Infant and Young Child Feeding Formative Research:

Breastfeeding Practices in Cambodia

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TABLE OF CONTENTS

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ACRONYMS / ABBREVIATIONS

ADRA	Adventist Development and Relief Agency
BCC	Behavior change communication
C	Caregivers (specifically elderly caregivers)
FGD	Focus group discussion
F1	Father with one child
F2	Father with two or more children
HKI	Helen Keller International
IEC	Information, education, and communication
IYCF	Infant and young child feeding
LAM	Lactation amenorrhea method of family planning
M1	Mother with one child
M2	Mother with two or more children
MoH	Ministry of Health
RACHA	Reproductive and Child Health Association
TBA	Traditional birth attendant
VHV	Village health support volunteer
WM	Formally working mother

1. EXECUTIVE SUMMARY

1.1 Literature review

Prior to setting the objectives of this study, a literature review of qualitative research was conducted which identified gaps in knowledge on breastfeeding practices in Cambodia. Eleven studies were included in the literature review (see appendix C). Seven main practices and underlying associated beliefs that have a negative effect on breastfeeding practices were identified from these studies (see appendix B).

All of the dominant practices highlighted in the review were barriers to exclusive breastfeeding. These barriers included delays in initiating breastfeeding, prelacteal feeding, and negative attitudes about colostrum and beliefs about the necessity of giving water to young infants. However, there was some suggestion that these practices were starting to change, though it was not clear why or to what extent. Major gaps were highlighted particularly in relation to breastfeeding and the working woman and the existence or extent of lactation problems. No information was available on the attitudes of fathers or the main supporters of breastfeeding in the community. It was also apparent that the widespread practice of *Ang Pleung* (roasting) affected early initiation and exclusive breastfeeding, but it was not clear to what extent. Furthermore, newly collected unpublished quantitative data from UNICEF and RACHA suggested that *Ang Pleung* and optimal breastfeeding practices could be successfully combined. This issue needs to be explored in more depth.

Although this formative research was conducted to produce answers and clarify issues, it has also served to raise further questions.

1.2 Reported positive changes in knowledge and behavior

The views expressed by respondents clearly suggest that their knowledge on breastfeeding in general is very good. This was apparent across all sites, not just those sites where programs were being implemented. Media messages and health education from health staff, traditional birth attendants (TBAs) and elders are the main sources of knowledge.

Due to an increase in knowledge, practices and beliefs appear to be changing slowly but surely. Many respondents reported turning away from old practices to take up more positive behaviors, particularly in relation to feeding during *Ang Pleung*. In addition, increased early initiation and feeding of colostrum has led to reduction in prelacteal feeding. Favorable opinions on exclusive breastfeeding were recorded, including clear, credible explanations from respondents of their reasons and methods of exclusive breastfeeding, as well as their reasons for sticking with it. The main motivational factor reported is that respondents are experiencing the benefits of changing feeding practices.

This shift in knowledge and behavior is very positive and needs to be enhanced further. Positive influences appear strongest in areas where the community has been exposed to a combination of change agents promoting the same message. This research, therefore,

strongly suggests the desirability of continuing to reinforce messages by providing consistent information through the combination of change agents.

1.3 Identification of areas requiring further attention

Complexity of the issues

Although progress is slowly being made, some old practices are still survive. This study brought to light some clear reasons for that. The reasons may be because mothers do not have the skills (e.g. to express breastmilk), or the support (e.g. to solve lactation problems), or that it conflicts too much with their other needs (e.g. the need to go out and "make business"), or they have not seen enough evidence to convince them to do otherwise (e.g. belief that babies <6 months old will get thirsty and need water in addition to breastmilk), or a mixture of all these factors. Identifying these factors highlights the complexity of the issues; however it also provides a base of knowledge and information on which integrated behavior change communication programs can be built.

Promoting skin-to-skin contact

The immediate post-partum practice of skin-to-skin contact was not reported in any area. However, in view of other inter-related problems that came to light during the research, promoting skin-to-skin could become the focus for bringing together these issues and collectively addressing the problems. For example, it was widely reported that first-time mothers were very nervous about initiating breastfeeding and frequently experienced problems with establishing breastfeeding. Encouraging skin-to-skin will help promote a relaxed atmosphere, build the psychological bond between mother and baby and encourage the baby to suckle within the first hour of birth, which helps deliver the placenta. These factors are collectively very important as the mother's thoughts and emotions affect milk flow. (For full recommendations on this, please see section 5.3)

Lactation problems and breastfeeding technique issues

The Cambodian Demographic and Health Survey (2000) reports high rates of breastfeeding, clearly suggesting that most mothers manage to establish breastfeeding. What was highlighted in this formative study, however, is the extent to which first-time mothers experience lactation problems, especially during the initial phase. This frequently leads to a break in breastfeeding and the baby being given supplements of some sort. Therefore levels of effective support need to be found to support these young mothers and make it easier for them to establish breastfeeding. Addressing lactation problems will need a multi-pronged approach, including legislation on "Breastmilk Substitutes", training, sharing of best practices, and creative development and adoption of consistent behavior-change messages.

The practice of expressing breastmilk was found to be underused. It was also clear that exclusive breastfeeding rates could be increased by its use. Strategies need to be developed which include promotion of expressed breastmilk use.

Mothers were commonly feeding from both breasts during one breastfeeding session. This suggests that babies may not be sucking from one breast long enough to receive the rich hindmilk that gives them extra energy and satisfies hunger. This simple issue may be the root cause of concerns mothers expressed about their milk not being enough to satisfy their baby and, as a result, turning to the use of supplements. Therefore this issue needs some attention.

Breastfeeding and the working mother

The need for mothers to work or bring in income, whether formally or informally, negatively affects exclusive breastfeeding opportunities. It is clear, however, that informally working mothers have more support available that increases the possibility for them to exclusively breastfeed. Fathers and caregivers are the main carers of babies during the time the mother works. These support networks need to be encouraged and strengthened and further study is recommended into the best way of achieving this with the caregivers themselves.

Exclusive breastfeeding, or even continued breastfeeding, is much more difficult for the formally working mother. Some support is available from the institutions and establishments that employ these mothers, and this is to be encouraged. However, there is a need to advocate for employers to take a more active role in supporting breastfeeding mothers including evaluating the effectiveness of their policies and programs. Economic pressures play a big part in the decisions mothers make about returning to work, despite the fact that they know that extra monetary costs will be incurred for formula, medical fees and transport. It would be useful, therefore, to learn more about how mothers and families weigh up the various factors that affect their final decisions regarding when they go back to work and whether they will continue to breastfeed.

Other key issues which affect IYCF practices

Becoming pregnant is a major reason why mothers stop breastfeeding. A major disadvantage of breastfeeding for a longer period of time reported by respondents was that it made the mothers weak and thin. This clearly suggests that optimal infant and young child feeding cannot be promoted in isolation. Maternal nutrition messages, including addressing the iron deficiency anemia issue, and effective birth-spacing programs need to be integral parts of any strategy aimed at improving breastfeeding practices in Cambodia. In addition, promoting the lactational amenorrhea method of family planning will help to promote exclusive breastfeeding.

1.4 Recommendations

A brief list of recommendations is listed below. For full details of recommendations, refer to section 5.

- **Building on reported changes in behavior**: The study highlights some clear positive changes in practice and identifies the process related to the change in

behavior. These perceived and actual benefits, highlighted by the respondents themselves, should be built on and made use of when developing behavior change communication (BCC) messages.

- **Identifying effective "change agents"**: Changes in knowledge and positive changes in behavior can be attributed to exposure to a range of communication channels (e.g., media, IEC/BCC materials, face-to-face contact with trusted individuals) and also reinforced by respondents' personal experiences. It is recommended that consistent messages be disseminated through a range of appropriate and trusted change agents.

- **Promoting skin-to-skin contact**: Promoting skin-to-skin contact could become the focus for bringing together related issues and collectively addressing the problems recognized by programs addressing neonatal health as well as nutrition.

- **Addressing lactation problems**: Providing good quality technical support to all mothers in the first 1–2 two days may help to minimize or avoid lactation difficulties. Further, the findings strongly suggest that access to effective follow-up support during the first week is likely to be crucial in determining whether a mother can exclusively breastfeed or not. More research is needed to further understand the challenges faced by urban mothers.

- **Breastfeeding techniques**: It is recommended that proper breastfeeding techniques receive more attention. Allowing the child to empty the breast before switching to the second and starting with the opposite breast for the next feed is one example. Good positioning and attachment is another. Although some families reported making good use of expressed breastmilk, in general, this practice was little used. In view of the role that expressed breastmilk can play in helping mothers and caretakers exclusively breastfeed infants <6 months old, strategies need to be developed which include promoting the use of expressed breastmilk.

- **Promoting breastfeeding policies in the workplace**: In order to make long term inroads into this issue, there is a need to work with employers and other institutions to ensure that more support is available for breastfeeding mothers. Employers need to be encouraged to evaluate the effectiveness of the current support offered, and any policy development should be based on participatory consultation with employees.

- **The bigger picture**: taking a holistic, multi-pronged approach: Respondents report that mothers get very tired when breastfeeding and working. Also they get tired and weak from breastfeeding for a long period of time. In view of the obvious maternal nutrition and anemia link here, it is recommended that approaches that address basic nutrition for mothers and the prevention of iron-deficiency anemia also be addressed. A campaign on the correct use of the lactational amenorrhea method (LAM), including a clear, specific explanation of

what is meant by the term "frequent" breastfeeds, can help promote exclusive breastfeeding. Comprehensive birth-spacing messages should also be included in the future**.**

2. BACKGROUND AND OBJECTIVES OF THE STUDY

Data on breastfeeding from the 2000 Cambodian Demographic and Health Survey indicates that 96% of women in Cambodia breastfeed, with 50% doing so for the first 2 years of the infant's life. However, only 11% of infants started breastfeeding within 1 hour of birth and 24% within 1 day. Exclusive breastfeeding rates are very low as babies are commonly given a range of other liquids and foods before they reach 6 months of age.

The Ministry of Health (MoH) and Infant and Young Child Feeding (IYCF) Technical Working Group (TWG), with technical support from LINKAGES, are working together to design a communication strategy for IYCF to begin in 2005. In light of the Child Survival Partnership, many agencies have plans to rapidly implement communication programs to improve IYCF feeding practices in Cambodia. It is therefore essential that a comprehensive communication strategy be developed to ensure collaboration, proper channeling of resources, consistent messaging and measurable program outcomes.

As one of the initial steps towards this communication strategy, a closer look at existing formative research on IYCF practices has been taken via a literature review. From this a general consensus was formed on widespread key traditional practices and the identification of core beliefs that contribute to these practices. Barriers to exclusive breastfeeding have been highlighted. Some gaps were identified: for example very little is known about the practical issues that affect both the formal and informally working mother with regard to breastfeeding. Also, the prevalence of lactation problems is unknown, as is the support available to help mothers deal with them.

These initial findings from the literature review (see appendix C) were used as a base to develop research that would fill in the details needed for the next stage: development of messages to promote and sustain optimal breastfeeding practices as part of the wider communication strategy for IYCF.

2.1 Aims

To gain a greater understanding of the key factors that contribute to current breastfeeding practices in Cambodia in order to make evidence based recommendations that will contribute to the development of a national communication strategy for IYCF.

2.2 Objectives

1) To clarify the key beliefs, as identified in the literature review, thought to have a major influence on current breastfeeding practices in Cambodia and to assess if and how these practices are changing.
2) To identify ways of successfully combining the traditional practice of *Ang Pleung* with optimal breastfeeding practices (early initiation and exclusive for the first 6 months).

3) To gain insights into:
   - concerns mothers and other family members had over initiating breastfeeding and exclusive breastfeeding for the first six months;
   - lactation problems mothers most frequently experience;
   - provision of technical expertise available at community level which enables mothers to establish optimal breastfeeding techniques;
   - mothers' perceptions of quality and quantity of breastmilk and what influences these perceptions.
4) To determine the impact that working, both formally and informally[1], has on the mother who wants or needs to exclusively breastfeed, and discover what support may be available that enables her to continue breastfeeding.
5) To increase understanding of the role other family and community members play in influencing the mother's decisions about how to feed the child.

3. METHODOLOGY

3.1 Location

Data collection took place during the last two weeks of February and the first week of March 2005. The study was conducted over two phases: the first of place in IYCF intervention areas, and the second targeted communities who had not yet received any intervention from IYCF projects. Phase I was conducted in three sites in two geographical locations: two villages in Stung Treng Province (sites 1a and 1b), and a village in Pursat (site 2). These sites were chosen following the recent collection of quantitative data by UNICEF's Seth Koma program and RACHA.

In Phase II, a further three sites were targeted: Banteay Mean Chey province (site 3); Takeo Province (site 4); and Kandal Province (site 5). The Kandal site was chosen specifically for its close proximity to Phnom Penh and the hope that it would therefore be home to some of the thousands of female garment factory workers. To select the target

[1] "Formal" refers to mothers who leave the house every day to work a set amount of hours and earn a salary. The work may be in a school, hospital, shop, or restaurant and may be based in the provincial town. "Informal" refers to mothers who work in the fields, sell vegetables in the local market, make clothes and generally work in the locality.

villages, a health center was randomly selected from each of these areas and the village randomly selected from within that health center's catchment area.
The selected provinces, in total, provide a reasonable geographical spread. Figure 1 shows the location of the sites selected for each phase.

The study was a formative research design and therefore generated qualitative data. Question guides were used to conduct focus group discussions (FGD) with each of the target groups.

Figure 1 Geographical location of the research sites

3.2 Brief description of sites

Site 1a: Kaos Sampeay is a large village situated along the banks of the Mekong River, about 15km south of the provincial town of Stung Treng. There is a referral hospital at Stung Treng. Access by road is poor. The health center is in the neighboring village of

Sre Krasang, but the road to this village is very difficult. Lao is the predominant language of the inhabitants. The Seth Koma project is active in this village.

Site 1b: Ou Trael is situated on the west bank of the Mekong, approximately 15 minutes by boat away from Stung Treng Town. The inhabitants speak Khmer. The Thalabariwat health center is a 10-minute boat ride away to the north. The Seth Koma project is active in this village.

Site 2: O'Russey is 25km SW of Pursat Provincial Town. The referral hospital is in Pursat Town. The health center is situated approximately 5km from the village along a dirt road. The main problem for villagers accessing health facilities is transportation.

Site 3: O'Dangkor lies about 10km out of the provincial town of Pursat and is accessed via a moderately good road. There is a referral hospital in the provincial town. The health center at Battrang is quite some distance from the village; however, staff from the health center have set up a private clinic in the adjoining village.

Site 4: Chang Koep is situated near the provincial town of Takeo. The most direct road is frequently flooded and the condition of the road is very bad. In order to reach the hospital at Takeo Town, villagers must travel the long way around, which is roughly 50km. The health center was 2km from the village.

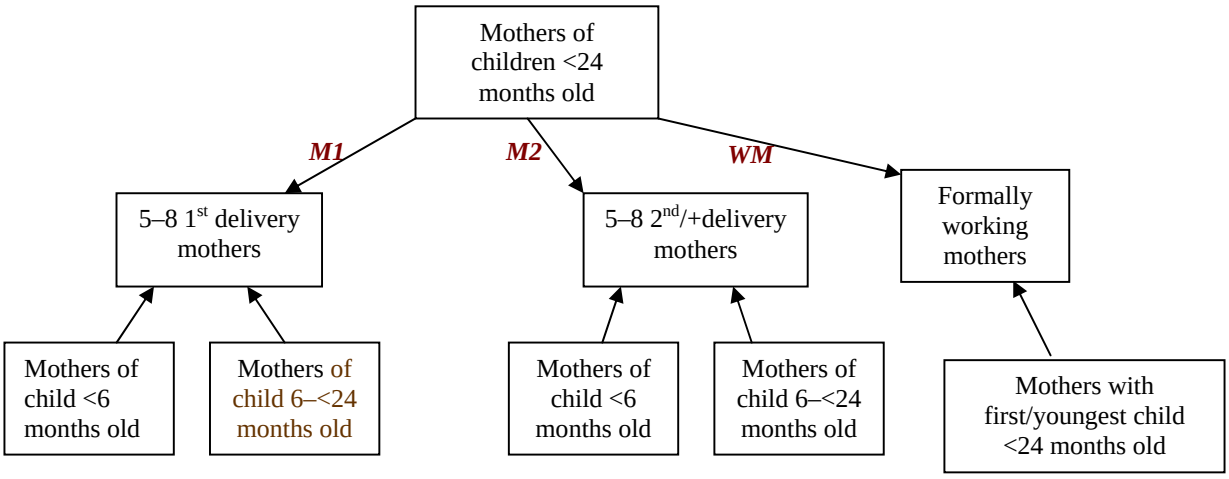
Site 5: Khmut Village is situated about 2km from the district town of Kandal Stueng along a reasonably good road. Anlong Romiet Health Centre is situated in Kampong Tuol Village, which adjoins the district town. There is a referral hospital in the district town.

3.3 Respondents

Mothers of children 0–<24 months old were the main respondents. All mothers in the village fitting this category were divided into two groups: first-delivery mothers (M1s) and mothers who have delivered two or more children (M2s). These two groups were then further divided into mothers with infants 0–<6 months old and mothers with infants 6 months old and older. The FGD participants were randomly selected from the latter groups. Also, an attempt was made in each site to find at least one formally working mother (WM). Unfortunately, this proved quite difficult in the more remote rural areas. No WMs were found in sites 3 or 4.

Figure 2 shows how the focus groups were divided for discussions.

Figure 2 Selection of mothers focus group discussions



In Cambodia the risk of non-participation due to the hierarchical social order will always be a problem. Age is one way the social hierarchy is defined. Splitting the mothers into two groups for the discussions was an attempt to reduce this, although equal participation can never be guaranteed. The first-time mothers were younger than the mothers who had two or more children. Also it was anticipated that M1s might have different issues and problems to share with the group. This in fact proved to be the case.

Other key informants were fathers and elderly caregivers (C) of children <24 months old and traditional birth attendants (TBAs). The fathers were split in the same way as the mothers: first-time fathers (F1) and fathers with two or more children (F2). The husbands of the mothers chosen to take part in the discussion were invited as a first choice. If they were not available, other fathers were identified and invited. For TBAs, the selection process was more complicated. It was decided that at least three TBAs should be present in order for a discussion to take place. If there was only one TBA residing in a village, TBAs from neighboring villages under the same health center catchment area were contacted and invited to join the discussion.

Most FGDs had 5–10 participants. In total 40 FGDs and interviews took place involving 102 mothers (12 WMs, 40 M1s, 50 M2s), 56 fathers, 39 caregivers and 19 TBAs.

3.4 Development of research questions

Using the objectives as a guide, the research team developed the following research questions and topics:

A. What are the community's views on early initiation of breastfeeding (colostrum, prelacteal feeds)?
B. What problems arise, in relation to initiation and exclusive breastfeeding, when practicing *Ang Pleung*?

C. What are the lactation problems that mothers have with initiating breastfeeding and exclusively breastfeeding?
D. What do mothers do about exclusively breastfeeding and continuing breastfeeding when they have to work?
E. Who are the main supporters of optimal breastfeeding practices in the community?

These formed the basis of the five FGD question guides (see appendix A). The first draft was developed in English. A combination of closed and open questions were used. The IYCF sub group members reviewed the drafts. Translation into Khmer took place once the question guides were agreed upon. Pre-testing and finalization took place on the second day of "interview team" training. In the pre-test the FGDs were taking too long and participants were becoming restless. In an attempt to reduce discussion time to 2 hours maximum, a decision was made not to ask all question guides at every FGD or interview. A review of the data following Phase I confirmed that this was working well and the quality of the information did not appear to be compromised. The format was as follows:

- M1s and F1s were asked questions from guides A, B, C, and E
- M2s and F2s were asked questions from guides A, B, D and E
- Working women were asked questions from guides D and E plus a selection of questions from the other guides
- TBAs were asked questions from guides A, B, C and E. No question guide D was developed for TBAs.
- Elderly caregivers were asked all five question guides

3.5 Research teams

The interview teams were recruited from the Ministry of Health, Ministry of Planning and Ministry of Education, Youth and Sport. Some of these people had been trained and used by HKI for conducting qualitative research in the past. The teams underwent two days of training, including field practice. Standard HKI training materials for qualitative research formed the basis of the training.

Each team conducted the study in two geographical sites, one during Phase I and another during Phase II. Three HKI staff members were closely involved in the training and supervision of each team in both Phases I and II. One staff member from RACHA took part in the training and helped supervise the team that went to Pursat (site 2).

Once on site, each interview team communicated with provincial and/or operational district health staff and health center staff, and also enlisted the help of the village chief in identifying and contacting members of the target groups.

3.6 Constraints

The remit of the research turned out to be bigger than was initially expected. The literature review highlighted quite major gaps, leaving a lot to plan and achieve in an 8-week timeframe, including the revision and translation of FGD guides, appropriate training and practice, and field work.

Although some of the researchers had conducted qualitative health research before, others had much less experience and knew little about the subject. Although the 2-day training helped to some extent, a longer training would have been preferable.

Due to distance, poor condition of roads and extensive road works, travel to and from Stung Treng Province took a total of 4 days out of an already constricted schedule.

The villagers in site 1a, Stung Treng Province, were predominantly Lao-speaking, which was unexpected. Some Khmer was spoken and understood by those who had reached higher levels of education. The UNICEF provincial office organized for translation to be provided by a mixture of health center staff, village health support group volunteers and provincial health staff. It cannot be known how the presence of these people influenced the respondents' answers. However, answers from site 1b (a predominantly Khmer-speaking site) in Stung Treng were remarkably similar, which validates the findings to an extent. Both sites had been randomly selected from villages involved in the Seth Koma project.

Finding a formally working woman to interview in the remote rural areas proved quite challenging. Apart from site 5, there was rarely a working woman living in the village, although in sites 2 and 1b, a woman was known to live in a nearby village or town. Extra time was needed to travel to negotiate interview times and then return to conduct the interview. No formally working women were found in site 3 and 4.

4. FINDINGS AND DISCUSSION

4.1 Community views on early initiation of breastfeeding, colostrum and prelacteal feeding

Delays in initiating breastfeeding, prelacteal feeding of liquids and "squeezing away" the colostrum were common practices mentioned in the literature review. However, there were suggestions that some positive changes were starting to take place with respect to beliefs about colostrum, an issue that needed verification and information on the factors causing the change.

The findings from this formative study were reassuringly positive. It had been expected that there would be substantial differences between the intervention and non-intervention areas; however similar practices and levels of knowledge were reported in all sites.

4.1.1 Feeding the newborn: clarifying practices and underlying beliefs and perceptions of advice

Substantial changes were reported in both early initiation and colostrum feeding practices across all the groups and in all the areas where the research took place. The vast majority of respondents reported breastmilk was the first thing that was given to the newborn and that this was a new practice for many of them. The following quote represents what many respondents were reporting:

> *"[Before, we] used to give water, now [we] only give colostrum"* (C, site 1a)[2]

Breastfeeding was reported to start within 30 minutes–2 hours of delivery. It has to be said at this point that wristwatches were not in evidence among the respondents. Possibly they were simply repeating figures that had been quoted to them by health staff or other bodies involved in health education. However some respondents did give answers that were not so time specific, including:

> "*After [the] baby has been wrapped"* (M1, site 2)

> "*When the baby cries: about 15 minutes after birth"* (F2, site 4)

> "*After [the] umbilical cord is cut*" (TBA, site 2)

> *"Now [we] start breastfeeding immediately after delivery"* (C, site 1b)

The first quote was a common answer. Fathers, although not directly involved in the birthing process, frequently reported early initiation of breastfeeding, which corresponding with answers from respondents from other groups. All things taken into consideration, it seems to be suggested here that respondents have an awareness of the benefits of breastfeeding and are making efforts to start breastfeeding as soon as possible after birth.

In some instances breastfeeding started before the placenta was delivered (reported by groups in Sites 1a, 1b, 2, and 3). Delays in starting breastfeeding were said to be due to mothers being exhausted or because of unspecified activities or preparations that needed to be done with the mother.

Reasons given or initiating breastfeeding suggest, in general, knowledge of this issue is very good. Reasons included:

- In response to the baby who was hungry, thirsty, crying

[2] This report contains quotations from many of the respondents. The written English translation of the Khmer speech remains faithful to the integrity and structure of the original comment as far as possible. As Khmer language differs from English grammatically (especially with regard to verb usage and tenses), accurate recording of the responses does not always read fluently. Words have been inserted in brackets for clarity, as required.

- The need to create *"good relations"* between mother and child
- Protecting babies from infections and making them "*healthy, strong and smart*"
- Making the uterus contract and help deliver placenta
- Reduce risk of hemorrhage
- Stimulate production of "*thick white*" milk

Initially newborns were all described as being washed, cleaned, swiped or wiped and then wrapped. Hygiene, esthetics, prevention of skin disease and to keep the baby warm was commonly cited reasons for this initial activity. Skin-to-skin contact, which helps build the initial bond between mother and baby, was not reported by any of the population groups. However, psychological bonding between mother and child was frequently reported as being an important reason for breastfeeding in general.

Washing the breasts/nipples before initiating feeding was recommended by TBAs from all sites and mothers reported following this advice. Reasons given were to keep baby healthy; prevent disease; keep baby from getting diarrhea.

Most of the TBAs understood that early initiation of breastfeeding stimulates uterine contractions to help deliver the placenta and reduces the risk of hemorrhage. Mothers and caregivers from Phase I sites, particularly site 2, were equally clear about these reasons for early initiation and were very positive about this practice. This suggests that cultural barriers to early initiation can be overcome with the right approach. In comparison, fewer mothers and caregivers from Phase II sites had heard about initiating breastfeeding before the placenta was delivered and were not sure what the benefits may be. They were heard to say that they just "*follow what the midwife told us to do"* (M2, site 5). The only fathers that had heard of this were a few from the Phase I sites. There was general skepticism about the benefits of such a practice from fathers and, to a lesser extent, the mothers who had not heard. The fathers from Phase II sites mostly felt breastfeeding should not begin until the placenta was delivered. Some even felt it was a bad thing that would cause more discomfort for their wives.

> "*If breastfeed [starts before the placenta is delivered] mother will get pain in her belly so this will make it more difficult for mother"* (F2, site 5)

Knowledge that early initiation of breastfeeding stimulates production of the second milk or white milk was widespread among all groups. In addition, TBAs from Phase I sites reported giving mothers advice on ensuring the baby suckles frequently.

4.1.2 Colostrum: current knowledge and practice and changes in practice

Common names for colostrum:

- *Tuk doh prey* ("wild milk")
- *Tuk doh chor chek (* "banana resin milk")
- *Tuk doh chor trasok* ("cucumber resin milk")
- *Tuk doh dambong* ("first milk"; this name was more frequently used in sites that had received health education)

The vast majority of newborn babies in all areas were reported to receive colostrum within 30 minutes–2 hours of delivery.

Apart from one father who said, "*colostrum is blood*" (F1, site 2), most of the respondents in all the groups displayed good, and sometimes excellent, knowledge of colostrum. Mothers in particular seemed very confident in their knowledge and their comments suggested they were convinced about the need to give colostrum to their baby:

> *"If breastfeed early, baby will get more colostrum and grow up smart and healthy, contains vitamins"* (M2, site 5)

One comment, which came from discussions with the TBA group in site 1b, gives rise for concern as it highlights some confusion between the benefits of colostrum and protection afforded by immunizations. There were only three TBAs in this discussion group and the two younger ones participated more than the elderly TBA, who understood Khmer but whose first language was Lao. When the individual TBAs were probed for opinions, they frequently said they had nothing else to add because they agreed with what the others had said. Therefore it is not clear whether this comment was just one TBAs opinion or represented the views of all three of the TBAs working in this area. In effect, one of them was quoted as saying: *"colostrum prevents six kinds of diseases, including measles, diphtheria, tetanus"*. This clearly suggests respondent(s) have confused the benefits of colostrum feeding with immunizations. This confusion is possibly a result of hearing an internationally well used colostrum-promoting message, namely: "colostrum is the baby's first immunization". Even though this confusion may be an isolated case, it highlights the need to ensure that messages are clear, consistent and accurate.

No group in any area reported "squeezing away" colostrum, although respondents were frequently heard to say it had been a common practice to squeeze out and discard colostrum in the past. TBAs in particular said they previously thought colostrum was harmful or no good because it was thin or watery. Caregivers reported giving water in the past while they waited for the breastmilk to come in but now their practice had changed:

> *"Now [we] use this new practice, baby [is] not sick often. Before baby was often sick"* (C, site 1a)

A common phrase that came up in all groups in all areas, was that colostrum and breastfeeding makes the baby "*strong, healthy, smart*" (too numerous to reference). This description interestingly corresponds to the message used in the 2004 National Breastfeeding Campaign, and suggests that the message was memorable at the very least.

4.1.3 Reasons for changes in knowledge and practices

The influences that brought about changes in practice were similar for both early initiation and colostrum feeding. The respondents listed these reasons for changes in their knowledge and practices:

- Communities have increased knowledge in these subjects after receiving health education by, or information from, trained local personnel. (This factor was specifically mentioned in Phase I sites). These "trained personnel" were named as TBAs, village health support group, midwives, health center staff and local hospital staff.

- TBAs have received training from health staff and NGOs and *"now have knowledge"* (TBA, site 1a)

- Influential village elders have received education in these new methods

- Media: TV and radio. Messages seen and heard on TV and radio were reinforcing the information being received through face-to-face contact. Media messages played a bigger part in some areas than others, possibly due to signal and reception. For example, in Stung Treng (sites 1a and 1b) the communication/information "channels" cited most were face-to-face contact and a promotional video, whereas in site 5, where there was no health education program running, respondents relied more on mass media and spoke about being influenced by a specific promotional TV spot (a colostrum-fed boy scores the goal).

- Promotional video by UNICEF

- Respondents have positive personal experiences that help develop positive beliefs in the new practices:

  > "*Easier than before, [now] mother's breast is not swollen"* (M2, site 1b)

  > "*The baby is not sick often now they are breastfed in this new way"* (F2, site 1a)

- Families were starting to make comparisons between the healthy and less healthy children and recognizing that breastfeeding practices had played a role in this. The

following quote from an elderly caregiver in site 5 suggests that differences can be seen quite clearly:

> *"Yes babies fed with formula or borbor[1] more often get diarrhea, fever, distended stomach. Comparing the baby who is breastfed and the formula fed babies, they are quite different"*

4.2 Early initiation and exclusive breastfeeding and *Ang Pleung* (roasting)

The evidence from the literature review strongly suggested the traditional practice of *Ang Pleung*, or roasting, remains widespread across rural Cambodia. The duration of *Ang Pleung* appears to differ from region to region. There was little doubt that *Ang Pleung* affected breastfeeding practices, but quantitative research from the programs running in the Phase I sites suggested that positive breastfeeding practices were taking place alongside *Ang Pleung*. However, there was little information on how this was being done.

For a detailed explanation of *Ang Pleung*, refer to APPENDIX D.

4.2.1 Current practices regarding *Ang Pleung*

Corresponding with the literature review, respondents reported most women practice *Ang Pleung* to some degree. Of those that said they did not, one used ice packs placed on her abdomen to reduce the pain (Site1b:M1) and one took medicine and injections (Site 2:WM).

The majority of women delivered at home in all Phase I sites and site 4. In site 3 a private clinic had been set up by the health center staff in the adjoining village, and many women reported delivering there. In site 5 the majority of births took place at the hospital, which was only 2km away from the village.

Following a home birth roasting typically was reported to start 30 minutes–1 hour of delivery, although usually not until the placenta was delivered. Mothers who delivered at a hospital would roast on returning home irrespective of how long they had stayed in hospital. In part due to the high rate of hospital births in site 5, the two elderly TBAs interviewed from Khmut Village and the adjoining village had recently retired. (In retrospect, it would have been interesting to hold FGD with hospital staff in this particular location.)

The shortest roasting period reported was half a day (site 5:WM) and the longest was 15 days (site 1a). The average span for the majority of mothers was 3–5 days, day and night.

[1] *Borbor*: white rice porridge, usually cooked with a little salt. *Borbor* water contains no solids; it is the starchy liquid that is produced when rice is boiled for a long time.

First-time mothers would roast for longer. If the mother remained weak and was not recovering well she would also extend her time on the roasting bed.

Traditional beliefs and practices remain very important with respect to preparing the *Ang Pleung* bed. Inviting the "Magic Man" to sprinkle holy water around the bed was widely mentioned. This helps protect the mother and child during the roasting period. The mother is considered especially vulnerable to being possessed by a particular demon or ghost in the period immediately after birth. Other traditional practices include the preparation of *T'nam Khmai,* traditional medicine taken in the form of a drink. Fathers, caregivers and TBAs all mentioned boiling water or medicines in water to make *T'nam Khmai* for the mother. Specific questions on the use of alcohol as the solvent for these traditional medicines was initially not asked or probed for, and in fact participants did not mention alcohol even during questions that asked for "step by step explanations." Eventually the working mothers' group in site 5 was specifically asked whether the *T'nam Khmai* was made with alcohol or water. They replied that it could be drunk as both, depending on whether the mother likes to drink alcohol or not. This substantiates the suggestion made in the literature review (Hoban 2002) that although *T'nam Khmai* is considered an important part of both pregnancy and post-partum care, was a matter of choice whether it was made with alcohol or water.

Although the retired TBAs in site 5 said their role in post-partum care was *"not so important"* and their main role was the safe delivery of the child, TBAs in the other sites displayed a sense of responsibility for the care of the post-partum mother. In site 2 the TBAs said they would not let mothers roast if they were bleeding excessively. In site 3, they instructed fathers to regulate the fire ("*not too hot*") and not to give food that was too salty to the mother. They also advised against roasting if the mother had hypertension. In site 1b the TBAs advised fathers not to make the fire too hot. In site 4 they monitored the mother when first getting on the roasting bed to check if she was getting dizzy or whether the fire was too hot.

4.2.2 Feeding the newborn during *Ang Pleung*

All groups in all sites reported the babies were breastfed throughout *Ang Pleung.*

At Phase I sites 1a, 1b, and 2, respondents were asked about changes in their feeding practices specifically in relation to *Ang Pleung*. (Unfortunately, these same questions were not asked at Phase II sites). Significant changes were reported, some of which had already emerged and have been discussed in section 4.1 above). Corresponding to what was highlighted in the literature review, respondents claimed they used to use bottles and give sugar water or other prelacteal feeds while waiting for the "*white milk*" to come:

> "*[We] used to wait three days then [start] breastfeed*" (TBA, site 1a)

The use in the past of a "wet nurse" as a means of feeding the baby during roasting or while waiting for the milk to come in was mentioned in several groups. It was widely reported that at present, they did not delay or use bottles but breastfed throughout the roasting period.

> *"In the past, baby [was] not allowed to breastfeed during this [roasting] time, used [a] 'wet nurse' to feed the baby"* (F2, site 2).

All mothers reported feeding their babies "*only breastmilk*" during *Ang Pleung.* Mothers breastfed either lying down or sitting up on the roasting bed. Only a few mothers got off the roasting bed to breastfeed.

Breastfeeding either started before *Ang Pleung* or once the mother was on the bed. This depended on the health of the mother and how long it took to complete the whole birthing process and related preparations:

> *"If the mother feel well [she] give [breastmilk] before Ang Pleung, if very tired or some problem, not feed before Ang Pleung"* (TBA, site 1a)

Mothers said they breastfed frequently during this time. "Frequently" was reported to mean anything from 3–15 times a day.

4.2.3 Positive effects of new practices

Respondents predominantly said these new practices had made things easier:

> *"Help[s] to expel placenta"* (F2, site 1b)

Mothers said their breast did not get so swollen now and it was *"more convenient to breastfeed than bottle-feed"* (M1, site 1a). Fathers reported their lives were easier now because they were less responsible for the newborn and did not have to do anything to try to comfort the newborn when it was hungry:

> *"Now when baby cries, just give to mother to breastfeed"* (F2, site 1a)

The main reasons for wanting to continue the new practices were the difference in the health of their babies and the economic benefits:

> *"Baby is not sick often, [so] we don't spend money"* (M2, site 1b)

> *"[Now] reduced spending on other milk"* (M1, site 1a)

Despite these positive comments, there were other less positive comments including:

> *"Mother is tired [following birth but] must breastfeed baby often"* (F1, site 2)

Such comments can be seen as a general confirmation that this is an uncomfortable time for the mother, and possibly particularly the first-time mother.

4.2.4 Problems and solutions

In general, all groups expressed concern that the heat and smoke of the fire would be bad for the baby. However, opinions varied widely and proved to be complex. Some groups clearly stated the baby was kept near the mother but in a separate place, and was given to the mother on the roasting bed for breastfeeding only. The solution put forward by the TBAs at site 1a was to reduce the heat of the fire during breastfeeding times, although this does not suggest much scope for promoting feeding-on-demand. However, in all areas, to a greater or lesser degree, it was acceptable for the baby to be kept on the bed with the mother by using a "barrier" that protected the baby from the heat. This usually consisted of a thick cloth or wood mattress that the baby could lay on.

> "*If stays close to the mother, baby can suck more but thick barrier must be prepared"* (F2, site 5)

> *"[This way] the mother and baby have good relations with each other"* (C, site 2)

There were some inconsistencies in the answers obtained among and within different groups. In site 2, where "barriers" were widely accepted by all groups as a way of overcoming the problem of feeding the baby during *Ang Pleung*, when asked if breastfeeding during roasting causes harm to the baby, elderly caretakers said babies will be *'choked by smoke"* (C, site 2). In some groups, the consensus was that there was no problem with the baby being fed on the bed or staying on the bed. Although one father (F2) at site 5 stated a barrier is useful so the baby can stay close to the mother and make it easier for her to breastfeed, other fathers in the same group were clearly not happy with their babies being put on, or fed on, the roasting bed, and complained:

> *"Difficult for the baby to breathe because of smoke"*

> "*Charcoal may explode"*

> "*Heat affects [the] skin of baby"*

Ang Pleung is a busy time for other family members. Although the mother is the focus of care, the father and grandmother, predominantly involved in her care, were also looking after the newborn and other children. Although all the fathers recognized and accepted their responsibilities to their wives during *Ang Pleung* ("*we try to solve these problems because it is our task"*) they get little sleep because they must attend the fire day and night. Furthermore, there is a conflict of interest as they are unable to bring income into the family while fulfilling these obligations. Other family members and neighbors were asked for advice and to help out during this time.

Concerns about the mother moving in order to breastfeed were expressed, particularly in Phase II sites:

> *"If mother moves a lot, it can cause hemorrhage"* (F2, site 5)

Apart from turning over to ensure that all sides of her body are exposed to the heat of the fire, mothers are advised not to move. Mothers are believed to be very vulnerable at this time and at risk of *toah sawsi kh'chey* (relapse of "unripe vessels"). The TBA at site 5 even stated that if the mother breastfeeds frequently or for a long time, this would increase her chances of *toah* (relapse). One solution put forward, aimed at reducing the risk of excessive bleeding, was for mothers to lie down to breastfeed (F2, site 5).

Laying face down over the fire was cited as being a problem when the breasts are full. However, compliance regarding this position is considered most important on the first day of roasting when breasts are more likely to be softer. Some mothers said they had to lie on their backs when their breasts become full.

4.3 Lactation problems

The literature review suggested there were major gaps in knowledge and understanding of lactation problems, including what they were, who had them and what support was available to overcome or avoid them. In retrospect it seems surprising that this issue has been ignored. This may be because Cambodia's breastfeeding rate is so high that there is an assumption that all mothers can do it without difficulty. The Catholic Relief Service's report on their ongoing program (2001–2006) briefly notes that women's fear and lack of knowledge are barriers to breastfeeding. There was no mention of where this information had come from. In addition, Hoban (2002) notes that the TBAs in her study did not perceive their role to include providing support to mothers experiencing lactation problems. As a result of these two studies alluding to a problem, a decision was made to explore lactation issues in the research. In fact, this issue turned out to be quite a major one.

4.3.1 Establishing breastfeeding

Across groups in all sites, first-time mothers were identified as the group having the most problems with both lactation and establishing breastfeeding. Their problems appeared to be as much psychological as physical, and the nature of the problems suggested that these two factors affected each other. The following comments are typical responses from the initial discussion around this issue:

> *"First delivery mother feel that they will drop the baby"* (too numerous to reference)
>
> "*They have some fear and loss of confidence"* (C, site 4)
>
> *"New mothers feel shy because they don't want anyone to see their breasts"* (M1, site 2)
>
> *"First-time mothers are too shy and hesitate to put baby to suck"* (TBA, site 3)

The most common physical problem mentioned was painful breast engorgement. Many mothers also mentioned the difficulty the baby has in sucking when the breasts were dripping and full of milk. There was some mention of blocked nipples, though not by the mothers themselves.

Both elderly caregivers and TBAs mentioned since that it takes longer for the "*thick white*" breastmilk to come in for first-time mothers, these mothers worry that the baby is hungry. This concern was substantiated by several comments by mothers themselves (*"[I am] afraid milk [will] not come out"*) and by fathers: (*"[mothers are] afraid milk not enough for baby"*).

4.3.2 Available avenues of support

Availability of support for mothers was varied. A combination of formal, informal, practical, conventional and traditional approaches was mentioned, including the following:

- Mothers seek help from neighbors or grandmothers who have experienced the same problem
- Grandmothers give guidance, encouragement and show mothers how to hold the baby
- Advice is received/sought from hospital (maternity ward) staff, health center staff, midwife or TBA
- Mothers take painkillers or other (unspecified) medicines/injections
- Grandfathers or fathers will find traditional medicines to make *T'nam Khmai*.
- Milk flow is stimulated by massage, ice pack, or placing containers of warm water around the breasts and shaking (the latter being most common)
- Husbands are enlisted to help by sucking swollen breasts to reduce pain and fullness
- The "magic man" is invited to blow wind around the nipple
- Mothers go to the hospital if the problem is not solved

Many mothers said that the problems did not prevent them continuing breastfeeding and many said they *"continued to try"* and persevere to find solutions to their problems.

> *"Try to get baby to suck breast so can relieve the fullness"* (M1, site 1a)

However, when lactation problems persist (e.g., engorged breasts, abscess) mothers may stop feeding for a while *"not to stress baby"*. Respondents said formula was then given or families resorted to easily available, cheaper alternatives such as *borbor* water with

sugar, diluted condensed milk and coconut juice. Sometimes a mixture of formula and *borbor* water was used.

When the problems can be solved, it was apparent that breastfeeding continues. However, it was not clear which avenue of support was more effective at solving problems or which problems were more quickly solved. As the respondents in each discussion group reported many sources of support, this suggests problems are normally tackled in any number or combination of ways.

Despite resorting to breastmilk supplements if problems persist, in general, all groups held very positive attitudes regarding solving the problems. Discussions that were recorded in the elderly caretakers and TBA focus groups consistently suggested that these women were a good source of encouragement to the mother:

> "*All these problems – we can find a solution"* (TBA, site 1a)

> "*Need persistence*" and need to "*just keep trying to breastfeed*" (C, site 3)

Elderly caregivers and TBAs reported providing a lot of help with positioning as well as simple but effective advice such as:

> "*When* [mothers] *do not feed regularly enough* [their] *breasts are more painful"* (C, site 3)

In general, it was apparent from comments made by many mothers that they relied on village elders and TBAs for help with breastfeeding. It also seems apparent that, on the whole, these two population groups are open and willing to accept new ideas.

4.3.3 Available technical support

The translation and understanding of "technical support" proved to be difficult. Endeavors were made to explain that this was more than physical or emotional support and involved the availability of reliable information on attachment, positioning and other issues.

The mothers who said technical support had been available to them reporter the source to be TBAs, midwives, hospital maternity ward staff and/or health center staff.

It is not clear from the discussion groups what positioning and attachment advice mothers were receiving. Help with putting "the nipple" into the baby's mouth was mentioned consistently by TBAs and elderly caregivers, but whether they were including the areola was not clear. As persistent nipple sucking is very painful, this could simply be a translation problem; certainly the first-time mothers with very young babies (the youngest being 19 days old) were observed to show no discomfort during breastfeeding.

In general, TBAs displayed a sense of responsibility for helping mothers establish breastfeeding and they themselves felt they were quite influential. TBAs from Phase I sites had received training and follow-up advice from NGOs and provincial health department staff. All TBAs, even the retired TBAs from site 5, reported providing some counseling and positioning advice to the mother. However, the quality of their advice was very difficult to assess in this study. When mothers, fathers and caregivers were asked if the advice they received was helpful, they mostly said yes and gave some explanation why. However, they often referred to several sources of support in their answers. Some advice from TBAs regarding washing breasts before feeding was noted. The TBAs typically visited the mothers at least once a day during the first few days, depending on the distances that had to be walked to get to the mother's home.

Some TBAs said they were available to give support for a longer period of time if needed. Others said that grandmothers and neighbors took over supporting the mother after the initial first few days. Mothers who delivered in hospital said they received technical support from hospital, although on average, most of them returned home by the third day. The engorgement problems that many young mothers reported experiencing may not materialize until 3 or 4 days post-partum.

Although it was not easy to assess the real situation when exploring such a complex issue, it is apparent that within most groups in most areas, mothers and other respondents feel that they receive the support they need to solve lactation problems. Meanwhile, these same sites report feeding breastmilk substitutes while looking for solutions to a mother's particular lactation problem.

4.3.4 Breastfeeding techniques and perceptions of quality and quantity

In order to try and assess whether babies were being breastfed on demand and who terminates the feed (i.e. mother or baby), first-delivery mothers were asked how they knew it was time to feed their baby and how long the feed lasts.

Mothers reported feeding their babies frequently and allowing them to continue feeding until they were full or fell asleep. No mother was observed to have a wristwatch; however, breastfeeding episodes were reported to last from 7–30 minutes or even up to 1 hour.

The most common cue for breastfeeding was: "*baby cries*". However, mothers were also feeding when the baby wakes, when it is "*time*" or when the breast was full, dripping or sensitive:

> "*If [I} don't feed the baby the breastmilk will drip"* (site 1b)

Across all sites, mothers fed from both breasts during one feeding episode. Several reasons were given for this:

- Mothers wanted their breasts to feel equal: *"try to use both breasts to reduce one breast being too heavy"* (M1, site 1b)

- Mothers were concerned that if they did not do this, the breasts would become engorged

- Mothers reported that one breast contains the rice, and the other has soup and so the baby must have both breasts at each meal

This suggests that babies may not be sucking from one breast long enough to receive the rich hindmilk that gives them extra energy; this may reinforce concerns mothers have about not having enough breastmilk for the baby.

In order to try and discover whether mothers valued breastmilk above other milks, first-delivery mothers were asked: "If you could feed your baby anything, what would you choose to feed your baby and why?" The following comments give an indication of how varied the answers were:

"*Breastmilk is most important, next is formula*" (site 3)

"If [the] *baby has breastmilk they are healthy,* [and have] *no diarrhea"* (site 3; this group did not have any ideas as to why formula was their second choice)

"*Formula milk and borbor water*" (site 1a)

"Breastmilk is not enough, [supplements will] help baby to be strong and have energy" (site 1a)

"Choose borbor water cooked with vegetables, meat, cooking oil " (site 4)

"Mother is busy with her work [and] borbor water mixed with vegetables, meat and cooking oil are rich in vitamins [and will] help baby to develop and grow" (site 4)

This last quote suggests that this mother has heard about providing enriched complementary food to her child. Although this is good, it also suggests the full message, including the benefits of exclusive breastfeeding for the first 6 months and continued breastfeeding until the child is at least 2 years old, has somehow been lost.

4.4 Exclusive/continuing breastfeeding and the working mother

The literature review highlighted the gap in knowledge and understanding of issues relating to how the mother breastfeeds while fulfilling her work obligations. The only reference made to formally working mothers was about the difficulty of contacting them for interview purposes (ADRA 2003). This suggests that the views of these women have so far not been documented. Similarly, the only reference made to informally working

mothers was that when trying to find mothers to interview, the interviewers had to trek over many rice-fields! (PFD 2004)

From this formative study it was clear there were important differences between the formal and informally working mothers in terms of the practical support that influenced their decisions and options regarding breastfeeding. However there was little difference between the two groups in terms of the underlying pressure: economics.

Whether the mother worked formally or informally, husbands and grandmothers were the main carers of babies and providers of practical support to the mother while she worked. Occasionally some other family member such as an aunt or older sibling of the baby was also involved.

In all sites, informally working mothers did primarily agricultural work, including rice production, animal husbandry and fruit/vegetable cultivation. Rice fields were reported to be as much as 10km from the village and at certain times of the year this work is hard with long hours. Some mothers ran small businesses selling commodities from their homes or at the local market. Others did jobs here and there or general laboring. In Seth Koma communities, mothers were village health support group volunteers.

The majority of the formally working mothers interviewed were from Khmut Village in Kandal Province (site 5). These mothers worked in one of the many garment factories on the outskirts of Phnom Penh. In Phase I, a policewoman and two schoolteachers were also interviewed.

4.4.1 Current attitudes towards feeding infants while mothers work

All groups in all areas widely acknowledged that it was easier for mothers who worked in or around the village to continue breastfeeding their children. Exclusive breastfeeding was considered impossible for mothers working in the formal sector.

Virtually all respondents were in agreement that it was important for mothers to continue to breastfeed, even though work commitments may make it difficult for them. The majority of reasons they gave were related to the child's health:

- Baby's health (physical and psychological)
- Baby's growth
- Prevention of disease and *bak tuk doh* ("broken milk": common term relating to malnutrition caused by early weaning or abruptly stopping breastfeeding)
- Breastmilk aids the baby's recovery from illness
- Breastmilk is of special importance from 0–6 months

- The child is less sick; therefore less money is spent on medical treatment

These comments once again demonstrate that participants have a good understanding of the benefits of breastfeeding.

However, respondents also acknowledged that continuing breastfeeding made it difficult for mothers to accomplish their work, bring in income and keep employers from complaining. Also fathers frequently mentioned that it made their wives "*weak*", fatigued and "*thin*". Maternal nutrition and anemia are most likely the reasons behind these latter observations.

A few studies in the literature review brought up a belief about "hot milk" making the child ill. It was initially thought that this belief might make an appearance during discussions about *Ang Pleung*, but it did not. It came up during one FGD only (M2, site 3). When mothers were asked to explain why they were not able to breastfeed during the hours they work, it was reported that when they work, the breastmilk gets hot. They cannot give this milk straight to the baby and must squeeze the first part out and discard it. This was an isolated finding, and therefore it is not clear how big an issue this is. Also it is not clear whether milk is "hot" in terms of temperature or concept (i.e. related to theories of hot conditions: cold conditions)

4.4.2 The informal working situation

Feeding the child < 6 months old:

Respondents reported mothers of babies <6 months old typically did not go far from the home. This information was confirmed by fathers. In reply to the question: "How about babies <6 months old, tell me how they are fed when the mother is working?" one father replied:

> "[I] *don't allow my wife to go anywhere when* [we] *have a baby this age"* (F2, site 3)

Another father commented:

> "*If* [mother] *stays at home with* [the] *child, child gets cared for better"* (F2, site 5)

Many other answers from mothers and caregivers substantiated the view that it was acceptable for mothers to work within the village until the child is 6 months old, making exclusive breastfeeding possible in theory. Furthermore, informally working mothers frequently commented that they only gave breastmilk to their babies <6 months old:

> *"During this period, mothers don't go to work far away from home so they feed their young babies only breastmilk"* (M2, site 4)

Although the carers (fathers and caregivers) sometimes confirmed mothers were exclusively breastfeeding, in some instances comments were made that conflicted with

this view. When discussing the problems of feeding the child while the mother was working, fathers and caregivers said they sometimes had difficulties taking the hungry baby to the mother, especially when they had many tasks to do or other children to watch. One father said he thought exclusive breastfeeding was a very good idea but when the baby was crying and the mother was not home yet, it was very tempting to give the baby water to calm it down.

Some mothers did voice concerns about what was happening back home while they were at work: Did their babies cry? Did they feel hungry? One mother from site 1b said:

> *"I am concerned grandmother may give some water to the baby, although grandmother has been told not to give anything but breastmilk"*

Despite the many confirmations of exclusive breastfeeding, there were still many other reports of babies <6 months old being fed in a variety of ways while mothers are working. This was particularly the case in Phase II sites. Fathers in two sites mentioned the use of wet nurses, although concerns were also voiced about the safety of this practice:

> "*[This] may cause our baby to become infected with disease*"

As it was older fathers only who mentioned this, the practice may have been more prevalent in previous times. A few fathers also mentioned supplementing breastmilk with formula (site 4) and diluted condensed milk (site 3). A mother in site 3 commented:

> *"Some grandmothers use mashed banana or formula milk [to feed young babies]"*

One caregiver suggested that it was a lot easier to feed an 8-month-old child as *borbor* could be given during the day.

In general, Phase I sites were more consistent in their reports of exclusive breastfeeding throughout the different population groups. The use of expressed milk was mentioned in sites 1a, 1b, 2 and 3. One family from site 1a, including the mother, father and grandmother, all mentioned using expressed milk and indicated good knowledge of how long it could be kept. However, a feeding bottle was mentioned as a means of giving this expressed breastmilk:

> *"Not so difficult, have to squeeze into bottle or cup so that grandmother can give to baby less than 6 months old. Can keep at room temperature for up to 8 hours"* (M2)

Despite some worrying practices and some conflicting reports, it was clear that informally working mothers have a lot of support available to help them both breastfeed exclusively and continue breastfeeding for up to 2 years. When working in the rice fields, mothers say it is difficult to feed regularly or on time. However, when the mother and the

carers of the baby are convinced that exclusive breastfeeding is important, respondents report it can be achieved through one or more of the following practices:

- Mothers breastfeed before leaving the house
- Babies are taken with the mother and left in a hammock
- Grandmothers go with mothers and look after the babies
- Grandmothers, fathers or baby's older siblings bring the baby to the mother when it is time to feed
- Mother's go back to the house to breastfeed when she feels it is time or, as some mothers described, *"when breasts are sensitive"*
- Milk is expressed into a cup or bottle for the grandmother to give to the baby.

4.4.3 The formal working situation

Feeding the child < 6 months old

The garment factory workers living in Khmut Village (site 5) are entitled to 3 months' maternity leave on half pay. When the baby is 3–6 months old, the factory policy allows mothers 1 hour a day to breastfeed. As the village is 30km away from the factory, mothers did not feel this policy helped them to breastfeed exclusively. Mothers reported feeling they had no support from employers. Some mothers reported stopping breastfeeding at 3 months. Others continued to breastfeed at night, and to a lesser extent, in the early morning before leaving for work at 5:00 am. The babies are fed breastmilk substitutes during the day. Discussion groups in site 5 estimated that 80% of the village's working mothers used feeding bottles for their babies.

Baby formula was the main feeding alternative of choice for most of the factory workers. Sugar and, to lesser extent, condensed milk was sometimes added to the formula, which suggests the formula was prepared more dilute than recommended. Some mothers knew how important it was for their child's health and development to follow the instructions when making up the formula, and also for maintaining good hygiene. However, they reported that preparation instructions were not written in Khmer. When asked how they knew how to prepare the formula, the mothers replied the shopkeeper had told them and also there were pictures on the side of the tin. *Borbor* water with sugar was also given either as the main fluid/food or when mothers ran out of money for formula.

The working mothers interviewed in Phase I had received some support from their employers. The schoolteacher (site 1b) went back to work when her baby was just 2 months old. At that time her school was 40km from her home. She requested a transfer and now her work site is only 4km from home. This allowed her to go home during her breaks and breastfeed. Despite this, she said that occasionally her baby had been given

borbor water before 6 months of age and said it had been difficult for her to exclusively breastfeed.

The other schoolteacher worked only 100m from her house and either went home or had the baby brought to her for breastfeeding. The policewoman also worked a short distance from her home and could breastfeed during her breaks. Sometimes she was allowed to leave a little early in order to go home to breastfeed.

This study only just begins to uncover some of the problems faced by formally working mothers and the issues they and their families must consider when making choices. Respondents consistently said mothers knew about exclusive breastfeeding and thought it was a good idea, but it was impossible do to when they have to go out of the village to work.

4.4.4 Views on the use of feeding bottles

Although some respondents, particularly from Phase I sites, reported that there is nothing good about feeding bottles, in general many mothers and caregivers acknowledged that they are useful. The following are a few of the comments made in response to being asked what was good about using feeding bottles:

> *"Gives mother time to do something else"* (M2, site 3)
>
> *"Mother's energy is good, figure is good"* (WM, site 5)
>
> *"Mothers who use bottles can go out and make business"* (numerous)

A caregiver from site 2, who looked after a baby whose mother had died, reported that using a feeding bottle *"helps [this] baby be healthy and smart"* and the *"baby is surviving"*.

However, the negative impact that feeding bottle use can have on the child's health was well understood:

> *"Causes diarrhea, distended stomach"* (M2, site 3)
>
> *"Even when [the] baby is fat, [the] baby is not strong, eventually [they will] get diarrhea"* (M2, site 5)
>
> *"Affect growth of baby [if] not follow [formula preparation] instructions well"* (WM, site 5)

Mothers also highlighted other negative aspects of using feeding bottles:

> *"Expensive, waste money"* (M2, site 1b)

"Takes time, need to boil water" (M2, site 1a)

"Relationship between mother and baby [is] not so good" (WM, site 5)

These comments once more highlight the conflict of interest that women and their families have to face: income and time to "make business" versus health. Interestingly, formally working mothers do know that they are likely to incur more costs (e.g., medical fees, expensive formula) by going out to work. It is easy to assume, therefore, that the financial benefits of returning to work outweigh at least the expected out goings. However, there may be other factors that have not been discussed here that tip the balance.

4.5 Supporters of optimal breastfeeding practices in the community

The literature review did not indicate who at the community level might be the chief breastfeeding supporters or if there were any particular groups who might be antagonistic. For example, it was not known what role fathers played in the decisions relating to the feeding of the child. Elders were known to have a strong influence, but what practices were they supporting? The literature review and responses to the 2004 breastfeeding campaign revealed very strong views on the need to give water to young babies. The outcry from middle-income professionals following the launch of the Infant and Young Child Feeding TV spot in 2004 suggested this issue would take some time to address. However, it was not clear to what extent the "ordinary" people had been influenced by the campaign.

4.5.1 Exclusive breastfeeding: knowledge and attitudes

The respondents in all the groups except the younger fathers from site 5 collectively said they had heard of exclusive breastfeeding. Most of the respondents had a good understanding of the term and could accurately explain what it meant.

Information on exclusive breastfeeding, as with colostrum, came from a mixture of communication channels involving personal contact and media (TV and radio). Personal contact was with midwives, TBAs, health staff, NGO staff, health volunteers, neighbors and elders. This combination of personal contact reinforcing media messages and vice versa appears to be a powerful one. When asked who they trusted to give them information about breastfeeding, the combination of interpersonal and mass media channels came up time and again. The strengths of this combination are also highlighted in one of the studies included in the literature review (PFD 2004).

Most respondents from all groups were very positive about the idea of exclusive breastfeeding. Fathers were very supportive in principle—here are a few of their comments:

"It is very good to give only breastmilk to baby" (F2, site 2)

"Keep them healthy, [they] grow well, prevents disease" (F2, site 5)

"Good, clean, pure, baby is not sick often" (F1, site 1a)

And from the mothers:

"Think it is possible because we are doing this already" (M2, site 4)

"Practiced and seen results" (M2, site 1a)

"*Easy to just give breast to baby, no need to spend money on anything else*" (M2, site 1a)

"*Even if mother has to give medicine, she can dissolve [it] in breastmilk. In the past we used water for this"* (M1, site 2)

The choices working mothers have to make with respect to feeding their children were brought up again in this question session. Once more, comments strongly suggest that people know the benefits of breastfeeding and exclusive breastfeeding but the practice conflicted with their economic needs.

"[Exclusive breastfeeding is] very important but not possible due to pressure of work" (WM, site 1b)

Despite the majority of respondents displaying a good understanding of what exclusive breastfeeding is and being able to cite the benefits of practicing it, some conflicting views were highlighted, and the findings from this study strongly suggest that many respondents were not quite convinced about the "not even water" part of the exclusive breastfeeding message. The following answers to the question: *"Do you believe babies <6 months old need water in addition to breastmilk?"* indicates the extent of this problem:

"*After breastfeed [we] must give a drop of water to wash [the] throat. If don't give water baby may get thirsty. Most people in [the] village think like this too*" (C, site 5)

"Older people think if [the] baby [is] not given water, baby may get thirsty and not feel full" (F1, site 2)

"*Good to do [exclusive breastfeeding] but in our mind we wonder if the baby is thirsty and needs water but in practice we follow the new idea"* (C, site 3)

"In practice, water is given. This is the reality" (WM, site 5)

"*When we bathe the baby we give water"* (M1, site 4)

> *"When baby is sick [we] need to mix medicine with water"* (F1, site 5)
>
> *"Know importance [of not giving water] in preventing baby getting infectious disease but difficult to do in practice"* (F2, site 5)

However, there are undeniably some changes taking place in both practices and beliefs. Here is a representative selection of the more positive answers to the same question:

> *"[Additional water is] not necessary because breastmilk has enough water"* (F1, site 3)
>
> "*No need to add. Baby will get stomachache if [we] give water*" (F1, site 1a)
>
> *"[Additional] water [is] not necessary. [We have] seen [the] results"* (TBA, site 3)
>
> *"Not need, we know because doing this with grandchildren already"* (C, site 1a)
>
> *"Breastmilk has lots of nutrients and contains water"* (M1, site 1a)
>
> *"[We] give only breastmilk. Received health education about this from health center staff, radio and TV"* (F2, site 2)

The majority of the positive comments come from groups in Phase I areas. The elderly caregivers, from Phase I in particular, appeared very supportive of the exclusive breastfeeding message. Many of the fathers from a range of sites similarly expressed good support, at least in theory. In view of the fact that fathers and caregivers are the two chief carers of children when mothers are working, this is extremely promising. In order to build on this, ways need to be explored that enable them to put this enthusiastic support into enthusiastic practice.

4.5.2 Continuing breastfeeding for up to two years of age or older

Putting aside the distorting figures representing the practices of the factory-working mothers, the average period of breastfeeding across all sites is 18–24 months. Several respondents from various groups, reported boys were breastfed for a longer time than girls were. Many of the factory-working mothers were reported to stop breastfeeding after 3 months.

When asked what respondents felt about this length of time, in general, across all sites, it was thought to be adequate: "*not too long, not too short"*. Those in site 5 asked to comment on the duration of breastfeeding of factory-working mothers all said 3 months was too short.

The reported benefits of breastfeeding from 18–24 months or longer were mostly related to the child's health. The psychological bond between mother and child was also

mentioned. Many respondents from all sites said that breastfeeding for this length of time helps prevent pregnancy. Had the question been about benefits of exclusive breastfeeding, this answer may have been less unusual, but the question was specifically about benefits of breastfeeding for the average length of time in their village (18–24 months). Although respondents were not asked to expand on their answer and say *how* breastfeeding reduces the risk of pregnancy, no respondents mentioned the link between exclusive, frequent breastfeeding and delayed return of monthly menses. This raises concerns about the quality of some of the messages that are circulating within communities. This answer does tell us, however, that this is an important point for many mothers and, if the right information is given out, could be a highly motivational message for increasing truly exclusive breastfeeding rates.

Asked about the disadvantages of breastfeeding for 18–24 months, respondents mentioned two main issues: a) the direct relationship between prolonging breastfeeding and the deteriorating health of the mother, and b) the impact breastfeeding has on the mother's ability to earn income. The following comments were typical in all sites:

> "*Cause mother to be thin, weak and cannot go out to make business outside the village"* (F2, site 2)
>
> *"Waste of time to make a daily living"* (M1, site 4).
>
> *"[Mother] has difficulty carrying out her work. Mother's health is not good"* (TBA, site 1b)

There is an obvious link here to maternal nutrition and iron deficiency anemia, further highlighting the complexity of this issue and the need to take a holistic approach to addressing the problems.

Despite the concerns expressed by many fathers about the effect on their wives' health and restrictions on income generation, all fathers displayed support for continuing breastfeeding up to 24 months. The reasons given all concerned benefits to the child. Their general attitude is summed up by the following comment:

> *"It is good. We know the children will be healthier"* (F1, site 5)

4.5.3 Stopping breastfeeding

Mothers predominantly made the decision on when to stop breastfeeding. Although fathers and sometimes grandmothers were consulted before the decision was finalized, this appeared to be an act of courtesy only.

When asked about the reasons for stopping breastfeeding, respondents in all groups cited a second pregnancy. Explanations for why mothers must stop breastfeeding when pregnant were also given by all population groups:

- When pregnant the mother feels ill and tired and has morning sickness
- The pregnant mother has very little milk so the feeding child will become thin
- During pregnancy the breastmilk becomes "hot" and sour and will make the feeding child ill

Economic pressures were also cited as a major reason for stopping breastfeeding: mothers needed to "*make business"*. A serious illness in the mother was another factor. Several groups also mentioned babies stopping by themselves:

"*[The] baby is grown and strong enough"*(C, site 1a)

One other issue that was raised in site 5 was the impact of breastfeeding on a woman's figure. Here are two comments by fathers during discussions on the benefits and disadvantages of breastfeeding for the "average" length of time:

"*Some mothers [stop breastfeeding because they] want to look more beautiful"* (F1)

"*[Mothers'] breasts will not be good anymore*" (F2)

A few comments from mothers with respect to the benefits of stopping breastfeeding earlier than the "average" length of time further suggest this could emerge as an important issue, particularly in more urban settings:

"*[When stop breastfeeding] breasts reduce in size and I feel better physically"* (M2)

"*Mother's energy is good, figure is good"* (WM)

The factory-working mothers work in Phnom Penh City. In Phnom Penh, mothers are more exposed to "Western" media, values and practices, which they then share with their families and friends back in the villages. The scope of this research did not allow further exploration of these influences.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 Building on reported changes in behavior

The study highlights some clear positive changes in practice and identifies the process by which these changes have come about. For example, whereas previously it was common to delay breastfeeding during *Ang Pleung* and give prelacteal feeds or use a wet nurse, mothers are now starting to breastfeed soon after birth and continuing to feed during *Ang Pleung*. Respondents reported seeing the benefits of these new practices, namely:

mother's breasts get less swollen, baby does not get sick, less money spent on supplements; less money spent on medical fees and transport to health facilities, fathers now have less responsibility and are free to do other things. It is recommended that these perceived and actual benefits, cited by the respondents themselves, be built on and made use of when developing the key messages for the behavior change communication (BCC) program.

5.2 Identifying effective "change agents"

Reported changes in knowledge beliefs and behavior in Phase I sites could be attributed to ongoing community programs. However, these changes, to a greater or lesser degree, were reported in all areas. Media messages have clearly made an impact. Many respondents remembered details from a specific TV spot in which a colostrum-fed boy scores a goal. The key message used in the 2004 breastfeeding campaign, "makes your baby healthy, strong and smart," was quoted time and time again during discussions.

Families were also influenced by a range of people. Messages were usually received from combinations of health and NGO staff. Other influential "change agents" reported included neighbors and friends who had had successful experiences with breastfeeding and could actually give people a chance "see the results" of the recommended practices. Although it was learned that some TBAs and elderly caregivers were promoting less desirable behaviors, this was generally not the case. Rather, it appears that TBAs and elderly caregivers (particularly in Phase I sites) were quite open and willing to accept new ideas. A reliance on village elders and TBAs for help was confirmed by many mothers when they were asked to comment on who gives them support with breastfeeding. Recognizing the advantages of working with a variety of community members to promote improved breastfeeding and young child feeding will be an important element of the IYCF program.

5.3 Benefits of promoting skin-to-skin contact

The research highlighted several inter-related issues that could possibly be addressed collectively, namely:

- No skin-to-skin contact was reported in any area
- In Phase I sites, initiating breastfeeding before the expulsion of the placenta has generally become accepted practice and respondents reported experiencing the benefits. Whereas in other areas, the benefit of this practice was generally unknown, and was even considered an undesirable practice.

- Young mothers were widely reported to be shy and nervous about initiating breastfeeding and concerned about inadequate milk production

- The washing of nipples before initiating feeding was widely reported

Promoting skin-to-skin contact could become the focus for bringing together these issues and collectively addressing the problems:

Laying the newborn, unwrapped, immediately between the mother's breasts after birth creates the initial bond between the mother and baby and helps to relax the mother. Skin-to-skin also creates the right environment which enables the baby to root towards the nipple to suckle at a time when the suckling reflex in the newborn is particularly strong (Savage-King, 1994). This in turn helps to stimulate the secretion of the hormone oxytocin, which stimulates the delivery of the placenta and enhances milk flow. Establishing adequate milk flow early after birth will reassure the mother that she has plenty of breastmilk for her baby and does not need to supplement it. Washing nipples before breastfeeding should be avoided, and promoting skin-to-skin contact provides the perfect setting for establishing this advice. Leading authorities on breastfeeding say washing nipples, especially with soap, removes the natural oil from the skin of the nipple and areola, making them more susceptible to becoming dry and cracked (Savage-King, 1994).

The fact that Phase I site respondents reported acceptance of, and in some cases enthusiasm for, initiating breastfeeding prior to placenta delivery indicates that pre-existing barriers to this practice can be overcome. Further lessons can be learned from the behavior change messages and methods used in these program sites.

Finally, psychological bonding between mother and child was frequently reported as being an important reason for both initiating and continuing breastfeeding. This point should be kept in mind when developing core messages adapted to the needs and interests of various audiences for the IYCF communication strategy.

5.4 Addressing lactation problems

Generally, it appears that lactation problems do eventually get solved, possibly because ultimately there is little choice for mothers but to persevere. However, this study clearly shows that, due to the time it takes to find a solution to any particular lactation problem, mothers often feel the need to stop breastfeeding for a period of time during which the baby is temporarily given a breastmilk substitute of some description. Access to lactation support was reported to be variable and little information was available about the quality of that support. If good quality technical support for breastfeeding is readily available to all mothers, many problems could potentially be avoided or at least minimized and the likelihood of being able to successfully practice exclusive breastfeeding enhanced.

5.5 Breastfeeding techniques

The study discovered that mothers typically try to feed on both sides during one breastfeeding session rather than emptying one breast before switching to the other. This suggests that babies may not be suckling from one breast long enough to receive the rich hindmilk that gives them extra energy and satisfies hunger. This may be the root of the concerns many mothers expressed as to whether the quality and quantity of their milk

would be enough to satisfy the baby. Although a baby may fuss and cry for a number of reasons, one reason is that they feel hungry or dissatisfied after a feed. If a baby appears dissatisfied, this may reinforce the mother's concerns over the quality of her breastmilk and lead to breastmilk supplements being given. Although this is not clear from this study, it is possible that a relatively simple issue such as poor technique may be a major barrier to exclusive breastfeeding. Therefore it is recommended that this issue receive more attention and that mothers be encouraged to empty one breast at one feed and change over to other breast at the next feeding session.

In addition, improvements in the population's understanding of the qualities of fore (more watery for hydration) and hind (richer, more energy dense) breastmilk may prove useful in tackling the ongoing problem of babies <6 months old being given water in addition to breastmilk. Although there appear to be some slow improvements in this widespread practice, infants <6 months old are still reported to be given water out of concern that breastmilk does not quench thirst.

Although some individual families reported making good use of expressed breastmilk, in general, this practice was little used. In view of the role that expressed breastmilk can play in helping mothers and caregivers exclusively breastfeed infants <6 months old, strategies need to be developed that include promoting the use and correct storage of expressed breastmilk.

5.6 Promoting breastfeeding policies in the workplace

Policies that support breastfeeding have been adopted by some major employers in Cambodia. This is to be applauded and encouraged. However, for the vast majority of the formally working mothers interviewed in this study, it was impossible to exclusively breastfeed after the first 3 months. In order to make long term inroads into this issue, there is a need to work with employers and other institutions to ensure more support for breastfeeding mothers. One recommendation is to encourage employers to evaluate the effectiveness of the current support being offered to their breastfeeding employees consider consulting employees about their needs to be included in any corporate policy decisions on this issue.

It would also be useful to learn more about how mothers (particularly those working in urban settings) weigh up the various factors that affect their final decision about when to go back to work and whether to continue breastfeeding. It would be easy to presume this is solely an issue of economics; however, there may be other less obvious influences merit further study. For example, working women, particularly in Phnom Penh City where international and marketing influences are stronger, will most probably have a very different set of needs for information about breastfeeding and young child feeding and support than those living outside the capital city.

5.7 The bigger picture: taking a holistic, multi-pronged approach

The findings of this research highlight the need to take a holistic, multi-pronged approach as is reflected in the NNPs annual work plan. Optimal infant and young child feeding cannot be promoted in isolation. Other key related issues need to be incorporated and addressed as part of the whole picture.

Respondents report that mothers get very tired when breastfeeding and working. In addition they get tired and weak from breastfeeding for long periods of time. It is clear that maternal nutrition and anemia are of critical public health importance for the country. Approaches and messages that address these issues should be considered as part of an overarching communication strategy for nutrition targeting maternal needs as well as infant and child feeding practices**.**

It is evident from the study that respondents have heard and believe that breastfeeding provides mothers with some protection against pregnancy. Although respondents were unable to provide details on how this worked or for how long it provided protection, this point was cited again and again as an important benefit of continued breastfeeding. On the other hand, pregnancy was often cited as the reason for discontinuing breastfeeding well before the recommended 24 months. Accurate information on how breastfeeding can provide protection against pregnancy (correct use of the lactational amenorrhea method or LAM) would be very welcome by most communities.

One possibility for promoting exclusive breastfeeding that would also encourage better child spacing would be a campaign on the correct use of LAM. Campaign messages could provide clear, specific explanations of what is meant by the term "frequent" breastfeeding and as well as the three criteria needed to maximize the protection against pregnancy LAM offers. Additional information on other birth-spacing options available in Cambodia having minimal effects on breastfeeding could be promoted at the same time. It is recommended that the TWG work closely with the Maternal and Child Health (MCH) Department of the MOH to explore the possibilities of collaboration on an event like this in the future.

GLOSSARY

Colostrum	The first fluid secreted by the mammary glands for 2–3 days after childbirth. This fluid is yellowish in color, secreted in small amounts and contains antibodies that afford the infant immunity against some bacteria and viruses.
Complementary feeding	After infants reach the age of 6 months, breastmilk is no longer sufficient to meet their nutritional needs. Other foods that complement breastmilk should be introduced. Complementary foods are any non-breastmilk foods or liquids given to an infant in conjunction with breastfeeding.
Early initiation	Initiating breastfeeding immediately after birth or within 1 hour of birth.
Exclusive breastfeeding	Giving the child no other food/fluid besides breastmilk for the first 6 months of life.
Foremilk	The breastmilk produced at the beginning of a feed. It is watery and rich in protein, milk sugar, vitamins and minerals, but contains less fat and energy.
Hindmilk	The breastmilk produced as the infant continues to suckle (i.e. towards the end of a feed). This milk is whiter in color because it contains a higher proportion of fat. It is therefore higher in energy and more satisfying to the infant.
Lactational amenorrhea method (LAM)	A natural contraception method which involves delaying the return of menses through exclusive breastfeeding. To be effective, breastfeeds must be frequent (minimum of 8–10 times in 24 hours), day and night, with no long intervals in between. This method is therefore not reliable if milk supplements are given or once complementary feeding starts (i.e. after 6 months).
Prelacteal feeds	Fluids and/or feeds such as formula milk, animal milk, sugar, or rice water that are given to the baby while waiting for the breastmilk to "come in". Prelacteal feeding interferes with colostrum feeding, makes the baby less

inclined to suckle and delays the production of breastmilk. As a result, establishing breastfeeding may be more problematic.

Skin-to-skin

Establishing bare skin contact between mother and newborn by immediately laying the baby between the breasts of the mother. Skin-to-skin helps create a relaxed atmosphere, stimulates psychological bonding between mother and child and allows the baby to become familiar with the smell of its mother. The mother's body heat keeps the baby warm although a covering can be laid over both mother and child. Left undisturbed, the baby will root towards the nipple and, with some help, can begin to suckle. This relaxed, early initiation will help stimulate the hormones necessary to produce and eject the breastmilk.

REFERENCES

Adventist Development and Relief Agency Cambodia (ADRA). 2003. *Impact of Early Initiation of Breastfeeding Intervention, Child Survival XVII Project, Kompong Thmor.* ADRA

Catholic Relief Services (CRS). 2001–2003. *Analysis and Implementation on Feeding Practices.* CRS

Hoban, E. 2002. *We're Safe and Happy Already.* Ph.D. diss., University of Melbourne.

National Institute of Statistics. 2000. *Cambodian Health and Demographic Health Survey 2000.*

Partnership for Development (PFD). 2004. *North East Cambodia Child Survival Programme: 2000–2004 Evaluation Report*. PFD

Savage-King, F. 1994. *Helping mothers to breastfeed.* Association for Consumers Action on Safety and Health.

APPENDIXES

APPENDIX A: Focus group discussion question guides (mother, father, elderly caregiver and TBAs)

APPENDIX B: Tables of key beliefs and traditions that affect breastfeeding initiation and continuation: Literature review of eleven qualitative studies, January-February 2005

APPENDIX C: References

APPENDIX D: Explanation of *Ang Pleung*

APPENDIX A Focus group discussion question guides (mother, father, elderly caregiver and TBA)

Research Questions and Topics: MOTHERS

Question A	Topics	Focus Group Discussion Guide/Questions
What are the community's views on early initiation of breastfeeding (colostrum, prelacteal feeds)?	1. The newborn: Current practices and underlying beliefs.	1.1 After birth, what do people usually do with the newborn baby? *(probe: wash; wrap in cloth; show to the mother; skin-to-skin contact with mother)* 1.1.1 Who does this? 1.1.2 Why are these things done? 1.2 What is the first thing (*fluid/drink*) given to the newborn? 1.2.1 When is this given? 1.2.2 Why is this given? 1.3 How soon after birth are babies breastfed? 1.3.1 Why? 1.4 Do you think there are any benefits to starting breastfeeding immediately after birth? What do you think these benefits are?
	2. Perceptions of advice on early initiation.	2.1 Have you ever heard that mothers should put the baby immediately to the breast after birth, even before the placenta comes out? *(If no,* go to 2.1.2) 2.1.1 *If yes.*…Who did you hear this from? 2.1.2 What do you think about this? 2.2 Who is the person you would most trust to explain to you the benefits of early initiation of breastfeeding?
	3. Colostrum: current knowledge and practices	3.1 What is colostrum? 3.1.1 How or where did people learn about colostrum? 3.2 What do mothers in your village do with colostrum? 3.2.1 Why do they do that?
	4. Colostrum: changes in practice	4.1 Is what people do with colostrum different now from in the past? 4.1.1 What are the differences? 4.1.2 What makes people do things differently? 4.2 Who would you most trust to give you advice and information about colostrum?

Research Questions and Topics: MOTHERS

Question B	Topics	Focus Group Discussion Guide/Questions
What problems arise in relation to initiation and exclusive breastfeeding, when practicing *Ang Pleung*?	1. *Ang Pleung*, current practices, including the feeding of the child.	1.1 In this village, how often do mothers typically stay on the roasting bed? *(probe:* how long day and night? How long just night?) 1.2 How soon after birth do mothers start roasting? 1.2.1 Explain how this is done (step-by-step)? 1.2.2 Where is the newborn baby during the preparation and start of roasting? 1.2.3 Who looks after the newborn? 1.3 Is the newborn breastfed during the roasting time? *(If no. Go to 1.4)* 1.3.1 *If yes:* When does breastfeeding first start? *(probe: before going on the roasting bed? How long after giving birth?)* 1.3.2 Explain where and how the baby is breastfed? *(probe: on the roasting bed with the mother; does mother sit up or lay down; does the mother get off the bed to breastfeed?)* 1.3.3 How often is the baby breastfed? 1.3.4 Do mothers continue to breastfeed during the whole of the roasting? 1.3.5 Is the baby given anything else 1.4 If the baby is not breastfed during the roasting time, why not? 1.4.1 What is the baby fed? 1.5 Is the baby able to go on the roasting bed with the mother? 1.5.1 *If not*: Why not? 1.5.2 *If can*: Why?
	2. New practices in areas where programs are running.	***In Stung Treng and Pursat only:*** 2.1 Are breastfeeding practices during *Ang Pleung* different now compared to the past? 2.1.1 How are they different? 2.1.2 What happened to make mothers breastfeed differently? 2.2 (For M2 only) How have these changes in breastfeeding practices affected you? 2.2.1 *(probe: Made things easier? More difficult? Do they now have new problems?)* 2.2.2 *If things are easier now*: How? 2.2.3 *If there are difficulties/problems now*: What are these problems? 2.3 (For M2 only) What makes you want to continue with the new breastfeeding practices? 2.3.1 What do other community members think about these new practices?

Research Questions and Topics: MOTHERS

Question C	Topics	Focus Group Discussion Guide/Questions
What are the lactation problems that mothers have with initiating breastfeeding and exclusively breastfeeding?	1. Establishing breastfeeding	1.1 What problems do mothers face when first starting breastfeeding? *(probe about confidence and fears as well as lactation problems or other physical problems).* 1.2 When mothers have lactation problems, how is the baby fed? 1.3 When mothers get lactation problems, what do they do? *(probe: where do they go? Who do they ask for help? Do they take medicines?)* 1.4 Do the mothers get the technical help and support they need to solve lactation problems? 1.4.1 *If not*, do these problems prevent mothers from continuing breastfeeding?
	2. What technical support is available for mothers with lactation problems?	2.1 Who gives advice and technical help to the breastfeeding mother? 2.1.1 What do they tell mothers? 2.1.2 What do they show mothers? 2.1.3 Is their support helpful? *(probe: what makes them say that?)* 2.2 How often does the mother get help when she first starts breastfeeding? 2.3 Can mothers still get help if they develop problems later on? 2.4 Do mothers get advice from anywhere else? *(probe*: *radio, other health workers*) 2.4.1 What do mothers think of this advice?
	3. Breastfeeding technique and perceptions of quality and quantity.	3.1 How do you know when to breastfeed your child? *(probe: when baby demands; feed at set times; only once work is finished…)* 3.1.1 Do you always breastfeed when the time comes to breastfeed? 3.1.2 *If not.*…Why not? 3.2 Describe a breastfeeding episode. *(probe: how long does the baby suckle? Does the baby stay on one breast during one feed or swap over? Who stops the feed, the mother or child? Why?*) 3.2.1 Show me how you hold the newborn baby when breastfeeding? (*Ask for comments from the other participants on the demonstrations*) 3.3 If you could feed your young baby anything, what would you choose to feed him/her? 3.3.1 Why?

Research Questions and Topics: MOTHERS

Question D	Topics	Focus Group Discussion Guide
What do mothers do about exclusively breastfeeding and continuing breastfeeding their babies when they have to work?	1. Current practices: Feeding infants while mothers work.	1.1 What work do mother do in this village? (*Write down answers on newsprint. Note work or jobs where mothers must travel outside of the locality on a regular basis).* 1.2 Who usually looks after the children when these mothers work? 1.3 What are the main difficulties with child feeding when the mother is trying to work? *(probe: work is a long way from home, long hours and physically demanding on the mother, hard to continue breastfeeding or frequent breastfeeding)* 1.4 Are mothers able to breastfeed during the hours they work? 1.4.1 *If yes*: how are they able to do this? *(probe: take baby to work, have baby brought to them…)* 1.4.2 *If no*: When do they breastfeed? *(probe: before work, during the night, as soon as they reach home?)* 1.5 How about the babies aged less than 6 months, tell me how they are fed when the mother is working? *(probe: are they given other fluids besides breastmilk? What fluids? How often?)* 1.6 Do you think it is a problem when young babies, less than 6 months old, are given water and other fluids, besides breastmilk? 1.7 How are infants fed if their mothers stop breastfeeding due to the pressures of working? *(probe: what is given and how is it given)* 1.8 Are feeding bottles used in this village? *(If no*: Go to 1.9) 1.8.1 *If yes:* Who uses them? *(prompt: the working mother, all mothers, mothers with older children?)* 1.8.2 What is put in them? 1.9 What is good about using feeding bottles? 1.9.1 What is bad about using feeding bottles?
	2. What support is available to working mothers?	2.1 Who provides practical support to mothers so that they are able to continue breastfeeding while working? *(probe: which family members? What about employers?)* 2.2 Do mothers think it is important to continue breastfeeding even when it may be difficult for them because they are working? 2.2.1 Why? 2.3 Why not?

Research Questions and Topics: MOTHERS

Question E	Topics	Focus Group Discussion Guide
Who are the main supporters of optimal breastfeeding practices in the community?	1. Exclusive breastfeeding.	1.1 Have you heard about "exclusive breastfeeding"? 1.1.1 If yes, who from? *(If no: Explain & ask 1.1.3)* 1.1.2 What does it mean? (*CHECK answers and repeat back*: only breastmilk; no water, no diluted condensed milk, *borbor*, sugar or honey water for the first 6 months of life) 1.1.3 What do you think about that? *(probe: is this possible? Are some parts possible?)* 1.2 Do you believe babies less than 6 months need water in addition to breastmilk? 1.2.1 *If yes*… Why? 1.2.2 *If no*…Why not? 1.3 What do husbands and other family members and neighbors think about "exclusive breastfeeding"? 1.4 Who would you most trust to give you information about exclusive breastfeeding?
	2. Continued breastfeeding up to at least 2 years of age.	2.1 In this village, how long (*in months/years*) do mothers typically breastfeed their children? 2.2 What do you think about this length of time? *(probe: Is this too long, too short?)* 2.2.1 What are the benefits of breastfeeding for this long? *(probe: benefits to mother, benefits to child…)* 2.2.2 What are the disadvantages of breastfeeding for this long? 2.3 Who will decide when to finally stop breastfeeding? *(probe: mother, father, child, other family member?)* 2.4 What are some of the reasons mothers stop breastfeeding? *(probe: do they stop due to the mother become ill? Pregnant?)* 2.5 What do husbands think about their wives breastfeeding until the child is two years old or more?

Research Questions and Topics: FATHERS

Question A	Topics	Focus Group Discussion Guide/Questions
What are the community's views on early initiation of breastfeeding (colostrum, prelacteal feeds)?	1. The newborn: Current practices and underlying beliefs.	1.1 After birth, what do people usually do with the newborn baby? *(probe*: wash; wrap in cloth; show to the mother; skin-to-skin contact with mother) 1.1.1 Who does this? 1.1.2 Why are these things done? 1.2 What is the first thing (fluid/drink) given to the newborn? 1.2.1 When is this given? 1.2.2 Why is this given? 1.3 How soon after birth are babies breastfed? 1.3.1 Why? 1.4 Do you think there are benefits to starting breastfeeding immediately after birth? What do you think those benefits might be?
	2. Perceptions of advice on early initiation.	2.1 Have you ever heard that mothers should put the baby immediately to the breast after birth, even before the placenta comes out? *(If no*: Ask 2.1.2) 2.1.1 If yes…Who did you hear this from? 2.1.2 What do you think about this?
	3. Colostrum: current knowledge and practices	3.1 What is colostrum? 3.1.1 How or where did people learn about colostrum? 3.2 What do you think about colostrum? 3.2.1 Why do you think that?
	4. Colostrum: changes in practice	4.1 Is what you think about colostrum different now from the past? 4.1.1 What are the differences? 4.1.2 What makes people do things differently? 4.2 Who would you most trust to give you and your family advice and information about colostrum and other breastfeeding issues?

Research Questions and Topics: FATHERS

Question B	Topics	Focus Group Discussion Guide/questions
What problems arise, in relation to initiation and exclusive breastfeeding, when practicing *Ang Pleung*?	1. *Ang Pleung*, current practices, including the feeding of the child.	1.1 In this village, how often do mother typically stay on the roasting bed? *(probe:* how long day and night? How long just night?) 1.2 How soon after birth do mothers start roasting? 1.2.1 Explain how this is done (step-by-step) and what your role is? 1.2.2 Where is the newborn baby during the preparation and start of roasting? 1.3 What is the newborn fed during roasting? 1.3.1 What do you think about how the newborn is fed during roasting? 1.3.2. Why? 1.4 Is the baby able to go on the roasting bed with the mother? 1.4.1 *If not*: Why not? 1.4.2. *If can*: Why?
	2. New practices in areas where programs are running.	***In Stung Treng and Pursat only:*** 2.1 Are the infant feeding practices during *Ang Pleung* different now compared to the past? 2.1.1 How are they different? 2.1.2 What caused these changes to happen? 2.2 How have these changes in feeding practices affected you and your wife? *(probe: Made things easier? More difficult? Do they now have new problems?)* 2.2.1 *If things are easier now*: How? 2.2.2 *If there are difficulties/problems now*: What are these problems? 2.3 Do you think these new practices are a good thing? *(probe: for the mother? for the child? for the household?*) 2.4 Why do you say that?
	3. Solutions to problems.	*In Phase II sites only:* 3.1 What are the problems faced by the mother trying to breastfeed while roasting? 3.1.1 Does breastfeeding during roasting cause harm to the baby? *(probe: what harm does it cause?)* 3.1.2 Does breastfeeding the baby during roasting create problems for the household? *(probe: what are these problems?)* 3.2 Can you suggest any solutions to these problems?

Research Questions and Topics*:* FATHERS

Question C	Topics	Focus Group Discussion Guide/Questions
What are the lactation problems that mothers have with initiating breastfeeding and exclusively breastfeeding?	1. Establishing breastfeeding	1.1 What problems do mothers face when first starting breastfeeding? *(probe about confidence and fears as well as lactation problems and other physical problems).* 1.2 When mothers have lactation problems, how is the baby fed? 1.3 When the mother has lactation problems, what do they do? *(probe: where do they go? who do they ask for help? do they take medicines?)* 1.4 Do mothers get all the technical help and support they need to solve lactation problems? 1.4.1 *If not*, do these problems prevent mothers from continuing breastfeeding?
	2. What technical support is available for mothers with lactation problems?	2.1 Who gives advice and technical help to the breastfeeding mother? 2.1.1 What do they tell mothers? 2.1.2 Is their support helpful? *(probe: how is it helpful?)* 2.2 Do mothers get advice from anywhere else? (*probe*: *radio, other health workers*) 2.2.1 What do mothers think of this advice? 2.2.2 What do you think of this advice?

Research Questions and Topics*:* FATHERS

Question D	Topics	Focus Group Discussion Guide
What do mothers do about exclusively breastfeeding and continuing breastfeeding their babies when they have to work?	1. Current practices: Feeding infants while mothers work.	1.1 What work do mothers do in this village? (*Write down answers on newsprint. Note work or jobs where mothers must travel outside of the locality on a regular basis).* 1.2 Who usually looks after the children when these mothers work? 1.3 What are the main difficulties with child feeding when the mother is trying to work? *(probe: work is a long way from home, long hours and physically demanding on the mother, hard to continue breastfeeding or frequent breastfeeding)* 1.4. Are mothers able to breastfeed during the hours they work? 1.4.1 *If yes*: how are they able to do this? *(probe: take baby to work, have baby brought to them…)* 1.4.2 *If no*: When do they breastfeed? *(probe: before work, during the night, as soon as they reach home?)* 1.5 How about the babies aged less than 6 months, tell me how they are fed when the mother is working? *(probe: are they given other fluids besides breastmilk? What fluids? How often?)* 1.6 Do you think it is a problem when young babies, less than 6 months old, are given water and other fluids, besides breastmilk? 1.7 How are infants fed if their mothers stop breastfeeding due to the pressures of working? *(probe: what is given and how is it given)*
	2. What support is available to working mothers?	2.1 Who provides practical support to mothers so that they are able to continue breastfeeding while working? *(probe: which family members? What about employers?)* 2.2 Do you think it is important for mothers to continue breastfeeding even when it may be difficult for them because they are working? 2.2.1 Why? 2.2.2 Why not?

Research Questions and Topics*:* FATHERS

Question E	Topics	Focus Group Discussion Guide
Who are the main supporters of optimal breastfeeding practices in the community?	1. Exclusive breastfeeding.	1.1 Have you heard about "exclusive breastfeeding"? 1.1.1 If yes, who from? *(If no: Explain & ask 1.1.3)* 1.1.2 What does it mean? (*CHECK answers and repeat back*: only breastmilk; no water, no diluted condensed milk, *borbor*, sugar or honey water for the first 6 months of life) 1.1.3 What do you think about that? 1.2 Do you believe babies less than 6 months need water in addition to breastmilk? 1.2.1 Why? 1.2.2 Why not? 1.3 What do your wives and other family members and neighbors think about "exclusive breastfeeding"? 1.3.1 Who would you most trust to give you information about exclusive breastfeeding?
	2. Continued breastfeeding up to at least 2 years of age.	2.1 In this village, how long (*in months/years*) do mothers typically breastfeed their children? 2.2 What do you think about this length of time? *(probe: Is this too long, too short?)* 2.2.1 What are the benefits of breastfeeding for this long/short? *(probe: benefits to mother, benefits to child…)* 2.2.2 What are the disadvantages of breastfeeding for this long/short? *(probe: disadvantages to mother, disadvantages to child)* 2.3 Who will decide when to finally stop breastfeeding? *(probe: mother, father, child, other family member?)* 2.4 What are some of the reasons mothers stop breastfeeding? *(probe: do they stop due to the mother become ill? Pregnant?)* 2.5 What do you think about your wives breastfeeding until the child is two years old or more? *(probe: Important? Not necessary? Why?)*

Research Questions and Topics: ELDERLY CAREGIVERS

Question A	Topics	Focus Group Discussion Guide/Questions
What are the community's views on early initiation of breastfeeding (colostrum, prelacteal feeds)?	1. The newborn: Current practices and underlying beliefs.	1.1 After birth, what do people usually do with the newborn baby? *(probe: wash; wrap in cloth; show to the mother; skin-to-skin contact with mother)* 1.1.1 Who does this? 1.1.2 Why are these things done? 1.2 . What is the first thing (*fluid/drink*) given to the newborn? 1.2.1 When is this given? 1.2.2 Why is this given? 1.3 How soon after birth are babies breastfed? 1.3.1. Why? 1.4 Do you think there are benefits of starting breastfeeding immediately after birth? If so what are they?
	2. Perceptions of advice on early initiation.	2.1 Have you ever heard that mothers should put the baby immediately to the breast after birth, even before the placenta comes out? *(If no: Ask 2.1.2*) 2.1.1 *If yes…*Who did you hear this from? 2.1.2 What do you think about this?
	3. Colostrum: current knowledge and practices	3.1 What is colostrum? 3.1.1 How or where did people learn about colostrum? 3.2. What do mothers in your village do with colostrum? 3.2.1 Why do they do that?
	4. Colostrum: changes in practice	4.1 Is what people do with colostrum now different from in the past? 4.1.1 What are the differences? 4.1.2 What makes people do things differently? 4.2 Who do you think has the most knowledge and authority to talk to the community about the benefits of breastfeeding and colostrum?

Research Questions and Topics: ELDERLY CAREGIVERS

Question B	Topics	Focus Group Discussion Guide/questions
What problems arise, in relation to initiation and exclusive breastfeeding, when practicing *Ang Pleung*?	1. *Ang Pleung*, current practices, including the feeding of the child.	1.1 In this village, how often do mother typically stay on the roasting bed? *(probe:* how long day and night? How long just night?) 1.2 How soon after birth do mothers start roasting? 1.2.1 Explain how this is done (step-by-step)? 1.2.2 Where is the newborn baby put during the preparation and start of roasting? 1.2.3 Who looks after the newborn? 1.3 Is the newborn breastfed during the roasting time? *(If no: Ask 1.3.2*) 1.3.1 *If yes*: Explain where and how the baby is breastfed? *(probe: on the roasting bed with the mother; does mother sit up or lay down; does the mother get off the bed to BF?* 1.3.2 *If the baby is not breastfed during the roasting time:* Why not? 1.4 Is the baby able to go on the roasting bed with the mother? 1.4.1 *If not*: Why not? 1.4.2 *If can*: Why?
	2. New practices in areas where programs are running.	***In Stung Treng and Pursat only:*** 2.1. Are mothers' breastfeeding practices during *Ang Pleung* different now compared to the past? 2.1.1 How are they different? 2.2 What influenced mothers and made them breastfeed differently? 2.3 What do you think about these new practices?
	3. Solutions to problems.	*In Phase II sites only:* 3.1 What are the problems faced by the mother trying to breastfeed while roasting? 3.1.1 Does breastfeeding during roasting cause harm to the baby? *(probe: what harm does it cause?)* 3.1.2 Does breastfeeding the baby during roasting create problems for the household? *(probe: what are these problems?)* 3.2 Can you think of any solutions to these problems?

Research Questions and Topics*:* **ELDERLY CAREGIVERS**

Question C	Topics	Focus Group Discussion Guide/Questions
What are the lactation problems that mothers have with initiating breastfeeding and exclusively breastfeeding?	1. Establishing breastfeeding	1.1 What problems do mothers have when first starting breastfeeding? *(probe about confidence and fears as well as lactation problems and other physical problems)* 1.2 When mothers have lactation problems, how is the baby fed? 1.2.1 When mothers have lactation problems, what do they do? *(probe: where do they go? who do they ask for help? do they take medicines?)* 1.3 Do the mothers get the technical help and support they need to solve lactation problems? 1.3.1 *If not*, do these problems prevent mothers from continuing breastfeeding?
	2. What technical support is available for mothers with lactation problems?	2.1 Who gives advice and technical help to the breastfeeding mother? 2.1.1 What do they tell mothers? 2.1.2 What do they show mothers? 2.1.3 Is their support helpful? *(probe: how was it helpful?)* 2.2 How often does the mother get help when she first starts breastfeeding? 2.3 Can mothers still get help if they develop problems later? *(e.g. 1–2 months after starting breastfeeding?)* *2.*4 Do mothers get advice from anywhere else? *(probe*: *radio, other health workers*) 2.4.1 What do you think of this advice?

Research Questions and Topics*:* ELDERLY CAREGIVERS

Question D	Topics	Focus Group Discussion Guide
What do mothers do about exclusively breastfeeding and continuing breastfeeding their babies when they have to work?	1. Current practices: Feeding infants while mothers work.	1.1 What work do mother do in this village? (*Write down answers on newsprint. Note work or jobs where mothers must travel outside of the locality on a regular basis).* 1.2 Who usually looks after the children when these mothers work? 1.3 What are the main difficulties with child feeding when the mother is trying to work? *(probe: work is a long way from home, long hours and physically demanding on the mother, hard to continue breastfeeding or frequent breastfeeding)* 1.4 Are mothers able to breastfeed during the hours they work? 1.4.1 *If yes*: how are they able to do this? *(probe: take baby to work, have baby brought to them…)* 1.4.2 *If no*: When do they breastfeed? *(probe: before work, during the night, as soon as they reach home?)* 1.5 How about the babies aged less than 6 months, tell me how they are fed when the mother is working? *(probe: are they given other fluids besides breastmilk? What fluids? How often?)* 1.6 Do you think it is a problem when young babies, less than 6 months old, are given water and other fluids, besides breastmilk? 1.7 How are infants fed if their mothers stop breastfeeding due to the pressures of working? *(probe: what is given and how is it given)* 1.8 Are feeding bottles used in this village? 1.8.1 *If yes:* Who uses them? *(probe: working mothers, all mothers, mothers with older babies?)* 1.8.2 What is put in them? 1.9 What is good about feeding bottles? 1.9.1 What is bad about feeding bottles
	2. What support is available to working mothers?	2.1 Who provides practical support to mothers so that they are able to continue breastfeeding while working? *(probe: which family members? What about employers?)* 2.2 Do you think it is important for mothers to continue breastfeeding even when it is difficult for them because they are working? 2.2.1 Why? 2.2.2 Why not?

Research Questions and Topics*:* **ELDERLY CAREGIVERS**

Question E	Topics	Focus Group Discussion Guide
Who are the main supporters of optimal breastfeeding practices in the community?	1. Exclusive breastfeeding.	1.1 Have you heard about "exclusive breastfeeding"? 1.1.1 If yes, who from? *(If no: explain as in 1.1.2 & ask 1.1.3)* 1.1.2 What does it mean? (*CHECK answers and repeat back*: only breastmilk; no water, no diluted condensed milk, *borbor*, sugar or honey water for the first 6 months of life) 1.1.3 What do you think about that? *(probe: is it possible? Is some of it possible?)* 1.2 Do you believe babies less than 6 months need water in addition to breastmilk? 1.2.1 Why? 1.2.2 Why not? 1.3 What do husbands and other family members and neighbors think about "exclusive breastfeeding"? 1.4 Who would you most trust to give the community information about exclusive breastfeeding?
	2. Continued breastfeeding up to at least 2 years of age.	2.1 In this village, how long (*in months/years*) do mothers typically breastfeed their children for? 2.2 What do you think about this length of time? *(probe: Is this too long, too short?)* 2.2.1 What are the benefits of breastfeeding for this long/short? *(probe: benefits to mother, benefits to child…)* 2.2.2 What are the disadvantages of breastfeeding for this long/short? *(probe: disadvantages to mother, disadvantages to the child?)* 2.3 Who will decide when to finally stop breastfeeding? *(probe: mother, father, child, other family member?)* 2.4 What are some of the reasons mothers stop breastfeeding? *(probe: do they stop due to the mother become ill? Pregnant?)* 2.5 What do husbands think about their wives breastfeeding until the child is two years old or more?

Research Questions and Topics: TBAs

Question A	Topics	Focus Group Discussion Guide/Questions
What are the community's views on early initiation of breastfeeding (colostrum, prelacteal feeds)?	1. The newborn: Current practices and underlying beliefs.	1.1 After birth, what do people usually do with the newborn baby? *(probe: wash; wrap in cloth; show to the mother; skin-to-skin contact with mother)* 1.1.1 Who does this? 1.1.2 Why are these things done? 1.2 What is the first thing (*fluid/drink*) given to the newborn? 1.2.1 When is this given? 1.2.2 Why is this given? 1.3 How soon after birth are babies breastfed? 1.3.1 Why? 1.4 What advice do you give to mothers on early initiation? 1.4.1 When do you give this advice?
	2. Perceptions of advice on early initiation.	**N/A**
	3. Colostrum: current knowledge and practices	3.1 What is colostrum? 3.1.1. How or where did people learn about colostrum? 3.2 What do mothers in your village do with colostrum? 3.2.1 Why do they do that?
	4. Colostrum: changes in practice	4.1 Is what people do with colostrum different now from the past? 4.1.1 What are the differences? 4.2 Do you think differently now about colostrum than in the past? 4.2.1 Explain what the differences are? 4.3 What makes people do things differently?

Research Questions and Topics: TBAs

Question B	Topics	Focus Group Discussion Guide/questions
What problems arise, in relation to initiation and exclusive breastfeeding, when practicing *Ang Pleung*?	1. *Ang Pleung*, current practices, including the feeding of the child.	1.1 How many births have you attended this year? 1.2 How soon after birth do mothers start roasting? 1.2.1 Explain how this is done and what your role is? 1.2.2 Where is the newborn baby when the mother is being prepared for roasting? 1.2.3 Who looks after the newborn? 1.3 Is the newborn breastfed during the roasting time? *(If no: Ask 1.3.3)* 1.3.1 *If yes:* When does breastfeeding first start? *(probe: before going on the roasting bed? How long after giving birth?)* 1.3.2 *If yes*: Explain where and how the baby is breastfed? *(probe: on the roasting bed with the mother; does mother sit up or lay down; does the mother get off the bed to breastfeed?)* 1.3.3 *If the new born is not breastfed during the roasting time*: Why not? 1.4 Is the baby able to go on the roasting bed with the mother? 1.4.1 *If not*: Why not? 1.4.2 *If can*: Why?
	2. New practices in areas where programs are running.	***In Stung Treng and Pursat only:*** 2.1 Are breastfeeding practices during *Ang Pleung* different now compared to the past? 2.1.1 How are they different? 2.1.2 What happened to make mothers breastfeed differently? 2.2 What do you think about these new practices? 2.3 What makes mothers want to continue with the new breastfeeding practices? 2.4 What do other community members think about these new practices?
	3. Solutions to problems.	*In Phase II sites only:* 3.1 What are the problems faced by the mother trying to breastfeed while roasting? 3.1.1 Does breastfeeding during roasting cause the baby harm? *(probe: what harm does it cause?)* 3.1.2 Does breastfeeding the baby during roasting create problems for the household? *(probe: what are these problems?)* 3.2 Can you think of any solutions to these problems?

Research Questions and Topics*:* TBAs

Question C	Topics	Focus Group Discussion Guide/Questions
What are the lactation problems that mothers have with initiating breastfeeding and exclusively breastfeeding?	1. Establishing breastfeeding	1.1 What problems do mothers have establishing breastfeeding? *(include probing about confidence and fears as well as physical problems).* 1.2 Do some groups of mothers have more problems than others? *(probe: 1st time mothers?)* If yes, which groups of mothers? 1.3 When mothers have lactation problems, what do they do? *(probe: where do they go? who do they ask for help? do they take medicines?)* 1.4 What happens when lactation problems are not solved?
	2. What technical support is available for mothers with lactation problems?	2.1 Do you give advice and technical help to the new mother to help her establish breastfeeding? 2.1.1 What do you tell mothers? 2.1.2 What do you show mothers? 2.1.3 Do you think your support is helpful to the mother? *(probe: why do you think so?)* 2.2 How often do you see the post-partum mother to help her with starting breastfeeds? 2.3 Can mothers still get help from you if they develop problems later on? 2.4 Do mothers get advice from anywhere else? *(probe*: *radio, other health workers*) 2.4.1 What do you think of this advice?

Research Questions and Topics*:* TBAs

Question E	Topics	Focus Group Discussion Guide
Who are the main supporters of optimal breastfeeding practices in the community?	1. Exclusive breastfeeding.	1.1 Have you heard about "exclusive breastfeeding"? *(If no: Explain & ask 1.1.2*) 1.1.1 What does it mean? (*CHECK answers and repeat back*: only breastmilk; no water, no diluted condensed milk, *borbor*, sugar or honey water for the first 6 months of life) 1.1.2 What do you think about that? 1.2 Do you believe babies less than 6 months need water in addition to breastmilk? 1.2.1 Why? 1.2.2 Why not? 1.3 What do mothers and other community members think about "exclusive breastfeeding? 1.3.1 What do you think influences their ideas? 1.4 Do you talk to mothers about exclusive breastfeeding? 1.4.1 When do you talk to them about this and what do you say?
	2. Continued breastfeeding up to at least 2 years of age.	2.1 In this village, how long (*in months/years*) do mothers typically breastfeed their children for? 2.2 What do you think about this length of time? *(probe: Is this too long, too short?)* 2.2.1 What are the benefits of breastfeeding for this long? *(probe: benefits to mother, benefits to child…)* 2.2.2 What are the disadvantages of breastfeeding for this long? *(probe: disadvantages to mother, disadvantages to child?)* 2.3 What are some of the reasons mothers stop breastfeeding? *(probe: do they stop due to the mother become ill? Pregnant?)* 2.4 Do you give advice on continuing breastfeeding? *(probe: what do you say?)*

APPENDIX B Tables of key beliefs and traditions that affect breastfeeding initiation and continuation: Literature review of eleven qualitative studies, January-February 2005

1. **Practice:** Delay in initiating breastfeeding

- **Belief:** The mother has no milk immediately after birth

Related findings from NGO and other studies											Other information/thoughts
GTZ	**Hoban, L.**	**PFD**	**HKI**	***CRS**	**HU**	**ADRA**	***EDD**	**Hourn et al.**	***WV**	**WR**	
Delay up to 3 days. New mother is initial focus of care. Some mothers wait until milk comes out by itself. Baby must learn to suck: wait until see baby sucking fingers.	Delay until "milk" comes in: typically 3–4 days. Family looks after baby during this time.	Delays related to 3) below.	Prelacteal feeds given while waiting for BM to come. Only one mother said BM was first feed baby received. (No information on what influenced her decision).	Mother tired, has no milk, little support from family.	Mother not thought to have milk for several days.	Delays common (linked with 3 below).	Almost all wait up to 3 days.	Hard to BF while roasting (first few days).	Wait up to 3 days.		GTZ: Two mothers initiated BF within 1 hour of delivery. A TBA or a midwife attended both of these births. This may be significant although no information is given about whether other births were attended by the same or other trained personnel. CRS: Women are afraid and do not know how to breastfeed. No other study mentions this. Hoban: Observed TBAs only care for mother, do not mention BF. Also mothers must lie face down on the *Ang Pleung* bed for the first day at least. If BF straight away, breasts swell earlier making this difficult.

2. **Practice:** Mothers give prelacteal feeds (water, Khmer tea, sugared water, diluted sweetened milk, rice water)
- **Belief:** Linked with 1 & 3

Related findings from NGO and other studies										Other information/thoughts
GTZ	**Hoban, L.**	**PFD**	**HKI**	***CRS**	**HU**	**ADRA**	***EDD**	***WV**	**WR**	
New mother is focus of care; does not have milk yet. Water or traditional tea given to comfort the baby when it cries.	Mother is focus of care; does not have milk yet. Baby given warm plain or sugared water, diluted condensed milk or BM from mothers' siblings.		Mothers commonly gave prelacteal "food" within 1–3 hours of birth, because: baby crying; no milk yet; elderly said to do so.		Sugar and water given		Give water or sugar/ honey water			The concept of "exclusive breastfeeding" is not well understood.

3. **Practice:** Colostrum is not given to the baby and may be squeezed out and discarded
Belief: Colostrum is "bad" or of no nutritional value

Related findings from NGO and other studies										Other information/thoughts
GTZ	**Hoban, L.**	**PFD**	**HKI**	***CRS**	**HU**	**ADRA**	***EDD**	***WV**	**WR**	
5–10 yrs. ago mothers squeezed out. Now no longer do this, although don't actively give. Reported behavior change due to radio coverage and local HC staff training.	Believe colostrum comes from blood ("water of the blood"). It is not good, has no taste and will not give baby any energy.	Mothers reported that prior to intervention program, they believed colostrum caused diarrhea and would squeeze away. Influenced by VHV and radio messages.	Mixed. 31% of mothers gave. 69% did not. Beliefs included: sour, causes illness, old habit, too hot due to practicing *Ang Pleung*.	Believe colostrum can cause diarrhea and is "dirty milk"	Indigenous tribes of Ratanakiri have no negative beliefs about colostrum, but rarely give as don't know importance	50% of mothers said: did not know of benefits, had been told by elders to squeeze away as would cause diarrhea, fever and of no nutritional value. 50% said knew benefits, but only 20% of these gave (i.e. 30% still followed cultural norm and squeezed away).		Cited strong tradition of squeezing out.		GTZ: mothers agreed older people had accepted new practice of not discarding colostrum. However, mothers still queried nutritional value of colostrum, though all agreed it was not harmful. HKI: 10% of mothers said radio had been source of advice on colostrum. Did this 10% follow advice? Mothers said TBAs, elderly and neighbors had influence re: giving colostrum. In one village no mothers gave because TBA had advised against it. HV felt mothers knew benefits but followed old habits. Hoban: Mothers highly respect knowledge and advice of TBAs; less faith in MoH health staff/private doctors. ADRA: 50% said heard of the benefits from radio coverage. PFD: Radio messages reinforced advice given by VHV, increased trust in VHV.

4. **Practice:** Water is given to wash the baby's mouth after breastfeeding and when baby get thirsty
- **Belief:** Water is essential for life

Related findings from NGO and other studies										Other information/thoughts
GTZ	**Hoban, L**	**PFD**	**HKI**	***CRS**	**HU**	**ADRA**	***EDD**	***WV**	**WR**	
100% of babies were also given water. Frequently water is not boiled as it does not matter what type of water baby has. Also cited: BM too concentrated and sweet by itself.							After BF, water or sugar water given to "top up"	Cited: mothers rinse mouth with water after BF and also give extra water.		GTZ: Mothers doubted health staff when they said babies do not need water.

5. **Practice:** (Linked to practice of *Ang Pleung* but this practice is not the result of the belief)
- **Belief:** Hot milk causes diarrhea

Related findings from NGO and other studies										Other information/thoughts
GTZ	**Hoban, L**	**PFD**	**HKI**	**CRS**	**HU**	**ADRA**	**EDD**	**WV**	**WR**	
"Skin to skin" not practiced as mother too hot during *Ang Pleung* for baby.			Hot milk makes baby sick						Hot milk causes diarrhea	**GTZ**: The practice of *Ang Pleung* affects early initiation for a variety of reasons (for more detailed information see appendix D below). Working in hot sun also makes breastmilk hot.

6. **Practice:** Breastfeeding stops when the mother gets pregnant
- **Belief:** The breastmilk turns sour and will make the baby sick

Related findings from NGO and other studies										Other information/thoughts
GTZ	**Hoban, L**	**PFD**	**HKI**	***CRS**	**HU**	**ADRA**	***EDD**	***WV**	**WR**	
All mothers stop BF if get pregnant. Milk is "sour" and will give diarrhea. Also amount of BM was reduced and mothers had increased taste for sour foods			BM becomes "sour" when pregnant; will cause diarrhea and weight loss.	BF when pregnant gives baby diarrhea.						**HKI:** This was overwhelmingly the main reason for stopping BF. This occurred as soon as 3–4 months after last birth. **GTZ:** None of the mothers had evidence that BM was sour. Belief may be linked with mothers getting a taste for more sour foods during pregnancy.

7 ● **Practices:** Mothers supplement their breastmilk with cows milk, sweetened tinned milk, or formula milk
● **Beliefs:** Not producing enough breastmilk or not of good enough quality

Related findings from NGO and other studies										Other information/thoughts
GTZ	**Hoban, L**	**PFD**	**HKI**	***CRS**	**HU**	**ADRA**	***EDD**	***WV**	**WR**	
Concerned do not have enough BM. Weaning starts at approx. 4 months (rice water/coconut juice). If could afford, would give canned sweetened milk.	Elders, grandmothers and TBAs say if mother *Ang Pleung*s well, BM will be good and strong; no problem with BF.		Supplement when working far from home. Some mothers concerned not producing enough BM.							**HKI**: Use of bottle feeds confirmed by observations. Reasons for BF included not having money to buy cow's milk, but only 10% (2 mothers) said BM was good and makes babies strong. Were these the 2 that got their information from the radio Bottle feeding seen as sign of wealth. Mothers want to be modern, practice new methods. **Hoban**: Observed TBAs did not assist with BF, even when mother having difficulties with attachment or supply. This is not considered their responsibility.

* It is not clear from these studies how their information on beliefs/practices was collected (i.e. reported, observed, impressions?)

APPENDIX C Studies included in literature review

Adventist Development and Relief Agency Cambodia. 2003. *Impact of Early Initiation of Breastfeeding Intervention, Child Survival XVII Project, Kompong Thmor.* **ADRA**

Catholic Relief Services. 2001–2003. *Analysis and Implementation on Feeding Practices.* **CRS**

Enfants and Developpement. 2003. *Formulating appropriate responses for addressing acute malnutrition by public health staff in Kirivong Operational District.* **EDD**

Health Unlimited. 2002. *Food Taboos and Eating Habits amongst Indigenous People in Ratanakiri, Cambodia.* **HU**

Helen Keller International. 1997. *Study on Infant Feeding Practices: Colostrum, Breastfeeding & Weaning.* **HKI**

Hoban, E. 2002. *We're Safe and Happy Already.* Ph.D. diss., University of Melbourne.

Hourn, K. K., B.C. Born, U. Sokco, and H. Pickering. 1999. *Postpartum Heating Practices In Cambodia: Are they harmful?* Paper presented at Second National Socio-Cultural Research Congress on Cambodia. Royal University of Phnom Penh, UNFPA.

Khulmann, T. 2004. *Traditional Infant Feeding in Two Cambodian Villages: Mother's Practices, Knowledge and Beliefs.* **GTZ**

Partnership for Development. 2004. *North East Cambodia Child Survival Programme: 2000–2004 Evaluation Report* **PFD**

White, P.M. 1995. *Crossing the River: Traditional Beliefs and Practices of Khmer Women During Pregnancy, Birth and Postpartum.* Initiated by NMCHC.

World Relief. 2000. *Mid Term Evaluation Report.* **WR**

World Vision. (?) *Kien Svay Follow-up on CSP BCC Plan of Action.* **WV**

Also referred to when deciding on intervention sites for Phase I of the research:

RACHA. 2005. *Data collection of impact of Buddhist Nuns and Wat Grannies program in Pursat*. Unpublished.

UNICEF. 2005. *Early initiation and exclusive breastfeeding rates reported by mothers in Seth Koma project villages, Stung Treng*. Informal, unpublished data collected by health staff.

APPENDIX D: Explanation of *Ang Pleung*

The practice of *Ang Pleung*

The practice of *Ang Pleung* or "mother roasting" remains widespread across rural Cambodia.

Ang Pleung involves the lighting of charcoal or wood underneath the bed of the newly delivered mother. The mother typically wears several layers of clothes, including head covering, socks, possibly gloves, and is covered by blankets. For the first day at least, the mother must lie face down on the bed. The mother will stay over the fire day and night for a period of time (minimum 1–2 days). Typically the fire is kept hotter at night. Maintaining the fire is the responsibility of the father. After completing 24-hour roasting, depending on the family's resources and the husband's willingness to attend to the fire, *Ang Pleung* will continue overnight for a further period of time.

In brief, *Ang Pleung* is about addressing the hot-cold imbalance within the body that will lead to illness or disease (*toah*), either acute and/or chronic, if not corrected. The concept of hot-cold balance, and its relationship with health and illness, has its roots in ancient humoral medical theory: illness is the result of humoral imbalance and extremes in hot and cold. Imbalances can be caused by foods; emotional states (anger, grief, anxiety); hard physical work; changes in environment/climate, or alteration of body status such as pregnancy and childbirth. Pregnancy is a hot condition and the woman is not seen as particularly vulnerable. However childbirth rapidly cools down the body and the postpartum woman is considered cold and extremely vulnerable. The *Ang Pleung* is set up as a matter of urgency as soon as the placenta has been delivered. The mother is then confined to the roasting bed and exempt from her normal duties. When the fire is made with wood, especially during the wet season, it produces a lot of smoke in the room where the mother and (possibly) baby are lying.

"Hot" injections, for those that can afford them, are considered a more convenient alternative to *Ang Pleung.* Injections may include vitamins C and B complex, calcium and antibiotics.

Practices complementary to *Ang Pleung:*
During and after *Ang Pleung,* other complementary practices help the mother regain a balanced state and prevent *toah* (relapse that may lead to death or remaining in a weakened state, not able to work):

i) Drinking the *Tnam K'mai* (traditional herbs)
Traditional herbs, steeped in water or rice wine, are drunk in copious amounts. Although alcohol is considered "hot", there seems no obligation for the mother to drink the herbs in rice wine unless she enjoys alcohol.

ii) Eating "hot" foods
To enhance the heating process, "hot" foods should be consumed. There are some inconsistencies over what constitutes hot and cold food, however it would seem that they can be separated broadly into: animal origin and energy foods (hot); vegetable and fruits (cold). Rice appears to be considered neutral. Mothers should eat three times a day during *Ang*

Pleung. Preferably, meals should include meat or fish. In reality, most mothers eat rice (*borbor sor*) cooked with salt (hot) and lots of pepper (hot). Vegetables are forbidden while the mother remains unbalanced, but extended food restrictions and fears of initiating *toah ma-hope* (relapse induced by food) is a luxury that many of Cambodia's hungry poor can not afford.

Although it seems clear that the practice of *Ang Pleung* interferes with initiation of breastfeeding, it can be viewed as a positive experience for the mother: a time when she can legitimately rest, be fed three times a day and be cared for by her husband.

References

Hoban, E. 2002. We're Safe and Happy Already. Ph.D. diss., University of Melbourne.

Khulmann, T. 2004. *Traditional Infant Feeding in Two Cambodian Villages: Mother's Practices, Knowledge and Beliefs.* **GTZ**

White, P.M. 1995. *Crossing the River: Traditional Beliefs and Practices of Khmer Women During Pregnancy, Birth and Postpartum.* Initiated by NMCHC.