ranges that correspond to fever, normal temperature and hypothermia. One FCHV from Chitwan district stated that although she knows how to use the thermometer, she does not know what temperature range should be considered to be hypothermia. Another FCHV mentioned that a temperature above 100 degrees Fahrenheit should be considered to be fever and any temperature below that is hypothermia. A third FCHV from Parsa stated incorrectly that the green mark on the color-coded thermometer indicated hypothermia.

EQ-N-3 What care do babies with hypothermia receive?

There are notable limitations to the data that are available to answer this question. Data are available from the FUT exercise that describe health workers' knowledge of hypothermia management and kangaroo-mother care (KMC) and their skills in demonstrating KMC. There are also data available from the qualitative study, but these data are based on what a FCHV would do if she found a newborn with hypothermia—only two of the FCHVs who were interviewed had done so—and thus the data are largely hypothetical.

Follow-up after training (FUT) results

In order for a health worker to get a correct score during the FUT exercise for the three knowledge/skill areas described in the table below, s/he had to achieve the following:

Knowledge of management of hypothermia (all three answers must be given)

1. Cotrimoxazole-p should be given with dosage according to age.
2. Skin-to-skin contact (Maya Ko Angalo).
3. Frequent breastfeeding.

Knowledge regarding when KMC should be recommended (all 4 answers must be given)

1. Low/very low birthweight
2. Premature newborn
3. Hypothermia
4. Referred baby

Skill in demonstrating KMC (all 6 steps must be demonstrated correctly)

1. Put mother and baby in relaxed sitting position.
2. Put the baby between the mother's breasts, cover the head with cap and legs with socks.
3. Wrap the mother and baby together.
4. Cover the mother with warm blanket.
5. Breastfeeding on demand.
6. Ensure baby and mother are comfortable.

Table 64 presents the percentage of health workers who had correct knowledge and skills regarding hypothermia management and KMC, by district.

Table 64: Health workers' knowledge and skills regarding hypothermia management and KMC *(source: FUT, 10 districts)*

Indicator	Doti	Bardiya	Dang	Palpa	Chitwan	Kavre	Parsa	Sunsari	Morang	Dhankuta		Mean*
Knowledge of management of hypothermia												
Health workers	45	30	98	57	47	--	76	90	78	92		68
CHWs (MCHWs/VHWs)	33	68	97	44	32	--	70	86	79	95		67
FCHVs	30	22	94	50	36	--	26	33	77	84		50
Knowledge of KMC (Mayo ko Angalo)												
Health workers	13	66	83	25	31	--	46	30	--	86		48
CHWs (MCHWs/VHWs)	18	31	50	20	26	--	20	15	--	65		31
FCHVs	5	48	57	24	11	--	8	10	--	69		29
Skill on Mayo ko Angalo (using doll)												
Health workers	74	58	74	49	59	75	50	--	85	65		65
CHWs (MCHWs/VHWs)	49	65	78	32	58	62	42	--	68	44		55
FCHVs	70	46	76	31	38	42	33	43	14	43		44

Note: * = unweighted mean.

Health workers' scores are fairly low for knowledge of management of hypothermia and skills demonstrating KMC and are very low for knowledge of KMC. Scores are lowest among FCHVs and highest among health workers.

Findings from the qualitative study

Two mothers were interviewed whose newborns had been diagnosed with hypothermia by a FCHV. Among those two mothers, one of them remembered the advice that the FCHV had given (keep child warm, KMC, keep newborn near fire) with the other mother did not.

When asked when they normally take a newborn's temperature to check for hypothermia, a few FCHVs (3) said that they measured the temperature within 24 hours in the case of a home delivery. One FCHV from Chitwan said she took the temperature of the baby in case of fever or if the baby was cold. Many FCHVs (10) said they measured the temperature of the newborn on the third and the seventh day after delivery to check for fever.

Table 65 provides a summary of FCHVs' responses to the following question: *"After you identify a newborn with hypothermia, what kind of care would you provide to him/her? What steps do you follow? (probe: and then what do you do?)."* Note that more than one response was allowed.

Table 65: FCHVs' statements regarding care they would provide to newborn with hypothermia (source: CB-NCP qualitative study)

Care provided or step followed by FCHV	Parsa	Bardiya	Palpa	Chitwan	Doti	Total
n	*6*	*6*	*6*	*6*	*6*	*30*
Refer to health facility	6	3	2	2	5	18
Teach to keep in KMC	1	2	3	1	3	10
Give newborn cotrim	2	2	1	--	3	8
Advise to dress newborn warmly	2	2	1	2	1	8
Advise frequent breastfeeding	--	--	--	3	2	5
Advise to not obstruct newborn's breathing	--	--	1	--	--	1
Advise to light fire and keep room warm	--	1	--	--	--	1
Rub/stimulate child *(sumsumaune)*	--	--	1	--	--	1
Heat garlic and oil and massage the newborn	1	--	--	--	--	1

The most common response given by FCHVs (n=18) was that if they found a case of hypothermia, they would refer the newborn to a health facility. Ten FCHVs said they would teach the mother to practice KMC while eight FCHVs said that they provide cotrim to the baby. Eight FCHVs said that they would advise the mother to dress the baby warmly and five said they would advise the mother to practice frequent breastfeeding. These findings are relatively encouraging and suggest that FCHVs are aware of both infection-related as well as thermal aspects of hypothermia management.

Chapter O: Recognition of Asphyxia, Initial Stimulation and Resuscitation of Newborn

Evaluation Questions and Summary Findings

EQ-O-1 What percentage of FCHVs identifies birth asphyxia? What is the risk of loss of BA management skills given FCHVs' current caseload?

Summary findings

1. The household survey finding that four to six percent of newborns in the pilot districts suffered from possible BA suggests that there are a substantial number of cases of BA that require identification and management.
2. Overall rates of BA management reported by FCHVs and health workers were substantially lower than anticipated birth asphyxia prevalence levels. These percentages are higher for facility deliveries than for home births. There is wide variation between districts in the percentage of both home and facility births where resuscitation services are provided.
3. Five percent of FCHVs identified and attempted to manage birth asphyxia in 2067/68. Ninety-five percent of FCHVs did not identify a single case of birth asphyxia.
4. In order for FCHVs to save lives of newborns suffering from birth asphyxia, they have to attend home births to put themselves in position to provide the service. Household survey data show that FCHVs attend 22 percent of home births at endline in the districts of Bardiya, Dang, Kavre, Chitwan and Palpa—51 percent in Bardiya and 15 percent in the remaining four districts.
5. Based on an assumption of five percent prevalence of mild asphyxia (requiring stimulation) and three percent moderate/severe asphyxia (requiring bag-and-mask)—at home deliveries where a FCHV is present—FCHVs identify and treat one in three newborns (36 percent) who needs stimulation and only one in ten newborns (10 percent) who need bag-and-mask resuscitation.
6. Among all babies born at home that experience BA—and at whose births FCHVs are supposed to be (but usually are not) present—FCHVs identify and treat 18 percent of newborns who need stimulation and only one in 20 newborns (5 percent) who need bag-and-mask resuscitation.
7. The data show that on average, at current caseload levels, a FCHV will manage one newborn with stimulation every 18 years and one newborn with bag-and-mask every 107 years. Maintenance of skills will be very difficult at caseload levels this low.

Evaluation Questions and Summary Findings (continued)

EQ-O-2 Among identified birth asphyxia cases, what percentage responds to stimulation alone? Does this have implications for future scale-up and provision of bag-and-mask?

Summary findings

1. Review of the literature suggests that approximately 40 percent of newborns who require assistance to establish breathing at birth will respond positively to stimulation or airway clearing alone and require no further assistance, while 60 percent will require intervention with bag-and-mask or other more advanced techniques.
2. Among newborns identified with birth asphyxia in CB-NCP pilot districts, approximately 85 percent were managed with stimulation or stimulation-plus-Dee Lee suction while only 15 percent were managed with bag-and-mask. Given that the bag-and-mask should be used in 60 percent of birth asphyxia cases, this finding suggests that the bag-and-mask is not being used in 75 percent of the cases where its use is called for, potentially leading to a missed opportunity to reduce mortality due to birth asphyxia.

EQ-O-3 What do we know about the timing of asphyxia management and whether other activities conflict with appropriate identification and management of asphyxia (e.g., weighing or taking temperature)?

See detailed findings below.

EQ-O-4 Are skills in using Dee Lee suction and bag-and-mask devices maintained? Are there any episodes of adverse effects from their use?

Summary findings

1. Knowledge and skill levels regarding birth asphyxia management as assessed in the FUT exercise are highest among health workers, somewhat lower among MCHWs and VHWs, and lowest among FCHVs. While overall knowledge levels of the steps to manage BA were reasonably high, skills to demonstrate the management of birth asphyxia on a doll were low. Skill levels as measured through technical support visits were somewhat higher.
2. The qualitative study team interviewed seven FCHVs who had performed birth asphyxia management. Among the respondents, five had used Dee Lee suction and three had used bag-and-mask. All respondents felt that they had maintained their skills and had been able to perform birth asphyxia management adequately. Some FCHVs mentioned that they need more training to use the Dee Lee suction and bag-and-mask and that one training was insufficient for them to learn to use the equipment properly. Other FCHVs noted that they do not like to use the bag-and-mask as they feel that it involves too much risk for them to use it with a newborn.
3. Various district-level officials noted the low number of birth asphyxia cases and felt that skill loss could certainly occur as a result and that monitoring and refresher training could help to maintain FCHVs' skills in this regard.
4. None of the respondents described any adverse effects that occurred during the management of birth asphyxia by FCHVs. A respondent from Bardiya said that one newborn died after receiving birth asphyxia management services but there were no problems as a result.

Evaluation Questions and Summary Findings (continued)

Conclusions

There is no doubt that a substantial number of newborns in the CB-NCP pilot districts suffer and die from birth asphyxia. Not only are capture rates of these newborns extremely low, but they are lowest among the newborns that most need help—those newborns born at home, who need bag-and-mask resuscitation to thrive. Only five percent of these newborns receive services.

These low capture rates call the viability of the birth asphyxia intervention as designed (particularly the bag-and-mask component) into serious question. It must be acknowledged that the data presented in this chapter demonstrate that stakeholders who originally questioned training FCHVs to use the bag-and-mask and providing them with equipment have been proven correct. FCHVs are seeing such a low number of cases of birth asphyxia that there is no way to maintain their skill levels, even if capture rates improve significantly. The high cost of the birth asphyxia intervention is an additional concern.

In summary, these results clearly suggest that the strategy of assigning FCHVs the responsibility for attending home births and providing resuscitation services to newborns experiencing birth asphyxia is not achieving a high enough capture rate to result in a meaningful impact on mortality. The potential for impact may decrease even further as facility delivery rates continue to increase. The rational approach to birth asphyxia management in most districts in Nepal—where an increasingly high percentage of deliveries occur in health facilities—will most likely be to focus on training and equipping delivery specialists in health facilities to provide high-quality birth asphyxia management services. It will be difficult to argue against a revised strategy for most districts under which the CB-NCP stops training FCHVs to provide birth asphyxia services or, at most, trains them to provide only stimulation. The most appropriate strategy in districts where institutional delivery rates remain very low may differ somewhat.

Overview

Birth asphyxia is a major contributor to newborn mortality. It has been estimated that providing health workers with training in newborn resuscitation can result in the prevention of up to thirty percent of deaths among full-term babies born in facilities that experience intrapartum-related events along with up to ten percent of deaths due to preterm birth. Field trials have shown that community health workers can likewise be trained to perform newborn resuscitation, resulting in an estimated twenty percent reduction in intrapartum-related neonatal mortality[25].

The official MoHP document that endorsed the CB-NCP noted that recognition of asphyxia, initial stimulation and resuscitation of newborn baby was one of seven key interventions included in the CB-NCP. This document states that *"SBAs and health facility staff will be made competent in managing birth asphyxia. For home deliveries, FCHVs will be made competent to identify and manage birth asphyxia as per guidelines."* Under the CB-NCP, FCHVs and other health worker cadres have been trained to identify birth asphyxia and then initially attempt to resuscitate the newborn using

[25] Wall SN et al. Neonatal resuscitation in low-resource settings: What, who, and how to overcome challenges to scale up? International Journal of Gynecology & Obstetrics - October 2009, Vol. 107 Supplement, Pages S47-S64.

manual stimulation. Depending on the needs of the newborn, the health worker may proceed to use Dee Lee's suction and then, if necessary, the bag-and-mask.

Anticipated prevalence of birth asphyxia

In their comprehensive review of neonatal resuscitation in low-resource settings, Wall and his colleagues estimated that between five and ten percent of newborns require some degree of resuscitation (e.g., stimulation or airway clearing (using Dee Lee's suction, for example)) and approximately three to six percent require basic resuscitation which consists of steps previously mentioned plus assisted ventilation (i.e., bag-and-mask)[26]. Bang and his study team estimated that the prevalence of mild birth asphyxia decreased in the Gadchiroli study area from 14 to 6 percent between 1995-2003, while the prevalence of severe birth asphyxia remained constant at 4-5 percent[27].

It is important to estimate the anticipated prevalence of birth asphyxia (BA) among newborns in Nepal in order to answer some of the evaluation questions that pertain to this intervention. Given the estimates from Wall's and Bang's studies, an anticipated prevalence of mild and severe asphyxia of five and three percent, respectively, has been assumed as the basis of some of the analyses that follow in this chapter. These are conservative estimates that will portray program achievements in the best possible light. These assumptions can be compared with the percentage of mothers who, serving as respondents in the household surveys conducted in CB-NCP pilot districts, reported that their infants did not cry or breathe easily immediately after birth.

Context of birth asphyxia programming in the CB-NCP pilot districts

The CB-NCP programming approach with regards to reducing mortality through the management of birth asphyxia represents an aggressive, resource-intensive effort that assumes reasonably high rates of home deliveries and relies heavily on a two-pronged strategy: (1) FCHVs will attend a high percentage of home births and will recognize and manage birth asphyxia including provision of bag-and-mask services; and, (2) health facility staff providing delivery services will likewise recognize and manage birth asphyxia including provision of bag-and-mask services.

The role of FCHVs in BA management in the CB-NCP is somewhat controversial. During the design phase of the CB-NCP, when the decision to include the BA component was still under discussion, a number of stakeholders noted concerns that included (i) the use of bag-and-mask is too technical for FCHVs, (ii) FCHVs' caseload will not be high enough to maintain their skills, and (iii) the cost of this component will be too high in light of the expected (low) impact. Supporters of the approach pointed to successful field trials that have demonstrated community health workers' ability to provide BA services elsewhere and the potential for substantial impact on newborn mortality due to BA.

While household survey data suggest that there is a reasonably high prevalence of birth asphyxia in the pilot districts, household survey data presented elsewhere in this report show that there is a high rate of facility delivery and unexpectedly low rates of FCHV attendance of home births in pilot districts. These findings represent an important part of the context within which the CB-NCP birth asphyxia component will be assessed. Data sources used to address the evaluation questions for birth asphyxia include 1) Household survey (HHS), 2) Newborn Health Information System (NHIS), 3) Follow-up

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[26] Ibid.

[27] Bang AT, Bang RA, Baitule SB, Reddy HM, Deshmukh MD. Management of birth asphyxia in home deliveries in rural Gadchiroli: the effect of two types of birth attendants and of resuscitating with mouth-to-mouth, tube-mask or bag-mask. J Perinatol. 2005;25(Suppl 1):S72–81.

After Training exercise (FUT), 4) Technical Support Visit (TSV) and 5) Qualitative Study (QS).

Detailed Results: Evaluation questions regarding management of birth asphyxia

EQ-O-1 What percentage of FCHVs identifies birth asphyxia? What is the risk of loss of BA management skills given FCHVs' current caseload?

Estimated prevalence of birth asphyxia

Data from the household surveys (HHS) can be used to estimate the prevalence of birth asphyxia among newborns born at home in the CB-NCP pilot districts. Mothers were asked if their newborn cried and breathed easily immediately after birth. Newborns whose mothers responded "no" are suspected of having suffered from birth asphyxia (BA). Results of this inquiry can be found in Table 66.

Table 66: Percentage of newborns with suspected birth asphyxia *(source: HHS, 5 districts)*

Indicator	Bardiya		Chitwan		Palpa		Dang		Kavre			Mean*	
	BL	EL	BL	EL	BL	EL	BL	EL	BL	EL		BL	EL
Percentage of newborns who do not cry or breathe easily immediately after birth, by mothers' report	10	4	6	5	5	3	9	4	3	4		6	4

Note: * = unweighted mean.

The survey-based finding that an estimated four to six percent of newborns suffered from possible BA matches well with the anticipated prevalence of BA of five percent as documented above. This finding suggests that there are a substantial number of cases of BA in the CB-NCP pilot districts that require identification and management.

Identifying birth asphyxia in deliveries attended by FCHVs and health workers

The data that are available to develop estimates of various indicators regarding BA management come from the NHIS. FCHVs and health workers who work in community-level health facilities are supposed to record every case of BA that they manage and note the type of management that they provide on NHIS forms. The management of BA is not linked to the incentive program and there is no reason to think that there is substantial over or underreporting of data regarding the management of BA. These data provide the numerator for a number of indicators that can be used to assess the performance of health workers with regards to identifying and managing cases of BA.

Indicators presented in Table 67 describe the percentage of home births attended by FCHVs in which they provided three birth asphyxia management services: stimulation, Dee Lee suction, and bag-and-mask. The same indicators have been calculated for deliveries that have been reported from community-level health facilities (not including hospitals).

There is a wide variation between districts in the percentage of both home and facility births where BA services are provided. These percentages are well below anticipated prevalence rates although they are higher for facility deliveries than for home births.

Results presented in the table can be compared with anticipated prevalence levels of five percent (for stimulation and Dee Lee's suction) and three percent (for bag-and-mask) to estimate coverage, or "capture rate". Results of that analysis are presented below.

Table 67: Percentage of newborns with birth asphyxia who are managed by health workers, by cadre, district and service *(source: NHIS, 10 districts)*

#	Indicator	Numerator	Denominator	Bardiya	Dang	Sunsari	Doti	Kavre	Morang	Chitwan	Palpa	Dhankuta	Parsa		Weighted mean
FCHV identification and management of birth asphyxia at home deliveries															
1	Percentage of newborns born at home who are identified by FCHV as having birth asphyxia and are **managed with stimulation**	# of newborns born at home who are identified as having birth asphyxia and are managed with stimulation	# home births registered on CB-NCP-2 form	2.0	1.8	0.6	1.3	3.9	0.4	3.5	0.2	0.5	2.2		1.5
2	Percentage of newborns born at home who are identified by FCHV as having birth asphyxia and are **managed with Dee Lee suction**	# of newborns born at home who are identified as having birth asphyxia and are managed with Dee Lee's suction	# home births registered on CB-NCP-2 form	0.3	0.9	0.2	0.5	0.8	0.2	0.5	0.2	0.2	0.6		0.4
3	Percentage of newborns born at home who are identified by FCHV as having birth asphyxia and are **managed with bag-and-mask**	# of newborns born at home who are identified as having birth asphyxia and are managed with bag-and-mask	# home births registered on CB-NCP-2 form	0.1	0.5	0.1	0.2	0.6	0.1	0.1	0.2	0.1	0.5		0.3
Health worker identification and management of birth asphyxia at facility deliveries															
4	Percentage of newborns born at health facility who are identified as having birth asphyxia and are **managed with stimulation**	# of newborns born at health facility who are identified as having birth asphyxia and are managed with stimulation	# health facility births registered on CB-NCP-5 form	7.8	3.4	0.1	7.3	11.4	0.1	0.7	0.0	2.4	4.9		3.0
5	Percentage of newborns born at health facility who are identified as having birth asphyxia and are **managed with Dee Lee suction**	# of newborns born at health facility who are identified as having birth asphyxia and are managed with Dee Lee's suction	# health facility births registered on CB-NCP-5 form	4.1	2.0	0.1	1.3	5.3	0.1	0.2	0.0	0.9	0.7		1.3

#	Indicator	Numerator	Denominator	Bardiya	Dang	Sunsari	Doti	Kavre	Morang	Chitwan	Palpa	Dhankuta	Parsa		Weighted mean
6	Percentage of newborns born at health facility who are identified as having birth asphyxia and are **managed with bag-and-mask**	# of newborns born at health facility who are identified as having birth asphyxia and are managed with bag-and-mask	# health facility births registered on CB-NCP-5 form	1.6	1.1	0.1	0.5	2.6	0.1	0.2	0.0	0.9	0.7		0.6

Percentage of FCHVs that identifies birth asphyxia

Taken literally, the evaluation question above asks "what percentage of FCHVs identifies birth asphyxia?" Although the analyses presented above and below go beyond this narrow question, it is a question that can and should be answered, as it forms the basis for assessing the extent to which FCHVs have the opportunity to practice their skills.

In the fiscal year 2067/68 (July 2010-July 2011), the 7072 FCHVs trained under the CB-NCP reported identifying 388 cases of birth asphyxia across the ten CB-NCP pilot districts. If we assume that each case of BA was identified by a different FCHV, then the percentage of FCHVs that identified birth asphyxia in that fiscal year was five percent (388/7072).

How much of the birth asphyxia burden is being met by FCHVs?

The CB-NCP has made a major investment in training and equipping FCHVs to identify and manage birth asphyxia cases at home births. In order for this strategy to achieve meaningful impact, FCHVs must attend a substantial percentage of home births, and they must correctly identify and manage most or all of the birth asphyxia cases in the deliveries that they attend. An extensive analysis is documented in Chapter G of this report regarding FCHVs' "capture rate" of BA cases—both in the home deliveries that they attend, as well as in all home deliveries. That analysis goes to the core of the central questions regarding the effectiveness of FCHVs in the birth asphyxia intervention in the CB-NCP. While the reader is referred to Chapter G for the details of the analysis, the key findings are restated below.

1. *To what extent are FCHVs in position to save lives by managing newborns who suffer from birth asphyxia? That is, what percentage of home births do they attend?*

In order for FCHVs to save lives of newborns suffering from birth asphyxia, they have to attend home births to put themselves in position to provide the service. Household survey data show that FCHVs attend 22 percent of home births[28] at endline in the districts of Bardiya, Dang, Kavre, Chitwan and Palpa. This figure is somewhat inflated by the high attendance figures from Bardiya district (51 percent of home births attended by FCHVs) as only 15 percent of home births are attended by FCHVs in the other four districts.

2. *When FCHVs attend home births, to what extent do they "capture" the BA cases that are there?*

Based on an assumption of five percent prevalence of mild asphyxia (requiring stimulation) and three percent moderate/severe asphyxia (requiring bag-and-mask)—in home deliveries where a FCHV is present—FCHVs identify and treat one in three newborns (36 percent) who need stimulation and only one in ten newborns (10 percent) who need bag-and-mask resuscitation.

3. *To what extent do FCHVs "capture" all of the BA cases in all of the home births?*

This question combines questions 1 and 2 above to form the most important question of all, as it asks what impact on newborn mortality the FCHVs' BA services may have at the population level. We have seen that FCHVs attend a relatively low percentage of home births, and even at those births that they do attend, they identify and manage a lower-than-expected percentage of BA cases. The final question is "what percentage of all BA cases at home births are identified and managed by FCHVs?" As described in Chapter G, among all babies born at home that experience BA—and at whose births

[28] Unweighted mean across districts.

FCHVs are supposed to be present—FCHVs identify and treat 18 percent of newborns who need stimulation and only one in 20 newborns (5 percent) who need bag-and-mask resuscitation.

4. *What does this analysis say about FCHVs' potential impact on newborn mortality at the population level through their management of birth asphyxia?*

These results clearly suggest that the strategy of assigning FCHVs the responsibility for attending home births and providing resuscitation services to newborns experiencing birth asphyxia is not achieving a high enough capture rate to achieve a meaningful impact on mortality. The potential for impact may decrease even further as facility delivery rates continue to increase.

What is the risk of loss of skills if an FCHV only sees one or two cases a year?

The evaluation question also asks if FCHVs' skills in BA management can be maintained given their current caseload. Table 68 presents data on the number of newborns that received stimulation / Dee Lee Suction / bag-and-mask services as reported by FCHVs on CB-NCP-2 form in 2067/68 and compares this with the number of FCHVs who provided this service.

Table 68: FCHVs' current caseload of BA management (source: NHIS, 10 districts, 2067/68)

Type of management	# cases	# FCHVs trained in CB-NCP	# cases / FCHV per year	On average FCHV will manage one case every ....
Stimulation	388	7072	0.05	18 years
Dee Lee suction	113	7072	0.02	62 years
Bag-and-mask	66	7072	0.01	107 years

The data show that on average, at current caseload levels, a FCHV will manage one child with bag-and-mask every 107 years! This analysis makes clear that FCHVs will most certainly suffer loss of skills due to low caseload levels.

Findings regarding BA management from the qualitative assessment of the CB-NCP

District Health Officers and DHO CB-NCP Focal Persons who were interviewed have mixed impressions of FCHVs' abilities to identify and manage birth asphyxia. While some respondents stated that FCHVs can use the bag-and-mask, others were much less sure. One respondent stated that BA management is the most difficult part of the CB-NCP and noted that there is still a great debate regarding whether FCHVs should be allowed to provide services using the bag-and-mask. Another DHO mentioned that FCHVs could easily lose their skills to manage BA given the extremely low caseload.

Most FCHVs were able to correctly describe how to identify birth asphyxia and how to manage it. Nineteen of the thirty respondents stated that they were confident that they could use the bag-and-mask for management of asphyxia while only one respondent said that she was not confident in her abilities to use the bag-and-mask.

Three mothers (from Parsa, Doti and Bardiya) were interviewed whose newborns had been born at home with birth asphyxia and been managed by the FCHV. Each mother said that her baby did not breathe at first while two said their babies did not cry. Two of

the newborns were managed with stimulation and Dee Lee's suction while the third was managed with bag-and-mask. One of the respondents stated that her baby started to cry after 15 minutes while another mother said her baby started to suckle the mother after the FCHV's management. All three mothers were positive regarding the BA management services provided by the FCHVs.

EQ-O-2 Among identified birth asphyxia cases, what percentage responds to stimulation alone? Does this have implications for future scale-up and provision of bag-and-mask?

A review of the literature suggests that of the ten million newborns who will require assistance to establish breathing at birth, four million (40 percent) with primary apnea will respond positively to stimulation or airway clearing alone and require no further assistance, while six million (60 percent) with secondary apnea will require intervention with bag-and-mask or other more advanced techniques[29].

Table 69 presents the percentage of newborns that were reported by FCHVs and health workers as experiencing birth asphyxia, stratified by the type of management they received. These figures are compared to the standard as described in the preceding paragraph.

Table 69: Percentage of newborns managed for birth asphyxia in CB-NCP districts, by provider and management technique, compared to standard (source: NHIS, 10 districts, 2067/68)

Asphyxia management technique	Provider		Standard
	FCHVs	Health facility	
Percentage of newborns with BA that responds to stimulation / Dee Lee suction alone	83 (322/388)	86 (131/153)	40
Percentage of newborns with BA that requires assistance with bag-and-mask	17 (66/388)	14 (22/153)	60

Data presented in the table make it clear that the "case-mix" of CB-NCP birth asphyxia management techniques is quite different than the standard drawn from the literature. Specifically, the literature suggests that a much higher percentage of newborns with birth asphyxia should receive management with bag-and-mask (~60 percent) than actually receive it in CB-NCP pilot districts (~ 15 percent). In other words, if the standard is applied to the pilot districts, it suggests that a high percentage of newborns with birth asphyxia who need to be managed with bag-and-mask are instead managed with stimulation and perhaps Dee Lee suction and are then referred or receive no further treatment. This clearly can lead to a missed opportunity to reduce mortality due to birth asphyxia.

[29] Lee et al. Neonatal resuscitation and immediate newborn assessment and stimulation for the prevention of neonatal deaths: a systematic review, meta-analysis and Delphi estimation of mortality effect. BMC Public Health 2011 11(Suppl 3):S12.

EQ-O-3 What do we know about the timing of asphyxia management and whether other activities conflict with appropriate identification and management of asphyxia (e.g., weighing or taking temperature)?

Respondents in the qualitative study report that other activities like weighing or taking temperature do not conflict with asphyxia management because whether the child cries or not (or whether the child breathes or not) is given first priority by all persons present at the delivery including health workers, the FCHV and household members.

EQ-O-4 Are skills in using Dee Lee suction and bag-and-mask devices maintained? Are there any episodes of adverse effects from their use?

Data that describe health workers' knowledge and skills with regards to birth asphyxia management are available from the follow-up after training (FUT) exercise, the technical support visits (TSV) and the qualitative study.

Data presented in Table 70 describe health workers' skills and knowledge in birth asphyxia management as assessed in the FUT exercise. Knowledge and skill levels are highest among health workers, somewhat lower among MCHWs and VHWs, and lowest among FCHVs. While overall knowledge levels of the steps to manage BA were reasonably high, skills to demonstrate the management of birth asphyxia on a doll were low.

Table 70: Health workers' skills and knowledge in birth asphyxia management *(source: FUT, 10 districts)*

Indicator	Doti	Bardiya	Dang	Palpa	Chitwan	Kavre	Parsa	Sunsari	Morang	Dhankuta		Mean*
Knowledge of steps to manage birth asphyxia												
Health workers	89	84	100	57	67	87	75	79	83	97		82
MCHWs and VHWs	84	81	94	73	56	82	66	67	70	95		77
FCHVs	67	88	94	68	46	64	46	57	78	86		69
Skills to manage birth asphyxia (using doll)												
Health workers	43	47	48	42	76	48	22	--	88	61		53
MCHWs and VHWs	24	43	30	23	61	30	17	--	66	39		37
FCHVs	9	39	52	19	39	20	1	18	--	47		27

Note: * = unweighted mean.

Data of a similar nature that describes different health cadres' skills in birth asphyxia management were collected during technical support visits. These data in Table 71 show a somewhat higher level of skills than was found during the FUT exercise. There is relatively little difference in skill scores between different health cadres or among the different steps in birth asphyxia management.

Table 71: Health workers' skills in birth asphyxia management *(source: TSV, 3 districts)*

	Percentage of cadre with correct skill (using job-aid)				
	Bardiya	Dang		Kavre	
	FCHV	VHW/MCHW	FCHV	VHW/MCHW	FCHV
n	2281	35	278	45	333
By step:					
Initial stimulation	86	52	72	76	70
Use of Dee Lee suction	92	83	86	87	75
Use of bag-and-mask	90	80	88	82	65
Can correctly perform all steps	86	--	--	--	--

Findings from the qualitative study on maintenance of skills in birth asphyxia management

The qualitative study team interviewed seven FCHVs who had performed birth asphyxia management. Among the respondents, five had used Dee Lee suction and three had used bag-and-mask. All five respondents who used Dee Lee suction stated that they had maintained their skills and had been able to provide the service without problems. Several of them noted that they had revolved the Dee Lee suction three times before clearing the airway and they had used it in both nose and throat. Those FCHVs who had used the bag-and-mask stated that they used it by first counting from 101 to 120 as they had been trained and later extended the count to 140. One FCHV mentioned that the mouth of the newborn was very small and it was difficult to fit the bag-and-mask properly just below the baby's nose. This FCHV was of the opinion that the dummy that she had practiced on during training had a larger mouth. One FCHV in Doti said that she had used the Dee Lee suction but it was not replaced with a new one and thus she is unable to provide that service any more.

Some FCHVs mentioned that they need more training to use the Dee Lee suction and bag-and-mask. They felt that one training was insufficient for them to learn to use the Dee Lee suction and bag-and-mask properly. Other FCHVs noted that they do not like to use the bag-and-mask as they feel that it involves too much risk for them to use it with a newborn.

Various district-level officials were interviewed including District Health Officers, DHO CB-NCP Focal Person and NGO District Managers. Respondents noted the low number of birth asphyxia cases and felt that skill loss could certainly occur and that monitoring and refresher training could help to maintain FCHVs' skills in this regard.

None of the respondents described any adverse effects that occurred during the management of birth asphyxia by FCHVs. A respondent from Bardiya said that one newborn died after receiving birth asphyxia management services but there were no problems as a result.

Chapter P: Other Questions related to the CB-NCP

Evaluation Questions and Summary Findings

EQ-P-1 In districts where other interventions (e.g., misoprostol, chlorhexadine) have been introduced, has there been any interplay between CB-NCP and these vertical programs? Does the experience with the interplay with CB-NCP offer any logical approach for easy incorporation of these interventions if and when they are scaled up?

Summary findings

The integration of chlorhexadine application to the cord stump has been straightforward and rational and has already been incorporated into the standard CB-NCP package of interventions, based in part on the Parsa field trial. The integration of misoprostol into CB-NCP has not yet taken place—including misoprostol introduces increased costs in terms of longer training and also requires a separate monitoring component. Some stakeholders query the inclusion of misoprostol in the CB-NCP as the intervention is not directly focused on newborns.

EQ-P-2 How is the CB-NCP referral system working from community-level providers and facilities to the district hospital? What are the problems and how can the system be strengthened?

Summary findings

The CB-NCP referral system is working adequately between FCHVs and community-level health facilities in some districts but hospitals have not become an effective part of the CB-NCP referral system. Although FCHVs are trained to refer VLBW newborns to a health facility, these facilities have not been prepared to effectively manage VLBW babies. Strengths of the CB-NCP referral system include the basic capacity and comprehensiveness of the government health care system, while its weaknesses include the low quality (or lack) of care and services. Private sector health facilities have not been included in the CB-NCP referral system, despite the significant role the private sector plays in the provision of services for sick newborns.

EQ-P-3 What is the role of the district hospital in the CB-NCP?

Summary findings

Respondents noted that district hospitals as well as their staff have been involved in the CB-NCP both in a training capacity (as training participants as well as in the role of trainers) and also as a service provider. Most respondents stated that the CB-NCP-related level of contact between the hospital and the District Health Office is low. Some hospital staff members have little information about the CB-NCP and thus feel removed from the CB-NCP and uninvolved in its implementation. They note that since the hospital provides services to newborn cases that come to the hospital, their role in the program should be more integrated.

Evaluation Questions and Summary Findings (continued)

Conclusions

The inclusion of the chlorhexadine intervention in the CB-NCP package is an excellent and successful example of the openness of the CB-NCP platform to add new interventions once they complete a piloting process.

The CB-NCP referral system is young and limited by the constraints of the Nepal government health system. Given the minor role of FCHVs in referring sick newborns (most caretakers take sick newborns directly to a trained health provider) and the lack of referral options for VLBW newborns, the CB-NCP referral system does not appear to be functioning at a meaningful level. Significant attention will need to be given to strengthening this essential component of the CB-NCP in the next phase of the program.

The development of a stronger relationship between the DHO and the district hospital will be a key aspect of strengthening the CB-NCP referral system. The historic rivalry between the district public health office and the district hospital must be minimized if these two branches of the health system are to work together effectively to improve newborn health services in Nepal.

Overview

The Assessment Reference Group identified three evaluation questions that address issues that fall outside the other chapters of this report. The first of these questions pertains to the experiences in Parsa and Doti districts while introducing the chlorhexadine and misoprostol interventions, respectively. The two remaining questions address the CB-NCP referral system and the role of the district hospital in the CB-NCP. Data sources used to address the evaluation questions in this chapter include 1) Qualitative study and 2) Stakeholder discussion.

Detailed Results: Evaluation questions on "other questions related to the CB-NCP"

EQ-P-1 In districts where other interventions (e.g., misoprostol, chlorhexadine) have been introduced, has there been any interplay between CB-NCP and these vertical programs? Does the experience with the interplay with CB-NCP offer any logical approach for easy incorporation of these interventions if and when they are scaled up?

During the period when the government and its partners were initially designing the CB-NCP, some discussions centered on whether or not three intervention components—chlorhexadine application to the cord stump (to prevent neonatal sepsis), taking misoprostol during labor (to prevent postpartum hemorrhage), and calcium supplementation (to prevent pre-eclampsia)—should be included in the standard CB-NCP package. Some of the government's partners felt that the effectiveness and field viability of these interventions was already proven and that some or all of these interventions should be included while others felt that they were still in a trial period and were not ready to formally include in the CB-NCP. Ultimately, it was decided to not include them in the CB-NCP. However, PLAN supported the introduction of the chlorhexadine (CHX) intervention in Parsa district in 2010 concurrent with their support of CB-NCP while CARE supported the introduction of the misoprostol component in 2010 concurrent with their support of CB-NCP in Doti district. Lessons learned from these two experiences are documented below.

Experience with introduction of chlorhexadine (CHX) in Parsa district
PLAN found that the integration of CHX into the CB-NCP "package" of interventions was straightforward and relatively easy. PLAN inserted a CHX training module into the standard CB-NCP training curriculum and was able to train all levels of health workers in the use of CHX without adding any time (or cost) to the CB-NCP introductory training. PLAN reported CHX is distributed through health workers and mothers groups and that a high level of coverage (83 percent) has been achieved. From PLAN's perspective, the primary question regarding the intervention was one of supply: who will provide the CHX itself?

Colleagues from the DHO in Parsa reported that the experience of implementing the CHX component in conjunction with the CB-NCP had been positive and they recommended that it be implemented in other districts as well.

By May 2012 the CHX component had been officially incorporated into the CB-NCP package and was being implemented in all new CB-NCP districts. The CB-NCP-2 form has been modified to reflect the inclusion of the CHX intervention and the CB-NCP training curricula have been officially modified to include training on CHX.

Experience with introduction of misoprostol in Doti district
It is more difficult to incorporate the misoprostol intervention within the CB-NCP than the CHX intervention—both logistically as well as conceptually. The inclusion of misoprostol requires one additional day of training which increases training expenses. The misoprostol intervention also has its own reporting system which introduces additional complications. Despite these complications, misoprostol has been introduced concurrent with the CB-NCP in several districts.

The qualitative study team interviewed both CARE personnel as well as DHO staff from Doti district where misoprostol was introduced at the same time as the CB-NCP. Misoprostol was first distributed through the health facilities but later was distributed by FCHVs. Health personnel in Doti made the following observations about the misoprostol intervention:

- The misoprostol component can be implemented along with the CB-NCP program and the need for misoprostol will slowly phase out over time as health facility deliveries increase.
- Problems were encountered with maintaining an adequate supply of misoprostol. As one respondent from the Doti DHO noted, *"we originally received misoprostol tablets from CARE but we have not had misoprostol in stock since support from CARE was phased out."* DHO personnel noted that there were no resources in the DHO budget to support the purchase of misoprostol.
- DHO personnel from Doti noted that misoprostol is perhaps better thought of as a component within the Safe Motherhood program rather than as part of a newborn care program such as the CB-NCP. One respondent noted that, *"if CB-NCP had an ANC component, then there would be no problem to incorporate the misoprostol component into CB-NCP."*
- These comments led to observations about the way that maternal, child and newborn care in the Nepal health system has been "packaged" and compartmentalized. Respondents noted that the CB-NCP program was quite expensive to implement while it actually shares many features and interventions with the IMCI and Safe Motherhood programs. Given that the CB-NCP shares common features with other programs and is not a completely new concept, respondents suggested that merging

CB-NCP within an integrated approach to maternal, child and newborn programming would reduce costs and allow interventions such as misoprostol to be more easily and rationally added to the package of interventions.

EQ-P-2 How is the CB-NCP referral system working from community-level providers and facilities to the district hospital? What are the problems and how can the system be strengthened?

Information presented below was collected during the qualitative study and also during stakeholder discussions that were held during the analysis phase of the CB-NCP assessment.

How is the CB-NCP referral system working from the community to the hospital?

Respondents perceive that the referral system between FCHVs and community-level health facilities is working adequately but that hospitals have not become an effective part of the CB-NCP referral system. Clients do not appear to perceive any added value to taking a sick newborn to the hospital rather than to a local health facility or provider. While CB-NCP program planners feel this is an inaccurate perception—that is, that there is a higher standard of care at hospitals than at local-level health facilities—community members may believe differently.

Respondents note that no sick newborns have been referred to date from the community level to the main hospital in Tansen. Doti-based colleagues said that FCHVs have referred sick newborns to local health facilities in Doti but there have been no referral cases from FCHVs to the district hospital. The respondent from Bardiya noted that referral between health facilities in Bardiya and the district hospital is uncommon. A DHO staff member in Parsa stated that FCHVs refer sick newborns to the health facilities who in turn refer (if necessary) to the zonal hospital.

There does not appear to be an effective referral option for very low birthweight (VLBW) newborns in any facility. Although FCHVs are trained to refer VLBW newborns to a health facility, these facilities have not been prepared to effectively manage VLBW babies.

Current initiatives are underway to strengthen the capacity of the health system to manage newborns that are referred. The government of Nepal, WHO and Save the Children have collaborated to develop a referral training package that will be used to train health providers to manage sick children who have been identified through CB-IMCI protocols and then referred. CB-NCP referral issues could be addressed to some extent by including them in this package.

What are the problems of the care and referral system and how can the system be strengthened?

The primary strengths of the care and referral system for newborns in districts that have implemented the CB-NCP include the following:

1. The CB-NCP program and its components are part of the government health care system and receive all of the support that this entails;
2. CB-NCP has provided the basic infrastructure and equipment that is needed for identifying and (to a lesser extent) managing newborn health problems; and,
3. There is an adequate number of medical personnel present in the system. These health providers only need training, equipment and supervision in order to improved referral services under the CB-NCP.

Stakeholders noted the following weaknesses in the newborn care and referral system in CB-NCP pilot districts:

1. Most of the referral sites are quite weak in terms of the quality of services that they can provide. Health workers do not have adequate skills to manage newborn complications. Equipment and training are needed.
2. Health workers do not know where adequate services can be found (if they do in fact exist) and thus are unable to make effective referrals of newborn patients.
3. The public does not perceive that there are services available at the referral sites for some newborn conditions. Within the CB-NCP context, this problem is most notable for the management of VLBW newborns.
4. Although over 50 percent of referral cases go to private hospitals, these facilities are not part of the CB-NCP and have not been exposed to its messages, benefits and support.

CB-NCP stakeholders proposed the following recommendations to strengthen the referral system for newborns:

1. Greater investment needs to be made through the CB-NCP to plan and provide for referral services for newborns. Referral sites should be identified, services that each site will provide should be identified, equipment should be procured and staff trained so that appropriate services can be provided.
2. CB-NCP stakeholders need to discuss and determine how private referral centers can best be involved in providing care for referred newborns, given the high volume of cases that they see in some districts.

EQ-P-3 What is the role of the district hospital in the CB-NCP?

Members of the qualitative study team interviewed District (Public) Health Officers and Hospital in-charges in five CB-NCP districts in order to obtain their views on the role of the district hospital in the CB-NCP.

Respondents noted that hospital staff has been involved in the CB-NCP both as training participants as well as in the role of trainers. The intensity of this role has depended on the district.

The other major role of the district hospital in the CB-NCP is as a service provider. The Hospital in-charge in Parsa district noted that the number of newborn patients has increased at his hospital following the introduction of the CB-NCP and this has helped mothers and newborns. He stated that mothers and newborns are referred to the hospital but still feels that better coordination between the hospital and community-level health facilities is necessary. Respondents from other districts have not observed a notable increase in the number of referred newborn patients following the introduction of the CB-NCP.

Most respondents stated that the level of contact between the hospital and the District Health Office regarding the CB-NCP is low. Some hospital staff members have little information about the CB-NCP and thus feel removed from the CB-NCP and uninvolved in its implementation. They note that since the hospital provides services to newborn cases that come to the hospital, their role in the program should be more integrated. Some Hospital in-charges said that the hospital needs a greater role in supervising and monitoring newborn care in the community in order to prevent cases from becoming too complicated and having to be referred to the hospital.

Chapter Q: FCHV Performance Incentives

Evaluation Questions and Summary Findings

EQ-Q-1 What is background and rationale of the performance-based incentive for FCHVs in the CB-NCP? How are incentives calculated and distributed? What is the effect of the incentive on FCHVs' commitment to their work? What are stakeholders' perceptions regarding the incentive component? What is the future of incentives in the CB-NCP?

Summary findings

The CB-NCP incentive program was established to compensate FCHVs for performing duties that were considered to be beyond what a volunteer could be asked to do. There was some disagreement among stakeholders regarding whether incentives should be provided and whether they should be based on performance. The calculation of a FCHV's incentive is a time-consuming, complex process that some health workers have difficulty performing. The incentive is calculated using NHIS data which creates a somewhat unhealthy interdependence between the NHIS and the incentive component. While most stakeholders feel that the incentive component has had an overall positive effect on FCHVs' performance, many concerns have been raised about various aspects of the incentive component. Stakeholders are generally in agreement that the incentive component needs to be revised in light of these concerns.

EQ-Q-2 What is the cost of the CB-NCP FCHV incentive component? Is this cost scalable and sustainable?

Summary findings

Budget data for the incentive component indicates that DHOs are able to disburse incentive payments and that some difficulty has been experienced providing sufficient funds from the center to the districts to meet budgetary demands in the current fiscal year. Most FCHVs appear to receive the maximum payment of 400 rupees per registered newborn. The anticipated annual budget for CB-NCP incentive payments for all FCHVs in Nepal (if CB-NCP is implemented in all 75 districts) is equal to 277,058,400 NR (3,463,230 USD @ 80 NR = 1 USD).

EQ-Q-3 How have incentives affected the activities of FCHVs—for example with regard to prioritization and time taken with incentivized vs. non-incentivized components?

Summary findings

Many respondents feel that incentives have had an overall positive effect on FCHVs' activities and that FHCVs do not prioritize CB-NCP activities over other programs. The primary negative effect that was noted is that FCHVs now expect an incentive payment for their work in CB-NCP. The removal or reduction of the incentive may negatively affect their effort on the CB-NCP.

Evaluation Questions and Summary Findings (continued)

EQ-Q-4 To what extent has the incentive component affected NHIS data quality? Are regular data quality audits needed?

Summary findings for EQ-Q-4

The incentive component appears to have encouraged the completion and submission of the CB-NCP-2 form. Direct linkage between reported performance and incentive payments may have led to over-reporting of FCHVs' performance of key activities that are linked to the incentive payment. It is unclear if over-reporting is done directly by FCHVs or occurs during the aggregation and reporting process at the health facility level.

Conclusions

The incentive component has increased enthusiasm for the CB-NCP among FCHVs. Several issues regarding the construction of the incentive component have raised concerns. The use of NHIS data to calculate incentives through an overly-complex process has compromised the quality of some important indicators in the NHIS and made it difficult to downsize the NHIS as the CB-NCP program matures and is expanded. There is a compelling rationale for the provision of incentives to FCHVs to be de-linked from performance of specific activities within a single program (i.e., the CB-NCP) and broadened to be more inclusive of the wide range of activities that FCHVs perform without linking the amount of the payment to performance.

Overview

FCHVs receive incentives for their work in the CB-NCP based on self-reported performance data. The provision of incentives to FCHVs, especially based on performance, has been somewhat controversial and has led to healthy debate among CB-NCP stakeholders regarding what a volunteer cadre such as the FCHVs can be asked to do as on a voluntary basis and at what point do programmers need to consider providing some type of compensation.

This chapter of the report documents several key areas of inquiry related to FCHV incentives in the CB-NCP. Unfortunately, the data that are available to answer what is perhaps the most important question of all—have the CB-NCP incentives improved performance?—are extremely limited. The information that is provided, however, should provide some guidance to senior program personnel as they make decisions regarding how to proceed with the incentive component in the CB-NCP. Data sources used to address the evaluation questions in this chapter include 1) Qualitative study, 2) Stakeholder discussion, 3) Project documents and 4) DHO budget data.

Detailed Results: Evaluation questions regarding FCHV performance incentives

EQ-Q-1 What is background and rationale of the performance-based incentive for FCHVs in the CB-NCP? How are incentives calculated and distributed? What is the effect of the incentive on FCHVs' commitment to their work? What are stakeholders' perceptions regarding the incentive component? What is the future of incentives in the CB-NCP?

Information presented below was collected from interviews and group discussions with CB-NCP stakeholders based in Kathmandu as well as during the qualitative study from respondents that include District Health Officers, DHO CB-NCP Focal Persons, NGO District Managers, Statistical Assistants, health facility staff, Health Facility Management Committee members and FCHVs.

Background

FCHVs in Nepal have a long history of providing outstanding voluntary services to their communities. Many programs seek to provide FCHVs with some type of reward or incentive as a sign of appreciation and encouragement for their work. Some people working in the public health field in Nepal feel strongly that FCHVs' volunteer status should be maintained and that great care should be taken when providing per diems, stipends or gifts to FCHVs. There are others who are very concerned that FCHVs might be taken advantage of and seek more openly to provide benefits to FCHVs. Depending on the program or initiative, FCHVs may receive benefits that include training per diem, equipment (e.g., bicycle, sari) and stipends. Some programs provide stipends to FCHVs for work that calls for them to be in a specific place on a specific day and perform mandated services. Examples of this include vitamin A distribution activities, measles and polio vaccination campaigns, and participation in training activities (where they receive a per diem).

Rationale for performance incentives in the CB-NCP

The CB-NCP incentive component has been somewhat controversial since its inception. Given the substantial new responsibilities that FCHVs were asked to perform in the CB-NCP, some stakeholders felt that they must be given incentives in order to be fair. Others argued that FCHVs are volunteers and should not be compensated for their work (or should not be asked to perform tasks that require compensation). Among those who favored providing incentives, some stakeholders felt that performance-based incentives would be the most appropriate way to encourage FCHVs, while others opposed program-specific performance-based incentives and favored the provision of broader-based, general incentives that are not tied to any program in specific and come from a sustainable funding source—preferably local in origin. The two quotations below are representative of some of the differing opinions on providing incentives to FCHVs.

> *"FCHVs are volunteers. But they perform certain tasks crucially linked to mortality under CB-NCP, and because these tasks require them to drop everything and perform a specific task on a specific day, you have to pay them for that – just as they are paid for their work in vitamin A distribution and measles and polio vaccination campaigns." (Respondent, Kathmandu)*

> *"Incentives are important, but if we are not careful they may destroy the future of CB-NCP and the FCHV program itself. Fee-for-service should not be the basis of incentives. If we must give incentives, there are other and better ways to structure them." (Respondent, Kathmandu)*

Ultimately the government decided to provide FCHVs with an incentive for their work in the CB-NCP based on their performance of selected key services. The text below outlines how CB-NCP performance incentives are calculated and distributed. Further details regarding the incentive component can be found in the document Community-Based Newborn Care Program: Female Community Health Volunteer Incentive Guideline 2066.

Calculation of incentives

The amount of the incentive that a FCHV receives for her work in the CB-NCP depends both on her own work as well as on the work of all of the FCHVs in her ward. Each individual FCHV receives an incentive of between 0 and 400 rupees for each newborn that she registers using the CB-NCP-2 form and to whom she provides services. The amount of the incentive that a FCHV receives per registered newborn is based on a "FCHV Group Performance Score" that is calculated on a group basis for all FCHVs in a VDC. The FCHV Group Performance Score is based on the group's aggregated performance of key CB-NCP activities. Data from the CB-NCP-6 form are is used to perform this calculation. The indicators that are used to calculate the FCHV Group Performance Score, and the weight given to each indicator, are described in Table 72.

Table 72: Indicators used to calculate CB-NCP FCHV Group Performance Score

Indicator (%)	Numerator	Denominator	% weighting
Mothers registered in NHIS	Number of CB-NCP-2 form submitted	Expected number of pregnant women (as per HMIS)	**20**
Newborns born at health facility	Number of newborns born at health facility	Number of CB-NCP-2 form submitted	**10**
Newborns weighed within 3 days of birth	Number of newborns born at home who were weighed within 3 days of birth	Total number of babies born at home	**10**
Newborns visited at home by FCHV on day of birth, 3rd and 7th day post-delivery	Number of newborns who received home visits by FCHV on the first, third and seventh day post-delivery	Number of CB-NCP-2 form submitted	**40**
Newborns visited at home by FCHV on day 29 post-delivery	Number of newborns who received home visit by FCHV on 29th day post-delivery	Number of CB-NCP-2 form submitted	**20**
Total percentage			**100**

The incentive that each FCHV receives for each newborn served is then calculated using the group performance score as outlined in Table 73.

Table 73: Determination of amount of CB-NCP performance-based FCHV incentive

Performance category	FCHV Group Performance Score (%)	Incentive
Excellent performance	70-100	Rs 400 per newborn served
Best performance	60-69	Rs 300 per newborn served
Good performance	50-59	Rs 200 per newborn served
Poor performance	0-49	No incentive

Stakeholders made several observations regarding the methods used to calculate the incentives. First, the method is quite complex and time-consuming to conduct. The calculation of the FCHV Group Performance Score is the responsibility of the health facility in-charge and his/her team; CB-NCP trainers report that training participants from the health facilities have a great deal of trouble understanding how to calculate the FCHV Group Performance Score and few are able to correctly perform the calculation during the training. Anecdotal reports from the field state that in some areas, nobody is able to calculate the FCHV Group Performance Score according to the guideline and instead just gives every FCHV 400 per newborn served.

The second observation is that the calculation of the FCHV Group Performance Score is done completely on the basis of NHIS data, which has two consequences. The first is that, given the inter-dependency between the NHIS and the incentive calculation method, future revisions of the NHIS or the formula for calculating the incentive must be done taking into consideration the effect of the revision of one on the other. The second consequence is that using self-reported performance data to calculate an incentive introduces a second incentive—to over-report performance in order to receive a higher monetary incentive.

Incentive distribution process

The steps in the process of calculating and distributing the incentive payments to FCHVs are as follows:

1. The Department of Health Services in Kathmandu allocates budget for the FCHV incentive to all districts implementing the CB-NCP based on the number of expected pregnancies in each district.
2. CB-NCP-2 forms are collected in each health facility at the end of each month and are assessed by the health facility in-charge once every quarter. The original copies of the CB-NCP-2 forms are submitted later to the DHO.
3. The data that are used to calculate the incentive payments are verified and triangulated by both the Health Facility in-charge as well as by the DHO CB-NCP Focal Person.
4. The amount that each FCHV will receive as her incentive is finalized on the basis of her performance.
5. The DHO collects the performance-based incentive calculation forms for all of the FCHVs and collects the incentive budget request forms from all health facilities.
6. In most districts the incentive payments are deposited directly into the FCHVs' collective bank accounts by the DHO on a quarterly basis. In Chitwan the incentive payments are made into the health facilities' bank accounts and the health facility in turn passes the payments on to the FCHVs. FCHVs receive their incentive payments in cash in Palpa district.
7. FCHVs draw their payments from the account where they have been deposited . Health facility staff supports the distribution of the incentive payments.

Effect of incentives on FCHVs' commitment to their work

FCHVs say that they are much more motivated to perform their work now that they receive incentive payments. They stated that the motivation comes both from receiving the incentive as well as from the "higher recognition" that they receive in the community because of their work for the CB-NCP program. Other respondents confirm that FCHVs have become more committed to their work following the introduction of the CB-NCP.

Stakeholders' perceptions regarding performance incentives in the CB-NCP

The DHOs that were interviewed all felt that providing incentives to FCHVs for their work in CB-NCP is good idea. Two of the respondents said that due to the incentive, FCHVs are giving more time for the services they provide and that the incentive motivates FCHVs to work harder.

Several respondents argued that FCHVs should not receive an incentive for a specific program and that any incentive they receive should be given in general for all of their work. Another respondent noted that a large amount of money that will be needed for incentives if the CB-NCP is scaled up across the country and wondered if the provision of such a large incentive for one program would be sustainable.

Some respondents reported that the provision of incentives only to FCHVs for their work in CB-NCP (and not to other health workers) has not affected the relationship between FCHVs and health facility staff, while other respondents reported that it has caused some friction.

HFMC members demonstrated mixed awareness regarding the incentives provided to the FCHVs; some were aware of the amount of incentive that the FCHVs received, others said they were not well-informed, and a few stated that they were completely unaware regarding the incentive component. HFMC members either felt that the provision of incentives to the FCHVs is a good idea or felt that the amount given was too low and should be increased.

Criticisms of the approach used in CB-NCP to calculate and provide incentives

Many respondents support the provision of incentives and say that it has increased the motivation of FCHVs to provide services. There are other stakeholders who support the overall concept of providing incentives but note the following problems or issues (and add the following recommendations) regarding the way that incentives are paid in the CB-NCP:

1. The overall cost of paying incentives directly from the DoHS budget—if the CB-NCP is scaled up to 75 districts—is too high.
2. The calculation of incentive payments using NHIS data corrupts the quality of the data and makes the data useless for monitoring purposes.
3. Basing incentive payments on specific services within a single program is too specific; incentives should be based on broader criteria and should not be based on performance of specific tasks.
4. Paying incentives from the central budget raises concern about sustainability and supervision of payment. There are many advantages to be gained if incentives could be paid from local funds and supervision of payment could likewise be done locally.
5. The formula and protocol used to calculate FCHV Group Performance Score and to determine an individual FCHV's incentive is too complicated and should be simplified.
6. Using specific NHIS indicators to calculate the incentive limits options with regards to revision or restructuring of the NHIS as the two efforts (NHIS and incentive component) are tied together. There are major advantages to be gained if they are separated.

Future of incentives in the CB-NCP

When asked about the future of incentives in the CB-NCP, most respondents felt that these incentives are here to stay and could not be withdrawn without making it difficult to work with FCHVs and causing a negative effect on the implementation of the CB-NCP. Other respondents agreed with this while noting that this is part of the problem

with incentives—once you start giving them, you have to give them for as long as the program continues.

In the discussion among stakeholders that took place during the CB-NCP Assessment Workshop, there was general agreement among those present that the CB-NCP incentive component needed to be revised significantly. Workshop participants noted that there are many ways to frame and fund an incentive program that will be more sustainable than the current model. Some participants felt that the same approach should be used but that a broader range of indicators should be used to calculate the FCHV Group Performance Score including indicators from outside of the CB-NCP. Other participants were in favor of discarding the current incentive model completely, thereby separating the NHIS and the incentive component, and coming up with a new approach that did not involve performance-based incentives.

In summary, while there was no consensus on how to proceed in restructuring the incentive component, there was broad agreement that the structure and approach of the current incentive component has major problems and should be revised or changed.

EQ-Q-2 What is the cost of the CB-NCP FCHV incentive component? Is this cost scalable and sustainable?

Budget data regarding the incentive component were collected from the District Health Offices in the ten CB-NCP pilot districts. Table 74 compares allocated versus expended budgets for the previous fiscal year (2067/68) and the current running fiscal year (2068/69). The expended budget in 2067/68 is compared with the number of closed forms to yield the indicator mean incentive payment per closed form.

The Child Health Division (CHD) says that it allocates budget for CB-NCP incentive payments based on approximately 60 percent of expected live births and a payment of 400 rupees per closed form.

A review of the data in the table reveals that the average incentive payment is approximately 400 rupees per newborn except in Chitwan district. This suggests that most FCHVs are receiving the maximum incentive payment.

The data from 2067/68 demonstrate that the DHOs are clearly able to distribute funds for incentive payments. The data from 2068/69 show that center is having some trouble in finding funds to meet the demand from the districts. CHD officials report that they have sent the budget that they committed but the demand is high. They are looking for funds from other sources to meet demand.

Based on the number of expected live births in Nepal for the current fiscal year (2068/69; 692,646 live births from HMIS Annual Report 2067/68), the anticipated annual budget for CB-NCP incentive payments for all FCHVs in Nepal (if CB-NCP is implemented in all 75 districts) is equal to 277,058,400 NR (3,463,230 USD @ 80 NR = 1 USD). The DoHS will need to decide if this amount is scalable and sustainable.

Table 74: Budget for CB-NCP incentives in 2067/68 and 2068/69: Allocated vs. expended budget and rupees disbursed per closed form

District	67/68 FY					68/69 FY	
	Allocated budget (Nrs.[30])	Expended budget (Nrs.)	# closed forms	# expected live births	Rs / closed form	Allocated budget (Nrs.)	Expended budget (time period) (Nrs.)
Bardiya	2,200,000	2,600,000[31]	7,859	12,240	331	2,163,000	900,000 (Shrawan-Kartik)
Palpa	2,200,000	1,300,000	2,871	7,896	452	1,395,000	747,600 (Shrawan-Kartik)
Morang	7,200,000	4,870,000	11,549	27,213	420	4,805,000	2,648,000 (Shrawan-Kartik)
Dhankuta	1,326,000	--	1,186	5,037	--	896,000	350,900 (Shrawan-Kartik)
Parsa	--	--	--	14,064	--	2,400,000	800,000 (Shrawan-Kartik)
Doti	4,264,000	2,037,000	4,632	5,963	440	1,546,000	950,000 (Shrawan-Kartik)
Sunsari	5,283,000	5,283,000	11,432	19,956	462	3,993,000	3,100,000 (Shrawan-Push)
Kavre	--	1,066,400	2,950	11,547	362	1,503,000	--
Chitwan	1,000,000	803,600	5,689	15,849	141	3,153,000	1,400,000 (Shrawan-Kartik)
Dang	4,500,000	3,210,100	8,145	14,839	394	3,573,000	1,986,500 (Shrawan-Mangsir)

[30] Nrs. = Nepali rupees

[31] Pulled 4 lakh from 2068/69 budget

EQ-Q-3 How have incentives affected the activities of FCHVs—for example, with regard to prioritization and time taken with incentivized vs. non-incentivized components?

This evaluation question seeks to understand the effect of the CB-NCP incentive program on FCHVs' overall performance. Unfortunately quantitative data that can be used to address the question are not available and thus have to rely on information gathered through the qualitative study and interviews with stakeholders.

Concern certainly does exist among stakeholders that the provision of a performance incentive to FCHVs for their work in CB-NCP may have unintended negative consequences on their other work, although there is no concrete evidence of such an effect. One stakeholder pointed out that FCHVs now earn an incentive in the CB-NCP for every birth in their ward that they register and wondered if FCHVs will actively promote family planning, given that they earn an incentive if there are births. Although this comment was made in jest, it does point out one of the conflicts that the incentive introduces.

Positive effect of incentives on FCHVs' work

A variety of senior district-level officials stated that the CB-NCP incentive scheme has had a positive impact on the activities of FCHVs and has not affected FCHVs' other tasks. They said that FCHVs give equal importance to other programs for which they are not receiving incentives and that in fact, FCHVs' service delivery in other programs has been more effective after the introduction of CB-NCP. Other stakeholders noted that the incentive program has increased contact between FCHVs and health facility staff—a positive step—as FCHVs now have to go to the health facilities to submit forms to receive their incentive. A respondent from Doti noted that FCHVs earned an incentive for their work on the vitamin A and polio campaigns and this has never been felt to cause a negative effect on their work in other programs.

Most of the FCHVs (24 of 30) interviewed during the qualitative study stated that the CB-NCP incentive scheme has not negatively affected their work in other programs. Two respondents from Chitwan reported that they are satisfied with the incentive whereas respondents from Palpa and Parsa mentioned that the work is difficult but they are fulfilling their duties. Half of the interviewed FCHVs stated that the incentive has increased their enthusiasm for their work.

Negative effect of incentives on FCHVs' work

The primary negative (potential) effect that was noted by some respondents was that the CB-NCP program was now dependent on the provision of an incentive to FCHVs and that it would be difficult to run the program if the incentive was removed or reduced. Another respondent wondered FCHVs would now begin to expect some type of incentive from whatever activities they were involved in since the CB-NCP incentive is so specifically tied to the program.

One example of the type of effect that the incentive might have can be seen in FCHVs' recording and reporting practices with regards to the two key forms that they use: CB-NCP-2 and CB-NCP-3. FCHVs must submit CB-NCP-2 in order to receive their incentive, and there is little question that FCHVs submits this form for each newborn they register. FCHVs use CB-NCP-3 form to register and refer sick newborns but there is no incentive linked to the use of this form. Many health workers including FCHVs admit that FCHVs often identify sick newborns and refer them without filling out this form. This raises the following question: are FCHVs filling out CB-NCP-2 form primarily to receive the incentive?

There is little reason to doubt the work or intentions of FCHVs. As a health facility staff member in Parsa said, "Whether FCHVs receive an incentive or not, they are doing good

work." However, the potential for problems that can be caused by linking incentive payments to one particular program—and particular services within that program—is recognized by stakeholders. More than one respondent called for the CHD/FHD/DoHS to adopt a broader approach to the provision of incentives to FCHVs and make them more general.

EQ-Q-4 To what extent has the incentive component affected NHIS data quality? Are regular data quality audits needed?

Potentially positive effects of the incentive component on data quality

Most CB-NCP stakeholders agree that the incentive component has probably had some unintended effects on data quality. While the discussion below will focus on possible negative effects of incentives on data quality, it should be noted that some stakeholders feel that the incentives have had positive effects as well—primarily by encouraging complete reporting using the CB-NCP-2 form, as the submission of this form is the basis for receiving the incentive payment. Several respondents in the qualitative study stated that FCHVs are not creating "false" or "duplicate" newborns in an effort to receive higher incentive payments and they noted that health facility staff members guard against duplication by cross-verifying the total number of CB-NCP-2 forms submitted with other indicators that should match such as the number of newborns who receive BCG vaccine or the number of women receiving ANC. As can be seen in the table that accompanies evaluation question EQ-Q-2 above, the number of expected live births greatly exceeds the number of CB-NCP-2 forms submitted by FCHVs, which is further evidence that substantial record duplication is not taking place.

Many of the health facility staff members who supervise FCHVs and manage the NHIS data that are used to calculate incentive payments feel that data quality is reasonable and note that they take regular actions to minimize problems with data quality including cross-verification of data as appropriate.

Potentially negative effects of the incentive component on data quality

There are two primary ways in which the provision of incentives may have a negative effect on data quality:

1. Creation of false newborn records (CB-NCP-2 forms) and claiming incentive payments for newborns that don't exist.
2. Over-recording of performance to increase the amount of the incentive that will be received.

As discussed above, there is no compelling evidence that the problem outlined in the first bullet—the creation of false records—is taking place to any significant extent. There is evidence, however, that performance of some services is overstated by some health workers. Health workers and DHO staff from across the CB-NCP pilot districts stated that some over-reporting of performance does take place. A study supported by Save the Children in Bardiya district in the early stages of CB-NCP implementation found evidence of FCHVs over-reporting performance although this practice was felt to have been reduced later on.

The following five indicators are used to calculate the incentive amount that a FCHV (and her colleagues in the same VDC) will receive.

1. Percentage of mothers registered in NHIS
2. Percentage of newborns born at health facility
3. Percentage of newborns weighed within 3 days of birth

4. Percentage of newborns visited at home by FCHV on day of birth, 3rd and 7th day post-delivery
5. Percentage of newborns visited at home by FCHV on day 29 post-delivery

The first two indicators are relatively easy to cross-verify at the community-level and are probably less likely to be misreported. Indicators 3,4 and 5 are easier and more likely to be over-reported (and together comprise 70 percent of the FCHV Group Performance Score). One way to explore whether or not misreporting may be taking place would be to construct indicators from the household survey data that are equivalent to the indicators above and assess how they compare with the indicator values from the NHIS. Unfortunately, due to limitations in the survey questionnaire design, this is not possible to do in a meaningful way.

Comparative study of FCHVs' versus mothers' reports of services provided

One informal way that the validity of NHIS data that are used to calculate incentive payments can be explored is through a small study that was conducted as part of the CB-NCP qualitative assessment. In this study, thirty CB-NCP-2 forms (two forms in each of 15 different health facilities across the five study districts) that FCHVs had submitted to the health facility were selected by members of the research team. For key indicators that serve as the basis of the incentive payment, research assistants noted service performance as recorded on the CB-NCP-2 form, and then visited the mothers who had received the service, and asked each mother verbally whether she had received each of the services. This approach yields a cross-comparison of the indicators used to calculate the incentive from two different sources, which can then be further compared with the overall value of each indicator as reported through the NHIS. Results of the analysis are presented in Table 75.

Table 75: Comparative study of NHIS indicators used to calculate incentive, from two sources

Indicator	Percentage who received service according to		NHIS
	Mother (n=30)	FCHV (n=30)	2067/68
Facility delivery	37	30	60
Child weighed (home births)	80	87	89
PNC visit made on day 1	50	47	45
PNC visit made on day 3	62	55	87
PNC visit made on day 7	59	52	95
PNC visit made on day 29	30	60	100

These results should be interpreted with caution, as the data were drawn from a purposive sample, and the research assistants were not extensively supervised while these data were collected. However, the results are interesting and raise some questions about the NHIS data.

The first finding is that the aggregated indicator values as calculated from mothers' and FCHVs' reports match quite well, with the exception of the indicator PNC visit made on day 29. This discrepancy could be due to FCHVs' understanding that they can gather data about the condition of the newborn on day 29 over the phone or through interpersonal networks and do not have to visit the newborn in person, whereas mothers were asked if the FCHV visited the newborn in person.

The second finding is that the performance levels as reported by mothers and FCHVs are not very high and are significantly lower than the overall NHIS levels. Given the

sampling approach that was used and the quality of the data, it is inadvisable to draw firm conclusions from this finding. It does suggest, however, that there may be differences between actual FCHV performance and performance as reported through the NHIS at the district and national levels. Some stakeholders noted that they have heard that some FCHVs were encouraged by their health facility supervisors to report ideal performance, rather than actual performance, in order to receive maximum incentives.

In summary, these findings suggest that there may be data quality issues with regards to some NHIS indicators that are linked to incentive payments. The data further suggest that over-reporting of performance may not be done directly by FCHVs as much as during the transfer of their performance data from the CB-NCP-2 form to the CB-NCP-6 form.

How to minimize or eliminate the negative effect of the incentive component on data quality

Respondents were asked what type of action could be taken to minimize or eliminate the negative effects of the incentive component on NHIS data quality. Responses can be categorized within two groups. The first group of responses focused on strengthening the existing incentive calculation approach by increased cross-verification of incentive-related indicators at district level. The second group of responses advocated completely changing the approach to incentive provision and calculation and putting an end to the use of NHIS data to calculate performance-based incentive levels.

Overarching Conclusions

The findings presented in this report can be viewed and interpreted in a variety of ways. A "glass half empty" interpretation might lead to an overall negative conclusion regarding the achievements of the pilot. One might conclude that the new interventions (e.g., birth asphyxia, low birthweight) are not working well or as expected, and the successes that were achieved (e.g., increases in facility delivery) are primarily due to other programs such as the BPP or the maternal delivery incentive scheme.

A "glass half full" interpretation might note that many things have been learned from the CB-NCP pilot and this assessment exercise has been extremely valuable. A great deal of information and findings have been generated that can be used to revise and strengthen the CB-NCP program. In addition, the CB-NCP has most likely reinforced existing interventions and raised the profile of newborn care. The CB-NCP has helped to lay the foundation for substantial improvements in newborn health care in Nepal.

There is some truth in both of these viewpoints. The achievements of the CB-NCP are mixed, and some of its central strategies have not performed as designed. However, this assessment represents an important starting point for the second phase of the implementation of the CB-NCP, and represents a crucial opportunity to adjust the strategic direction of the program so that its goals and objectives can be achieved.

Overarching context of the conclusions

Prior to presenting the overarching conclusions of the assessment, it is important to restate two contextual issues. The first issue is that the CB-NCP "pilot" was not implemented as a pilot should be. The pilot phase of a new program normally features carefully managed implementation in a limited area complemented by a strong monitoring component that produces useful, high-quality data. The pilot is implemented and then evaluated, the strategies and design are modified according to the findings of the evaluation—and only then is the program scaled up. In the case of the CB-NCP, this approach was not followed. The pilot was accelerated very quickly into a scale-up—a scale-up based on a model that had not been piloted and evaluated.

The second issue is that the findings and conclusions presented in this document are particular to the ten pilot districts. It may be that these ten districts are reasonably representative of most districts in Nepal. However, there are certainly some districts in the mountain region of Nepal that have demographic and health system profiles and population health needs that are quite different than those in the CB-NCP pilot districts. As Nepal's development progresses, it may well be that the range of characteristics and needs between districts will widen. Care must be taken when generalizing the findings and conclusions of this assessment to other regions of Nepal.

A set of conclusions specific to each theme has been presented in each of the seventeen previous chapters of this report. The conclusions presented below cut across themes and are intended to be relevant to the program as a whole.

Overarching conclusions

<u>Changes in demand for newborn care: Health facilities versus community-based providers</u>

Caretakers in Nepal traditionally have kept newborns at home for an extended period of time following delivery. Sick newborns were often not taken to see a care provider for cultural reasons. Caretakers' willingness to take their sick newborns to health facilities and their awareness of its benefits is increasing rapidly. The CB-NCP may have contributed to this change by reinforcing the need to prioritize health care for mothers and neonates.

The CB-NCP has committed significant resources to training and equipping FCHVs to provide case management for key newborn conditions. The evidence from this assessment is that most caretakers prefer to receive those services from health facilities and more highly trained health workers. The rationale for strong community-based approaches is changing in much of Nepal, and the value of FCHVs' engagement as health care providers may be decreasing, depending on the district. These findings lead to the conclusion that the CB-NCP may be significantly more effective if it strengthens future efforts to increase the skills and capabilities of health workers to better perform case identification and management and limits the role of FCHVs to information dissemination, counseling and performing follow-up visits.

Changing role of FCHVs

What is the most appropriate role of FCHVs in districts where clients are increasingly going directly to health facilities or other providers for health care? It would be easy to state that FCHVs have not been very effective in the CB-NCP pilot districts. This conclusion, however, assumes that FCHVs have not played a role in motivating caretakers to seek care from facilities and more highly trained providers—an assumption that is almost certainly inaccurate. Depending on the district and the health issue, FCHVs provide services that can be placed on a continuum between health care provider and health motivator. It would be a mistake to assume that one role is appropriate for all FCHVs across Nepal—just as it would be a mistake to assume that FCHVs do not have an important role in the CB-NCP. Flexibility is called for in determining the most effective role for FCHVs, and that role will most certainly vary by district.

How well have the key CB-NCP approaches worked?

Some very important aspects of the CB-NCP do not appear to be performing well. Very little impact has been made in identifying and managing birth asphyxia, especially by FCHVs. Newborns are mostly weighed in facilities, but neither health facility staff nor FCHVs have been very effective in identifying low birthweight newborns. Caretakers seek care for sick newborns—but they prefer to take their newborns to health facilities and there is little evidence to suggest that the care they receive is of adequate quality. FCHVs have trouble capturing births and being scheduled for activities such as attendance of home deliveries or PNC on specific days. These findings suggest that some of the most basic strategies of the CB-NCP need to be reconsidered and revised.

Approaches to programming

The CB-NCP was developed in the center and implemented in all districts through a one-size-fits-all approach to programming. Modifications to the CB-NCP content or approach were not allowed. This assessment has raised the question: what programming approach is most appropriate when needs between districts may call for very different approaches? When is district-level planning from a menu of options preferable to a centrally-designed package? Findings from this assessment suggest that taking a more flexible approach to programming—in the form of tailoring the programming approach by district to meet local needs—will allow the CB-NCP to achieve maximum effectiveness.

Informing the CB-NCP

Substantial resources have been devoted to monitor and evaluate the CB-NCP. It appears that the effectiveness of these efforts has been sub-optimal. CB-NCP monitoring data could have been more useful and more effectively used, especially given that the CB-NCP was supposed to be implemented as a pilot (during which monitoring data are usually carefully collected and used to revise program strategies and inform program management). It is time to ask questions about the type of monitoring system that would be most appropriate and effective in a scaled-up CB-NCP. Just how valuable will

an independent system such as the NHIS be following the pilot? Why continue to monitor components that do not function (e.g., birth asphyxia at FCHV level) or clearly work well (e.g., BPP counseling)? And perhaps most importantly, why continue to use the monitoring system to calculate incentive payments, given the negative consequences of this approach that have been documented in this report? There will be a variety of opinions regarding what should be done with the NHIS as the CB-NCP moves forward, but leaving it "as is" should not be an option.

Moving forward with the CB-NCP

How should the government and its partners move forward with the CB-NCP? This report has not presented specific recommendations in this regard, but effective conclusions should lead to recommendations. CB-NCP program managers need to consider how to proceed with the planned scale-up of the CB-NCP into new districts as well as whether and how to revise the CB-NCP in existing districts. Should the scale-up of the CB-NCP continue at its current pace—and if so, should the scale-up be based on the current model or on a revised model? Or should the scale-up perhaps be suspended, while managers first revise the program model and strategies, and then return to districts where CB-NCP is currently being implemented and introduce the revised model—and only then continue with the scale-up? Which CB-NCP interventions should be added / dropped / modified / maintained, both in districts where CB-NCP is currently operational, as well as in districts where CB-NCP is introduced in the future? All of these questions need to be addressed.

The overarching conclusion from this report is that the core interventions that are specifically focused on reducing newborn mortality and are unique to the CB-NCP—low birthweight management, birth asphyxia management, management of sick newborns, and management of hypothermia—are most likely not achieving a meaningful impact on newborn mortality. This clearly suggests that some of the basic content and strategies of the CB-NCP need to be revised immediately. It is similarly clear that the revised program content and strategies will need to be introduced retroactively in districts where CB-NCP is currently operational.

While some may argue that the scale-up of the CB-NCP should continue as planned, it must be realized that introducing the CB-NCP into new districts in its current form will almost certainly create the need for a subsequent effort to retroactively revise the CB-NCP shortly after having introduced it. There are significant advantages to be gained by revising the CB-NCP content and strategies first, and only then proceeding with the scale-up.

In the short and medium-term, a reduced emphasis on rapid scale-up—coupled with renewed attention towards improving the quality of programming and implementation in districts where the CB-NCP is currently being implemented—should lead to improved health and survival for the newborns of Nepal.

Annex 1

Terms of Reference for the CB-NCP Assessment

TERMS OF REFERENCE

ASSESSMENT OF COMMUNITY BASED NEWBORN CARE PACKAGE

(DRAFT-JUNE 16 2011)

Background

There have been significant improvements in the health status of children and women in Nepal. With continued support of multiple donors and partners, Government of Nepal has been successfully able to develop and implement high-impact, community-based interventions as a result of which, there has been a drastic reduction in child and infant mortality rates. Since 1996 till 2006, child mortality has decreased from 118 deaths per 1000 live births to 61 deaths per 1000 live births, and infant mortality from 79 deaths per 1000 live births to 48 deaths per 1000 live births. However, owing to high neonatal deaths, which were 53 per cent of under-five mortality in 2006, Ministry of Health and Population and partners developed a community-based newborn care package which addressed 3 major causes of newborn deaths. The package was piloted in 10 districts in 2009/10.

Purpose and use

The proposed assessment aims at strengthening the on-going and future CB-NCP programmes by systematically generating and disseminating evidence on CB-NCP experiences. The assessment will utilize data from 10 districts through the use of both qualitative and quantitative information related to inputs, processes, outputs, outcomes (including adherence to global standards and quality of services), coverage and scaling up options. The lessons and recommendations from the assessment will be used by national governments, UN agencies, donors, I/NGOs for strengthening existing programmes as well as for advocating for leveraging resources for effective CB-NCP strategies and interventions in new districts.

Objectives

The objectives of the of the CB-NCP assessment are as follows:

- To document and review the evolution of CB-NCP and asses packaging of interventions, implementation modality , training approach, incentive and monitoring of the program in terms of Input, Process and output.
- To assess each components of the program in pilot districts in term of coverage and quality of care.
- To assess the management of the program planning and implementation process.
- To document experiences from implementing partners and stakeholders regarding strength, good practices, missed opportunities and suggestion for implementation

Assessment Scope and focus

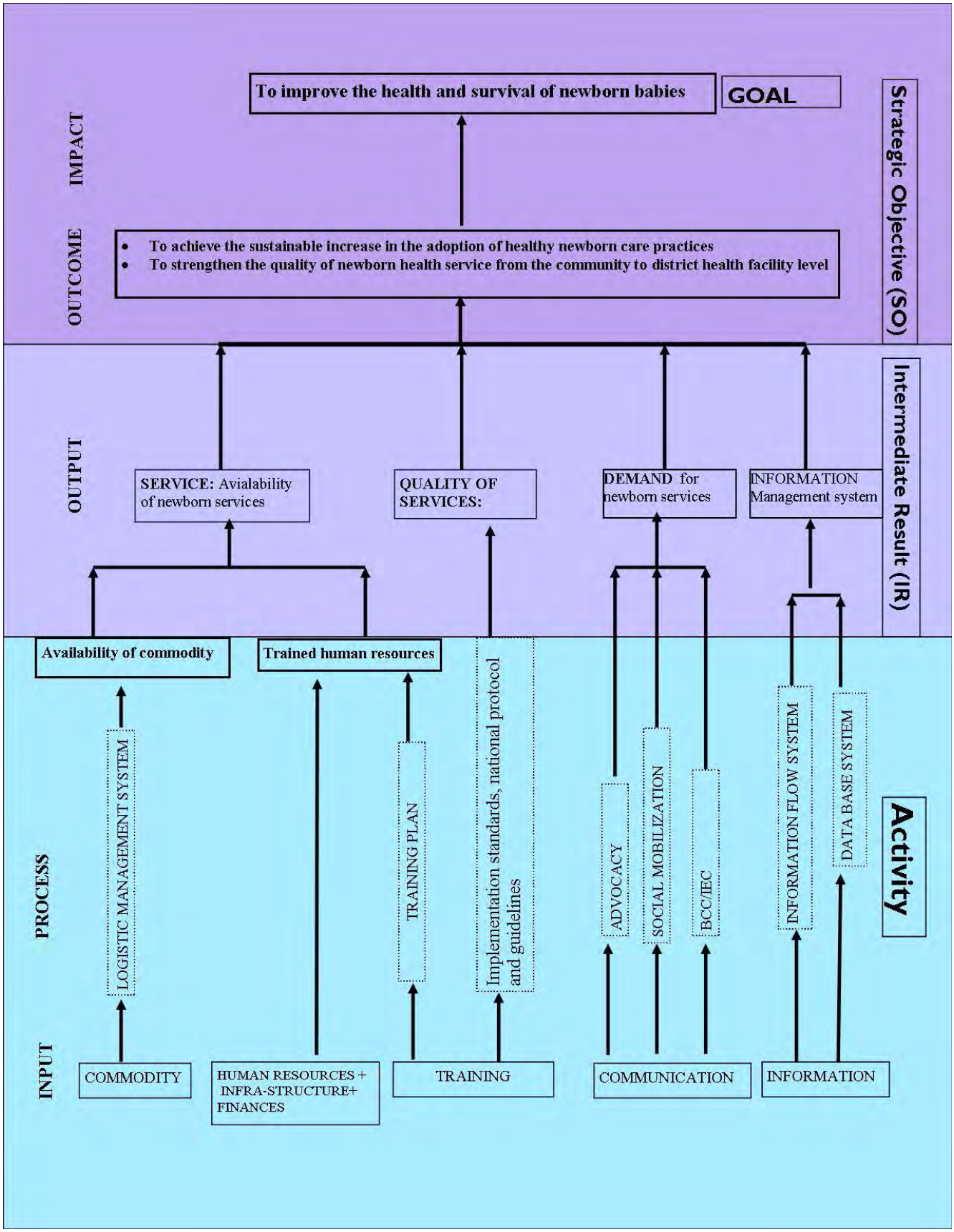
The primary focus of the assessment is to examine overall CB-NCP programme planning, implementation process and results and to generate forward looking lessons and recommendations for effective implementation and strengthening of CB-NCP in new districts. The assessment will focus on 10 pilot-districts where CB-NCP was initially piloted but will also collect detailed information from selected (about 5) districts with varying implementation modality.

The assessment will examine processes and results related to all key components of CB-NCP and will generate evidence on "what works well" and "what does not work". The assessment will cover all components of the CB-NCP : community mobilization/awareness creation, counseling on birth preparedness, promotion of institutional delivery, essential newborn care practices, case detection, management modality (Birth Asphyxia, Possible severe infection, low birth weight, hypothermia etc.), and post-natal follow up processes (i.e., early Postnatal home visits). The assessment will also examine policy and programmatic aspects as well as management modalities and make recommendations to strengthen these aspects.

The assessment team is expected to visit 5 districts representing all geographic regions, partner agencies, modalities of implementation.

More specifically, the evaluation will apply the following logical/results framework to review program performance across various levels.

Figure 1. Logical/Results Framework for CB-NCP (Source: Comprehensive Monitoring and Evaluation Plan, Government of Nepal, Ministry of Health and Population, 2008)



Programme inputs and processes

Information on programme inputs and processes will be collected through a combination of document reviews and qualitative interviews with program implementers and target communities.

Commodities:

Evaluation Questions	Data sources
• What is the Logistics system for the program - supply list, procurement, distribution, stock out /over and forecasting? • How has the logistic for program been managed and what were the strengths, challenges, modification as required? • How effective are logistic management and supervision and monitoring (internal and external support)?	Program Management guide review Partner logistic records In-depth interviews with program managers, district staff, MCHW/VHWs and FCHVs

Human Resources and Infrastructure and Finances:

Evaluation Questions	Data sources
• What is the supervision system for the program – frequency, types, documentation, quality, tools, feedback system? • What is design of performance based incentive for FCHV-policy, distribution process, effect on other programs, commitment, future? • What is CB NCP related performance of district manager supervisor and health worker as per roles and responsibility? • What are the human resource issues (trained and untrained external support, locally hire, retention, transferred)? • What has been the effect of program in local capacity building and ownership?	Program Management guide review Partner records on supervision and incentives In-depth interviews with program managers, district staff, MCHW/VHWs and FCHVs

Training:

Evaluation Questions	Data sources
• What is the Training strategy –duration, types of trainers, availability of training materials, methodology, Follow up after training, trainers to participants ratio? • How has the training been implemented? Has the recommended methodology been followed and what were the strengths challenges, and modification as required? • Has the post-training maintaining activity been done and what were the strengths, challenges, modification as required? • How have the training packages for different cadres been implemented and what were the strengths, challenges, modifications required?	Review of training guides and protocols Partner records on training and follow-up after training In-depth interviews with program managers, district staff, MCHW/VHWs and FCHVs

Communication:

Evaluation Questions	Data sources
• What is the communication strategy? Approaches for advocacy, social mobilization and BCC? What were they key messages and what materials were developed? • How has the communication strategy been implemented across the districts? What worked well? What approaches were less successful and why? • Have the messages been received by families? Have the FCHVs been conducting monthly meetings with mothers? • What changes should be made, if any, to the communication strategy and materials going forward?	Review of communication materials and protocols Partner records on advocacy, social mobilization and BCC In-depth interviews with program managers, district staff, MCHW/VHWs, FCHVs and community members

Information:

Evaluation Questions	Data sources
• What is the strategy for information management? Core components, data flow system, database? • How has the monitoring and information flow for the program managed and what were the strengths, challenges and modification as required? • What has been the situation of information management (timely reporting data management) financing (incentive distribution)? • Does the monitoring system provide the information required for program management? For example, does it allow us to differentiate between cases referred by FCHVs and those seen directly at HF or by VHW/MCHW? If merged, how do we know the outcomes for FCHV referred cases? • What other gaps exist in the information management system and what should be changed going forward?	Review of information management materials and protocols Partner records on monitoring and evaluation Database review In-depth interviews with program managers, district staff, MCHW/VHWs and FCHVs

Cross-cutting Inputs and Processes:

Evaluation Questions	Data sources
• How has planning for program at district and sub-district level been done and what were the strengths, challenges, modification required? • How has the stakeholder been involved in the program planning and implementation and done and what were the strengths, challenges modification as required • What was the cost of implementation of program (planning, training, materials , monitoring)logistic, FCHV's incentives? What is the cost per intervention component?	Review of planning documents Review of expenditure records In-depth interviews with program managers, district staff, MCHW/VHWs and FCHVs

Program Output (Intermediate Results)

Output 1. Service: Availability of Newborn Services

Evaluation Questions	Illustrative Indicators	Data sources
What is the availability of health workers trained in CB-NCP?	# and % of FCHVs, MCHWs and VHWs trained in CB-NCP Density of FCHVs trained in CB-NCP % of trained FCHVs who are providing newborn services	Training records Monitoring and supervision records Follow-up after training
What is the logistic stock situation of key CB NCP commodities at health facility and community level?	% of FCHVs with required supplies on the day of supervision % of MCHWs/VHWs with required supplies on the day of supervision % of health facilities with required supplies on the day of supervision	Monitoring and supervision records Follow up after training Distribution records
What is rate of FCHV capture for birth, low birth weight, infections and birth asphyxia?	# and % of expected pregnancies registered by FCHVs # and % of expected live births registered by FCHVs # and % of expected cases of LBW babies identified by FCHVs # and % of expected cases of sick newborns identified by FCHVs # and % of expected cases of asphyxia identified by FCHVs	Monitoring and supervision records Follow up after training

Output 2. Quality of Services

Evaluation Questions	Illustrative Indicators	Data sources
What is the competency of FCHVs, Community Health Workers and Health Workers in CB-NCP skills and knowledge?	% of FCHVs/CHWs who know: at least 2 newborn danger signs; 4 ENC messages; and at least 2 maternal danger signs during delivery and post-natal period % of FCHVs/CHWs who could state correct dose of Cotrim P for both age groups % of FCHVs/CHWs who could state correct steps to manage birth asphyxia % of FCHVs/CHWs who could state correct steps to manage LBW/VLBW babies % of FCHVs/CHWs who demonstrate skin-to-skin position	Follow-up after training Supervision records
What is supervision coverage?	% of FCHVs/CHWs who received a supervision visit in the last 3 months	Follow up after training CB-NCP monitoring data

Output 3. Demand for Newborn Services

Evaluation Questions	Illustrative Indicators	Data sources
Have mothers been reached with messages on maternal and newborn health? Do they recall the messages?	% of mothers who have heard one or more key messages on newborn health in the last 12 months % of mothers who report counseling from an FCHV during pregnancy % of mothers who know at least 2 newborn danger signs	Household survey Qualitative interviews with mothers and community members
How active are FCHVs in supporting community groups and promoting maternal and newborn care?	% of FCHVs who have participated in a mother's group meeting in the last 3 months	Follow-up after training In-depth interviews with FCHVs
Do mothers seek newborn services from FCHVs and CHWs? How are these services perceived by mothers?	% of mothers who report seeking care for a sick newborn from an FCHV and/or CHW	Household survey Monitoring records Qualitative interviews with mothers and community members

Output 4. Supportive Information Management System

Evaluation Questions	Illustrative Indicators	Data sources
How properly is the recording & reporting handled at the community and facility level? What is the reporting rate? How timely is reporting?	% of FCHVs submitting monthly monitoring data % of FCHVs with an updated register of pregnant women (in last 3months) % of health facilities submitting reports on CB-NCP on time	Follow up after training CB-NCP monitoring data Register reviews and interviews with FCHVs
How are data being used at various levels? Is the information from the monitoring system perceived to be timely, reliable and useful for supporting program implementation?	% of district health managers who report using CB-NCP data to support program implementation % of health facilities that show evidence of CB-NCP data use	In-depth interviews with program managers, district managers, and health facility staff Review of monitoring records at health facilities and district level

Program outcomes: by specific components

Components	Indicators	Data sources
Behavior Change and Communication (BCC) for improving newborn health		
Improvement in awareness about maternal and neonatal health among both health staff (including FCHVs) and clients (mothers)	% Change in knowledge on ENC and birth preparedness of both FCHV and mother	Baseline and endline survey Follow up after training
Improvement in key behaviors on which mothers receive counseling	% Change in behavior for ENC and birth preparedness of both FCHV and mother	Baseline and endline survey Follow up after training
Promotion of institutional and clean delivery practices		
Increase in institutional deliveries above and beyond the background trend	% Change in health institution delivery	Baseline and endline survey CB-NCP monitoring data
Attendance of FCHVs during home deliveries? What are the factors that affect this	% change in attendance of FCHV during home delivery	Baseline and endline survey CB-NCP monitoring data
Change in clean delivery practices (use of CDK in particular)	% change in behavior for clean delivery practice % of home deliveries where a CDK was used (and change over time)	Baseline and endline survey
Change in the ANC1 and ANC4 rates? Are FCHVs able to counsel to improve the HF ANC visits?	% change in ANC1 and ANC2 % change in counseling from FCHV for ANC	Baseline and endline survey Health facility records
Postnatal care (home-visits)		
Change in the timing and frequency of postnatal coverage from FCHV according to the schedule	% change in proportion of newborns receiving postnatal visit by FCHV within 2 days of delivery % change in frequency of postnatal visit by FCHV (receiving 3 visits in first week after delivery)	Baseline and endline survey CB-NCP monitoring data
How effective are these visits with regard to identifying problems requiring referral, ensuring compliance with best practices for newborn care (e.g. early initiation of breastfeeding)	% of infected cases who compiled to visit health facility or CHW after referral from FCHV % of VLBW babies who complied to go to district hospital after being referred by FCHV	Baseline and endline survey CB-NCP monitoring data Register reviews Follow-up study of referred cases

Components	Indicators	Data sources
Community case management of neonatal infections		
Is the prevalence of neonatal infection within the expected range?	% of newborn with infection % of newborns with infection identified by FCHVs	Baseline and endline survey CB-NCP monitoring data
Proportion of cases being appropriately assessed, with correct use of the algorithm? Has the algorithm (adapted to be more in line with IMCI—and thus changed from Morang/MINI) resulted in over diagnosis? What signs are the most commonly reported, and are these consistent with the findings from MINI and other estimates?	% of infected newborn assessed by FCHV using the algorithm Distribution of newborn danger signs identified by FCHVs	CB-NCP monitoring data Special study (observation of FCHVs and follow-up of sick child cases)
Is referral effective—are mothers responding?; Are cases receiving Gentamicin?; Is there discrepancy between FCHV assessment and HF staff assessment?—and if so is this appropriate or risky; are cases receiving complete Gentamicin treatment?—and is this data reliable?	% of infected newborn who received Gentamicin % of infected newborn who received complete dose of Gentamicin	Baseline and endline survey CB-NCP monitoring data Special study (observation of FCHVs and follow-up of sick child cases) Interviews with health facility staff
What has been the response from VHW /MCHW/ ANM with regard to the daily need for Gentamicin administration? How has this been done—through home visits, through negotiated intermediate location, at HF? Have mothers been happy with these arrangements, and are they responsive?	N/A	FGD and in-depth interview with health providers and community members
Does the monitoring system allow us to differentiate between cases referred by FCHVs and those seen directly at HF or by VHW/MCHW? If merged, how do we know the outcomes for FCHV referred cases?	N/A	Data review
Care of low birth weight newborns		
Prevalence of LBW identified within an expected range? Are LBW babies receiving extra care?	% of newborn who were low birth weight % of LBW newborns identified by FCHVs % of LBW newborns receiving extra care	Baseline and endline survey CB-NCP monitoring data
Are scales being used effectively and accurately? Is it necessary to 'zero'	% of FCHV who can correctly demonstrate the weighing using	Follow up after training

Components	Indicators	Data sources
scales—or is this step too complicated? Is the timing of weighing recorded accurately—thus providing an accurate 'birth' weight (or are cases weighed later than 3 days, confusing the prevalence)?-	Salter scale % of newborns weighed by an FCHV within 3 days	Baseline and endline survey
Prevention and management of hypothermia		
Are hypothermia cases being identified? Is this by feel, or using the thermometer?	% of newborn with hypothermia detected by FCHVs	CB-NCP monitoring data Interviews with FCHVs
How comfortable are we that thermometers are being used correctly by FCHVs?	% of FCHV who can correctly demonstrate use of thermometer	Follow up after training Interviews with FCHVs
What care do babies with hypothermia receive?	% of newborns with hypothermia who referred	CB-NCP monitoring data Interviews with FCHVs Special study
Recognition of asphyxia initial stimulation and resuscitation of newborn baby		
What % of FCHVs identifying birth asphyxia? What is the risk of loss of skills if an FCHV only sees 1 or 2 cases a year?	% of FCHV identifying birth asphyxia	CB-NCP monitoring data Follow-up after training Interviews with FCHVs
Among identified birth asphyxia cases, what % respond to stimulation alone? Does this have implications for future scale-up and provision of bag and mask?	% of asphyxia cases managed by FCHVs with early stimulation % of FCHVs who have used bag and mask in last 3 months?	CB-NCP monitoring data Follow-up after training (register review) Interviews with FCHVs Special study
Do we know anything about the timing of asphyxia management, and whether other activities conflict with appropriate identification and management of asphyxia (e.g. weighing or taking temperature)?	N/A	In-depth interviews/FGDs with FCHVs
Are skills in using De-Lee suction and Bag and Mask devices maintained? Are there any episodes of adverse effects from their use?	% of FCHV who can correctly demonstrate use of DeLee Suction and Bag and mask	Follow up after training Special study

Other Related Questions

Evaluation Question	Data Sources
In districts where other innovations have been (or are going to be) introduced, has there been any interplay between CB-NCP and these vertical programs? (Miso, NBVAS, CHX) Does the experience with CB-NCP offer any logical approach for easy incorporation of the innovations to be scaled up?	In depth interview Document review
Following the introduction of CB-NCP, have the key interventions done during formal ANC visits improved (e.g. TT, iron/folate, de-worming, and anemia and BP assessment, examination…)	In depth interview Monitoring data
Based on review of danger signs, does CB-NCP help improve the identification of risk from pre-eclampsia/eclampsia? What is the reaction of mothers to danger signs related to this risk, and can the community component help reduce this risk?	In depth interviews and FGD Monitoring data
How have incentives affected the activities of FCHVs—for example with regard to prioritization and time taken with incentivized vs. non-incentivized components?	In-depth interviews and FGD Monitoring records
Has the incentive program affected data quality? Are regular data quality audits needed?	Verification of the endline survey data with monitoring data In-depth interviews

Assessment approach and methods

Given the multi-dimensional focus of the assessment, a multitude of methods will be used for information generation combining document review, interviews, field observation visits, and surveys as follows.

a) **Review of secondary data and documents**: A list of relevant documents together with electronic copies of key documents will be shared with the assessment team during the inception phase. In addition, programme managers will provide data that are readily available from various sources. The data will be reviewed and analysed to determine the need for additional information and finalisation of the detailed evaluation methodology. These documents include, but are not limited to:

   i. CB-NCP monitoring plan (2008)
   ii. Baseline study reports
   iii. CB-NCP monitoring data (HMIS and special studies)
   iv. Mid-term review documents
   v. Partner routine reports on training, logistics, communication, etc
   vi. Endline study reports (qualitative and quantitative)

b) **In-depth Interviews with key informants**: Interviews will be conducted at several levels and in phases. A few key staff from the national, regional and district level will be interviewed during the initial phase. In the following phase, interviews will be conducted with additional experts and staff including local level personnel involved in managing and supporting the CB-NCP programme. Additional interviews will be conducted with policy makers and programme coordinators involved including sub-national level staff, supporting

agency representatives , programme managers and advisors at various level. Interviews will also be held with other staff of agencies who contribute to and partner in CB-NCP programmes. The methods and tools for in-depth interviews will be developed by the reference group by the end of June.

c) **Field observation and focus group discussions** with health staff, participants/beneficiaries in the programme (CB-NCP service providers, CB-NCP decision/policy makers/NGOs, parents). When organising field visits and interviews, attention will be given to ensure gender balance, geographic distribution, representation of all population groups and representation of the stakeholders/duty bearers at all levels (policy/service providers/parents/community). The methods and tools for observations and focus group discussions will be developed by the reference group by the end of June.

d) There is no field level household survey or additional data collection efforts envisaged unless the team recommends the need for a survey is essential for the evaluation. If a survey or other data collections are justified, it will be budgeted separately.

Assessment management / Stakeholder participation

The evaluation will be co-funded by UNICEF, USAID, Save the Children and partners and managed by CHD. Assessment Advisory Group will provide overall guidance, Assessment Reference Group will oversee overall assessment and Consultant will collect, compile and analyze information as guided by this ToR and disseminate findings and results. A group of Nepali consultants will work together with 2-3 international consultants to accomplish this assessment. International consultants/experts will be hired directly by respective agencies.

Composition of the Advisory Team

- Director General, Department of Health Services
- Director, Child Health Division
- Director, Family Health Division

Assessment Reference Group

- Mr. Parashu Ram Shrestha – CHD
- Mr. Paban Ghimire – HMIS
- Ms. Mangala Manandhar – FHD
- Mr. Anil Thapa – M & E, MoHP
- Ms. Tanya Guenther – Save the Children
- Dr. Robin Houston – NFHP II
- Dr Sudhir Khanal – UNICEF
- Mr. Deepak Paudel – USAID
- Dr. Ashish KC – SC
- Mr. Sher Bahadur Rana – PLAN
- Ms. Nirmala Sharma – CARE
- Ms. Chandra Rai – Health Right International

Terms of reference of Assessment Reference Group

- Selection consultants
- Facilitate planning & conduction of assessment
- Coordination
- Provide require information for assessment team
- Sharing & dissemination with higher personnel/ authority
- Finalization of the assessment tools
- Financial management
- Over all monitoring of the process

Groups of Consultants for Assessment

There will be about 4-5 assessment consultants from following background:

- Health Economist
- Social scientist
- Neonatal & Child Health Expert
- Safe motherhood expert
- Statistician
- Public Health Expert

The international consultants (2-3) will have public health background focusing on maternal and newborn health preferably with a doctoral degree.

Timeline of the Assessment

Activities	Timeline
Form reference group	June 4, 2011
Finalization of ToR- Dr. Ashish will prepare draft	June 2nd week
Briefing to senior officials	June 2nd week
Circulation of ToR & selection of consultant	3/4th week of June
Preparation of detailed methodology and data collection tools for additional data collection in the selected districts (in-depth interview guides, FGD guides, other special tools as required)	3/4th week of June
Desk review, field data collection, in-depth interviews of the stakeholders at the district, facility and community levels	July
Data consolidation and analysis (starting with existing data in July; new data in August)	July/August
Consolidation of preliminary findings and report writing	September
Dissemination of the findings and identification of next steps	September

Matrix of M&E data available for evaluation by district and type of data

Data Source	Description	Name of district and supporting partner									
		Doti	**Bardiya**	**Dang**	**Palpa**	**Chitwan**	**Kavre**	**Parsa**	**Sunsari**	**Morang**	**Dhankuta**
		CARE Nepal	Save the Children	UNICEF/ IRHDTC	GoN	UNICEF /PHD Group	UNICEF/ Makalu Health Academy	Plan Nepal	Plan Nepal	GoN	IDF, INFO/AIDS SCF
Survey data - baseline											
Household survey	Representative household survey (30 clusters per district) of women who have given birth in last 12 months to either a live birth or a still birth of 7 or more months gestational age. Survey provides data on knowledge, practices and coverage of maternal and newborn services and practices. Same methods and tools used in 6 districts, for a total of 3,660 women; LQAS methods used in Parsa and Sunsari	☐ 2009; N=900	☐ 2009; N=630	☐ 2009; N=600	☐ 2009; N=600	☐ 2009; N=600	☐ 2009; N=600	☐ LQAS Jan 2008 N=?	☐ LQAS Jan 2008 N=?		☐ 2009; N=630
Health worker interviews	Semi-structured interviews with MCHWs, VHWs, and FCHVs to assess			☐ 2009; N=16	☐ 2009; N=16	☐ 2009; N=16	☐ 2009; N=16				

Data Source	Description	Name of district and supporting partner									
		Doti	**Bardiya**	**Dang**	**Palpa**	**Chitwan**	**Kavre**	**Parsa**	**Sunsari**	**Morang**	**Dhankuta**
		CARE Nepal	Save the Children	UNICEF/ IRHDTC	GoN	UNICEF /PHD Group	UNICEF/ Makalu Health Academy	Plan Nepal	Plan Nepal	GoN	IDF, INFO/AIDS SCF
	coverage of newborn services at community level and referral services (Total of 65 interviews in 4 districts)										
Health facility assessment								☐	☐		
Survey data - mid-term/during implementation											
Household survey ('Validation study')	Sample of 600women (30 clusters of 20) who had delivered in the last 6 months interviewed using similar questionnaire as at baseline. Purpose of survey was to validate service delivery data reported by FCHVs and to explore changes since		☐ 2010; N=600								

Data Source	Description	Name of district and supporting partner									
		Doti	**Bardiya**	**Dang**	**Palpa**	**Chitwan**	**Kavre**	**Parsa**	**Sunsari**	**Morang**	**Dhankuta**
		CARE Nepal	Save the Children	UNICEF/ IRHDTC	GoN	UNICEF /PHD Group	UNICEF/ Makalu Health Academy	Plan Nepal	Plan Nepal	GoN	IDF, INFO/AIDS SCF
	baseline. Preliminary findings shared at mid-term; analysis on-going to directly match FCHV record with maternal interviews that will be ready in June 2011										
Follow-up after training	Dual purpose for survey: 1) reinforce knowledge and skills covered in training; and 2) Assess capacity of health facilities and health workers to deliver maternal and newborn services. Data are collected from all health facilities in a district and from approximately ~10% of FCHVs, usually within the first few months following training. Tools include structured interviews to assess knowledge, a skills	☐ 2010; N=X HFs; X HF staff; X MCHW/ VHWs and X FCHVs	☐ June 2010; N=33 HFs; 63 HF staff; 32 MCHW/VHWs and 92 FCHVs	☐ 2010; N=X HFs; X HF staff; X MCHW/VHWs and X FCHVs		☐ 2010; N=X HFs; X HF staff; X MCHW/VHWs and X FCHVs	☐ 2010; N=X HFs; X HF staff; X MCHW/VHWs and X FCHVs	☐ 2010; N=X HFs; X HF staff; X MCHW/ VHWs and X FCHVs	☐ 2010; N=X HFs; X HF staff; X MCHW/ VHWs and X FCHVs		

Data Source	Description	Name of district and supporting partner									
		Doti	**Bardiya**	**Dang**	**Palpa**	**Chitwan**	**Kavre**	**Parsa**	**Sunsari**	**Morang**	**Dhankuta**
		CARE Nepal	Save the Children	UNICEF/ IRHDTC	GoN	UNICEF /PHD Group	UNICEF/ Makalu Health Academy	Plan Nepal	Plan Nepal	GoN	IDF, INFO/AIDS SCF
	observations checklist, and checklist for equipment and supplies. A small number of caretakers are also interviewed at each health facilities.										
Other?											
Survey data - endline											
Household survey	Repeat of baseline study with additional questions on exposure to intervention (to capture home visits by FCHVs during pregnancy, presence during delivery, post-natal home visits, treatment from FCHV, etc)		☐ May 2011; N=~630 Draft report June 2011								
FCHV competency assessment	Interviews with and observations of approximately 190 randomly sampled		☐ **June** 2011; N=~190								

Data Source	Description	Name of district and supporting partner									
		Doti	**Bardiya**	**Dang**	**Palpa**	**Chitwan**	**Kavre**	**Parsa**	**Sunsari**	**Morang**	**Dhankuta**
		CARE Nepal	Save the Children	UNICEF/ IRHDTC	GoN	UNICEF /PHD Group	UNICEF/ Makalu Health Academy	Plan Nepal	Plan Nepal	GoN	IDF, INFO/AIDS SCF
	FCHVs. Data collected include knowledge, skills (through case studies and role plays), availability of equipment and supplies, record reviews, and supervision coverage.		Draft report June 2011								
Focus group discussions with CB-NCP stakeholders	FGD with the following: FCHVs; mothers; mother-in-laws; traditional healers; traditional birth attendants; and community leaders (Total of 5 FGDs per stakeholder group). Topics covered include perceived quality of care provided by FCHVs, changes in newborn care practices, role of FCHVs in the community, accessibility of FCHVs, treatment		☐ May 2011; N=630 Draft report June 2011								

Data Source	Description	Name of district and supporting partner									
		Doti	**Bardiya**	**Dang**	**Palpa**	**Chitwan**	**Kavre**	**Parsa**	**Sunsari**	**Morang**	**Dhankuta**
		CARE Nepal	Save the Children	UNICEF/ IRHDTC	GoN	UNICEF /PHD Group	UNICEF/ Makalu Health Academy	Plan Nepal	Plan Nepal	GoN	IDF, INFO/AIDS SCF
	seeking for childhood illness, acceptability of incentives, FCHV workload, etc										
Monitoring data											
CB-NCP HMIS data on FCHV services	Monitoring data on birth registration and treatments provided by FCHVs and MCHWs/VHWs, aggregated at the health facility and entered into the CB-NCP HMIS system (CB-NCP Form 7)	☐ Months covered??	☐ Aug 2009 (Shrawan 2066) onwards	☐ Months covered??	☐ Months covered ??	☐ Months covered??	☐ Months covered??	☐ Months covered ??	☐ Months covered??	☐ Months covered ??	☐ Months covered??
CB-NCP birth registration and treatment data	All original birth registration and treatment forms (CB-NCP 2&3) completed by FCHVs collected and entered into SPSS database for analysis. Findings for 9 months (Shrawan 2066 to Chaitra 2066) covered >4000 births and 500 sick child		☐ Aug 2009 (Shrawan 2066) to May 2011 (X, 2068); draft results July 2011								

Data Source	Description	Name of district and supporting partner									
		Doti	**Bardiya**	**Dang**	**Palpa**	**Chitwan**	**Kavre**	**Parsa**	**Sunsari**	**Morang**	**Dhankuta**
		CARE Nepal	Save the Children	UNICEF/ IRHDTC	GoN	UNICEF /PHD Group	UNICEF/ Makalu Health Academy	Plan Nepal	Plan Nepal	GoN	IDF, INFO/AIDS SCF
	cases were presented at mid-term review; analysis of full dataset including >10,000 birth forms and >1,000 sick child cases to be conducted July 2011. Provides information on services provided by FCHVs, including management of asphyxia, identification of LBW babies, PNC home visits, treatment of babies with danger signs, referral, and neonatal outcomes at Day 29 (see mid-term presentation)										
Supportive supervision records	All original supportive supervision records for health facilities, MCHWs, VHWs, and FCHVs were collected and entered into an SPSS database. Will		Jan 2010 to May 2011; draft results July 2011								

Data Source	Description	Name of district and supporting partner									
		Doti	**Bardiya**	**Dang**	**Palpa**	**Chitwan**	**Kavre**	**Parsa**	**Sunsari**	**Morang**	**Dhankuta**
		CARE Nepal	Save the Children	UNICEF/ IRHDTC	GoN	UNICEF /PHD Group	UNICEF/ Makalu Health Academy	Plan Nepal	Plan Nepal	GoN	IDF, INFO/AIDS SCF
	provide information on supervision coverage, availability of supplies and equipment, and knowledge over time as well as by individual providers. Draft findings available in July 2011										
Other?											
Special studies											
Special kids follow-up study	Newborns with asphyxia, LBW, or other danger signs identified through FCHV monitoring records and followed up with a caretaker interview to understand risk factors, treatment and outcomes as well as the perception of the mother with the care provided. Interviews with FCHVs also		☐ Jan 2010 **to May 2011;** N=>270 cases								

Data Source	Description	Name of district and supporting partner									
		Doti	**Bardiya**	**Dang**	**Palpa**	**Chitwan**	**Kavre**	**Parsa**	**Sunsari**	**Morang**	**Dhankuta**
		CARE Nepal	Save the Children	UNICEF/ IRHDTC	GoN	UNICEF /PHD Group	UNICEF/ Makalu Health Academy	Plan Nepal	Plan Nepal	GoN	IDF, INFO/AIDS SCF
	conducted to understand their perceptions of care provided.										
Costing study			☐								

Annex 2

Summary table of results from HMIS analysis

#	District	I-C	B-A	Time period	Indicator (%)											
					1 ANC	4 ANC	Fe supplementation	Facility delivery	Delivery by SBA/HW	Delivery by SBA	PNC visit	PP mother get VA	PSBI among <2m	LBI among <2m	LBW among <2m	Any case among <2m
1	Morang	I	B	4/2064-3/2067	63.7	33.2	79.7	24.3	28.0	25.2	43.7	52.8	2.4	2.9	0.4	6.8
		I	A	4/2067-9/2068	79.9	39.5	73.0	47.1	48.0	47.3	74.9	81.5	1.5	1.9	0.3	5.2
	Jhapa	C	B	8/2007-7/2010	86.6	41.1	69.5	27.3	36.0	28.6	43.8	43.8	0.3	1.5	0.3	2.1
		C	A	8/2010-1/2012	87.0	53.8	77.1	54.2	57.9	48.3	45.2	52.0	0.2	1.4	0.4	2.1
2	Sunsari	I	B	4/2064-10/2066	63.7	36.0	60.0	40.3	49.6	44.0	52.7	70.9	0.6	1.4	0.3	2.8
		I	A	11/2066-9/2068	79.8	42.6	70.1	59.8	61.2	60.0	65.5	85.3	1.2	1.9	0.8	4.7
	Udayapur	C	B	8/2007-2/2010	60.4	29.1	58.7	7.5	14.8	7.9	29.9	34.8	0.3	1.4	0.3	2.0
		C	A	3/2010-1/2012	70.1	41.7	59.7	16.1	24.1	16.5	39.8	43.5	0.4	2.1	0.3	4.2
3	Dhankuta	I	B	4/2064-3/2067	54.5	29.0	49.6	7.4	16.6	9.0	37.4	41.6	0.7	1.3	0.3	2.9
		I	A	4/2067-9/2068	58.7	34.3	52.2	11.4	19.0	11.8	41.6	45.0	0.9	2.8	0.8	6.6
	Sindhuli	C	B	8/2007-7/2010	52.1	23.5	80.0	9.8	33.0	16.5	33.8	39.8	0.3	0.3	0.1	0.7
		C	A	8/2010-1/2012	51.7	22.8	60.0	13.9	27.0	15.3	35.4	45.2	0.3	0.7	0.1	1.2
4	Kavre	I	B	4/2064-3/2067	68.7	35.9	62.1	22.5	26.6	23.4	30.7	47.2	0.3	0.7	0.1	1.3
		I	A	4/2067-9/2068	67.5	36.9	49.3	27.4	29.5	27.8	35.4	42.4	0.3	0.8	0.1	2.3
	Lalitpur	C	B	8/2007-7/2010	98.5	26.1	45.9	52.7	55.0	50.5	55.3	58.9	0.0	0.1	0.1	0.4
		C	A	8/2010-1/2012	89.6	65.4	0.0	63.2	64.2	59.8	65.9	68.2	0.0	0.0	0.0	0.0
5	Parsa	I	B	4/2064-3/2067	57.4	36.3	97.8	24.6	47.6	26.4	42.6	60.8	0.1	0.1	0.0	0.1
		I	A	4/2067-9/2068	77.2	47.8	0.0	22.0	23.4	5.7	37.5	61.4	0.0	0.0	0.0	7.0
	Dhanusa	C	B	8/2007-7/2010	79.3	44.2	93.6	30.6	69.4	35.9	49.7	57.2	0.2	0.5	0.2	0.4
		C	A	8/2010-1/2012	95.9	46.6	35.2	40.6	75.1	42.7	52.0	59.1	0.4	5.0	0.1	1.9

#	District	I-C	B-A	Time period	Indicator (%)											
					1 ANC	4 ANC	Fe supplementation	Facility delivery	Delivery by SBA/HW	Delivery by SBA	PNC visit	PP mother get VA	PSBI among <2m	LBI among <2m	LBW among <2m	Any case among <2m
6	Chitwan	I	B	4/2064-3/2067	72.1	32.6	66.0	39.9	43.4	38.0	48.6	41.9	1.6	0.8	0.3	3.1
		I	A	4/2067-9/2068	91.8	46.7	60.8	45.6	47.4	46.1	56.3	29.8	0.8	1.4	0.2	7.1
	Makawanpur	C	B	8/2007-7/2010	51.6	24.3	60.8	12.7	14.8	13.0	29.4	42.1	0.3	0.7	0.1	1.1
		C	A	8/2010-1/2012	55.4	28.7	58.0	21.3	21.6	20.0	26.1	38.5	0.1	1.0	0.2	1.8
7	Palpa	I	B	4/2064-3/2067	88.8	34.3	66.2	22.6	29.9	24.3	42.8	61.9	0.1	0.6	0.3	1.3
		I	A	4/2067-9/2068	110.2	43.0	62.5	41.8	45.9	41.5	46.7	60.6	0.3	1.0	0.9	5.7
	Baglung	C	B	8/2007-7/2010	67.5	37.2	83.4	13.0	33.5	15.1	43.2	50.7	0.4	0.9	0.1	2.6
		C	A	8/2010-1/2012	72.7	44.1	73.8	22.9	39.7	23.9	48.2	50.0	0.6	2.3	1.0	4.4
8	Dang	I	B	4/2064-12/2066	74.5	37.1	76.8	22.1	26.5	22.9	44.9	52.2	0.4	1.5	0.3	2.5
		I	A	1/2067-9/2068	74.4	41.7	79.0	35.9	38.0	34.4	45.0	64.6	1.4	2.1	0.4	5.8
	Syangja	C	B	8/2007-4/2010	49.3	32.2	55.3	8.0	16.2	9.0	28.1	35.8	0.3	0.9	0.2	1.4
		C	A	5/2010-1/2012	63.2	42.2	58.2	14.4	19.3	14.3	28.9	43.3	0.1	1.0	0.1	1.7
9	Bardiya	I	B	4/2064-8/2066	79.6	48.8	80.3	12.7	19.8	14.1	40.8	49.5	1.2	1.8	0.4	3.4
		I	A	9/2066-9/2068	70.8	46.0	75.2	35.0	36.1	35.2	44.7	58.9	4.9	3.4	0.6	11.7
	Surkhet	C	B	8/2007-12/2009	100.8	50.1	100.9	26.2	38.0	26.2	51.7	75.9	1.2	2.3	0.5	4.8
		C	A	1/2010-1/2012	94.1	62.5	96.1	45.4	50.9	45.2	57.8	76.7	2.7	2.5	0.6	7.4
10	Doti	I	B	4/2064-3/2067	79.4	33.5	89.4	15.0	22.6	14.3	31.8	53.9	1.1	0.9	0.6	4.2
		I	A	4/2067-9/2068	105.1	48.2	105.1	37.3	42.4	35.3	53.6	75.5	1.5	1.8	0.6	8.4
	Kanchanpur	C	B	8/2007-7/2010	59.0	28.8	81.4	20.0	24.8	21.4	31.5	50.8	0.7	1.6	0.5	2.7
		C	A	8/2010-1/2012	64.9	39.1	74.3	37.1	38.7	36.7	38.2	57.4	0.8	2.9	0.4	4.2

#	District	I-C	B-A	Time period	Indicator (%)											
					1 ANC	4 ANC	Fe supplementation	Facility delivery	Delivery by SBA/HW	Delivery by SBA	PNC visit	PP mother get VA	PSBI among <2m	LBI among <2m	LBW among <2m	Any case among <2m
	All intervention	B	B-I		68.9	35.9	73.8	25.9	33.5	27.1	43.5	54.4	1.0	1.4	0.3	3.2
	All intervention	A	A-I		80.6	42.7	62.4	40.1	42.1	38.3	54.1	63.8	1.3	1.7	0.4	6.2
	All control	B	B-C		73.4	34.9	73.3	23.2	36.5	24.9	41.0	49.3	0.4	1.0	0.3	1.7
	All control	A	A-C		77.6	46.2	58.4	37.0	46.5	35.8	44.7	54.0	0.5	2.0	0.3	2.7
	Difference in intervention (A – B)				11.7	6.8	-11.5	14.1	8.6	11.2	10.7	9.4	0.3	0.3	0.2	2.9
	Difference in control (A – B)				4.1	11.3	-14.9	13.9	10.0	11.0	3.7	4.7	0.1	1.0	0.0	1.0
	Difference of differences				7.5	-4.5	3.4	0.3	-1.4	0.3	7.0	4.7	0.2	-0.7	0.1	2.0

Note: Time periods are the same within the 10 “district pairs”, one set in Nepali dates, the other set in Western dates. The key rows are the summary orange rows at the bottom, which are weighted by district population. I = Intervention, C = Comparison, B = Before, A = After.

Annex 3

Field Guides Used in the Qualitative Assessment of the CB-NCP

Qualitative Assessment of Community-Based Newborn Care Package

August-September 2011

Interview guide for District (Public) Health Officer

Note: The interview should be carried out with D(P)HO alone, in the absence of the NCP focal person and NGO focal person, in order to validate information from other interviews. If the D(P)HO is not available, you should interview the Acting D(P)HO. If you interview the Acting DPHO, this should be noted by the interviewer.

Introduction and consent:

Namaste! My name is (name). I am working on a study for the Ministry of Health and Population. We are part of a team that is assessing the Community-Based Newborn Care Program. We are gathering information that will be used to make this program more effective when the program is introduced in new districts. If you agree to participate in this interview, your name will not be used or included in any of the written materials that we produce. Your participation is voluntary and you can choose not to answer any particular questions during the interview. You may also stop the interview at any time. The interview will take around one hour. Do you agree to participate?

I would like to talk with you about the CB-NCP program, the way it has been implemented in this district and your thoughts and opinions on different aspects of the program.

Opening

1. How long has the CB-NCP program been implemented in this district? Have you been here from the start of the CB-NCP? (Probe: How long did it take to complete the training? When did district planning start? When was the last batch of FCHV training completed?
2. Please describe your current role in the implementation and monitoring of the CB-NCP. *(probe: what else do you do? How closely are you involved? How are you involved in monitoring the CB-NCP?)*

Planning

3. We are trying to understand more about how the CB-NCP was introduced in this district and how successful that approach was in making the DHO, the hospital and the communities accept ownership of the program. Can you please comment on how this process took place? *(probe: to what extent do the DHO / hospital / communities feel ownership of the CB-NCP? What is the best way to build "ownership" of the CB-NCP in other districts?)*
4. One of the key early activities in CB-NCP was to advocate for the program at the district level among key stakeholders. Please describe the advocacy-related activities that were conducted under CB-NCP at the district level. What feedback did you receive from other sectors about the CB-NCP program? *(probe: What worked well? What approaches worked less well and why?)*
5. Now I'd like to ask about the CB-NCP planning process:
   - How was the original district plan of CB-NCP made in this district?
   - What are the stages involved in such planning?
   - Who are the key stakeholders in the planning process?

- What are the strengths and challenges of the planning process? How can it be improved?

MIS

6. What are your overall observations on the CB-NCP MIS? *(probe: what are the strengths of the MIS? The weaknesses? What needs to be changed?)*
7. How do you use the information generated by the CB-NCP MIS to manage the CB-NCP program? How useful is the information from the CB-NCP MIS for program management?
8. Do you have any suggestions on how we can incorporate CB-NCP MIS into the IMCI-MIS and/or the HMIS? *(Probe: How long will we need a separate CB-NCP MIS? What information from the CB-NCP MIS should be incorporated into IMCI MIS or the HMIS?)*

FCHVs role in CB-NCP intervention

<u>Role of FCHVs and MCHWs in CB-NCP</u>

9. Under the CB-NCP, FCHVs have been expected to accompany women to health facility for delivery or be present at the time of delivery at home and provide **postnatal care (PNC)** at specific times. How is that effort going? *(probe: what are the some of the problems associated with it?)*
10. Under the CB-NCP, FCHVs have been trained to identify newborns who are **low birth weight (LBW)** and manage them. How is that effort going? *(probe: what are the some of the problems associated with it?)*
11. Under the CB-NCP, FCHVs have been trained to diagnose newborns with **severe bacterial infection (PSBI)**, give them Cotrim P and refer them to the HF for further treatment with Gentamicin. How is that effort going? *(probe: what are the some of the problems associated with it?)*
12. Under the CB-NCP, FCHVs have been trained to educate mothers and family members to prevent newborns from **hypothermia** and refer the hypothermic baby to the health facility to manage them. How is that effort going? *(probe: what are the some of the problems associated with it?)*
13. Under the CB-NCP, FCHVs are trained to identify and manage newborns suffering from **birth asphyxia (BA)** in home births. How is that effort going? *(probe: what are the some of the problems associated with it?)*
14. Now let's talk about VHWs and MCHWs.
    1. What are their new responsibilities under the CB-NCP?
    2. What is your view on how they are carrying out their new responsibilities?
    3. What could be done to make their performance of these tasks more effective?
    4. Have the new responsibilities added or decreased their credibility as health workers?

District hospital and the CB-NCP

15. Please comment on the linkages between the hospital and the HFs in this district with regards to the CB-NCP. *(probe: in what areas do they work well? How can they be strengthened?)*
16. To what extent are newborns being referred to the hospital by the FCHVs & health post staff? How is this referral system working? How the referral system should be strengthened?

Incentive

17. What is your general view on the CB-NCP incentive program?
18. How has the incentive scheme affected the activities of FCHVs, other HWs and HFs in general and in their commitment to work? *(probe: What type of effect has this incentive had on other non-incentivized programs that depend on FCHV involvement?)*
19. FCHVs receive an incentive based on information (data) that they report through the CB-NCP MIS regarding their CB-NCP activities. How has this affected the data? *(Probe: Reporting frequency, completeness, over-reporting?)*
20. A study that was conducted in one CB-NCP district found that FCHVs may have over-reported their performance for activities that are linked to incentives. To what extent do you think that might be occurring in this district? *(probe: why? why not?)*

Specific questions for Parsa and Doti

21. (**only for Parsa)** There is separate intervention in this district to apply CHX to the cord stump of newborns. Please comment on your experience in Parsa in conducting CB-NCP and the CHX intervention at the same time. From an implementation perspective, can the CHX intervention be easily incorporated within the CB-NCP, or is it better left outside?
22. (**only for Doti)** There is separate intervention in this district to provide misoprostol to women who are about to deliver. Please comment on your experience in Doti in conducting CB-NCP and the misoprostol intervention at the same time. From an implementation perspective, can the misoprostol intervention be easily incorporated within the CB-NCP, or is it better left outside?

Closing

23. Have other programs suffered or benefitted due to the CB-NCP program ? Is there any positive/ negative impact of CB-NCP on other programs like immunization, ANC, free delivery service, CB-IMCI, etc.? For example, has CB-NCP used a lot of human resources , or were other programs hampered by the long training duration of CB-NCP?
24. Has there been a spill-over effect of CB-NCP to the private sector, resulting in increased demand for service providers in their private clinics?
25. Overall, what are your observations on the CB-NCP program? *(probe: what are it strengths & weaknesses? What concerns do you have?)*
26. What should be changed as the CB-NCP is expanded into other districts?

Thank you for your time!!

Qualitative Assessment of Community Based Newborn Care Package

August-September 2011

Interview guide for the Hospital in-Charge

Introduction and consent:

Namaste! My name is (name). I am working on a study for the Ministry of Health and Population. We are part of a team that is assessing the Community-Based Newborn Care Program. We are gathering information that will be used to make this program more effective when the program is introduced in new districts. If you agree to participate in this interview, your name will not be used or included in any of the written materials that we produce. Your participation is voluntary and you can choose not to answer any particular questions during the interview. You may also stop the interview at any time.

The interview will take around XX hours. Do you agree to participate?

I would like to talk about the CB-NCP program, your opinion regarding the program, the way it has been implemented in this district and your thoughts on different aspects of the program.

1. How long has the CB-NCP program been implemented in this district? Have you been here from the start of the NCP?

Role of hospital in CB-NCP

2. Please describe the process through which you were informed about the NCP and involved in the initial planning for NCP in this district. *(probe: when were you first informed about NCP? What types of planning activities took place here?)*
3. Please describe your current role in the implementation and monitoring of the NCP. *(probe: what else do you do? How are you involved in monitoring the NCP?)*
4. How is the hospital currently involved in providing support to the NCP? *(probe: How is it going?)*
5. What has changed about your and the hospital's role providing newborn care following the introduction of NCP?
6. Now I would like to talk about the training provided for the NCP program in this district.
   i. What was the role of you and your staff in the training?
   ii. Please describe any training that you or your staff received for NCP. *(probe: What did you think of the training?)*
7. Please comment on the linkages between the hospital and the DHO in this district with regards to the NCP. *(probe: in what areas do they work well? How can they be strengthened?)*

Role of FCHVs and MCHWs in CB-NCP

8. Under the NCP, FCHVs and VHWs/MCHWs have been trained to (i) diagnose and manage hypothermia for home births, (ii) recognize birth asphyxia and provide resuscitation for home deliveries, (iii) identify low birth weight newborns and refer them, (iv) diagnose newborns with PSBI, give them Cotrim P and refer them to health facilities for further treatment, and (v) conduct postnatal visits and identify mothers and newborns with danger signs and refer them to health facilities.
   i. First let's talk about FCHVs. What is your view on how FCHVs are carrying out these new responsibilities? What could be done to make their performance of these tasks more effective?
   ii. Now let's talk about VHWs and MCHWs. What is your view on how they are carrying out these new responsibilities? What could be done to make their performance of these tasks more effective?
9. To what extent do you receive patients who have been referred to the hospital by the FCHVs & health post staff? What type of problems / complications do referred newborns have? How is this referral system working?

Closing

10. Overall, what do you think about the CB-NCP program? *(probe: what are it strengths & weaknesses? What concerns do you have?)*

Thank you for your time !!

Qualitative Assessment of Community Based Newborn Care Package
August-September 2011

Interview guide for D(P)HO CB-NCP Focal Person

Introduction and consent:

Namaste! My name is (name). I am working on a study for the Ministry of Health and Population. I am part of a team that is assessing the Community-Based Newborn Care Program. We are gathering information that will be used to make this program more effective when the program is introduced in new districts. If you agree to participate in this interview, your name will not be used or included in any of the written materials that we produce. Your participation is voluntary and you can choose not to answer any particular questions during the interview. You may also stop the interview at any time. The interview will take around two hours. Do you agree to participate?

I would like to talk with you about the CB-NCP program, the way it has been implemented in this district and your thoughts and opinions on different aspects of the program.

Opening

1. How long has the CB-NCP program been implemented in this district? Have you been here from the start of the CB-NCP?

2. Please describe your current role in the implementation and monitoring of the CB-NCP. *(probe: what else do you do? How closely are you involved? How are you involved in monitoring the CB-NCP?)*

CB-NCP commodities

3. How is the procurement and distribution of CB-NCP commodities managed in this district? *(probe: where do you order new supplies from?)*

4. What is the role (if any) of the supporting agency (I/NGO) in this district in the procurement, distribution, resupply, and stock maintenance of CB-NCP equipment and supplies?

5. What are the problems you have faced regarding obtaining and delivering supplies of CB-NCP commodities during the program? *(probe: if there are problems, what can be changed so that the CB-NCP logistics system is carried out more smoothly in the future?)*

CB-NCP supervision

6. Please describe the supervision system for CB-NCP. *(Probe: who supervises FCHVs? VHWs/MCHWs? how frequent are supervision visits? What tools do supervisors use?)*

7. What are the difficulties that supervisors face during supervision of CB-NCP?

8. How should the CB-NCP supervision system be strengthened or improved?

CB-NCP MIS

9. What are your overall observations on the CB-NCP MIS? *(probe: what are the strengths of the MIS? The weaknesses?)*

10. How do you use the information generated by the CB-NCP MIS to manage the CB-NCP program? How useful is the information from the CB-NCP MIS for program management?

11. What changes should be made to the CB-NCP MIS in order to strengthen it for scale up in other districts?

CB-NCP training

12. Now I'd like to ask you some questions about the CB-NCP training in this district.
    i. How well did the CB-NCP training go in this district? *(probe: what went well? Not so well?)*
    ii. How was the CB-NCP training different from other trainings? *(probe: for example, CB-IMCI?)*
    iii. How can the CB-NCP training be improved so that CB-NCP is implemented more smoothly?

13. Now I'd like to ask about the CB-NCP follow-up training (FUT) in this district.
    i. How well did the FUT go in this district? *(probe: what went well? Not so well?)*
    ii. What were the strengths and challenges of the process?
    iii. What kinds of difficulties were the FCHVs facing when you went for the FUT?
    iv. Why do you think they were facing these difficulties?

CB-NCP planning process

14. We are trying to understand more about how the CB-NCP was introduced in this district and how successful that approach was in making the DHO, the hospital and the communities accept ownership of the program. Can you please comment on how this process took place? *(probe: to what extent do the DHO / hospital / communities feel ownership of the CB-NCP? What is the best way to build "ownership" of the CB-NCP in other districts?)*

15. One of the key early activities in CB-NCP was to advocate for the program at the district level among key stakeholders. Please describe the advocacy-related activities that were conducted under CB-NCP at the district level. *(probe: What worked well? What approaches worked less well and why?)*

16. Now I'd like to ask about the CB-NCP planning process:
    - How is the annual district plan of CB-NCP made in this district?
    - What are the stages involved in CB-NCP annual planning?
    - Who are the key stakeholders in the planning process?
    - What are the strengths and challenges of the planning process? How can it be improved?

FCHV registration of newborns

17. According to CB-NCP MIS data, **FCHVs identify and register __ percent (see data sheet) of newborns** in this district (based on expected number of live births). Please comment on this figure. *(Probe: How good a result is this? Why is it so high/low?)*

FCHV conduct of postnatal home visits

18. Under the CB-NCP, FCHVs have been trained to visit mothers and newborns at home on the first, third and seventh day following birth, check the newborn and mother for danger signs, and provide other services as required. How well is that effort going? *(probe: what are the some of the problems associated with it?)*

19. According to CB-NCP MIS data, ___ **percent (see data sheet) of newborns received postnatal care at home or in the health facility on the third day following birth**. Please comment on this figure. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

20. According to FUT data, ___ percent (see data sheet) of FCHVs / CHWs (VHWs, MCHWs) / HWs in this district have **correct <u>knowledge</u> of 5 or more newborn danger signs**. Please comment on these figures. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

Identification and management of low birth weight (LBW) newborns

21. Under the CB-NCP, FCHVs have been trained to identify newborns who are low birth weight (LBW) and manage them. How well is that effort going? *(probe: what are the some of the problems associated with it?)*

22. According to CB-NCP MIS data, FCHVs **weighed ___ percent (see data sheet) of newborns who were born at home in this district within 72 hours of birth**. Please comment on this figure. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

23. According to CB-NCP MIS data, FCHVs and health workers **identified ___ percent (see data sheet) of newborns as <u>LBW</u> among babies born either at home or in a health facility in this district**. Please comment on this figure, given that it is expected that approximately 15 percent of newborns are LBW in countries like Nepal. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

24. According to FUT data, ___ percent (see data sheet) of FCHVs / CHWs (VHWs, MCHWs) / HWs in this district have **correct <u>knowledge</u> of weight classification**. Please comment on these figures. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

25. According to FUT data, ___ percent (see data sheet) of FCHVs / CHWs (VHWs, MCHWs) / HWs in this district have **correct <u>skills</u> for weighing a baby**. Please comment on these figures. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

26. According to FUT data, ___ percent (see data sheet) of FCHVs / CHWs (VHWs, MCHWs) / HWs in this district have **correct knowledge of Kangaroo-Mother Care (mayako angalo)**. Please comment on these figures. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

27. According to FUT data, ___ percent (see data sheet) of FCHVs / CHWs (VHWs, MCHWs) / HWs in this district have **correct skills for demonstrating how to perform Kangaroo-Mother Care (mayako angalo)**. Please comment on these figures. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

Identification and management of newborns with PSBI

28. Under the CB-NCP, FCHVs have been trained to diagnose newborns with severe bacterial infection (PSBI), give them Cotrim P and refer them to the HF for further treatment with Gentamicin. How well is that effort going in this district? *(probe: what are the some of the problems associated with it?)*

29. Newborns with PSBI who go to the health post are supposed to receive a 7-day course of Gentamicin injections from VHWs, MCHWs or other health workers. How well is that effort going in this district? *(probe: what are the some of the problems associated with it?)*

30. According to CB-NCP MIS data, FCHVs **identify and register ___ percent (see data sheet) of newborns as having PSBI** in this district. Please comment on this figure, given that the MINI project in Morang district showed that 11 percent of newborns there had PSBI. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

31. According to CB-NCP MIS data, health workers **treat ___ percent (see data sheet) of newborns with Gentamicin for PSBI** in this district. Please comment on this figure, given that the MINI project in Morang district showed that 11 percent of newborns there had PSBI. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

32. According to FUT data, ___ percent (see data sheet) of FCHVs / CHWs (VHWs, MCHWs) / HWs in this district have **correct knowledge of the correct dose of Cotrim P for newborns under two months of age**. Please comment on these figures. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

Identification and management of newborns with birth asphyxia (BA)

33. Under the CB-NCP, FCHVs are trained to manage newborns suffering from **birth asphyxia (BA)** in home births. How well is that effort going in this district? *(probe: what are the some of the problems associated with it?)*

34. According to CB-NCP MIS data, FCHVs attending home births in this district **provided initial stimulation for birth asphyxia to ____ percent** (see data sheet) of newborns born at home, **DeLee suction to ____ percent** (see data sheet) of newborns born at home, and **bag-and-mask to _____ percent** (see data sheet) of newborns born at home. Compare this with global estimates that 5-10 percent of newborns require simple stimulation at birth and 3-6 percent of babies require bag-

and-mask resuscitation at birth. Please comment on the results from this district. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

35. According to FUT data, ___ percent (see data sheet) of FCHVs / CHWs (VHWs, MCHWs) / HWs in this district have **correct knowledge of the steps to manage birth asphyxia**. Please comment on these figures. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

36. According to FUT data, ___ percent (see data sheet) of FCHVs / CHWs (VHWs, MCHWs) / HWs in this district **can correctly demonstrate skills to manage birth asphyxia**. Please comment on these figures. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

Identification and management of newborns with hypothermia

37. Under the CB-NCP, FCHVs have been trained to identify newborns with **hypothermia** and manage them. How well is that effort going? *(probe: what are the some of the problems associated with it?)*

38. According to FUT data, ___ percent (see data sheet) of FCHVs / CHWs (VHWs, MCHWs) / HWs in this district have **correct knowledge of the management of hypothermia**. Please comment on these figures. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

39. According to FUT data, ___ percent (see data sheet) of FCHVs / CHWs (VHWs, MCHWs) / HWs in this district **can correctly demonstrate skills to measure the baby's temperature using thermometer**. Please comment on these figures. *(Probe: How good a result is this? Why is it so high/low? What can be done to improve the situation?)*

Incentive

40. How well is the CB-NCP incentive program working in this district? What are some challenges faced to date?

41. Have FCHVs in this district been paid their incentive? How many times have they been paid? When are they paid? How is this payment made? *(Probe: What kinds of challenges have been faced in distributing the incentives? How have those challenges been resolved?)*

42. How has the incentive scheme affected the activities of FCHVs in general and in their commitment? *(probe: What effect has this incentive had on other non-incentivized programs that depend on FCHV involvement?)*

43. FCHVs receive an incentive based on information (data) that they report through the CB-NCP MIS regarding their CB-NCP activities. How has this affected the quality of those data? A study that was conducted in one CB-NCP district found that FCHVs may have over-reported their performance for activities that are linked to incentives. To what extent do you think that might be occurring in this district? *(probe: why? why not?)*

Specific questions for Parsa and Doti

44. (**only for Parsa)** There is separate intervention in this district to apply CHX to the cord stump of newborns. Please comment on your experience in Parsa in conducting CB-NCP and the CHX intervention at the same time. From an implementation perspective, can the CHX intervention be easily incorporated within the CB-NCP, or is it better left outside?

45. (**only for Doti)** There is separate intervention in this district to provide misoprostol to women who are about to deliver. Please comment on your experience in Doti in conducting CB-NCP and the misoprostol intervention at the same time. From an implementation perspective, can the misoprostol intervention be easily incorporated within the CB-NCP, or is it better left outside?

Closing

46. Have you ever heard any negative incidents occurring because of FCHVs' provision of any CB-NCP services? Please describe if so.

47. Overall, what are your observations on the CB-NCP program? *(Probe: What are it strengths & weaknesses? What concerns do you have? What should be done to improve CB-NCP in your district?)*

48. What should be changed about the CB-NCP program as the CB-NCP is expanded into other districts?

Thank you for your time!!

Qualitative Assessment of Community Based Newborn Care Package
August-September 2011

Interview guide for NGO CB-NCP District Manager

Introduction and consent:

Namaste! My name is (name). I am working on a study for the Ministry of Health and Population. I am part of a team that is assessing the Community-Based Newborn Care Program. We are gathering information that will be used to make this program more effective when the program is introduced in new districts. If you agree to participate in this interview, your name will not be used or included in any of the written materials that we produce. Your participation is voluntary and you can choose not to answer any particular questions during the interview. You may also stop the interview at any time. The interview will take around two hours. Do you agree to participate?

I would like to talk with you about the CB-NCP program, the way it has been implemented in this district and your thoughts and opinions on different aspects of the program.

Opening

1. How long has the CB-NCP program been implemented in this district? Have you been here from the start of the CB-NCP?

2. Please describe your organization's current role in the implementation and monitoring of the CB-NCP. *(probe: what else do you do? How closely are you involved? How are you involved in monitoring the CB-NCP?)*

CB-NCP commodities

3. How is the procurement and distribution of CB-NCP commodities managed in this district? *(probe: where do you order new supplies from?)*

4. What is the role (if any) of your organization in this district in the procurement, distribution, resupply, and stock maintenance of CB-NCP equipment and supplies?

5. What are the problems you and the DHO have faced regarding obtaining and delivering supplies of CB-NCP commodities during the program? *(probe: if there are problems, what can be changed so that the CB-NCP logistics system is carried out more smoothly in the future?)*

CB-NCP supervision

6. Please describe the supervision system for CB-NCP. Please describe both the supervision your organization provides as well as the supervision provided through the DHO. *(Probe: who supervises FCHVs? VHWs/MCHWs? how frequent are supervision visits? What tools do supervisors use?)*

7. What are the difficulties that supervisors face during supervision of CB-NCP?

8. How should the CB-NCP supervision system be strengthened or improved?

CB-NCP MIS

9. What are your overall observations on the CB-NCP MIS? *(probe: what are the strengths of the MIS? The weaknesses?)*

10. How do you and the DHO use the information generated by the CB-NCP MIS to manage the CB-NCP program? How useful is the information from the CB-NCP MIS for program management?

11. What changes should be made to the CB-NCP MIS in order to strengthen it for scale up in other districts?

12. Please describe how your organization and the DHO have divided up the tasks related to the CB-NCP MIS: which organization does what?

CB-NCP training

13. Now I'd like to ask you some questions about the CB-NCP training in this district.
    iv. How well did the CB-NCP training go in this district? *(probe: what went well? Not so well?)*
    v. What were the relative roles of your organization and the DHO in the conduct of the training?
    vi. How can the CB-NCP training be improved so that CB-NCP is implemented more smoothly?

14. Now I'd like to ask about the CB-NCP follow-up training (FUT) in this district.
    v. How well did the FUT go in this district? *(probe: what went well? Not so well?)*
    vi. What were the strengths and challenges of the process?
    vii. What kinds of difficulties were the FCHVs facing when you went for the FUT?
    viii. Why do you think they were facing these difficulties?

CB-NCP planning process

15. We are trying to understand more about how the CB-NCP was introduced in this district and how successful that approach was in making the DHO, the hospital and the communities accept ownership of the program. Can you please comment on how this process took place? *(probe: to what extent do the DHO / hospital / communities feel ownership of the CB-NCP? What is the best way to build "ownership" of the CB-NCP among key stakeholders in other districts?)*

16. One of the key early activities in CB-NCP was to advocate for the program at the district level among key stakeholders. Please describe the advocacy-related activities that were conducted under CB-NCP at the district level. *(probe: What worked well? What approaches worked less well and why?)*

17. Now I'd like to ask about the CB-NCP planning process:
    - How is the annual district plan of CB-NCP made in this district?
    - What are the stages involved in CB-NCP annual planning?
    - Who are the key stakeholders in the planning process?
    - What are the strengths and challenges of the planning process? How can it be improved?

FCHV registration of newborns

18. According to CB-NCP MIS data, **FCHVs identify and register __ percent (see data sheet) of newborns** in this district (based on expected number of live births). Please comment on this figure. *(Probe: How good a result is this? Why is it so high/low?)*

FCHV conduct of postnatal home visits

19. Under the CB-NCP, FCHVs have been trained to visit mothers and newborns at home on the first, third and seventh day following birth, check the newborn and mother for danger signs, and provide other services as required. How well is that effort going? *(probe: what are the some of the problems associated with it?)*

20. According to CB-NCP MIS data, ___ **percent (see data sheet) of newborns received postnatal care at home or in the health facility on the third day following birth**. Please comment on this figure. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

21. According to FUT data, ___ percent (see data sheet) of FCHVs / CHWs (VHWs, MCHWs) / HWs in this district have **correct <u>knowledge</u> of 5 or more newborn danger signs**. Please comment on these figures. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

Identification and management of low birth weight (LBW) newborns

22. Under the CB-NCP, FCHVs have been trained to identify newborns who are low birth weight (LBW) and manage them. How well is that effort going? *(probe: what are the some of the problems associated with it?)*

23. According to CB-NCP MIS data, FCHVs **weighed ___ percent (see data sheet) of newborns who were born at home in this district within 72 hours of birth**. Please comment on this figure. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

24. According to CB-NCP MIS data, FCHVs and health workers **identified ___ percent (see data sheet) of newborns as <u>LBW</u> among babies born either at home or in a health facility in this district**. Please comment on this figure, given that it is expected that approximately 15 percent of newborns are LBW in countries like Nepal. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

25. According to FUT data, ___ percent (see data sheet) of FCHVs / CHWs (VHWs, MCHWs) / HWs in this district have **correct <u>knowledge</u> of weight classification**. Please comment on these figures. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

26. According to FUT data, ___ percent (see data sheet) of FCHVs / CHWs (VHWs, MCHWs) / HWs in this district have **correct <u>skills</u> for weighing a baby**. Please comment on these figures. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

27. According to FUT data, ___ percent (see data sheet) of FCHVs / CHWs (VHWs, MCHWs) / HWs in this district have **correct <u>knowledge</u> of Kangaroo-Mother Care (mayako angalo)**. Please comment on these figures. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

28. According to FUT data, ___ percent (see data sheet) of FCHVs / CHWs (VHWs, MCHWs) / HWs in this district have **correct skills for demonstrating how to perform Kangaroo-Mother Care (mayako angalo)**. Please comment on these figures. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

Identification and management of newborns with PSBI

29. Under the CB-NCP, FCHVs have been trained to diagnose newborns with severe bacterial infection (PSBI), give them Cotrim P and refer them to the HF for further treatment with Gentamicin. How well is that effort going in this district? *(probe: what are the some of the problems associated with it?)*

30. Newborns with PSBI who go to the health post are supposed to receive a 7-day course of Gentamicin injections from VHWs, MCHWs or other health workers. How well is that effort going in this district? *(probe: what are the some of the problems associated with it?)*

31. According to CB-NCP MIS data, FCHVs **identify and register ___ percent (see data sheet) of newborns as having PSBI** in this district. Please comment on this figure, given that the MINI project in Morang district showed that 11 percent of newborns there had PSBI. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

32. According to CB-NCP MIS data, health workers **treat ___ percent (see data sheet) of newborns with Gentamicin for PSBI** in this district. Please comment on this figure, given that the MINI project in Morang district showed that 11 percent of newborns there had PSBI. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

33. According to FUT data, ___ percent (see data sheet) of FCHVs / CHWs (VHWs, MCHWs) / HWs in this district have **correct knowledge of the correct dose of Cotrim P for newborns under two months of age**. Please comment on these figures. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

Identification and management of newborns with birth asphyxia (BA)

34. Under the CB-NCP, FCHVs are trained to manage newborns suffering from **birth asphyxia (BA)** in home births. How well is that effort going in this district? *(probe: what are the some of the problems associated with it?)*

35. According to CB-NCP MIS data, FCHVs attending home births in this district **provided initial stimulation for birth asphyxia to ____ percent** (see data sheet) of newborns born at home, **DeLee suction to ____ percent** (see data sheet) of newborns born at home, and **bag-and-mask to _____ percent** (see data sheet) of newborns born at home. Compare this with global estimates that 5-10 percent of newborns require simple stimulation at birth and 3-6 percent of babies require bag-and-mask resuscitation at birth. Please comment on the results from this district. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

36. According to FUT data, ___ percent (see data sheet) of FCHVs / CHWs (VHWs, MCHWs) / HWs in this district have **correct knowledge of the steps to manage birth asphyxia**. Please comment on these figures. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

37. According to FUT data, ___ percent (see data sheet) of FCHVs / CHWs (VHWs, MCHWs) / HWs in this district **can correctly demonstrate skills to manage birth asphyxia**. Please comment on these figures. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

Identification and management of newborns with hypothermia

38. Under the CB-NCP, FCHVs have been trained to identify newborns with **hypothermia** and manage them. How well is that effort going? *(probe: what are the some of the problems associated with it?)*

39. According to FUT data, ___ percent (see data sheet) of FCHVs / CHWs (VHWs, MCHWs) / HWs in this district have **correct knowledge of the management of hypothermia**. Please comment on these figures. *(Probe: How good a result is this? Why is it so high/low? What should be done to improve the situation?)*

40. According to FUT data, ___ percent (see data sheet) of FCHVs / CHWs (VHWs, MCHWs) / HWs in this district **can correctly demonstrate skills to measure the baby's temperature using thermometer**. Please comment on these figures. *(Probe: How good a result is this? Why is it so high/low? What can be done to improve the situation?)*

Incentive

41. How well is the CB-NCP incentive program working in this district? What are some challenges faced to date?

42. Have FCHVs in this district been paid their incentive? How many times have they been paid? When are they paid? How is this payment made? *(Probe: What kinds of challenges have been faced in distributing the incentives? How have those challenges been resolved?)*

43. How has the incentive scheme affected the activities of FCHVs in general and in their commitment? *(probe: What effect has this incentive had on other non-incentivized programs that depend on FCHV involvement?)*

44. FCHVs receive an incentive based on information (data) that they report through the CB-NCP MIS regarding their CB-NCP activities. How has this affected the quality of those data? A study that was conducted in one CB-NCP district found that FCHVs may have over-reported their performance for activities that are linked to incentives. To what extent do you think that might be occurring in this district? *(probe: why? why not?)*

Specific questions for Parsa and Doti

45. **(only for Parsa)** There is separate intervention in this district to apply CHX to the cord stump of newborns. Please comment on your experience in Parsa in conducting CB-NCP and the CHX intervention at the same time. From an implementation perspective, can the CHX intervention be easily incorporated within the CB-NCP, or is it better left outside?

46. (**only for Doti)** There is separate intervention in this district to provide misoprostol to women who are about to deliver. Please comment on your experience in Doti in conducting CB-NCP and the misoprostol intervention at the same time. From an implementation perspective, can the misoprostol intervention be easily incorporated within the CB-NCP, or is it better left outside?

Closing

47. Have you ever heard any negative incidents occurring because of FCHVs' provision of any CB-NCP services? Please describe if so.

48. Overall, what are your observations on the CB-NCP program? *(Probe: What are it strengths & weaknesses? What concerns do you have? What should be done to improve CB-NCP in your district?)*

49. What should be changed about the CB-NCP program as the CB-NCP is expanded into other districts?

Thank you for your time!!

Qualitative Assessment of Community Based Newborn Care Package
August-September 2011

Interview with the Statistical Assistant at the DHO

Introduction and consent:

Namaste! My name is (name). I am working on a study for the Ministry of Health and Population. We are part of a team that is assessing the Community-Based Newborn Care Program. We are gathering information that will be used to make this program more effective when the program is introduced in new districts. If you agree to participate in this interview, your name will not be used or included in any of the written materials that we produce. Your participation is voluntary and you can choose not to answer any particular questions during the interview. You may also stop the interview at any time. The interview will take around one hour. Do you agree to participate?

I would like to talk to you about the CB-NCP program, your role in supporting the program, and your thoughts on the CB-NCP management information system (CB-NCP MIS).

1. Please describe your current role in supporting the CB-NCP MIS. *(probe: what else do you do?)*
2. Please describe the role that the local partner that supports the CB-NCP in this district (CARE/PLAN/SCF/PHD) plays in supporting the CB-NCP MIS. *(probe: how does their role differ from / complement your role?)*
3. Which organization maintains the CB-NCP MIS database here at district level—the DHO or the local partner? *(probe: which organization enters the data received from the health facilities? Which organization reports results?)*
4. Now I would like to talk about the trainings that took place at the beginning of the CB-NCP.
   i. What role did you play in the CB-NCP trainings for health facility staff and FCHVs?
   ii. What did you think of the way that CB-NCP recording and reporting was taught during the trainings?
   iii. How do you think the CB-NCP training could be improved so that the CB-NCP MIS is strengthened?
5. How are data from the CB-NCP MIS being used to manage the CB-NCP in this district? What is your role in this process?

Quality of data from CB-NCP MIS

6. How well is the recording and reporting for the CB-NCP being done at the community level by FCHVs? and at the health facility level by health facility staff? *(probe: what are some of the problems being faced?)*

7. In terms of the quality of the CB-NCP data that are reported, how different is it in comparison to the initial period of the program? *(probe: is it better, worse or the same? Why would you say that?)*

8. Now I'd like to ask you some questions about the CB-NCP incentive program.
   i. What has been the effect of the CB-NCP incentive program on the CB-NCP MIS? On the quality of data from the CB-NCP MIS?
   ii. How accurate do you think the data are that are used to calculate FCHV incentives?
   iii. What could be done to improve the accuracy of those data?

Closing

9. What do you feel are the strengths and weaknesses of the CB-NCP MIS?

10. What do you think can be done to improve the overall CB-NCP MIS?

Qualitative Assessment of Community Based Newborn Care Package
August-September 2011

Interview with the Storekeeper at the DHO

Introduction and consent:

Namaste! My name is (name). I am working on a study for the Ministry of Health and Population. We are part of a team that is assessing the Community-Based Newborn Care Program. We are gathering information that will be used to make this program more effective when the program is introduced in new districts. If you agree to participate in this interview, your name will not be used or included in any of the written materials that we produce. Your participation is voluntary and you can choose not to answer any particular questions during the interview. You may also stop the interview at any time. The interview will take around one hour. Do you agree to participate?

I would like to talk with you about the CB-NCP program and issues related to procurement and supply of equipment and other items that are used in the CB-NCP.

Introduction and storekeeper responsibilities

1. What are your responsibilities with regards to the CB-NCP?
2. How has the introduction of the CB-NCP in this district changed your responsibilities?

NCP commodities and current stock

3. Please help me fill out the table below. For key NCP supplies and equipment, I would like to know how many units are currently in stock, and how many units were supplied to health facilities in the last fiscal year (according to the inventory ledger). *Note to interviewer: please note if the NCP supplies are not managed through the storekeeper but instead are managed through an alternative mechanism. No matter how they are managed, fill out the table below, with help from relevant colleagues.*

Item	Current stock (note units)	# units supplied to facilities in 2067/68
Cotrim P		
Gentamicin		
Syringe for Gentamicin		
Thermometer		
Bag and mask		
CB NCP forms		
Training manuals		

Procurement of NCP supplies

4. How do you obtain supplies for the CB-NCP in this district? *(Probe: Who orders them and how? Who maintains the inventory? Who decides when you need to order and how many of each item to order? Where do the supplies come from?)*

5. How was the initial supply of NCP equipment provided to the district? To what extent did you have adequate NCP supplies in stock when the NCP program was launched in this district? Has there been a resupply yet? If yes, how was it handled?

6. What is the role (if any) of the supporting agency (I/NGO) in this district in the procurement, distribution, resupply, and stock maintenance of CB-NCP equipment and supplies?

7. What issues or problems have been faced in procuring CB-NCP equipment and supplies?

Distribution and delivery of NCP supplies

8. Have you been able to send all NCP supplies that have been requested during the past year? *(probe: Why not?)*

9. How long does it usually take for requested NCP supplies to reach the health facility that has requested them?

10. Have there been any delays in sending NCP supplies to health facilities during the past year? *(probe: Why was there a delay?)*

11. What issues or problems have been faced in delivering CB-NCP equipment and supplies in this district?

Stock outs

12. Which health facilities report the most stock-outs for NCP supplies? Why?

13. The follow-up-after-training data shows that ….% (see data sheet) of health facilities had Cotrim P / Gentamicin / Insulin syringe CDK / DeLee suction / bag & mask during the follow up after training exercise. How do you explain these figures?

Conclusion

14. Overall, what are the major difficulties that you have faced in managing NCP supplies?

Thank you for your time.

Group interview with PHC/HP/SHP health providers

I would like to talk about the CB-NCP program, your opinion regarding the program, the way it has been implemented in this district and the different aspects of the program.

1. When was the CB-NCP program implemented in this VDC? *(probe: when did the NCP training at this health facility start and end; when did you start reporting data using the NCP forms?)*

2. What were the changes in the role and responsibilities of staff in this health facility after introduction of CB NCP?

Probes: "with regards to …."
- *Health education and counseling*
- *Recording and reporting*
- *Treatment and case management*
- *Referral from FCHVs to here and referral from here to other health facilities …*
- *What changes have been good? Not so good?*

We have talked about the overall program. Now I would like to talk about each of the specific inputs for the program.

<u>Training</u>

3. I would first like to talk about the training provided for the program here at this health facility. Can you tell me how the training here was conducted (process)? Who were the trainers? How long was it?

4. What did you think of the training?

5. What were the challenges faced while conducting this training? *(note: only ask if some of the respondents served as trainers during the training)*

6. Is there anything that you would change if you had to conduct the training again?

7. According to my understanding, a post-training follow-up activity (FUT) was also carried out at most health facilities.

   - Did that activity occur here?
   - Can you tell me more about the FUT?
   - Who was involved and how it was conducted?

- How many months were there between the end of the NCP training and the conduct of the FUT?

8. In your opinion, what was the benefit in conducting this post training activity? *(probe: check skills of FCHV/HF staff, check their knowledge, solve if any confusions have arisen etc)*

Job aids

9. What job aids were provided to FCHVs? When were the job aids provided to them? Was it during the training, immediately the training or later? If later, how long after the training?

10. *(if job aids were provided after the training)* Why was there a delay in providing them these job aids?

11. What were the job aids provided to health facility staff? When were they provided to them? Was it during the training, immediately the training or later? If later, how long after the training?

12. *(if job aids were provided after the training)* Why was there a delay in providing them these job aids?

Now I would like to talk more on the reporting system of the forms for the CBNCP

13. When are the forms collected from the FCHVs? How are they collected?

14. What do health facility staff members do after collecting the forms from the FCHVs? How and when do you compile and submit information from the FCHV forms?

15. What difficulties do the FCHVs face in filling out these forms?

Probes:

- *Can you give me examples?*
- *Can you take a look at the form and tick which areas/questions are still confusing for FCHVs? (Pass one form to each to the respondents and ask them to tick or circle)*

16. What difficulties do you have in compiling data from FCHV forms and reporting it?

17. How do you use the information from the CB-NCP MIS? *(probe: how useful is this information?)*

18. In your opinion, what can be done to improve the CB-NCP MIS?

Now I would like to talk a bit about the percentage of newborns registered by FCHVs and the number of cases of various newborn conditions registered by FCHVs.

19. According to the data that you receive, what percentage of expected newborns in the catchment area for this health facility are registered by FCHVs *(note whatever answer they provide including an answer of "don't know")*?

20. What difficulties do FCHVs that work under this health facility face in registering newborns? Why don't they register a higher percentage?

21. In the past six months *(or other time period, if that is more convenient)*, what is the total number of cases registered and recorded by FCHVs that work under this health facility:
    - LBW newborns
    - sick newborns (with PSBI)
    - newborns who had birth asphyxia
    - newborns with hypothermia

22. To what extent do you feel that the FCHVs that work under this health facility identify cases for these conditions correctly?

23. What do FCHVs that work under this health facility do when they identify sick newborns (with PSBI) or VLBW (very low birth weight) newborns? To what extent do they refer the mothers to the health facility? To what extent do the mothers come to the health facility after being referred?

24. How many mothers have brought their newborns to this health facility for LBW or infection management in the past six months *(or other time period, if that is more convenient)*? How many of them were they identified by the FCHV? Please provide details about how this process has worked.

25. How many cases of newborn infection have you treated in this health facility where you had to administer Gentamicin? What is the process under which Gentamicin is administered? How is this going? How well-equipped and trained are you to manage PSBI here at this health post?

26. If a newborn comes to the health facility with low birth weight, how is the condition managed here? What is being done? How well-equipped and trained are you to manage LBW newborns?

27. How many cases of birth asphyxia have been identified by FCHVs that work under this health facility? How did they identify birth asphyxia? What did they do to manage this?

Now I would like to talk to you about the NCP incentive program:

28. Please describe how the incentive process works. *(probes: how are the incentives calculated? How often are they paid? How do FCHVs receive their payments? How are they paid?)*

29. Please describe how the CB-NCP MIS forms are used in the process of incentive calculation. How accurate are the data that are used to calculate the incentive payments?

30. What do you think about the idea of providing incentives to FCHVs for the work they perform on the CB-NCP?

31. In your opinion, how has the incentive scheme affected the work of the FCHVs *(probe: prioritization of incentivized versus non-incentivized activities)?*

Closing

32. Overall, what do you feel are the major strengths and weaknesses of NCP?

33. Overall, what do you feel should be done to improve NCP in your district?

Note*: Please note down who is present in the group interview, their positions, and years of experience in the health facility where you are conducting the interview.*

Qualitative Assessment of Community-Based Newborn Care Package (CB-NCP)

August-September 2011

Interview guide for HFMC representative(s)

I would like to talk to you about the CB-NCP program, your role in monitoring work at this health facility, the incentives that FCHVs are paid under the CB-NCP program, and your opinion regarding the CB-NCP program.

General

1. What do you know about the CB-NCP program? *(probes: What is it? How did you learn about it? When?)*
2. After the implementation of the CB-NCP, what were the major changes …..

- In your role?
- In the role of the health facility staff?
- In the role of the FCHVs?

HFMC members' roles in monitoring

3. How are the HFMC members involved in the monitoring of the overall health facility?
4. How are the HFMC members involved in monitoring of the CB-NCP program?

NCP incentive program

5. Are you aware that FCHVs receive a cash incentive under the CB-NCP program for prenatal counseling, attending deliveries, weighing newborns and conducting post natal visits?
6. What do you think about the idea of providing an incentive to the FCHVs for their work under the NCP program? *(probe: strengths, weaknesses, concerns)*
7. How can the HFMC be involved in monitoring the payment of incentives so that FCHVs are paid based on actual performance—no more and no less?

Conclusion

8. What do you think of this CB-NCP program? *(probe: strengths, weaknesses, concerns)*
9. What could be done to improve the implementation of the NCP in this VDC?

Qualitative Assessment of Community-Based Newborn Care Package (CB-NCP)

August-September 2011

Interview guide for FCHV

Introduction and consent:

Namaste! My name is (name). I am working on a study for the Ministry of Health and Population. We are part of a team that is assessing the Community-Based Newborn Care Program. We are gathering information that will be used to make this program more effective when the program is introduced in new districts. If you agree to participate in this interview, your name will not be used or included in any of the written materials that we produce. Your participation is voluntary and you can choose not to answer any particular questions during the interview. You may also stop the interview at any time. The interview will take around one hour. Do you agree to participate?

District: VDC: Ward:

Date: Interview Start Time : Interview End time:

I would like to talk to you about the CB-NCP program, your opinion regarding the program, the way it has been implemented in this district and the different aspects of the program.

General

Note: the intent of the next two questions is just to get the conversation started.

1. When did you start providing services under the CB-NCP?
2. How is your work in the NCP going?

CB-NCP Training

I'd like to ask you some questions about the training that you received as part of the CB-NCP.

3. How many types of training have you participated in under the CB-NCP? Please describe each of these. When did they take place?
4. What were your impressions of the training? What did you like about the training?

5. If you could, what would you change about the training to make it easier for you to do your work?

6. Please comment on how well you were taught to do the following during the training:
   i. Provide postnatal care to newborns? To mothers?
   ii. Use the scales and manage newborns with low birth weight?
   iii. Use the thermometer and manage newborns with hypothermia?
   iv. Use the Delay's suction and bag-and-mask and manage newborns with birth asphyxia?
   v. Use the timer and manage newborns with infections?

7. Were you visited by a district supervisor a few months after the training and asked a number of questions about the NCP and asked to demonstrate your skills using NCP equipment? If yes, what were your impressions of that activity?

8. I'd like to ask you about some of the equipment that you were give for NCP: *(Fill out the following table, FCHV should show you each item of equipment)*:

Equipment	**Do you have working equipment now? Please show me.**	**When did you receive it? (relate to before / after / during training)**
Scales		
Color-coded thermometer		
DeLay's suction		
Bag-and-mask		
Timer		
NCP flipchart		
NCP job aid		
Action card		

<u>Communicating messages to mothers</u>

9. Where do you meet with mothers to give them information using the Action Card? Why do you do it in that way? To what extent do you meet with husbands and mothers-in-law to provide this information?

Ask the FCHV to show you the FCHV flipchart, Job Aid, and Action Card (given to mothers).

10. How useful is the NCP Flipchart? How do you use it when you counsel? How could it be improved?

11. How useful is the NCP Job Aid? How do you use it when you counsel? How could it be improved?

12. How useful is the Action Card? How do you use it when you counsel? How could it be improved?

Recording and reporting

Please show me the various forms that you fill out and registers that you maintain as part of your CB-NCP work.

13. What do you think about the recording and reporting that you need to do as part of the CB-NCP?

14. How helpful are these forms in guiding you in your work on CB-NCP?

15. *(Give them forms NCP-2 & NCP-3)* Can you show me what difficulties have you faced in filling out the CB-NCP forms? What should be changed? How should it be changed?

Supervision

16. How is the work that you do on NCP supervised? What do you like about the supervision you receive for NCP? How could the supervision you receive be improved so that your performance in NCP improves?

PNC

17. One of your major tasks under NCP is to make visits to the newborn and the mother during the first week after the birth.
    i. When are you supposed to make visits?
    ii. When do you actually make visits?
    iii. What do you do during these visits? (*probe: do you check both mothers and newborns?)*
    iv. What are the problems that you face making postnatal visits?
    v. How often do you identify newborns / mothers with danger signs?
    vi. What do you do when you find a newborn or mother with danger signs?
    vii. How confident are you in your abilities to identify newborns / mothers with danger signs?

Attending deliveries

18. Another of your other major tasks under NCP is to convince the mother to deliver in a health facility or for you to attend her delivery if it is a home birth.

    i. Approximately how many women in your catchment area have given birth since the NCP started? Among them, how many have delivered in a health facility?

    ii. What do you do to convince mothers to go to health facility for delivery? How effective are you in this task?

    iii. How do you support mothers who choose to have a facility delivery? *(probe: do you accompany the woman to the facility? What do you do during the delivery?)*

iv. How do you support mothers who choose to have a home delivery? *(probe: do you attend all home deliveries of the women in your catchment area? What do you do during the delivery?)*

v. During home births, what do you do to convince mothers and families to follow essential newborn practices following the delivery like wiping the newborn, wrapping the newborn, delayed bathing, early initiation of breastfeeding, etc? How effective are you in convincing them to do this?

PSBI skills, identification and management

Note to interviewer: FCHVs also diagnose children with pneumonia and treat them with Cotrim P – the same drug that is used to treat newborns with PSBI. You need to make sure that the respondent understands that you are NOT talking about pneumonia here; you are talking about severe infection in newborns, when the newborn may have pus around the cord stump or breaks out in red sores.

One of the tasks that you are supposed to do as part of the NCP is to identify newborns that have possible severe bacterial infection (PSBI) and help with their management and treatment.

19. How do you identify newborns with PSBI? What tools do you use *(ask her to show you any tools that she uses)*? How many times have you used the timer to measure a newborn's respiration rate?

20. After you identify a newborn with PSBI, how do you manage him/her? What steps do you follow? *(probe: referral?)*

21. Since CB-NCP began, how many newborns have you identified with severe infection, given them Cotrim P, and sent to the health facility for treatment with Gentamicin?

Only ask the next two questions if the FCHV reports that she has diagnosed PSBI cases.

22. Among the newborns that you referred to the health facility to receive Gentamicin, how many were actually taken to the health facility? How many received full courses of Gentamicin? What do mothers say about the PSBI treatment that their newborns receive at the facility?

23. How difficult is it for you to diagnose and manage a newborn with PSBI? Why or why not is it difficult for you?

LBW skills, identification and management

Another task that you are supposed to do as part of the NCP is to identify newborns that have low birth weight (LBW) and very low birth weight (VLBW) and help with their management and treatment.

24. How do you identify newborns who have LBW? What tools do you use *(ask her to show you any tools that she uses)*? How many times have you used this scale to measure a newborn's weight?

25. How easy is it for you to use the scales? Do you zero them before you use them*? (ask her to demonstrate if she says "yes")* How many days after birth do you measure the newborn's weight?

26. After you identify a newborn with LBW, how to you manage him/her? What steps do you follow? *(probe: referral? Different procedures for newborns with LBW and VLBW?)*

27. Since CB-NCP began, how many newborns have you identified with LBW? With VLBW?

Only ask the next two questions if the FCHV reports that she has identified newborns with LBW.

28. *(ask only to FCHVs who have diagnosed LBW newborns)* How difficult did you find it to follow the procedures for managing a child that you diagnosed as being LBW? Why or why not was it difficult for you?

29. *(ask only to FCHVs who have diagnosed LBW newborns)* Among the newborns that you referred to the health facility for VLBW management, how many were actually taken to the facility? What treatment do they receive there? What do mothers say about the LBW treatment that their newborns receive at the facility?

<u>Hypothermia-related skills, identification and management</u>

Another task that you are supposed to do as part of the NCP is to identify newborns that have hypothermia and help manage them.

30. How do you identify newborns who have hypothermia? What tools do you use *(ask her to show you any tools that she uses)*? How many times have you used this thermometer to measure a newborn's temperature?

31. How easy is it for you to use the thermometer? When do you measure the newborn's temperature after delivery?

32. After you identify a newborn with hypothermia, what kind of care do you provide to him/her? What steps do you follow? *(probe: and then what do you do?)*

33. Since CB-NCP began, how many newborns have you identified with hypothermia?

Only ask the next question if the FCHV reports that she has identified newborns with hypothermia.

34. What did you do to convince mothers/families that they need to provide skin-to-skin care for the newborn with hypothermia? How did the mothers respond? How confident are you in your skills to teach mothers how to provide skin-to-skin care correctly?

Birth asphyxia-related skills, identification and management

Another task that you are supposed to do as part of the NCP is to identify newborns that are suffering from birth asphyxia and resuscitate them.

35. How do you identify newborns who have birth asphyxia?

36. What are the steps that you are supposed to follow in order to manage a child with birth asphyxia?

37. What tools do you use to resuscitate newborns with birth asphyxia? *(ask her to show you any tools that she uses)*

38. How confident are you in your skills to resuscitate newborns with birth asphyxia? *(probe: why or why not?)*

39. How many children with birth asphyxia have you managed?

Only ask the next question if the FCHV reports that she has managed newborns with birth asphyxia.

40. Which equipment did you use *(probe: Deelay's suction; bag-and-mask)*? What was your experience using this equipment? *(probe: easy, difficult, etc.)*

Incentives

Under the NCP you are given an incentive for completing certain tasks.

41. Please describe what you need to do to receive the NCP incentive.

42. Have you ever received an incentive? How many times have you received it? How much did you receive?

43. Did you receive the correct amount? Do you know how to calculate the amount of incentive that you are supposed to receive?

44. How has the performance-based incentive for CB-NCP affected your work on other programs? *(probe: how do they affect the way you prioritize your work?)*

45. How has the performance-based incentive for CB-NCP affected your motivation to be a FCHV? *(probe: how has it affected how hard you work at your job?)*

46. What do you think about the NCP incentive program? What changes, if any, would you like to see made to the NCP incentives program for FCHVs?

Thank you for your time!!

Qualitative Assessment of Community Based Newborn Care Package

August-September 2011

Interview guide for Mother (recently-delivered woman)

Sampling note: We will try to select at least some mothers whose newborns are recorded (on the FCHV NCP-2 Form) as having one of the four main conditions that FCHVs are trained to manage: (i) PSBI, (ii) LBW, (iii) birth asphyxia, and/or (iv) hypothermia. This information should be noted in the box below.

Introduction and Consent :

Namaste!. My name is (name). I am working on a study for the Ministry of Health and Population. We are assessing a program called the Community-Based Newborn Care Program that helps newborns and recently delivered mothers in this district. We are gathering information that will be used to make this program more helpful to mothers and newborns in other districts when the program is introduced in new districts. The information that you give us will help mothers and babies all across Nepal. If you agree to participate in this interview, your name will not be used or included in any of the written materials that we produce. The responses that you give to us will be mixed together with the opinions of many other people like you. Your participation is voluntary and you can choose not to answer any particular questions during the interview. You may also stop the interview at any time.

The interview will take around XX hours. Do you agree to participate?

District:	VDC:	Ward:
Date:	Interview Start Time :	Interview End time:

I would like to talk to you about your newborn child, your FCHV, and the care you have received for you and your newborn over the past few months. First I need some background information about you and your child.

A. Background information of the mother

1. Name:
2. Ethnicity:
3. Age:
4. Number of children:
5. District:
6. Name of FCHV who registered her:
7. Date of most recent delivery:
8. Where did she deliver (including name and type of facility if facility delivery):
9. Has she ever delivered prior to most recent delivery? (circle one) Yes / No

10. Which of the following conditions is noted as "positive" on NCP-2 for this mother's newborn?					
a. PSBI (circle one):	Yes	/	No		
b. Hypothermia (circle one):		Yes	/	No	
c. LBW (circle one):	Yes	/	No	/	VLBW (circle if recorded)
d. Birth asphyxia (circle one):	Yes	/	No		

B. Communication on newborn care messages

Now I would like to talk to you about your contact with your FCHV during your pregnancy, delivery and post partum period.

11. Did your FCHV talk with you about how to care for your newborn during your most recent pregnancy or after your delivery?

If yes, continue with the questions below. If no, go to Section C below.

12. What information did she give you about your newborn?

13. Among the information she gave you, what was useful for mothers like you? *(probe: what else?)*

14. Among the information she gave you, what didn't you like or what was not understandable? *(probe: what else?)*

15. How did the FCHV explain to you the messages? *(probe: Did she use anything to show you and explain to you the messages? Where were you when you met with her?)*

16. What did you think about the way she explained the messages?

17. Who else did she talk to among your family members?

18. What were their reactions towards these messages?

19. Were you given any materials regarding newborn care messages? What were they?

20. What did you do with these materials? Can you show me where you have kept them?

21. What did you think about these materials? How useful were they? Why were they useful/not useful?

22. Was there anything you did not understand that was written on the material? What was it?

C. Knowledge on few messages from the flipchart

I would now like to talk about the different messages that were discussed with you.

23. Can you tell me what are the danger signs that a newborn can face? *(Allow mother to review her materials if she chooses to – but don't mention to her that she can if she wants. Check the danger signs that she mentions in the table below.)*

- *Did mother review her materials while answering (circle one): yes / no*

Danger sign	Stated	Not stated
Not sucking well		
Lethargy		
Fast breathing		
Deep cough		
High fever		
Cold skin temperature		
Blisters on body		
Infected cord stump		

24. What should you do if your newborn shows one of these danger signs?

25. Why do you think that a newborn should not be bathed within the first 24 hours? *(probe: did you follow this message?)*

26. Why do you think that the cord should be kept clean and dry? *(probe: did you follow this message?)*

D. Information on last pregnancy and delivery

Now I would like to talk about what you did during your most recent delivery.

27. Can you tell me where you delivered most recently?

28. Why did you deliver there?

29. Were you advised by anyone to deliver at a specific place? What were you advised?

30. Who was present during your last delivery? *(probe: FCHV? Trained health worker?)*

31. What did each person who was present do? *(probe: if FCHV was present ask what she did in detail)*

32. Where did you give birth to your previous child? *(If she has two or more children)*

33. (*If the two deliveries were conducted at different places*) Why did you deliver at a different place this time?

34. (*If she delivered at the health facility*) Did you receive the incentive after your most recent delivery? If yes, how much?

35. When did you receive this incentive? How many months after delivery?

36. Did you have to pay any amount for the expense at the health facility? How much? For what?

37. Did you know about the incentive before the delivery?

E. Post natal care (Home visits)

I want to ask you some questions about the care provided by your FCHV after your most recent delivery.

38. *(ask only if the FCHV was present at delivery*) What did the FCHV do right after the baby was born? *(probe: did she do anything else?)*

39. Did the FCHV ever weigh your baby? When did she weigh the baby? What did she say after she weighed the baby about the baby's weight?

40. What did she say about keeping the baby warm?

41. What did she say about bathing the baby?

42. What did she say about breastfeeding?

43. Which other days did the FCHVs visit you after the delivery? (C*larify how many times and which days she visited during the first week after the delivery. We need precise information here.)*

44. What did she do during these visits?

45. *(Ask only if the mother has delivered prior to most recent delivery)* How different were the visits made by the FCHV following your most recent delivery compared to the FCHV's visits following previous deliveries? Was there anything you liked better (or didn't like) about the services provided by the FCHV following your most recent delivery?

Copy information from Question 10 on page 1 of this questionnaire into the box below. Complete the pertinent section(s) based on the instruction in the box below.

Which of the following conditions is noted as "positive" on NCP-2 for this mother's newborn?					
a. PSBI (circle one): section F <u>only</u> if "yes"	**Yes**	**/**	**No**	**➔**	**complete**
b. Hypothermia (circle one): section G <u>only</u> if "yes"	**Yes**	**/**	**No**	**➔**	**complete**
c. LBW (circle one): section H <u>only</u> if "yes"	**Yes**	**/**	**No**	**➔**	**complete**
d. **Birth asphyxia (circle one): <u>only</u> if "yes"**	**Yes**	**/**	**No**	**➔**	**complete section I**

F. Possible severe bacterial infection

46. Your FCHV's records show that your youngest child suffered from a severe infection during the first month of his/her life and that the FCHV diagnosed the problem. Does that match your understanding?

47. What happened to your child? *(probe: how did s/he become sick?)*

48. What treatment did the FCHV provide for your child? *(probe: did she provide any medicines? what else did she do?)*

49. What did the FCHV advise you to do?

50. Did you do what was advised? Why or why not?

51. What did you do and where did you go?

52. What did they prescribe to the child at the health facility you went to? What did they say there?

53. What happened after that?

54. What was the end result of this episode? Did your child recover from the illness?

55. What did you think about the advice and service that you received from the FCHV regarding this illness?

56. What did you think about the service you received from the health facility during this illness?

G. Hypothermia

57. Your FCHV's records show that your youngest child suffered from hypothermia following the delivery and that the FCHV diagnosed the problem. Does that match your understanding?

58. What happened to your child? *(probe: how did s/he become hypothermic?)*

59. What did the FCHV do? *(probe: did she teach you about skin-to-skin care? Did she demonstrate how to do it? what else did she do?)*

60. What did the FCHV advise you to do?

61. Did you do what was advised? Why or why not?

62. Did you do anything else? *(probe: what happened after that?)*

63. What was the end result of this episode? Did your child recover from the hypothermia?

64. What did you think about the advice and service that you received from the FCHV regarding hypothermia?

H. LBW (check page 1 to see if newborn was "LBW" or "VLBW")

65. Your FCHV's records show that your youngest child had low birth weight when s/he was born and that the FCHV diagnosed the problem. Does that match your understanding?

66. What did the FCHV tell you? (probe: what did she advise you to do? Did she recommend Kangaroo Mother Care (KMC)?)

67. Tell me how the FCHV showed you how to do KMC. *(probe: did she demonstrate it herself? what else did she do?)*

68. Did you do what was advised? Why or why not?

69. How long did you practice KMC?

70. Did the FCHV tell you to take your child to the health facility for further treatment for LBW?

71. What did you do and where did you go?

72. What did they do for your child at the health facility you went to? What did they say there?

73. What happened after that?

74. What was the end result of this episode? How is your child doing now?

75. What did you think about the advice that you received from the FCHV regarding low birth weight?

76. What did you think about the service you received from the health facility for low birth weight?

I. Birth Asphyxia

77. Your FCHV's records show that your youngest child suffered from birth asphyxia during delivery and that the FCHV diagnosed the problem and helped manage it. Is that true?

78. What happened to your child during delivery? *(probe: what next?)*

79. What did the FCHV do? *(probe: did she rub the baby's back? what equipment did she use? Did she use the DeeLay's suction? Did she use the bag-and-mask?)*

80. How did things turn out? Did your baby recover from the birth asphyxia?

81. What did you think about the service that you received from the FCHV during your delivery?

We have reached the end of our interview. Thank you very much for your time.

Checklist for cross-verification of FCHV records and mother's recall

Data regarding the services provided by a specific FCHV to a specific newborn will first be gathered from the FCHV's NCP-2 form (that has been "closed" and submitted to the health post) and then recorded in the table below (left-hand two columns). The mother of the same newborn will then be asked whether the FCHV performed those same services and her answers will be recorded in the table below as well (right-hand two columns).

1. Name of FCHV: _____ 2. Name of mother: _____ 3. Name of newborn: _____	4. Address of mother (VDC, ward, tole): _____ 5. Date of delivery: (dd/mm/yyyy): ___ ___ / ___ ___ / ___ ___ ___ ___

#	Item	As recorded on NCP-2 form		Ask the mother	As reported by mother
1	**Place where delivered** *(on NCP-2, it is under "2. Delivery Period")*	1. Health facility 2. Home 3. Nothing circled		"Where did you deliver?"	1. Health facility 2. Home 3. Don't know
2	**FCHV present during delivery** *(on NCP-2, it is under "2. Delivery Period")*	1. Circled 2. Not circled		"Was the FCHV present during your delivery?"	1. Present 2. Not present 3. Don't know
3	**Weighed the baby** *(on NCP-2, it is under "5. Assessment and management of baby according to weight")*	1. Circled 2. Not circled		"Did the FCHV weigh your baby during the first three days following delivery?"	1. FCHV weighed baby 2. FCHV didn't weigh baby 3. Don't know
4	**PNC visit** *under "6. Assessment and management of birth"*				
	Day of birth	1. Circled "healthy" or "refer" 2. Didn't circle anything		"Did the FCHV visit your newborn on the day of birth?"	1. FCHV visited 2. FCHV didn't visit 3. Don't know / remember
	Day 3 visit	1. Circled "healthy" or "refer" 2. Didn't circle anything		"Did the FCHV visit your newborn on the 3rd day after birth?"	1. FCHV visited 2. FCHV didn't visit 3. Don't know / remember
	Day 7 visit	1. Circled "healthy" or "refer" 2. Didn't circle anything		"Did the FCHV visit your newborn on the 7th day after birth?"	1. FCHV visited 2. FCHV didn't visit 3. Don't know / remember
5	**Condition of newborn on 28th day** *(on NCP-2, it is "7. Neonatal outcome up to 28th day")*	1. Circled "alive" 2. Circled "death" 3. Circled "unknown" 4. Nothing circled		"Did the FCHV visit your newborn on the 29th day after birth?"	1. FCHV visited 2. FCHV didn't visit 3. Don't know / remember