

Ministry of Health
Health Sector Support Project

INFANT AND YOUNG CHILD FEEDING PRACTICES IN
SELECTED PROVINCES OF THE KINGDOM OF
CAMBODIA: A REPORT

prepared by

SBK Research and Development

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ACRONYMS & ABBREVIATIONS

CARD	Council for Agriculture and Rural Development
CDHS	Cambodia Demographic and Health Survey
CMDG	Cambodia Millennium Development Goals
CSES	Cambodia Socio-Economic Survey
FCT	Food Composition Table
HSSP	Health Sector Support Project
IEC	Information and education campaigns
MCN	Maternal and Child Nutrition
MoH	Ministry of Health
MoP	Ministry of Planning
NNP	National Nutrition Programme
NPRS	National Poverty Reduction Strategy
NSDP	National Strategic Development Plan
OD	Operational District
PHD	Provincial Health Department
RGC	Royal Government of Cambodia
TIPS	Trials of Improved Practices
WHO	World Health Organisation

EXECUTIVE SUMMARY

Rates of malnutrition are extremely high in Cambodia. In 2000, the Cambodia Demographic and Health Survey found that 44.6% of children between 0-5 years were stunted (low height/age), 45.2% of children were underweight (low weight/age), and 15% were wasted (low weight/height). High rates of extreme malnutrition also exist: 20.5% of children are severely stunted, 12.6% are severely underweight, and 3.9% are severely wasted.

As part of the country's efforts to improve the quality of nutrition interventions in the health sector, the *Field Research Study on Infant and Young Child Feeding Practices in Selected Provinces of Cambodia* was conceived and carried out in the 5 pre-selected provinces of Stung Treng, Kratie, Prey Veng, Kampot, and Battambang. These provinces were selected purposefully to be representative of the main geographic regions of the country.

This report describes the infant and young child feeding practices in five provinces of Cambodia. The main purpose of this research study is to provide useful information from families and communities to develop appropriate feeding recommendations for children less than two years of age. These recommendations are then to pave for the creation of a counselling and other educational materials (for IEC campaigns), which are to be developed in detail by a different agency with specialisation in this work. The messages and materials will be used by primary health care workers at the health centres and during outreach activities at the village level, with the aim of preventing growth failure in infants and young children during their first two years of life. Specifically, the objectives of this research are as follows:

1. To gain a fuller understanding of current feeding practices and those that impede or facilitate adequate nutrient intake in children less than two years of age in the different regions of Cambodia;
2. To identify attitudinal or environmental factors that determine current feeding practices;
3. To engage mothers in determining the most feasible and efficacious ways to improve feeding practices to ensure improved nutrient intakes of both well and sick children less than two years of age;
4. To gain an in-depth understanding of factors that act as constraints to mothers' willingness or capability to improve feeding practices as well as factors that enhance or motivate improvements in feeding practices; and
5. To review and revise the current feeding recommendations based on the above results.

This study employed a consultative research approach, and collected information in phases, and applied both qualitative and quantitative analysis. Information was collected primarily from different people involved in providing care for infants and young children. These included mothers, health workers, community leaders or other family members who influence infant and young child feeding in the home.

In Phase 1 of the study, recipe trials and in-depth exploratory interviews were conducted to refine the counselling guides to be used for the survey on Trials of Improved Practices (TIPS). Phase 2 of the study involved the identification of feeding problems among the children aged 0-23 months old and presenting recommendations to change such behaviours. The TIPS involved three steps: a) initial visit or problem identification, b) counselling visit or presentation of the problems to the mothers and providing recommendations for them to try; and c) follow-up visit to determine the outcome of the TIPS.

A total of 110 mothers with children aged 0- 23 months old (~22 per province) were interviewed regarding infant and young child feeding practices. Five pregnant women (~1 per province) were interviewed on breastfeeding initiation and 20 key informants (~4 per province) were asked on health and nutrition situations in the areas.

KEY FINDINGS

Feeding Practices

1. The practice of breastfeeding (for 0-23 months old) and exclusive breastfeeding (for 0-6 months old) among the study's sample mothers is almost universal. More than half of the study population initiated breastfeeding immediately after birth and nearly all of the mothers provided *colostrum* to their child. The recommended frequency of breastfeeding is practiced by most of the mothers.
2. Introduction of complementary foods at the age of 6 months is practiced by more than 70% of the mothers. *Bobor*, which is the most available semi-solid food for the young children in the rural villages, is the first complementary food introduced by majority of the mothers.
3. The most common feeding problems identified based on the counselling guides were the following:

For the 6-11 months old

- Infants were fed watery *bobor*, not energy or nutrient dense
- Infants were fed only soup liquid with rice
- There was inadequate amount, frequency and variety in the diet of the young children

For the 12-23 months old

- Delayed introduction of family foods, not enough variety in the diet
- Inadequate amount, frequency and variety in the diet of the young children
- Child eats by him/herself or with older siblings and does not finish meal

Dietary Intake

1. More than 50% of the children did not meet the daily energy requirement;
2. The diets of children are low in Iron (90.2%), Vitamin A (68.3%), and Calcium (91.5%) for which a large percentage of the subjects did not meet the recommended intakes. However, 87.8% and 73.2% of the children met the recommended Protein and Vitamin C intakes, respectively.

Results of TIPS

1. Most of the mothers agreed to try the recommendations presented concerning improvements in child feeding practices. The mothers somehow did something to improve their child's diet in terms of the quantity and quality of meals. Nevertheless, most mothers could not carry out the whole trials due to problems such as difficulty in feeding the child with increased amounts of food to meet the recommended quantity of food to be served and limited available resources to buy quality foods for the children.
2. The acceptability and feasibility of the recommendations suggested to the mothers based on the TIPS are given below:

RECOMMENDATION NO.	RECOMMENDATION	CONCLUSION
0-5 MONTHS OLD		
1	Use both breasts at each feeding and feed until the breasts feel soft	This recommendation is feasible for the mothers with children in this age-group, especially since most mothers practice exclusive breastfeeding.
2	Stop giving the child water	Although only tried by one mother, this practice appears to be feasible for the mothers to do especially since most children in this age group are predominantly breastfed.
6-11 MONTHS OLD		
BREASTFEEDING PRACTICES:		
1	Use both breasts at each feeding and feed long enough so the breasts feel soft	This recommendation is feasible for the mothers with children in this age-group, especially since most mothers practice exclusive breastfeeding.
2	Express breast milk and have others give to the baby with cup and spoon or just a cup	Based on these results, it can be said that this recommendation is not feasible. It is possible that mothers need more education and support on how to express their milk properly and to overcome their belief that they do not have enough milk to express and leave for their children when they leave the house.
3	Breastfeed more frequently when at home and during the night, on demand.	Though only one mother tried the recommendation, it is possible for the mothers to feed their children on demand.
COMPLEMENTARY FEEDING PRACTICES:		
4	Start feeding soft foods, such as thick <i>bobor</i> or soft steamed rice (<i>bay cham hoy</i>) with chopped fish, egg or meat and mashed pumpkin or green vegetable, after breastmilk.	With proper information on initiation of complementary feeding, this practice can be feasible for the mothers to do.
Quality of food		
5	Make <i>bobor</i> with less water so it is thicker, and add mashed fish, egg or chopped meat and pumpkin, and green vegetable, after breastmilk.	This recommendation is feasible, although most mothers were more willing to add fish or meat to <i>bobor</i> than vegetables.
6	Add oil to <i>bobor</i> when cooking	Although most of the mothers were not using oil in the <i>bobor</i> , they were able to try it. This recommendation is feasible, and cooking oil is always available in the market.

7	Add the fish or meat and vegetables to the rice, not just the liquid	It can be said that, most mothers can adapt this practice since it is less time consuming than to prepare a different dish for the child. With proper information on food preparation, this recommendation can be doable.
8	Add vegetables and meat to the rice to the child's diet	Based on the responses given by the mothers, it can be said that this recommendation can be put into practice. With proper information and guidance, mothers can be taught how they can make use of the available vegetables in their surroundings.
9	Increase meal frequency until baby is fed 2 times per day (6 months) or 3 times per day (7-12 months)	Despite the inability of some mothers to provide the recommended number of meals, mothers have shown to adapt to recommended practice. Therefore, the aforementioned recommendation can be feasible for the mothers to continue
10	Gradually increase the amount of food given to baby until the child is eating at least 1/3 of small bowl (or 2-3Tbsps.) per meal (for 6 months)	This recommendation is difficult for the mothers to do since most of them believe that younger children are too small to be fed. Infants can be fed in small frequent feedings and make them use to feeding rather than make abrupt changes in the amount of food to feed.
11	Gradually increase the amount of food given to baby until the child is eating at least 1/2 of small bowl (for 7-11 months)	Among the recommendations presented, this is the most difficult for mothers to do. Most mothers think that providing ½ small bowl is too much for their young child to eat. This practice is not feasible for the mothers to do. It is recommended instead that small frequent feeding be provided in order to make the young children used to eating rather than providing a large amount of food in one eating.
12	Motivate and help your child to finish all his food.	While this recommendation can be feasible, it is important that other caregivers (aside from the mothers) have the same aspirations for the child.

12-23 MONTHS OLD

BREASTFEEDING PRACTICES:

1	Express breastmilk and have others give to baby with cup and spoon or just a cup	Expressing breast milk is a totally new practice among the mothers in the study sites. There are certain issues that need to be considered such as storage of milk and ability of the mothers to express breast milk. This recommendation is not feasible for the mothers considering the living
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conditions in the rural villages.

COMPLEMENTARY FEEDING PRACTICES:

Quality of food

- | | | |
|---|---|---|
| 2 | If you feed the child soup with rice, give him/her the ingredients in the soup, including fish or meat and vegetables | This recommendation can be feasible if the misconceptions on foods are corrected. |
| 3 | Add vegetables and meat to the rice at each meal | Based on the responses given by the mothers, it can be said that this recommendation can be put into practice. With proper information and guidance, mothers can be taught how they can make use of the available vegetables in their surroundings. |

Frequency and quantity of meals

- | | | |
|---|---|---|
| 4 | Increase feeding frequency of meals until the child is fed 3 times per day plus 2 snacks | Financial constraints become an issue when it comes to buying food for the family. This recommendation can be feasible but providing quality snacks should also be considered and emphasised. |
| 5 | Gradually increase the amount of food until you are giving your child 1 small bowl of food at each meal | Among the recommendations offered, this is the hardest that the mothers can actually practice. Although the amounts served were increased at a certain point, still it is not enough to meet one small bowl as recommended. |

Feeding behaviour

- | | | |
|---|---|---|
| 6 | Help your child to eat; do not leave your child to eat by him/herself. Motivate your child to finish all his/her meal | This recommendation can be feasible with the support of other household members to look after the younger children when the mother is not around. |
|---|---|---|

Factors that act as constraints or facilitators in practicing the recommendations

- *Limited financial resources* - the ability to buy certain foods such as fish and meat becomes an issue when the family does not have enough money;
- *Availability and accessibility of food* – the condition in the villages affect the availability and accessibility of food. For instance, this commodity becomes scarce during the dry season because of lack of water, thus making it difficult for families to plant and catch fish. During the wet season, the road is difficult, making the transportation very limited;
- *Misconceptions or beliefs about certain foods* - There are certain foods that the mothers frequently reported as harmful to their child's health (e.g., morning glory, pineapple and pumpkin). The lack of information about nutrition is an important factor that has to be addressed in order for the mothers to be fully aware of the benefits that their children can get from vegetables;

- *Changes in health status and behaviours of the children as perceived by the mothers* - The health of the children remains the mothers' primary concern regardless of how inadequate their resources are. The mothers' attitude towards the practices are motivated by the changes they see among their children such as becoming healthier, happier, sleeping longer, playing more and not distracting the mothers while working because the children seemed more satisfied;

Given the above findings, the following are the recommendations that this study poses:

1. The identified barriers or constraints should be addressed to help the mothers put into practice the recommended feeding practices. This can be done by:
 - Enhancing capacity building among the mothers in rural villages
 - Using "key phrases" pertaining to growth and health in information materials as motivations to improve feeding practice
 - Educating mothers to correct misconceptions on food
 - Employing radio and television (including posters) as key media forms for receiving information on infant and young child feeding practices. The health workers who are considered to have the most influence among the mothers in terms of health information should continue to advocate and educate the mothers about proper infant and young child feeding. It may be helpful that the health workers be given continuous education and training on nutrition by the health personnel in order to acquire more knowledge and skills and can be more effective as advocates of health improvements in the villages.
2. The use of the counselling guides plays a vital role in motivating the mothers to improve their feeding practices. However, there is a need to refine the counselling guides to effectively provide more definite feeding guidelines to the mothers. This can be done by considering the following:
 - Defining the actual size of small bowl in terms of household measurement (i.e. the use of "*chan jang koer*" as a reference bowl as recommended by the NNP);
 - Providing clear quantifiable amounts that mothers can actually measure such as how many teaspoons or tablespoons of each food item should be provided in order to meet the recommended energy and nutrient intakes per day;
 - Establishing specific guidelines that the mothers should actually follow. For instance, one recommendation should specify one specific feeding problem rather than having 2 or more recommendations in one guideline;
3. Policy implications and future consideration:
 - The positive infant/ child feeding practices found among the mothers in the study should be continuously and strongly promoted. These relate to exclusive breastfeeding among the 0-5 months old and continued breastfeeding among the 6-23 months old children. Practices that require attention and that should receive priority in education and behaviour-change programmes include the following: provision of watery "*bobo*", inadequate amount and variety in the diet of the young children, delayed introduction of complementary foods, and leaving the child to eat by him/herself.
 - Iron and vitamin A intakes among the children in this study are very low. For the programme planners, there is a need to look deeper into the situation by gathering baseline information

of their true iron and vitamin A status. This will serve as a strong basis for a need to implement iron supplementation and to strengthen the programme for vitamin A supplementation; and

- The need to develop dietary materials that will assist the programme planners of Cambodia in providing scientific basis for future feeding recommendations (such as the Food Composition Tables and the Food Exchange List).

I. INTRODUCTION

A. BACKGROUND INFORMATION

Malnutrition in Cambodia

Rates of malnutrition are extremely high in Cambodia. In 2000, the Cambodia Demographic and Health Survey found that 44.6% of children between 0-5 years were stunted (low height/age), 45.2% of children were underweight (low weight/age), and 15% were wasted (low weight/height). High rates of extreme malnutrition also exist: 20.5% of children are severely stunted, 12.6% are severely underweight, and 3.9% are severely wasted.

Recent estimates in the incidence of malnutrition in the country indicate that there has been no improvement since the 2000 CDHS (The World Bank, 2006:113-114). Patterns show variations in malnutrition by socio-economic status and geography such that the problem in children under 5 years is significantly higher:

- by per capita consumption quintile (at 57.8% stunted and 53.9% underweight among the poorest compared to 48.4% and 36.5% stunted and underweight, respectively, among the richest)
- by educational status (51.6% of children are underweight when their mothers had no education compared to 34.3% when their mothers had at least a secondary education);
- by birth order (43.6% are underweight when their mothers have only had 1 child compared to 49.5% when their mothers have had more than 6 children);
- by birth interval (52.2% are underweight when their mothers had a previous birth less than 24 months before, compared to 39.6% with underweight when their mothers had a previous birth more than 48 months before);
- in rural areas compared to urban areas (45.7% in rural areas compared to 38.1% in urban areas for stunting; 46% as against 37.95% for underweight; 15.4% as opposed to 12.6% for wasting);
- by region (from 35% and 39.5% of children underweight in Phnom Penh and Banteay Mean Chey, respectively, compared to the incidence of low weight for age at 54.0% in Mondol Kiri / Rotanak Kiri and 56.8% in Prey Veng).

Malnutrition is a major contributor to early childhood mortality in Cambodia, and there are estimates that 54% of childhood deaths are associated with it (Maternal and Child Nutrition in Asia, 2005:3). Its incidence is attributed to a range of factors, the main ones being inadequate access to food, inadequate care for children and women, as well as insufficient health services and unhealthy environment (Food Security and Nutrition Information System website www.foodsecurity.gov.kh). Poor feeding practices in particular, especially complementary feeding practices, have been said to place infants and young children at high risk very early in life (Maternal and Child Nutrition in Asia, 2005:6; NPRS, 2002:94). Such practices are often shaped by the mothers' or caregivers' lack of knowledge, which in turn can be a function of their low educational levels or inability to read and write, as well as lack of access to information and/or various communication channels.

Feeding Practices in Children under Two Years of Age

Acute and chronic illnesses as well as inadequate feeding practices are among the principal causes of poor growth in Cambodian children. Among the few sources of information on feeding practices in children under two are the recent Cambodia Socio-Economic Survey (CSES), the CDHS 2000 and two studies of limited geographical scope conducted by Helen Keller International (HKI). One of

these was in Takeo province in 1997, and describes breastfeeding and weaning practices in a sample of 57 mothers; the other was conducted in 2000 and reports on household trials for adaptation of feeding recommendations proposed by the World Health Organisation (WHO) as part of the Integrated Management of Childhood Illness (IMC) protocols. The household trials were conducted in Takeo, Kampong Chhnang and Siem Riep provinces.

A summary of feeding problems by age group that were identified through a review of available literature are described below:

- Birth/ 0-5 mo: The initiation of breast-feeding is delayed in most infants, so many do not receive colostrum; many also receive pre-lacteal feeds. Most infants are breastfed, but breastfeeding is not exclusive for most children under 6 mo. Water is the most commonly used supplement for infants under 6 mo, but some mothers also give food, and a number of mothers use bottles as the key mode of feeding between birth and 6 mo.
- 6-8 mo: Breastfeeding continues for most infants but feeding is delayed beyond this age in about 30%. *Bobor*, a watery rice porridge prepared with water and salt is the usual food given to babies during this period. Feeding frequency is less than 3 times per day, and the amount of food given is less than 5 tablespoons per meal. Some babies receive bottles.
- 9-11 mo: Breastfeeding continues for over 90% of infants nationally, however 15% are still not receiving complementary feeding. About 20% receive bottles. Complementary foods include mostly grains; meat, fish, fruit and vegetables are less frequent. There is not much specific information about this age group since HKI studies do not include this age group separately.
- 12-23 mo: There is still a high rate of breast feeding in this age group, although at 23 mo only about 60% of children continue to be breastfed. There is delayed introduction of family foods and a lack of variety in the diet. Feeding frequency is inadequate and the amount of food fed to the child at each meal is insufficient. Children are also anorexic in this age group, probably due to chronic low intake, frequent illness and multiple micronutrient deficiencies.

There are still many gaps to be filled in with regards to information on infant and young child feeding practices in different age groups as well as factors that motivate current practices or act as constraints to improving practices. For example, there is practically no information on feeding sick children; traditional ways of stimulating children's appetites need to be explored. In general there is a need to learn about the energy density of common foods given to children in the different age groups, as well as acceptable ways to improve these foods. In infants, it is not known whether maternal fear of human immunodeficiency virus (HIV) transmission is affecting breastfeeding practices. Overall, much more needs to be learned about the feasibility of improving infant and young child feeding behaviours and practice, since the previous research conducted by HKI concluded that mothers were willing to do almost all of the recommendations included in the IMC feeding protocols. Only a few changes needed to be made to the draft national guidelines that had already been adapted from the feeding guidelines from the Philippines and the generic WHO feeding recommendations.

National Goals towards Improving Infant and Young Child Feeding Practices

The importance and priority that the Royal Government of Cambodia (RGC) has placed in mitigating the incidence of malnutrition in infants and young children has been visible in the various initiatives and programmes that it has instituted. Central to these are a 2006 Annual Operational Plan of the National Nutrition Programme, the Health Sector Strategic Plan 2003-2007, and the 1999-2008 Cambodian Nutrition Investment Plan, the latter focusing on improving the nutrition and well-being of children under 5 years and pregnant women (Maternal and Child Nutrition in Asia, 2005:11). More

recent efforts are evident in the setting of targets in the Cambodia Millennium Development Goals (CMDGs) to reduce child mortality. Directly addressing prevailing feeding practices are the goals to increase the 2000 base year rates of (a) 11.4% of infants exclusively breastfed up to 6 months of age to 34% by 2010 and 49% by 2015, and (b) 11% of mothers who start breast-feeding newborn child within 1 hour of birth to 45% and 62% by 2010 and 2015, respectively (MoP, 2003:41). These targets are reiterated in the country's National Strategic Development Plan (NSDP), which consolidates the country's development efforts and articulates the RGC's commitment to substantially improving "physical and economic access to sufficient, safe and nutritious food at all times to meet...dietary needs..." (RGC, 2006:47).

Translating the above goals into action is undertaken by the RGC through the Health Sector Support Project (HSSP) of the Ministry of Health (MOH). Through the HSSP in general and the National Nutrition Programme (NNP) in particular, the government is supporting the delivery of a package of cost effective interventions (including Studies and Technical Assistance) towards the adoption of essential nutrition behaviours by a majority of HSSP's target groups living in rural areas of 12 provinces selected for World Bank funding support. As part of the country's efforts to improve the quality of nutrition interventions in the health sector, the *Field Research Study on Infant and Young Child Feeding Practices in Selected Provinces of Cambodia* was conceived and carried out in the 5 pre-selected provinces of Stung Treng, Kratie, Prey Veng, Kampot, and Battambang. These provinces were selected purposefully to be representative of the main geographic regions of the country.

B. PURPOSE AND OBJECTIVES OF THE RESEARCH

The purpose of this research study is to provide useful information and data from families and communities to develop appropriate feeding recommendations for children less than two years of age in Cambodia. These recommendations are then to pave for the creation of a counselling material and other educational materials (for IEC campaigns) which are to be developed in detail by a different agency with specialisation in this work. The identified key practices and materials will be used by primary health care workers at the health centres and during village outreach activities, with the goal of preventing growth failure in infants and young children during their first two years of life.

The specific objectives then of the research are as follows:

1. To gain a fuller understanding of current feeding practices and those that impede or facilitate adequate nutrient intake in children less than two years of age in the different regions of Cambodia;
2. To identify attitudinal or environmental factors that determine current feeding practices;
3. To engage mothers in determining the most feasible and efficacious ways to improve feeding practices to ensure improved nutrient intakes of both well and sick children less than two years of age;
4. To gain an in-depth understanding of factors that act as constraints to mothers' willingness or capability to improve feeding practices as well as factors that enhance or motivate improvements in feeding practices; and
5. To review and revise the current feeding recommendations based on the above results.

Implementation of the field research study for the HSSP-MOH was sub-contracted to SBK Research and Development, a local consulting firm. Through this firm, a team was formed consisting of a Team Leader, an Assistant Team Leader, a Junior Nutritionist, and 5 Research Assistants.

Providing technical support to this Cambodia-based team is the World Bank-supported Senior Nutrition Specialist associated with The Manoff Group, an organisation that provides assistance in communications and behaviour-centred planning, management and evaluations for health, nutrition, and population projects. On two occasions in 2005, Dr. Janet Irene Picado, the Senior Nutrition Specialist, came to Cambodia to assist in the training of the team on the research methods, including the field work in its initial phases. She also provided significant inputs into the improvement of the report, especially its technical aspects.

The study was designed and carried out with full collaboration of the National Nutrition Programme (NNP) of the Ministry of Health. Other stakeholders were similarly consulted and kept abreast of the key developments on the study. These stakeholders included the Infant and Young Child Feeding Practices Working Group and the World Health Organisation (WHO), through Ms. La Ong Tokmoh.

II. METHODS

A. STUDY DESIGN

This study employed a consultative research approach, collected information in phases, and applied both qualitative and quantitative analysis. Information was gathered primarily from different people involved in providing care for infants and young children. These included mothers, health workers, community leaders or other family members who influence infant and young child feeding in the home.

The research was carried out in two phases: Phase 1, during which the Research Team undertook recipe trials and conducted in-depth exploratory interviews to firm up counselling guides with a menu of recommendations which served as inputs into the Trials of Improved Practices (TIPS). Recipe trials involve bringing a small group of mothers and children together in a setting where special foods or food mixes are prepared, tasted and discussed (Dickin et al, 1997:5.16). As applied in other countries, the recipe trials for this study sought to get a better understanding of how food is prepared for infants and young children and to develop and test recipes for appropriateness and acceptability to infants and young children. Information derived from these trials were analysed and also contributed to the refinement of the counselling guides which had been tentatively developed prior to the conduct of the research. The in-depth exploratory interviews, on the other hand, followed a conversation approach to soliciting information from among a different set of mothers. It employed open-ended questions focused on the mothers' perceptions, beliefs and opinions regarding child feeding practices. Results of this semi-structured interview consisted of summaries of breastfeeding and complementary practices, as well as of facilitators and barriers to each ideal breastfeeding and complementary feeding practice. These also served as inputs into the fine-tuning of the counselling guides.

Phase 2 or the Trials of Improved Practices, formed the core method of this research. Aimed at changing behaviours, it involved a three step process: (a) holding an initial visit to assess the health condition of the young child, child feeding practices and access to health services and health communication channels, etc; (b) conducting a counselling visit to engage the mothers in a dialogue on the findings of the initial visit and motivating them to select and apply recommendations on

improved practices; and (c) undertaking a follow up visit to determine outcomes of the mothers' trial of the improved practices they agreed to try. During this second phase, recipe trials were likewise conducted and served to confirm the recommendations derived during the first phase of the research.

Towards the research objectives and correspondingly with the above research phases, structured data collection instruments/ guides and tools were designed which drew upon existing instruments that have been developed and used in a number of countries. These instruments were tailored for each group of research participants (i.e., mothers of 0-23 month-old children, pregnant women and key informants from the community) and were administered during the two phases of the research. Below are the guides and tools that had been employed according to the study phases ([Annex 1](#)):

STUDY PHASE	RESEARCH GUIDES AND TOOLS
Phases 1 & 2	01 Recipe Trial Forms
Phase 1	02 In-Depth Exploratory Interview Guide
Phase 2	03 TIPS Initial Visit
"	04 TIPS Counseling Visit
"	05 TIPS Follow up Visit
"	06 Matrix TIPS Analysis
"	07 24-Hour Recall Registration Form
"	08 Observation Registration Form
"	09 TIPS Pregnant Woman
"	10 Interview Guide for Health Worker, Community Leader, etc.

In conjunction with the research phases and to ensure the effective use of the above instruments, training of the field team was undertaken in two phases. The training for the recipe trials and the in-depth exploratory interviews took place on 29 June – 1 July 2005, with members of the NNP staff as resource persons. Pre-tests of Tools 01 and 02 were also part of the activity and were held in Kampong Speu. Subsequent recipe trials and in-depth exploratory interviews were also undertaken in four villages¹ of Kampong Cham on 3-4 July 2005². Analyses of the findings from these initial activities in Kampong Cham and Kampong Speu paved for the improvement of the Counselling Guides, shown in [Annex 2](#). These Counselling Guides were finalised after review by the NNP staff and members of the IYCF Working Group and formed an essential part of the TIPS phase of the research.

Training of the interviewers for the Trials of Improved Practices took place on 15-19 August 2005. With the Senior Nutrition Specialist/ Consultant and the Junior Nutritionist as facilitators, the training covered detailed discussions of the TIPS-related tools (i.e., Tools 01, 03-10) and their pre-testing in Kday Takoy in Kandal Province. Revisions were made during the training and tools were reformatted to facilitate the coding and encoding of the data.

¹ Of these 4 villages, 3 were in Kampong Cham while the fourth one was in Prey Veng. This was because the selected villages were in the border of the two provinces and the team did not realise that the fourth village was part of Prey Veng.

² Originally planned for Kratie, the Field Study Management Team agreed to shift the location due to the limited time of the Senior Nutrition Specialist/ Consultant in Cambodia. Conducting this in Kratie would have meant a half-day's travel to the province and another half-day to return to Phnom Penh.

Part of the preparations for the TIPS involved compiling a Cambodia specific food composition table (FCT), for which the NNP team had a major responsibility. The FCT was needed to analyse the food recall information gathered during the visit 1 and visit 3 of the TIPS process. An innovative part of this process involved coding this Cambodia-specific FCT for the *Propan* software. New food items obtained during the field work were added by the Field Research Team to the database and used in the course of the data processing. [Annex 3](#) contains this Cambodia-specific FCT.

B. STUDY SITES

The study was conducted in five (5) selected provinces of Cambodia, namely: Kratie, Prey Veng, Kampot, Battambang and Stung Treng. These provinces were chosen purposively to be representatives of the main geographic regions of the country. Kratie, located northwest of Phnom Penh, and Prey Veng, which is south of the capital and borders Vietnam, represented the flood plain lands near the rivers where most of the country's population live. Kampot is a mountainous region west of Phnom Penh and has a border with the sea. Battambang is a rich, highly populated region bordering Thailand. Stung Treng is a very poor region in the northern part of the country with both a mountainous area as well as river plain. Except for Battambang, these provinces are considered poor, with high levels of stunting (over 40%) in children under five years of age.

In each of these provinces, the Provincial Health Department (PHD) recommended the Operational Districts (ODs)³ from which the study villages were to be derived. Six (6) rural villages were subsequently selected from each of the identified ODs by the Assistant Team Leader and the Junior Nutritionist Consultant prior to the data collection. The process involved consultations with the officials from the PHDs, including the Nutrition Department of the Ministry of Health (MoH), with support from the World Health Organisation. Because a basic criterion for the village selection was its poor condition, those suggested by the Provincial Health Department officers were in some instances substituted with ones that fell within some established guidelines for determining poor villages, namely:⁴

- Remoteness
- Absence of accessible roads
- Lack of potable drinking water

Such substitution was done to increase the possibility of identifying feeding problems and their feasible solution among vulnerable populations. Limitations of time and the special challenges of trying to reach the more distant operational districts and villages during the rainy season constrained the team, however, to substitution of study sites that depicted the above criteria yet were relatively accessible. Of the six selected villages from each province, five were chosen for the TIPS and the sixth was selected for the conduct of the recipe trials.

³ ODs cover a population of between 100,000 and 200,000 persons and provide this population with a Complementary Package of Activities within the catchment area of a referral hospital. Each OD manages the health facilities (e.g., health centres, health posts, referral hospital) in its area and through its office, has ties to the MoH at the central level. ODs are not the same as administrative districts as the former can cross the boundaries of the latter.

⁴ Other criteria include no school or other educational facility, absence of a marketplace, no health centre, absence of irrigation system, no development project, and lack of arable land (ADB, 2001:6).

Table 1 below presents a summary of the study provinces, operational districts and the selected study villages, while Figure 1 shows maps of the study provinces depicting the locations of the study villages.

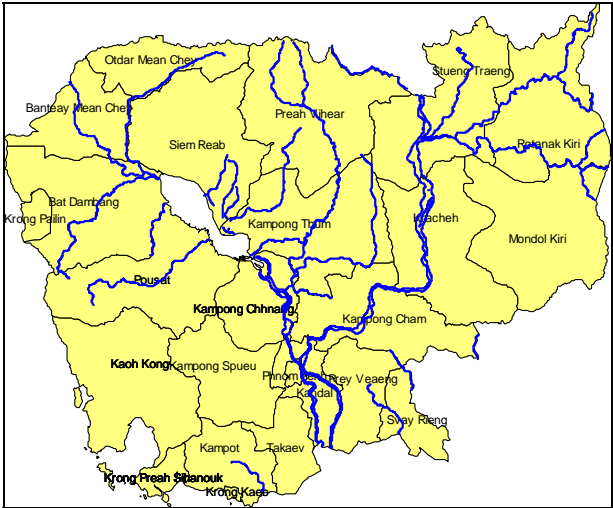
Table 1. Study provinces, operational districts, communes and villages

PROVINCE	OPERATIONAL DISTRICT	ADMINISTRATIVE DISTRICT	COMMUNE	VILLAGES ^{a/}
Kratie	Chhlong	Chhlong	Chhlong	Chhney Kampong Sre
		Prek Prosob	Prek Prosob	Dei Dskrom
		Snoul	Snoul	Snoul Watkat
			Ksim	Sre Themey
				Mil Krom (RT)
Stung Treng	Stung Treng	Siem Bok	Koh Sampeay	Koh Sampeay
			Koh Sralay	Svay
		Thala	Thala	O'Trel
		Sesan	Kampun	Kampun
			Sam Koi	Sam Koi
		Stung Treng	Samiki	Kamphan (RT)
Prey Veng	Neak Loeung	Ba Phnom	Chheur Kach	Trea Svay Prakma
	Kampong Trabek	Kampong Trabek	Kou Kchak	Hap Cham Reh
	Mesang	Mesang	Prey Romdieng	Kreul
			Trapang Srae	Srama (RT)
Kampot	Angkor Chey	Bantaey Meas	Trapeang Sala Khang	Keatha Vong Krom Sam Por
			Samrong Leu	Damnak Chambok Damnak Trayueng
			Wat Ang Khang Cheu	Ponhea Angkor
			Wat Ang Khang Tbong	Khnach (RT)
Battambang	Sanke	Sanke	Tapon	Samdach Beung Tem
			O'Dambang 1	Baoh Pou
			O'Dambang 2	Kampong Madouk
			Samraung Khnong	O'Trea
			Roka	Roka (RT)

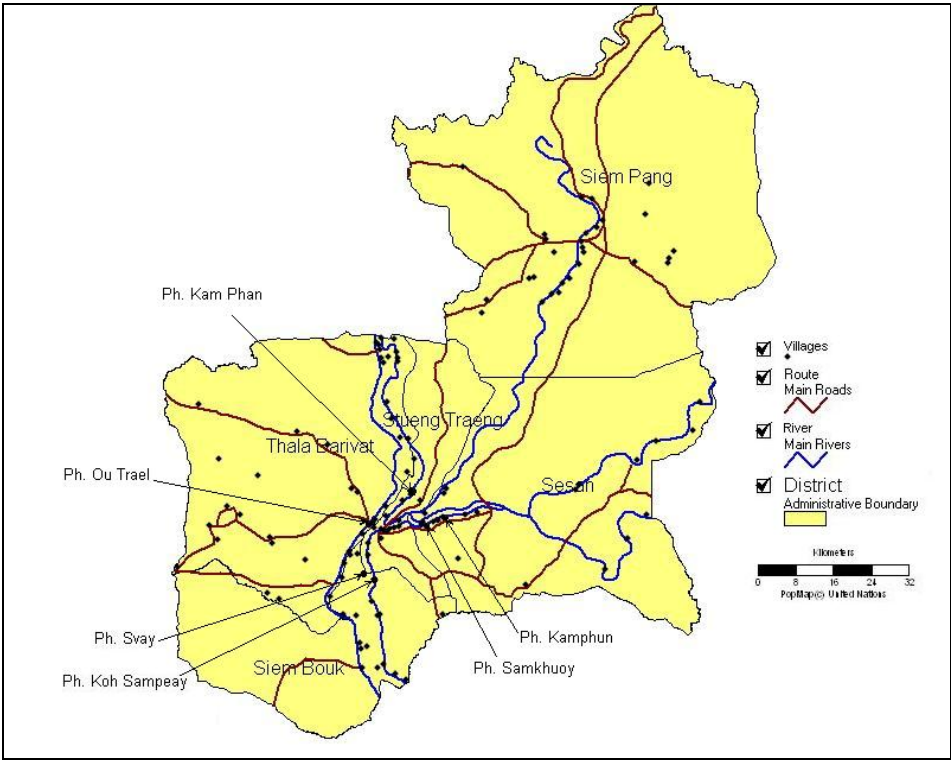
^{a/} RT denotes recipe trial villages.

Figure 1. Location Maps of Study Provinces and Villages Selected for TIPS and Recipe Trials

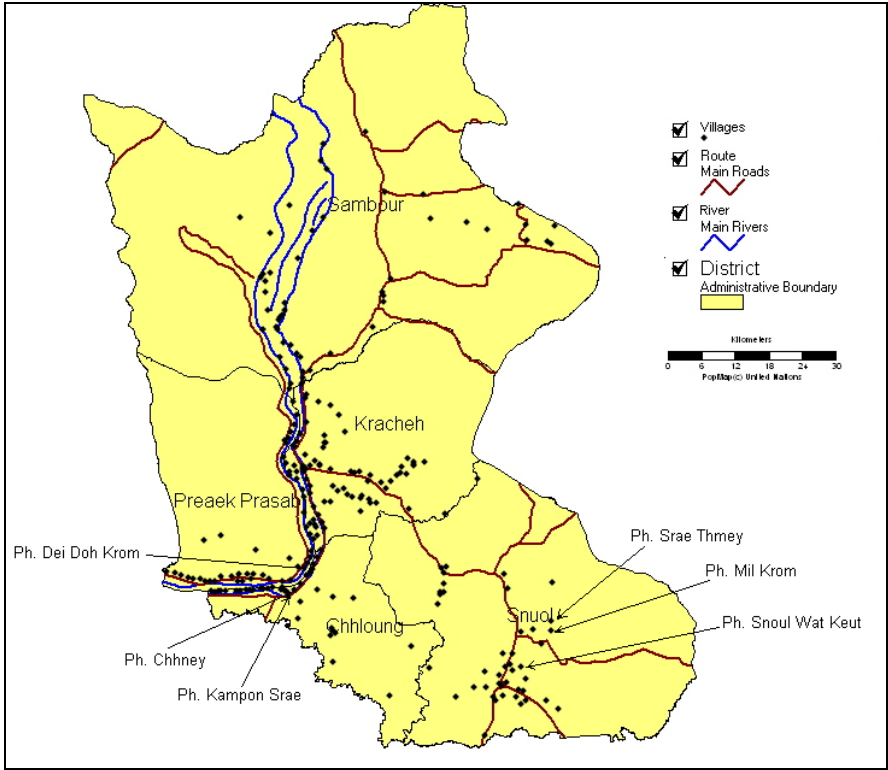
Map of Cambodia



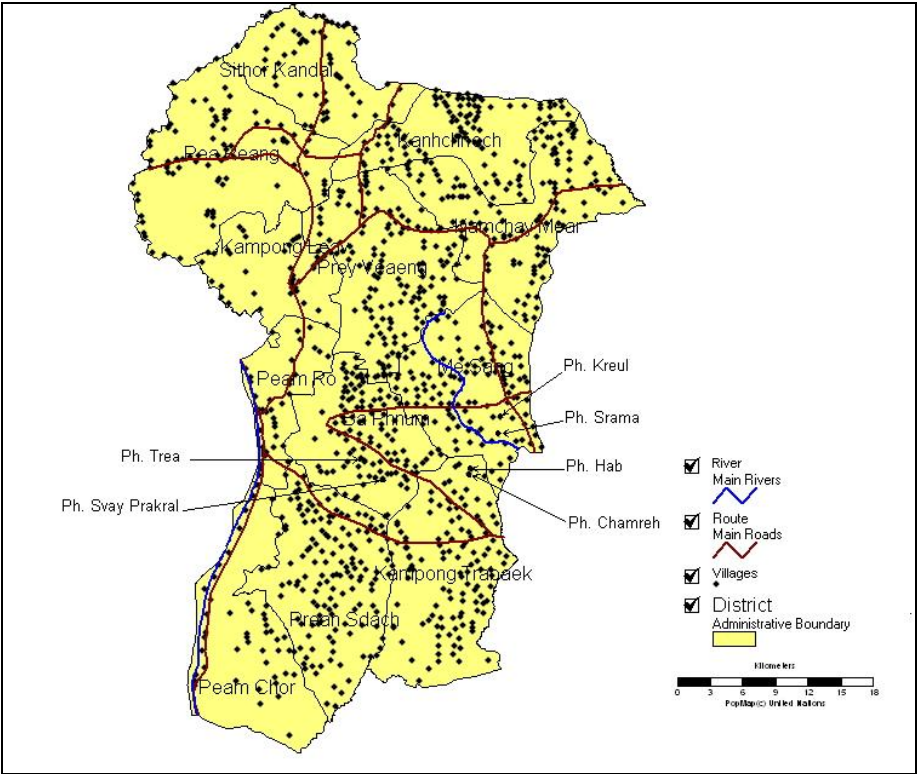
Stung Treng Province



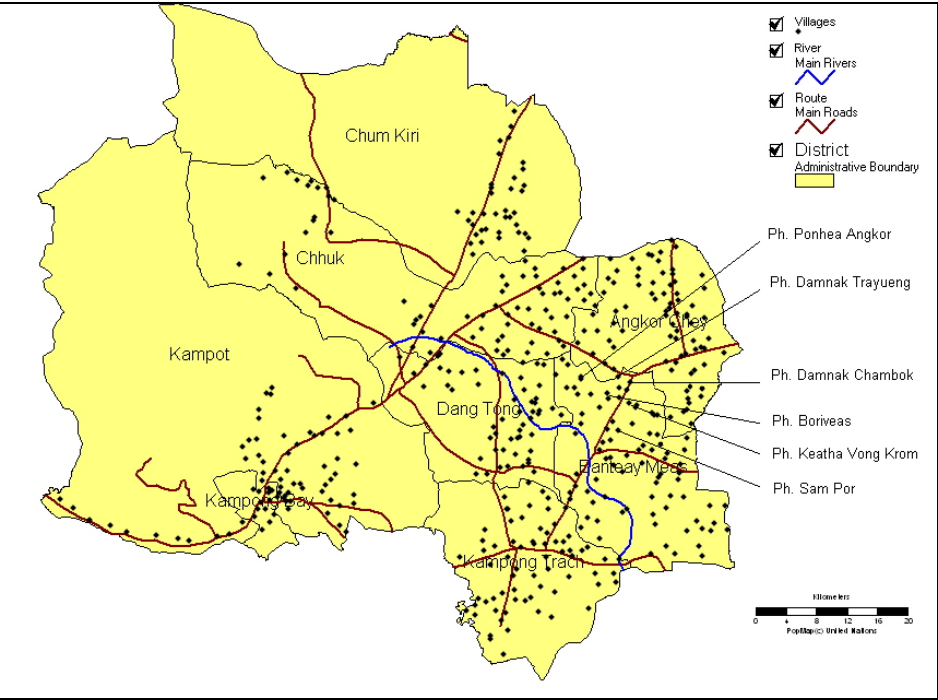
Kratie Province



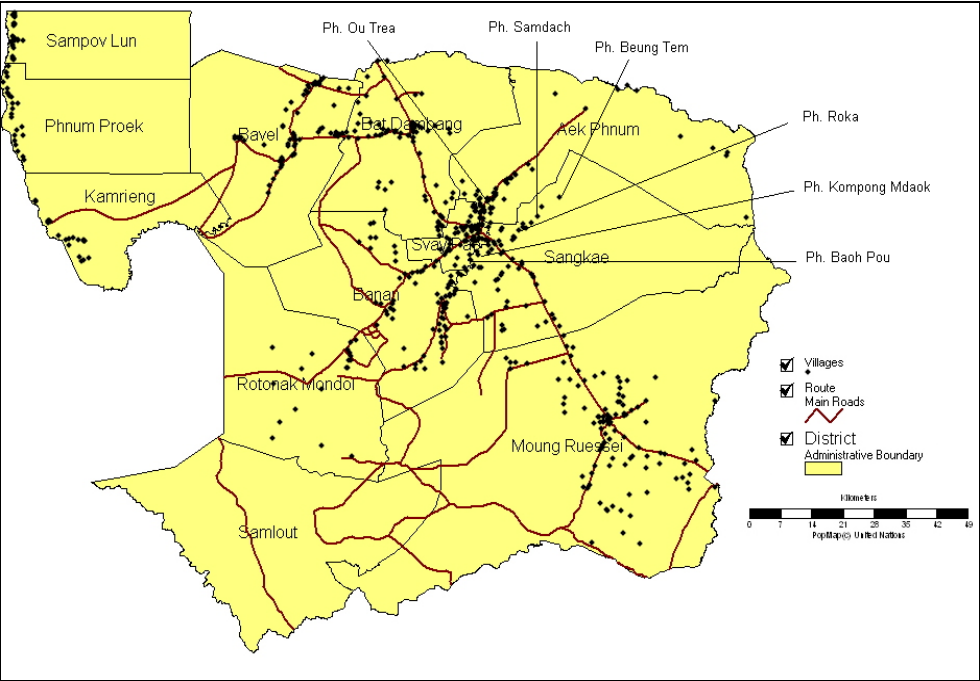
Prey Veng Province



Kampot Province



Battambang Province



C. STUDY SUBJECTS

The respondents for this study were mothers of 0-23 month old children, pregnant women, health workers and key-informants from the community. A total of 110 mothers (~22 mothers/province), 5 pregnant women within one week of due date (~1 pregnant woman/province) and 20 key informants (~4 key informants per province) were interviewed (Tables 2-4). The desired sample sizes per category of respondents were met except in Battambang where one mother was lost in the follow-up because of the Water Festival. In Stung Treng, it was not possible to identify a pregnant woman about to deliver. Hence, the number of pregnant women interviewed in Prey Veng was adjusted to meet the required total number for the study.

Lists of children with ages from 0-23 months were gathered from the health volunteers in the villages. Each list was arranged by age group (i.e. 0-5 mos., 6-8 mos., 9-11 mos., 12-23 mos.) and one child from each of the youngest age groups was randomly selected (by simple random sampling through 'draw lots') to be subjects of the research. Two children from the older age-groups were chosen.

Community informants were divided to provide information at two different levels. The village leaders, traditional birth attendants (TBA) and officials in the health sector were grouped as one level, while the health volunteers were grouped as another. Two persons from each category were interviewed per province.

Table 2. Number of mothers interviewed for the TIPS by province and village according to age group of children, 2005

PROVINCE	VILLAGES	AGE IN MONTHS				TOTAL
		0-5	6-8	9-11	12-23	
Kratie	Chhney	0	1	2	1	4
	Kampong Sre	1	0	1	2	4
	Dei Doskrom	1	2	0	2	5
	Snoul Watkat	1	1	1	2	5
	Sre Themey	0	1	2	1	4
	Total	3	5	6	8	22
Stung Treng	Koh Sampeay	1	1	0	3	5
	Phum Svay	1	3	0	1	5
	O'Trel	1	2	0	1	4
	Kampun	1	2	1	1	5
	Sam Koi	0	0	2	1	3
	Total	4	8	3	7	22
Prey Veng	Trea	0	0	3	1	4
	Svay Prakma	1	2	2	0	5
	Hap	2	2	1	0	5
	Cham Reh	1	1	2	1	5
	Kreul	0	0	2	1	3
	Total	4	5	10	3	22
Kampot	Keatha Vong Krom	1	2	0	2	5
	Sam Por	1	1	2	1	5
	Damnak Chambok	1	1	2	1	5
	Damnak Trayueng	1	2	1	1	5

	Ponhea Angkor	0	1	1	0	2
	Total	4	7	6	5	22
Battambang	Samdach	1*	1	2	1	4
	Beung Tem	2	1	1	1	5
	Baoh Pou	1	1	1	2	5
	Kampong Madouk	0	2	1	2	5
	O'Trea	0	2	0	0	2
	Total	3	7	5	6	21

* 1 mother lost to follow-up.

Table 3. Number of pregnant women interviewed per province, 2005

PROVINCE	TOTAL
Kratie	1
Stung Treng	0
Prey Veng	2
Kampot	1
Battambang	1
TOTAL	5

Table 4. Number of community health workers and leaders interviewed per province, 2005

PROVINCE	TOTAL
Kratie	4
Stung Treng	4
Prey Veng	4
Kampot	4
Battambang	4
TOTAL	20

D. DATA COLLECTION

As earlier noted, this study was conducted in two phases. Phase 1 took place in June and July 2005 during which recipe trials and in-depth exploratory interviews were held with mothers from 1 village in Kampong Speu (for the pre-tests and as part of the interviewers' training), 3 villages of Kampong Cham and 1 village in Prey Veng.

The data collection for Phase 2 of the study was undertaken from 23 August – 18 November 2005. The schedule per province was as follows:

PROVINCE	SCHEDULE OF SURVEY
Kratie	Aug. 23-31; Sept. 7-10
Stung Treng	Sept. 13-18; Sept. 23-27 ^{a/}
Prey Veng	Oct. 7-12; Oct. 17-19

Kampot	Oct. 21-26; Oct. 31-Nov. 2
Battambang	Nov. 5-10; Nov. 16-18

^{a/} The data collection in Stung Treng was extended for a week due to the weather. Since the team was advised not to travel after 2PM, the schedule for the follow-up, which was supposed to be done in 2 villages per day, was done in 1 village per day.

1. Trials of Improved Practices (TIPs)

TIPs were conducted among the mothers with children aged 0-23 months in three (3) visits and the pregnant woman in two (2) visits.

Mothers with 0-23 months old children

The 1st visit (*Initial visit*) was done to collect information about the current feeding practices. Structured questionnaires were administered and observations were made regarding the actual feeding practices and food preparation of the mothers. In some cases, observations were not possible during feeding because of the culture that household members do not normally eat in the presence of visitors. There were also instances when the mother claimed that the child had already eaten. The interviewers tried as much as possible not to interfere with the normal activities in the household to be able to record normal activities.

In addition, the 24-hour food recall was conducted to determine the actual intake of the child and the usual foods that are given to the child.

At the end of the initial visit, the information gathered was analyzed and discussed to identify the existing problems and strengths with regard to the feeding practices. Actual feeding practices recorded were then compared with the counselling guides and served as basis for giving specific recommendations to mothers on the problems identified.

The 2nd visit (*Counselling visit*) was conducted a day after the initial visit. Information gathered during the previous visit and the problems identified were discussed with the mother. At this point, specific recommendations were presented to the mothers according to the problems identified. Specific questions about the recommendations were then posed to the mothers. In some cases, more than one recommendation was presented to the mother and often, the mothers were willing to try the given recommendations.

The 3rd visit (*Follow-up visit*) was held 7-10 days after the counselling visit. This was conducted to determine if the recommendations presented were put into practice and whether or not the mother had been able to continue them, if they noted changes in the child, etc. A structured questionnaire was administered to determine compliance with the recommendations. The 24-hour food recall was repeated to ascertain any changes in the dietary pattern and nutrient intake of the children.

Pregnant women

The 1st visit to the pregnant woman was a combination of an initial and counselling visit. A structured questionnaire was administered specifically focusing on how the mother was planning to feed her newborn and how soon she would initiate breastfeeding after giving birth.

Breastfeeding within 1 hour after delivery was recommended to those who did not plan to put it into practice.

The 2nd visit was made after the mother had given birth to determine whether the recommendation was put into practice. Specific questions about the recommendation were asked to verify their compliance.

2. Recipe Trials

Six (6) mothers in each province with children aged 6-23 months were invited to participate in the recipe trial. Mothers were asked about the usual foods and their preparation for their children. They were also asked about the foods that are predominantly available in the village and affordable.

During the recipe trials, mothers were requested to cook food that is thick, and easy to prepare at home. The mothers decided which food preparation to use. All ingredients included in the trials were those largely available in the village and affordable. The preparation of food was limited to what the mothers can actually provide their children.

Observations were recorded during the conduct of the recipe trials and specific measurements and the method of cooking were listed down. When the food preparation appeared to be too watery (such as the preparation of *bobor*) or not very nutrient rich, the mothers were given suggestions on how to improve this and were asked to prepare the improved recipe. Cooking method and measurements of ingredients were recorded and acceptability of the improved recipe was noted.

3. In-depth Interviews with Key Informants and health workers

A semi-structured questionnaire was administered to key informants and health workers regarding food availability and health projects in the province.

E. DATA PROCESSING AND ANALYSIS

The processing and analysis of data employed methods that were appropriate to the qualitative and quantitative nature of the data. All responses to the qualitative questions particularly those to open-ended questions were first encoded into Word or Access and subsequently grouped according to corresponding analysis categories that emerged and/or were pre-established (e.g., by province, age groups, etc.). Where appropriate, these were entered/ imported into Excel for the purpose of generating the data summaries. Tables and charts were presented by province after which an overall summary was derived.

Processing of all the dietary information was accomplished using Propan, a software developed by the Pan American Health Organisation (PAHO) for analysing the nutrient content of child diets. Propan was also the programme used for the preparation of a Food Composition Table (FCT) that paved for the analysis of caloric intake and other nutrients present in the food intakes of the children. Also as appropriate, data were imported into the Statistical Package for the Social Sciences (SPSS) for the preparation of the data summaries and/or for the checking of observed patterns in the data.

F. RESEARCH CONSTRAINTS

1. Limited experience of the research team

Most of the field research interviewers had limited experience in conducting qualitative nutrition research and dietary assessment. Composed of individuals who represented different backgrounds (e.g., education, pharmacy and medical assistance), their experience had been largely as interviewers with local NGOs or governmental agencies. This limitation was addressed through two extended trainings to ensure that the interviewers had a good grasp of this study's concepts and qualitative information gathering techniques. Despite the extensive training and pre-tests, initial weaknesses surfaced in the early part of the research but they were gradually overcome as the interviewers gained confidence with time.

2. Limited sources of Food Composition Tables (FCT) with Khmer foods

The available Cambodian FCT does not include all the foods mentioned by mothers during the 24-hour food recalls. There was difficulty finding foods in other available FCTs that could be used as an alternate to analyze the dietary data. In addition, the translation of Cambodian foods to English proved to be quite challenging considering the many plant sources not previously recognized by nutritionists.

3. Difficulty in obtaining master lists for children 0-23 month-old

The team had a difficult time gathering the master list for each village since not all health volunteers had such a list. In addition, data collection coincided with the planting season and most of the mothers were in the field. In one such instance, sampling with replacement was undertaken so that the desired sample size was obtained. The team also encountered situations where the ages of the children in the list were inaccurate. To address this problem, the age group to be randomised in the next village was adjusted accordingly to fill-up the age group that could not be completed in the previous village since the desired number of children for each age group could not be found in a single village.

Most of the interview schedules among the mothers (especially for those working in the fields) were arranged by the health volunteers, and the validation of ages was done only during the actual interview.

4. Locating the pregnant woman who will deliver in a week's time

The number of pregnant women who were about to deliver in a week's time was very limited. Although the study only required one interview per province, it was difficult locating women who fulfilled this rigid requirement.

In addition, some pregnant women did not have due dates for delivery. For instance, in Stung Treng, one pregnant woman who said she was in her last stage of pregnancy and was to deliver in a week's time was interviewed. But upon return by the team for the follow-up, the woman had not given birth, and was not said to be due for three more weeks.

To compensate, the number of pregnant women to interview in another province was adjusted accordingly to meet the required number for the study (i.e. n=5).

III. RESULTS AND DISCUSSION

A. DESCRIPTION OF THE SAMPLE

Key descriptive information for mothers and children included in the study is presented to provide an in-depth background to better understand the infant and young child feeding practices. Demographic characteristics are described by province to illustrate any differences by geographical location.

1. Maternal characteristics

Table 5 presents selected maternal characteristics, by province. Almost all basic characteristics of mothers are the same regardless of province. Data obtained on maternal age, the number of children with ages 0-23 months old, and involvement in income generating activities do not vary by province. Just slightly less than half of the mothers were under 25 years of age so it was not a sample of young mothers but one that was well distributed by age. About half of the mothers were engaged in income generating activities while the other half was not.

The exception was level of education. Almost half of mothers in Kratie reported to have no schooling as compared to the mothers interviewed from the other four provinces. This observation is consistent with the data regarding the mothers' ability to read and write in that about two thirds (68.2%) of the mothers from Kratie said they were not literate. Overall, however, two thirds of the sample of mothers was literate. Respondents from Stung Treng, Prey Veng, Kampot and Battambang are similar in terms of their educational level obtained. In general, a small percentage of the respondents finished primary (11%) and secondary (5%) schooling.

Table 5. Characteristics of Mothers by Province

Variable	All subjects ^{a/}		Provinces ^{b/}				
	n	%	Kratie	Stung Treng	Prey Veng	Kampot	Battambang
Age							
18 - 22	15	13.64	0	3	6	3	3
23 - 25	35	31.82	10	5	9	7	4
26 - 29	18	16.36	6	0	3	4	5
30 - 33	15	13.64	1	7	0	2	5
34 - 37	16	14.55	2	4	4	3	3
38 - 41	9	8.18	3	2	0	2	2
42 - 44	2	1.82	0	1	0	1	0
Total number subjects (N)	110		22	22	22	22	22
Mean Age		27.89	28.14	29.32	25.05	27.95	28.73
Number of children with ages 0-23 months old							
1	108	98.18	22	21	22	21	22
2	2	1.82	0	1	0	1	0
Total number subjects (n)	110		22	22	22	22	22
Ability to read and write							
Yes	71	64.55	7	20	10	18	16
No	39	35.45	15	2	12	4	6
Total number subjects (n)	110		22	22	22	22	22

Level of Education							
No Schooling	25	22.73	10	1	7	2	5
Incomplete Primary	56	50.91	8	15	11	15	7
Completed Primary	12	10.91	1	3	2	2	4
Incomplete Secondary	11	10.00	1	1	2	2	5
Completed Secondary	6	5.45	2	2	0	1	1
Total number subjects (n)	110		22	22	22	22	22
Involvement in income generating activities							
Yes	56	50.91	11	14	13	11	7
No	54	49.09	11	8	9	11	15
Total number subjects (n)	110		22	22	44	22	22

^{a/} Results expressed as frequencies and percent of group

^{b/} Results expressed as frequencies

2. Child characteristics

The over-all distribution of children according to age group does not vary significantly by province (Table 6). Their mean age is about 9 months, due to over sampling of the young children when the pattern of poor practices often begins. There were more male young children than female at 56% and 43%, respectively, reflecting a national pattern among 0-4 year old children where there are more boys (11.8%) than girls (10.4%) (MoP, 2005:37). Nearly all of the infants and young children in each province had their mothers as their primary caregiver.

Table 6. Characteristics of Children by Province

Variable	All subjects ^{a/}		Provinces ^{b/}				
	n	%	Kratie	Stung Treng	Prey Veng	Kampot	Battambang
Age (in months)							
0-5	21	19.09	3	4	4	4	6
6-8	28	25.45	3	8	6	6	5
9-11	34	30.90	8	4	8	7	7
12-23	27	24.54	8	6	4	5	4
Total number subjects (n)	110		22	22	22	22	22
Mean Age		9.33	11.09	9.41	8.32	9.05	8.77
Sex							
Male	62	56.36	15	10	13	13	11
Female	48	43.64	7	12	9	9	11
Total number subjects (n)	110		22	22	22	22	22
Primary caregiver							
Mother of child	106	96.36	20	22	20	22	22
Female relative (grandmother, aunt, etc)	4	3.64	2	0	2	0	0
Total number subjects (n)	110		22	22	22	22	22

^{a/} Results expressed as frequencies and percent of group

^{b/} Results expressed as frequencies

B. GEOGRAPHIC AND HOUSEHOLD CONTEXTS

An understanding of geographic conditions, socio-economic, and demographic characteristics is necessary to fully analyse practices in the household and community. General descriptions of the geographic and household attributes are presented based on observations and informal interviews gathered from each village.

1. Geographic Characteristics

The villages selected for the study are situated mostly in remote areas of the provinces. Several villages are surrounded primarily by water such as in Kratie and Stung Treng. In Prey Veng, Kampot and Battambang, rice fields largely surround the villages.

Most of the respondents chosen for the study live in the “innermost” part of the village, where access to transportation is limited. Oftentimes, the research team had to walk a few kilometres through the floods and rice paddies to reach the respondents living in the middle of the rice fields.

Kratie

In relation to the other study provinces, Kratie may be said to be poorer because of flooding, remoteness, and inaccessibility by transportation. Here, three (3) ODs were chosen for the study, namely, Chhlong, Preak Prosob and Snoul.

In Chhlong, the villages of Chhney and Kampong Sre were selected. Chhney is a small village situated about 3 km away from the OD. The road is accessible to any type of vehicle. Rice fields surround the village, but during the rainy season, the village is usually under water. Kampong Sre is a poor village situated about two km from Chhney. The entire village is underwater for more than 3 months during the rainy season and is accessible only by small boats.

The Operational District of Preak Prosob is about 20 minutes ride by boat from Chhlong proper. Taken here as a study village is Dei Dskrom, which is located along the Mekong River. Dei Dskrom is about 5 km away from the docking area. The road condition is good and is accessible to all types of vehicles.

In the OD of Snoul, the villages of Snoul Watkat and Sre Themey were selected. Snoul Watkat is about 5 km away from the national road. The road condition is poor especially during the rainy season. Sre Themey is the farthest among the villages in Snoul. Limited transportation is available. The road going to Sre Themey is about 15 km away from the national road and is separated by a small river that is inaccessible to big vehicles. The village is about 3 km away from the river.

Stung Treng

Most of the study villages in this province are situated along the Mekong and Sesan Rivers. Accessible mainly by motor-boats, the selected villages of Koh Sampeay, Svay, O'Trel, Kampun and Sam Koi represented the OD of Stung Treng.

Koh Sampeay is a large village lying west of the provincial town and is about 25 minutes ride by boat from the provincial town. Svay is a poor village situated at the southwest of the provincial town, about 25 minutes by boat. O'Trel is approximately 10 minutes by boat, situated at the south of Stung Treng. Kampun is situated along the Sesan River, approximately 25 minutes from the town.

It is situated on the north of the town. Sam Koi is about 20 minutes ride by boat, situated on the north of the town. Unlike the other villages, Sam Koi has a fairly sizable land area for rice planting. Access to road is good.

Prey Veng

Three (3) ODs were chosen in this province for the conduct of the study: Neak Loeung, Kampong Trabek and Mesang. Most of the villages selected are situated in a large area of rice fields.

In Neak Loeung, Trea and Svay Prakma were selected. Trea is a small village and access to road is good. Adjacent to Trea is Svay Prakma. The distance between these two villages is approximately 5 km.

In Kampong Trabek, 2 villages were selected. Hap is a large village located about 16 km from the national road. Cham Reh is a small village, about 15 km from the national road and 1 km from Hap.

In Mesang, only one village was chosen. Phum Kreul is about 10 km away from the national road. The road condition is good and is accessible to any type of vehicles.

Kampot

The study was conducted in only one OD, at Angkor Chey. Although Angkor Chey is not a relatively poor district, the villages selected were still the poorest as indicated by the nutrition coordinator of the district.

Keatha Vong Krom is situated approximately 1 km from the national road.

Sam Por is about 3-4 km from national road.

Damnak Chambok is considered as the poorest among the villages selected and is situated along the national road.

Damnak Trayueng is approximately 2.5 km from the national road.

Ponhea Angkor is about 6 km from the national road.

Battambang

Sanke is the only OD chosen for the study. Most of the selected villages are near the provincial town. Access to road is good.

Samdach is a poor village and is about 15 km away from the national road.

Bang Tem is the farthest among the sample villages in this province. It is along the Tonle Sab Lake, about 20 km from the national road.

Bos Pho is situated about 7 km from the provincial town.

Kampong Madoch is a small village. It is about 5 km away from the provincial town.

O'Trea is about 2 km away from the town proper.

2. Household Characteristics

This general description of the household environment and other pertinent section draws from the information derived from the key informants since limited information on demographic characteristics was directly collected from the mothers. In general, these characteristics provide added context and factors that can help understand the current feeding practices of the sample mothers.

Literacy

Most of the people in the communities have secondary schooling or less. Illiteracy rates among people over 15 years and older are above 50% and is much higher among females than males. Limited or no access to economic resources and basic services such as education and health in remote areas suggests that the rates of illiteracy and malnutrition are often the highest in these areas.

Secondary data obtained from the SEILA report ([Annex 4](#)) reveal that the remotest villages among the study sites in Kratie, Stung Treng and Prey Veng have the highest rate of illiteracy among those who are 15 years old and older.

In Kratie for instance, Kampong Sre and Srei Themey have illiteracy rates of 52% and 47%, respectively. Kampong Sre can be under water for more than 3 months in a year, making it difficult for the residents to travel in and out of the village and for the students to go to school everyday. Likewise, Srei Themey is the farthest village in Snoul. Of all the villages visited for the study, Srei Themey is the most remote and access by vehicle, except motorcycle is very difficult. A small river has to be crossed to reach the village. There is one primary school that is about 1 km away from the village. The only secondary school is about 5 km away, where access to transportation is very limited.

In Stung Treng, the villages of Kampun, Sam Koi and Koh Sampeay is reported to have more than 50% of the 15 years older and above age group as illiterates. All the villages are accessible mainly by boat. There is one primary school that caters to several villages but the secondary school is located in the town. Most of the students do not finish secondary school. Aside from the limited financial resources, transportation going to the town is difficult.

In Prey Veng, Kreul which is under the district of Mesang, more than 70% of the population older than 15 years is illiterate. Although the road is accessible, there is very limited transportation going to the village.

The other villages that have easy access to the national road showed lower percentages of illiterates. In Kampot and Battambang, there are nearby schools in the selected villages. The illiteracy rates are lower among respondents in the study villages in these two provinces.

Occupation

Most of the residents in the villages are engaged in farming and fishing for food and income earning. Some families who do not have their own land work for others to “cut the rice” during the harvesting season. In Stung Treng, Kratie and Prey Veng, many families depend on fishing for income.

Some residents work as labourers for private factories. In Kratie, for instance, many people are involved in collecting resins from the trees to be used for boat making or collecting sap from the rubber trees. With sugar palm trees being a common resource in the provinces, many residents produce sugar. In Kampot, some skilled family members make clay pots.

Seasonal migration to obtain work is not uncommon among the villagers. During the dry season when the planting season is over, many travel to the city to work in factories or to contract other jobs such as construction, *motodop* driving, etc to support their families.

Household environment

The socio-economic condition of the respondents in each province varies and is demonstrated by their housing. For instance, there are respondents who own large houses made of wood with zinc roofs and those who live under a thatch roof. In Kratie, Prey Veng, Kampot, and Battambang, most people have thatched roofs. These poorer families usually are those living in the “remote” part of the village. In Stung Treng, the houses are usually made of wood with a zinc roof. The flooring in most of the houses is bamboo slats.

The study participants’ living environment typifies the common rural living conditions. Families who live in a very small house do everything in one big space since the houses do not have walls to partition rooms. The whole house is used for sleeping and dining. The kitchen is usually separated from the main room but there are cases where even cooking is done inside the one room.

On average, 2 families usually comprise one household. This living arrangement is more common among younger couples, who stay with parents of either partner. In such cases, the grandmothers become the primary caregiver of the young children when both parents are working in the rice fields.

There is no supply of electricity in most of the study villages. The use of car batteries as a power supply is very common among the households. It is more widely used in Kratie, Stung Treng and Prey Veng than in Kampot and Battambang.

Hygiene-related Practices

In all of the study villages, not a single household had water from a main pipe. Potable water is not available in the villages. Water for drinking and cooking is either from the river or rainwater. Water from the river or ponds used for drinking is also accessible to animals roaming in the village such as the pigs and cows. In addition, most of the residents use the rivers for bathing, washing clothes and defecating. People seem unaware that they can acquire diarrhoea and other diseases from this practice.

During the rainy season when the villages are all flooded, water is collected directly from the flood. Each household also has a huge jar placed outside the house to collect and store rainwater for home use. These jars are oftentimes covered, but are kept open in some households.

Water is seldom boiled and is given to young children and sometimes, the infants.

There are deep wells available in some villages but are located far from the respondents' houses. These wells were provided by Partners for Development (PFD), an NGO. During the dry season, access to water is more difficult as the rivers and deep wells dry-up.

Most of the selected villages do not have latrines except in Stung Treng where PFD built latrines. In a few villages in Kampot and Battambang a minority of homes have latrines but a larger percentage of the households do not have them. Defecating is done in the rivers and nearby bushes or just near the house. During the study, it was observed that small children defecate directly thru the bamboo slats inside the house. Mothers would pour just enough water to wash the floor but not really enough to totally remove the baby's waste. The young children and infants crawl and are fed and bathed on the floor.

Hand washing is not practiced before eating. Although most mothers use spoons to feed their children, hand washing before food preparation is not observed.

3. Issues of Food Availability

Understanding food availability in the study areas is vital to determining how most villagers adapt to the situation. Based on observations, most of the study villages had many households with backyard gardens. Vegetables such as wintermelon, various gourds, different types of edible leaves and grasses were noted in the study localities. However, the availability of foods in the village is seasonal. For instance, vegetables and fish are more available during the rainy season than the dry season.

About two thirds of the key informants interviewed revealed that the sources of food for the family are their own produce (Table 7). Many villagers grow their own vegetables in their backyards. Fish in the village is the main source of animal protein and are caught in rice paddies and rivers.

Although about half of the informants said that vegetables and fish are always available in the villages, they stated that there is not enough food available in the villages and people need to buy from the markets. Rice is cited as often not being available in enough quantity although it does not appear to be a commodity which is bought. Some key informants gave contrasting replies regarding its availability. While 2 mentioned rice produce as not enough for the whole year, another 2 considered rice as always being available in adequate amounts. Pork and beef are almost never available. Many households own pigs and cows but these often are not for family consumption. Pigs are sold in the market or among the villagers. Cows are used in farming and are usually butchered only during special occasions or festivities. Pork and beef are considered to be the most expensive foods in the villages. Hence, very few households consume these foods.

Many of the key informants agree that foods in the village are expensive. They added that the price of fish and other meats doubled during the past year. For this reason, many of the households plant their own vegetables and raise animals such as poultry, pigs and cows. The families use their own produce for their daily foods or harvest them and sell to the markets for additional income.

Table 7. Insights on Food Availability of the Key Informants

Issues	All respondents (n=20) ^{a/}
Information on Food Availability in the village	
The foods in the village are easy to find and not expensive such as vegetables and fish	7
There are more vegetables and fish in the rainy season but very limited in the dry season	3
There is not enough foods available in the village, people need to buy foods from market and it is expensive	9
The rice produce is not enough for the whole year	2
Foods that are always available in adequate amounts	
Vegetables	18
Fish	12
Meat	5
Rice	2
Foods that are almost never available	
Pork	11
Beef	15
Chicken	4
Sources of food for the family	
Villagers grow vegetables	14
Villagers buy vegetables/fish/meat	13
Villagers do fishing	5
Villagers buy food from market/small shops in the village	10
Prices of foods in this village	
Expensive	15
Not expensive	5
Change of prices in the past year	
The price of food does not changed	4
The price of fish or meat move up nearly double	18
Foods people think are most expensive and out of their reach	
Beef	19
Pork	16
Fish	1
People can buy all the foods	1
Foods that can be bought in small quantities	
Vegetables	19
Fish	15
Pork	8
Egg	1
Condiments	2

^{a/} Expressed in frequencies and multiple responses

C. HEALTH COMMUNICATION

Information regarding infant and young child feeding is an important factor that influences a mother's decision making in terms of what foods to give her child. In rural areas where access to basic health

services is difficult, most mothers depend on mass media and key persons for their information about health and nutrition.

1. Mass Media

A majority of respondents have heard or read a message about child feeding from some media channel (Table 8). The kind of feeding messages that the respondents have heard or read have influenced their usual feeding practice. These messages were more often than not remembered. The most remembered message about child feeding is the need to introduce solid foods at the age of 6 months. Exclusive breastfeeding until 6 months of age and breastfeeding initiation immediately after birth are also messages which most of the respondents remembered.

Figure 2 shows that among the media channels, television and radio are the primary sources of infant feeding information in all of the study sites except in Stung Treng where there is no electricity in the villages. About half of the respondents indicated that they have heard about infant feeding from television and radio.

Posters also prove to be a source of information for about one in five respondents in most of the villages although in Battambang respondents did not report seeing posters, but instead relied on television.

Table 8. Mass media information about child feeding per Province

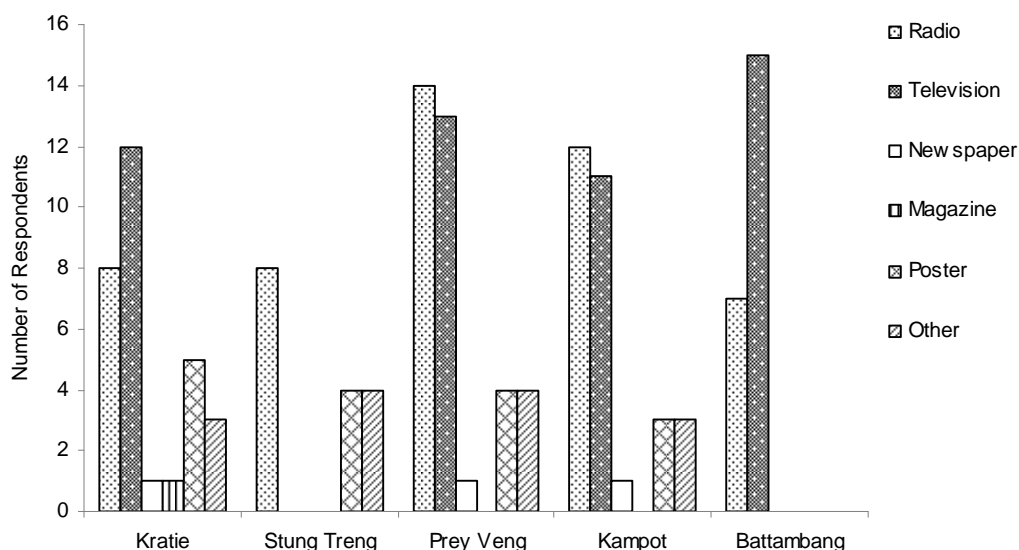
Variable	All subjects ^{a/}		Provinces ^{b/}				
	n	%	Kratie	Stung Treng	Prey Veng	Kampot	Battambang
Have heard or read a message on television, radio, newspaper, poster or magazine about child feeding							
Yes	93	84.55	21	16	20	19	17
No	17	15.45	1	6	2	3	5
Total number subjects (n)	110	-	22	22	22	22	22
Type of child feeding messages ^{c/}							
Exclusively breastfeed your child until the 6 months of age	34	22.67	4	5	6	12	7
Breastfeed your child immediately after birth	37	24.67	7	7	9	7	7
When the child reaches 6 months of age, feed the child additional foods	73	48.67	13	11	16	17	16
Breastfeed/feed the child frequently	1	0.67	1	0	0	0	0
Feed your child fish, meat and vegetables	5	3.33	1	2	2	0	0
Total number subjects (n)	150	-	26	25	33	36	30

^{a/} Results expressed as frequencies and percent of group

^{b/} Results expressed as frequencies

^{c/} Multiple responses

Figure 2. Sources of Information on Infant Feeding, Per Province



2. Key Persons

Other sources of information about the feeding of children are the key persons whom the mothers usually talk to. Most of the respondents in each province have received advice about child feeding from other persons (Table 9). The majority of respondents cited health personnel as their frequent source of information, followed by a family member (Figure 3). Nearly three in four respondents (70%) noted that the dissemination of the message was usually in the home of the respondents, while about a fourth (23%) said that they received the information at the hospital, clinic, health centre, a doctor's office or a mobile health unit. Respondents from the study provinces did not significantly differ on this overall observation.

Similar to the main message received from mass media, the most frequently remembered feeding message from other persons relates to feeding the child with solid foods at the age of 6 months, with just less than half (44%) of the respondents mentioning this. Messages about exclusive breastfeeding (a quarter of the mothers) and breastfeeding initiation immediately after birth (one fifth of respondents) follow as the most remembered messages on child feeding.

Table 9. Source of feeding information from key persons, by province

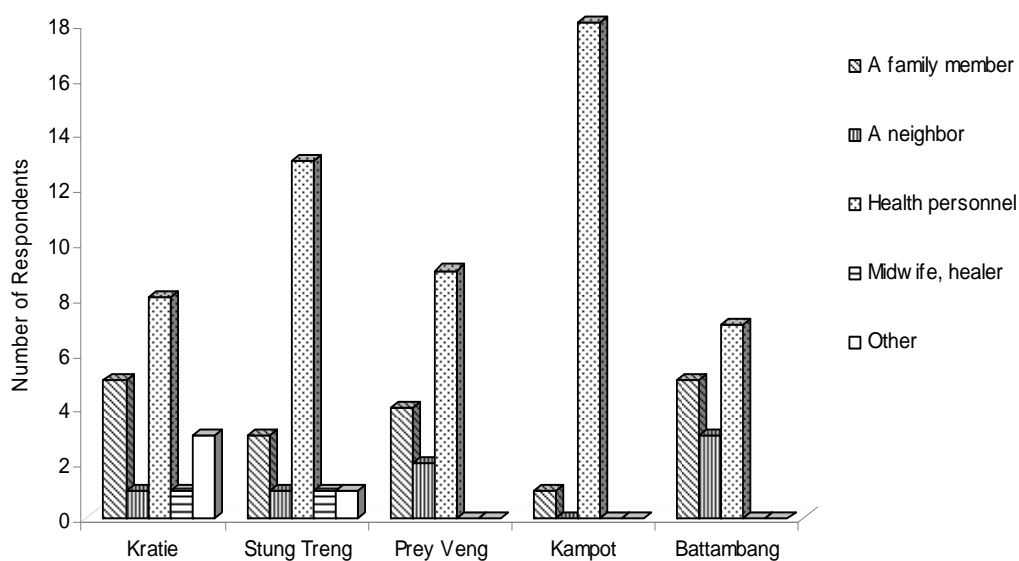
Variables	All subjects		Provinces				
	n	%	Kratie	Stung Treng	Prey Veng	Kampot	Battambang
Do you remember if a relative, friend or health worker talked to you about child feeding?							
Yes	86	78.18	18	19	15	19	15
No	23	20.91	4	2	7	3	7
Does not know/ remember/ answer	1	0.91	0	1	0	0	0
Total number subjects (n)	110	-	22	22	22	22	22
Where did they talk to you about this?							

At home	60	69.77	13	12	12	13	10
At hospital, clinic, health centre, doctor's office/ mobile unit	20	23.26	3	5	2	6	4
At school	1	1.16	1	0	0	0	0
Other	5	5.81	1	2	1	0	1
Total number subjects (n)	86	-	18	19	15	19	15

Type of message

Exclusively breastfeed your child until the 6 months of age	30	25.42	3	6	4	10	7
Breastfeed your child immediately after birth. Feed your child colostrum	23	19.49	3	8	4	5	3
When the child reaches 6 months of age, feed the child additional foods	52	44.07	8	13	8	13	10
Do not feed the child with foods that are not clean. Wash your hands or your child's hands before eating	2	1.69	0	1	1	0	0
Breastfeed/feed the child frequently	2	1.69	1	0	1	0	0
Feed your child fish, meat and vegetables	7	5.93	6	0	1	0	0
Wash your breasts before breastfeeding the baby	2	1.69	0	1	1	0	0
Total number subjects (n)	118	-	21	29	20	28	20

Figure 3. Key persons from whom respondents receive feeding-related information, by province



D. CURRENT NUTRITIONAL AND HEALTH SITUATION AND CHILD FEEDING PRACTICES

The mothers' general perception regarding their child's health is summarised in Figure 4. The percentage of mothers who perceive their children as generally healthy (37%) is significantly lower than those who perceive their children as experiencing different illnesses (77%). According to the mothers, the most common sicknesses that their children experience are colds, fever and cough. Diarrhoea is also common especially in Kratie (9.1%), Stung Treng (31.8%) and Kampot (13.65%).

Surprisingly, ninety three percent (93%) of the study children were found to have normal weight for age (based on the International Reference Standards, $\pm 2SD$). There was no difference in the proportion of malnutrition across all provinces. Out of the 22 children per province, only 4-5 children were found to have low-weight-for-age (Figure 5).

The rate of malnutrition in this study is far below than the national prevalence. While the study team targeted communities that are relatively poor, it may be that the study subjects obtained are those that are predominantly healthy. The accuracy of the weighing scales used during the survey could also be a factor shaping the findings. While the field researchers underwent training on anthropometric measurement, the team experienced problems with the scales during the early days of data collection. This was addressed in that new sets of scales were requested. However, there were still problems encountered with the scales.

Figure 4. Over-all health status of children as described by mothers by province

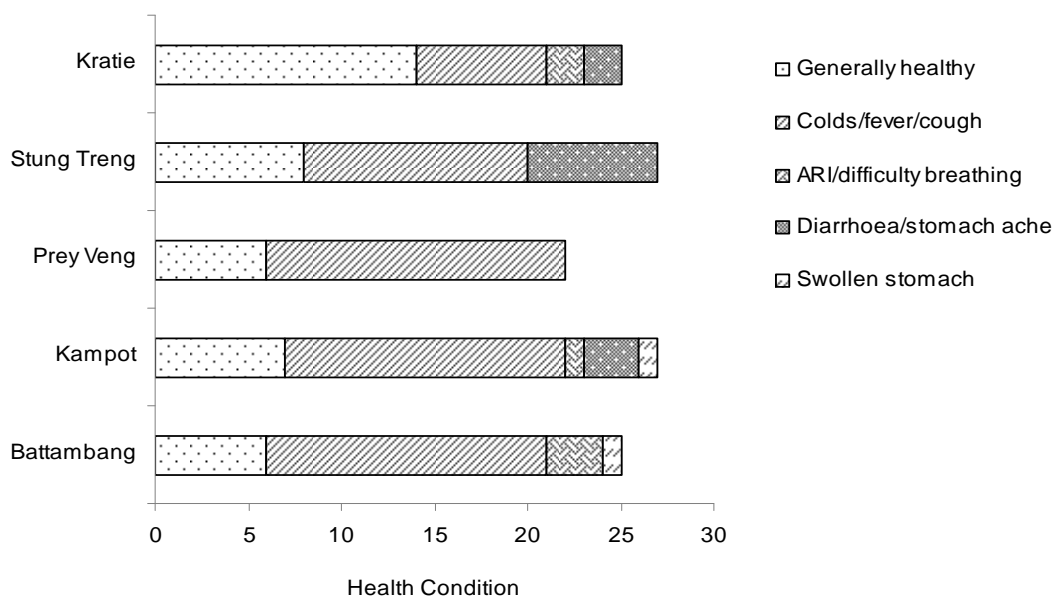
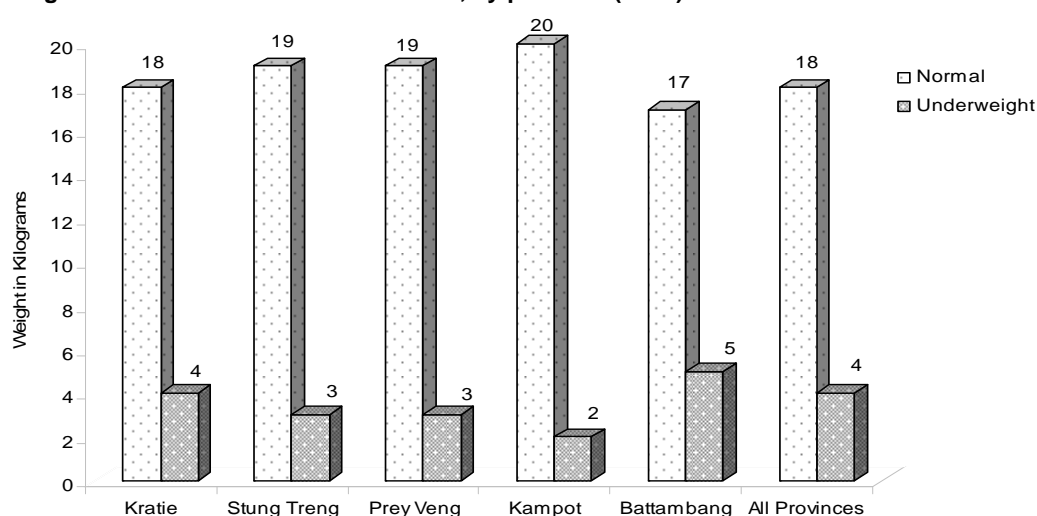


Figure 5. Nutritional status of children, by province (n=22)



1. Key Feeding Indicators

The key feeding indicators summarise the main findings that can serve as basis for programme planners in assessing whether interventions are needed for each particular area of concern or whether previous interventions (that were not in the scope of this study) have been successful/ not successful. Table 10 below highlights the findings of this study on the feeding indicators and which are further discussed in succeeding sections.

Table 10. Ideal breastfeeding and complementary feeding practices

	Ideal Practice	n	% ^{a/}
1.	That all infants are breastfed for the first time within the first hour after birth	60 ^{b/}	54
2.	That all infants are not fed with pre-lacteals	94 ^{b/}	85
3.	That all infants are fed colostrum	109 ^{b/}	99
4.	That all infants and young children are breastfed on demand, during the day and night	101 ^{c/}	97
5.	That all infants are exclusively breastfed until 6 months of age	21 ^{d/}	100
6.	That no children are weaned before 24 months of age	6 ^{b/}	5
7.	That all infants are fed semi-solid complementary foods beginning at 6 months of age	65 ^{e/}	74
8.	That all infants and young children meet their recommended daily energy requirements	34 ^{f/}	41
9.	That all infants and young children are supported and motivated to eat to satiety during meal times	106 ^{b/}	96

^{a/} Calculation of percentages based on prescribed procedures in *ProPAN: Process for the Promotion of Child Feeding*, pp.21-24.

^{b/} N= 110

^{c/} N= 104 (number of children currently breastfeeding)

^{d/} N= 21 (children who are 0-5 months old)

^{e/} N= 87 (total N who are given solid foods)

^{f/} N= 82 (total N with 24 hour food recall)

2. Key Practices

Mothers' knowledge of child rearing is greatly manifested in their children's over-all health. Information regarding breastfeeding and complementary feeding practices are crucial to understanding the mothers' approach towards their child's growth and development. Table 11 and the following discussion provide descriptions of their practices on these two key concerns.

Breastfeeding practices

Breastfeeding is almost universally (94%) practiced among the interviewed mothers. A low percentage (6%) of them reported to have stopped breastfeeding. Two (2) out of six mothers discontinued breastfeeding as early as less than 1 month to 3 months of age. However, four (4) had stopped breastfeeding at between 12 to 19 months of age. The stated reasons for discontinuing breastfeeding are feelings of discomfort because of onset of pregnancy, child refused to breastfeed or child gets sick because of breast milk.

Exclusive Breastfeeding

Exclusive breastfeeding is widely practiced by most mothers (n=21) of children in the 0-5 month age group. Only one child in this age group was reported to have been given water by the mother and was done through her fingers. The explanation given was that the child was having hiccups, and that she does not give water on a regular basis.

Breastfeeding Initiation

More than 50% of the respondents stated that they started breastfeeding their child for the first time immediately after birth or within one hour. However, fifteen respondents (13.6%) stated that they began breastfeeding after 24 hours to up to 3 days of giving birth. Some claimed that no breast milk came out after giving birth or breast milk flows only after 2-3 days of giving birth.

On the other hand, nearly all of the mothers interviewed (99%) claimed that they have given the *colostrum* to their newborn.

According to the majority of mothers (85%) breast milk remains the first liquid to have been consumed by the child after birth. Water mixed with sugar or honey is used as an alternative when breast milk is not given immediately after birth.

Frequency and Time of Breastfeeding

Most mothers (97.2%) initiate breastfeeding when their children demand it, while a few (2.88%) feed their children on a fixed schedule. Over half of them breast feed their children 8-12 times during the day, while about 38% breastfeed 4-6 times. Approximately two thirds (64%) breastfeed 4-6 times during the night. Frequency of breastfeeding is higher during the day than during the night.

Table 11. Breastfeeding Practices

Variable	All subjects ^{a/}		Provinces ^{b/}				
	n	%	Kratie	Stung Treng	Prey Veng	Kampot	Battambang
Currently breastfeeding							
Yes	104	94.55	20	22	21	21	20
No	6	5.45	2	0	1	1	2
Total number subjects (n)	110	-	22	22	22	22	22
Children who are exclusively being breastfed							
21	21	100.0	3	4	4	4	6
Total number subjects (n)	21						
When mother breast feeds							
When the child asks/wants	101	97.12	19	22	20	21	19
Fixed schedule	3	2.88	1	0	1	0	1
Total number subjects (n)	104	-	20	22	21	21	20
No. of times the child is breastfed during the day							
1- 3 times	2	1.92	1	0	1	0	0
4- 6 times	40	38.46	10	8	11	6	5
7- 9 times	38	36.54	6	10	3	13	6
10 – more times	24	23.08	3	4	4	4	6
Total number subjects (n)	104	-	20	22	21	21	20
No. of times the child is breastfed during the night							
1- 3 times	17	16.35	2	5	7	3	0
4- 6 times	67	64.42	17	13	12	10	15
7- 9 times	15	14.42	1	4	2	7	1
10 – more times	5	4.81	0	0	0	1	4
Total number subjects (n)	104	-	20	22	21	21	20
No. of hours after birth that the child was breastfed for the first time							
< 1 hour after birth	60	54.55	8	17	12	17	6
1 to 3 hours after birth	24	21.82	6	4	7	5	2
> 3 hours after birth	11	10.00	7	0	1	0	3
After 24 hours (after 1 day)	7	6.36	1	0	1	0	5
After 48 hours (after 2 days)	7	6.36	0	0	1	0	6
After 72 hours (after 3 days)	1	0.91	0	1	0	0	0
Total number subjects (n)	110	-	22	22	22	22	22
First liquid consumed by the child after birth							
Breast milk	94	85.45	16	21	20	22	15
Water	2	1.82	1	0	0	0	1
Water with sugar	9	8.18	5	1	1	0	2
Boiled water with honey	2	1.82	0	0	0	0	2
Pure honey	1	0.91	0	0	0	0	1
Milk powder	1	0.91	0	0	0	0	1
Liquid part of <i>bobor</i>	1	0.91	0	0	1	0	0
Total number subjects (n)	110	-	22	22	22	22	22
Fed colostrum							
Yes	109	99.09	22	22	22	22	21

No	1	0.91	0	0	0	0	1
Total number subjects (n)	110	-	22	22	22	22	22
Giving bottle-feeding							
Yes	6	6.67	2	1	1	1	1
No	84	93.33	16	17	17	17	17
Total number subjects (n)	90	-	18	18	18	18	18
Reasons for stopping breastfeeding ^{c/}							
Child refused to breast milk and started to lose weight	1	16.67	0	-	1	0	0
Has feeling of discomfort because mother is pregnant	3	50.00	1	-	0	0	2
Child gets sick when being breastfed	2	33.33	1	-	0	1	0
Total number subjects (n)	6	-	2	-	1	1	2

^{a/} Results expressed as frequencies and percent of group

^{b/} Results expressed as frequencies

^{c/} Children not currently breastfeeding

Complementary feeding practices – Introduction of liquids and solid foods

Mothers remain as the most important decision maker when it comes to what foods to give or not to give their child.

About two thirds (67%) of mothers responded that they had introduced liquids and 74% had introduced solid foods when their child was six months old (Table 12). The most common liquid introduced is water. In a few cases other liquids such as formula milk, coconut water and soya bean are used. The spoon is the most common utensil used to give the first liquid, whereas the cup, glass, bowl and mother's fingers were used by a small percentage of mothers. The use of bottles for feeding is not widely practiced among the respondents.

Most of the solid foods introduced are rice-based. *Bobor* (a local porridge), plain or mixed with other foods, is the most common food that is first introduced to young children. Almost 60% of the respondents claimed to have given *bobor* as the first solid food to their children. In the villages, it is the easiest food to prepare and is readily available in the local markets.

Some mothers (16%) claimed to have introduced solid foods earlier than 6 months, but the reason for this is not clear.

Table 12. Child Feeding Practices

Variable	All subjects ^{a/}		Provinces ^{b/}				
	n	%	Kratie	Stung Treng	Prey Veng	Kampot	Battambang
Age that the child was given liquids other than breast milk for the first time (months)							
Less than one month	4	4.44	0	0	1	1	2
1	2	2.22	0	0	0	0	2
2	1	1.11	0	0	0	0	1
3	4	4.44	0	1	3	0	0
4	3	3.33	0	1	1	0	1

5	10	11.11	3	1	0	1	5
6	60	66.67	12	14	12	16	6
7	3	3.33	3	0	0	0	0
8	1	1.11	0	1	0	0	0
Does not know	2	2.22	0	0	1	0	1
Total number subjects (n)	90	-	18	18	18	18	18

First liquid other than breast milk that was given to the child on a regular basis

Water	83	92.22	16	17	15	17	18
Formula Milk	2	2.22	0	0	1	1	0
Coconut Water	2	2.22	1	1	0	0	0
Soya bean	1	1.11	1	0	0	0	0
Water with sugar	2	2.22	0	0	2	0	0
Total number subjects (n)	90	-	18	18	18	18	18

Utensil that was used to give the first liquid

Spoon	72	80.00	16	16	13	14	13
Bottle	4	4.44	1	0	1	1	1
Cup	5	5.56	0	2	1	2	0
Glass	3	3.33	1	0	0	1	1
Bowl	3	3.33	0	0	2	0	1
Mother's hands	3	3.33	0	0	1	0	2
Total number subjects (n)	90	-	18	18	18	18	18

Age that the child was given the first solid or semi-food

< 5 months	14	16.09	2	0	2	1	9
6 months	65	74.71	12	13	16	17	7
7 months	4	4.60	3	1	0	0	0
8 months	3	3.45	2	1	0	0	0
Does not remember/ know	1	1.15	0	0	0	0	1
Total number subjects (n)	87	-	19	15	18	18	17

First food or preparation that was given to the child

Plain <i>bobor</i>	52	59.77	11	10	11	12	8
<i>Bobor</i> bought from the market	7	8.04	2	1	2	1	1
<i>Bobor</i> mixed with other foods	20	22.98	6	3	3	5	3
Banana	4	4.59	0	0	0	0	4
Rice with broth and salt	3	3.44	0	1	1	0	1
Cake	1	1.15	0	0	1	0	0
Total number subjects (n)	87	-	19	15	18	18	17

Person who decides what the child should and should not eat/ drink

Mother	96	87.27	15	17	22	20	22
Father	1	0.91	0	1	0	0	0
Female relative	5	4.55	4	1	0	0	0
TBA/ health village volunteer	5	4.55	2	1	0	2	0
Doctor/health personnel in the hospital	3	2.73	1	2	0	0	0
Total number subjects (n)	110	-	22	22	22	22	22

^{a/} Results expressed as frequencies and percent of group

^{b/} Results expressed as frequencies

3. Maternal Beliefs and Practices on Child's Appetite

Maternal beliefs about child's appetite are essential in understanding why certain feeding practices are being followed. To identify these, mothers were asked about their practices under varying conditions of their children's health (Table 13).

Appetite when healthy

A majority of the mothers (63%) believe that their children eat or breastfeed more when healthy, while about 13% perceive their child as breastfeeding or eating well. A small percentage (2.7%) of the mothers replied that their children eat or breastfeed a little even when healthy.

Appetite when sick

Children tend to become anorexic when they are sick or not feeling well. More than 80% of the mothers recognized that their children ate less or none at all when sick. About half also said that breastfeeding decreased. Some mothers respond by motivating the child to eat by playing or by providing verbal support and preparing special food for the child. Others resort to frequent breastfeeding. About 15% of them believe that appetite is not a problem when their child is sick.

Intake of breastmilk, liquids and solid foods when sick

Most mothers (79%) perceive that their child's intake of *bobor* or soft foods is less when their child is sick. About a third of mothers (34%) reported that their children decrease their intake of breastmilk, 28% reported it is the same and 42% said it increased. Intake of water and fluids is reported to be the same for 38% of children, to decrease for 28% and increase for 24%. It is of concern that a third of mothers report breastmilk intake decreases when their child is sick and this is an important issue to address in programmes to improve child feeding.

Table 13. Feeding Practices when Child is Sick

Variable	All subjects ^{a/}		Provinces ^{b/}				
	n	%	Kratie	Stung Treng	Prey Veng	Kampot	Battambang
Child's appetite when healthy							
Eats/breastfeeds too much	69	62.73	14	15	14	15	11
Eats/breastfeeds well	14	12.73	3	2	0	5	4
Eats/breastfeeds a little	3	2.73	2	0	0	1	0
Breastfeeds more/eat a little	18	16.36	0	4	7	1	6
Breastfeeds less/eat more	6	5.45	3	1	1	0	1
Total number subjects (n)	110	-	22	22	22	22	22
Is appetite a problem when the child is sick? What do you do about it? ^{c/}							
Appetite is not a problem when the child is sick.	17	15.04	1	1	1	6	8
Child's appetite is the same							
Child eats/breastfeeds less or none at all when sick.							
The mother motivates the child to eat by playing and verbally encourages the	41	36.28	10	6	7	11	7

child or prepare a special food for the child							
Child eats a little or none at all when sick, mother resort to frequent breastfeeding	46	40.71	11	11	12	5	7
Child refuses to eat or breastfeed. Mother gives medicine or bring to the doctor	8	7.08	0	4	2	0	2
Child eats/breastfeeds a little when sick. Mother does not do anything	1	0.88	0	0	0	1	0
Total number subjects (n)	113	-	22	22	22	23	24

How is child's intake of BREASTMILK when sick? ^{d/}

Less	34	30.91	6	10	10	3	5
Same	28	25.45	3	5	5	7	8
More	42	38.18	11	7	7	10	7
Total number subjects (n)	104	-	20	22	22	20	20

How is child's intake of WATER AND FLUIDS when sick? ^{d/}

Less	28	31.11	9	2	8	6	3
Same	38	42.22	4	9	4	10	11
More	24	26.67	7	5	6	2	4
Total number subjects (n)	90	-	20	16	18	18	18

How is child's intake of BOBOR AND SOFT FOODS when sick? ^{d/}

Less	57	79.17	9	12	15	12	9
Same	14	19.44	3	1	0	5	5
More	1	1.39	0	0	1	0	0
Total number subjects (n)	72	-	12	13	16	17	14

^{a/} Results expressed as frequencies and percent of group

^{b/} Results expressed as frequencies

^{c/} Multiple responses

^{d/} Total n varies as there are mothers who do not give the type of food being asked or mother does not answer

Feeding behaviours of mothers

There are certain factors that contribute to the child's eating pattern or behaviour (Table 13a). The attitude of the mother usually is the most important factor when it comes to training the child to eat properly at an early stage of life. The mother's care and attention while the child is eating is an influential factor in a child's growth.

Motivational Support

More than 60% of the mothers responded that they provide motivation in the form of gestures, games or verbal encouragement when their child stops eating. Breastfeeding appears to be an alternative when mothers think their children did not eat enough. About 22% of the mothers resort to breastfeeding when their children stop eating when in fact, they are still hungry. A small percentage (3%) does not do anything to motivate their child to eat.

Schedule of Feeding

Only about 12% of the mothers have a fixed schedule for feeding their children. Mothers decide to feed their children when they express hunger. Crying is the most common way that children ask for food. Seventy-nine (79%) percent of the respondents said they decide to feed their children when they cry or express hunger with gestures like pointing to the kitchen or the pots and 8% do so when their children ask for food or attempts to grab food or the mother's breast.

Table 13a. Feeding Practices when Child is Sick

Variable	All subjects ^{a/}		Provinces ^{b/}				
	n	%	Kratie	Stung Treng	Prey Veng	Kampot	Battambang
How is child's intake of SOLID FOODS when sick? ^{c/}							
Less	41	87.23	9	5	11	10	6
Same	6	12.76	1	0	0	2	3
Total number subjects (n)	47	-	10	5	11	12	9
If your child stops eating and, and you think she is still hungry or did not eat enough, what do you do? ^{d/}							
Motivate the child (with gestures, games, words)	77	68.14	13	17	14	18	15
Does not motivate the child	4	3.54	1	1	1	1	0
Does not apply (does not give solid foods)	2	1.77	1	1	0	0	0
Breastfeed the child more	25	22.12	5	3	8	2	7
Give the child other food	3	2.65	1	0	1	0	1
Go to the doctor	1	0.88	0	0	0	1	0
No reply	1	0.88	1	0	0	0	0
Total number subjects (n)	113	-	22	22	24	22	23
How do you decide when to feed your child?							
When the child cries and points to the kitchen or the plates and pots or look for the mother's breasts	87	79.09	12	19	22	19	15
Child is fed on a scheduled habit	13	11.82	7	0	0	1	5
When the child asks for food or attempts to grab a food or the mother's breasts	9	8.18	2	3	0	2	2
No reply	1	0.91	1	0	0	0	0
Total number subjects (n)	110	-	22	22	22	22	22

^{a/} Results expressed as frequencies and percent of group

^{b/} Results expressed as frequencies

^{c/} Total n varies as there are mothers who do not give the type of food being asked or mother does not answer

^{d/} Multiple responses

Mothers' control of the feeding situation

When the mothers were asked how they knew when their child has had enough to eat, 48% replied "when the child stops eating or spits out the food" (Table 13b). According to 27% of the mothers, breastfeeding children stop sucking or push the breasts away. The mothers also noted that their

children have had enough to eat when they ask for water (10%) and start to play or stop crying (11%).

In situations when children do not have appetite or refuse to eat, 59% of the mothers provide motivation to their children by giving toys or playing with them. The mothers also resort to breastfeeding (25%) to compensate for the inadequate intake of solid foods. Interestingly, 14% of them do not force their children to eat. Rather, they wait until the children are hungry again.

Table 13b. Feeding Practices when Child is Sick

Variable	All subjects		Provinces				
	n	%	Kratie	Stung Treng	Prey Veng	Kampot	Battambang
How do you know when (CHILD'S NAME) has had enough to eat?							
when the child stops eating or spits out the food and pushes the food away	53	48.18	14	4	12	11	12
when the child stops sucking or pushes the breasts away	30	27.27	2	12	3	7	6
when the child asks for water	11	10.00	2	3	2	3	1
when the child starts to play and does not cry	13	11.82	3	1	5	1	3
the child tells the mother that he/she is full	2	1.82	0	2	0	0	0
No reply	1	0.91	1	0	0	0	0
Total number subjects (n)	110	-	22	22	22	22	22
If the child refuses to eat - either spits, vomits, or has no appetite - what can be done in these situations? What do you do to improve appetite?							
Mother verbally encourages the child or motivates the child by giving toys or playing with her or luring the child to eat	65	59.09	14	12	14	11	14
Mother breastfeeds the child instead or give other foods to the child	28	25.45	5	8	6	5	4
Mother does not force the child to eat/does not do anything but to wait for the child to get hungry again	16	14.55	2	2	2	6	4
No answer	1	0.91	1	0	0	0	0
Total number subjects (n)	110	-	22	22	22	22	22

Beliefs about fussy eaters

Young children are often difficult to feed. The underlying reasons are sometimes not understood by the caregivers simply because young children cannot communicate verbally yet. Mothers were asked on their perceptions about why some children are fussy eaters. Interestingly, most of the

responses imply that such behaviour of children is also brought on by the mother's attitude towards feeding.

A large percentage of the mothers (40%) believe that children become fussy eaters because the foods being served are not delicious. Similarly, 24% thinks that some children are being breastfed too much hence, appetite to eat is lessened (Table 13c). This finding implies that breastmilk is indeed an alternative to solid foods when young children do not eat much.

In addition, mothers think that when children are sick, they tend to become fussy eaters. Some behaviours of the children such as eating a lot of snacks outside the home before the main meal, makes it difficult for them to feed. Attitudes of the mothers such as giving foods that are too solid and cannot be eaten by the child, lack of motivation or too busy to prepare food makes the child used to being not fed hence, they tend to become fussy.

Table 13c. Feeding Practices when Child is Sick

Variable	All subjects ^{a/}		Provinces ^{b/}				
	n	%	Kratie	Stung Treng	Prey Veng	Kampot	Battambang
In general, can you tell me why some children are fussy eaters? Can these children be changed? ^{c/}							
Children who are sick, tend to become fussy eaters	6	5.26	5	0	0	0	1
Mothers breastfeeds the child too much, that's why they lose their appetite to eat.	28	24.56	3	5	10	6	4
Children eat a lot of snacks outside the home that's why they become fussy when its time to eat the main meals	5	4.39	2	0	1	0	2
The foods that mothers give to the child are not delicious and same foods are given	46	40.35	7	13	8	13	5
Mothers give foods that are too solid that cannot be eaten by the child	3	2.63	1	1	0	0	1
The mother does not encourage the child to eat or is too busy to prepare food for the child. Children were not used to being fed	8	7.02	2	1	3	0	2
Do not know	18	15.79	2	3	1	3	9
Total number subjects (n)	114	-	22	23	23	22	24

^{a/} Results expressed as frequencies and percent of group

^{b/} Results expressed as frequencies

^{c/} Multiple responses

4. Current Diets of Children

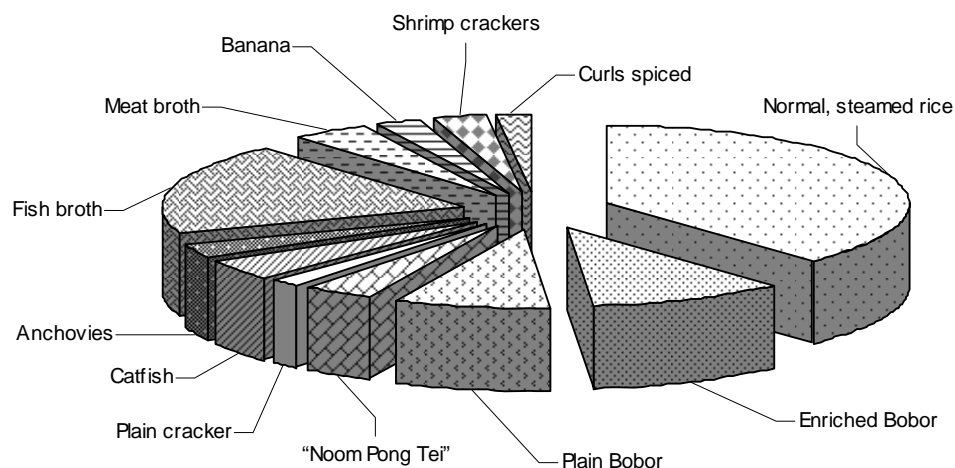
The diets of young children are often inadequate in terms of nutritive value. It is the most critical stage when young children should be given adequate amounts of foods and quality meals to prevent the onset of malnutrition or micronutrient deficiencies.

There are several factors that affect the nutritional status of young children. Aside from the adequacy of diets, the cultural beliefs about certain foods and availability of foods are also valuable in understanding the diets of children.

Most frequently consumed foods

The main meals (i.e. breakfast, lunch and dinner) most frequently consumed by the children age 6-23 months consist mainly of rice, fish broth and enriched or plain *bobor* (local porridge) (Figure 6). *Bobor* is the most common complementary food that is almost always available in the households. Aside from its easy preparation, it is probably the most affordable or cheapest food that can be given to young children in the rural villages. *Bobor* is always available in local small restaurants and is generally consumed by most people in the community for breakfast, regardless of age.

Figure 6. Most frequently consumed foods of 6-23 months old children



Aside from the local porridge, rice and broth (fish and meat) is fed to young children normally for lunch and dinner. Vegetables such as morning glory and Chinese cabbage are very common in the meals of most of the households in the villages but are often not fed to young children. Some mothers believe that feeding these vegetables to their children will cause choking. A wide variety of vegetables are available in the selected villages but very limited are prepared for the young children.

Among the fishes, catfish and anchovies are the most common. Catfish is found even in the rice paddies; anchovies that are used to make "*prohok*" (fish paste), on the other hand, are also given to young children.

Banana is the most common fruit that is being given to the young children. The snacks commonly fed to young children are the most affordable and available, but are of low caloric and nutrient values. Snack foods such as shrimp crackers and spiced curls are the most common snacks being given to young children. There are also snacks, however, which are of higher caloric value such as locally made bread with egg ("*Noom pong tei*") and some crackers and biscuits.

Beliefs about Foods

Knowledge and beliefs about which foods are appropriate to give the young children affect children's growth (Engle, 1996). The mothers for this study were asked about certain foods that they perceive as healthy or unhealthy to feed their young children and its effects on those who are sick.

Healthy Foods

Healthy foods are categorised according to the type of foods mentioned by the respondents ([Annex 5](#)). Based on the responses, the most common foods that the mothers perceive as healthy are also those that are frequently available in the villages as observed during the fieldwork.

Among the fruits mentioned, banana, papaya and oranges have the highest percentage of respondents (13%, 25% and 18%, respectively) considering these fruits as making the body strong and healthy. This belief is mostly based on own experience and was imparted by the health personnel. In addition, the respondents believe that banana (45%), papaya (24%), and oranges (17%) are good for sick individuals. A small percentage (1%) mentioned that papaya would cause stomach ache or diarrhoea when eaten by a sick individual.

Pumpkin (24%), ivy gourd (13%), and morning glory (29%) are among the most mentioned vegetables that respondents believed to be good for the body. Most of the mothers reported to have gathered this information from the health personnel. For the sick individuals, 31%, 19% and 30% believed that pumpkin, ivy gourd and morning glory, respectively, would make the sick individuals become healthy.

Fish, pork, beef, chicken, eggs are among the protein sources that are considered healthy by among 27%, 28%, 11%, 11% of the respondents, respectively. Surprisingly, the mothers based their beliefs on their own experience rather than learning from other people. In addition, most of them believed that these foods will make sick children become stronger.

Food Taboos

It is very interesting to note that the mothers consider certain foods that are actually healthy for the children, as taboo ([Annex 5](#)). For instance, mothers believed that fruits such as guava, longan and rambutan can cause fever on a child. Tamarind (35%) and mango (12%) are believed to bring diarrhoea among the young children. Seventeen percent (17%) believed that guava can bring stomach ache to a healthy child. Surprisingly, a small percentage (4%) of the mothers believed that feeding fishes would produce worms among the healthy children. This belief was thought to be very common among the mothers in the villages.

Among the numerous foods mentioned, guava and tamarind appear to be the most avoided foods when a child is sick. Nineteen percent (19%) and 23% of the mothers believed that guava and tamarind, respectively, will worsen the condition of a sick child.

Most of the food taboos mentioned by the mothers were based on their personal experiences rather than from what they were taught or heard from health professionals or other influential people in the family.

Dietary Intakes of 6-23 months old children

Analyzing dietary intakes is perhaps the most acceptable way of assessing possible causes of malnutrition in children of crucial stage of development. For children who are 6-23 months of age, provision of adequate quantity and right quality of food is very crucial since this is the transition period in which children are susceptible to onset of malnutrition. In this study, the dietary intakes of children were analyzed in terms of meeting the recommended energy and nutrient densities, energy and nutrient intakes and frequency of meals.

Total Energy Intake

Overall results for energy intake show that more than 50% of the young children did not meet their recommended energy intake (Figure 7). By age group, 55%, 58% and 62% of children age 6-8 months, 9-11 months and 12-23 months, respectively, did not meet the recommended energy intake.

Even with the significantly low energy intakes of the children, surprisingly, it does not reflect in the nutritional status of the subjects where a low rate of malnutrition was recorded.

Energy and Nutrient Density and Frequency of Meals

The energy density of the diets, in simple terms, tells whether the diet is too liquid. If a child's diet is too liquid, he will need additional volume to meet the caloric requirement. Surprisingly, a large proportion of the children by age group met the energy density requirement (Figures 8 to 10). Meeting the adequacy of energy density depends also on the frequency of meals being served. That is, if the diet has low density, the child will need to be fed frequently in order to meet the energy requirement.

Interestingly, protein density requirement is 100% met by the study subjects. In addition, the percentage of children who met the vitamin C density requirement is also high. It is apparent that the most "problem nutrients" based on this data are Iron, Vitamin A and Calcium because it appears that the required densities for these nutrients are remarkably less than desired.

Most of the children in the study met the recommended frequency of meals (Figure 11). This can partially explain the above findings although in real situations, the foods served, especially the *bobor*, appears to be too watery.

Figure 7. Percentage of children who met and did not meet the energy requirements, by age group

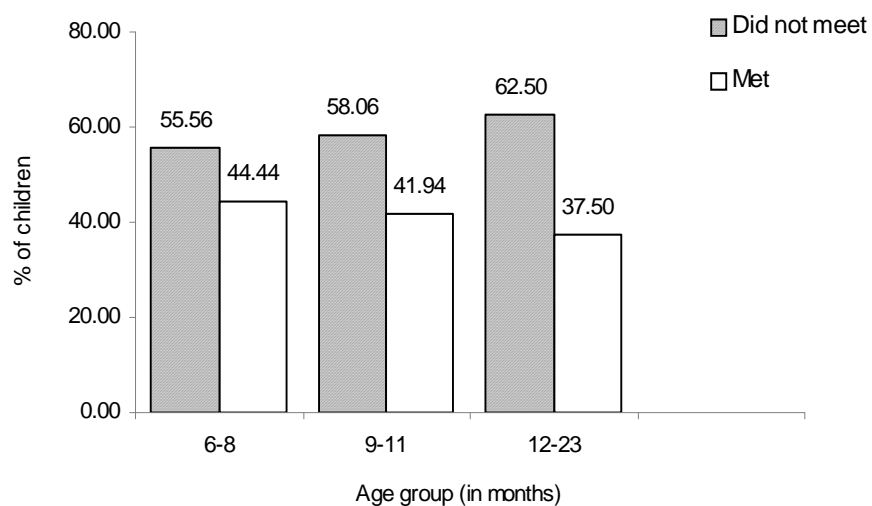


Figure 8. Percentage of children 6-8 months who met and did not meet their energy and nutrient density requirements (n=24)

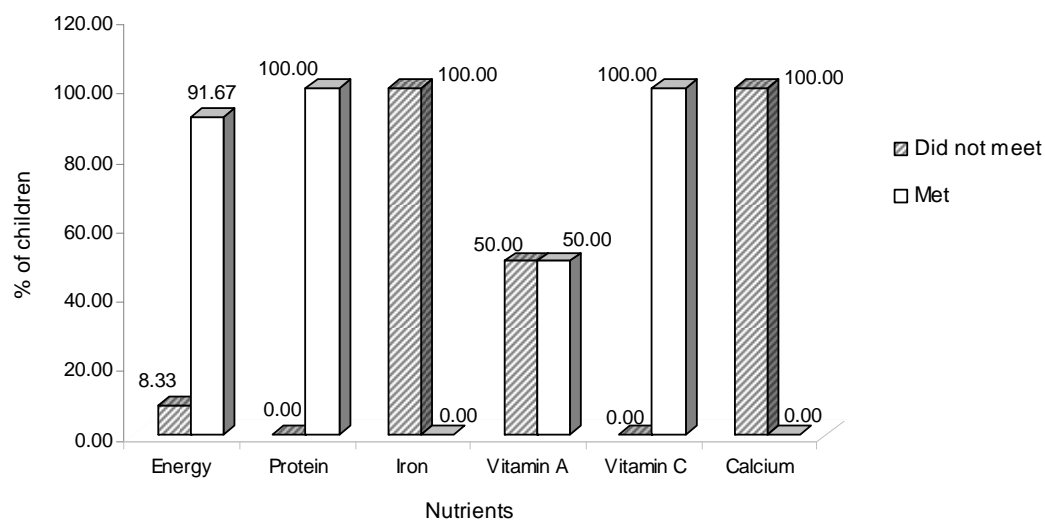


Figure 9. Percentage of children 9-11 months who met and did not meet their energy and nutrient density requirements (n=29)

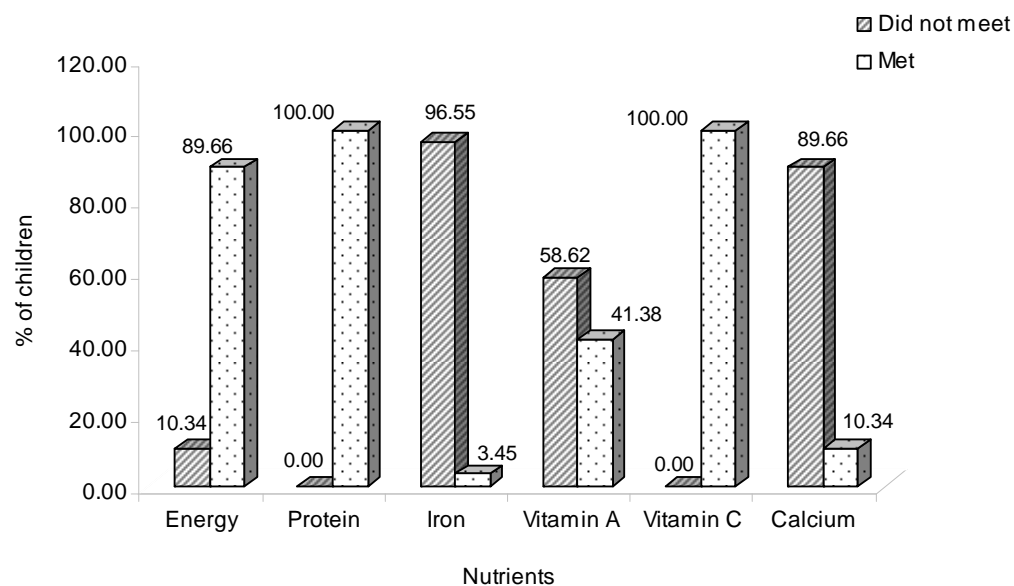


Figure 10. Percentage of children 12-23 months who met and did not meet their energy and nutrient density requirements (n=24)

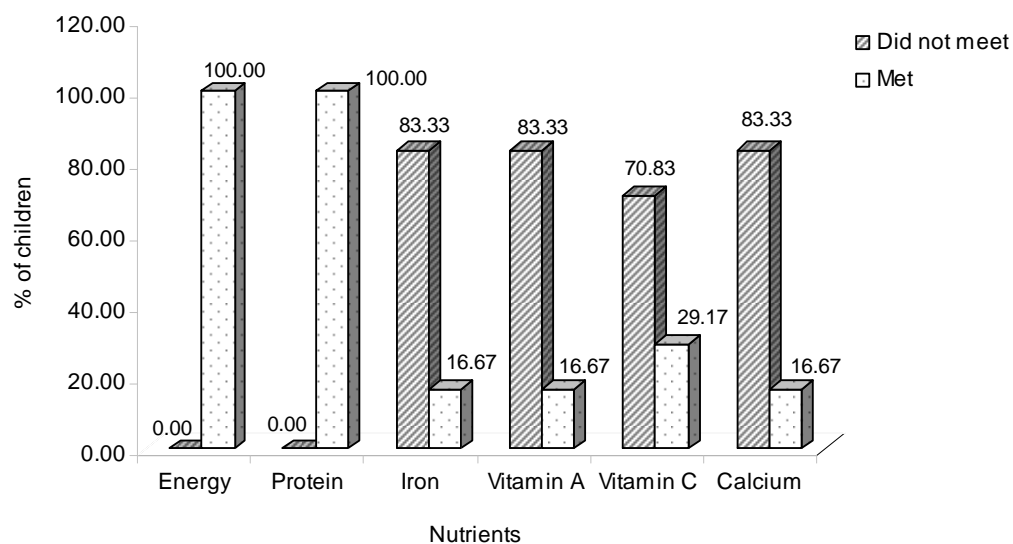
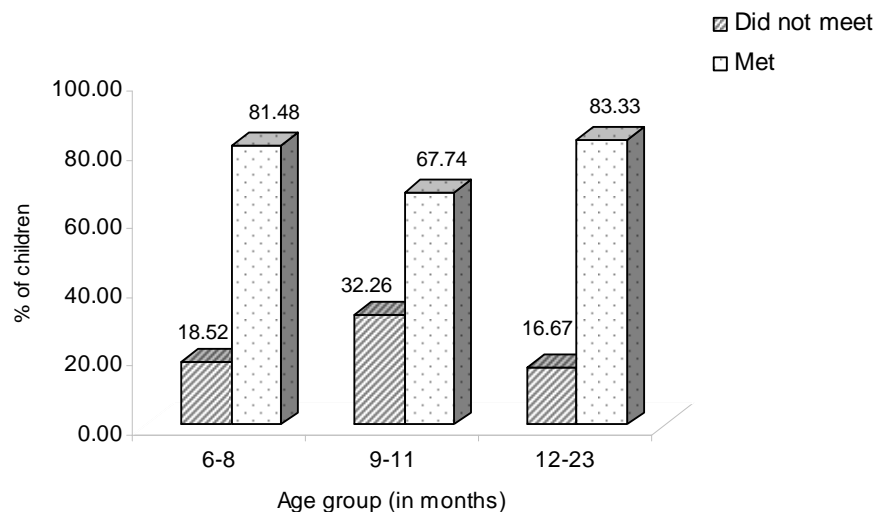


Figure 11. Percentage of children who met and did not meet their recommended frequency of meals (n=77)



Nutrient Intake

In terms of nutrient intake, the same “problem nutrients” mentioned above are found to be inadequate in the diets of the study participants. Inadequate intake in these essential nutrients can put the young children at risk of growth retardation. The only nutrients that were met by most of the young children are protein and vitamin C.

The diets are very much low in key nutrients (Figures 12 to 14) such as iron, vitamin A and calcium. The iron intake among the children is remarkably low when the protein intake is met by a large percentage of the children. This may be because some sources of foods are high in protein but are low in iron. The most frequently consumed foods by the subjects that are high in protein but low in iron content is shown on Table 14.

Table 14. Frequently consumed foods that are high in protein but low in iron content

Food Item	Protein	Iron
Anchovy	14.1	1.2
Banana	1.1	0.9
Broth of fish	5.87	-
"Noom Pong Tei"	5.4	1.7
Catfish	18.7	0.3
Shrimp crackers	6	4.4
Plain cracker	7.5	2.8
Curls spiced	7.7	2
Meat broth	21.1	-
Plain <i>bobor</i>	1.4	0
Steamed rice	2.2	0.4

The zinc intake for this study was purposely not presented because the FCT used to analyze most of the foods does not include the zinc values. Early analysis of the zinc intake among the children showed zero non-compliance based on the recommendation yet it was not actually analyzed. It is for this reason that it is inappropriate to present the zinc values in this report.

Figure 12. Percentage of children 6-8 months who met and did not meet their nutrient requirements (n=27)

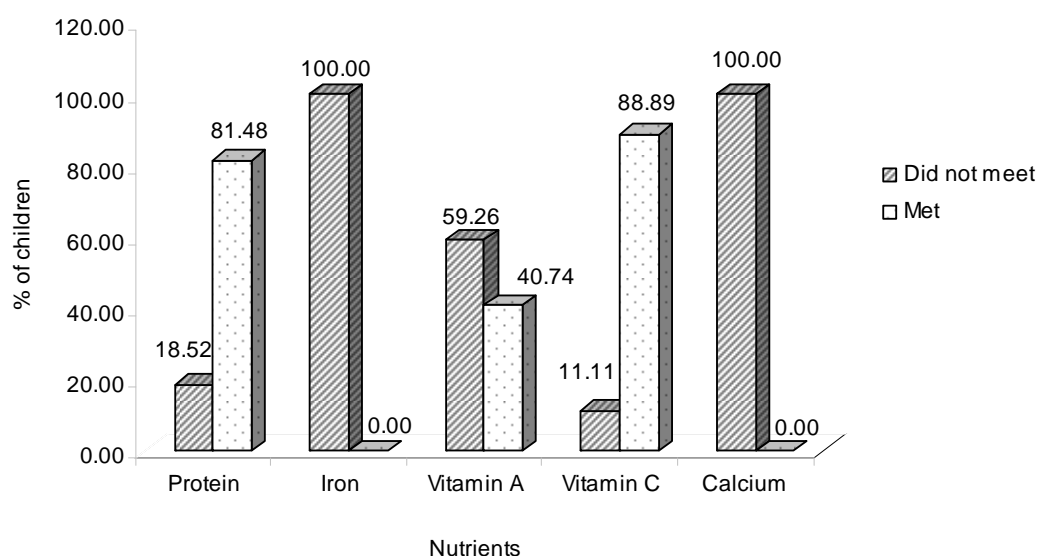


Figure 13. Percentage of children 9-11 months who met and did not meet their nutrient requirements (n=31)

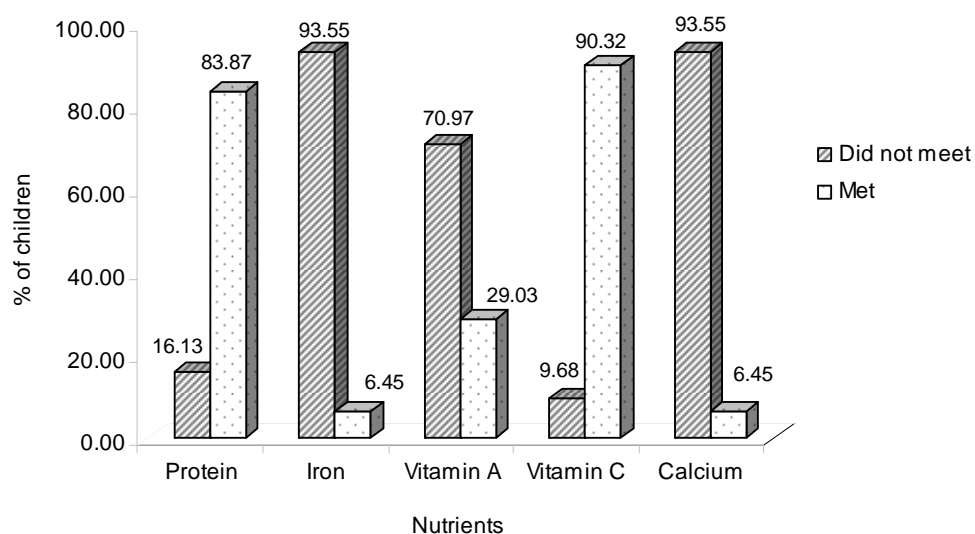
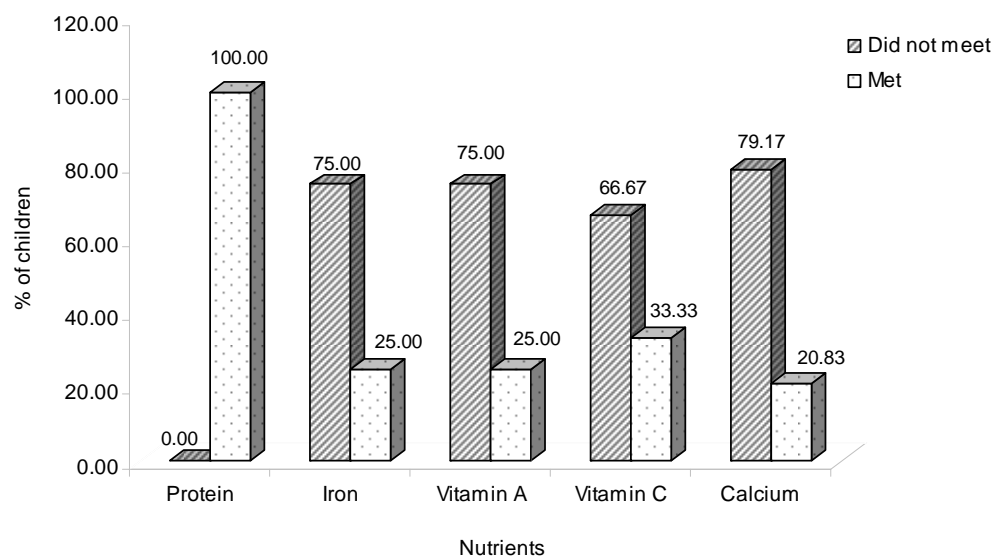


Figure 14. Percentage of children 12-23 months who met and did not meet their nutrient intakes (n=24)



E. TRIALS OF IMPROVED PRACTICES (TIPS): DESCRIPTION OF FEEDING PRACTICES

This section presents the findings from the TIPS with children 0-23 months of age. The results are organised by age group and a summary of the outcomes and analysis of results is also described.

The analysis of the TIPS is based mainly on the results of the 24-hour food recall obtained during the follow-up visit and based on the responses of the mothers on whether or not they tried the recommendations. It is limited to presenting only what recommendations the mothers were able to try and an analysis of the factors that act as constraints or facilitators in the practice of the recommendations.

1. 0-5 Months Old

Children in this age group had the least feeding problems of all groups since only three feeding problems were identified (Table 15). The recommendations presented to the mothers were the following:

- Use both breasts at each feeding and feed long enough until the breasts feel soft
- Stop giving the child water
- Stop giving feeds of other foods and liquids

The third recommendation was not tried because the mother was lost to follow-up.

Table 15. Analysis of TIPS: 0-5 months old

Recommendation No. 1: Use both breasts at each feeding and feed until the breasts feel soft
<p>Results: Only one mother was given this recommendation. Mother followed the recommendation as suggested.</p> <p>Modifications: None</p> <p>Facilitators: Knowing that breastfeeding is good for the baby, the mother was motivated to try it.</p> <p>Obstacles: Nothing was mentioned.</p> <p>Intention to continue: Mother intends to continue the recommendation.</p> <p>Discussion/conclusion: The recommendation was given based on the observation conducted by the interviewer. It was observed that the mother's right breast was larger than the left. The mother was politely asked why and she replied that it has always been like that. During the interview, however, it was noticed that the mother was not using both breasts to feed the child.</p> <p>Most of the mothers interviewed were observed changing breasts from time to time during breastfeeding. As part of the NNP-MOH's campaign on this concern, this recommendation is already being promoted with emphasis on taking a longer time when feeding on each breast in order for the child to get the "hind milk" which has a higher concentration of fat than the "fore milk". This recommendation is feasible for the mothers with children in this age-group, especially since most mothers practice exclusive breastfeeding.</p>
Recommendation No. 2: Stop giving the child water
<p>Results: Two mothers were given this recommendation but one was lost to follow-up.</p> <p>Modifications: One mother followed the recommendation as suggested.</p> <p>Facilitators: According to the mother's observation, the child was sick less often when the mother stopped giving water</p> <p>Obstacles: Nothing was mentioned.</p> <p>Intention to continue: Mother intends to continue the recommendation.</p> <p>Discussion/conclusion: Exclusive breastfeeding in this age group is almost universal. However, there are instances when mothers think that their child's throat needs to be washed with water because of the milk stuck in it. This kind of belief is related to mothers' fears about small babies getting choked. Among breastfeeding mothers, it is important to emphasise that babies do not need water to clean their throat. Although only tried by one mother, this practice appears to be feasible for the mothers to do especially since most children in this age group are predominantly breastfed.</p>

2. 6-11 Months Old

This age group had the highest number of feeding problems as evidenced by the number of recommendations presented to the mothers (Table 16). Most of the recommendations for this age group appear to be feasible for the mothers to practice except for expressing breastmilk and increasing the quantity of food to ½ or 1 bowl per meal.

Table 16. Analysis of TIPS: 6-11 months old

BREASTFEEDING PRACTICES
<p>Recommendation No. 1: Use both breasts at each feeding and feed long enough so the breasts feel soft.</p>

Results: One mother whose child was a little more than 6 months of age was given this recommendation. The recommendation was given based on the observation of the interviewer during the household visit when the mother was breastfeeding and only one breast was used. The mother practiced the recommendation.

Modifications: Not applicable

Facilitators: The mother thinks that her child looks happier and plays more than usual when fed to fullness.

Obstacles: None mentioned.

Intention to continue: Mother intends to continue the recommendation.

Discussion/conclusion: same as in Recommendation No. 1 of the 0-5 months age group

Recommendation No. 2: Express breast milk and have others give to baby with cup and spoon or just a cup

Results: Six mothers were given this recommendation. Four of the six mothers did not try the recommendation. Of the four who did not try, 3 mentioned that they did not leave the house for long hours while one mother who is a teacher, asked her son's caregiver to bring the child to school and she breastfed him there. Only two mothers tried the recommendation but were unsuccessful. They tried expressing their milk but said that none came out.

Modifications: None

Facilitators: None

Obstacles: Two mothers claimed they did not have enough milk to express and leave for their children after breastfeeding in the morning. One of the mothers also thinks that her child is too small to be fed breast milk using a cup or spoon.

Intention to continue: Despite not trying, the 4 mothers who did not try still intend to try and continue the practice if necessary. However, one of the two mothers who tried is not willing to continue the practice because she thinks she does not have enough milk to express after breastfeeding her child in the morning.

Discussion/conclusion: Based on these results, it can be said that this recommendation is not feasible. It is possible that mothers need more education and support on how to express their milk properly and to overcome their belief that they do not have enough milk to express and leave for their children when they leave the house.

Recommendation No. 3: Breastfeed more frequently when at home and during the night, on demand.

Results: Only one mother was given this recommendation and she tried it.

Modifications: None

Facilitators: The mother wanted to feed the child until full. She believed that the more she breastfeeds, the more milk she will produce.

Obstacles: None mentioned

Intention to continue: Mother intends to continue the recommendation.

Discussion/conclusion: Though only one mother tried the recommendation, it is possible for the mothers to feed their children on demand.

COMPLEMENTARY FEEDING PRACTICES

Introduction of food

Recommendation No. 4: Start feeding soft foods, such as thick *bobor* or soft steamed rice (*bay*)

cham hoy) with chopped fish, egg or meat and mashed pumpkin or green vegetable, after breastmilk.

Results: This recommendation was given to mothers whose children were already 6 months or more and had not given complementary foods yet or had started giving them but lacked variety. Five (5) mothers were given this recommendation and all of them tried it. The mothers started feeding their children with *bobor* and rice with broth or fish. Specifically, the following results were obtained during the follow-up visit as reflected in the 24-hour recall:

- M1: plain *bobor* and grilled fish, rice and broth of water lily soup
- M2: *bobor* with fish
- M3: rice and grilled fish, rice with salt
- M4: plain *bobor*
- M5: *bobor* with pork, egg, carrots and ivy gourd

Modifications: No modifications were done. Mothers started giving complementary foods aside from breast milk.

Facilitators: The motivating force that made the mothers continue the recommendation once they started giving complementary foods was their assessment of their children's behaviour. Three (3) of the mothers said that their children seemed to be happier, more active, and slept well after giving them complementary foods. Mothers expressed that ingredients such as vegetables, fish and meat are easy to find and the recommendation is easy to do.

Obstacles: On the other hand, some mothers mentioned factors that make it difficult to try the recommendation. One mother mentioned that she did not give the water lily in the water lily soup to her child because she was afraid it may choke her child. Another mother did not persist in feeding her child pumpkin because the child spitted it out.

Intention to continue: All of the mothers had the intention to continue the recommended practice.

Discussion/conclusion: The importance of the well-being of the child is the ultimate concern of the mothers when it comes to feeding. Taking this into consideration, the mothers tried their best to do something to improve their child's intake. With proper information on initiation of complementary feeding, this practice can be feasible for the mothers to do. It is also important that persons involved in counselling mothers on child feeding be able to explain to mothers that it is natural for babies to spit out the food initially, but with persistence, the baby will learn to eat the food.

Quality of food

Recommendation No. 5: Make *bobor* with less water so it is thicker, and add mashed fish, egg or chopped meat and pumpkin, and green vegetables, after breast milk.

Results: Thirteen (13) mothers were given this recommendation. Several mothers tried adding at least fish or vegetables to the plain *bobor*. The question about thickness of the *bobor* was overlooked and the information gathered was limited to the addition of vegetables and fish.

- M1 (2014) - mother added fish
- M2 (4021) - mother added morning glory and fish
- M3 (4004) - mother gave *bobor* bought from the market but when asked if she tried the recommendation, the reply was "yes".
- M4 (1005) - mother added egg
- M5 (2015) - pumpkin and frying oil were added to *bobor*
- M6 (2022) - mother added fish
- M7 (1003) - mother gave *bobor* bought from the market but tried the recommendation
- M8 (4016) - mother added pork, Chinese cabbage, egg, fish

M9 (5012) - mother gave *bobor* bought from the market but tried the recommendation

M10 (3007) - mother added morning glory and fish

M11 (3009) - mother added pumpkin

M12 (5017) - mother added grilled pork into *bobor* and salted fish

M13 (3015) - mother added morning glory and fish

Modifications: One mother chose to add fish only because according to her observations, the child vomits when fed with vegetables.

Facilitators: Some of the responses given by mothers were the following:

"I liked it because it is easy to buy, cheap and easy to cook".

*"I like it when I feed my child with *bobor* that contains fish and vegetables, my child enjoys eating it. Moreover I can catch fish by myself without spending money to buy, and it is easy to find vegetables that are planted near the house, such as morning glory".*

*"What I like is that when I cook *bobor* with vegetables, especially gourd, my child seems to be able to eat more food and it's easy to find"; "When I feed my child food with fish, vegetables, he seems more active, happier, sleeps well and disturbs me less".*

*"Eating thick *bobor* my child urinated less, his fullness lasted long and he's strong".*

"I liked it because I plant the vegetables and catch fish by myself, If we don't have vegetables, we can ask our neighbours for some".

"It is easy to make"

"I like it. It's not difficult. It's easy".

Obstacles: The following comments were given by the mothers:

The neighbour said, "the child doesn't know how to eat, do not force him to eat because he will feel like vomiting".

"My child doesn't want to eat, she eats only a little, then she stops".

Neighbours said, "Don't believe them! My children eat only soup and never get sick"; The mother also discontinued the recommendation because she was busy at the store and the child had diarrhoea when she fed vegetables

"The point that I don't like is that fish is expensive".

One mother mentioned she didn't like pork, Chinese cabbage, and morning glory because these are difficult to buy and she had to go to market and spend money for travelling. Still another mother could only practice the recommendation when she has time, not everyday.

Intention to continue: Twelve (12) mothers had the intention to continue the practice but one mother will not continue because when she tried to feed her child, the child did not want to eat additional food and only wanted to breastfeed.

Discussion/conclusion: This recommendation is feasible, although most mothers were more willing to add fish or meat to *bobor* than vegetables.

However, most mothers think that providing thick *bobor* to a young child will cause choking because it will get stuck in the child's throat. This was seen in one of the recipe trials conducted. However, the information on acceptability of thick *bobor* is very limited. Therefore, it needs further investigation. It is sometimes difficult to convince mothers to prepare *bobor* with vegetables and meat especially for the younger children because they think they are too small to be fed and it will choke the child. It is important to counsel mothers on the right consistency of foods so the child will not choke.

Recommendation No. 6: Add oil to *bobor* when cooking

Results: Eight (8) mothers were given the recommendation. Six mothers added oil to *bobor*,

while 2 answered yes but no oil was reflected in the 24-hour.

M1 (2014) - mother did not feed the child, child was breastfed only in the 2nd recall

M2 (2011) - mother added oil

M3 (3007) - mother added oil

M4 (3009) - mother added oil

M5 (1005) - mother added oil

M6 (3015) - mother did not add oil

M7 (4016) - mother added oil

M8 (4022) - mother added oil

Modifications: No modifications were made.

Facilitators: The most frequent reason for liking the recommendation was that oil is cheap and they can buy it anywhere. Mothers believed that if they added oil, it would make their child healthy and the food would be swallowed more easily because it's greasy.

Obstacles: None were mentioned.

Intention to continue: All the mothers intend to continue

Discussion/conclusion: Although most of the mothers were not using oil in the *bobor*, they were able to try it. This recommendation is feasible, and cooking oil is always available in the market.

Recommendation No. 7: Add the fish or meat and vegetables to the rice not just the liquid

Results: Nineteen (19) mothers tried the recommendation. The results showed that most of the mothers added fish and vegetables (no matter how small the amounts) to the rice instead of just giving the liquid.

M1 (3013) - Mother added papaya, wintermelon and fish (*trei phtouk*)

M2 (3016) - Mother said she tried but no vegetables reflected in the 24 hour recall

M3 (3004) - Mother added only fish (eel)

M4 (3005) - Mother added fish

M5 (3011) - Mother served cassava leaves, banana flower and fish (*trei phtouk*)

M6 (3019) - Mother added catfish and cassava leaves

M7 (1004) - Mother only added broth but she replied that she practiced the recommendation

M8 (1009) - Mother gave only broth but she said she tried the recommendation when she was asked.

M9 (5006) - Mother served rice with fish, taro and "sleukbas" and chinese cabbage

M10 (5012) - Mother tried, but no vegetables were given as reflected in the 24-hour recall

M11 (5020) - Mother added pumpkin, "sleukbas" and fish (*trei phtouk*)

M12 (5021) - Mother gave pumpkin and fish (*trei phtouk*)

M13 (4010) - Child was fed with rice and fish (*trei phtouk*) and rice with pork and pumpkin

M14 (4013) - Mother tried for 3 days only

M15 (4007) - Mother gave only broth but she said she tried the recommendation

M16 (4018) - Mother added fish and morning glory

M17 (3001) - Mother fed wintermelon and fish (*trei phtouk*)

M18 (5019) - Mother added chicken liver, cabbage, pork and "sleukbas"

M19 (3002) - Mother gave fish (*trei phtouk*) and banana flower

Modifications: Some mothers indicated that they did not give vegetables that they think are not good for their child.

"I modified the recommendation I fed my child only soft vegetables, but not morning glory. I'm afraid he will choke".

"I modified a little when feeding vegetables. For example, I do not let my child eat pineapple (cuts his mouth), morning glory (chokes)"

Facilitators: Some of the motivating factors that the mothers mentioned are the following:

"Soft vegetables like wintermelon, Pa' Tee, gourd, pumpkin, my child likes them and I am not afraid of choking. My child eats a lot and he is healthy".

"I like it because I have vegetables in my backyard and I can catch fish myself"

"Some kinds of vegetables are easy to find in the village such as gourd, winter melon, morning glory; and fish. Some of them are grown in our house and the child likes vegetables, now he is fatter"

"What I like is that when I add vegetables to the rice he likes it so much. And vegetables are easy to find, also cheap. When my child is full, he plays more and sleeps more. I have more time to work"

"What I like about it is that when I feed my child vegetables, fish, and meat, my child likes eating, and I can fish by myself"

"My child like eating fish, pork and vegetables. After eating he seemed stronger and happier"

"What I liked about it was, I plant vegetables by myself, it was easy to find vegetables such as pumpkin, gourd, and sleuk bas"

"I could find it, it was good to eat and my child enjoyed eating"

"I observed that after eating a meal, my child is happy and plays more than usual, and he has a smile on his face"; It is easy to obtain, morning glory I grow by myself and I catch fish by myself

My older sister said that, "adding vegetables and meat makes their child healthy. If the bobor is too watery, the liquid of the bobor will come through the urine and the child will get hungry easily".

"Feeding with vegetables makes my child healthy and clever"

"What I liked about it is when I fed him, he was happy and enjoyed eating"

The child is able to eat more, sleep well and it's easy to make; After feeding rice, my child is happy, heavier and cries less

Obstacles: On the other hand, the mothers mentioned some constraints to practising the recommendation

"I don't want to feed my child hard vegetables like morning glory, It's not easy to mash. It might get stuck in the child's throat".

"What I don't like is that fish is more expensive in relation to my income. Furthermore, it's difficult to buy".

She can only follow the recommendation every other day "because we do not cook soup all the time, sometimes we eat dry food like fried fish with no vegetables

"What I don't like about it is that vegetables are expensive (Chinese greens, taro)"

"I don't want my child to eat vegetables such as pineapple, which can harm his mouth (cut), and morning glory which can get stuck in the child's throat"

"What I didn't like about it was that fish was expensive"

"It was difficult because my child could not eat as much as the other children and I didn't have enough money to buy meat"

She doesn't like it, fish is expensive, she cannot catch enough fish by herself.

Because she is poor, she didn't like adding pork because it's expensive and it's difficult to buy; vegetables couldn't be grown because of the flood.

"When I feed my child with rice and gourd soup, my child eats less because she doesn't like gourd, but if it's pumpkin, she eats a lot because she likes pumpkin."

Intention to continue: All the mothers intend to continue the recommendation.

Discussion/conclusion: Foods in the villages are usually prepared with liquids and this is usually the food for the family and not just for the child. It can be said that most mothers can adapt this practice since it is less time consuming than to prepare a different dish for the child. However, mothers will need counselling in order to overcome their fear of choking their children because of certain vegetables such as morning glory, which is actually good for their child. With proper information on food preparation, this recommendation can be doable.

Recommendation No. 8: Add vegetables, fish or meat to your child's diet

Results: This recommendation was given because several mothers were giving only steamed rice with very limited or sometimes no vegetables or meat. This recommendation is different from recommendation no. 7 in the sense that, the mothers give only rice and nothing else or sometimes rice but with very small amounts of vegetables and meat. Eight mothers (8) were asked to try the recommendation and all of them agreed.

- M1 (1021) - Mother served rice with morning glory soup
- M2 (1002) - No vegetables added
- M3 (5003) - Mother added gourd, fish, Chinese cabbage
- M4 (5010) - Mother added fish
- M5 (3012) - Mother added morning glory and fish
- M6 (4002) - Mother added Chinese cabbage, fish and pork
- M7 (2016) - Mother added wintermelon and pork
- M8 (1019) - Mother added bamboo shoots

Modifications: No modifications were made.

Facilitators: Some of the motivating factors that the mothers mentioned were:

- "When the child eats vegetables, his body becomes strong".*
- "I like it because it's easy to buy"*
- "I'm happy to see my child likes eating vegetables, fish and meat. He seems to be stronger"*
- I am happy when I see my child likes the food I prepared for him. The child is also happy, gains more weight and he cries less. It is easy to do.*
- The mother feels happy when her baby eats the food that was advised. Because that will help the child grow strong, healthy, with strong bones, and the child will be able to eat more food.*
- The mother is happy to see the child eats more as she puts vegetables in the child's food.*
- She liked it because it's easy to find vegetables, she plants vegetables by herself and the child liked the vegetables*

Obstacles: Money is always an issue when buying meats. One mother mentioned that fish is expensive and difficult to buy. She didn't have money.

Another mother said, *"I don't have much money to buy good meat for my child"*

Intention to continue: All mothers have the intention to continue the recommendation.

Discussion/conclusion: Based on the responses given by the mothers, it can be said that this recommendation can be put into practice. With proper information and guidance, mothers can be taught how they can make use of the available vegetables in their surroundings.

FREQUENCY AND QUANTITY OF MEALS

Recommendation No. 9: Increase meal frequency until baby is fed 2 times per day (6 months) or 3 times per day (7-12 months)

Results: It was found that children were often fed 1 (for those who are 6 months) to 2 (those who are 7-12 months) main meals in a day. Twelve (12) mothers tried this recommendation. The results showed that almost all of the mothers increased the meal frequency to 2-3 times per day.

M1 (2009) - From 1 meal, mother increased to 2 meals

M2 (2014) - Mother partially tried

M3 (2016) - Mother fed the child 3x (used to feed 2x only)

M4 (1021) - Child is fed 3 main meals

M5 (1014) - Mother served 3 meals

M6 (1019) - Mother served 3 meals

M7 (5006) - Mother added 1 main meal (breakfast)

M8 (4009) - Child is fed 3 times (before, 2 times only)

M9 (4004) - Mother served 3 meals (used to serve 2)

M10 (4018) - Mother increased the meal time to 3x

M11 (5010) - Mother added 2 main meals (breakfast and dinner)

M12 (3004) - Mother did not add additional meals or snacks as recommended but when asked if she followed, she replied "yes".

Modifications: Several modifications were made. For instance, instead of feeding the child 3 times, mother fed 2 times because she had no time to prepare food while she was working in the field. Another mother also tried to increase the frequency of meals up to 4 times.

Facilitators: Most of the mothers' replies were about to their observations relating to their children's behaviours after trying the recommendation.

"It was easy to do, and the child ate more than usual; I observed that after the child eats more bobor than usual, he is happy, doesn't disturb me, and gains weight".

"What I like is that when I feed my child 3 times a day, I can tell that my child is healthier and stronger. And also the food is not difficult to find."

"I observed that after my child has had enough to eat, he feels happy and sleeps well. I have time to work more"

"I like it, because it is easy to prepare"

"After eating, my child feels good, is happy and sleeps for long hours".

"After I have increased meal frequency to 3 times per day, my child eats well, he doesn't spit the food out. Then he becomes stronger and more active".

"I like it because it's easy to prepare"

After eating bobor the child is happy but he still feels like vomiting

"When the child eats more, he doesn't cry. He's bigger than before, and feels healthy and happy. I 'm so glad".

She feels happy when the baby eats the food that she prepares. The child seems to be able to eat more than he used to eat. And his bones seem to be getting stronger.

The more the child eats, the more he plays. After sleeping, he was more delightful than before.

The mother tested the recommendations and she liked them because she wanted her child to grow well and be healthy.

Obstacles: Mothers cited several reasons that make it difficult for them to try the recommendation on some occasions. One mother said that she cannot provide 3 main meals for her child because she doesn't have enough money to buy food. One mother observed that when her child was fed *bobor* at night, the child vomits. One mother tried feeding the child 4 times, but the child did not finish his food.

Intention to continue: The mothers are willing to continue practicing the recommendation.

Discussion/conclusion: It is a common practice among the households in the villages to eat 2 main meals in a day, normally just lunch and dinner. This may be because some of the household do not have the means to provide 3 complete meals in a day.

Despite the inability of some mothers to provide the recommended number of meals, most were able to increase the number of meals. Therefore, this recommendation can be feasible for the mothers to continue.

Recommendation No. 10: Gradually increase amount of food given to baby until the child is eating at least 1/3 of a small bowl (or 2-3 T) per meal (for 6 months)

Results:

M1 (2014) Mother tried but up to 2 teaspoons only

M2 (1009) Mother increased the amount of food

M3 (4014) Mother increased the amount at some points (up to 2T but not every meal)

Modifications: Mother modified the given recommendation. Her child wasn't able to eat 1/3 bowl of *bobor* because he vomited the food (1or 2 teaspoons only)

Facilitators:

M1 (2014) - After eating meal, the child's happy, but he still vomits

M2 (1009) - She's happy seeing the child eat more. The child is full of energy and clever.

Obstacles:

M1 (2014) – “When I gradually increased amount of food given to baby, he did not want to eat (he eats 1 or 2 teaspoons only) and he vomits; the husband said, "Do not force the child to eat if he doesn't finish his food because his stomach is small.”

M3 (4014) – “It is difficult because my child could not eat big amount of food”.

Intention to continue: One (M2-1009) mother intends to continue the recommendation but one mother (M3-2014) will wait until the baby is 8 months before she increases the amount of food.

Discussion/conclusion: This recommendation is difficult for the mothers to do since most of them believe that younger children are too small to be fed. Infants can be fed in small frequent feedings and make them use to feeding rather than make abrupt changes in the amount of food to feed.

Recommendation No. 11: Gradually increase amount of food given to child until he is eating at least 1/2 bowl per meal

Results: Twenty-two (23) mothers tried this recommendation.

M1(2009) - Amount in grams increased

M2 (2016) - Amount of food given is almost the same as the first visit

M3 (2018) - Amount served is increased

M4 (2015) - Child is fed ½ bowl

M5 (3005) - Amount served is increased to at least ½ bowl

M6 (4009) - Mother increased the amount

M7 (3011) - Partially tried (small amount only about 2 Tablespoons)

M8 (1004) - Mother increased amount of food served

M9 (1014) - Mother served ½ small bowl

M10 (1019) - Mother tried

M11 (5020) - Mother increased the amount to 1/2 bowl

M12 (5019) - Food served was less than the amount served in the first visit

M13 (5021) - Food served was less than the amount served in the first visit

M14 (5017) - Food served was less than the amount served in the first visit

M15 (4002) - Mother served half small bowl of *bobor*

M16 (4020) - Amount consumed is increased

M17 (4010) - Amount served was increased for only a very small amount

M18 (4007) - Amount served was lesser but mother said she tried the recommendation

M19 (4013) - Mother tried for 3 days only

M20 (2022) - Mother tried to increase to ½ small bowl

M21 (1011) - Mother tried in part but was unsuccessful because the child could not finish

M22 (3009) - Increased amount of food

M23 (4022) - Mother increased to at least ½ bowl

Modifications: One mother added only up to 2 teaspoons of food because the child felt like vomiting when fed more than that amount. Another mother could only give 1/3 bowl because the child could not finish the meal. Still another mother whose child was sick tried the recommendation for 3 days because the child refused to eat.

Facilitators: The mothers replied that their children looked healthier, happier, and more satisfied. The children cried less and became more playful. The children's change in behaviour gave the mothers more time to work without being disturbed by the children. In addition, mothers commented that the recommendation is easy to do.

Obstacles: Mothers who tried the recommendation think that 1/2 bowl of food is too much for their children to eat. One mother observed that when trying to feed her child more than 2 teaspoons, the child felt like vomiting. For this reason, the husband told the mother not to force the child to eat when he doesn't want to because the child's stomach is still small. Another mother thinks that her child cannot finish the meal because the amount is too much. Another issue is the ability of the mothers to buy the foods to give their children. Some mothers said that they want to feed their children with meat but it is difficult to do because they have to ride a boat to the market and it is expensive.

Intention to continue: All the mothers agreed to continue practicing the recommendation.

Discussion/conclusion: All the mothers tried their best to provide adequate amounts of food for their child's growth. Even if the other mothers were not successful in making their child eat ½ bowl of food, they still insisted on trying.

Among the recommendations presented, this is the most difficult for mothers to do. Most mothers think that providing ½ small bowl is too much for their young child to eat. This practice is not feasible for the mothers to do. It is recommended instead that small frequent feeding be provided in order to make the young children used to eating rather than providing a large amount of food in one eating.

Recommendation No. 12: Motivate and help your child to finish all his meal.

Results: Five (5) mothers were given this recommendation and all of them tried it. One mother said that even if she helped her child eat, the child still did not finish the food.

Modifications: No one modified the recommendation but one mother said she tried the recommendation for only 3 days because her child was sick.

Facilitators: The mothers mentioned frequently how satisfied they were when they saw their child sleeping well, happier than before and not as fussy.

Obstacles: One mother mentioned that she discontinued the practice when her child got sick. The reason was not very clear but it may be because the child was sick and her appetite was decreased.

Intention to continue: All of the mothers have the intentions to continue the recommendation.
Discussion/conclusion: Motivation is an important factor for a growing child to finish his meal. For working mothers with children less than 2 years of age, most of the time, they are left with other caregivers in the family. This recommendation is be feasible, and it is important that other caregivers (aside from the mothers) be aware of the need to help the child to eat.

3. 12-23 Months Old

Among the 12-23 months old children, the number of meals being served and the child's ability to consume all the food served make up the most common problems for this age group (Table 17).

Table 17. Results of TIPS in children 12-23 months of age

BREASTFEEDING PRACTICES
Recommendation No. 1: Express breastmilk and have others give to baby with cup and spoon or just a cup
<p>Results: Three (3) mothers were given the recommendation. None of the mothers tried because they did not leave the house.</p> <p>Modifications: - Not applicable (N/A)</p> <p>Facilitators: - N/A</p> <p>Obstacles: - N/A</p> <p>Intention to continue: Even if the mothers did not try the recommendation, they are willing to do if they need to in the future.</p> <p>Discussion/conclusion: Expressing breastmilk is a totally new practice among the mothers at the study sites. Motivation for this practice does not appear to be very high, probably because mothers are not separated from their babies for long periods. This practice is not feasible at this time.</p>
COMPLEMENTARY FEEDING PRACTICES
Quality of meals
Recommendation No. 2: If you feed the child soup with rice, give him/her the ingredients in the soup, including fish or meat and vegetables
<p>Results: Three (3) mothers were given this recommendation and all of them agreed to try. One mother (M1- 3003) gave fish and morning glory in the soup; another (M2 – 5004) gave fried fish and snake soup. One mother whose child was sick, however, was not able to practice the recommendation.</p> <p>Modifications: One mother gave only plain <i>bobor</i> and grilled pork because the child could not eat rice with vegetables and fish (child was sick). One mother refused to give pumpkin in the belief that her child will get diarrhoea.</p> <p>Facilitators: The children seemed to play more and eat more.</p> <p>Obstacles: Mother said pumpkin causes her child to have diarrhoea.</p> <p>Intention to continue: All of the mothers intend to continue the recommendation.</p> <p>Discussion/conclusion: There are certain foods, as well as practices that mothers perceive as harmful. It is essential that mothers be educated on the benefits of providing certain vegetables and that diarrhoea can be brought about by other causes such as unhygienic environment or provision of contaminated water. Mothers often believe that their children will choke on certain</p>

vegetables, and that is why they usually provide rice with liquid only. This recommendation can be feasible, but mothers should be counselled on which vegetables (soft) are easy for children to eat and how to prepare them to avoid choking.

Recommendation No. 3: Add vegetables and meat to the rice at each meal

Results: Three (3) mothers were given this recommendation and all of them tried it. This recommendation was given to mothers who fed their children rice with a small amount or no vegetables and meat at all.

M1 (5016) - Mother added unripe papaya and eggplant

M2 (5008) - Mother added fish, papaya, ivy gourd and taro

M3 (1008) - Mother served morning glory soup and roasted fish

Modifications: No modifications were done

Facilitators: Vegetables are easy to find in the villages. Vegetables are good for the children for them to grow healthy.

Obstacles: Meat is difficult to buy because the market is far.

Intention to continue: All the mothers intend to continue the recommendation.

Discussion/conclusion: Mothers are willing to add meat/fish and vegetables to the rice; mothers should be counselled to use foods that are available in their communities.

Frequency and quantity of meals

Recommendation No. 4: Increase feeding frequency of meals until the child is fed 3 times per day plus 2 snacks

Results: Six (6) mothers tried the recommendation. This recommendation was given to mothers whose children were fed less than the recommended number of main meals (~3) or snacks (~2).

M1 (1008) - Mother fed the child with 3 meals and 2 snacks

M2 (1010) - Mother gave two snacks

M3 (2017) - No additional snacks was given but mother said she tried the recommendation

M4 (3021) - Mother added 2 snacks

M5 (4001) - Mother gave 3 meals and 2 snacks

M6 (5008) - Mother provided 3 meals and 2 snacks

Modifications: None.

Facilitators: When fed with enough meals, the children seemed happier and satisfied and the mothers are not distracted from work. The children seemed to gain more weight, were more energetic and played more.

Obstacles: The recommendation can be done only when the mother is at home because when she goes to the field, she cannot feed her child that often. Some neighbours have commented that old people before have never fed their children that often so there is no need for the young children now to be fed that much. Money is an issue when the mother has to buy foods such as meat to feed her child enough. When the child is given frequent snacks, the child will drink water more often and he will have "swollen stomach" (tummy will become bigger as a result of drinking too much water).

Intention to continue: All of the mothers have the intention to continue.

Discussion/conclusion: Despite obstacles, most mothers were able to increase the frequency of meals. This recommendation is important since two thirds of the children in this age group were not meeting their energy intake. This recommendation should be a priority for counselling on young child feeding.

Recommendation No. 5: Gradually increase the amount of food until you are giving your child 1

small bowl of food at each meal

Results: Thirteen (13) mothers tried the recommendation. Not all of the mothers were able to increase the amount to one bowl.

- M1 (1010) - Mother increased the amount
- M2 (1015) - Mother increased the amount but still less than 1 small bowl
- M3 (1017) - Mother increased the amount but still less than 1 small bowl
- M4 (2001) - The mother did not try, lesser amt. was given
- M5 (2005) - Amount is less than the first visit
- M6 (2012) - Amount is less than the first visit
- M7 (3018) - Mother fed 1 to 2 Tablespoons
- M8 (3021) - Mother served 1 small bowl
- M9 (3003) - Almost the same amount as the first
- M10 (5004) - Amount is less than the first visit
- M11 (5008) - Amount was increased to 1 small bowl
- M12 (4001) - Number of grams consumed is increased
- M13 (1008) - Amount was increased to almost 1 small bowl

Modifications: One mother gave the usual amount that her child consumed because according to her observations, the child spitted out the food when given more.

Facilitators: The mothers' replies all pertain to their child's change in behaviour when fed more than before.

The mother likes the idea of increasing the amount of food for her child because the child seems to cry less.

The child eats more, grows well, and doesn't cry. She has plenty of time to work.

The child eats more, doesn't cry, plays more, and weighs more than usual.

The child's is happy and he grows fast.

"It was easy to do".

"It's easy to make".

"The child eats more, he doesn't need as much breast milk".

"The child eats more than before".

"I liked it because it will make the child strong, sick less"

"My child has enough to eat , he disturbs me less , sleeps well , is strong , and plays more"

"I like it. When I gradually increase the amount of food, my child eats more".

"I could do it and my child was able to eat more than before"

Obstacles:

When the child eats more snack, he drinks more water so his stomach will get swollen; A mother can do the practice everyday when she is at home, but if she goes to the field, she cannot.

"Difficult, because I don't have enough money to buy meat for my child to eat enough".

A mother's neighbours said the following: "old people before have never given foods to children as often as this, why give foods so often to a child so young? She replied: If the doctor had not come to tell me, do you think my child would be as healthy as now?"

"When I increase the amount of food for my child, s/he spits the food out and refuses to eat".

Mother feels happy because she sees her child is full. He plays and does not cry often, and sleeps well.

The child becomes full and finished all the food

"I was afraid that when he ate more, his stomach would get big and burst because my child is still small"; child also spits out the food when the mother feeds more than before

"I want to find more meat to feed my child more, but it's difficult to find it (to buy) and I don't have enough money"

"I don't like it when I prepare one small bowl of rice for her, my child doesn't finish all her food, but she eats nearly one small bowl".

Intention to continue: Mothers intend to continue the practice

Discussion/conclusion: Among the recommendations offered, this was the most difficult for the mothers to practice. Although mothers were able to increase the amount of food, it is still not enough to meet the recommendation of one small bowl. The mothers showed a lot of resistance to increasing the amount of food. This recommendation is difficult to achieve but it is important because most children are not eating enough to fulfil their energy requirements. It should be emphasised though that gradually increasing the amount of food served will help the child get used to eating more than what was usually being given.

Recommendation No. 6: Help your child to eat; do not leave your child to eat by him/herself. Motivate your child to finish all his meal

Results: Seven (7) mothers tried the recommendation. Six mothers reported that their children consumed all the foods given and 1 mother was unsuccessful because her child was not able to finish the food.

M1 (1015) Child finished his meal

M2 (2001) All food served was consumed

M3 (2005) All food served was consumed

M4 (2007) All food served was consumed

M5 (2012) All food served was consumed

M6 (2017) All food served was consumed

M7 (3018) Mother tried but was unsuccessful

Modifications: One mother had to leave her child to eat by himself several times because she was working in the field. Another mother tried to help her child finish the food but the child still would not. The mother just fed the child whatever the child would eat because he was spitting out the food.

Facilitators: The children were able to finish all the food with the mother's help and that makes the mothers happy. When the children are fed to satiety, they do not disturb the mothers, and they can work in the fields and do some chores.

Obstacles: When the mother has to go to the fields, she has no choice but to leave her child to eat on his own. One mother noted that no matter how much the mother tried to motivate and help the child finish the food, the child still could not finish.

Intention to continue: All of the mothers intend to continue the recommended practice.

Discussion/conclusion: This recommendation was given to a combination of mothers whose children were sometimes left to eat on their own and others whose children did not finish their meal. Children are sometimes left with other caretakers who might not provide the support that mothers can give especially when children are left with older siblings and other relatives. Some mothers were successful and were motivated and understood the importance of helping the child to eat. However, there are barriers in the sense that some mothers work in the field. This recommendation applies to mothers but also to caretakers who stay with children when the mother is away. This recommendation can be feasible with the support of other household members to look after the younger children when the mother is not around.

Table 18. Child recovering from illness

Recommendation No. 1: Continue to feed your child as usual with meat and vegetables to gain back his weight (child recovering from sickness)
Results: 1 mother tried the recommendation Modifications: No modifications were done Facilitators: The mother was glad when her child ate more than usual, she wants her child to grow fast and be healthier again Obstacles: None mentioned Intention to continue: Mother will continue the recommendation Discussion/conclusion: There was no feeding problem identified for this child. However, the child's weight is below normal so it was recommended to the mother to continue to feed him with variety of food to gain back his weight.

4. Recipe Trials

The objective of the recipe trial was to gather information on how infant foods are prepared by the mothers. The idea was to observe the usual preparation and cooking methods as demonstrated by the mothers during the trials.

Participants

The recipe trials were limited to mothers with children between 6-11 months old. This was done to gather relevant feeding practices for those children in the transition period (from exclusive breastfeeding to introducing additional foods) rather than invite mothers whose children do not require additional foods (i.e., 0-5 months) and with older children who are typically fed family foods (i.e., 12-23 months). About 5-6 mothers per province (or a total of 34 mothers) were invited to participate in the trials. However, during the trials, it was found out that the health volunteers recruited some mothers (a total of 5) whose children belong to the older age group.

Selection of recipes to prepare

Since the objective of the recipe trials is to learn how the infant foods are currently prepared, the team made sure that the ingredients to be used were within the mothers' capabilities to acquire them. The team made initial observations of the available resources in the villages such as, the most common available vegetables and meats that the mothers can afford or can be gathered in the surroundings. This was done to make sure that no modifications in the usual preparations such as adding of ingredients that the mothers do not usually use or cannot afford to buy (such as pork or beef) would be done.

The mothers were made to decide among themselves what food preparation they can prepare for their children that is thick, easy to prepare and can be done at home using the available ingredients in the villages.

Results

Recipes

Most of the mothers in each province agreed to prepare *bobor* since this is the most common food preparation that they feed for their children. The different preparations in each province were as follows:

PROVINCE	FOOD PREPARATION	INGREDIENTS	AMOUNT (Raw)
Kratie	<i>Bobor with morning glory</i>	Rice	174 g
		Water	1230 ml
		Morning Glory	32 g
		Palm sugar	8 g
		Duck' s egg (gross) 1pc	64 g
		Garlic leaves	8 g
		Oil	12 g
		Salt	16.5 g
		Garlic	6 g
Stung Treng	Plain <i>bobor</i>	Rice	262 g
		Water	1500 ml
		Salt	24 g
		Sugar	24 g
	Fish <i>bobor</i>	Water	450 ml *
		Rice	126 g
		Pumpkin	134 g
		Wintermelon	42 g
		Gourd	50 g
		Ivy gourd, leaves	22 g
		Oil	6 g
		Fish ("Trei Phtouk")	200 g
		Garlic	8 g
		Palm sugar	8 g
		Iodized salt	14 g
Prey Veng	<i>Bobor with fish</i>	Rice	502 g
		Water	4 L
		Pumpkin (w/ leaves)	136 g
		Gourd	210 g
		Cat fish	148 g
		Palm sugar	30g
		Iodized salt	30 g
		MSG	14 g
		Cooking oil	14 g
		Pepper	12 g
		Garlic	12 g
		Fish sauce	12 g
Kampot	<i>Bobor with fish</i>	Rice	522 g
		Water	5 L
		Fish ("Trei Ta Orn")	240 g

Battambang	Bobor with fish	Ivy gourd, morning glory, "phty"	272 g
		Fish sauce	34 g
		Salt	24 g
		Garlic	8 g
		MSG	14 g
		Sugar	32 g
		Cooking oil	14 g
		"Slek Chee" and garlic leaf	9 g
		Rice	526 g
		Water	4500 ml
		Chinese green cabbage	238 g
		"Sleuk Bass"	52 g
		Pumpkin	242 g
		Fish ("Treï Phtouk")	322 g
		Salt	26 g
		Sugar	10 g
		Garlic	10 g
		MSG	10 g
		Wintermelon	236 g
		Fish sauce	42 g
		Eggs (4 pcs. Gross)	112 g

* Measurement of additional water was missed

At the start of the recipe trials, it was emphasised that the group should make something that is thick and easy to prepare. Otherwise, the group will have to make an improved recipe if by standards, the *bobor* was not thick or not nutritious.

The groups in Kratie, Prey Veng, Kampot and Battambang were able to prepare thick *bobor* except for Stung Treng. It was very interesting to know that, the mothers prepare only plain *bobor* for their children and when they were asked to improve the recipe by adding some vegetables and meat, there was resistance from the mothers. The mothers believed that their children cannot eat additional foods other than the rice in the plain *bobor*.

Usual methods for preparing children's food

The method of preparing *bobor* is somehow uniform across all the group of mothers from each province. First, rice is washed and boiled until soft. The other ingredients such as the vegetables and seasonings are added when the rice is cooked.

In instances when the mothers decided to add fish into the *bobor*, there were some noted differences in the preparation. For instance, in Stung Treng, the mothers decided to add fish in the second preparation that they made ("improved *bobor*"). The fish was boiled in a separate pot. However, in Prey Veng, Kampot and Battambang, the mothers boiled the fish together with the rice until soft enough to be flaked and de-boned.

It was observed that mothers do not sauté the vegetables into the oil before adding to the rice but instead oil is added like an additional seasoning to add flavour to the *bobor*. Moreover, it is a common practice among the mothers to add salt, monosodium glutamate (MSG), and fish sauce all together. According to the mothers, it adds more to the flavour that way. Addition of palm sugar is

also common among the mothers because they think making the *bobor* a little bit sweet will be more attractive for their children.

Mothers' Reactions during the Recipe Trials

All the mothers agreed that the vegetables to feed their children should be chopped into very small pieces so that their children could swallow. The mothers made sure that fish bones were carefully removed.

The most common fear among the mothers is for their children to get choked. The fear of having food get stuck in their children's throat was frequently heard among the mothers. Hence, it was observed that mothers added more water when they think the consistency is too thick for their children. The mothers made sure that the rice was cooked well and soft enough for their young children.

The mothers have various ideas of how they can make the preparation more nutritious. In Kratie for instance, fish is scarce in the village. The mothers thought of adding eggs instead to the *bobor*.

On the average, the preparation time took 40-75 minutes to finish. It may take less time to prepare it at home because the amount of ingredients will be lesser unlike during the recipe trial when preparations were made for a number of children.

Responses of Children and Mothers

An interesting finding during the recipe trials is that there were groups of mothers who experienced for the first time feeding their children with added ingredients. In Stung Treng for instance, the team was quite surprised to discover that the mothers have not tried adding anything to their plain *bobor*. Initially, the mothers were asked to prepare the usual food preparation that they feed their children. All mothers agreed to cook plain *bobor*. When asked why, the mothers replied that they never feed anything to their children except plain *bobor*. When the team suggested that they make recipes out of the ingredients that the team presented, there was resistance from the mothers. They insisted that they have never fed their children anything except plain *bobor* and they were a little hesitant to try it.

The first preparation of plain *bobor* was not very acceptable to the children. The mothers said their children were sick and they cannot eat properly. However, on the second preparation of the "enriched" *bobor*, it was observed that the mothers themselves were quite surprised at how they can make a more nutritious *bobor*. The mothers thought that the second preparation was tastier and better. Some of the children tried it and they liked it. But some of the children fell asleep and were not able to taste the second *bobor*. However, the mothers themselves liked the second *bobor* and they were pleased with what they have actually accomplished.

In Kratie, the preparation was thick but only morning glory and eggs were added. According to the mothers, it was difficult at that time because fish was scarce. Morning glory was the only available vegetable at that time

Most of the mothers in Prey Veng feed their children the foods that they prepare for the family. However, during the briefing, the mothers decided to cook *bobor* for the younger children. They chose *bobor* because it is easier to prepare. It was observed that most of the children liked the

bobor. The same was observed in Kampot and Battambang. The children did not spit out the food. The mothers were very attentive while feeding their children. Almost all of the mothers served ½ a small bowl that was mostly consumed by the children.

New Ideas for Recipes or Food Combinations

All of the mothers believe that they can do the recipes at home if they have enough resources. For instance, most of the mothers said that they cannot afford to make the *bobor* with several ingredients like fish because they do not have much money to buy for it. They will be able to do but not everyday. During the recipe trials, the mothers made modifications to make the *bobor* more nutritious and made use of what was available in the village. Like in Kratie, no fish was available so instead, they added eggs into *bobor*.

Several suggestions were given by the mothers in order to improve the preparations.

In Kratie, mothers suggested to add meat or fish, and fish sauce to improve the preparation. They think that garlic should have been sautéed first before adding to the rice. The preparation, according to the mothers is very thick for their children. They said they normally prepare *bobor* that is a little bit watery.

They chose to add morning glory because it is available in the household. They think it is healthy for their baby because it is rich in iron. The smell is good but the appearance does not look good for them because they think it looks like a pig's food.

In general, the mothers were open for improvements in terms of food preparation. They think that adding more vegetables and fish is not very difficult as they can find it in the village. In areas where fish is difficult to buy, they find ways to at least add a protein source like eggs. Somehow, the mothers were given ideas on what to feed their children without necessarily spending a lot of money.

5. Pregnant Women

The main purpose of interviewing the pregnant women is to find out how long after birth they plan to breastfeed their newborn child. This is to learn whether pregnant mothers practice immediate breastfeeding after birth (i.e., within one hour after birth).

Five (5) pregnant women were interviewed regarding breastfeeding after birth. Three out five responded that they plan to breastfeed their child within one hour after birth while two replied that they will breastfeed their children more than 1 hour after birth. These two mothers were given the recommendation

Source of feeding information

When the mothers were asked about information on feeding, 2 replied that they heard information from the radio, and 3 from the health personnel in the village. Most of the interviewed mothers regard the health workers in the villages (i.e. TBA, health volunteer, medical team) as good and trusted sources of information when it comes to feeding their children. The TBAs would often visit the mothers and provide information on immediate breastfeeding after birth.

In terms of access to communication channels, four (4) out of five (5) mothers listen to radio and watch TV. Among the programmes that mothers listen to in the radio, three (3) mothers listen to child health programmes and 1 listen to requested songs. The mothers have heard information on child feeding from the radio. Specifically, the messages were on exclusive breastfeeding until 6 months of age and feeding the colostrum to the child. The mothers find the messages very useful for them. They believe that it will do good for their babies.

Among the five (5) mothers, four (4) are able to watch TV and information on health and entertainment are the programmes that they like watching. Same as the information that they heard from the radio, information on breastfeeding was heard from the TV as well. The information that they get from the television is useful for them, it will guide them to feed their child and they believe it will make their child become healthy.

Feeding the newborn

Four mothers were determined to breastfeed their babies exclusively until 6 months of age. One mother, however, does not have any plans yet of how she will feed her baby. According to the mother, she will wait for her doctor's advised from the health centre after she gives birth.

Only 2 mothers replied to breastfeed their child after more than an hour. Hence, the recommendation was tried with these 2 mothers. One mother from Kratie planned to breastfeed her baby 2 hours after giving birth because she believes she will not have breastmilk by then. Another mother from Battambang replied to breastfeed her baby after 1½ hours of giving birth because she thinks it is the earliest time that she could feed her child after birth.

Both agreed to try for reasons that it will help produce more milk and for the child to grow healthy and strong. Early initiation will help the milk to flow faster. There were no modifications that the mothers mentioned regarding the initiation of feeding.

Results of TIPS

Both mothers tried the recommendation. Both mothers were glad to see their children breastfeed well. One mother thinks that when her child is full, the baby sleeps well and grows fast. Relatives and health volunteers told the mother that breastfeeding within one hour of giving birth will make her child healthy.

Both mothers intend to continue the recommended practice for their future babies and they will recommend it to others by emphasising the importance of feeding colostrum and what breastfeeding can do for their child.

F. RESPONSES TO RECOMMENDATIONS TESTED WITH TIPS

1. Change in caloric intake of children

After the recommendations were tested, changes in caloric intake were noted. Findings showed that the percentage of children in age groups 6-8 and 9-11months who met the caloric requirement increased but not significantly (Table 19). However, the percentage of children age 12-23 months who met the caloric requirement decreased. This may have been due to the number of children in this age group who got sick between the first and second visit, which increased from 4 to 8, the four

from the first visit having been still sick during the team's second visit (Table 20). Of the 8 who were sick during the second visit, 6 showed a drop in energy intake ranging from 88.8 to 619.96 kcals or a median drop of 301.36 kcals.

Table 19. Frequency and percent distribution of children who met and did not meet the energy requirements, by visit

Caloric Intake	1 st visit				2 nd visit			
	Did not meet		Met		Did not meet		Met	
	n	%	n	%	n	%	n	%
6 – 8	15	55.55	12	44.44	12	44.44	15	55.55
9 – 11	18	58.06	13	41.93	13	41.93	18	58.06
12 – 23	15	62.50	9	37.50	18	75.00	6	25.00

Table 20. Child's health during the 1st and 2nd visits (12-23 months)

Child's health	1 st Visit		2 nd Visit	
	n	%	n	%
Not sick	20	83.3	16	66.7
Sick	4	16.7	8	33.3
Total	24	100.0	24	100.0

2. Key Constraints that Prevent Families from Following Optimal Feeding

Optimal infant and young child feeding is not always successful because of the constraints that hinder the caregivers to provide proper feeding for the young children. Most often, these factors are beyond the mother's control, such as the lack of resources, lack of potable water, limited access to health information and education and lack of support from the family members. On the other hand, in some ways, caretakers' behaviours, attitudes, habits, beliefs, or knowledge impede their capacity to provide optimal feeding. It is therefore important to identify these barriers because these have the most direct effects on providing care among the young children and providing support on how the caretakers can overcome these.

Hygiene

A hygienic environment is tantamount to being healthy. Observing personal hygiene and clean surroundings decreases the chance of acquiring certain diseases. However, being hygienic depends on certain factors. For instance, in most of the study sites visited, potable water and latrines are not present. The absence of the basic components for a hygienic environment is detrimental to the family's ability to maintain a clean and healthy life for its members. The absence of latrines increases the possibility of acquiring infection because of improper waste disposal.

Most of the activities in the households depend on the presence of water. Daily activities such as cleaning the house, preparing food, cooking, personal hygiene, raising animals, all depend on the presence of water. Unhygienic feeding behaviours such as not washing the hands before feeding the child or preparing food, using unclean utensils and not washing the vegetables or fruits can also be attributed to the lack of water in the area aside from the lack of knowledge about proper hygiene by the mothers.

Mothers' attitudes and beliefs on certain foods

Misconceptions of mothers regarding foods can affect young children's nutritional intake. When children experience sickness, often mothers would attribute this to foods that were given rather than the other underlying causes. For instance, several mothers think that when their children experience diarrhoea, it was because of the pumpkin that they fed their child. In addition, as most of the mothers in Cambodia believe, when a young child is fed with fish, it will cause worms.

The reasons behind why the children experience diarrhoea or develop worms are not well realized by the mothers. The possible causes could be because of contaminated water in the village and the unhygienic environment and practices that cause young children to develop worms.

Childcare and caretaker's time

The ability of the mothers to provide care by being attentive to the child's needs is important to optimal feeding. Mothers' attitudes towards providing motivational support during feeding, feeding the child to satiety, proper child rearing, and awareness of how to protect the children from diseases are all important to attain optimal child feeding.

Health information

Health information from different sources greatly affects the mothers' attitudes towards feeding. Many mothers' perceptions are based on the health information that they read or heard from other sources. Therefore, if mothers' access to health information is limited, the mothers' ability to provide optimal care is greatly affected. Mothers in the villages consider the traditional birth attendants and the health volunteers as the most trusted source of health information. These key informants have a great influence to the mothers' attitude towards feeding. Health workers in the villages are probably the most influential persons in terms of changing health behaviours because these are the persons that most mothers in rural villages look up to for support and information on health. In addition, limited access to various communication channels such as television, radio and reading materials impede the mothers' chance to gain knowledge and understanding of the basic child feeding practices that are being promoted.

Available resources

Financial constraint is always an issue when it comes to providing food for the family. The means to buy food for a growing child is often hindered by the lack of the family's capacity to provide adequate amount of meals, adequate quantity and quality of food necessary for a young child. Meats such as pork and beef for instance are not normally consumed simply because the family cannot afford it.

Availability and accessibility of food

While certain vegetables can be grown in the villages, the families also experience the lack of available food supply especially during the dry season. Fish, which is the main source of protein in the villages, becomes scarce during the dry season because the rivers and ponds dry-up. Vegetables also do not grow well during this season due to lack of water.

On the other hand, fish becomes abundant during the wet season. Other meats such as pork and beef are usually consumed only during special occasions or festivities.

G. KEY PHRASES AND WAYS TO MOTIVATE IMPROVEMENTS IN CHILD FEEDING

The attitude of the mothers towards behaviour change in child feeding is influenced by certain factors that can either be a barrier or a facilitator in continuing the recommended practice. Mothers were willing to continue the recommendations because they perceived it as something doable and where their children's health will be improved. Their contact (as well as that of other family members') with health workers/ village health support group members appear to also contribute to this positive orientation as they become exposed to health messages from these key individuals.

Several factors were noted down that could motivate the mothers to improve their child's feeding practices. Among these are the mothers' ability to identify resources within the community and the changes or improvements that they see among their children after trying the new practices.

Availability of Resources

Financial resources among the mothers in the villages are basically limited. More often, many households practice eating 2 meals in a day simply because food is not enough for the whole family. With proper information and guidance, mothers can actually be taught to make use of the abundant available resources in the surroundings. In presenting recommendations that would ask the mothers to add vegetables or fish in the diets for instance, mothers were asked of the available vegetables that can be found in the community. In the end, it was seen that the ability to find vegetables and fishes in the village without spending money is a motivating force to practice the recommendation.

"The vegetables are easy to find and at this time of the year, the fish is cheap"

"Bobor can be easily cooked and it is cheap; it is easy to make and the vegetables are available in the village"

"Pumpkins and gourd are grown in the village so they are easy to find; child eats more than usual and plays more"

"It is easy to make; the vegetables and fishes are easy to find because mother can plant on their own and fishes can be easily caught in the river"

"The vegetables are easy to find in the village and it will make my child healthy"

"What I liked about it is, I plant vegetables by myself, it was easy to find vegetables such as pumpkin, gourd, and sleukbas"

"I could find it (vegetables), it was good to eat and my child enjoyed eating"

"What I liked about it is when I feed my child vegetables, fish, and meat, my child likes eating, and I can fish by myself"

"What I like about it is vegetables make my child strong and he likes eating. Moreover, it's easy to find vegetables because I plant vegetables around my house"

"Liked it because it's easy to buy vegetables in the village and there are some vegetables in the fence (backyard)".

"I can find fish, vegetables, and meat"

"It is easy to do; child seem to eat more; vegetables are easy to find in the village and fish can be caught in the river"

Children's Responses

In practicing the recommendations, mothers' reactions were that of how they see the changes in their children's behaviour. For instance, when children's amount of food were increased, mothers think that when children are full, they cry less, so mothers are not disturbed with their work. The health of their children is the ultimate concern of the mothers. They are motivated by the changes that they see in their children when the recommendations were tried.

The responses were actually the motivations that were given in the counselling guides. It is apparent that the mothers remembered the key phrases on motivations about health

Among the most common responses were:

"After breastfeeding, the child slept long hour and the child seemed healthy and gained weight".

"Child seemed to sleep long hour after feeding enabling the mother to do some work; child seemed happier than usual and plays a lot"

The mother is happy because after she has tried the new practice the child seems sick less

"When the child is fed, he seemed to eat more and full and does not disturb the mother at work; child sleeps longer and does not cry much"

"The baby seemed to eat more"

"After I have increased meal frequency 3 times per day, my child eats well, he doesn't spit the food out. Then he becomes stronger and more active"

"It is easy to do"; "I am happy when my child eats more than before. His face is fresher and he is heavier"

"Child is fed to satisfy (satiety). After feeding my child, I feel happy. I see my child stronger, happy fresh not disturbing much, and (has) sleeps longer"

"I can do it. My child is satisfied"; "After feeding food, I am happy to see my child happy, laughing and able to sleep long hour"

"It is easy to do, no difficulty in doing"; "I am glad to see my child eat more and he seems to be happier and fresher than before. His health is better than before"

"I can do it and it is easy to find". "My child looks prettier, more active and stronger"

"I liked the recommendation so that my child will be healthy"

"I can do, my child can eat more"; "My child likes it, he eats, he is strong, he takes less breastmilk, and sleeps longer"

"My child could finish all his food and he seemed happier and he was not as fussy as before"

"I like it when I gradually increase the amount of food, he eats more and doesn't disturb much"

"I like, because I want her eat more, grow fast"

"I like it because when I increased the amount of food, my child could still finish it and my child seemed disturb me less and happy".

"Mother tried the recommendation because she wants her child to grow well and healthy"

"It is easy to do. The child seemed happy, more active, slept well"

"When I increased meal frequency to 3 times per day, my child doesn't disturb as much as before and he eats more than before and gains more weight. Moreover, I have more time to work"

"When my child eats more, she plays more with the other children and sleeps for long hour"

H. ACCESS TO VARIOUS COMMUNICATION CHANNELS

Access to various communication channels is an important means for receiving information concerning good nutrition and feeding practices, particularly among infants and young children. From amongst the sample respondents, a small percentage claimed having access to radios (39%) or televisions (35%) at home (Table 21). Less than 40% have access to these two communication channels. There is little difference in access to radio and television per province. As expected, respondents from Stung Treng have the lowest access to radio and television. This may be explained by the relative remoteness of the area and the lack of electricity.

Of those who have a radio in the five provinces, majority (40%) listen to it about 2 to 6 days a week, the incidence of this being expectedly lowest in Stung Treng. More than a third (35%) of the respondents usually listen in the morning, while some 28% tune in at noon. The most preferred programme appears to be music, followed by health/ disease programmes with more than half (53%) and about a fifth (20%), respectively, mentioning that they listen to these. Only a few listen to the news, at 15%. Interestingly, none of the respondent mothers in Battambang cited tuning in to health/ disease programmes.

Even as only 35% claimed to have a television in the home, about 62% of the total respondents admitted to watching this. Three in four (78%) of those who watch the television do so on a daily basis or from 2 to 6 days a week, with the majority in Prey Veng accessing this communication channel 2 to 6 days a week. Given their nurturing roles during the day and possibly the electricity arrangements within their localities, more than half of the sample mothers who watch the television do so at night, although a third of them (33%) stated having the time for this at noon. Many of them (29%) claim to watch health/ disease-related programmes, while the others appear to watch a mix of programmes ranging from news (12%), music (10%), and soap opera (13%).

A large proportion of 85% gave an affirmative reply when asked if they remember having ever heard or read a message on television, radio, newspaper, poster or magazine about how to feed their child, including breastfeeding. As expected, respondents heard or learned about it from the radio (37%) and the television (38%). Due perhaps to their levels of literacy, only a handful mentioned reading the message from a newspaper or magazine. Some 12% mentioned seeing the message on a poster, suggesting the potential value of this material in disseminating positive messages on health, as well as infant/ young child feeding practices.

Table 21. Access to various communications channels

Variable	All subjects ^{a/}		Provinces ^{b/}				
	n	%	Kratie	Stung Treng	Prey Veng	Kampot	Battambang
Presence of radio in the home							
Yes	43	39.09	7	5	12	11	8
None	67	60.91	15	17	10	11	14
Total number subjects (n)	110	-	22	22	22	22	22
Do you ever listen to the radio?							

Yes	74	67.27	12	12	17	18	15
No	36	32.73	10	10	5	4	7
Total number subjects (n)	110	-	22	22	22	22	22

How often do you listen to the radio?

Daily (7 days a week)	14	18.92	1	2	3	3	5
2 to 6 days a week	30	40.54	7	3	8	7	5
Once a week	13	17.57	1	4	3	3	2
Once every two weeks	4	5.41	0	2	1	0	1
Once a month	2	2.70	1	0	0	1	0
Rarely	11	14.86	2	1	2	4	2
Total number subjects (n)	74		12	12	17	18	15

Generally, when do you listen to the radio? ^{a/}

Morning	36	35.29	7	6	7	9	7
Noon	29	28.43	7	3	6	7	6
Afternoon	18	17.65	1	2	5	3	7
Night	19	18.63	1	7	2	5	4
Total number subjects (n)	102		16	18	20	24	24

What kind of radio programmes do you listen to most often?

News	11	14.86	1	1	5	3	1
Music	39	52.70	7	5	7	8	12
Children's programme	2	2.70	0	2	0	0	0
Religious programme	2	2.70	0	0	0	0	2
Soap opera	5	6.76	0	2	0	3	0
Health/disease programmes	15	20.27	4	2	5	4	0
Total number subjects (n)	74		12	12	17	18	15

Is there a television in the home?

Yes	39	35.45	10	1	8	9	11
None	71	64.55	12	21	14	13	11
Total number subjects (n)	110		22	22	22	22	22

Do you ever watch television?

Yes	68	61.82	14	3	14	18	19
No	42	38.18	8	19	8	4	3
Total number subjects (n)	110		22	22	22	22	22

How often do you watch television?

Daily	27	39.71	7	0	2	7	11
2 to 6 days a week	26	38.24	5	0	11	7	3
Once a week	5	7.35	1	0	1	0	3
Once every two week	1	1.47	0	0	0	1	0
Once a month	4	5.88	0	2	0	1	1
Rarely	5	7.35	1	1	0	2	1
Total number subjects (n)	68		14	3	14	18	19

Generally, at what time do you watch television? ^{a/}

Morning	2	2.67	0	1	0	0	1
Noon	25	33.33	8	2	5	3	7
Afternoon	7	9.33	3	0	2	1	1
Night	41	54.67	7	0	9	14	11
Total number subjects (n)	75		18	3	16	18	20

What type of television programme do you listen/watch to most often?

News	8	11.76	1	0	1	3	3
Music	7	10.29	1	0	3	2	1
Sports	1	1.47	0	0	0	0	1
Soap opera	9	13.24	3	1	2	1	2
Healthy/ disease programme	20	29.41	2	0	2	4	12
Other	22	32.35	7	1	6	8	0
Does not know/remember	1	1.47	0	1	0	0	0
Total number subjects (n)	68		14	3	14	18	19

Do you remember having ever heard or read a message on television, radio, newspaper, poster or magazine about how to feed your child, including breastfeeding?

Yes	93	84.55	21	16	20	19	17
No	17	15.45	1	6	2	3	5
Total number subjects (n)	110		22	22	22	22	22

Where did you hear it or read it? ^{a/}

Radio	49	36.57	8	8	14	12	7
Television	51	38.06	12	0	13	11	15
Newspaper	3	2.24	1	0	1	1	0
Magazine	1	0.75	1	0	0	0	0
Poster	16	11.94	5	4	4	3	0
Other	14	10.45	3	4	4	3	0
Total number subjects (n)	134		30	16	36	30	22

^{a/} Results expressed as frequencies and percent of group

^{b/} Results expressed as frequencies

^{c/} Multiple responses

IV. CONCLUSIONS AND RECOMMENDATIONS

The conclusions that can be derived from the study are as follows:

1. Feeding Practices

- The practice of breastfeeding (for 0-23 months old) and exclusive breastfeeding (for 0-6 months old) among the study's sample mothers is almost universal. More than half of the study population initiated breastfeeding immediately after birth and nearly all of the mothers provided *colostrum* to their child. The recommended frequency of breastfeeding is practiced by most of the mothers
- Introduction of complementary foods at the age of 6 months is practiced by more than 70% of the mothers. *Bobor*, which is the most available semi-solid food for the young children in the rural villages, is the first complementary food introduced by majority of the mothers
- Among the most common feeding problems identified based on the counselling guides were the following:

For the 6-11 months old

- Infants were fed watery *bobor*, not energy or nutrient dense
- Infants were fed only soup liquid with rice
- Inadequate amount, frequency and variety in the diet of the young children

For the 12-23 months old

- Delayed introduction of family foods, not enough variety in the diet
- Inadequate amount, frequency and variety in the diet of the young children
- Child eats by him/herself or with older siblings and does not finish meal

2. Dietary Intakes

- More than 50% of the children did not meet the daily energy requirement
- The diets of children are low in Iron (90.2%), Vitamin A (68.3%), and Calcium (91.5%) where a large percentage of the subjects did not meet the recommended intakes. However, 87.8% and 73.2% of the children met the recommended Protein and Vitamin C intakes, respectively.

3. Results of TIPS

- Most of the mothers agreed to try the recommendations presented concerning improvements in child feeding practices. The mothers somehow did something to improve their child's diet in terms of the quantity and quality of meals but nevertheless, most mothers could not carry out the whole trials because of some difficulties encountered such as: difficulty feeding the child with more amount of food to meet the recommended quantity of food to be served and limited available resources to buy quality foods for the children.
- The acceptability and feasibility of the recommendations suggested to the mothers based on the TIPS are given below:

RECOMMENDATION NO.	RECOMMENDATION	CONCLUSION
0-5 MONTHS OLD		
1	Use both breasts at each	This recommendation is feasible for the

	feeding and feed until the breasts feel soft	mothers with children in this age-group, especially since most mothers practice exclusive breastfeeding.
2	Stop giving the child water	Although only tried by one mother, this practice appears to be feasible for the mothers to do especially since most children in this age group are predominantly breastfed.

6-11 MONTHS OLD

BREASTFEEDING PRACTICES:

1	Use both breasts at each feeding and feed long enough so the breasts feel soft	This recommendation is feasible for the mothers with children in this age-group, especially since most mothers practice exclusive breastfeeding.
2	Express breast milk and have others give to the baby with cup and spoon or just a cup	Based on these results, it can be said that this recommendation is not feasible. It is possible that mothers need more education and support on how to express their milk properly and to overcome their belief that they do not have enough milk to express and leave for their children when they leave the house.
3	Breastfeed more frequently when at home and during the night, on demand.	Though only one mother tried the recommendation, it is possible for the mothers to feed their children on demand.

COMPLEMENTARY FEEDING PRACTICES:

4	Start feeding soft foods, such as thick <i>bobor</i> or soft steamed rice (<i>bay cham hoy</i>) with chopped fish, egg or meat and mashed pumpkin or green vegetable, after breastmilk.	With proper information on initiation of complementary feeding, this practice can be feasible for the mothers to do.
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Quality of food

5	Make <i>bobor</i> with less water so it is thicker, and add mashed fish, egg or chopped meat and pumpkin, and green vegetable, after breastmilk.	This recommendation is feasible, although most mothers were more willing to add fish or meat to <i>bobor</i> than vegetables.
6	Add oil to <i>bobor</i> when cooking	Although most of the mothers were not using oil in the <i>bobor</i> , they were able to try it. This recommendation is feasible, and cooking oil is always available in the market.
7	Add the fish or meat and vegetables to the rice, not	It can be said that, most mothers can adapt this practice since it is less time

	just the liquid	consuming than to prepare a different dish for the child. With proper information on food preparation, this recommendation can be doable.
8	Add vegetables and meat to the rice to the child's diet	Based on the responses given by the mothers, it can be said that this recommendation can be put into practice. With proper information and guidance, mothers can be taught how they can make use of the available vegetables in their surroundings.
9	Increase meal frequency until baby is fed 2 times per day (6 months) or 3 times per day (7-12 months)	Despite the inability of some mothers to provide the recommended number of meals, mothers have shown to adapt to recommended practice. Therefore, the aforementioned recommendation can be feasible for the mothers to continue
10	Gradually increase the amount of food given to baby until the child is eating at least 1/3 of small bowl (or 2-3Tbsps.) per meal (for 6 months)	This recommendation is difficult for the mothers to do since most of them believe that younger children are too small to be fed. Infants can be fed in small frequent feedings and make them use to feeding rather than make abrupt changes in the amount of food to feed.
11	Gradually increase the amount of food given to baby until the child is eating at least 1/2 of small bowl (for 7-11 months)	Among the recommendations presented, this is the most difficult for mothers to do. Most mothers think that providing ½ small bowl is too much for their young child to eat. This practice is not feasible for the mothers to do. It is recommended instead that small frequent feeding be provided in order to make the young children used to eating rather than providing a large amount of food in one eating.
12	Motivate and help your child to finish all his food.	While this recommendation can be feasible, it is important that other caregivers (aside from the mothers) have the same aspirations for the child.

12-23 MONTHS OLD

BREASTFEEDING PRACTICES:

1	Express breastmilk and have others give to baby with cup and spoon or just a cup	Expressing breast milk is a totally new practice among the mothers in the study sites. There are certain issues that need to be considered such as storage of milk and ability of the mothers to express breast milk. This recommendation is not feasible for the mothers considering the living conditions in the rural villages.
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COMPLEMENTARY FEEDING PRACTICES:

Quality of food

- | | | |
|---|---|---|
| 2 | If you feed the child soup with rice, give him/her all the ingredients in the soup, including fish or meat and vegetables | This recommendation can be feasible if the misconceptions on foods are corrected. |
| 3 | Add vegetables and meat to the rice at each meal | Based on the responses given by the mothers, it can be said that this recommendation can be put into practice. With proper information and guidance, mothers can be taught how they can make use of the available vegetables in their surroundings. |

Frequency and quantity of meals

- | | | |
|---|---|---|
| 4 | Increase feeding frequency of meals until the child is fed 3 times per day plus 2 snacks | Financial constraints become an issue when it comes to buying food for the family. This recommendation can be feasible but providing quality snacks should also be considered and emphasised. |
| 5 | Gradually increase the amount of food until you are giving your child 1 small bowl of food at each meal | Among the recommendations offered, this is the hardest that the mothers can actually practice. Although the amounts served were increased at a certain point, still it is not enough to meet one small bowl as recommended. |

Feeding behaviour

- | | | |
|---|--|---|
| 6 | Help your child to eat; do not leave your child to eat by him/ herself. Motivate your child to finish all his/her meal | This recommendation can be feasible with the support of other household members to look after the younger children when the mother is not around. |
|---|--|---|

4. Factors that act as constraints or facilitators in practicing the recommendations

- *Limited financial resources* - the ability to buy certain foods such as fish and meat becomes an issue when the family does not have enough money;
- *Availability and accessibility of food* – the condition in the villages affect the availability and accessibility of food. For instance, this commodity becomes scarce during the dry season because of lack of water, thus making it difficult for families to plant and catch fish. During the wet season, the road is difficult, making the transportation very limited;
- *Misconceptions or beliefs about certain foods* - There are certain foods that the mothers frequently reported as harmful to their child's health (e.g., morning glory, pineapple and pumpkin). The lack of information about nutrition is an important factor that has to be addressed in order for the mothers to be fully aware of the benefits that their children can get from vegetables;

- *Changes in health status and behaviours of the children as perceived by the mothers* - The health of the children remains the mothers' primary concern regardless of how inadequate their resources are. The mothers' attitude towards the practices are motivated by the changes they see among their children such as becoming healthier, happier, sleeping longer, playing more and not distracting the mothers while working because the children seemed more satisfied;

Given the above findings, the following are the recommendations that this study poses:

1. The identified barriers or constraints should be addressed to help the mothers put into practice the recommended feeding practices. This can be done by:
 - Enhancing capacity building among the mothers in rural villages
 - Using "key phrases" pertaining to growth and health in information materials as motivations to improve feeding practice
 - Educating mothers to correct misconceptions on food
 - Employing radio and television (including posters) as key media forms for receiving information on infant and young child feeding practices. The health workers who are considered to have the most influence among the mothers in terms of health information should continue to advocate and educate the mothers about proper infant and young child feeding. It may be helpful that the health workers be given continuous education and training on nutrition by the health personnel in order to acquire more knowledge and skills and can be more effective as advocates of health improvements in the villages.
2. The use of the counselling guides plays a vital role in motivating the mothers to improve their feeding practices. However, there is a need to refine the counselling guides to effectively provide more definite feeding guidelines to the mothers. This can be done by considering the following:
 - Defining the actual size of small bowl in terms of household measurement (i.e. the use of "*chan jang koer*" as a reference bowl as recommended by the NNP);
 - Providing clear quantifiable amounts that mothers can actually measure such as how many teaspoons or tablespoons of each food item should be provided in order to meet the recommended energy and nutrient intakes per day;
 - Establishing specific guidelines that the mothers should actually follow. For instance, one recommendation should specify one specific feeding problem rather than having 2 or more recommendations in one guideline;
3. Policy implications and future consideration:
 - The positive infant/ child feeding practices found among the mothers in the study should be continuously and strongly promoted. These relate to exclusive breastfeeding among the 0-5 months old and continued breastfeeding among the 6-23 months old children. Practices that require attention and that should receive priority in education and behaviour-change programmes include the following: provision of watery "*bobor*", inadequate amount and variety in the diet of the young children, delayed introduction of complementary foods, and leaving the child to eat by him/herself.

- Iron and vitamin A intakes among the children in this study are very low. For the programme planners, there is a need to look deeper into the situation by gathering baseline information of their true iron and vitamin A status. This will serve as a strong basis for a need to implement iron supplementation and to strengthen the programme for vitamin A supplementation;
- There is a need to develop dietary materials that will assist the programme planners of Cambodia in providing scientific basis for future feeding recommendations (such as the Food Composition Tables and the Food Exchange List).

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ANNEXES