

Use of the Clean Home Delivery Kit in Nepal: A Qualitative Study



Final Report

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Acronyms

CHDK	Clean home delivery kit
MCHP	Maternal and Child Health Products Pvt. Ltd.
NGO	Nongovernmental organization
NRCS	Nepal Red Cross Society
PATH	Program for Appropriate Technology in Health
SCF	Save the Children Fund
TBA	Traditional birth attendant
VDC	Village Development Committee

Executive Summary

With funding from the Bill & Melinda Gates Foundation, Program for Appropriate Technology in Health (PATH) conducted a qualitative research study to gather detailed information about how the Clean Home Delivery Kit (CHDK) helps various types of birth attendants and/or cord-cutters in Nepal to maintain the principles of clean delivery. This qualitative research was designed as a follow-up to a study on impact of the CHDK on cord infection conducted in 1998. The study was undertaken from January to July 2001 in the Nepali districts of Siraha and Udayapur.

The main objective of the study was to understand the context of kit use and non-use by women for their own deliveries and by women assisting them during delivery. A research coordinator and a team of four interviewers conducted the field research, with logistical support from Save the Children Fund/U.S. (SCF/US) in Siraha and the Nepal Red Cross Society (NRCS) in Udayapur.



The Nepali Clean Home Delivery Kit

Interviewers conducted 51 in-depth interviews with four types of birth attendants: women who deliver alone, trained traditional birth attendants (TBAs), untrained TBAs, and women who were assisted by a family member while giving birth. The interviews explored five main themes:

- how the kit (specifically the plastic coin) is regarded by its users;
- the factors related to the delay in purchasing kits and other preparations before delivery;
- the manner in which mothers and birth attendants acquire the information that a clean razor blade should be used, and the key information that makes them actually use it;
- knowledge, attitude, and use of hand-washing practices during delivery; and
- the effectiveness of the pictorial instructions included in the CHDK.

Interviews were held in three consecutive periods to allow for intermediate analysis of results. As the rate of use of the CHDK was found to be low, kits were seeded (that is, distributed free to pregnant women just before their delivery) in both districts. The study team crosschecked information through interviews with government and health workers from nongovernmental organizations (NGOs).

Findings

General perceptions. Data from the study show that the CHDK is generally well regarded by its users. Respondents identified the convenience of having all birth-related tools available in one place as the main positive characteristic of the kit. Many people said they used the CHDK because its components are hygienic and contribute to the prevention of illnesses. For TBAs, an important motivation for using the kit is their fear of being blamed for the disease and death of the children they deliver, as their professional reputation is at stake. Some respondents felt that the kit was wasteful because the contents must be thrown away after use, and some individuals perceived the kit to be expensive (25 Rupees, or US\$0.34), especially for poor people.

Kit contents. Untrained kit users identified the razor blade and thread as the most useful items. Trained users viewed the plastic sheet as most helpful, as they were more aware of the importance of a clean birthing place and felt that they could get clean cutting tools elsewhere. The plastic coin included in the kit as a cutting surface was easily accepted and used as a substitute for a metal coin. Kit non-users used unclean coins; therefore, among this sample, the plastic coin appeared to be useful for hygienic purposes.

Findings from the interviews also indicated that many health posts and the hospital in Lahan use the CHDK during deliveries on their premises and at home deliveries performed by health post nurses. This audience has access to other clean cutting instruments, and thus the clean cord ties and the plastic sheet were the most useful kit components.

Razor blades. Use of razor blades as a clean alternative cord-cutting implement has been promoted in Nepal for the last 20 years, which has contributed to the high awareness of the need for a new blade. Razor blades are now more widely available, culturally acceptable, and perceived as sharp and suitable for cutting the cord.

Birth preparations. In Nepal, few preparations for childbirth are made in advance. This is attributable to the belief in most areas that birth preparations are unnecessary or taboo (i.e., cause bad luck), and an underestimation of the time actually needed to assemble birth materials such as thread, a coin, soap, and cutting instruments.

Decision-makers. The interviews indicated that while health personnel and other training resources can educate mothers and TBAs on the need for the CHDK, this information may not reach the decision-makers of the delivering households. Limited knowledge about the kit and weak perception of its usefulness are constraints for kit use.

Most TBAs indicated that they are dependent on the delivering woman's household for all birth preparations and that they can advise, but not obligate, a pregnant woman or her mother-in-law to purchase the kit. TBAs mentioned that the household often is not willing or able to spend the money for a kit. Some TBAs, however, stated that they would not attend a delivery unless the kit was used. The study data support the conclusions that the TBAs' attitude toward the kit is decisive in their use of the kit, and that TBAs who are not motivated to use the kit by their own conviction will not promote it.

Kit price. Most respondents stated that the kit's price was reasonable and that they themselves could afford it, but they often noted that poor, low-caste people could not. Many felt the kit price (currently 25 rupees) should be about 15 rupees. The study data indicated that some people felt the cost of the most important contents did not add up to the kit's full price, and that they considered the kit an "extra" rather than an essential item for delivery.

Additional constraints. The interviews indicated that another constraint to kit use is that most of the components are more readily available than the kit itself. In addition, many kit non-users had not heard of or seen the kit, despite community-based promotion of the kit and media attention in the region. The study data suggest that kit use is low, despite social marketing efforts.

Hand washing. The interviews indicated that hand-washing during and after delivery carries the meaning of ritual cleansing (rather than a deliberate intent to reduce infection) because delivery is considered a polluting process. About half of the respondents were aware that dirty hands

might transfer disease to the newborn baby and its mother, but even TBAs felt that water alone should be enough to eliminate this risk.

Most respondents felt that if they had washed their hands once, there was no need to wash them again before cutting the cord. The study found that actual hand washing as observed in demonstrations appears to be weaker than stated by respondents, and thus is still not considered an integral part of clean delivery by most individuals. The study data does not suggest that the illustrated insert substantially influences the users' hand-washing practices.



Illustration of hand washing from the pictorial kit insert

Immediate wrapping of the newborn and breastfeeding.

The pictorial insert was designed to educate the kit users on two aspects of neonatal care directly after birth: immediate wrapping of the newborn and immediate breastfeeding. Few respondents understood the picture indicating wrapping of the baby immediately after birth. Some trained TBAs perform immediate wrapping, as they are aware of the need to keep the baby warm and in fresh air.

Immediate breastfeeding and the feeding of colostrum are impeded by the cultural perception that breast milk comes only after two and a half or three days. Particularly in Siraha, the child is fed on diluted goat's milk, honey, or sugar water during these days. In Udayapur, more mothers mentioned breastfeeding as soon as the delivery process and cleaning were complete.

Disposal of placenta and kit contents. Respondents of different ethnic backgrounds described different customs related to the disposal of the placenta in light of the belief that if the placenta touches the soil, or if animals eat the placenta, the child will fall ill. To avoid this outcome, they tend to bury the placenta or throw it into thick bamboo bushes. In Siraha, health educators have promoted burying the placenta.

Only a small number of respondents were aware of the risks of contracting disease by re-using the razor blade or other materials from the kit. About half of the respondents put the used blade aside after washing it with water. The coin used as a cutting surface was generally washed and taken by the TBA, given to the priest, or thrown away. Respondents disposed of waste materials by throwing them away more often than by burying. Waste materials were generally disposed of separately from the placenta.

Pictorial instructions. Understanding of the pictorial instructions was low among women interviewed in both Siraha and Udayapur. The study found that the users' understanding of instruction sheet pictures improves with education/literacy level. In general, trained TBAs had a better understanding of the pictures than other illiterate respondents, who stated that they could not understand this kind of paper. The interviews also found that comprehension is hampered by cultural perceptions. Suggestions for improvements to the instructions were gathered.

Most kit users and non-users understood that the piece of paper in the kit was intended to explain the delivery process or use of the kit. During demonstrations of kit use, however, observers noted that the insert often did not come out, or was put aside after opening the box. TBAs indicated that they knew the birth process and therefore did not need to look at the insert.

Recommendations

Based on these observations, the study team concluded that there is still a need for tools that can help improve cleanliness and hygiene during deliveries. The purpose of the CHDK remains valid.

More specifically, the study indicated that:

- Promotional efforts need to draw more attention to hygiene and the role of all kit contents (including the plastic sheet and soap) in preventing disease.
- Hand-washing during delivery is a topic that still needs attention, as the connection between hygiene and infection is not well understood.
- The plastic coin should continue to be included in the CHDK, as hygiene will not be maintained by using a traditional coin. The reasons for disposing of the blade and coin should be further highlighted.
- Peer education through as many community-based organizations as possible would be an effective tool for promoting the CHDK.
- The pictorial insert needs changes to make it comprehensible for untrained users.
- The development of geographically specific, culturally adapted, large, and colorful instructions for use by shopkeepers, TBAs, and health educators should be considered.

Factors influencing the delay in purchasing CHDK kits in advance of delivery are deeply culturally rooted. As demonstrated by higher use rates in SCF Siraha's oldest program areas, only slow and gradual change is possible. Consequently, in promoting the CHDK, it is important to set realistic goals and make a concerted effort to integrate the kit into other birth preparedness efforts in Nepal.

Chapter 1: Introduction

1.1 Development of the Clean Home Delivery Kit in Nepal

Tetanus and sepsis are among the leading causes of maternal and neonatal death and illness in developing countries. These infections occur mainly as a result of contamination from an unclean delivery environment and harmful delivery practices, including the use of unclean materials during the delivery. Both the mother and baby are exposed to the risk of infection. In Nepal, 90% of births occur at home and are attended by people with little or no training, and shortages of suitable clean implements and materials contribute to the problem of perinatal infection.¹

To address these problems, a clean, disposable delivery kit—called the Clean Home Delivery Kit (CHDK)—has been produced and sold by MCH Products Pvt. Ltd. in Nepal since 1994. PATH and the International Save the Children Alliance, led by SCF/US, provided technical assistance, and the United States Agency for International Development (USAID), the United Nations Children’s Fund (UNICEF), and the United Nations Population Fund (UNFPA) provided funding for the project.

The CHDK, known as *Sutki Samagri* in Nepal, provides materials that ensure a clean delivery surface, a clean cutting instrument, clean ties for the cord, and clean hands for the attendant. As the World Health Organization (WHO) states, “the use of simple, disposable delivery kits will help achieve as clean a delivery as possible.”²

The CHDK addresses four of the six clean delivery principles defined by WHO. These practices observe the principles of cleanliness throughout the labor and delivery and after birth until the separation of the cord stump. According to WHO, the hands of the birth attendant must be washed with water and soap, as well as the perineum of the woman. The surface on which the baby is delivered must be clean. Instruments, gauze, and ties for cutting the cord should be clean. Nothing should be applied either to the cutting surface or to the stump. The stump should be left uncovered to dry and to mummify.³

After more than five years distributing kits, and with more than 500,000 kits sold in Nepal, the CHDK partner agencies set out to evaluate the impact of clean delivery kits on the well-being of mothers and newborns. Although WHO and others recommend provision of disposable delivery kits to women and community birth attendants, researchers and program managers have recognized that it is difficult to prove that kits have a beneficial impact independent of other interventions.⁴

1.2 Quantitative Evaluation of the CHDK in 1998

In 1998, PATH collaborated with SCF/US on a quantitative evaluation of the CHDK in Nepal. Funded by USAID, the study focused on the immediate impact of the CHDK on simple cord infection. Additionally, the study team explored intermediate outcomes such as changes in knowledge or behavior that have a long-term, beneficial health impact.

¹ Nepal Family Health Survey, Ministry of Health, 1998.

² WHO. *Essential Newborn Care: Report of a Technical Working Group*, 2000.

³ WHO/FHR/MSM, 1996.

⁴ Smith J and Fortnery J. *Birth kits: An assessment*. UNICEF, 1996.

The quantitative study involved four cohorts of women: both kit users and non-users, who delivered both with and without trained TBAs. Through interviews, information was obtained on newborn health status during the first few weeks of life; reported delivery practices; and mother's knowledge, experience, and intentions. The study was carried out in three districts in the Terai region of Nepal: Morang, Siraha, and Sunsari.

The most important immediate finding of the study indicated that use of the CHDK reduced simple cord infection (and probably neonatal tetanus and sepsis), when compared with deliveries performed with unclean cord-cutting instruments and unclean cutting surfaces. The study also indicated that the kit had a possible impact on hand-washing and use of soap. Participants' understanding of the messages in the kit's pictorial instructions reflected increased knowledge of clean delivery. The clients' intention to use the kit in future deliveries and/or to recommend it to others indicated an enhanced perception of the importance of a clean delivery. The study also found, however, that CHDK use was hampered by delays in purchasing the kit.

At the conclusion of this study, the study team identified the need to explore several emerging issues more thoroughly. These issues include what participants thought about the pictorial messages included in the kits, how interpretation differed with different attendants, and what participants did with the information after looking at it. In addition, the team wished to determine whether the high level of use of new or boiled blades among kit non-users was related in any way to publicity about the kit or general education efforts about clean delivery.

1.3 Qualitative Research on the CHDK

Following the quantitative study, a qualitative study was designed and executed from January to July 2001. This study sought to further enhance the understanding of the CHDK's effect on maintaining cleanliness during home deliveries, to explore the outstanding questions raised by the previous study, and to place these questions in a cultural context. The qualitative study specifically addressed the differences in CHDK use and effect by various categories of birth attendants. Because different types of users can be expected to have varying levels of knowledge about, and attitudes towards, hygiene and clean deliveries, the effect of the kit on user practices and their interpretation of the pictorial insert were expected to differ as well.

1.4 Birth Attendants: An Overview of the Context

A 1988 study identified five categories of birth attendants:

- the woman herself,
- a helper (relative or neighbor),
- an expert assistant,
- a person of the scheduled caste, and
- a faith healer.⁵

The use of these birth assistants varies according to ethnicity, and possibly, geography. The National Family Health Survey reported that 23% of all deliveries in the country were attended by a trained TBA.⁶

⁵ For the purposes of this research, *expert assistant* and *scheduled caste* (Levitt, 1988) are classified as TBAs. The expert assistant is experienced in difficult deliveries and can insert her hand into the vagina. The scheduled caste is called upon mainly to cut the umbilical cord and handle other polluting birth-related.

⁶ Ministry of Health/New Era 1998.

Birth is considered a polluting process in most cultures of Nepal. Assisting in this process is believed to produce ritual pollution of the attendant as well as ritual debt towards the attendant. Categories of birth attendants differ in the tasks they are expected to carry out during the birth process, and thus the degree of pollution acquired.

Moreover, the presence of TBAs in several ethnic groups has been highly controversial. Since 1974, His Majesty's Government of Nepal and several NGOs working in the health sector have trained large numbers of TBAs chosen from the categories of expert assistants and scheduled castes, as appropriate for the cultural region (although TBA training was assigned on political grounds in some cases). In some areas—especially where TBAs are abundant—many practicing TBAs may not have received training, as the official quota was only two or three per village development committee (VDC, an administrative cluster of villages).

TBA training has come under consideration again, as its ability to reduce neonatal and maternal death has not been substantiated. The government, together with organizations such as UNICEF, is now focusing its safe motherhood efforts on improved health services by auxiliary nurse midwives and mother and child health workers. It may be some time before a sufficient number of capable health personnel of this level will be available to provide all services required for clean home deliveries throughout Nepal. Thus, within the context of these efforts to improve clean delivery practices among trained and untrained TBAs, as well as other helpers and women delivering on their own, the CHDK continues to play an important role.

This context was taken into full consideration when selecting the attendant categories for this study.

1.5 Clean Delivery and Kit Promotion Efforts

Since 1974, NGOs have been training TBAs on clean delivery in Nepal. Since the early 1980s the government has been conducting TBA training to encourage use of a clean, boiled razor blade; coin; and new thread. The first TBA training was held in Siraha in 1985, and SCF has been promoting clean delivery since 1990.

In Udayapur, TBA training has promoted clean delivery for ten years. The Nepal Red Cross Society (NRCS) initiated safe delivery activities five years ago. The fieldworkers and volunteers promote clean deliveries and create community awareness of danger signs during pregnancy and delivery.

In both study districts, intensive efforts have been made to make the CHDK available in villages. At the time of CHDK introduction, SCF was involved in making the kit locally available through community-based distributors and TBAs. In 1998, the strategy in Siraha was changed and local shopkeepers became involved in social marketing of the kit. In total, 308 distributors have been trained in CHDK marketing and sales. In Udayapur the NRCS promotes the CHDK and makes it available through volunteers in each ward.

Educational radio programs and training of TBAs, health volunteers, and health-post personnel have promoted increased knowledge and practice of clean deliveries and CHDK use at a national level. However, because TBAs do not function in all villages, these efforts are not always effective.

1.6 Cultural Context for the Use of Clean Razor Blades

In Siraha, cords traditionally have been cut by a *khurpi* (a weed-cutting tool) on a piece of clay roof, tile, or water pot. This was confirmed by several respondents during the research. This tradition has faded now, although in the case of an emergency, people might resort to this option. As one mother-in-law mentioned when describing the local TBAs of the untouchable caste (*chameni*), “if you do not have a blade prepared, she will use whatever else is available.” Although the *khurpi* would be sharpened before cutting, it was not cleaned or boiled.

In Udayapur, the cord is cut with either a *hasiya* (sickle) without a cutting surface, as the *hasiya* is round, or a *kachia* (straight-fodder cutting tool) and a coin. During the interview period these materials were found to have been used in three recent deliveries attended by family members. There is no tradition of cleaning these tools by washing or boiling them. Only one respondent mentioned that her husband used to put the *khukuri* in the fire for a while before handing it over to cut the cord.

These traditions have been changing, mainly as a result of TBA training and public advertisements promoting clean delivery. Through government and NGO training, the use of razor blades for cord-cutting has been successfully promoted for nearly 20 years.

Chapter 2: Research Methodology

2.1 Goals and Objectives

The overall purpose of this qualitative research was to provide contextual information about how the CHDK helps various types of birth attendants and/or cord-cutters maintain the principles of clean delivery in Nepal.

The main objective of the study was to understand the context of kit use/non-use by women for their own deliveries or deliveries they attended.

The secondary objectives of this research were to assess:

- how the kit (specifically the plastic coin) is regarded by its users;
- the factors related to the delay in purchasing kits and other preparations before delivery;
- the effectiveness of the pictorial instructions included in the CHDK;
- knowledge, attitude, and use of hand-washing practices during delivery; and
- the manner in which mothers and birth attendants acquire the information that a clean razor blade should be used, and the key information that makes them actually use it.

The effectiveness of the pictorial instructions covers compliance with the “six cleans” as well as favorable practices such as immediate wrapping of the baby and immediate initiation of breastfeeding.

The study also sought information from both kit users and non-users about traditional delivery practices, including normal preparations before delivery and the materials used. Although the original study design proposed identifying the influence of access to health information and services in rural versus urban areas, this design proved impractical to accomplish, and of considerably less importance to central research objectives, and thus was eliminated.

An independent, tertiary objective of PATH’s research was to design a model for this type of qualitative research for the evaluation of delivery kits worldwide and to develop a model for the training of in-depth interviewers. Extensive information about the research model is presented in a separate document.

2.2 Research Methodology

2.2.1 Study Sites

The district of Siraha in the Terai (lowland or plains) area of Nepal was initially selected as the study site, in part because it was one of the districts covered by the 1998 quantitative research on the CHDK. In addition, since the start of CHDK production, SCF/US, along with the government, has been promoting the CHDK in the district, and SCF continues to



Siraha and Udayapur Area

implement a district-wide, community-based family health project in this zone. Thus, the kit is promoted and used in the district. SCF was also able to offer logistical support for the research in this district.

During the first phase of the research the study team could not find a sufficient number of women delivering on their own in Siraha, due to its ethnic composition and cultural setting (see Chapter 3). Another area with a higher prevalence of women delivering on their own therefore needed to be identified. The Nepal Red Cross Society (NRCS) in Udayapur indicated that they would be able to find women delivering alone in some of their VDCs. Udayapur was therefore selected. Although it is a hill district, the lower VDCs are still quite accessible. In addition, Udayapur is immediately north of Siraha, which allowed for combined fieldtrips to both research areas and limitation of cultural differences.

In Siraha, 36 VDCs were selected at random. Each of the three interview periods covered a different set of 12 VDCs. This approach was developed to prevent encountering the same TBAs in the three interview periods.

In Udayapur, four VDCs were selected on the basis of the NRCS field staff's report on the availability of women delivering alone. These four VDCs were visited in both the second and third interview periods (see Appendix A for maps of the research area).



Interview team on their way to meet with study respondents

2.2.2 Respondents and Sample Size

The research focused on two groups of women: kit users and kit non-users. Definitions used for the identification of the respondent categories were as follows:

- **Kit user:** Mother or her birth attendants who used the CHDK during the most recent delivery.
- **Kit non-user:** Mother or her birth attendants who did not use the CHDK during the most recent delivery.

Each group was subdivided into four categories of birth attendants: The subdivisions for types of attendants were as follows:

- **Untrained TBA:** A woman from outside the household who is regularly (at least six times per year) called upon by the community to attend deliveries, but who is not trained in birth attendance by any formal institution.
- **Trained TBA:** A woman from outside the household who is regularly (at least six times per year) called upon by the community to attend deliveries, and is trained in birth attendance by formal institutions like the Ministry of Health (MOH) or any health NGO.
- **Family member attendant:** A person from the same household, or direct sister, sister-in-law, or mother-in-law, who has no formal training in birth attendance and is not regularly called upon by the community to attend deliveries.⁷

⁷ *Family member attendants* would classify as “helpers” in the context of Levitt’s research.

- **Mother alone:** A mother who conducted all birth-related tasks during the delivery of her child and cut the cord of the baby herself, without assistance from any other person. No trained or experienced birth attendant was present at the time of birth (although she may have had help with heating water and obtaining required materials from outside the birthing space).

To reduce confounding factors in the comparisons between kit users and non-users, the study team restricted, to the greatest extent possible, cultural and other contextual differences within each category of birth attendant (see Chapter 3).

2.2.3 Respondent Identification

In Siraha, runners (scouts who look for potential respondents) who were recruited from SCF's temporary staff to identify eligible respondents in the villages. The runners asked community health volunteers, TBAs, and other relevant community members about any births that occurred within two weeks prior to the initiation of an interview period. When a newly-delivered mother was identified, a selection form was filled out to determine the kind of assistance she had during delivery. If she had been assisted, the person who attended the birth was also identified. Finally, the use or non-use of the CHDK was checked. Respondents were selected from the identified, eligible cases based on whether they met the category's criteria, and whether it was logistically feasible to reach them during the field visits.

In Udayapur, the research team identified respondents through the NRCS field staff in each of the four VDCs. NRCS staff identified women who had recently given birth, and the interview staff then visited these women to inquire whether they had delivered alone. If so, the interview was conducted at that time.

It proved difficult to find a sufficient number of kit users within the geographic limits and timeframe of the research. Thus a decision was made to "seed" kits to potential users by identifying women in their last month of pregnancy in both districts. These women were given CHDKs, and contacted during the next interview period to inquire whether they used the CHDK and what kind of birth attendant they had. Eligible kit-user respondents were subsequently interviewed.

2.2.4 Data Collection

As described in the following sections, data were collected through carefully developed and implemented in-depth interviews.

2.2.4.1 Interview Topic Guides

The study team developed topic guides that enabled the interviewers to gather a maximum amount of data. The guides were tailored for kit users and kit non-users (see Appendices B and C for samples).

The interview topic guides covered many topics, including traditional delivery practices, preparations for delivery, items used during delivery, use of CHDK during latest delivery, motivation for using the kit, place of purchase, description and demonstration of delivery process, cord-cutting, care of newborn, opinions of kit and likelihood of recommending to another woman, understanding of pictorial instructions, and recommendations for changes to instructions.

On all topics, probing was pre-guided in accordance with the "six cleans" defined by WHO and focused on related attitudes, specifically hand washing and clean preparation of the cutting tools.



Demonstration of delivery practices by one of the respondents

During the interviews, both kit users and kit non-users were asked to demonstrate or describe their most recent delivery through a role-play. For demonstration purposes, the interviewers carried a number of commonly used items to identify which components were used; these materials included pieces of cloth, oil, blades, thread, coins of different types, and a CHDK. The topic guide included an observation checklist that was used to gather the minimal amount of data required during the demonstration of the most recent delivery.

Both kit users and non-users were asked about their understanding of the purpose

and meaning of the pictorial insert. The interviewers obtained feedback on each picture to assess the respondent's understanding, and asked kit-users to describe the health messages they were reminded of when looking at the insert. The interviewers specifically addressed the understanding and influence of the messages on hand-washing during delivery, immediate wrapping of the baby, and immediate breastfeeding. They also sought suggestions for improvements of the pictorial insert.

The topic guides, including the explanation of the demonstration role-play, the observation checklist, and the pictorial insert-testing checklist, were translated into the local languages of Maithali and Nepali by a well-known language institute. They were then back-translated and corrected by MCHP staff and the research coordinator before the interviewers were trained. After pre-testing in the field, all topic guides were revised and finalized.

2.2.4.2 Interviewers

Four interviewers were identified by MCHP and the field research coordinator based on three criteria: They had to be (1) female, (2) fluent in Maithali and Nepali, and (3) highly experienced in conducting interviews and focus group discussions. Interviewers worked in teams of two, taking turns as the interviewer and note taker.

Interviewers were trained to use the topic guides to gather the maximum amount of relevant data. The training helped the interviewers understand the crucial information sought by the research and the relation of the topic guide questions to this required information. The trainers focused on probing techniques, such as the use of open and probing questions, and recording the experiences and opinions of the study participants accurately. Using role-play, topic guide questions were used to show the interviewers how to explore and obtain complementary information. The interviewers were also trained to use the observation checklist during the demonstration.

2.2.4.3 In-Depth Interviews

Prior to the interview, the interviewers collected general information about the respondent and the new mother, including her ethnic group, age, education, religion, number of children, and the birth date of the newborn. The topic guides were coded to reflect the category of kit user/non-user, type of birth attendant/cord-cutter, and urban or rural living area.

The interviews were conducted during three ten-day segments, several weeks apart. After each interview segment, the data was analyzed for completeness and content. Based on this preliminary analysis, the field research coordinator assessed the need for additional or adapted questions during the subsequent interviews. When necessary, the field research coordinator crosschecked information from the interviews by holding informal interviews with related health personnel in both Siraha and Udayapur.

During the second and third segments, the interviews with trained and untrained TBAs were complemented by short visits to the family house of the mother who had recently given birth. The mother or her mother-in-law was interviewed about delivery preparations, perception of the CHDK, and decision-making on use of the kit.

All interviews were tape-recorded, with the exception of one case in which the recording failed. Recorded interviews were transcribed in their entirety in Nepali. These transcriptions were supplemented by the observation checklist of the demonstration and hand-written notes on the understanding of pictures in the topic guide.

The field research coordinator observed (and, where appropriate, participated in) nearly half of all in-depth interviews to monitor interviewers and to ensure quality and completeness of data. At evening meetings during the field-visit periods, the team shared experiences and remarkable findings, and the field research coordinator provided feedback on the quality of the interview techniques and data.

2.2.5 Data Analysis

A research database was designed using the EZ-Text 3.0 program. After translation into English by a team of three translators, MCHP staff entered the taped, transcribed, and written data from the in-depth interviews and observation checklists into this database.

The field research coordinator coded the interview responses by theme and analyzed them using EZ-Text and Microsoft Access 2000.

The respondents' descriptive data were exported from the EZ-text file to an Access database in order to analyze the research population characteristics. Analysis of qualitative data also included counting the occurrence of different opinions through coding and comparing actual phrasing and expressions. Where appropriate, additional information was analyzed and reported as well.

2.2.6 Limitations of the Study

Sampling. This qualitative research did not attempt to obtain a representative picture of birthing practices and knowledge or use of the kit in all regions of Nepal. It covered only two districts; in one of these districts, the study concentrated on only four VDCs.

Further, the ethnic and cultural compositions of the two districts are markedly different from one another and the rest of the country. The purpose of the study was to obtain information on the use of the CHDK in its larger context, and it did not survey all major ethnic groups in Nepal. This study does, however, provide information on the perception and use of the CHDK by different birth attendants in Siraha, and of mothers delivering alone in the hills of Udayapur.

Seeded kits. As noted earlier, the study team seeded kits to pregnant women about to give birth. The study team interviewed a total of 15 women who had received seeded kits. While seeding provided the study with more kit users, this technique also limited the study's ability to assess the natural process and motivations that lead to CHDK use. As many non-users responded that they had no previous knowledge whatsoever about the CHDK, it was difficult to explore factors that impede kit use.

Limited study period. This qualitative research sought sensitive information of a typically ethnographic nature. Ideally, this type of research is best done over a longer time span so that the trust of the community and the selected respondents can be earned. Limited budgets and time did not allow for longer discussions and actual observations of practices that could potentially complement the interviews. The chosen research approach represented a practical compromise, though the shyness of the young mothers delivering on their own may have limited the quality of the data on some occasions.

Language. In Siraha almost all of the interviews were conducted in Maithali. The field research coordinator was fluent in Nepali, but not in Maithali, which presented some challenges for supervising the interviewers. The need to limit the size of the interview team precluded bringing in an English interpreter. (Having two interviewers, an interpreter, and a field research coordinator would have overwhelmed the participants.) To compensate for the language barrier, the field research coordinator asked for translation during the interviews if a response was important to her. It was discovered, sometimes only after translation into English, that some topics were probed insufficiently. This problem was minimized through regular discussion of each day's experience. Fortunately, the research methods did account for mid-term translations, and some amendments could be made.

Perceptions of the interview team. Finally, the researcher and interviewers may have been perceived as advocates of the CHDK and evaluators of TBA training, which, if true, would have inhibited the ability of the study team to find entirely independent opinions and attitudes. This is particularly true for questions about negative aspects of the CHDK, whether respondents would use the kit again, or if they would recommend it to others.

2.2.7 Ethical Considerations

This study involved only voluntary interviews conducted in private, with no risks to the respondents. Before starting the interview, all respondents were told about the nature and purpose of the study, and were assured that their participation was completely voluntary. Refusal to participate did not affect eligibility for any other services. All interview results were kept confidential, and personal identifiers were removed and replaced by codes when the data were entered into the computer. Tape recordings of the interviews were destroyed after transcription. PATH's Human Subjects Protection Committee exempted the protocol from extensive review based on these conditions.

The pregnant women who were offered a CHDK for use during their pending delivery were informed about the purpose of the kit and voluntarily accepted the kit. They were not in any way

forced to use the kit. Again, refusal to accept or use the kit did not affect eligibility for any other services. The CHDKs provided to pregnant women could not be expected to cause any harm to future mother or child, as they were designed to help in a clean and safe delivery. If participants asked for an explanation of how the kit contents were to be used, the runners provided an explanation.

After finalizing the interviews, the interviewers used the opportunity to orient respondents to the correct use of the CHDK and the "six cleans" promoted for clean delivery. The interviewers were instructed to refer any woman or child needing medical attention to the nearest health facility. One baby with a harelip was referred to the SCF support program.

Chapter 3: Results

3.1 Characteristics of Interview Respondents

As shown in Table 1, a total of 51 interviews were performed (see Appendix B for more information). Only one interview was not completed; this interview did not include information about the respondent's comprehension of the pictorial insert. In Siraha various types of birth attendants were interviewed. In Udayapur the research was mainly limited to mothers who delivered alone, in order to reduce cultural and other contextual differences.

Table 1. Interview Respondents

	Udayapur	Siraha	Total
Kit Non-Users			
Untrained TBAs	0	5	5
Trained TBAs	0	5	5
Family member attendants	1	9	10
Women who deliver alone	7	0	7
Total	8	19	27
Kit Users			
Untrained TBAs	0	5	5
Trained TBAs	0	5	5
Family member attendants	2	7	9
Women who deliver alone	4	1	5
Total	6	18	24
TOTAL INTERVIEWS	14	37	51

In addition, a total of 15 informal interviews with health and management personnel were conducted. In Siraha, the study team interviewed the district health officer, two hospital nurses, a health post officer-in-charge, two health post nurses, the SCF health officer, and a SCF health post support staff person. In Udayapur, the study team interviewed the program manager of NRCS, a health post doctor, a health post nurse, and 4 NRCS fieldworkers.

For more detailed information, please see the tables in Appendix D.

3.1.1 Caste and Ethnicity

The hilly geography in Nepal has influenced the limited exchange among ethnic groups in some areas, although migration has occurred. The ethnic groups in Nepal vary in their ancestry, marriage customs, religion, and social practices. Birth attendant practices relating to ethnic customs are described in section 3.2. This study sample was not representative, and caste and ethnicity were not factors when selecting respondents.⁸ Aside from the category of mothers delivering alone, there were no major differences in caste distribution over the other three birth attendant categories.

⁸ For a discussion of ethnic differences, see People of Nepal, Dor Bahadur Bista, 1996 (6th edition).

Siraha is a Terai district where a population of people originating from the Indian plains is predominant. People from the hills have been migrating into the district for one or two generations. Although they have been settling in Siraha, they have not integrated with the rest of the population. Generally, these people are of Tamang, Magar, and Bahun/Chhetri origin and practice Buddhist or Hindu religions.

In Siraha, the majority of respondents were low-caste and untouchable-caste women from the Terai. Among the mothers helped by these birth attendants were a number of high-caste Terai families. Interestingly, two family attendants were of high-caste Terai origin themselves. Two Tharu respondents were included in the sample, as well as two hill tribe (Tamang) birth attendants. In the urban area of Lahan, one respondent was from the Kami caste, an untouchable caste originating from the hills.

Udayapur is the district immediately north of Siraha, comprised of a dry hill range, plains, and the low foothills of the Himalayan Mountains. The population is a mix of different hill tribes, including the Rai, Magar, Tamang, and Brahmin. The central Terai plains were originally inhabited by Tharu people. In the last decade, there has been migration out of the higher hills into these lower regions.

In Udayapur, the mothers interviewed came from three groups: hill-tribe people (Magar, Tamang, and Rai), Bahun/Chhetri people, and untouchable hill castes. A few more family members of hill-tribe and Brahmin origin were interviewed to obtain more information on the cultural setting of deliveries in these communities.

3.1.2 Age

Across all attendant categories, age of the birth attendants varied from 25 to 65 years old. The mothers delivering by themselves were younger than the other respondents (see Appendix D for table of respondent ages). The age range of the new mothers was between 17 and 40 years old. The main group was between 20 and 25 years old, both in Siraha and Udayapur.

None of the mothers delivering alone were primigravidas. Ten of the women delivering with attendants were giving birth to their first babies. Of these, three were kit-users who had received seeded kits. Most newborns (20) were the second child of their mother. The number of children of the delivered mother ranged widely, from one to nine children.

3.1.3 Literacy

As anticipated, illiteracy was high: only eight of the total sample of 50 women could read and write. Some of the participants learned literacy skills in non-formal education classes where they also learned about the CHDK.

The literacy level did not vary between kit users and kit non-users. However, as many of the kit users were seeded, no potential comparison or relationship between kit use and literacy was attempted. There were more literate women among the mothers delivering alone in Udayapur than among those using birth attendants in Siraha.

3.2 Types of Attendants Used

The cultural traditions concerning birth and birth attendance among people from the hills and people from the Terai differ widely. Among the Terai people in Siraha, it is customary to call a

birth attendant, called *sudeni* (Nepali) or *paleni* (Maithali), from the untouchable Chamar caste (*chameni*). She is expected to help with the delivery and cut the cord, which is generally considered a polluting task, and clean up after delivery. In many cases, even if family members or neighbors attend the delivery, the *chameni* will be called to cut the cord. Sometimes the *sudeni* will provide care for the mother and child for a period ranging anywhere from six days (until the *chhaitya* or *nawran*, a name-giving ceremony at sixth, seventh or eleventh day, when purification of mother and child is performed) to one or two months after delivery. Then her tasks are to massage the mother and child with mustard oil and wash their clothes. In some cases, the *sudeni* is consulted before delivery, if the pregnant woman is experiencing unusual abdominal pains.

Families may choose to cut the cord themselves to spare the costs of paying for the *sudeni*'s services. The price of the *sudeni* depends upon the village agreement, the sex of the newborn, and the amount of work she does. For just cutting, she may receive 20 to 50 rupees (about US\$0.66); for more work she may receive rice, cloth (e.g., a sari and blouse), and sometimes money. Payment is decided upon by assessing the currently acceptable payment, and also depends on the happiness and wealth of the family of the newborn. The *sudeni* receives more money for delivery of male babies.

Generally, each of the nine wards of a VDC has at least one *sudeni*. The houses and families of villages are divided among the practicing *sudenis*. Commonly, a *sudeni* cannot work outside her own area unless she pays an assigned person for it. Thus a family has no free choice in who is called during a delivery, unless they call health-post staff, who are government workers outside this *sudeni* system. In the Terai, many trained TBAs work according to the village agreements. This is one of the problems His Majesty's Government of Nepal has been facing when working with the TBAs, as they have trained only two or three TBAs in each VDC.



A study respondent with the baby she helped deliver

Nepali law does not permit low-caste untouchability to be practiced, but it is still common. For almost two years, since mid-2000, there has been a caste uprising wherein the lower caste has demanded the abolition of untouchability. In order to escape the traditional untouchability, they now refuse to perform their traditional (dirty/polluting) work such as nail cutting, burying dead animals, and cord cutting. This situation has caused people to attend the births of their pregnant family members and to cut the cord themselves. This is a remarkable change. Previously when a delivery took place at night and the *sudeni* was too far away to be called at that time, the family would wait until morning to get her to cut the cord. Some experienced village women and a number of women who received TBA training from the government (but were not practicing) have now started working as community birth attendants.

Among the hill people such as Tamang, Magar, Rai, and Limbu, it is common for women to deliver on their own. Some family members, particularly mothers-in-law, mothers, or sisters, may be called upon, but these individuals mostly help with tasks like bringing firewood, warming water, and providing materials from outside the delivery place. They will sit at the doorstep and watch and talk. As one respondent explained, they do not want to touch the mother, because their tradition holds that the new mother is polluted and should not be touched until she is ritually cleaned. The mother will receive help from these “attendants” only if she becomes too exhausted, or if it is her first baby. In the case of extreme problems, an experienced TBA may be called if she is accessible.

The practice of women delivering without assistance is attributable to the shame and embarrassment they feel asking for help during delivery. Delivering without physical support seems to be dwindling, especially among the migrant population in the Terai of Siraha. The migrants in the Raampur VDC of Udayapur stated that the people higher up in the hills deliver alone even more frequently.

3.3 Opinions of the Kit

3.3.1 Positive Aspects

CHDK users indicated that the main positive characteristic of the kit is that all cutting supplies are available in one place. Users therefore do not have to search for a razor blade, thread, or a coin during delivery. The availability of the contents makes the cord-cutting process easier. Respondents indicated that the cord-cutter/birth attendant calls out for the kit, and that someone retrieves it from where it is kept in the house or from a nearby selling point. No further directions concerning the type of thread or where to find the blade are needed. The advantage of having everything ready in one place is also convincing for people who do not fully understand the hygienic advantages of the kit.

Many respondents said they used the CHDK because its implements were clean and hygienic. Often, the prevention of illnesses was mentioned in this context. One mother said that she found the plastic practical because the baby would not get dirty with soil and would be easier to wash afterwards. A mother-in-law said it was easier cleaning up the dirt afterwards, as the blood and placenta would be on the plastic and not on the floor or a straw mat.

Importantly, about half of the interviewed people were aware that dust and dirt might cause disease to the baby and its mother. Often tetanus was explicitly mentioned, and in a few cases infection was mentioned as well. Sometimes people were not able to tell which disease presented risk and would start guessing pneumonia and diarrhea, which are two other common children’s diseases that cause high rates of infant mortality in Nepal.

Both trained and untrained TBAs were better informed about hygiene and disease than other respondents. The untrained TBAs appear to receive their information from informal encounters with health workers.

For TBAs, one important reason for using the kit is their fear of being blamed for disease or death of the children they have delivered. In such cases, their professional reputation is at stake. They feel safe when using the kit, which may prompt them to persuade the delivering mother to bring the kit. Non-user TBAs appeared aware of the hygienic advantages of the kit,

but may have had other reasons not to use it (see Section 3.4.2). Some TBA non-users expressed that they either did not know about the kit, or did not feel it was necessary.

Nearly all respondents stated that they intended to use the CHDK during their next delivery. Some expressed reservations about availability and where to purchase the kit. TBAs usually mentioned they were dependent upon their client's family for purchasing the kit.

3.3.2 Negative Aspects

The respondents did not express many negative opinions about the kit. As mentioned this may have been due to a high degree of desired answering and/or reluctance to be critical. In a few cases, the respondent said that the kit was wasteful because its contents were useless after delivery and had to be thrown away. This comment was made when discussing the importance of the different contents.

Some respondents also identified the expense of the kit as a disadvantage, especially for people with little or no income. This opinion conflicted with that of other respondents, who said that the cost of 25 rupees (US\$0.34) for the CHDK was nothing compared to the hospital costs for treatment of disease.

3.3.3 Use of Kit Elements

Cutting tools. Untrained users evaluated the kit's cutting tools (razor blade, thread, and plastic coin) as the most useful elements. Those materials were judged to be indispensable at the time of delivery. This is consistent with the perception of most non-users that the cutting tools (specifically the blade and thread) are the most important items for delivery.

Plastic coin. The interviews indicated that the plastic coin included in the kit as a cutting surface was easily accepted as a substitute for the metal coin. Respondents described it as light and easy to handle and clean. All but three kit users used it as a cutting surface. Of the three kit users who did not use the plastic coin, one respondent did not recognize it (she thought it was a condom) and used a normal coin, one did not see the plastic coin in the packet, and one explicitly preferred a metal coin, but gave no distinct reason why.

In the research area, there did not appear to be any traditions surrounding the metal coin that impede changing it for a plastic substitute. Respondents indicated that instead of the coin, broken roof tiles, water pots, or a silver bangle had been used in the past. Non-user respondents expressed no opposition to the idea of using the plastic coin as a cutting surface in the future. Only one TBA mentioned that some people would prefer her to use a real coin instead. She could not explain why. A few TBAs mentioned that if they cut on a coin, they would be able to keep it afterwards and buy a cigarette with it. Yet all kit-users were in favor of including the plastic coin in the CHDK because it is hygienic and is a nice cutting surface.

The kit non-users who used a metal coin as a cutting surface indicated that traditionally they did not clean it with water or cloth, nor did they boil it. Those who mentioned that they would clean the coin and/or blade and thread before use had learned about the importance of cleaning this from health-post staff or training (see Appendix E for more information). Generally, these respondents said they would dip the coin in boiled water for a moment—not the recommended 15 to 20 minutes.

Two TBA respondents mentioned that they kept the plastic coin as well as the plastic sheet for use with people who could not afford to buy the kit. In this case the coin would be washed with water after delivery, kept, and dipped in boiled water at the next delivery.

Plastic sheet. Trained users often viewed the plastic sheet as most helpful. They are more aware of the importance of a clean birthing place and think that they can get clean cutting tools easily elsewhere.

Kit users used the plastic sheet to create a clean place for delivery. Four kit users, however, mentioned they could not use the plastic, as the delivery had happened too quickly to put it in place. This may be a recurrent problem for women delivering on their own.

Thread. Many women did not understand why the kit contained three pieces of thread. In Siraha many respondents made only two ties. A difference was observed between kit-users and non-users. While generally both trained and untrained TBA kit-users made all three ties, some TBA kit non-users made only one or two ties on the cord before cutting. Family member attendants were likely to make only one or two ties. This was the more often the case if they were kit non-users.

In the hill district of Udayapur, where less education on cord cutting had occurred, almost all respondents (kit users and non-users alike) indicated that they made only one tie, or wound two or three threads together to tie the cord once before cutting.

Soap. Respondents expressed opposing opinions on the need for soap in the kit. Some said that soap is available at home and can easily be bought, so it is superfluous in the kit. Others stated that soap may not always be available, in which case the birth attendant can access it immediately in the kit. The soap from the kit was often put aside to wash the newborn baby for its ritual cleaning during the name-giving ceremony. A few people mentioned the bar of soap was not big enough for all the cleaning during and after delivery, which might include a full bath by the attendant and washing the cloth used to wipe the mother and baby. However, both groups were not always aware that the soap is intended first and foremost for washing hands during delivery, not to bathe the baby.

3.4 Factors Influencing Birth Preparedness and Use of the CHDK

3.4.1 Birth Preparedness

Previous research on birth practices has revealed that in Nepal, people believe that preparing for a child's birth is a bad omen.⁹ During the course of the present study, several respondents indicated that, at a minimum, the pregnant mother should not know about any delivery preparations. The women to whom the kit had been provided were asked about their feelings about the kit and having it at home for the delivery. They did not express any direct objection to having it in advance.

When asked what preparations were made for delivery during pregnancy, half of all respondents said nothing at all was prepared. Often respondents would only describe activities at the immediate time of delivery. After the interviewers probed more deeply, however, respondents described other preparations, like those involving food or medicine, that were carried out four to six weeks before the due date. Other preparations were postponed until the last week.

⁹ Manandhar, 2000

Food and medicines. Hill ethnic group respondents indicated that they tended to make preparations, but these were described as restricted to foods and medicine for the pregnant mother. In these cultures, respondents stated that the new mother is fed three or four times a day to restore her strength. *Jwano* (spice) infusion is also cooked to stimulate breast milk production. In these households rice, *ghee*, oil, and *jwano* are put aside during the last weeks of pregnancy for use just after the birth. Chickens and goats are raised from the sixth month of pregnancy for slaughter after delivery.

Some individuals from the plains indicated that they perceive preparation to be unnecessary. In the Terai, women are fed only liquids (e.g., spice-infused water prepared from a mix of 22 or 42 spices, raw sugar, and ginger) and no solid food during the first six days after delivery, according to tradition. Thus food preparations are not required. Directly after delivery, the mother is fed oil with pepper to heat her body. The mother's family members may buy oil for massage, or pepper, ginger, and other spices in advance if money is available. However, about a quarter of the Siraha respondents had bought some food, such as semolina, in advance, and mentioned that nowadays certain types of solid food are given earlier.

Razor blades and thread. Many respondents claimed that they bought razor blades and threads one week before at the weekly village market. When the interviewers probed further, however, it became evident that these items were sent for only at the time of labor pains in one-third of the cases.

Citing access to more village shops, many people stated that they did not see the need to purchase a razor blade and thread ahead of time. At the time of labor or delivery, someone would be sent to buy these supplies. The interviews identified a lack of attention to—or underestimation of—the time actually needed to assemble birth materials. Only a few respondents remarked that purchases and preparations were made in advance to prevent scorn and laughter by their neighbors should they have to rush at the time of delivery.

Other preparations. Most people had put aside washed, soft old cloths and rags to wipe and wrap the baby. In only a few cases were dirty cloths gathered at the last moment before delivery.

Other preparations mentioned by some people were cleaning the house or place of birth, buying soap, and putting aside money. Preparation of the child's cradle and bedding or new clothes for the baby are still taboo prior to the birth. These preparations are made only on the sixth day after birth (*chhaitya*). Putting aside a razor blade, thread, oil, spices, and washed cloths for delivery can all be done without directly referring to the birth, as these items have other uses as well.

Preparations by spontaneous users. The spontaneous kit users said that they bought the CHDK at the time they otherwise would buy blade and thread—generally less than one week before delivery. Although other preparations were made about one month before the expected date, spontaneous kit users delayed the purchase of the cutting tools. Respondents explained that they delayed the purchase because they felt the items would be immediately available.

Comparison with quantitative research. These results are generally consistent with the quantitative research on the kit conducted in 1998. That study revealed that kits were most commonly bought one to three weeks before the birth. In Siraha, almost half of the respondents

waited until less than a week before the delivery to buy the kit. In all cases, about a quarter were brought by the attendant at the time of labor.¹⁰

3.4.2 Decision to Use the CHDK

TBAs. Decision-making power about use of the CHDK often does not rest with the actual user. Most TBAs expressed that they were dependent on the delivering woman's household for all preparations made before or at delivery. They felt they could advise pregnant women or their mothers-in-law to purchase the kit and put aside clean pieces of cloth, but they could not oblige them. TBAs stated that households often were not willing or able to spend the money for these items.

TBAs mentioned that people would not pay them for the kit because they think TBAs get them from the government for free. Female community health volunteers and community-based distributors experience the same problem. This problem may be real or possibly influenced by the distributor's own attitude toward the kit.

Some trained TBAs as well as one untrained TBA, however, stated that they would not attend a delivery unless the CHDK was used. This was a result of their conviction that the kit helped prevent disease, and of their fear of losing credibility in the community if the babies or mothers they had attended fell ill. These TBAs would either instruct the head of the household to buy the CHDK, or bring it themselves at the time of delivery. Among non-user TBAs, the lack of decision-making power to purchase the kit and unwillingness to pay for it at their own expense were the most critical reasons for not using the kit.

Family members and mothers. Family member attendants and mothers delivering on their own depend on the awareness and attitudes of the main decision-makers in the household. The mothers themselves are not supposed to be involved in any preparations. In addition, their mobility is often limited, and they have little decision-making power or money. The interviews



Cross-questioning a mother informally and taking notes on the veranda of her house.

indicated that mothers-in-law (or husbands in nuclear families) determine the preparations and purchases made for delivery.

Some elderly women, untrained TBAs, and mothers-in-law said they do not understand why young women nowadays need to make such a fuss about clean deliveries. Limited knowledge and low perception of the kit's usefulness form an important constraint for its use.

The shyness of the pregnant daughter-in-law also appears to inhibit changes in preparations made.¹¹ If the daughter is too shy to discuss her pregnancy and

¹⁰ Tsu, V. *Clean Home Delivery Kit: Evaluation of the Health Impact*. Seattle: PATH, May 2000.

¹¹ For a discussion of shyness or *laaj* see Manandhar, M. *Obstetric Health Perspectives of Magar and Tharu Communities: A Social Research Report to Inform the Nepal Safer Motherhood Project's IEC Strategy*. Kathmandu: Nepal Safer Motherhood Project, March 2000

delivery requirements with her mother-in-law, she may not mention that she is about to deliver, even when she is suffering labor pains. Similarly, if she knows about the kit, she may not tell her mother-in-law. This factor was especially strong among certain ethnic groups in the hill areas (Rai, Tamang, Limbu), where delivering alone is the norm.

Health post and hospital staff. An unexpected finding of this study was that health-post staff were found to be a group of kit-users who have considerable decision-making power. Many health-posts and the hospital in Lahan were found to prescribe and use the CHDK during deliveries on their premises. Health-post nurses are also called on to perform home deliveries, for which they bring along their own extensive delivery kits, but also require the CHDK because they need the clean cord ties as well as the plastic sheet. For them, the soap is a practical asset, but not necessary.

In these cases, the CHDK is bought by the household of the delivering woman either from a nearby shop or from the nurse herself. Because of their professional authority, health-post staff indicate that they can impact a family's decision to use the kit because they generally do not experience problems ordering or charging money for the kit. Although use of the kit by the health staff did not appear to have a significant promotional effect for the kit, respondents sometimes identified the health post as their source of information.

3.4.3 Affordability

When discussing the appropriateness of the kit price (25 Nepali rupees, or US\$0.34), people often said that they themselves could afford the kit, but that poor, low-caste people could not. While most users said the price was acceptable, non-users frequently found the kit too costly. The fact that the kit's price has been rising over the years was noticed by several respondents, which did not help to improve its popularity. Many people felt the price limit should be at 10 to 15 rupees, which is about half the current price.

Many people felt the cost of the most important kit contents did not add up to the full price of the kit. They felt that the contents were worth about 13 rupees: 2 rupees for the razor blade, 3 for the thread, 4 for the soap, and 4 for the plastic sheet. As for the coin, they would simply use one from their pocket. Given that they did not view the plastic sheet or soap as necessary, the price of 25 rupees was viewed as too high. SCF staff confirmed the prevalence of this view with the potential kit-users.

TBAs were most articulate about why poor people cannot afford to buy the CHDK in advance. TBAs indicated that many poor people earn their income on a day-to-day basis, and use all of their earnings for daily expenses, which limits their ability to put money aside. The cost of advance purchase of the kit is further undermined by the possibility that their purchase would be wasted if they had to go to the hospital after all.

Although respondents indicated that significant amounts of money are spent on name-giving ceremonies, the cost of the kit is seen as an extra expense. Some respondents mentioned they would rather spend those 25 rupees on oil for massaging the mother and baby than on the CHDK. Materials and activities that are seen as more important get priority over the CHDK. For example, keeping the mother warm (with oil massage), both during and after delivery, is perceived as much more important for her and the baby's health than protecting them from infection. Thus priority-setting is also related to traditional perceptions of the causes of illness and death.

3.4.4 Awareness of and Access to the CHDK

Awareness. The study team found that many of the non-user respondents, and about half of the seeded kit users, did not know about the kit. This was despite radio advertisements, information shared during pregnancy check-ups, promotion through women's groups, and non-formal education classes. People said they had not heard about it, had not seen it, and could not say where it was available.

Others mentioned having heard about the kit, but hadn't used it. Awareness was highest in the VDCs with which SCF had been working since the start of their program in Siraha. Many respondents indicated that kit components such as the razor blade and thread were readily available—much more so than the kit itself. A small number of respondents indicated they thought the CHDK was not necessary and did not contribute to a better delivery. The interviews indicated that some trained TBAs understand the CHDK's purpose and use very well.

Access. Spontaneous users indicated that the kit was readily available, even if they had to go to the next village to buy it. But other respondents said that vendors that carried the kit were far away, or that they had to wait for the weekly market and therefore could not purchase it in time. Pharmacies, female community health volunteers, and community-based distributors were the most commonly identified sources of the kit, though some respondents also mentioned the weekly markets and grocery shops. Most of the respondents in Udayapur did not know where they could buy the kit.

Use. As indicated by the difficulty encountered in finding kit users for this study, actual kit use remains low and may be lower than the use as reported by shopkeepers, TBAs, and health-posts. SCF monitoring records in Siraha estimate that the use rate is about 25% of all deliveries, but in actuality it seems far less. When identifying newly delivered mothers, the study team found that only about 10% were kit users, although it should be kept in mind that this was not a representative sample.

3.5 Effectiveness of the Pictorial Instructions

3.5.1 Understanding of the Pictures

Understanding and effectiveness of the pictorial insert should be seen in the context of extremely low literacy rates among women in the Siraha district (18%) compared to the national average (30%).¹² These rates reflect a high gender imbalance, as the overall literacy rates for men and women combined are 29% in Siraha and 55% nationally.

Low literacy rates were further influenced by the demographics of the respondents in Siraha, who generally were older women raised in a very traditional, secluded way. More than a third of the literate women had been trained through informal education classes, rather than through formal education. In Udayapur, the education level is slightly higher (about 23% for females; overall literacy, 38%), and the team worked with a younger age group, which had been allowed more freedom. Consequently, the education level of the respondents was higher in this district.

¹² International Centre for Integrated Mountain Development. *Districts of Nepal, Indicators of Development*, 1997.

Results of the interviews indicated that understanding of the pictures improved with literacy. There were eight literate respondents in all; except for one, they understood about half the messages without reading the text (see Appendix F for more information).



Probing for comprehension of the CHDK's pictorial insert

Illiterate respondents commonly indicated that they could not understand the insert because they were illiterate; the inclusion of text with the pictures appears to have contributed to their conclusions. Even after the interviewers explained that these pictures were meant to be understood by illiterate village women like themselves, people often felt shy about telling what they saw, or afraid to make mistakes. The women are not used to looking at the details of a picture. Individual respondents often said that they understood the illustrations when they were explained to them.

In many cases, women's understanding of the pictures was hampered by cultural perceptions. Even when they could correctly identify the elements of the picture, the messages were not always understood. When looking at a picture, respondents tended to interpret the meaning according to their traditions or health messages they remembered. Their cultural bias made it difficult to convey a new message. For example, in Nepali culture women tend to deliver sitting on their knees, squatting, or standing. The image of a woman lying on her back with her legs wide open is not understood as a delivery-oriented position. Thus respondents did not understand that the image was intended to convey spreading the plastic under the woman's buttocks before delivery. Similarly, the implicit message that the woman should lie down to facilitate the TBA's observation of the delivery process was not understood.

This research found that understanding of the pictorial instructions was very low (see Table 2). In Siraha, nearly half of the women didn't understand any of the messages. The Udayapur mothers did much better, as all women understood at least one or two of the pictures. About half of the trained TBAs understood most of the messages. This likely was a result of their training, in which the meaning of the pictures was explained. Interestingly, the untrained TBAs also had a relatively good understanding of the pictures. Half of them understood three or more messages, far better than the family members. The TBAs' familiarity with the subject may be of influence here.

Table 2. Understanding According to Type of Attendant

Type of Attendant	Understood 5 or more messages	Understood 1-4 messages	Understood no messages
Trained TBA	5	3	2
Untrained TBA	3	5	2
Family member attendants	1	4	13
Mother alone	5	7	0
TOTAL*	14	19	17

*Total 50 respondents due to one incomplete interview.

3.5.2 Recommendations on Improvements to the Pictures

This research was not designed to include illustrators who would adapt the pictures or make explicit recommendations on improvements. The limited suggestions made by the respondents are not consistent enough to draw definitive conclusions on required changes. The results simply describe elements that make individual pictures difficult to understand.

For the respondents, making recommendations on improvements to the pictorial insert was very difficult—more difficult, in fact, than understanding the pictures' messages. This probably has to do with their unfamiliarity with this type of drawing, or as they expressed it, their being uneducated.

To overcome the shyness of the individual women, two focus group discussions were organized and focused on recommendations for improving the pictures. This resulted in the suggestions outlined in Appendix F. Some recommendations were not very helpful, however. Based on the respondents' recommendations, for example, the research team doubled the size of the pictures, but the images still were not understood.

The strong influence of culture in the understanding of the pictures makes the task of adapting the instructions very complicated. Picture 9, which portrays a digging tool, was understood by more than half of the Udayapur women, since they use the type of digging tool portrayed. The Siraha Terai women, however, use a different tool and therefore most did not understand the picture.

3.5.3 Use of the Pictorial Instructions

Most kit users and non-users understood that the piece of paper in the kit was intended to explain information about delivery or about the kit. Yet some respondents—especially family members and mothers—did not understand the purpose of the piece of paper. A few respondents said they had not seen the insert when using the CHDK.

During demonstrations of the use of the kit, observers noted that the insert did not come out or was put aside after opening the box on several occasions. Only in 3 of 24 cases did the respondent look at the insert before using the kit's contents. In a crosschecking inquiry, over half of the user-respondents said that they did not look at the insert the last time they used the kit. Of these, four were TBAs. Four people mentioned that they looked at the pictures only after using the kit.

Several reasons surfaced as to why kit users did not look at the pictures before delivery. First, the box was only opened at the time of delivery, as the users had been instructed to prevent the contents from becoming dirty. During delivery they did not have time to look at the pictures. Second, many TBAs felt the insert was not meant for them, as they already knew what to do during the birth process. They therefore gave the insert to the people in the pregnant woman's house. One seeded family-user said that she looked at the pictures afterwards, but found them embarrassing and threw them away.

If the insert was mentioned at all during the discussion of the usefulness of the kit's contents, it was seen as not useful or necessary, as respondents either did not understand or did not use the paper instructions. Some TBAs, however, indicated that they would like the pictures to be bigger, so they could use them as a poster for instruction to their community.

3.5.4 Promotion of Clean and Safe Delivery by the Pictorial Insert

Knowledge of the "six cleans" for delivery, as promoted by His Majesty's Government of Nepal, WHO, and SCF is low. When respondents were asked about their understanding of the concept of clean and safe delivery, they cited general "cleans." A clean house, clean cloth (for wrapping and wiping), and clean hands (and feet) were mentioned most often. Only a few respondents mentioned a clean birthing place or a clean blade. There was little difference between kit users and non-users in this respect.

Knowledge of the clean delivery principles helped women use the kit properly; the kit itself did not appear to increase knowledge of those principles. Rather, knowledge is acquired from training (TBA or non-formal education) and from health workers like health-post staff and fieldworkers. A few people mentioned that they learned about cleanliness from radio advertisements. To some extent, knowledge is passed on between neighbors in the village.



Kit pictorial insert

When specifically asked, respondents did not feel they had learned about clean delivery from the pictorial insert. Some of the TBAs said the pictures made them remember how to perform the delivery properly. Pictures alone may not have the power to change practices. As one of the respondents stated, “I don't care whatever is shown over here. But I tie the umbilical cord at two places and cut. I'll do it according to my own way, whatever may be done over here.”

3.6 Knowledge, Attitude, and Practice of Hand Washing

3.6.1 The Concept of Cleanliness

In Nepal, washing with water is a ceremonial action that is performed to clean a person from dirt and pollution. The perception that hands and feet should be washed before starting certain activities is strongly rooted in most Nepali cultures. This perception can reinforce TBAs' education on hand washing, but the highly ritual value can also inhibit real understanding of the need for hand washing.

3.6.2 Knowledge and Practice

Overall, the study found that hand washing is not an integral part of clean delivery for most birth attendants. Hand washing before, during and after delivery was performed as ritual cleansing more than to reduce infection.

The interviews and demonstrations of delivery practices focused on two times during delivery when birth attendants should wash their hands: (1) before touching the mother, and (2) before cutting the cord.

Actual hand-washing practices seem to be weaker than stated by both TBAs and other birth attendants. During demonstration, hand washing was observed far less often than later reported when probed in the interviews. Frequent contradictions on when and how often they washed their hands during the delivery process indicate a high degree of socially-desired answering.

Demonstrations. The interviewers observed that only one fifth of the respondents—both kit users and non-users—washed their hands before delivery. A slightly higher number demonstrated that they washed their hands before cutting the cord. Only a few respondents demonstrated washing their hands two times during the delivery process. More kit users tended to wash their hands at least once, especially those who used the kit by their own decision. TBAs, both trained and untrained, were more likely to wash their hands before touching the mother than other attendants.



Demonstration of delivery practices by a study respondent

Interviews. When asked if they washed their hands during delivery, respondents mostly indicated that they washed after completing the delivery process. Because delivery is considered a polluting process, delivery assistants stated that they take a bath after performing a delivery. This is motivated by the “repulsion” (*ghin*) that is felt for the blood and smell of delivery. Many respondents mentioned that they did not like to eat food with their hands for the

first several days after delivery. The use of soap was often mentioned with respect to the improved scent that it provided. A few respondents mentioned using clay and ash besides soap to clean their hands.

When probed as to how many times they washed their hands during delivery, about one-third of the kit non-users and two-thirds of the kit users said they washed their hands before touching the delivering woman. Sometimes the respondents mentioned that hand washing is necessary before touching (or putting the hands into) the vagina. Others, however, expressed the opinion that rubbing oil for massaging the pregnant woman was also cleaning the hands well enough. One woman explained that her hands were not dirty before delivery, only afterwards.

About half of kit users and non-users claimed to wash their hands immediately before cutting the cord. Many of the respondents who washed their hands previously did not wash again. But a number of people, especially from the hill area, washed only before cutting the cord. Often when respondents were probed about washing hands a second time before cord cutting, this was seen as superfluous. They indicated that because they had washed their hands before starting the delivery, they were clean.

A quarter of both kit users and non-users (mostly TBAs) claimed to wash their hands twice during delivery. Half of the kit non-users and two kit users said they did not wash their hands except after completing the delivery.

Awareness of the importance of washing hands. More than half of the respondents were aware that dirty hands might transfer diseases to the newborn baby and its mother. A few mentioned that they themselves might get ill. This is a main reason to wash hands with water and soap. In their opinion soap removes dirt better than water alone and provides better hygiene. Still, many people said they used only warm water. When asked to specify the diseases they might contract, respondents sometimes mentioned pneumonia. One urban respondent mentioned AIDS.

The study found high awareness of the risk of tetanus being transmitted by dirty hands and dust. Cord infection was only occasionally mentioned as a reason for hand washing and hygiene. Cord infection was often attributed to more traditional perceptions of illness; for example, respondents stated that an inappropriate (e.g., too cold or too hot) diet of the mother during breastfeeding could cause infection. Respondents also identified other potential causes of infection, including breast milk dripping on the cord or fierce labor pains. Squeezing the blood from the cord properly before cutting was said to prevent this.

Trained TBAs, well-informed untrained TBAs, and more highly educated people appear to be more aware that illness can be transferred with their hands. The interviews indicated that they receive this information from the health post, schooling, or non-formal education classes. Importantly, however, most TBAs believe that if they cannot see dirt on their hands, they are not dirty or they believe that water alone should be enough for cleaning. Respondents often said that they are too hurried during the delivery process to wash their hands several times. Other respondents said their hands would be cleaned while bathing the baby, which is done only after cutting the cord.

3.6.3 Influence of the Kit on Hand-Washing Practices

Without instruction, respondents thought that the soap from the kit was intended for bathing the baby, and that blood and other delivery remains should be washed off the baby properly before

it is wrapped and handed over to the mother or a family member. They considered the whitish talc of the baby to be very dirty because it sticks to the hands and cannot be easily removed. To avoid contamination of other family members, the kit soap that has been polluted during delivery is put aside for the child until the cleansing and naming ceremony.

Kit users stated that the kit did not change their hand-washing practices or habits. Those people who washed their hands with soap before delivery claimed they would do the same with soap from home if it were not available in the CHDK. Those who did not already know to wash their hands before delivery still did not wash their hands. The kit soap was considered helpful, however, in cases when the head of household did not provide soap to the TBA, either because the household was poor, or because washing with soap is not considered important.

Findings indicate that the pictorial insert does not substantially influence the behavior of its users concerning hand washing. It was found during the study that the pictures are often not even looked at. Low levels of understanding and misinterpretation of the timing of the pictures further contribute to the lack of effect. However, when trained TBAs looked at the pictures of hand washing in the kit insert, it did remind them of the lessons they had learned about the need to wash their hands with soap.

3.7 The Use of Clean Razor Blades

In this study, all respondents had used a razor blade to cut the cord. Only two used an old blade without boiling it. In Siraha, some younger people could not remember people cutting the cord with old tools. Use of a razor blade and coin are now the cultural norm. As an old woman stated, "You should adapt to the general practices in the village." People explaining why they did not use the CHDK used the same expression: "it has not yet become common cultural practice."

The respondents indicated that razor blades have become increasingly available at small local stores over the past 20 years, and are readily accessible today. Previously, this was not the case, as men used a particular knife even to shave their beards. The razor blade has a number of characteristics that make it easy to accept. For example, it can be bought for a purpose other than delivery, and thus does not interfere with the belief that one should not make preparations for a new baby. Most respondents stated that they use a new blade because it cuts very well and is sharper than a knife, sickle, or an old blade.

Health center staff indicated that TBAs have been trained to boil the blade, thread, and coin for 15 to 20 minutes in water (half the amount of water evaporated). This habit of boiling has not become as established, however, as the idea of the razor blade itself. TBAs know they have to clean the blade and coin, but usually the cutting tools are only dipped in hot or boiled water, instead of actually boiling them for a longer period of time.

Cord-cutting practices have changed primarily as a result of TBA training and public advertisements that have promoted clean delivery. Villagers' perceptions that use of razor blades reduces illness and child mortality may also have contributed to increased acceptance of blades. Research findings indicate that the contribution of the CHDK to the awareness of the importance of using clean razor blades is very limited.

3.8 Care of the Newborn

3.8.1 Practices for Neonatal Care

Despite variation between ethnic groups, in general practice women give birth in a heated, unventilated room, as delivery is believed to happen more easily and quickly if the mother is kept warm. Respondents report that to keep her warm, she is also massaged with oil, fed hot liquids, or fed liquor to ease the labor pains (Rai ethnic group).

After the baby is born, it is left unattended until the mother has delivered the placenta. All attention is focused on her. The reasoning behind this is twofold. First, the survival of the baby is considered dependent on the mother's survival, while the mother may bear another child within a year. Second, the umbilical cord is not cut before the placenta has been delivered because it is popularly believed it will otherwise be retained and move into the heart of the mother, causing her death. In the Terai, the birth attendant will keep her hands around the mother's abdomen to prevent the placenta from moving up, and will try to massage it downwards. This prevents her from taking care of the baby. Before the cord is cut, the baby usually is not handled by a third person, as it is still attached to the placenta and related to the polluted mother.

After the placenta has been delivered, the cord is cut and the baby is wiped with a cloth and bathed with warm water and soap. Three respondents stated that they did not bathe the child, as it might become cold and get pneumonia; these respondents only wiped the baby clean with a cloth. Before handing the newborn over to either the mother or another family member, it commonly is massaged with oil to warm it. The mother cleans herself before accepting the baby, at least changing her clothes (as these are stained with blood), and usually bathing her lower parts as well. As breastfeeding is started only after bathing both the baby and mother, the effect of immediate breastfeeding on release of the placenta is lost completely.

3.8.2 Wrapping the Baby and Cutting the Cord

The CHDK's pictorial insert is intended to educate kit users on two aspects of neonatal care directly after birth: immediate wrapping of the baby after it has been born, and immediate breastfeeding. Both these practices are complicated by cultural perceptions about pollution.

Few respondents understood the picture illustrating wrapping the baby immediately after birth, while the placenta is still to come. Some respondents had difficulty recognizing the baby; others did not understand why the wrapped baby was taken from the mother without cutting the cord. Thus the message was not understood without reading the accompanying text or having additional explanation.

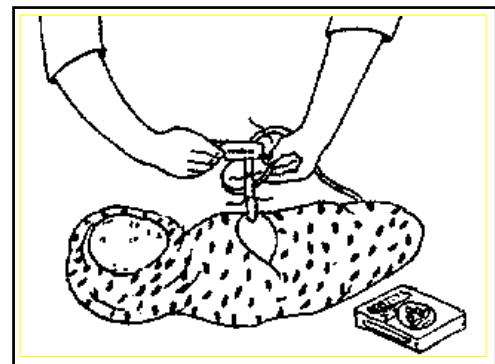


Illustration of cord-cutting in pictorial insert

The vast majority of respondents mentioned they would wrap the baby only after cleaning it by wiping or bathing. Wrapping the baby before cleaning it will get more of the cloth dirty. About a quarter of respondents said they wrapped the baby before cutting the cord, while waiting for the placenta. This is generally motivated by the perception that the baby may get cold. One family member

said immediate wrapping was only important during the winter season: “in summer we can put the baby aside without wrapping.”

Almost all trained TBAs, particularly those who were kit users, wrap the baby immediately. They are aware of the need to keep the baby warm, the importance of fresh air, and the danger of smoke to the newborn baby. After the delivery is complete, keeping the baby warm is a great concern to all respondents. A common belief is that the baby and mother’s body will swell up if they are exposed to cold air. Thus they are kept near a fire in a warm room. The baby is bathed with warm water, massaged with oil, and held on the lap to keep it warm.

Before cutting the cord, however, such care is not considered important, because survival of the mother is the TBA’s first priority. Most respondents stated that the placenta usually came 5 to 30 minutes after the infant. When asked what would be done if the placenta was very late, respondents usually explained that the baby might be covered with some rags. Often it was said that after two or three hours the cord would be cut and the baby taken care of. Something heavy would be attached to the cord’s end to prevent it from slipping inside the mother.

During the interviews, many women expressed their concerns about a retained placenta. Nepali women have many home treatments to expel the placenta, some of which do not seem to be effective, and may even be harmful. TBAs tend to massage the abdomen of the mother quite strongly. Sometimes the mother is made to vomit by putting her hair or even dirt in her mouth. During the study, three TBAs mentioned that they manually extract the retained placenta. If the placenta still does not come, the mother is taken to the hospital or health post. This practice appears to be the result of community education on emergency obstetric care. Because a retained placenta is seen as a problem, women seek formal treatment when necessary.

3.8.3 Breastfeeding

The newborn baby is breastfed only after cutting the cord, cleaning and wrapping the baby, and cleaning and changing the mother’s clothes. In parts of the Terai, an offering ceremony (*chhaitya*) is performed before the child is handed over to its mother. This process generally takes one to two hours.

Immediate breastfeeding is further impeded by the local perception, especially in the Terai, that the mother’s milk comes only after two and a half or three days. In Siraha, only about a third of the respondents said the baby is breastfed immediately after handing it over to its mother. The child often is fed on diluted goat’s milk (60%), honey or sugar water (20%), and sometimes another mother’s milk (15%) during these days. When the mother does breastfeed the newborn baby in the first days, her breastfeeding is supplemented by goat’s milk, as the mother’s milk is perceived to be insufficient. Among five of the respondents, the child was not allowed to even suckle the breast during the first days.

Study findings suggest that training in Siraha has resulted in a higher awareness of the importance of immediate breastfeeding among trained TBAs, including the nutritious benefits and valuable protection of the colostrum. Some educated and trained TBAs therefore feed (or advise feeding) it to the newborn child. Awareness of these issues was comparable among kit users and non-users.

All mothers in Udayapur mentioned that they started breastfeeding as soon as the delivery process and cleaning were finished. Three of these 14 mothers commented that the milk would not come properly for the first two to three days. However, no practice of supplementing milk

was found in this region. Hill migrants sometimes mentioned concern that the child might forget how to suckle if it is not breastfed from the start.

In both districts, the feeding of colostrum is not widespread (only 30%). Respondents believed it could cause diarrhea or make the child ill. The hill migrants mentioned that the first milk contains *khil* (small needles), which would affect the baby. Therefore, the first colostrum is extracted and thrown away. A child is fed as often as it cries, this may be only four or five times a day, or as often as 15 times a day, depending on the activities of the mother.

3.9 Disposal of Delivery Waste and Used CHDK Components

3.9.1 Placenta

Respondents described four ways of disposing of the placenta, which varied by ethnic background: (1) throwing it in the bamboo bushes (Terai), (2) burying it inside the house at the place of the delivery (Terai), (3) burying it outside in a leaf-plate to prevent the placenta from touching soil (Magar, Tamang), and (4) hanging it in a piece of bamboo on a certain tree (Rai). The motivation for these disposal methods was fear that animals such as dogs, cats, or ants would eat the placenta and cause the baby to fall ill. In addition, some groups feared that if the placenta touches the soil, the child will become ill.

One of the untrained TBAs in Siraha stated that burying the placenta is actually a new method, and SCF staff later confirmed this. Previously, the placenta was often thrown away. It was buried only in cases where the last baby had died. People believed that if the placenta were thrown in a bamboo bush, it would bring a new pregnancy soon afterwards (children would spring up like bamboo shoots).

TBAs charge more for burying a placenta than for throwing it away, which is another motivation for the family to have delivery waste thrown away instead of buried. TBAs do what they are asked to do by the pregnant woman's household members.

In Siraha, health educators have promoted burying the placenta for many years. As the placenta is seen as a "friend of the baby," it is now kept nearby, and often it is buried inside the house. Those who use the CHDK sometimes use the plastic sheet to wrap the placenta before burying it. Others mention that the plastic will cause a bad smell because it does not decompose. As blood is seen as shameful—in fact, many people wash the rags and old straw mats used during delivery before throwing them away—encouraging people to bury the shameful blood and placenta is not too difficult. About 25% of the respondents indicated that they placed the placenta in the bushes or near the river. There was no relation between the choice of placenta disposal and kit use.

In Udayapur, most respondents traditionally buried the placenta between two leaf-plates (*tapari*) to prevent contact with the soil. This might be done by the mother herself or by the husband. A few respondents thought the plastic sheet was an adequate substitute for the *tapari*. Only Rai people stated that they hang the placenta in a tree.

3.9.2 Re-Use of Kit Elements

Razor blade. Re-use of items used during delivery was high among both kit users and kit non-users. About half of the respondents put the razor blade aside after using it and washing it with

water. The reason for this was not completely clear. Some respondents said the blade could be used for cutting nails and sharpening pencils, and some said it might even be re-used for shaving beards. Others said it could not be used for these purposes as it was polluted by the delivery; it could only be used for a new delivery. In some cases the blade was put under the baby's bedding. This is comparable with putting a *khukuri* or other knife under the bedding to ward off bad spirits to prevent the baby from becoming ill.

Only a small number of respondents were aware of the risks of contracting infection by re-using the blade. Few people mentioned burying the blade together with the placenta. Most threw it out with other garbage, or somehow it got lost.

Plastic coin. When actual coins were used as a cutting surface, they generally were washed and taken by the TBA or given to the priest at the name-giving ceremony. The plastic coin provided in the kit was kept for re-use in a few cases, thrown away in most cases, and played with by children in the remaining cases. Only a third of the kit users indicated they had buried the coin after use.

Plastic sheet. The plastic sheet was re-used in some cases, but not as often as the blade or coin. Many people claimed they had buried the plastic sheet after delivery, putting some of the other waste, and sometimes the placenta, inside. Others threw the plastic away, separate from the placenta. Analyzing the data, the study team found that not enough information had been gathered on the acceptance of burying the placenta together with trash or whether it should be buried or thrown away separately, according to tradition.

3.10 Miscellaneous Findings

During the research, the study team gathered information that is not immediately related to the research objectives. This information is worth noting for general documentation of delivery practices and its health implications.

3.10.1 Treatment of the Cord Stump

Most respondents indicated that they did not apply anything to the cord stump after cutting the cord with the razor blade. It was either left in the air or wrapped with a strip of cloth. A few people mentioned using Dettol on the cut cord to clean it. In the days after delivery, it would be rubbed with some oil during massage of the newborn.

These findings represent a change from earlier times when ashes of cow dung and other substances were applied to the freshly cut cord stump. Only a few respondents in this sample mentioned these practices. Respondents explained that ash was something the cord-cutter should put on her hands to prevent the cord from slipping through when cutting. Also, the ash is believed to stop the bleeding and cause the cord stump to fall off more quickly.

In case of cord infection, many respondents mentioned they used *harrir*, an herbal medicinal powder made from the seeds of a tree. A few respondents from Udayapur mentioned that during the name-giving ceremony, a special tree extract was applied to prevent umbilical hernia.

3.10.2 Cleaning of Perineum Before Delivery

A clean perineum is one of the "six cleans" promoted for home deliveries. The perineum should be washed before and after delivery. Most respondents indicated that they washed the perineum only after delivery, or told the mother to wash herself. Because of her polluted state,

the mother is often not touched after delivering her baby. In some interviews, respondents mentioned that the mother should not bathe because she may catch cold. In such cases, only her clothes would be changed after delivery.

About a third of the respondents said they told the mother before delivery to wash her perineum at the time of labor. Sometimes the *sudeni* would help if the mother was in a great deal of pain. Women would wash with water before or during delivery to clean themselves after urinating or defecating. One respondent said she would ask the mother to wash only if she found she was noticeably dirty at the time of delivery.

3.10.3 Preparations at the Time of Labor

Though few preparations are made during pregnancy, the delivery process is hard work for the pregnant woman and her attendant(s). A place for delivery is chosen, a fire is prepared to keep the delivering woman warm, and water for bathing the baby is heated. If not already put aside, cutting implements are arranged at this time.

A woman who seeks assistance during delivery will call for help when her labor pains increase. If labor is not yet fully developed, the birth attendant(s) may leave and return later. More than one person is needed for delivery, because the delivering woman squats and is supported from both the back and front.

3.10.4 Protection on the Floor

The care taken to prepare the place of delivery depends on a mother's ethnic and cultural background. While some respondents indicated that they clean the floor with a broom and plaster the floor with mud-dung, others did not pay attention to the floor surface. Many women in Udayapur preferred the bare ground just outside the house. In Siraha, respondents mentioned using jute bags, straw mats, and old rags to cover the floor for delivery. Motivations varied from protection against the cold to ease of clean-up afterwards. A third of the respondents mentioned hygiene and protection from dust and dirt as reasons to put something on the floor at the place of birth.

Chapter 4: Conclusions and Recommendations

4.1 Conclusions

The findings of this qualitative study of various types of birth attendants provide important information about the use and perception of the CHDK in Nepal. Though this type of qualitative research does not allow for widespread generalization, analysis of the results leads to a number of conclusions about kit use among the respondents that can help in formulating recommendations for future actions.

Based on the study's results for the different types of birth attendants, it can be concluded that there is still a clear need for tools that can help improve cleanliness and hygiene during deliveries. The CHDK is one intervention that can contribute to promoting clean delivery within integrated maternal and child health programs.

- **Awareness and use.** Many kit non-users and half of the seeded kit-users had not been aware of the CHDK, the reasons why it should be used, and where it is available. Despite extensive promotion by government and NGOs and social marketing of the kit in the region, kit use appears to be low.
- **Acceptance.** The study data demonstrate that the CHDK is generally well regarded by its users. The convenience and the hygienic components are the main reasons people said they used the kit. TBAs in particular feel that the kit helps them maintain their professional reputation by preventing illness during births.
- **Price.** Although most people found the kit price reasonable, some perceived it to be too expensive for poor people.
- **Decision to use kit.** Kit users do not always hold the decision-making power to purchase or use the kit. The decision to use the kit is often made by the mother-in-law or husband of the pregnant woman, who may have limited knowledge of the kit, or do not perceive its usefulness.
- **TBA kit users.** TBAs have been used as kit distributors for a long time, but this approach has not been effective. Some TBAs mentioned that people would not pay them for a kit they brought because they thought TBAs receive them from the government for free. These study results suggest that TBAs' attitude toward the kit is decisive in their promotional efforts.
- **Kit components.** Perceptions of the most useful item in the kit vary by type of user. Untrained kit users identified the razor blade and thread as the most useful items, while trained users felt the plastic sheet was most helpful. Some health posts and hospitals use the CHDK during deliveries on their premises and at home deliveries performed by health-post nurses. As this audience has access to other clean cutting instruments, the clean cord ties and the plastic sheet were the most useful kit components.

- **Inclusion of plastic coin.** The plastic coin included in the kit as a cutting surface is easily accepted and used as a substitute for a metal coin. Among this sample, kit non-users used unclean coins. The plastic coin therefore appears useful for hygienic purposes.
- **Single use of kit.** Some respondents felt the kit was wasteful because it is designed for single use. However, to maintain hygiene and prevent cross-infection, it should be stressed that the kit is for single use and disposal only.
- **Re-use of kit items.** Only a small number of respondents were aware of the risks of contracting disease by re-using the razor blade and other materials from the kit. About half of the respondents put the used blade or plastic coin aside after washing it with water.
- **Birth preparedness.** Factors that influence birth preparedness and the delay in purchasing kits are rooted deeply in the culture. Central issues include an underestimation of the time needed to gather supplies and a traditional taboo on preparations. Only slow and gradual change to promote birth preparedness is possible.
- **Type of cord-cutting tool.** Razor blades have been promoted as a safe and clean cutting tool for about 20 years. Adopting the razor blade in place of traditional cord-cutting tools has been relatively fast because razor blades are practical, cheap, culturally acceptable, and widely available. Increased use of razor blades to cut the cord has changed mainly as a result of TBA training and public advertisements that promote clean delivery. However, the study findings indicate that unclean tools are still used to cut the umbilical cord during some deliveries in hill areas.
- **Hand Washing.** The interviews show that the significance of hygiene and the consequences of infection were not well understood. Those who have received training know that they should wash their hands, but many do not consider hand washing with soap to be an integral part of clean delivery. Instance of hand washing was found to be limited, and little effect of the kit on hand washing practices could be found.
- **Pictorial insert.** Comprehension of the pictorial insert is low and indicates a need for improvements. Understanding of the pictorial insert increases with literacy and education levels. In general, trained TBAs have a better understanding of the pictures.
 - Individual respondents often said that they understood the illustrations when they were explained to them. This may reflect a strong oral culture, in which information is transferred by talking. In this situation, pictures are perhaps best used as visual aids or reminders, but not as explanative tools in themselves.
 - The study data do not suggest that the pictorial insert has a substantial influence on users' hand-washing practices, immediate breastfeeding, or wrapping of the newborn baby.
 - Understanding of pictures is highly influenced by cultural background. This indicates that pictures need to be adapted to the cultural setting for each ethnic group. Given the multi-ethnic composition of Nepal, this is not practical.

4.2 Recommendations

Based on the study's findings and the above conclusions, a number of recommendations can be formulated. These recommendations help to:

- Propose necessary adaptation of the CHDK contents, specifically the pictorial insert and the plastic coin in Nepal;
- Identify groups of potential CHDK users that need specific attention and education to use the kit properly;
- Identify topics that need extra attention in the promotion of the CHDK at the community level; and
- Identify potential and required topics for public education campaigns on clean delivery.

Recommendations based on study data include the following:

- Additional promotion of the razor blade in areas where the CHDK is not widely available should be undertaken, as the study findings indicate that unclean implements are still in use in hill areas.
- The plastic disc should remain a component of the CHDK, as use of a metal coin can introduce infection. No tradition of boiling the metal coin was found among respondents in the research area.
- Reasons for disposing of the blade and plastic coin should be highlighted. Burial of all waste, not just the placenta, should be further promoted, within the cultural context of an area.
- Promotional efforts need to focus more on hand washing, hygiene, and the infection-prevention benefits of all the kit components, including the plastic sheet and soap.
- Because promotion and distribution of the CHDK is difficult in mountainous areas and secluded groups of the Terai, peer education through as many community-based organizations as possible could be another tool for promoting the CHDK with young women of reproductive age.
- Promotion of clean delivery and the CHDK by both health workers and shopkeepers should include educating mothers-in-law and husbands about the important health benefits of the CHDK, as they are the household members who decide about the purchase of the kit.
- To establish a link between awareness and accessibility, the CHDK should be promoted and made available in the immediate vicinity of places where people receive information and counseling on safe delivery. Promotional efforts should include clear information about where the kit is available.
- To reduce the delay in purchasing kits, CHDK promotion should be integrated into other education and long-term birth-preparedness activities implemented by governments and NGOs.
- Low comprehension of the pictorial insert indicates a need for improvement, especially to make it helpful for untrained users. The exact nature of these changes should be carefully considered, and may require further research. Creating several different inserts is not practical considering the current CHDK distribution system in Nepal.

- Untrained birth attendants, pregnant mothers, and mothers-in-law need education on clean deliveries and the need for the CHDK. Such training and counseling should use the pictorial insert and/or other visual supports such as culturally-adapted flipcharts or posters. These visual aids are particularly useful because recognition, comprehension, and effectiveness of the insert's illustrations increase when accompanied by verbal explanation.
- A single insert cannot overcome the significant cultural differences between regions, therefore developing the instructions as large color posters tailored to each cultural setting should be considered. These instruction posters could then be used by shopkeepers, TBAs, and female community health volunteers in various regions.

Nepali Words and Expressions

Chameni	TBA of Chamar caste, an untouchable caste in the Eastern Terai belt
Chhaitya puja	Birth offering and purification ceremony as practiced in the Terai
Harrir	Herbal medicinal powder made from the seeds of a tree
Hasiya	Sickle
Jwano	Spice used to increase milk production of the new mother
Kachia	Straight fodder cutting knife (hills)
Khil	Small needles that make colostrum indigestible
Khukuri	Large, traditional knife
Khurpi	Triangular grass-cutting tool (Terai)
Laaj	Shyness, shame, embarrassment
Maithali	Language spoken by inhabitants of the Terai in Siraha
Nawran	Naming ceremony, purification ceremony as practiced by Bahun/Chhetri
Paleni	Traditional birth attendant (Maithali)
Sudeni	Traditional birth attendant (Nepali)
Sutkeri	Woman in and immediately after childbirth (ritual polluted)
Tapari	Leaf plate woven from Sal tree leaves
Terai	Lowland plains of Nepal bordering India

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Monique Beun

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Field Research Coordinator's Acknowledgements

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Save the Children USA offered logistical support for the research, and provided its extensive contacts in Siraha as a basis for initiating relations with the communities. During the field visits, Siraha District Program Manager Lila Mani Sharma provided the team with all the secretarial support we could wish for in his office. Hari Rana, the Health Officer in Siraha, was extremely helpful in sharing his insight and knowledge of delivery practices and use of the CHDK in his district. He and Bharat Kumar Shrestha supported the research by following up on case-identification in our absence and supervising the runners. Bhuwan Singh Tamang was willing to make last minute changes in the Nepali and Maithali versions of the Topic Guides, Selection Guidelines, and other necessary documents at all hours.

When the research team ran into trouble finding all categories of respondents, Parash Phuyal, of the Nepal Red Cross Society in Udayapur, fully supported the request for assistance in finding mothers delivering alone—notwithstanding breakdowns of phone lines and imminent strikes. His fieldworkers walked long distances with the team to meet study respondents, in the meantime explaining their work and the cultural setting of their area.

The British Nepal Medical Trust contributed to this research by loaning its training staff for the training of interviewers and runners. Ram Prasad Koirala, Manoj Khadka, and Dilu Kumari Shrestha gave all their creativity for preparing and carrying out a lively training with many exercises to prepare for this research.

During the research, many government health workers helped the team. They cooperated very graciously during the interviews, as did the birth attendants and newly delivered mothers interviewed in Siraha and Udayapur.

The dedicated research interviewers made hard walks under the burning sun on dusty roads to conduct the study. They spent many long days performing the interviews with many types of respondents. The nights became short in the team's attempt to finish as many transcriptions as possible before returning to Kathmandu. The runners in Siraha were invaluable for their work identifying cases. Finally, the translators had to read and meticulously translate so many stories without missing a word.

The study team's driver, Mahendra Tamang, deserves a special mention, as he drove the interviewers in the four-wheel-drive vehicle to places he himself had not imagined were possible. Without him, the team never would have completed all the interviews in time.

Last but not least, Siri Wood from PATH Seattle provided backstopping, especially in the moments when difficult decisions had to be made about the research design.

Many thanks go out to all of these individuals, for the pleasant atmosphere in which we worked together on this research and for the great support they provided. It has made the work on this research project a very interesting and encouraging experience.

Monique Beun, August 2001

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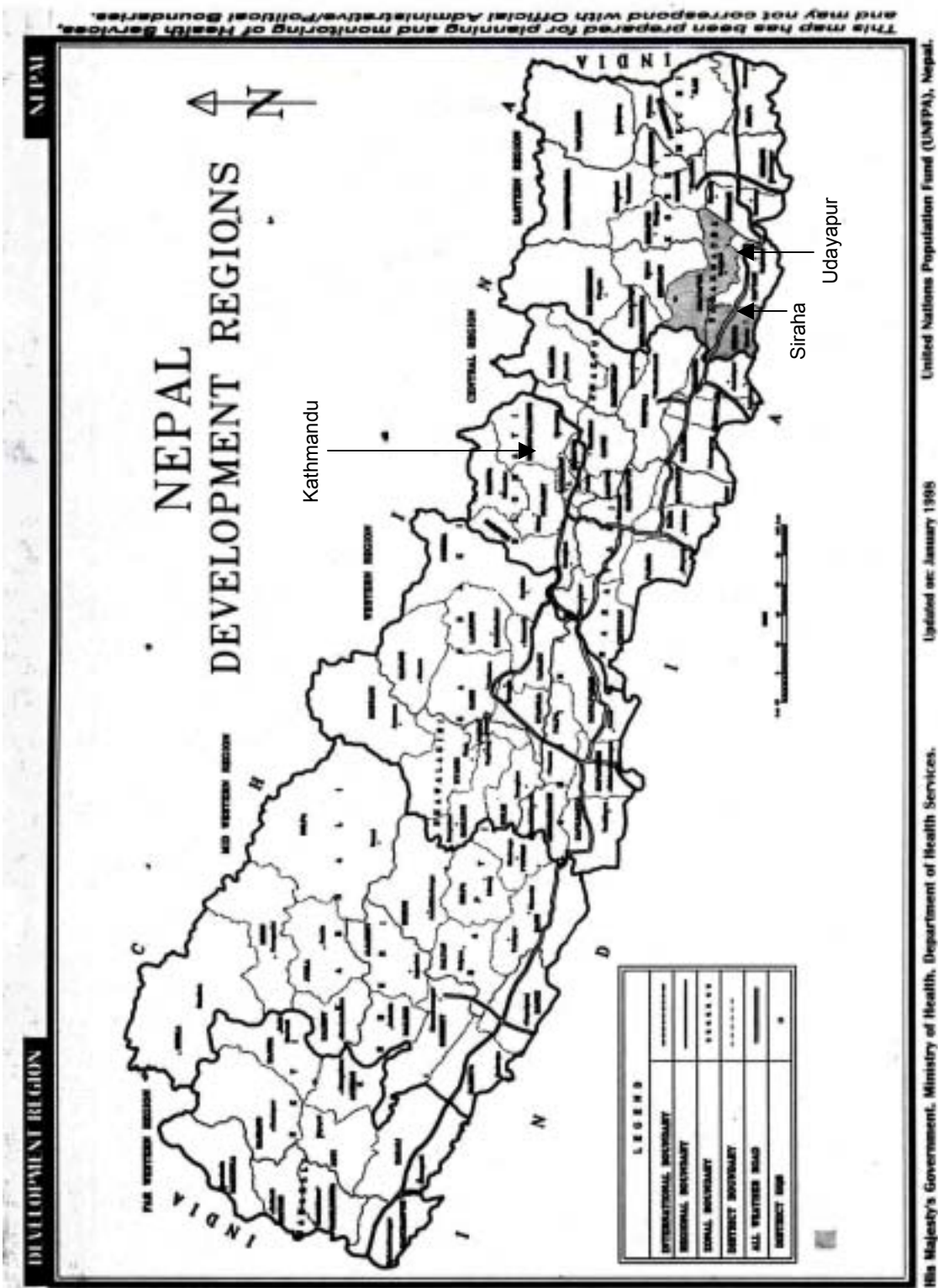
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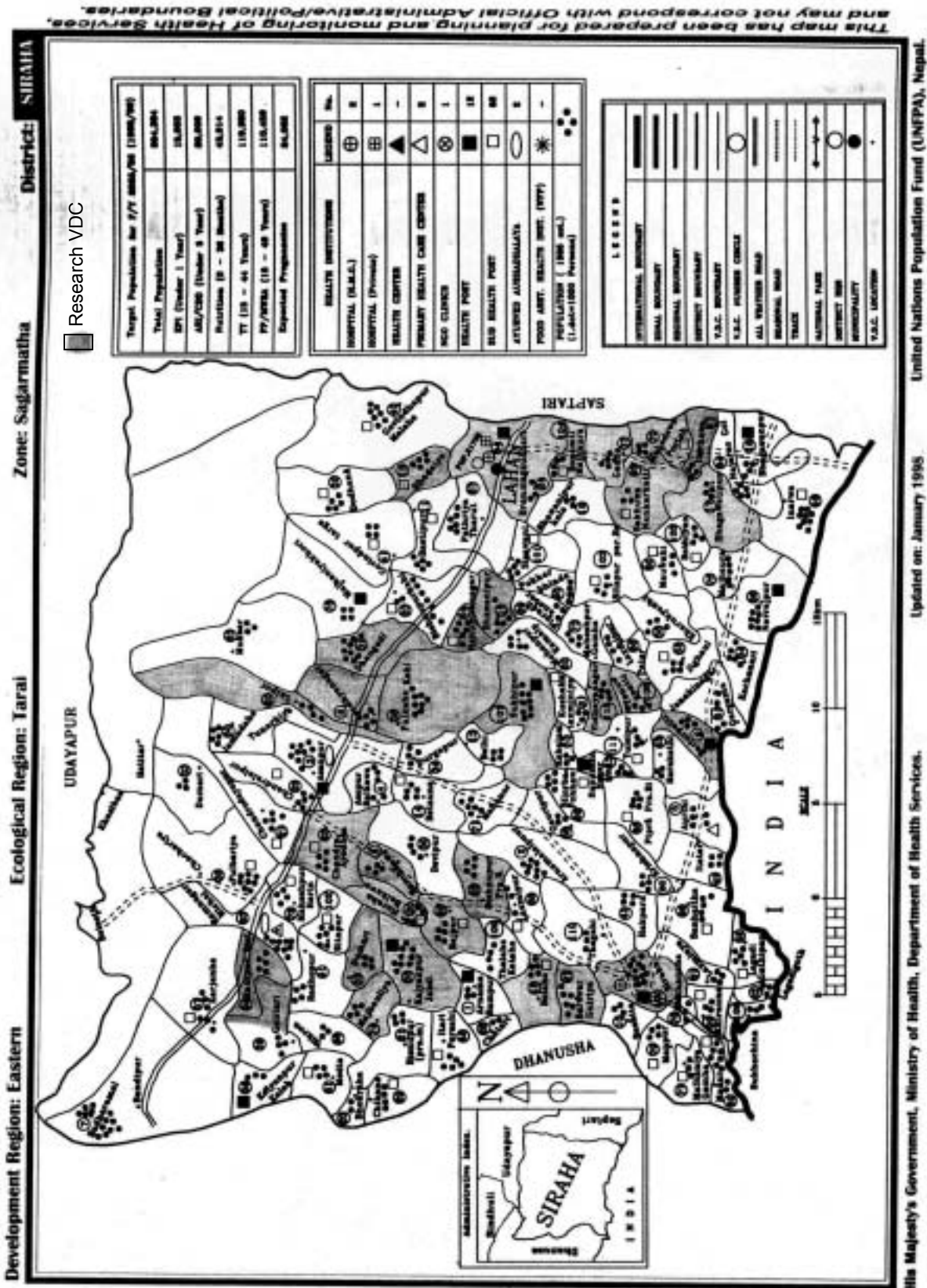
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Appendix A

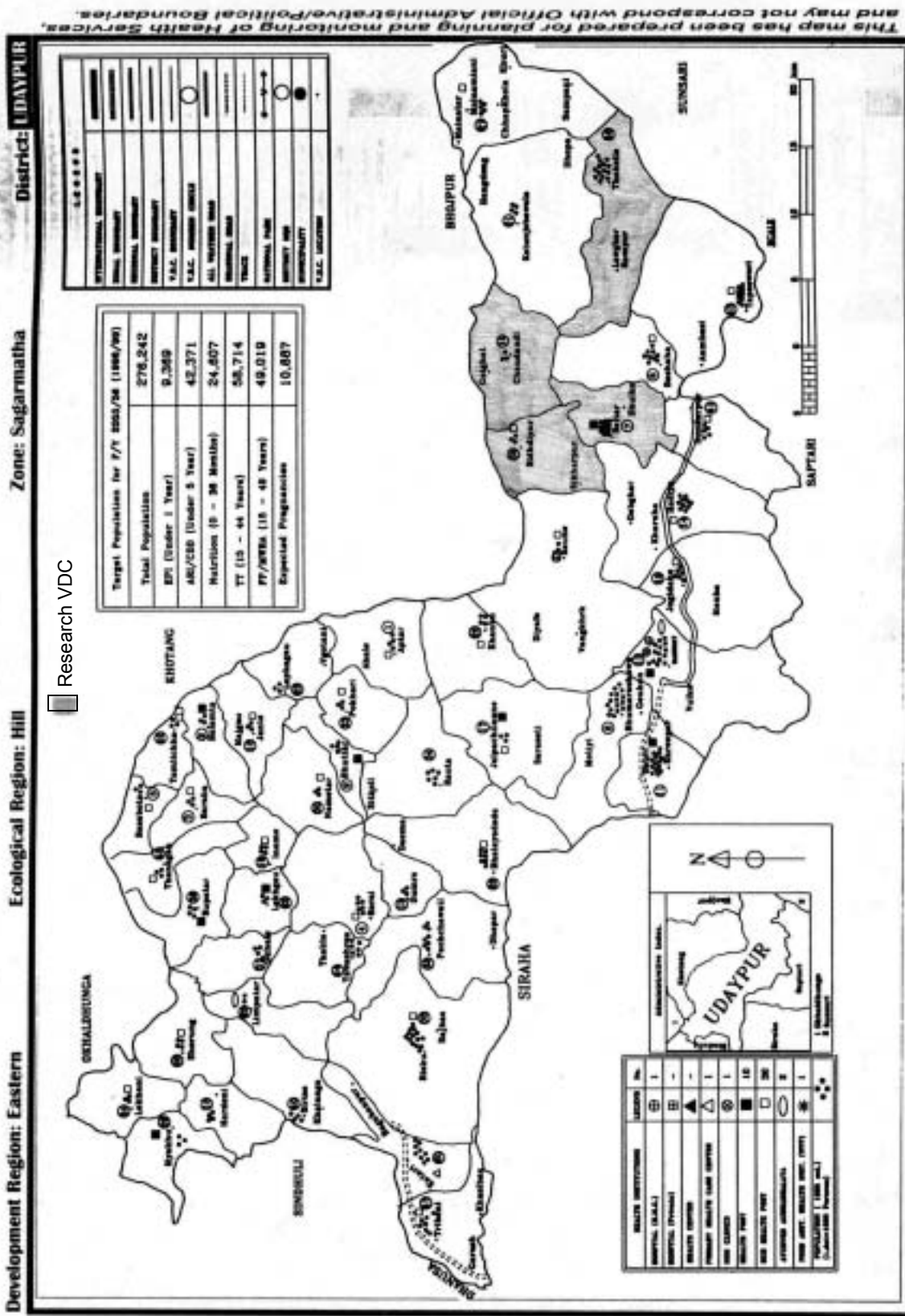
Map of Nepal Indicating Research Districts Siraha and Udayapur



Map of Siraha Indicating Research VDCs



Map of Udayapur Indicating Research VDCs



His Majesty's Government, Ministry of Health, Department of Health Services. Updated on: January 1995. United Nations Population Fund (UNFPA), Nepal.

Interviewer: _____
Date of Interview: _____

ID Number: _____

Kit Non-Users

Appendix B

In-Depth Interview Topic Guide For Kit Non-Users

Introduction:

Introduce yourself.

Objectives of the interview:

PATH & SAVE are doing a research in this area. "We are trying to learn more about the health of women and birth practices in Siraha/Udayapur. Therefore we want to talk with women like you, who have delivered a healthy baby at home. We want to talk with you about the practices during the delivery of your last baby. Such information will help to understand how organizations and government might be able to make giving birth a safer experience for mothers and babies."

Talk 2-5 minutes about other related work (like family, agriculture and other simple matters), to get more familiar with the woman and help her to relax, before starting the interview.

Request to talk freely, truly and clearly that helps to make it more valuable for our study. Stress that "there will be no right or wrong answers and all your thinking, both positive and negative, is valuable for us. Your answers will be kept confidential and used for research only, nobody else will be informed about this, you will have no harm from answering."

Participation is voluntary. "You may stop the interview at any time if you wish to. There is no possible harm that can come to you or your baby as a result from their visit. The interview will take less than one hour."

Ask permission to record the interview on tape recorder

Type of attendant:	Living Area:
<input type="checkbox"/> Non User, Mother who delivered alone	<input type="checkbox"/> Rural
<input type="checkbox"/> Non User, Family member attendant	<input type="checkbox"/> Urban
<input type="checkbox"/> Non User, TBA	

Date of birth of baby: _____ day _____ month _____ year

Respondent

Mother

VDC: _____

VDC: _____

Ward: _____

Ward: _____

Approximate age of respondent: _____

Approximate age of mother: _____

Number of children: _____

Number of children: _____

Religion: _____

Religion: _____

Ethnic group: _____

Ethnic group: _____

Education till class: _____

Education till class: _____

Interviewer: _____
Date of Interview: _____

ID Number: _____

Kit Non-Users

For TBA only:

Are you regularly called by other people of the village to attend a delivery? Yes / No
If yes, how often per month? _____

From whom did you receive your TBA training? _____

Preparations for Delivery

1. What preparations do you make before a delivery, while you are pregnant?
Please describe them.

Probe:

- Once you know you are pregnant, what preparations do you do?
- If none, Why are no preparations done?
- What preparations do you do already during pregnancy?
- What preparations do they do in the house of the pregnant woman?
- Is money, food or clothes put aside during pregnancy?
- What preparations are done just before delivery? (from the onset of labor pain)
- What activities do you consider most important before the delivery? Why?
- At what time do you think these activities are important?
- Could you do any of these preparations earlier? Why, or why not?

Ask as appropriate for respondent:

- When do you call a TBA? / At what time are you called to come as a TBA?
- What work is done in days after delivery?
- How is payment arranged?

2. What materials did you use during the delivery? Could you show them to us?

Instruction for the interviewer:

Participant will be asked to bring all necessary items to demonstrate their delivery practice. As far as possible the participant should produce the items she used in her latest delivery. She should display all these items.

Interviewers will bring along commonly used items for participants to use if they lack something for the practice demonstration (because it has been disposed off, or is not available in the own household).

Delivery item checklist log

List all the items that the participant brought to use in the demonstration of practice below:

(Take also from demonstration)

- (1) _____
- (2) _____
- (3) _____
- (4) _____
- (5) _____
- (6) _____
- (7) _____
- (8) _____
- (9) _____
- (10) _____

Probe: (if necessary after demonstration)

- What is the most important item you use during delivery?
- Why do you believe this is the most important item?
- How about the other items?

Interviewer: _____
Date of Interview:

ID Number: _____

Kit Non-Users

Description and demonstration of delivery

3. Please describe the steps you took when delivering your most recent baby?

Instruction for the interviewer: for explaining demonstration of practice to participant Explain that now the participant should pretend that she is going to deliver a baby.

She should use the material she brought to demonstrate how she used the items to deliver her baby, in the order she used them.

A doll baby will be available for the participant to use to help her demonstrate her most recent delivery.

The interviewer will observe the participant during her demonstration of practice. The interviewer will take notes on the observation checklist but not advise her during the demonstration of practice. (provide doll only when it is born in the process)

*The interviewer should use the **observation checklist** during the demonstration.*

Probing questions to start demonstration

- How far along was the delivery when you arrived?
- Where was the mother and what was she doing?
- What did you do from the onset of labor, onwards?
- Who (else) was present at the delivery and what were they doing?
- **Don't ask WHY?** during demonstration!

3. Observation checklist

Please mark the following as appropriate:

ACTIVITY	YES	NO

Washes hands with water and soap before start of delivery	Yes	No
Places clean protection under woman Type of protection: _____	Yes	No
Wraps newly delivered baby in cloth	Yes	No
Washes hands with water and soap before tying the cord	Yes	No
Ties umbilical cord ➤ Type of ties used _____ ➤ Number of ties used _____	Yes	No
Cuts umbilical cord with boiled/clean sharp tool* ➤ Type of tool used for cutting _____ ➤ Implement was <input type="checkbox"/> new <input type="checkbox"/> boiled <input type="checkbox"/> cleaned <input type="checkbox"/> not cleaned at all (check one) ➤ What was used as cutting surface _____ ➤ Cutting surface was <input type="checkbox"/> new <input type="checkbox"/> boiled <input type="checkbox"/> cleaned <input type="checkbox"/> not cleaned at all	Yes	No
Disposes of delivery waste products by burying them	Yes	No
Gives baby to mother to start breast-feeding	Yes	No

* If they used a new/boiled implement, do not forget to probe in question 6 how she knew!

Interviewer: _____
Date of Interview:

ID Number: _____

Kit Non-Users

After the demonstration, ask the following questions in order to verify your observations.
(For validating, extra detailed information and general practices and traditions)

Explain the mother we liked her demonstration, but did not understand all of it, therefore we want to ask some more questions

4. How was the mother prepared just before delivering the baby?

Probe:

- Where was the delivery done and how was that place prepared?
- Was it cleaned?
- Was anything put on the floor?
- Put anything underneath her? Why?
- Washed the perineum? Why? By whom?

5. Who actually cut the cord? How was it cut?

Probe:

- Why exactly this person cuts the cord?
- In how many places the cord was tied?
- In what place the cord was cut?
- What item was used to cut the cord?
- What preparation, if any was done to the instrument used to cut the cord?

* If they used a new/boiled tool, Probe:

- **How did you know to use a new/boiled tool to cut the cord?**
- *Where did you get this information?*
- *Do you know why it is you should use a new/boiled tool?*
- *Why did you indeed use a new/boiled blade?*
- *What is put on the cord-cut?*
- *Do you know about cord-infection?*
- *How is cord-infection caused?*
- *At what time is the cord cut (before or after the placenta has come)? Why?*
- *How long did it take for the placenta to come? (also related to wrapping of baby)*

6. What is the cord cut on (cutting surface)?

Probe:

- Why do you use that as cutting surface?
- What preparation, if any, is done to the cutting surface?

If a coin is used as cutting surface, Probe:

- What are traditions related to the coin?
- What are believes related to the coin?
- Did you boil the coin before using it? If so, for how long?
- Could the coin be replaced by something else, like a piece of plastic?

7. What is done with the items used during the delivery? /Are they disposed of?

Probe: (focus on blade, coin and placenta)

- What items are disposed off?
- How are they disposed off?
- Why are the items disposed off in this way?
- Why are these items disposed off?
- Are any of the items used during delivery re-used? If so, which ones? For what use?
- Are the items cleaned before they are re-used? How?

8. How do you feel about washing your hands with soap during delivery?

Don't ask this question straight away

Probe:

- At what times during delivery do you wash your hands? Why? Where are hands washed?
- Is washing your hands during delivery important? If so, why? When is most important?
- Do you use soap when washing your hands during delivery? Why? Hot or cold water?
- Is using soap when washing your hands during delivery important? If so, why?
- Do you wash your hands before delivering the baby? Why?
- Do you wash your hands before cutting the cord? Why?
- Does the house owner provide soap to the TBA?

9. How is the newborn baby taken care of?

Probe:

- After the birth of the baby what did you do with it?
- Where did you put it to wait for the placenta?
- Who wrapped the baby? When?
- When is breastfeeding started? Why? Does the baby suckle (want/can)?
- Who did the breastfeeding? How often (per day)? And for how long?
- Are any other kinds of food/drink given to the newborn baby?
- How often? And for how long?

Knowledge of the Clean Home Delivery Kit

10. Do you know about the Clean Home Delivery Kit? If so, please tell me about your experience with the kit.

Probe:

- Have you ever used the kit in the past?
- How did you learn or hear about the kit?
- Has anybody advised you to use/buy the kit? If so, whom?
- What did they say about the kit?

(If they have really never heard about the kit, go to question 14)

11. Why didn't you use a Clean Home Delivery Kit for the most recent pregnancy you were involved with?

Probe:

- Was the kit not easily available?
- Was the kit too much work?
- Was the kit not useful and why?
- Was the kit too expensive?
- What would make you use the kit in the future?

12. Where could you buy a delivery kit if you wanted to buy one?

- shop
- pharmacy
- mothers' group
- community distribution center
- community-based organization
- TBA
- other: _____

Probe:

- How much would you pay for this kit?

Interviewer: _____
Date of Interview:

ID Number: _____

Kit Non-Users

- What do you think about the price of the kit? (too much, OK, etc.)
- Have you heard of other places nearby where you can purchase a kit?
- If you wanted to purchase a kit, where or from whom would you like to buy it?

Pictorial instructions

13. In the kit, there is a piece of paper with illustrations and some writing

Show the pictorial insert to the respondent.

What do you think is the purpose of this paper?

What would you do with it?

14. What, if anything, do you learn from the pictures? Show the entire pictorial insert. After each message mentioned spontaneously, ask “Anything else?”

- Look at the pictorial insert
- Wash hands
- Use plastic sheet underneath
- Wrap baby right after delivery
- Wash hands with soap before tying cord
- Use cord ties
- Cut with the clean razor blade
- Bury everything in a hole after delivery
- Begin breastfeeding right after birth

- Did not learn anything
- Did not understand anything
- Don't remember
- Other, please specify: _____

Test of the pictorial instructions

15. “The paper is for instruction on the use of the kit. We need your help to make our pictorial instructions clearer. This time we’re going to look at each picture individually. Please tell me what you see in the picture. After you tell me what you see, I will tell you the message that we are trying to communicate. Then, you tell me how to make the drawing better so that I can clearly communicate the messages to women like yourself.”

Interviewer instructions:

- Point to one specific picture in the pictorial insert.
- Give the woman a sheet of paper with the same picture on it.
- Ask the participant first what she sees in the picture.
- Explain the meaning and message of the picture.
- Then ask her to record how the picture could be changed to make it more easily understood.
- She can indicate the changes with pencil on the sheet of paper.

Concentrate on the elements of the picture and if these are recognized.

Try to find out the reason for their misunderstanding.

(Is what is shown different from or conflicting with their views or traditions?)

Note down 1) what the respondent “sees” in each separate picture, and
2) her suggestions for improving the picture to give a clear message.

Interviewer: _____
Date of Interview: _____

ID Number: _____

Kit Non-Users

	What participant "sees"	Suggested changes
Picture One	_____	_____
Picture Two	_____	_____
Picture Three	_____	_____
Picture Four	_____	_____
Picture Five	_____	_____
Picture Six	_____	_____
Picture Seven	_____	_____
Picture Eight	_____	_____
Picture Nine	_____	_____
Picture Ten	_____	_____

16. The pictures are in a long row. Why is it put in such a way?

Probe:

- Do you understand from the row of pictures that it is a sequence?
- Why is it in a sequence?
- Do you understand from the insert in what order you should do the activities shown in the pictures?
- Do you agree with the order shown?

17. What does mean clean and safe delivery?

Probe:

- Do you know about the six cleans?
- If so what are these?
- During delivery are any other cleans necessary?
- How did you get to know this?

(Six cleans: clean hands, clean nails, clean thread, clean blade, clean floor, and clean perineum)

Thank you for helping us understand more about how to make delivery safer for all women and children.

At the end of the interview and the demonstration of practice, the interviewer may take the opportunity to educate the participant about the Clean Home Delivery Kit and provide a sample for her to keep.

Interviewer: _____
Date of Interview: _____

ID Number: _____

Kit User

Appendix C

In-Depth Interview Topic Guide For Kit Users

Introduction:

Introduce yourself.

Objectives of the interview:

PATH & SAVE are doing a research in this area. “We are trying to learn more about the health of women and birth practices in Siraha/Udayapur. Therefore we want to talk with women like you, who have delivered a healthy baby at home. We want to talk with you about the practices during the delivery of your last baby. Such information will help to understand how organizations and government might be able to make giving birth a safer experience for mothers and babies.”

Talk 2-5 minutes about other related work (like family, agriculture and other simple matters), to get more familiar with the woman and help her to relax, before starting the interview.

Request to talk freely, truly and clearly that helps to make it more valuable for our study. Stress that “there will be no right or wrong answers and all your thinking, both positive and negative, is valuable for us. Your answers will be kept confidential and used for research only, nobody else will be informed about this, you will have no harm from answering.”

Participation is voluntary. “You may stop the interview at any time if you wish to. There is no possible harm that can come to you or your baby as a result from their visit. The interview will take less than one hour. “

Ask permission to record the interview on tape recorder

Type of attendant:	Living Area:
<input type="checkbox"/> Kit User, Mother who delivered alone	<input type="checkbox"/> Rural
<input type="checkbox"/> Kit User, Family member attendant	<input type="checkbox"/> Urban
<input type="checkbox"/> Kit User, TBA	

Date of birth of baby: _____ day _____ month _____ year

Respondent:

VDC: _____

Ward: _____

Approximate age of respondent: _____

Number of children: _____

Religion: _____

Ethnic group: _____

Education till class: _____

Mother:

VDC: _____

Ward: _____

Approximate age of mother: _____

Number of children: _____

Religion: _____

Ethnic group: _____

Education till class: _____

Interviewer: _____
Date of Interview: _____

ID Number: _____

Kit User

For TBA only:

Are you regularly called by other people of the village to attend a delivery? Yes / No
If yes, how often per month? _____

By whom did you receive your TBA training? _____

Preparations for Delivery

1. What preparations do you make before a delivery, while you are pregnant?
Please describe them.

Probe:

- Once you know you are pregnant, what preparations do you do?
- Why are no preparations done?
- What preparations do you do already during pregnancy?
- What preparations do they do in the house of the pregnant woman?
- Is money, food or clothes put aside during pregnancy?
- What preparations are done just before delivery? (from the onset of labor pain)
- What activities do you consider most important before the delivery? Why?
- At what time do you think these activities are important?
- Could you do any of these preparations earlier? Why, or why not?
- What is the most important item you use during delivery?
- Why do you believe this is the most important item?

Ask as appropriate for respondent:

- When do you call a TBA? / At what time are you called to come as a TBA?
- What work is done in days after delivery?
- How is payment arranged?

Use of the Clean Home Delivery Kit

2. I understand that you used a Clean Home Delivery Kit during your latest delivery.

What can you tell me about why you used the kit?

Who made the decision to use the kit?

According to answer:

Why did you decide to use the kit? / How do you feel about using the kit?

Probe:

- Have you ever used the kit in the past?
- How did you learn or hear about the kit?
- Who advised you to use/buy the kit?
- What did they say that convinced you the kit would be helpful?
- At what time during pregnancy was the kit bought? Why then?

3. Where was the kit bought?

- shop
- pharmacy
- mothers' group
- community distribution center
- community-based organization
- TBA
- other: _____

Probe:

- How much was paid for this kit?
- What do you think about the price of the kit? (too much, OK, too little etc.)

Interviewer: _____
Date of Interview:

ID Number: _____

Kit User

- Have you heard of other places nearby where you can purchase a kit?
- If you wanted to purchase a kit, where or from whom would you like to buy it?

Description and demonstration of delivery

4. Please describe the steps you took when delivering your most recent baby using the Clean Home Delivery Kit?

Instruction for the interviewer:

If the respondent likes to, she can also demonstrate her use of the delivery kit.

A doll baby and a CHDK will be available for the participant to use to help her demonstrate.

The interviewer will observe the participant during her demonstration of practice. The interviewer will take notes on the observation checklist but not advise her during the demonstration of practice. (provide doll only when it is born in the process)

*The interviewer should use the **observation checklist** during demonstration or description.*

- *Probing questions to start demonstration*
- *How far was the delivery when you arrived?*
- *Where was the mother and what was she doing?*
- *What did you do from the onset of labor onwards?*
- *Who (else) was present at the delivery and what were they doing?*
- **Don't ask WHY? during demonstration!**

5. Observation checklist

Please mark the following as appropriate:

ACTIVITY	YES	NO

<i>Looked at the pictorial insert</i>	Yes	No
<i>Washes hands with water and soap before start of delivery</i>	Yes	No
<i>Places clean protection under woman</i> <i>Type of protection: _____</i>	Yes	No
<i>Wraps newly delivered baby in cloth</i>	Yes	No
<i>Washes hands with water and soap before tying the cord</i>	Yes	No
<i>Ties umbilical cord</i> ➤ <i>Type of ties used _____</i> ➤ <i>Number of ties used _____</i>	Yes	No
<i>Cuts umbilical cord with boiled/clean sharp tool*</i> ➤ <i>Type of tool used for cutting _____</i> ➤ <i>Cutting tool was <input type="checkbox"/> new <input type="checkbox"/> boiled <input type="checkbox"/> cleaned <input type="checkbox"/> not cleaned at all (check one)</i> ➤ <i>What was used as cutting surface _____</i> ➤ <i>Cutting surface was <input type="checkbox"/> new <input type="checkbox"/> boiled <input type="checkbox"/> cleaned <input type="checkbox"/> not cleaned at all</i>	Yes	No
<i>Disposes of delivery waste products by burying them</i>	Yes	No
<i>Gives baby to mother to start breast-feeding</i>	Yes	No

*After the demonstration, ask the following questions in order to verify your observations.
(For validating, extra detailed information, general practices and traditions)*

Explain the mother we liked her demonstration, but did not understand all of it, therefore we want to ask some more questions

6. How was the mother prepared just before delivering the baby?

Probe:

- Where was the delivery done and how was that place prepared?
- Was the place cleaned?
- Was anything put on the floor?
- Put anything underneath her? Why?
- Wash the perineum? Why? By whom?

7. Who actually cut the cord? How was it cut?

Probe:

- Why exactly this person cuts the cord?
- In how many places the cord was tied?
- In what place the cord was tied?
- What item was used to cut the cord?
- What preparation, if any was done to the instrument used to cut the cord?
- If you did not use the kit, what would you use to cut the cord?

If they use a new/boiled tool, Probe:

- ***How did you know to use a new/boiled tool to cut the cord?***
- *Where did you get this information?*
- *Do you know why you should use a new/boiled tool?*
- *Why did you indeed use a new/boiled blade?*
- *What is put on the cord-cut?*
- *Do you know about cord-infection?*
- *How is cord-infection caused?*
- *At what time is the cord cut (before or after the placenta has come)? Why?*
- *How long did it take for the placenta to come? (also related to wrapping of baby)*

8. What is the cord cut on (cutting surface)?

Probe:

- Why do you use that as cutting surface?
- What preparation, if any, is done to the cutting surface?

If the plastic disk was used:

- What was used before/traditionally for cutting surface?

If a coin was used as cutting surface, Probe:

- What are traditions related to the coin?
- What are believes related to the coin?
- Did you see there was a plastic disk in the kit?

9. What is the purpose of the plastic disk that comes in the kit?

Probe:

- What, if anything, does the plastic disk remind you of?
- Instead of the coin is the plastic disk just as good? Why?
- Did you use it as a cutting surface for the cord?
- How are the plastic disk and coin different for your feeling?
- Do you think this disk is useful in the kit/for the delivery?
- Why makes it useful? How is it useful?
- If you were designing the kit, would you include it or leave it out? Why?

10. What is done with the items used during the delivery? /Are they disposed of?

Probe: (focus on blade, disk and placenta)

- What items are disposed off?
- How are they disposed off?
- Why are the items disposed off in this way?
- Why are these items disposed off?
- Are any of the items using during delivery re-used? If so, which ones? For what use?
- Are the items cleaned before they are re-used? How?

11. How do you feel about washing your hands with soap during delivery?

Don't ask this question straight away

Probe:

- At what times during delivery do you wash your hands? Why? Where are hands washed?
- Is washing your hands during delivery important? If so, why? When is most important?
- Do you use soap when washing your hands during delivery? Why? Hot or cold water?
- Is using soap when washing your hands important? If so, why?
- Do you wash your hands before delivering the baby? Why?
- Do you wash your hands before cutting the cord? Why?
- Does the house owner provide soap to the TBA?

12. How is the newborn baby taken care of?

Probe:

- After the birth of the baby what did you do with it?
- Where did you put it to wait for the placenta?
- Who wrapped the baby and when?
- When was breastfeeding started? Why? Does the baby suckle (want/can)?
- Who did the breastfeeding? How often (per day)? And for how long?
- Are any other kinds of food/drink given to the newborn baby?
- How often? And for how long?

Preferred delivery kit items

13. What item or items in the kit are most helpful to you and why?

Probe:

- How were they helpful?

Interviewer: _____
Date of Interview:

ID Number: _____

Kit User

14. What items in the kit are least helpful and why?

Probe:

- Can you explain what it is about them was not helpful?

Overall feelings about the kit

15. Tell two characteristics you liked *most* about the kit.

Probe:

- What advantages did it have?
- What benefits did it have?

16. Tell two characteristics you liked *least* about the kit.

17. Would you buy a kit again for future deliveries or recommend it to another woman?

If yes, **Please explain why?** *Probe: (focus on main reason)*

- Is the kit easy and convenient?
- Is the kit useful?
- Is the kit affordable?
- Does the kit help to ensure a safe delivery?
- Any other reasons?

If no, **Please explain why not?** *Probe:*

- Is the kit not easily available?
- Is the kit too much work?
- Is the kit not useful? Why not?
- Is the kit too expensive?
- Any other reasons?

Pictorial instructions

18. In the kit, there is a piece of paper with illustrations and some writing.

(show the pictorial insert to the respondent).

What did you think the purpose of this paper was?

What did you do with it?

Probe:

- When using the kit this time did you look at the pictures before starting the delivery?

19. What, if anything, do you learn from the pictures? *Show the entire pictorial insert. After each message mentioned spontaneously, ask "Anything else?"*

- Look at the pictorial insert
- Wash hands
- Use plastic sheet underneath
- Wrap baby right after delivery
- Wash hands with soap before tying cord
- Use cord ties
- Cut with the clean razor blade
- Bury everything in a hole after delivery
- Begin breastfeeding right after birth
- Did not learn anything
- Did not understand anything
- Don't remember
- Other, please specify: _____

Interviewer: _____
Date of Interview: _____

ID Number: _____

Kit User

Test of the pictorial instructions

20. The paper is for instruction on the use of the kit. We need your help to make our pictorial instructions clearer. This time we're going to look at each picture individually. Please tell me what you see in the picture. After you tell me what you see, I will tell you the message that we are trying to communicate. Then, you tell me how to make the drawing better so that I can clearly communicate the messages to women like yourself.

Interviewer instructions:

- Point to one specific picture in the pictorial insert.
- Give the woman a sheet of paper with the same picture on it.
- Ask the participant first what she sees in the picture.
- Explain the meaning and message of the picture.
- Then ask her to record how the picture could be changed to make it more easily understood.
- She can indicate the changes with pencil on the sheet of paper.

Concentrate on the elements of the picture and if these are recognized.

Try to find out the reason for their misunderstanding.

(Is what is shown different from or conflicting with their views or traditions?)

Note down 1) *what the respondent "sees" in each separate picture, and*
 2) *her suggestions for improving the picture to give a clear message.*

	What participant "sees"	Suggested changes
Picture One	_____	_____
Picture Two	_____	_____
Picture Three	_____	_____
Picture Four	_____	_____
Picture Five	_____	_____
Picture Six	_____	_____
Picture Seven	_____	_____
Picture Eight	_____	_____
Picture Nine	_____	_____
Picture Ten	_____	_____

21. The pictures are in a long row. Why is it put in such a way?

Probe:

- Do you understand from the row of pictures that it is a sequence?
- Why is it in a sequence?
- Do you understand from the insert in what order you should do the activities shown in the pictures?
- Do you agree with the order shown?

Effect of pictorial instructions on hand-washing and understanding “clean delivery” concept

22. Did the instructions in the delivery kit help you to learn or remember something about how to do a delivery?

Probe:

- What does mean clean and safe delivery?
- Do you know about the six cleans?
- If so what are these?
- During delivery are any other cleans necessary?
- How did you get to know this?

- **From the pictures did you learn anything how to do a clean delivery?**

Probe: - if yes,

- What did you learn?
- Did you learn form the pictures or from elsewhere?

Probe: - if no,

- Why were these instructions not helpful when you used the kit
- Was it difficult for you to understand the instructions?
- Were the drawings not clear?
- Were you not accustomed to using written instructions?

(Six cleans: clean hands, clean nails, clean thread, clean blade, clean floor, and clean perineum)

23. Did the delivery kit make any change in your hand washing practices?

Probe: - if Yes,

- What are the changes in your hand washing?
- Before how often did you wash your hands and now how often you washed?
- Has the way of hand washing changed? (soap)
- What caused the changes in your hand washing?
- Caused the information in the kit difference?
- Caused the piece of soap in the kit difference?
- Does the house owner provide soap if there is no CHDK box?

Probe: - if No,

- Why had the kit had no effect on your hand washing?

Thank you for helping us understand more about how to make delivery safer for all women and children.

At the end of the interview and the demonstration of practice, the interviewer may take the opportunity to educate the participant about the Clean Home Delivery Kit and provide a sample for her to keep.

Characteristics of Interview Respondents

1. Caste and Ethnicity

Type of attendant	Caste of birth attendant						
	Hill Tribe	Bahun / Chhetri	Hill Untouch	Madeshi High	Madeshi Low	Madeshi Untouch	Tharu
CHDK User							
Trained TBA					3	2	
Untrained TBA	1 ^a				3	1	1 ^a
Family member	2 ^a	1 ^c		1	4 ^a		
Mother alone	1	3			1		
Non-User CHDK							
Trained TBA					2	2	1
Untrained TBA					2	3	
Family member	1 ^c		1 ^b	1	4	3	
Mother alone	3	2	2				

a. 1 of which was spontaneous user

b. Lahan

c. Udayapur

Type of attendant	Caste of mother						
	Hill Tribe	Bahun / Chhetri	Hill Untouch	Madeshi High	Madeshi Low	Madeshi Untouch	Tharu
Trained TBA				2	4	2 ^a	2
Untrained TBA	1	1		1	4	3 ^a	1
Family member	3 ^{bc}	1 ^c	1	2	8	3	
Mother alone	4	6	2		1		

a. 1 of which was Muslim

b. 2 of which were Buddhist from Siraha

c. 1 from Udayapur

2. Age

Type of attendant	Age of the delivering mother				
	≤20	21-25	26-30	31-35	36-40
Trained TBA	1	4	1	2	2
Untrained TBA	3	4	2	2	
Family member	4	8	2	4	
Mother alone	-	7	4		1

Type of attendant	Age of the birth attendant					
	≤25	26-30	31-40	41-50	51-60	>60
Trained TBA	1		3	4	1	1
Untrained TBA		1	2	3	4	1
Family member		1	6	2	7	2
Mother alone	7	4	2			

3. Number of Children

Number of children of the delivered mother (including newborn)									
	1	2	3	4	5	6	7	8	9
Mothers	10	20	4	7	4	4		1	1

4. Position at Home

- Five daughters had come to their *maitighar* (house of their own family, as opposed to that of the husband) to be assisted by their mother or aunt (of which one was attended by a trained TBA).
- Four mothers delivering alone were living with their in-laws; the other 8 were heads of the household.
- None of the mothers attended by a family member were head of their households.
- Four mothers assisted by TBAs (1 trained) were heads of their households.
- All other mothers were living and delivering their baby with their in-laws.

5. Literacy

Type of attendant	CHDK User		CHDK Non-User	
	Literate	Illiterate	Literate	Illiterate
Trained TBA ^a	2	3	-	5
Untrained TBA	2	4 ^a	1	4
Family member	-	8	-	9 ^a
Mother alone	-	5	3	5

a. All trained TBA, 2 untrained TBA, and 2 family members used CHDK spontaneously, other users were seeded with CHDK.

Observation of Demonstration

Following are the results of the observations done by the interviewers during the respondent's demonstration of her practices during her last delivery. These results do not necessarily correspond completely with the answers of the respondents during the interview and probing concerning the practices. Sometimes the observation or demonstration may have been incomplete; on other occasions during the interview the respondent pretended a "better" behavior based on her knowledge or guesses of what she should do during a clean delivery.

1. Looked at Pictorial Insert

Type of attendant	CHDK User by Own Decision		CHDK Seeded	
	Looked	Not Looked	Looked	Not Looked
Trained TBA	2	3		
Untrained TBA		2		4
Family member		2		6
Mother alone			1	4

2. Hands Washed Before Starting Delivery

Type of attendant	CHDK User		CHDK Non-User	
	Washed	Not Washed	Washed	Not Washed
Trained TBA	2	3	2	3
Untrained TBA	1	5 ^a	2	3
Family member	1 ^b	7 ^b	1 ^c	9
Mother alone		5		7

a. 2 of which used kit spontaneously (by their own decision)

b. 1 of which used kit spontaneously (by their own decision)

c. Udayapur

3. Hands Washed Before Cutting the Cord

Type of attendant	CHDK User		CHDK Non-User	
	Washed	Not Washed	Washed	Not Washed
Trained TBA	2 ^a	3	1 ^b	4
Untrained TBA	2 ^a	4	1 ^b	4
Family member	1	7		10
Mother alone	2	3	1	6

a. 1 of which also washed her hands before starting the delivery

b. CHDK used by her own decision

4. Protection on the Floor

Type of attendant	CHDK User		CHDK Non-User	
	Clean	Not Clean	Clean	Not Clean
Trained TBA	5		3	2
Untrained TBA	6		1	4
Family member	8		6	4
Mother alone	3	2	2	5

Of kit users, all but four had clean protection on the floor using the plastic sheet; four respondents who used no floor protection at all. The ground cover protection used by kit non-users was as follows:

Trained TBA: 2 washed jute bag, 1 old plastic sheet, 1 unclean jute bag, 1 nothing/barren floor
 Untrained TBA: 1 washed jute bag, 3 unclean jute bag, 1 nothing/bare floor
 Family member: 1 clean cloth, 3 *gundri*, 2 washed jute bag, 2 unclean jute bag, 2 nothing/bare floor
 Mother alone: 2 *gundri*, 5 nothing/bare floor

5. Baby Wrapped Immediately

Type of attendant	CHDK User		CHDK Non-User	
	Yes	No	Yes	No
Trained TBA	5		1	4
Untrained TBA	2 ^a	4 ^a	5	
Family member		8	3	7
Mother alone	1	4		7

a. 1 of which used CHDK by her own decision

6. Number of Knots Used to Tie the Cord

Type of attendant	CHDK User				CHDK Non-User			
	3	2	1	0	3	2	1	0
Trained TBA	3	1	1		3		2	
Untrained TBA	4 ^a	1 ^a		1	1	3	1	
Family member	2 ^a	3 ^a	3		1	3	6	
Mother alone	1 ^b		4		1		6	

a. 1 of which used CHDK by her own decision

b. Siraha

7. Type of Thread Used to Tie the Cord

Type of attendant	CHDK User		Non User CHDK	
	Clean	Not Clean	Clean	Not Clean
Trained TBA	1 ntw			1 old
Untrained TBA		1 not tied		
Family member				
Mother alone			1 sewing	1 old

Except for the cases mentioned in table:

All CHDK users used CHDK thread, though not always all three threads.

All non-users used new, thick, white thread.

8. Clean Cutting Tool Used (Blade)

Type of attendant	CHDK User		CHDK Non-User	
	Clean	Not Clean	Clean	Not Clean
Trained TBA	5		5	
Untrained TBA	6		5	
Family member	8		8	2
Mother alone	5		5	2

9. Type of Blade Used to Cut the Cord (boiled and cleaned are also new blades)

CHDK User	Boiled	Cleaned	New	Old & Dirty
Trained TBA	1	1	3	
Untrained TBA			5	
Family member		1	7	
Mother alone			5	
CHDK Non-User				
Trained TBA	1	1	3	
Untrained TBA			5	
Family member	2	6		2
Mother alone		1	4	2

10. Clean Cutting Surface Used

Type of attendant	CHDK User		CHDK Non-User	
	Clean	Not Clean	Clean	Not Clean
Trained TBA	5		3	2
Untrained TBA	4	2		5
Family member	8		1	9
Mother alone	4	1		7

11. Type of Cutting Surface Used to Cut the Cord

CHDK User	Plastic	Boiled Coin	Cleaned Coin	Dirty Coin
Trained TBA	5 ^a			
Untrained TBA	4		1 ^b	1 ^b
Family member	8			
Mother alone	4			1
CHDK Non-User				
Trained TBA	1 ^c	3	1	
Untrained TBA			3	2
Family member		1	2 ^d	7
Mother alone			3	4

a. 1 of which cleaned in boiled warm water

b. Which used CHDK by her own decision

c. Old and dipped in boiled water

d. 1 of which cut without surface

12. Placenta Buried

Type of attendant	CHDK User		CHDK Non-User	
	Yes	No	Yes	No
Trained TBA	3	2	5	
Untrained TBA	4 ^a	2 ^a	3	2
Family member	5 ^a	3 ^a	2	8
Mother alone	1	4	5	2

a. 1 of which used CHDK by her own decision

13. Baby Breastfed Immediately After Birth

Type of attendant	CHDK User		CHDK Non-User	
	Yes	No	Yes	No
Trained TBA	2	3	2	3
Untrained TBA	3 ^a	3 ^a	2	3
Family member	4	4 ^b	5	5
Mother alone	3	2	4	2

a. 1 of which used CHDK by her own decision

b. 2 of which used CHDK by her own decision

Understanding of Pictorial Insert

The CHDK pictorial insert was tested with a total of 50 respondents. This appendix includes a description of respondents’ understanding of each picture, their suggestions for changes, and brief recommendations from the field research coordinator. A detailed table summarizing the respondents’ comprehension of each picture is included at the end of this section.

The four most difficult illustrations are Picture 1, Kit contents; Picture 2, Reading the instructions; Picture 4, Spreading the plastic; and Picture 9, Disposing of the delivery waste (for Terai respondents). Fewer than one-fifth of the respondents could understand the messages of these pictures, even in part.

Overall Understanding of Pictorial Insert (absolute numbers)

Picture #	Understood	Nearly Understood	Not understood*
1	3	4	42
2	8	-	42
3	13	12	25
4	7	-	43
5	9	8	33
6	7	36	7
7	16	8	26
8	19	19	12
9	13	-	37
10	22	12	16

*This category includes respondents who could not indicate any understanding, recognized only elements of the picture, or misunderstood significant portions of the illustration.

Generally speaking, including a helper in the pictures led the mothers who delivered alone to understand that the insert meant they should get the help of a TBA or *sudeni* during delivery. They felt that they were being told they should not deliver alone. Although, indeed it would be better for them to have someone around who could help if things go wrong, the intention of the insert is to help the mother accomplish a clean delivery through kit use, whether or not she is assisted.

It is questionable whether all women understand that the pictures are purposely in the order in which they should perform the activities. The probing on this aspect was not sufficient to make a thorough evaluation. If the order is not understood, some of the instructive value is lost, such as the two pictures of hand washing. Consequently, it might be useful to include the element of time in the individual drawings.

Overall, comprehension was lowest among the illiterate respondents.

Type of Attendant	5 or more messages understood	Fewer than 5 messages understood
Literate	7	1
Illiterate	8 (hills 4, Terai 4)	34

Picture 1. Kit Contents

Very few (three) people recognized that these were the contents of the box, and generally only a single item could be identified. Four respondents did not understand the illustration at all. The abstract concept of showing the kit contents was too complicated for the visual literacy level of the respondents.



Recognition of most individual items was low. Many respondents (39) could only identify the razor blade. Fourteen respondents recognized the soap, 16 recognized the thread, and 19 recognized the disc. The plastic sheet and pictorial instruction paper were the most difficult to understand, due to their undefined form. Only 8 respondents recognized the sheet, and 7 recognized the paper insert. The picture of a woman on the box was recognized by only 7 respondents, and the box itself was understood by 9 respondents. The drawing on the kit box in the illustration appears to distract attention from its meaning, instead of simplifying recognition.

Changes suggested by respondents:

- Picture should be bigger
- Box should be shown with open lid
- Instruction paper should be shown unfolded
- Plastic sheet should be shown folded (2)
- Plastic should be shown unfolded
- Plastic sheet should be more square
- Plastic sheet should be white

Recommendation:

As recognition is low, the relevance of this picture for understanding the use of the kit should be discussed. This picture could be eliminated from the instructions altogether. If it is maintained, the components should be re-drawn with more definition.

Picture 2. Reading the Instructions Before Delivery

Only eight respondents understood the illustration, and one did not understand it at all. The paper in the hand of the helper or TBA was seldom recognized by respondents. When recognizing the pregnant woman and assistant, respondents are at loss to say what the assistant was doing. Reading is an activity not often seen in these villages, especially when performed by illiterate TBAs. The role of the TBA is to check the position of the mother's baby, support and massage the delivering woman, cut the umbilical cord, and clean up the dirt after the delivery. In some cases, the assistant is seen as a doctor.



The position of the woman lying down is associated more with being ill than with the time of delivery. Most women deliver their babies in a kneeling or squatting position. This reality is clearly reflected in the misunderstandings of this picture.

Misinterpretations of the illustration were that the pregnant woman was being massaged; the pregnant woman was being supported or held around the waist; the attendant was coughing,

holding a folding cloth, or cleaning up dirt; or the baby was laid on a paddy as in a traditional birth ceremony.

Changes suggested by respondents:

- Pictures should be made bigger
- Instruction paper should be more folded
- Pregnant woman should be kneeling to show she is about to deliver her baby (2)

Recommendation:

To show the insert more clearly, it may be necessary to change the position of the assistant and/or the delivering woman. Possible solutions to indicate that the mother is in the first stage of labor might be to make her lying on her side, or standing with her hand on her back and her big belly clearly visible.

Picture 3. Washing Hands With Water and Soap Before Delivery

When seen for the first time this picture causes problems in identifying the two different people. The squatting woman is often understood as the pregnant woman in labor. Once the sitting woman is seen as the pregnant woman, the standing woman is easily taken for the TBA.

Half of the people (25) did not understand the picture depicted hand washing. The jug is apparently not big enough to be seen properly. Also the details of the hands are not clear enough to indicate washing. Thus the activity of the two women is not readily understood. In a number of cases this picture was understood as serving water or food to an untouchable woman from a distance, as is the cultural custom. Other misinterpretations include squatting in labor (2) or washing the baby (2). A total of 13 respondents understood the picture correctly.



The soap is often not seen clearly, partly because it is at the border of the textbox. The fallen water on the ground sometimes causes confusion—only after probing did about half of the respondents understand that this picture was showing washing of hands with soap. Twelve respondents did not understand the timing of hand washing. In addition to the illustration not being explicit enough in this regard, there is a general low awareness of the need to wash hands before delivery and a high degree of repulsion felt after touching the delivered woman and her blood.

Changes suggested by respondents:

- Soap should be shown more clearly
- Soap should be bigger
- Soap should be smaller
- Soap should be more round (it looks like tapari for burying placenta)
- Water should be poured from jug or different amphora (2)
- Water on ground should be more clear (2)
- Water on ground should be whiter
- Pot with hot/boiling water should be shown

Recommendation:

Both the soap and water jug need changes to make them clear. The pattern of the women's clothes has been designed to create proper identification, but is not sufficient. Putting the woman in labor in the background might help eliminate this problem. This would also make the timing of hand washing more explicit. However this will increase the perception that the pictures are conveying the message that women should call a TBA and not deliver alone, as indicated by a hill respondent in relation to pictures 2, 4, and 5. This would support the need for different pictures for different regions.

Picture 4. Spreading the Plastic Sheet Under the Pregnant Woman

This picture shows the delivering woman lying down. Health professionals prefer this position because it improves observation of the progress of delivery by the birth attendant. It also prevents the baby from falling from a substantial height to the ground, as the assistant often does not catch it. However, in the drawing this position creates confusion among kit users because women generally deliver kneeling, squatting, or even standing upright supported by a wall or roof beam. One of the respondents (untrained) thought the picture was advocating the lying position.



Lying down is seen as very difficult for the delivering woman, as she has to do the pushing all by herself, without the help of the pressing massage of her attendants. For most women the lying position therefore suggests that the delivery is over and the baby born. The confusion over the position causes the birth attendant's activity to be unclear to most respondents. As with picture 2, after delivery the assistant is expected to be involved in different activities than demonstrated in this picture, like cleaning the mother's perineum or caring for the baby. Thus it is hard to understand the message. The picture was fully understood by only 7 respondents. A quarter of the respondents (13) thought that the baby was already born, thus misunderstanding the timing.

The position of the attendant's hands, holding the plastic sheet, is not clear, in part because the plastic sheet is not easily identified. The water breaking at the point of delivery is not recognized properly and is sometimes seen as blood. A total of 18 respondents did not understand the illustration at all.

Changes suggested by respondents:

- Position of delivering woman should be on knees; attendant should be at her back
- Show the belly of the delivering woman more clearly
- Plastic should be made whiter, clearer
- Straw mat should be green; mat should be black

Recommendation:

It should be clarified whether this picture aims to change the delivering position, or simply show that the birthing place should be clean. If the position is eliminated, more space in the picture could be dedicated to unfolding the plastic sheet. The sheet and hands need more detail to show the activity depicted. The woman in labor could then be located more toward the side, maybe about to sit down over the plastic sheet. Her belly should be shown clearly.

Picture 5. Wrapping the Baby While Waiting for the Placenta

Half of the respondents did not recognize the wrapped baby, as they could not distinguish the face from the patterned cloth, especially in Siraha. Three respondents could not understand any part of the picture.



Once the wrapped baby was recognized, most people also understood that the placenta had not yet come, as they saw the cord emerging from the mother's vagina. However, what was being done with the baby was not clear. As was mentioned regularly in the interviews, traditionally people neither clean nor wrap the baby before the placenta is delivered.

Some respondents wondered how the baby could be taken away if the cord was not yet cut. A number of respondents (6) said the assistant was cleaning the baby, or about to cut the cord. These perceptions indicate awareness that the newborn should be taken care of immediately, instead of first waiting for the placenta.

Timing of the wrapping was not clear. Four individuals thought the baby had been wrapped, because the placenta was very late. They said the mother was about to go to the hospital to get help. Such an interpretation does not contribute to wrapping the baby more quickly. Two individuals thought the cord was being tied. Only nine respondents fully understood the picture's message.

Changes suggested by respondents:

- The illustrations should be in color
- Baby should be shown while being born
- Hands and feet of baby should be shown
- Baby should be bigger to be seen properly
- Cloth wrapping the baby should be less thick and more colorful

Recommendation:

The pattern of the wrapping cloth needs to be changed to make the baby's face stand out more clearly. It might also be possible to have the baby's feet or hands showing. Another option would be to show the wrapping in the process; however, in this case, the wrapping may be easily confused with cleaning the baby.

Picture 6. Washing Hands Again With Water and Soap Before Cutting the Cord

The increased understanding of this picture (which is identical to picture 3) when shown for the second time was tremendous. Almost all respondents said this showed hand washing with soap and water, after this had been explained previously. Only one woman said she had forgotten the meaning of this picture. This result shows the impact of verbal clarification and the power of memory.



However, when asked when the hands were washed, women most often said hand washing takes place after completing the entire process of delivery, thus after cutting the cord and cleaning the mess, or did not specify when. Few respondents said hands should be washed before cutting the cord. Even after explaining that hand washing was shown twice because hands must be washed before cutting the cord, when asked why two pictures of hand washing were included, the answer was commonly “hands should be washed before and after delivery.” Three respondents said the picture illustrated washing hands before giving an injection.

Changes suggested by respondents:

- Soap should be bigger
- Soap should be pink
- Jug should be bigger

Recommendation:

As with picture 3, alterations are necessary to increase understanding of washing hands with soap and water. Some definition of the time period should be included in this drawing to indicate explicitly that it occurs before cutting the cord.

Picture 7. Tying the Umbilical Cord in Three Places

Nearly a fifth of the respondents did not recognize the baby shown in the picture. The neatly wrapped baby looked like a package to them. Also seeing only hands and not a person sometimes confused respondents. When recognizing the baby, a number of respondents imagined other care-taking activities for the baby, like cleaning or massaging.



Many respondents (13) interpreted this picture as cutting the cord at first, probably because that is the next important activity in the delivery process. Only after probing regarding the different elements of the picture did they see that the cord was being tied, and the message of this picture became clear. Other respondents misinterpreted the illustration as the baby being kept warm in cloth or being massaged and given an injection, or thought that the hands were writing. A total of 16 respondents interpreted the picture correctly.

Except for the TBAs, few respondents paid any attention to the number of knots. Two knots were seen readily. But the third knot that is being tied by the hands was not easily understood. This may also be caused by the fact that some respondents expressed opposition to the idea that three knots are needed. They had always done it with just one or two, and no problems had occurred.

Changes suggested by respondents:

- Legs and hands of baby should be visible
- Dots on the cloth should be removed

Recommendation:

The wrapping of the baby needs to be changed so it is clear this is a newborn baby. It should be more clear that the cord is being tied and not cut. Alternatively, this picture may be left out and the number of knots in picture 8 made very explicit.

Picture 8. Cutting the Cord Between the Second and Third Knot With Blade and Plastic Disc

Initially this illustration was confused with tying. When picture 7 was understood or had been explained, quite a number of respondents answered that picture 8 also showed that the cord had been tied. The difference between these two pictures is not clear enough. In total 20 respondents confused one or both of these two pictures. On the other hand, explanation of the elements in picture 7 improved the understanding of picture 8.



Nineteen respondents correctly understood the illustration. Use of a razor blade to cut the cord is easily seen, but the coin or plastic disc is not always recognized. It is difficult to observe where the cutting is done, as the third knot is often not seen. Therefore half of the respondents did not fully understand the intended message of this picture about where the cord should be cut.

Changes suggested by respondents:

- Plastic disc is not seen clearly, might be bigger
- Child should be shown more clearly (as in picture 7)
- Child's eyes should be shown clearly
- The umbilical cord should be thicker

Recommendation:

As mentioned with picture 7 it should be considered whether two pictures are required to explain the three knots and where to cut the cord. The confusion about the two pictures could possibly be eradicated by using only one picture rather than two. After improving the illustration of the wrapped baby, the cord-cutting location must be clearly shown as well as the three knots at their correct distances, and the blade cutting on the disc.

Picture 9. Burying Plastic Disc, Blade, and the Placenta (in the Plastic Sheet) in a Pit

Many important elements of this illustration are not recognized. The black, round pit is seen as a cooking bowl, and the dark bundle of waste as a chicken or a baby. The pile of earth is often not seen at all. The bushes in the background cause confusion for those who bury the placenta inside the house at the site of birth. Therefore quite a few people (7) said they understood that tea or chicken was being prepared for the mother who had just given birth. Two respondents thought the woman was holding water, and two thought she was grinding spices.



Twenty-one respondents did not understand the illustration at all. Particularly in the Terai, people could not understand this picture. Hill respondents recognized the small hoe (*kodalo*) and therefore guessed that the picture depicted burying the placenta. They, too, did not recognize the pit and bundle of waste at first. Terai people said that if their traditional *khurpi* (grass-cutting tool also used for digging holes) were shown they would understand the placenta was being buried. Of those people (13) who understood that the placenta was being buried, it was not further verified whether they understood that all waste should be buried (in the same place).

Changes suggested by respondents:

- Drawing should be bigger
- Bushes should be removed, as placenta is buried inside the house (in Terai)
- Soil appears too black (2); soil does not look like earth clumps; the heap of soil should be bigger
- Pit looks like a wooden stool, pan, plate or a box; pit might be smaller; pit should be bigger; should be more round (3)
- Plastic packet in hand might be clearer with bigger part above hand; plastic should be black; placenta should be shown more clearly.
- Should show mud pot in which placenta is placed
- Hoe should be shown in hand, so digging is understood (2)
- Hoe should have longer iron handle
- In plains, a *khurpi* should be shown as that is the tool used for digging the pit

Recommendation:

The elements that cause confusion are not easily improved. The suggestions by respondents to make the pit more round will make it look more like a cooking pan, instead of less. As indicated by the results, good understanding of the digging activity will help most respondents grasp the meaning of the picture. It should be tested whether a common digging tool can be designed that is understood by all. Otherwise, different pictures for different regions may be required. The bushes should be removed to make the drawing simpler and prevent confusion.

Picture 10. Breastfeeding the Baby Immediately After Delivery

Most respondents recognized the last picture as a mother breastfeeding her newborn baby on her lap. Only a few respondents had a problem seeing the baby, and some did not see that the baby was being breastfed. However many respondents (12) did not understand the time at which she was breastfeeding (i.e., immediately after the birth).



About half of the respondents (22) did understand the complete message of this picture as breastfeeding *after* cleaning the baby and mother. Others stated that a mother's milk does not come for three days, so this illustration was simply the happy mother with her baby. A few respondents focused on the position of the mother while feeding her baby, indicating the message was that she should rest and not put too much pressure on her uterus to prevent protrusion. Only three respondents did not understand the illustration at all.

Changes suggested by respondents:

- Picture should be bigger and baby shown more clearly

Recommendation:

The baby should be drawn more clearly, and the pattern of the wrapping cloth should stand out from the mother's clothes. It should be considered whether some explicit time reference could be brought into the picture.

Detailed Table of Respondent Comprehension

Picture # Category		Understood	Specific misunderstanding ¹	Misunderstanding	Only elements ²	Not understood ³
1	Non-User	2	3 (prepared)*	-	19	3
1	User	1	1 (prepared)	-	20	1
1	Total	3	4		39	4
2	Non-User	4	1 (check)	5	16	1
2	User	4	3 (check)	1	15	-
2	Total	8	4	6	31	1
3	Non-User	6	8 (time)	5	4	4
3	User	7	4 (time)	4	6	2
3	Total	13	12	9	10	6
4	Non User	1	9 (born)	5	6	6
4	User	6	4 (born) 3 (clean)	4	5	1
4	Total	7	13 (born) 3 (clean)	9	11	7
5	Non-User	4	1 (held)	5	14	3
5	User	5	6 (clean) 3 (held) 2 (late)	1	6	-
5	Total	9	12	6	20	3
6	Non-User	4	6 (after) 12 (time)	3	1	1
6	User	3	9 (after) 9 (time)	1	1	-
6	Total	7	15 (after) 21 (time)	4	2	1
7	Non-User	9	6 (cut) 3 (no ties) 2 (clean)	2	1	4
7	User	7	7 (cut) 5 (no ties)	2	1	1
7	Total	16	13 (cut) 8 (no ties) 2 (clean)	4	2	5

*See narrative for further explanation of specific misunderstanding.

¹ Specific misunderstanding: A recurrent interpretation expressed by the respondents that did not correspond with the picture's intended message.

² Only elements recognized: No meaning could be given to the complete picture, though some elements may have been recognized.

³ Not understood: Respondent could not give any interpretation of what she saw in the picture.

Picture # Category		Understood	Specific misunder- standing	Misunder- standing	Only elements	Not understood
8	Non-User	11	5 (tie)* 7 (place)	-	1	3
8	User	8	2 (tie) 12 (place)	1	-	-
8	Total	19	7 (tie) 19 (place)	1	1	3
9	Non-User	8 (plain 3) (hills 5)	3 (cooking)	4	1	11
9	User	5 (plain 1) (hills 4)	4 (cooking)	5	3	6
9	Total	13	7	9	4	17
10	Non-User	11	5 (time) 4 (hold)	4	-	3
10	User	11	7 (time) 4 (hold)	1	-	-
10	Total	22	12 (time) 8 (hold)	5	-	3

*See narrative for further explanation of specific misunderstanding.