

**CARE Nepal  
Child Survival Project  
Kanchanpur District, Nepal**

**Knowledge, Practice and Coverage Final  
Survey in  
Kanchanpur District, Nepal**



**August 2003**

Submitted by: Sharad Onta

**CARE Nepal  
Child Survival Project  
Kanchanpur District, Nepal**

**The report of  
Knowledge, Practice and Coverage Final Survey in  
Kanchanpur District  
Nepal**

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**August 2003**

**Katmandu Nepal**

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## List of abbreviations used in the report

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AHW	Auxiliary Health Worker
ANC	Ante Natal Care
ANM	Auxiliary Nurse Midwife
ARI	Acute Respiratory Infection
CDO	Chief District Office Chief District Officer
CMA	Community Medical Assistant
CSP	Child Survival Project
DDC	District Development Committee
DHO	District Health Office District Health Officer
DHS	Demographic and Health Survey Department of Health Services
DPHO	District Public Health Office District Public Health Officer
FCHV	Female Community Health Volunteer
HMG/N	His Majesty's Government of Nepal
HP	Health Post
KPC	Knowledge Practice and Coverage
MCHW	Maternal and Child Health Worker
MoH	Ministry of Health
MUAC	Mid Upper Arm Circumference
NGO	Non Governmental Organization
PHCC	Primary Health Care Center
PNC	Post Natal Care
SHDK	Safe Home Delivery Kit
SHP	Sub Health Post
TBA	Traditional Birth Attendant
TTBA	Trained Traditional Birth Attendant
UTBA	Untrained Traditional Birth Attendant
VDC	Village Development Committee
VHW	Village Health Worker
WHO	World Health Organization

## Executive Summary

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### Background

Kanchanpur district is situated in the plains (Tarai region) of far west Nepal. The total population of the district is 377,000. Compared to many other parts in the country this district has high infant mortality, low service coverage, and a high population growth rate. In addition, Kanchanpur is a malaria endemic district. In September 1999, CARE Nepal launched the Child Survival Project in Kanchanpur with the overall objectives of reducing child and maternal morbidity and mortality. The project set specific targets based on findings of a baseline survey conducted in January 2000. The final survey, carried out in August 2003, aimed to assess these achievements and provide feedback for future programs and activities.

The final survey on knowledge, practice and coverage collected data by interviewing 300 mothers of children age 0-23 months using 30 clusters sampling design. Data on child and maternal nutrition was obtained from weight, height and mid upper arm circumference measurement of children and assessing hemoglobin level as well as mid-upper arm circumference measurement of mothers.

Data was collected on major intervention areas: nutrition and breastfeeding, diarrhea, acute respiratory infection, malaria and maternal and newborn care. The data also includes mother's knowledge of HIV/AIDS.

### Major findings

#### General characteristics of mothers and children

- \* Responding mother's age ranged from 15 years to 45 years, with 56.3% of mothers younger than 25 years and a mean age of 24.6 years. Among the mothers, 48% were illiterate. About 44% represented backward castes (Tharu and Dalit ethnicity).
- \* The mean age of the children in the survey was 11.3 months. About 23% of the children were below 6 months.

#### Child health, nutrition and breastfeeding

- \* Nearly all (99.3%) children were ever breastfed; 52.3% of the children received breast milk within one hour of delivery. 74.7% discarded colostrum before putting newborns to the breast. 97% of the mothers were currently breastfeeding at the time of survey.
- \* About 10% of the mothers gave food or liquid to the newborn during three days after delivery and 2.7 % of children received infant formula during this period.
- \* Among the children age 0-5 months, 50% are exclusively breastfed; 10.7% of the children were fed liquid/milk from a bottle with nipple during the 24 hours before the interview. Among the children age 6-9 month, 83% are receiving breast milk and complementary foods. Complementary feeding was initiated at the age of 6 months in 53.3% of these children and at the age of 5 months for 14.5%.
- \* Among the children age 6-23 months, 73.7% (70.9% of male children, 76.2% of female children) received vitamin A supplementation during the last 6 months.
- \* Half of the mothers have heard about Sarbottam Pitho (super flour) while 30.3% of the mothers were able to explain the correct method of its preparation.

- \* About 30% of the mothers had growth-monitoring cards for their children. Based on cards and verbal recall, 37.7% of the children were weighed during in the 4 months before the interview. About 24% of the newborn were weighed after birth.
- \* Based on the cards, 74.3% of the children completed all 6 vaccines before the age of 12 months
- \* Approximately 25.0% of the children are stunted (-2 SD) and 21.8% are severely stunted (-3 SD); 9.1% are wasted (-2 SD) and 1.4% are severely wasted (-3 SD); 28.0% are underweight and 9.8% are severely underweight.
- \* Among the children age 12-23 months, 27.3% were malnourished as indicated by a mid upper arm circumference of less than 12.5 cm.

### **Integrated management of childhood illness (IMCI)**

- \* 84% of mothers know at least two signs/symptoms of childhood illness requiring medical treatment. Level of knowledge about signs/symptoms of childhood illness was slightly higher among the mothers of Brahmin, Chhetri, Tamang, Gurung and Magar castes compared to the Tharu and Dalit mothers.
- \* Nearly 64% of mothers knew that more or the same amount of fluids should be given to a child during illness. Similarly, 52% of the mothers said that the same or more amount of food should be given to a child during illness.
- \* When children were ill, 58% of children received increased fluid and mothers continued to breastfeed.

### **Diarrheal diseases**

- \* Prevalence of diarrhea during two weeks prior to interview was 12.7%; about 71% of the mothers considered the illness to be diarrhea when the child passed watery loose stool more than three times in 24 hours.
- \* About three fourth of the mothers knew at least two dangers signs of diarrhea that require immediate medical treatment.
- \* 62% of mothers have correct knowledge about preparation of Oral Rehydration Solution. Younger mothers (less than 25 years) demonstrated slightly better knowledge about ORS preparation.
- \* While 34.2% of the mothers gave ORS when their children had diarrhea during the past two weeks, 26% of the mothers did nothing during the episode. Another 23.7% used anti-diarrheal drugs and antibiotics.
- \* About 84% of the children received usual or more amount of breast milk when they had diarrhea and 63% received usual or more amount of fluid during diarrhea.
- \* When the children had diarrhea, 31.6% of mothers visited private clinic or medical shop for treatment, whereas only 13% visited government health facilities.
- \* About 36% of households have toilets. Percentage of houses of Brahmins and Chhetris with toilets is higher (52.7%) compared to the houses of Tharus and Dalits (13.7%).
- \* Only 16% of mothers washed their hands with soap or ash before food preparation, before feeding the child, after defecation, and after handling the child who had defecated. Hand washing habits are better among Brahmin, Chhetri, Tamang, Gurung, Magar mothers compared to Tharu and Dalit mothers.
- \* 13% of children age 6-23 months received deworming medicine in the last six months.

### **Acute respiratory infection**

- \* About 70% of the mothers could recall at least two danger signs/symptoms of pneumonia requiring immediate medical assistance.
- \* 71% knew fast or difficult breathing in children as signs of pneumonia; another 66% mentioned chest in-drawing as a symptom of pneumonia;
- \* Prevalence of pneumonia in the two weeks prior to interview was 8.3%, while 18.3 % of the children had simple acute respiratory infections.
- \* When a child had pneumonia, 40% of the mothers sought medical care from qualified and trained service providers.

### **Malaria**

- \* 9% of children age 0-23 months suffered from malaria in the past two weeks as per mothers reports. About 49% of them were taken to private clinics or medical shops for treatment, while some (18.5%) were taken to faith healers for treatment; Another 18% of children were not taken anywhere for treatment of malaria.
- \* About 91% of mothers knew that the use of bed nets could prevent malaria infection. More than half of mothers mentioned cleaning the surrounding as a way to prevent malaria. Among many known methods, 76.4% of mothers knew at least two methods of prevention of malaria.
- \* In Kanchanpur, 93% of households reported having bed nets. In 66.3% of these households, all family members slept under the bed nets the previous night. Only 2.5% of these houses had insecticide treated bed nets.

### **Maternal and newborn care**

- \* Based on cards and verbal recall, 62.3% of mothers had visited an ante natal clinic at least once, with 50.3% of the mothers having visited at least two times during their last pregnancy.
- \* A higher percentage (62.1%) of Brahmin, Chhetri, Gurung, Magar, and Tamang mothers had received two ANC check ups compared with Tharu and Dalit mothers (35.1%). Similarly, younger mothers (less than 25 years) had better rates for two ANC visits compared to older mothers (57.4% vs. 41.2%).
- \* 60% of mothers visited qualified persons for antenatal check up. Based on card records alone, 14.3 % and 11% of mothers had at least one and two antenatal check ups respectively.
- \* Based on card records alone, about 13% of all mothers received at least two doses of TT during the last pregnancy. However, using card plus maternal recall, that figure jumps to 65.3%.
- \* 56% of mothers received any iron/folic acid during the last pregnancy while only 25.7% received it for 3 months or more. Mothers younger than 25 years received iron/folic acid for at least three months more frequently (33.1%) than older mothers (26%). There was no difference between the mothers of different ethnicities.
- \* About half of the mothers knew at least two danger signs during pregnancy requiring immediate medical assistance. Young mothers (51.5%) were more aware than the older ones (46.7%). Similarly, mothers belonging to the Brahmin or Chhetri communities (56.2%) were more aware than those of the Tharu & Dalit communities (40.5%).

- \* About 19% of the delivery took place in health facilities: hospital, PHCC, sub/health posts and private clinics.
- \* In 23.7% of cases, skilled persons (e.g. doctor, nurse/ANM or MCHW) were present during the delivery.
- \* In 81% of deliveries, new razor blades were used for cutting the umbilical cord. Among home deliveries, 31.6% used safe home delivery kits. Interestingly, more Tharu and Dalit mothers (30.5%) used safe delivery kits compared to the mothers of Brahmin, Chhetri, Gurung Magar and Tamang caste groups (21.9%).
- \* More than two thirds of mothers perceived prolonged labor as one of the danger signs during delivery that requires immediate medical care. Excessive bleeding was another commonly perceived danger sign 43% during delivery. Brahmin, Chhetri, Gurung, Magar and Tamang mothers seemed to have better knowledge compared to Tharu and Dalit mothers.
- \* Only 17.7% of mothers had received any postnatal check up during the last delivery. Among them, 60% were checked by nurse/ANMs. One third of them had postnatal check up within two days after delivery.
- \* Of the total children, only 14% received any medical check up during postnatal period
- \* Fever and excessive bleeding were the most commonly recognized danger signs during the postnatal period that require immediate care for the mother.
- \* More than two thirds of mothers knew at least two signs/symptoms of illness in newborns. More than three fourths of the mothers recognized difficulty in suckling breast milk as a danger sign that needs an immediate medical treatment. Other signs identified were fast or difficult breathing (31%), weak look (44%), Fever (26.3%) and others.
- \* 63% percent of the mothers received vitamin A within 45 days after delivery. This figure is slightly higher among the children of Brahmin, Chhetri, Gurung, Magar and Tamang caste (68%) compared to Tharu and Dalit children (58%).
- \* Based on mid-upper arm circumference, about 48% of mothers are boarder-line underweight (21-22.5 cm), whereas about 27% of them are malnourished. Based on hemoglobin concentration, about 30% of the mothers are anemic (less than 11 gm percent).



### **Knowledge of mothers about HIV/AIDS**

- \* Among the mothers, 56.3% have heard about HIV/AIDS. More younger mothers (less than 25 years) have heard about AIDS than the older mothers (65.7% vs. 45%). A big difference was observed between the mothers of Brahmin and Chhetri communities against the mothers of Tharu and Dalit (71.6% vs. 36.6%) communities. 25% of mothers knew at least effective methods of HIV prevention. Similarly a far less percentage of Tharu and Dalit mothers (11.4%) had any knowledge of HIV prevention compared with mothers of Brahmin, Chhetri, Gurung, Magar, Tamang castes (36.1%).

**Rapid CATCH priority indicators**

<b>Indicators</b>	<b>Numerator</b>	<b>Denominator</b>	<b>Percent</b>	<b>95% Confidence limit</b>
1. Percentage of children age 0-23 months who are underweight (-2 SD from the median weight - for - age, according to the WHO/ NCHS reference population)	112	296	38	30.1 – 46.7
2. Percentage of children age 0-23 months who were born at least 24 months after the previous surviving child	92	135	68	5.5 – 78.7
3. Percentage of children age 0-23 months whose births were attended by skilled health personnel	71	300	24	17.3 – 31.4
4. Percentage of mothers with children age 0-23 months who received at least two tetanus toxoid injections before the birth of their youngest child	196	300	65.3	57.1 – 77.8
5. Percentage of children age 0-5 months who were exclusively breastfed during the last 24 hours	34	68	50	32.7 – 67.2
6. Percentage of children age 6-9 months who received breast milk and complementary foods during the last 24 hours	59	71	83	66.1 – 92.9

## **Rapid CATCH priority indicators**

<b>Indicator</b>	<b>Numerator</b>	<b>Denominator</b>	<b>Percent</b>	<b>95% Confidence limits</b>
7. Percentage of children age 12-23 months who are fully vaccinated (against the five vaccine-preventable diseases) before the first birthday	26	35	74	48.0 – 90.7
8. Percentage of children age 12-23 months who received a measles vaccine	111	128	87	76.1 – 94.0
9. Percentage of children age 0-23 months who slept under an insecticide-treated bed net (in malaria risk areas) the previous night	5	300	2	0.4 – 5.7
10. Percentage of mothers with children age 0-23 months who cite at least two known ways of reducing the risk of HIV infection	113	300	38	30.0 – 46.0
11. Percentage of mothers with children age 0-23 months who report that they wash their hands with soap/ash before food preparation, before feeding children, after defecation, and after attending to a child who has defecated	48	300	16	10.7 – 23.1
12. Percentage of mothers of children age 0-23 months who know at least two signs of childhood illness that indicate the need for treatment	252	300	84	76.9 – 89.3
13. Percentage of sick children age 0-23 months who received increased fluids and continued feeding during an illness in the past two weeks	86	148	39	46.1 – 69.3

Among these rapid CATCH priority indicators, five indicators were measured in baseline survey (11). These indicators included in the baseline survey are numbers 1, 3, 4, 5, and 6 in the above tables. The corresponding figure of these indicators in the baseline survey was 26%, 9%, 30%, 84%, and 71% respectively. Discussions on these findings can be found in subsequent subsections.



## CHAPTER 1. BACKGROUND

### 1.1 Introduction

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Nepal is one of the poorest countries in the South Asia Region with poor health indicators for the general population and even worse statistics for women and children. The Government of Nepal has made the improvement of the health status of women and children high priority. The commitments and the priority of the government are reflected in the National Health Policy 1991 (1), Second Long Term Health Plan (2), Tenth five-year plan (3) and in many other documents. Similarly, the millennium development goal has set the reduction of the maternal and child mortality as a target (4).

The government strategy focuses on safer motherhood initiatives, improving nutrition and breastfeeding practices in children, immunization, and controlling childhood diseases such as ARI, malaria and others.

Kanchanpur, the project district, is one of the most densely populated districts in the Far Western Region of Nepal. According to the 2001 Census, the district has a total population of 377,899 comprised of a variety of ethnic groups, such as Brahmin, chhetri, tharu, gurung magar, dalits and others. The migration from the hills and mountain to Kanchanpur is a common phenomena resulting in a high population growth (annual growth rate of 3.9%) for the period of 1991-2001. The literacy rate of the district is 59.6%, with a female literacy rate of 46.9% (5). Agriculture remains the major occupation in the district. Although there is an access to a motor road for most of the flatland of the district, some highlands of the district are still deprived of such access, electricity and telecommunication facilities.

Kanchanpur is among the districts with the lowest health service facility:population ratio in the country. There are only 21 primary health care units in the district including 2 Primary Health Care Centres (PHCC) to serve the entire population. This ratio is much lower compared to one of the similar tarai districts in the Central region; in Saptari, for example, 116 such units serve a population less than half the size of that in Kanchanpur (6). Despite inadequacy of these facilities, the FCHV: population ratio in Kanchanpur is comparable to other districts. As one of the Child Survival Project activities, the number of FCHVs increased from less than 200 in 2001 to about 700 in 2003. The zonal hospital, located in the Mahendranagar municipal headquarters of the district, has adequate infra structure and other facilities. However, it is still understaffed and, therefore, cannot provide desired level of services as a referral hospital in the district. There are number of private practitioners in Mahendranagar and many villages of the district. Many of these private practitioners are untrained personnel.

District specific information on recent maternal and child health status is not available. The Demographic and Health Survey (DHS) 2001 provides the information for the Far West Region, which can be roughly generalized to Kanchanpur district too. According to the DHS 2001, the Infant Mortality Rate for the Far West Region, for the 10 years period

preceding the survey, is estimated at 112.2 compared to the national average of 64 per 1,000 live births. Similarly, under 5 mortality for the region is 149.2 compared to national average of 91.2. (7). Although IMR and under five mortality rates have rapidly declined during the last two decades at the national level, decline of these rates are comparatively slow in the Far West Region.

Data on maternal mortality and maternal morbidity is not available for the Far West Region. The total fertility rate for the region is 4.7 while the national average is 4.1(7). Early marriage leading to early pregnancy is common in the district. However, contraceptive prevalence rate in Kanchanpur is 39.9% slightly higher than the national average of 37.4%

Along with other common diseases, Kanchanpur is classified as malaria endemic district in the country. Measles is common childhood communicable disease in Kanchanpur (6)

## 1.2 The Child Survival Project in Kanchanpur

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CARE Nepal launched the Child Survival Project in Kanchanpur in October 1999 with financial support from USAID. The project partnered with Ministry of Health, Department of Health Services, Child Health Division at the central level and the District Health Office and its service units at the local level.

The primary target beneficiaries of the CSP were children five years of age and women of reproductive age (15-45 years) of the Kanchanpur district. The project aimed to reach an estimated population of about 120,000 in the district. The specific break up of targeted beneficiaries were as follows:

Specific target beneficiaries	Population
Infants (0-11 months)	10,661
Children 12-23 months	9,831
Children 24-59 months	32,814
Total children 0-59 months	53,306
Women 15-45 years	66,630
Total target beneficiaries	119,936

Source (8): Child Survival Project, Kanchanpur  
Detailed Implementation Plan, March 2000

The overall goal of the CSP was to reduce maternal and child morbidity and mortality in Kanchanpur district. The specific objectives of the project included (9):

- ❖ **Behavioral:** Care givers of children below 5 years, particularly mothers, practicing healthy behavior and seeking medical care from trained source when needed.

- ❖ **Increased access to services & supplies:** Families have increased, sustainable access to health education, quality care, and essential medicines.
- ❖ **Institutional:** Local and community based institutions and local NGOs develop /strengthen the capability to support child survival activities on a sustainable basis
- ❖ **Quality of Care:** MOH personnel, FCHVs/TBAs and other service providers practicing appropriate case management of diarrhea, pneumonia, malnutrition, maternal and newborn care.

The major intervention areas of the project were:

- a. Nutrition and breastfeeding
- b. Control and management of diarrheal diseases
- c. Pneumonia case management
- d. Control and management of malaria and
- e. Maternal and new born care

Female Community Health Volunteers (FCHVs) are a part of health care system in Nepal. However, like in many other districts, FCHVs were not functioning effectively due to inadequate numbers and weak or non-existent support mechanisms. Recruitment of additional number of Female Community Health Volunteers (FCHV), their training, supervision, monitoring and support was the central approach of the project. The project also tried to develop peer support forums, i.e. FCHV coordinating committees, at various levels based on CARE's similar experiences in Peru (9).

Baseline knowledge, practice and coverage survey (KPC) on was carried out in January 2000. Based on the baseline and other sources of information, the detailed implementation plan (8) was developed in March 2000. The project phased out in September 2003.

### 1.3 Final KPC survey

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The KPC final survey is based on participatory principles of evaluation in the spirit of partnership and capacity building (10). The survey team was formed in agreement with the CSP staff and project manager. The team comprised of external consultants with expertise in public health, statistics and population studies; CARE country office staff, project manager and other project staff; representatives of the District Health Office and District Development Committee. Selection of the team members was based on their role and involvement in the project during different phases of implementation. The external consultants, CARE country office staff and the CSP project manager were involved in evaluation planning process, including the development of the tools.

The CSP staff and other stakeholders were mainly involved in recruitment & training of enumerators and supervision during data collection, in addition to other logistic and managerial functions. The final data analysis was done in several stages, some of which were done in Katmandu. Therefore, although the entire team was involved in the manual tabulation in the project office, many of the team members could not participate in the final analysis of the KPC data.

The objectives of the evaluation: The overall objective of the evaluation was to estimate the current level of indicators as per the project log frame and compare them with the baseline evaluation.

The evaluation has made all possible efforts to cover as many indicators as possible in the allotted time frame. An external team leader coordinated the survey team and activities.

## **1.4 Methods of the survey**

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### **a. Desk review**

The evaluation team reviewed the project documents, including the project proposal, baseline survey report and detailed implementation plan. Key indicators to be measured were identified from the log-frame of the DIP, Rapid CATCH, KPC 2000+ modules and the baseline report. An evaluation plan was designed. The KPC guidelines were reviewed and discussed for finalizing the methodological approach to the survey.

### **b. Development of questionnaire**

An initial draft questionnaire was prepared and shared among the team. The draft version of the questionnaire was shared with CARE Atlanta for comments and feedback. The questionnaire was finalized after incorporating feedback from various stakeholders. It was then translated into Nepali language. Before final printing, the questionnaire was pre-tested in one of the villages in Kanchanpur, which was not in the sample for survey. Based on the results of field-testing, the translation was reviewed and corrected. The final questionnaire can be found in the appendix 1 of the report.

The questionnaire covered the following modules:

1. General characteristics of responding mothers
2. Nutrition and breastfeeding
3. Growth monitoring and immunization
4. Maternal and new born care
5. Integrated management of childhood illness
6. Pneumonia case management
7. Diarrhea
8. Malaria
9. HIV/AIDS

The questionnaire had 96 questions to cover these modules. In addition, the survey also included anthropometric measurement and mid upper arm circumference (MUAC) for children and MUAC and Hemoglobin level of mothers.

The spring scales were used to measure the weight of babies. The enumerators, with the supervisor, calibrated the scales using a standard weight before weighing the baby. Accuracy of the scales was periodically checked. Similarly, height boards were used to measure the height of the children. MUAC of children age 12-23 months and mothers was measured using Sakir's standard tape.

A special team of laboratory assistants was recruited for the blood collection by finger prick of the mother (in the field) and spectrophotometer was used to estimate hemoglobin.

### **c. Sampling design**

A 30-cluster sampling design was adopted to select the mothers of children 0-23 months (10). For anthropometric measurement and MUAC, children of the same families were selected.

**Sample size:** In a simple random sampling design, the sample size is derived using the formula  $n = z^2 (p q) / d^2$ . With  $p=0.5$ , ( $q=1-p$ ), a precision of 10% ( $d=0.1$ ), assuming 95% confidence interval ( $z=1.96$ ) the required sample size ( $n$ ) is 96.

In 30-cluster design with the same values of  $p$ ,  $d$  and  $z$  minimum sample size would be 210, that is 7 per cluster. In the present survey, a sample size of 300 was selected in order to overcome the design effect or to compensate the bias that can be introduced in cluster sampling design. Thus, to obtain 300 sample 10 households from each cluster were selected for interviews.

The true estimate of the survey results to indicate the margin of errors was derived using the formula of 95% confidence limits.

**(95% confidence limit=  $p \pm z \times \sqrt{p q / (n/2)}$ )**

Where  $p$  = proportion population found from survey

$z = 1.96$  for 95% statistical certainty

$q = 1-p$

**Selection process:** Ward of VDCs and municipality was used as cluster in the present evaluation. The recent total population of the district and population of each ward were obtained from the District Public Health Office and Project Office in Mahendranagar. The sampling interval was derived from the formula given in the guideline, that is, total population divided by 30. The first cluster, the ward with equal or less than population of sampling interval, was randomly chosen using a computer program. All 30 clusters were selected by the enumerators together with trainers and the evaluation team during the training sessions following the process given in the guidelines.

A public place within the cluster was chosen as the centre of the cluster. Direction of households from the centre to be surveyed was randomly selected by spinning a bottle. Following the direction of bottle, ten subsequent households with children 0-23 months were selected for interviews. The household was defined as a unit or people living together and sharing the same kitchen. In case where there were two families in the household with the children of 0-23 months, the responding mother was selected by flipping a coin. If the mother had more than one child of 0-23 months, the youngest one

was chosen as the reference or index child. (a list of the selected clusters is presented in appendix 3).

#### **d. Training to the supervisors and interviewers**

20 interviewers were locally recruited; half of them were female. The interviewers were either Auxiliary Nurse Midwife (ANM) or Community medical Assistants (CMA) by educational background. There were 7 supervisors, including two CSP senior staff, one DHO staff and one DDC staff. The Five-day training schedule and planning was developed with the CSP training officer. The core evaluation team, CSP Training Officer, and CSP Documentation Officer facilitated the training sessions.

The training schedule included objective of the evaluation, sampling process of 30 cluster sampling design, selection of actual clusters, technique of data collection (interview technique), data collection tool (questionnaire), and data collection process.

The training methods used were mini lecture, discussions, and demonstration, role-play and group work. On the fifth day, the questionnaire was pre-tested in the field.

A brief introduction to of the CSP in Kanchanpur, objectives of the evaluation and methods were lectured and followed by discussion. Selection of the actual clusters and allocation of clusters to the interviewers was done in the group with their own participation. Measurement of height, weight and MUAC was first demonstrated and then performed by the interviewers in children. MUAC measurement for adults was practiced on each other's arms.

Before pre-testing the tools in the field, the interviewers practiced rapport building and interviewing through role-play.

The role of the supervisors was separately discussed after each day of training. A supervisory checklist was developed and distributed to the supervisors. The checklist was pre-tested in the field together with the questionnaire.

A separate orientation was done for the laboratory assistants, who were recruited for estimation of hemoglobin level of mothers. A qualified Laboratory technician oriented them for one day. These assistants were well trained and had experiences of hemoglobin determination.

#### **e. Data collection**

Of the 20 interviewers, 6 were selected for collecting data from health workers and health facilities. Another 14 were selected for interviewing mothers, measuring height and weight of children and measuring MUAC of mothers and children.

They were divided into 7 groups. Two interviewers went to the households for interviews and anthropometric measurements of children. Each group collected data from 4-5 clusters. On average, 8 households were interviewed every day. Data collection took place for 5 days from August 2-6, 2003.

Daily schedule of the survey for all the groups was finalized before the survey started. This allowed supervisors to monitor the interviews in various clusters. Based on this schedule, a separate schedule was prepared for the supervisors. A supervisor everyday visited each group. The checklist guided supervision. (appendix 2)

The supervisor checked at least two questionnaires from each cluster on the spot and corrected immediately any missing or incorrectly recorded information, discussed with the interviewers about their problems and constraints in data collection and tried to fix them.

As the data collection was performed during rainy season, occasionally there were problems of accessing different clusters. However, this did not make significant impact on data collection process and schedule. The interviewers, lab assistant groups or supervisors in the field faced no other major unforeseen problems during data collection.

#### **f. Data analysis**

A preliminary analysis of data was done in the field, the CSP office Mahendranagar, together with interviewers and supervisors. Frequency distribution tables of major indicators were prepared manually from the analysis. Then the data was analyzed using EPI INFO and SPSS computer programs. The evaluation team was involved in data management and analysis.

A second set of frequency distribution tables, including all study indicators, was prepared. The final analysis was done after receiving feedback from Senior Technical Advisor Child Health from CARE Headquarters, Atlanta.

All rapid CATCH indicators, and several possible log-frame indicators, were presented in the analysis. Some of the indicators are analyzed by age and ethnicity of mothers. Because of small sample size, it was not practical to stratify all the indicators into different background characteristics. Age of mothers is grouped into < 25 years and = 25 years as suggested in KPC 2000 guideline. Ethnicity of mothers is categorized into two groups: Brahmin, Chhetri, Magar Gurung, Tamang and Tharu, Dalit.

Errors in data entry were checked by double entry of data and different sets of analysis by different persons. Variance in these sets were checked, the sources of differences were identified and fixed. A 95% confidence limit is calculated for rapid CATCH priority indicators.

#### **g. Results and Discussions**

Results are organized in different sub sections. Each section provides information on different study indicators. In the beginning of this section, summary of rapid CATCH indicators are given in separate tables. Then, the details of the results are given in subsequent sub sections. For the convenience of reader, results and discussions are

integrated in the same section. In relevant indicators, results are compared with the baseline data and project goals.

## CHAPTER 2. GENERAL INFORMATION ABOUT RESPONDING MOTHERS AND CHILDREN

### 2.1 Information about mothers

**Table 1. Age of mothers**

Age group	Frequency	Percent
< 20 years	28	9.3
20 – 25 years	180	60.0
> 25 years	92	30.7
<b>Total</b>	<b>300</b>	<b>100</b>

The majority of responding mothers (60%) were from the age group of 20-25 years, 9.3% of the mothers of children age 0-23 months were below 20 years while 30.7% mothers were more than 25 years. The finding that 9.3% of mothers are below 20 years indicates the prevalence of early marriage in the district; however, this figure is better than the national average. According to the DHS 2001 report, 35.9% of currently married women below 20 years have at least one child.

**Table 2. Education of mothers**

Education level	Frequency	Percent
Illiterate	144	48.0
Can read and write	42	14.0
Primary level	36	12.0
Lower secondary level	33	11.0
Secondary level	23	7.7
Higher level	22	7.3
<b>Total</b>	<b>300</b>	<b>100</b>

Of the responding mothers, 48% are illiterate. This level of literacy is close to the DHS 2001 report, which estimated 46.9% female literacy rate in Kanchanpur district. Only 7.3% of mothers had received higher secondary education. Literacy rate seems to have significantly improved in the district over the last 4 years. During the baseline survey, the literacy rate among the mothers was only 30.7%.

**Table 3. Ethnicity of responding mothers**

<b>Ethnicity</b>	<b>Frequency</b>	<b>Percent</b>
Brahmin/Chhetri	141	47.0
Gurung/Magar/Tamang	28	9.3
Tharu	89	29.7
Dalit	42	14.0
<b>Total</b>	<b>300</b>	<b>100</b>

Nearly half of the mothers were from Brahmin and Chhetri ethnic group. Dalits comprised of 14% of the total mothers in the sample. Ethnic distribution of the population may have programmatic implications in terms of designing certain interventions.

**Table 4. Number of children under 5 years in the household**

<b>Number of children</b>	<b>Frequency</b>	<b>Percent</b>
One child	165	55.0
More than one child	135	45.0
<b>Total</b>	<b>300</b>	<b>100</b>

Of the total mothers interviewed 55% had one child and 45% of them reported having more than one biological child.

## **2.2 Information about children**

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**Table 5. Age and sex of children**

<b>Age group</b>	<b>Male</b>	<b>Female</b>	<b>Total</b>	<b>Total Percent</b>
Less than 6 months	33	35	68	22.7
6-11 months	60	68	128	42.7
12-23 months	50	54	104	34.6
<b>Total</b>	<b>146</b>	<b>154</b>	<b>300</b>	<b>100</b>

A smaller percentage of children below 6 months compared to 6-11 months could be due to decreasing fertility rates, or increased spacing, or high early infant mortality. On the

other hand, percentage of children below 12 months is significantly higher compared to children of age 12-23 months. This difference indicates to higher early childhood deaths. In all age groups, the percentage of female children is slightly higher, suggesting a slight possibility of higher survival of female children compared to the male.

**Table 6. Children age 0-23 months born at least 24 months after previous surviving child (N=135)**

Spacing between births	Frequency	Percent
Less than 24 months	41	30.4
At least 24 months or more	92	68.1
Missing information	2	1.5
<b>Total</b>	<b>135</b>	<b>100</b>

Nearly one third of the children have spacing less than 24 months. This finding indicates the need for of educating women and their husbands about temporary contraceptives and developing plans for increasing availability and accessibility of birth spacing supplies.

**Table 7. Child's caretaker when mother is away (N=300)**

Caretaker	Frequency	Percent
Husband	28	9.3
Brother/Sister	62	20.7
Relatives	6	2.0
Neighbors/Friends	4	1.3
Maid	1	0.3
Alone at home	8	2.7
Mother/Father in law	172	57.3
Other family member	19	6.4
<b>Total</b>	<b>300</b>	<b>100</b>

Grand parents are the major caretakers of children in the family when mother is away. This is a normal pattern in Nepalese society, where joint family structure is common. The role of the husband in child's care (9.3%) seems to be minimal even when the mother is away, although the data shows slight increase compared to baseline (7.3 %).

## CHAPTER 3. CHILD HEALTH, NUTRITION AND BREAST FEEDING

Nutrition and breastfeeding is one of the main interventions (30% effort) of the project. The project aimed to improve nutritional status of children through promotion of correct breastfeeding practices and feeding practices to children.

### 3.1 Breastfeeding

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**Table 8. Children who were ever breastfed (N=300)**

Breast feeding	Frequency	Percent
Ever breast fed	298	99.3
Never breast fed	2	0.7
<b>Total</b>	<b>300</b>	<b>100</b>

Except 2 children, all children of age 0-23 months were breastfed at some point during their life. DHS 2001 report a similar figure of 98% for the national average and 98.6% for the far western region.

**Table 9. Initiation of breastfeeding after delivery**

Time of initiation	Frequency	Percent N=300	Valid percent N=298	Baseline in 2000 in %
Within one hour of delivery	157	52.3	52.7	48.7
1 – 8 hours of delivery	117	39.0	39.3	41.3
More than 8 hours of delivery	17	5.7	5.7	10.0
Don't remember	5	1.6	1.6	
Other	2	0.7	0.7	
Total	298	99.3	100.0	100
Missing system	2	0.7		
<b>Total</b>	<b>300</b>	<b>100.0</b>		

Nearly half of the mothers initiated breast milk within one hour of delivery. Others have initiated after one hour. Very few mothers said that they did not remember the time of breastfeeding initiation. These findings are significantly different from that of the of baseline data. These figures should be interpreted with caution, as recalling time of breastfeeding initiation for most rural mothers after delivery is subject to errors. This recall error could be higher for the first hour after delivery.

**Table 10. Mothers who gave the first milk when put the newborn first to breast**

<b>First milk</b>	<b>Frequency</b>	<b>Percent N=300</b>	<b>Valid percent N=298</b>	<b>Baseline in 2000 in % N=300</b>
Gave first milk	224	74.7	75.2	73.0
Discarded first milk	74	24.6	24.8	23.7
Did not know	0	0	0	3.3
Total	298	99.3	100.0	100.0
Missing system	2	0.7		
<b>Total</b>	<b>300</b>	<b>100.0</b>		

Three fourths of the mothers had given the first milk to the newborn babies. This has not changed significantly since the time of baseline survey. Giving or discarding the first milk could be related to the traditions and culture. A social intervention is required to bring about such changes.

**Table 11. Mothers who gave different food or liquid to the newborn during three days after delivery (N=300) Multiple answers**

<b>Food or liquid</b>	<b>Frequency</b>	<b>Percent</b>
Plain water	17	3.7
Infant formula	8	2.7
Other milk	13	4.3
Fruit juice	1	1.4
Tea/Coffee	0	0.0
Sugar water	2	0.0
Curd, Yogurt	0	0.0
Traditional herbal liquid	0	0.0
Nothing	272	90.6
Other	3	0.7

About 10% of the mothers gave animal milk or other liquids besides/instead of breast milk to the newborn babies during first three days after birth. Among them, 8 mothers gave infant formula. Although this figure seems to be small, introduction of infant formula from the beginning of newborn life should be seriously considered. The baseline report does not provide this information; therefore the trend cannot be examined over time.

**Table 12. Mothers who are currently breast feeding**

Age of children	Currently breast feeding		Baseline in 2000
	Frequency	Percent	Percent
0 – 5 months (n= 68)	68	100.0	No age specific information
6 – 12 months (n= 104)	101	97.1	
13 –23 months (n= 128)	124	96.8	
<b>Total (N= 300)</b>	<b>293</b>	<b>97.6</b>	<b>97.0</b>

It is encouraging that about 97% mothers of children age 0-23 months are currently breastfeeding their children. Among them, 100% of mothers of children 0-5 months are currently breastfeeding. This finding suggests that there is a possibility of improvement in the practice of exclusive breastfeeding for this age of children in Kanchanpur district. Although the baseline report does not provide age specific information, the overall prevalence of breastfeeding over the time has not changed.

**Table 13. Prevalence of exclusive breast-feeding during the last 24 hours (N=300)**

Duration	Frequency (%)	Cum number	Cum Frequency	Cum percent
< 1 months (n=12)	11 (91.7)	12	11	91.7
1 month (n=9)	5 (55.6)	21	16	76.2
2 months (n=11)	7 (63.6)	32	23	71.9
3 months (n=9)	5 (55.6)	41	28	68.3
4 months (n=13)	3 (23.1)	54	31	57.4
5 months (n=14)	3 (21.4)	68	34	50.0
6 months (n=20)	3 (15.0)	88	37	42.4
7 months (n=23)	0	111	36	32.4
8 months (n=8)	0	119	36	30.3
> 9 months (n=181)	2 (1.1)	300	38	12.7
<b>Total (N=300)</b>	<b>38</b>	<b>300</b>		

Exclusive breastfeeding was calculated on the basis of mother's reporting of the last 24 hours (day and night), dietary recall concerning child feeding. Those children who did not receive anything (including water) except mother's milk in the last 24 hours were considered to be in exclusively breastfed. The prevalence of exclusive breastfeeding among the children age 0-5 months was estimated at 50%. If the cohort of children of 5 months old is taken, the exclusive breastfeeding rate is only 21.4%. Table 14 shows that exclusive breastfeeding drops sharply from the age group of two months onwards. This indicates that although prevalence of exclusive breastfeeding among the children 0-5 months is 50%, many of them may have started complementary foods at a much earlier age than 5 months. In the baseline survey, calculations of exclusive breastfeeding were based on a direct question to the mother whether the baby was being exclusively breastfed. According to the report, 54.3% of children ages 0-5 months were exclusively

breastfed. Due to methodological differences, these data are not comparable. According to the DHS 2001, which used the same method as the present KPC estimated exclusive breastfeeding rate in 0-5 months was 54.2% at the national level.

### 3.2 Complementary feeding

**Table 14. Children age 6-9 months who received breast milk and complementary foods (N=71)**

	Frequency	Percent
Breast milk and complementary food	59	83.0
Received only complementary food	5	7.0
Received only breast milk	7	10.0
<b>Total</b>	<b>71</b>	<b>100</b>

Among the children age 6-9 months, 78.5% received breast milk and complementary foods, although data does not explain the nature and quality of the complementary foods these children are receiving. Another one fifth of the children who are either only receiving breast milk or complementary foods should be considered as being improperly fed.

**Table 15. Knowledge and practices of mother about the age of child for introducing complementary food**

Age of child	Frequency	Percent
<u>Knowledge about initiation (n=300)</u>		
1-4 months	29	9.6
5 months	48	16.0
6 months	176	58.7
More than 6 months	37	12.3
Do not know	10	3.4
<b>Total</b>	<b>300</b>	<b>100.0</b>
<u>Actual practice of initiation (n=247*)</u>		
1-4 months	22	8.9
5 months	36	14.5
6 months	131	53.3
More than 6 months	58	23.3
<b>Total</b>	<b>247</b>	<b>100.0</b>

\* Those who are currently receiving complementary food

Table 16 demonstrates a close correlation in knowledge and practice of the initiation of complementary foods to children. Therefore, including information on the correct time to initiate complementary feeding may be an important component in community education programs. In the baseline report, the age grouping is divided in a different manner (3-5 months, 6 months and after 6 months) where 16% of mothers reported 3-5 months and 42% of mothers reported the age of 6 months for the initiation of complementary feeding, although accuracy in age reported by mothers should be interpreted with caution. Data on actual age of initiation of complementary foods is not available in the baseline report. However, the present study showed that nearly a quarter of mothers have actually initiated complementary food after 6 months of age. This should be taken into consideration for future intervention design.

**Table 16. Types of liquid the child drank during the last 24 hours (N=300)**  
(Multiple responses)

<b>Types of liquid</b>	<b>Frequency</b>	<b>Percent</b>
Plain water	170	56.7
Infant formula	12	4.0
Other milk/milk products	100	33.3
Fruit juice	46	15.4
Sugar water	34	11.3
Breast milk	238	93.4
No liquids	45	15.0

Table 18 shows the general pattern of consumption of fluids by the children. After breast milk, water seems to be the common fluid that mother give to their baby. Use of fruit juice could be influenced by the season when the survey is done. The finding that 4% of the mothers are using infant formula could be a matter of concern for future strategy.

**Table 17. Children who drank any liquid from bottle with nipple during the last 24 hours (N=300)**

<b>Drank from bottle</b>	<b>Frequency</b>	<b>Percent</b>
Yes	32	10.7
No	268	89.3
<b>Total</b>	<b>300</b>	<b>100.00</b>

10.7% of mothers are using bottles for giving fluids to their children. 12 mothers, that is 4% are using infant formula (Table 17). It is useful to explore what other fluids the

mothers are using bottles for. Since bottle-feeding can be unhygienic, particularly in the rural areas where proper cleaning of the bottle is still not common, awareness campaigns should discourage bottle-feeding practices. Baseline information about this indicator is not available for assessing the trend over the time.

However, this figure is encouraging compared to DHS 2001 report, which estimated that about 27% of children age 0-23 months used bottle with nipples (at the national level).

**Table 18. Type and frequency of food consumed by the children age 6-23 months in the last 24 hours N=232**

Type of food	Frequency N (percent)					
	One time (%)		Two times (%)		Three or more times (%)	
Any food made from grains	6	2.6	35	15.1	169	72.8
Pumpkin, Carrot, Sweet potatoes etc	1	0.4	2	0.8	0	0.0
Food from root or tubers	1	0.4	0	0.0	2	0.8
Any green leafy vegetables	14	5.6	26	11.2	31	13.4
Mango, Papaya	7	2.8	3	1.2	6	2.4
Other fruits and vegetables	14	5.6	20	8.6	24	10.3
Meat, fish, eggs	8	3.3	5	2.0	4	1.6
Citrus fruits	3	1.2	1	0.4	1	0.4
Food from legumes	6	2.4	4	1.6	8	3.2
Cheese or yogurt	6	2.4	4	1.6	6	2.4
Food with oil, fat, butter etc	4	1.6	2	0.8	4	1.6

Among the children age 6-23 months, about 73% received food from grain three or more times in the last 24 hours. This finding seems natural since grains like rice, maize, wheat, etc. are staple foods for both adults and children in most parts of Nepal. Consumption of fruits and vegetables may depend on the season of availability. The results revealed a relatively high percentage of children consuming fruits and vegetables. This could be due to the fact that survey was conducted in the months of August when these foods are commonly available.

**Table 19. Frequency of feeding during the last 24 hours for children on complementary food (N-237)**

<b>Frequency of full meal</b>	<b>Frequency</b>	<b>Percent</b>
One time	3	1.3
Two times	20	8.4
Three times	74	31.2
Four times	50	21.1
More than four times	90	38.0
<b>Total</b>	<b>237</b>	<b>100.0</b>

About 60% of the children who are receiving complementary food received it at least four times in the last 24 hours. About one third of the children received three full meals in the last 24 hours. In general, feeding frequency seems normal. However, frequency of feeding depends on the age of child. Therefore, age specific analysis could give a clearer picture. Age wise analysis was not done because of a small sample size. The baseline report does not provide this information for assessing the trend.

**Table 20. Children aged 6-23 months who received Vitamin A during the last six months (N=232)**

	Frequency	Percent	Baseline 2000
Received Vitamin A	171	73.7	78.8
Did not receive Vitamin A	61	26.3	21.2
<b>Total</b>	<b>232</b>	<b>100.0</b>	
<b>By ethnicity of children</b>	<b>Received vitamin A</b>		
	<b>Yes</b>	<b>(%)</b>	<b>No (%)</b>
Brahmin, Chhetri, Gurung, Magar, Tamang (n=138)	106	76.8	32 23.2
Tharu, Dalit (n=94)	65	69.2	29 30.8
<b>Total (n=232)</b>	<b>171</b>	<b>73.7</b>	<b>61 22.3</b>
<b>By sex of children</b>	<b>Received vitamin A</b>		
	<b>Yes</b>	<b>(%)</b>	<b>No (%)</b>
Male (n=110)	78	70.9	32 29.1
Female (n=122)	93	76.2	29 23.8
<b>Total (n=232)</b>	<b>171</b>	<b>73.7</b>	<b>61 22.3</b>

Information on children who received vitamin A was collected from the growth monitoring or immunization card or by mother's recall. Of the 232 children of age 6-23 months, 181 (78.1%) received vitamin A during the last 6 months. Vitamin A distribution is a routine and regular activity of the department of health services through district health offices. Social mobilization at all levels is achieved in this program. Therefore, a high coverage is normally expected. The coverage in Kanchanpur was consistent with the national average of 73.6% reported by the DHS 2001 (in this age group) and shows a slight decline during the last three years and is below the project target of 90%. Although the coverage level is comparable to the national average, above average coverage is expected in a district like Kanchanpur where CSP is implemented. It indicates that there is need to improve community mobilization and community education in this regard.

A slight difference in vitamin A coverage exists between the ethnic groups. Among the children of Dalit and Tharu communities there was comparatively less coverage of vitamin A.

**Table 21. Knowledge of mothers about Sarbottam Pitho (Super flour)**

	Frequency	Percent	Baseline 2000
<b>Knowledge about Sarbottam Pitho (N=300)</b>			
Heard about Sarbottam Pitho	150	50.0	8.3
Did not know about Sarbottam Pitho	150	50.0	91.7
<b>Correct knowledge about preparation of Sarbottam Pitho</b>			
Among the mothers who heard about Sarbottam Pitho (N=150)	91	60.7	24.0
Among total mothers (N=300)	91	30.3	2.0

Sarbottam Pitho (Super flour) is considered as one of the best home preparation products for children. The finding revealed that 50% of mothers of children age 0-23 months in Kanchanpur have heard about Sarbottam Pitho. Although improvement of knowledge about Sarbottam Pitho is remarkable compared to baseline report, there is still further need to educate mothers. Similarly, despite a visible progress in correct knowledge about preparation of Sarbottam Pitho, an even higher level of knowledge could be expected in a CSP implemented district.

**Table 22. Availability of Sarbottam Pitho in the local market and its use**

	Frequency	Percent among the mothers who heard (N=150)	Percent among total mothers (N=300)
<b>Availability</b>			
Yes	110	73.4	36.7
No	25	16.6	8.3
Do not know	15	10.0	5.0
<b>Total</b>	<b>150</b>	<b>100.0</b>	
<b>Use in the last 24 hours</b>			
Yes	57	38.0	19.0
No	93	62.0	31.0
<b>Total</b>	<b>150</b>	<b>100.0</b>	

Knowledge about Sarbottam Pitho could be influenced by its availability and use. Only about 37% of mothers reported that Sarbottam Pitho was available in their local market.

This figure is close to the percentage of mothers who know how to correctly prepare Sarbottam Pitho. However, only 19% of the mothers gave Sarbottam Pitho to their children in the last 24 hours. Data on availability of Sarbottam Pitho in local market and its use is not given in the baseline report.

**Table 23. Household with the kitchen Garden**

	<b>Frequency</b>	<b>Percent</b>
Yes	271	90.3
No	29	9.7
<b>Total</b>	<b>300</b>	<b>100</b>

The concept of kitchen garden may vary from place to place. In the present evaluation, a piece of land attached to the yard with vegetables planted is considered a kitchen garden. Kitchen gardens and vitamin A rich vegetables may serve as an indicator to measure the awareness in the household level concerning nutrition issues, in particular, awareness about the importance of vitamin A. More than 90% of households have kitchen gardens in Kanchanpur. Although the project did not set any targets and did not have specific interventions, percentage of households with kitchen garden is high in the district.

**Table 24. Kitchen garden with Vitamin rich Vegetables**

<b>Vitamin A rich vegetables</b>	<b>Frequency</b>	<b>Percent among the household with kitchen garden (N=271)</b>	<b>Percent among total households (N=300)</b>
Yes	247	91.1	82.3
No	24	8.9	8.0

Tables 24 and 25 show a higher percentage of households with kitchen gardens and vitamin A rich vegetables. However, the concept of a kitchen garden is not well defined in rural settings. Availability of vitamin A rich vegetables, like green leafy vegetables, carrots, and beans, depends on the season of the survey, which was favorable for these vegetables in the present survey.

### 3.3 Growth monitoring

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**Table 25. Weighing newborns at birth as recalled by mothers**

<b>Birth weight</b>	<b>Frequency</b>	<b>Percent</b>
Weight taken at birth	71	23.7
Weight not taken at birth	225	75.0
Do not know	4	1.3
<b>Total</b>	<b>300</b>	<b>100.0</b>

23.7% of the mothers reported that their babies were weighed at birth. However, it is difficult to verify the mothers recall about weight taking of babies at birth.

**Table 26. Use of growth monitoring cards**

<b>Growth monitoring card</b>	<b>Frequency</b>	<b>Percent</b>	<b>Baseline 2000</b>
Could show the cards	88	29.3	13.0
Could not show the card	212	70.7	87.0
<b>Total</b>	<b>300</b>	<b>100.0</b>	<b>100.0</b>

Possession of any health document in the household indicates a certain level of health consciousness. Such documents may be more relevant in the case of children. Although the percentage of mothers who could show the growth-monitoring card has tripled from the baseline, the absolute level of possession of the card is still low. The card is useful to monitor not only the physical growth of the child, but also to assess the morbidity history of the child.

**Table 27. Weight taken during the last four months**

<b>Weight taken in the last four months</b>	<b>Frequency</b>		<b>Total</b>		<b>Baseline 2000* N=39</b>
	<b>Cards</b>	<b>Verbal</b>	<b>Frequency</b>	<b>Percent</b>	
Yes	35	77	112	37.3	35.8
No	53	135	188	62.7	
<b>Total</b>	<b>88</b>	<b>212</b>	<b>300</b>	<b>100.0</b>	

\* Only card-based calculation

Verbal information and card indicated that about 38% of the children had been weighed in the last four months. Among those who had cards, 66% of the children had been weighed in the last four months. Card base information is more reliable compared to

mother's recall. Although card possession rate is low (Table 26), card based weight-taking rate is satisfactory.

### 3.4 Immunization

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**Table 28. Children with immunization card by age group**

Age group of children	Have immunization card	
	Frequency	Percent
0-23 months (n=300)	143	47.7
12-23 months (n=128)	35	27.3

About 48% of total children had immunization card whereas only 27% of the children age 12-23 months preserved the immunization card. Since the children are given vaccines before the age of 12 months, most parents may not see the usefulness of the immunization card and may not feel the need to preserve it. This might be one reason for such a low card possession rate among the children age 12-23 months.

**Table 29. Immunization status of children 12-23 months based on cards and recall by mothers**

Vaccines and doses	Frequency	Percent
<b>At any age, card plus recall (n=128)</b>		
BCG	94	73.4
DPT 3	89	69.5
Polio 3	91	71.1
Measles	111	86.7
<b>Completed all 6 vaccines at any age</b>	<b>80</b>	<b>62.5</b>
<b>Before 12 months card based (n=35)</b>		
BCG	35	100.0
DPT 3	33	94.3
Polio 3	32	91.4
Measles	28	80.0
<b>Completed all 6 vaccines before age of 12 months (Card based)</b>	<b>26</b>	<b>74.3</b>

Information about the age of children when they received the vaccine was available only for the cardholders. Therefore, data is analyzed in two sets. The first set of data is based on card and recall of mothers. This information provides general coverage information. The second set of data is based on card, which provides the information about the age of children when they received different vaccines. Immunization coverage among the cardholder children seems to be better or comparable to the national average. However, coverage among all children is relatively low. The DHS 2001 estimated that 60.1% of children received all vaccines before the age of 12 months. Information on immunization is not available in the baseline report for the comparison and assessment of the trend.

For all other vaccines except measles, cardholders have better coverage rates. One possible reason could be that mothers may give more importance to the measles vaccine than others and have vaccinated children even after 12 months, which resulted in high coverage. This delay in vaccination may be the reason for low coverage of measles vaccine before the age of 12 months. According to the Annual Report of Department of Health Services 2001/2002, measles vaccine coverage in Kanchanpur was 75.5%.

### 3.5 Nutritional status of children

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Malnutrition or under-nutrition results in increased vulnerability of children to many infectious diseases. At the same time, under-nutrition is one result of infectious disease in children. In addition, nutritional status of children also indirectly reflects the health status of mothers. Therefore, the nutritional status of children is an important indicator in relation to child survival programs.

Assessment of nutritional status was done through anthropometric measurement of height and weight of children age 0-23 months and measurement of mid upper arm circumference (MUAC) of children 12-23 months. Height and weight of children were compared with the age and the following three indicators were calculated:

- a. Height-for-age (stunting)
- b. Weight-for-height (wasting), and
- c. Weight-for-age (underweight).

All three indicators are expressed in standardized deviation of z-score from the median values of height and weight of same age of WHO recommended population.

**Table 30. Percentage distribution of children by Height for Age Z scores**

	Height for age (Stunting)			Total
	< -2 SD	-2 to -3 SD	>-3 SD	
Boys	72 (53.3)	37 (27.4)	26 (19.3)	135(100)
Girls	78 (52.3)	35 (23.5)	36 (24.2)	149 (100)
<b>Total</b>	<b>150 (52.8)</b>	<b>72 (25.0)</b>	<b>62 (21.8)</b>	<b>284 (100)</b>

Height-for-age provides the information on chronic malnutrition. Out of 284 children, 21.8% were severely stunted and 25.0% were moderately stunted. Moderate stunting was found higher among boys and severe stunting was found higher among girls.

**Table 31. Percentage distribution of children by Weight for Height Z score**

	Weight for height (Wasting)			Total
	< -2 SD	-2 to -3 SD	>-3 SD	
Boys	121 (90.3)	12 (8.9)	1 (0.8)	134 (100)
Girls	133 (88.7)	14 (9.3)	3 (2.0)	150 (100)
<b>Total</b>	<b>254 (89.4)</b>	<b>26 (9.1)</b>	<b>4 (1.4)</b>	<b>284 (100)</b>

The weight for height measure provided an indication of acute on chronic malnutrition by providing a ration of body weight to the height/length of the children. Among 284 children, 9.1% of children were found moderately wasted and 1.4 % were severely wasted. Wasting was found higher among girls as compared to boys.

**Table 32. Percentage distribution of children by Weight for Age Z score**

	Weight for age (Underweight)			Total
	< -2 SD	-2 to -3 SD	>-3 SD	
Boys	84 (59.5)	46 (32.7)	11 (7.8)	141 (100)
Girls	100 (64.4)	37 (23.8)	18 (11.6)	155 (100)
<b>Total</b>	<b>184 (62.2)</b>	<b>83 (28.0)</b>	<b>29 (9.8)</b>	<b>296 (100)</b>

Weight for age is the indicator of acute malnutrition. Overall, the rate of under nutrition was 37.8% (28.0% moderately underweight and 9.7% severely underweight). More girls were found severely underweight as compared to boys.

**Table 33. Mid Upper Arm Circumference (MUAC) of children of age 12-23 months (N= 128)**

	Frequency	Percent
< 12.5 cm	35	27.3
12.5 -13.5 cm	52	40.6
> 13.5 cm	41	32.1
	<b>128</b>	<b>100</b>

## CHAPTER 4. INTEGRATED MANAGEMENT OF CHILDHOOD ILLNESS

In the present evaluation, the integrated management of childhood illness is evaluated through awareness of symptoms and needs for treatment for sickness (general and non-specific disease, plus specific diseases) among children. Specific diseases like diarrhea, ARI, malaria are discussed in separate chapters.

### 4.1 Knowledge of mother about childhood illness

**Table 34. Perception of mothers regarding the illness of children requiring treatment (N=300) Multiple responses**

Signs of illness	Frequency	Percent
Looks unwell or not playing normally	165	55.0
Not eating or drinking	203	67.7
Lethargic or difficult to walk	91	30.3
High fever	210	70.0
Fast or difficult breathing	85	28.3
Vomits everything	105	35.0
Convulsions	11	3.7
Others (Diarrhea, crying, skin infections)	98	32.7
Do not know	6	1.7
<b>At least two sign of illness</b>	<b>252</b>	<b>84.0</b>

Fever is an important indicator for mothers to recognize the severity of the illness. Feeding seems to be another major point for mothers regarding their children's illness. Similarly, physical activities of children and their appearance cause the mothers to be concerned about the health of their children. Since almost all childhood illness manifest in these three major symptoms, it is natural that mothers are alerted to their child's illness in this manner. About one third of mothers considered vomiting and fast or difficult breathing as symptoms of childhood illness. Skin infection was a concern for some mothers, indicating the possible prevalence of the problem in Kanchanpur. Very few mothers, only 3%, mentioned convulsions as symptom of childhood illness.

**Table 35. Mothers of children 0-23 months by age and ethnicity who know at least two signs of childhood illness requiring medical assistance**

Respondent category	Know at least two signs	
	Frequency	Percent
<b>Age of mothers</b>		
< 25 years (n=169)	144	85.2
= 25 years (n=131)	108	82.4
<b>Total (N-300)</b>	<b>252</b>	<b>84.0</b>
<b>Ethnicity of mothers</b>		
Brahmin, Chhetri, Gurung, Magar Tamang (n=169)	148	87.5
Tharu, Dalit (n=131)	104	79.3
<b>Total (N-300)</b>	<b>252</b>	<b>84.0</b>

Among the mothers, 84% know at least two signs/symptoms of childhood illness requiring medical treatment. A slight difference in knowledge is found among the mothers of different ethnic groups, but the difference is not significant.

**Table 36. Prevalence of childhood diseases during two weeks prior to interview (N=300) Multiple responses**

Childhood diseases	Frequency	Percent
Diarrhea	38	12.7
Blood in stool	1	0.3
Cough	49	16.0
Difficult breathing	17	5.7
Fast breathing	19	6.3
Fever	72	24.0
Malaria	1	0.3
Convulsions	2	0.6
Others (pain abdomen, skin infections)	54	18.0
None of above	148	49.3

About half of the children were reported to have one or more symptoms of childhood diseases. Fever was the most frequent condition (24%) among the children followed by coughs 16% and diarrhea 12.7%. Other problems were pain in abdomen and skin infection.

Fever is a non-specific sign of illness and could be a manifestation of any infection. Prevalence of cough may indicate acute respiratory infection. Difficult breathing and fast

breathing could be the signs of pneumonia. The survey was conducted during the rainy season; therefore, as expected, skin infection was mentioned frequently as a problem.

#### 4.2 Knowledge of mothers about management of childhood illness ---

Knowledge of mother about the management of childhood illness was assessed based on a case study. For example, mothers were asked what amount of fluid would they give to the child if he or she were ill. Similarly, knowledge of mothers about management of other illnesses were assessed

**Table 37. Knowledge of mothers about consumption of fluid and food during illness (N=300)**

<b>Amount of fluid or food</b>	<b>Frequency</b>	<b>Percent</b>
<b><u>Amount of fluid</u></b>		
Less than usual	89	29.7
Same amount as usual	77	25.7
More than usual	114	38.0
Other	15	5.0
Do not know	5	1.6
<b><u>Amount of food</u></b>		
Less than usual	104	34.7
Same amount as usual	75	25.0
More than usual	81	27.0
Other	34	13.3
Do not know	6	2.0

About 64% of the mothers said that during childhood illness more or the same amount of fluid should be given to the sick child while about 30% thought that less than usual fluid should be given to the child to drink. Similarly, one third of the women said they would give less food to the sick child during illness.

Knowledge about feeding and management of childhood illness may depend upon literacy of mothers, traditions and belief of other family members. Although there is no baseline information or national data to compare, this finding is encouraging. However, with the effective intervention improvement in the future is expected.

**Table 38. Children age 0-23 months who received increased fluid and continued feeding. (N=148)**

<b>Received increased fluid and continued feeding</b>	<b>Frequency</b>	<b>Percent</b>
Yes	86	58.1
No	62	41.9
<b>Total</b>	<b>148</b>	<b>100.0</b>

The level of knowledge given in Table 37 is directly reflected in the practice of mothers during childhood illness. The data was computed to assess the feeding practice of mother during any childhood illness in the past two weeks. The illness included fever, diarrhea, cough, and others. It was found that 58% of children had received increased fluid and continued feeding, either the same or larger amount of food, when they were ill. The feeding practice may also depend upon the nature of illness.

## CHAPTER 5. DIARRHEAL DISEASES

Diarrhea is a common problem in Nepal and a cause of high childhood morbidity and mortality. It is estimated that 30,000 children under 5 years of age die every year from diarrhea. Diarrheal morbidity is 3.3 episodes per child per year (6). Diarrhea is also one of the contributing factors to malnutrition among the children. The Ministry of Health has given a high priority to address the childhood diarrhea through preventive and curative measures. The MoH aimed to reduce diarrheal mortality by 50% and morbidity by 20% by the fiscal year 2001/2002. Increased awareness and availability of ORS is particularly emphasized.

Diarrhea management was one of the interventions of Child Survival Project in the Kanchanpur district. The project aimed to raise awareness among the mothers to prevent diarrhea. The project also aimed to promote use of sanitary latrines and hand washing habits of mothers. Diarrhea management at the household level was emphasized in order to reduce the mortality from diarrhea.

The present evaluation has estimated the prevalence of diarrhea in two weeks time from the survey among the children of 0-23 months, assessed knowledge concerning diarrhea, use of sanitary latrine, behavior, and practice of mothers of children age 0-23 months during diarrhea.

### 5.1 Knowledge about diarrheal disease

**Table 39. Knowledge of mothers of children age 0-23 months about the symptoms of diarrheal condition (N=300)**

Symptoms	Frequency	Percent	Baseline 2000
Watery stool 1-2 times a day	4	1.3	8.3
Watery stool 3 times a day	77	25.7	
Watery stool more than 3 times a day	212	70.7	85.0*
Do not know	7	2.3	6.7
<b>Total</b>	<b>300</b>	<b>100</b>	

\* Response as three or more times a day

The majority of mothers were found to have correct knowledge about the symptoms of diarrhea, which is defined as passage of watery stool three or more times in a day. Understanding about the diarrhea among the mothers has improved over the time.

**Table 40. Knowledge of mothers of children age 0-23 months about the danger signs of diarrhea that requires medical treatment (N=300)**  
Multiple responses

<b>Danger signs as mentioned by the mothers</b>	<b>Frequency</b>	<b>Percent</b>	<b>Baseline 2000</b>
Vomiting	131	43.7	19.3
Fever	145	48.3	14.7
Dry mouth, sunken eyes, sunken fontanel	82	27.3	6.7
Continued loose motion for more than 14 days	106	35.3	16.7
Blood in stool	89	29.7	10.3
Loss of appetite	44	14.7	8.7
Weakness or tiredness	131	43.7	16.3
Feels thirsty	5	1.7	Not asked
Other (Abdominal pain, crying, inactive)	78	26.0	No response
Do not know	15	5.1	6.7
<b>At least two danger signs</b>	<b>222</b>	<b>74.0</b>	

There is significant improvement in knowledge of mothers about the dangers signs of diarrhea over time. The survey indicates that mothers have become more aware of seeking medical assistance during diarrhea. This may lead to reduction of complication and mortality from diarrhea among children.

**Table 41. Mothers of children 0-23 months who know at least two danger signs of diarrhea requiring medical assistance by age**

<b>Age of mothers</b>	<b>Know at least two signs</b>	
	<b>Frequency</b>	<b>Percent</b>
< 25 years (n=169)	128	75.7
≥25 years (n=131)	94	71.7
<b>Total (N=300)</b>	<b>222</b>	<b>74.0</b>

Between mothers of age less than 25 years and 25 or above there is only a small difference in level of knowledge regarding at least two dangers signs of diarrhea requiring medical assistance.

**Table 42. Knowledge of mothers of children age 0-23 months about the diarrheal dehydration (N=300) Multiple responses**

Signs as mentioned by the mothers	Frequency	Percent	Baseline 2000
Eyes look dull and sunken	128	42.7	23.0
Dry mouth and tongue	107	35.7	6.3
Child becomes thirsty	142	47.3	12.0
Skin dry and when pulled goes back slowly	87	29.0	5.7
Others*	100	33.3	28.7**
Do not know	51	17.0	19.7

\* Vomiting, abdomen pain, crying, weakness

\*\* Other responses in baseline were thin, weak, and pale

Knowledge concerning signs of the dehydration has been remarkably improved since the time of baseline survey. However, the percentage of mothers who did not know any of the signs of dehydration during baseline was reduced by negligible 1.3%. This suggests that the education program has not reached a certain groups of mothers, although those mothers who are exposed to such programs have significantly improved their knowledge. Knowledge about the features of diarrheal dehydration may alert the mothers to seek timely medical assistance.

**Table 43. Knowledge of mothers with children age 0-23 months about preparation of ORS (N=300)**

Knowledge of preparation	Frequency	Percent	Baseline 2000
Claim to know how to prepare	242	80.7	39.3
Correct knowledge to prepare	187	62.3	11.0
<b>Correct preparation of ORS by age of mothers</b>			
< 25 years (n=169)	111	65.7	NA
= 25 years (n=121)	76	58.0	NA
<b>Total</b>	<b>187</b>	<b>62.3</b>	<b>11.0</b>

Although 80.7% of mothers claimed in the initial question that they could prepare oral rehydration solution (Jeevan Jal), only 62.3% of the total mothers could correctly prepare ORS. Since diarrhea is a common childhood problem and can be treated very effectively by using ORS, use of correctly prepared ORS can prevent complications and mortality of diarrhea. Therefore, educating mothers on correct preparation of ORS is an important

strategy. Compared to the baseline data, correct knowledge of ORS preparation had increased from 11% to 62%, which is a tremendous gain considering the time period. The young mothers seem to have better knowledge about correct preparation of ORS. The recent data of national averages on this indicator are not available. The DHS 2001 report only provides data on mothers who know that diarrhea should be treated by ORS, which is 97.8%. Knowing that ORS should be used in diarrhea does not mean that these mothers have knowledge about correct preparation of ORS. Despite this improvement in knowledge over the period, there is still a need to intensify the awareness programs and to reach all mothers in the project district.

**Table 44. Prevalence of diarrhea among the children 0-23 months in the past two weeks by ethnicity**

<b>Ethnicity</b>	<b>Frequency</b>	<b>Percent</b>	<b>Baseline 2000</b>
Brahmin, Chhetri, Gurung, Magar Tamang (N=169)	23	13.6	
Tharu and Dalits (N=131)	15	11.4	
<b>Total (300)</b>	<b>38</b>	<b>12.7</b>	<b>28.7</b>

12.75 % of children experienced diarrhea in the two weeks prior to survey time. Given the season of the survey, higher prevalence of diarrhea could be expected in the district. The annual report of DHS 2001/2002 showed that the peak of diarrhea occurrence was in the months of June-August. The DHS 2001, which was conducted during January-June, reported a national average of diarrhea prevalence to be 28% in the age group of 0-23 months. The data were based on two weeks recall by mothers.

In comparison with the national average, the diarrhea prevalence in Kanchanpur district is low. The baseline data indicates that the reduction of the diarrhea in the district was seen over time. This could be due to environmental and sanitary improvements as well as behavioral change in the family.

## 5.2 Practices of mothers during diarrhea

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Practice of mothers during diarrhea included seeking of medical care, home management, and feeding practices when child had diarrhea.

**Table 45. Treatment of diarrhea (N=38) Multiple responses**

Treatment of diarrhea	Frequency	Percent	Baseline 2000
Home made fluid	4	10.5	1.2
Sugar salt Solution/ORS	13	34.2	2.3
Cereal based ORT	0	0	0
Injection	2	5.3	2.3
Rice water	1	2.6	1.2
Antibiotics or Anti-diarrheal	9	23.7	20.9
Herbal medicine	2	5.3	2.3
Infusion such as saline	0	0.0	0
Others	9	23.7	25.6
Did nothing	10	26.3	44.2

Diarrheal complications and mortality can be effectively prevented. Therefore, early and proper treatment is crucial in diarrhea. Since treatment of diarrhea is simple and effective, mothers can manage most of the diarrhea cases effectively at home. Table 45 shows that 34% of the children with diarrhea received ORS (Jeevan Jal). This is comparable to the national average, which is, according to DHS 2001, 32.2%. Compared to baseline data, this indicates a significant improvement in use of ORS. However, this level is still below the project target, which aimed to achieve an ORS use rate of 50%. This level is also below the average for the Far Western Tarai sub region where DHS 2001 has estimated an ORS use rate at 48.7% among children below five years. Considering the progress in use of ORS, future improvements can be expected. Also, the percentage of mothers who did nothing during diarrhea has noticeably decreased from 44% to 26%.

**Table 46. Children age 0-23 months who received breast feeding and other fluids during diarrhea**

<b>Breast feeding (n=37)</b>	<b>Frequency</b>	<b>Percent</b>	<b>Baseline 2000</b>
More than usual	15	40.5	19.8
Same as usual	16	43.2	60.5
Less than usual	6	16.2	18.6
Stopped completely	1	2.7	1.1
Child not breast fed	0	0.0	
<b>Other fluids (n=38)</b>			
More than usual	11	28.9	5.8
Same as usual	13	34.2	28.0
Less than usual	6	15.8	23.2
Only breast feeding	8	21.1	NA
<b>Received increased fluids and continued breast feeding *</b>	<b>10</b>	<b>27.0</b>	<b>NA</b>

\* Includes more than usual and same as usual breast feeding

Of the total of 38 children who had diarrhea in the past two weeks, one was not being breastfed; therefore calculation is based on 37 children.

The number of women breastfeeding during diarrhea improved, but the recommended breastfeeding practice during diarrhea (more or same amount of breast milk), is almost constant since the baseline survey. Although the practice of giving other fluids to children during diarrhea has significantly improved (from 33.8% to 63.1%), only 27% of the children received both increased fluids and continued breastfeeding during diarrhea. Both increased fluids and breastfeeding are important in the management of diarrhea.

**Table 47. Solid/ semi solid food given to child during diarrhea (N=30)**

<b>Amount of food given</b>	<b>Frequency</b>	<b>Percent</b>	<b>Baseline 2000</b>
More than usual	9	30.0	6.5
Same as usual	13	43.3	45.7
Less than usual	5	16.7	34.8
Stopped feeding	3	10.0	13.0
Only breast feeding	8	30.0	NA

Of the 38 children who had diarrhea in the past two weeks, 8 were exclusively breastfed. Therefore, calculation is based on 30 children. The practice of giving more or the same amount of food to the children with diarrhea has been increased and the project target was achieved.

**Table 48. Advice sought by mothers during diarrhea (N=38)**

Advice sought from	Frequency	Percent	Baseline 2000
Hospital	2	5.2	9.3
HP/SHP PHC	3	7.9	13.9
Outreach clinic	0	0.0	0
Private clinic/medical shop	12	31.6	37.2
VHW/FCHV	4	10.5	0
Faith healers	1	2.6	6.9
TBAs	1	2.6	0
Relatives	1	2.6	23.3
Others	0	0.0	18.6
None	14	36.8	NA

In about 37% of cases of diarrhea, mothers did not seek any help. Although decreasing slightly, there is a trend to seek assistance from private clinics rather than health posts or hospitals. While specific practices in private clinics are not known, the possibility that antibiotics, anti-diarrheal drugs and injections are being used inappropriately cannot be ignored and the project should investigate and address this issue in the future in its second phase.

### 5.3 Environment and sanitation in the household

**Table 49. Households with toilets and their uses by ethnicity**

Ethnicity	Frequency	Percent	Baseline 2000
<b><u>Household with toilets</u></b>			
Brahmin, Chhetri, Gurung, Magar Tamang (N=169)	89	52.7	
Tharu and Dalits (N=131)	18	13.7	
<b>Total (N=300)</b>	<b>107</b>	<b>35.7</b>	<b>16.7</b>
<b><u>Regular use</u></b>			
Brahmin, Chhetri, gurung, Magar Tamang (N=89)	85	95.5	
Tharu and Dalits (N=18)	14	77.8	
<b>Total (N=107)</b>	<b>89</b>	<b>83.1</b>	<b>80.0</b>

Percentage of households with toilets has increased from 16.7% during the baseline survey to 35.7% at present. The baseline data does not provide ethnic specific data; therefore, a possible trend cannot be determined. The present evaluation shows that toilet construction proportion is different in different ethnic group. More than half of the

Brahmin Chhetri Gurung communities has constructed toilet whereas the corresponding figure is only 13.7% among Tharu and Dalit communities. It is important to explore the underlying causes of such discrepancies, whether this is due to the economic conditions of these ethnic groups or other factors.

**Table 50. Occasions when mothers wash hands with soap or ash (N=300) Multiple responses**

Occasions	Frequency	Percent
Never	13	4.3
Before food preparation	129	43.0
Before feeding the child	67	22.3
After defecation	259	86.3
After attending the child who has Defecated	171	57.9
<b>In all four conditions by age and ethnicity of mothers</b>	<b>48</b>	<b>16.0</b>

  

Occasions	Frequency	Percent
<b><u>Age of mothers</u></b>		
25 < Years	28	16.5
25 = years	20	15.2
<b>Total</b>	<b>48</b>	<b>16.0</b>
<b><u>Ethnicity of mothers</u></b>		
Brahmin, Chhetri, Gurung, Magar, Tamang (n=169)	40	23.6
Tharu, Dalit (n=131)	8	6.1
<b>Total</b>	<b>48</b>	<b>16.0</b>

The majority of mothers reported washing hands with soap or ash after defecation. Other common occasions for hand washing were after attending a child who has defecated and before food preparation. Hand washing practice among mothers before feeding the child is only 22%. Percentage of women washing hands in all four situations is even smaller, only 16%. Hand washing practice was found to be similar amongst mothers of different age groups, although significant difference is seen between the ethnic groups. Although hand-washing habits of mothers is an important factor in prevention of diarrhea among children, the project did not set any target for this indicator in the Detailed Implementation Plan (DIP) and, therefore, there is no baseline data is available for this indicator.

**Table 51. Deworming of children age 6-23 months in the last six months (N=232)**

	Frequency	Percent	Baseline 2000

Dewormed in the last six months	31	13.3	3.0
Did not deworm in the last six months	197	84.9	97.0
Do not know	4	1.8	0

Percentage of children of age 6-23 months, who received deworming medicine, has increased from 3% to 13.3% since the time of baseline survey. No other specific deworming programs by other organizations were reported in the district. This is an indication of better utilization of government facilities for distribution of anti-helminthes drugs.

## CHAPTER 6. ACUTE RESPIRATORY INFECTIONS

Acute Respiratory Infection (ARI) in children is recognized as one of the major public health problem in Nepal. Education to the mothers and other caretaker in the family and training of community health workers enabling them to diagnose and treat ARI are some major strategies of the MoH to address ARI.

Pneumonia case management is one of the intervention areas of CSP in Kanchanpur. The project trained the FCHV and provided basic logistic and supervisory support to them. The mothers, as well as other caretakers, were educated by the FCHV through mother's group meetings. In addition, the project also trained the government health service providers at the community level. Objectives of the project were to reduce pneumonia prevalence, improve access to quality care, and promote optimal health seeking behavior among caretakers.

The present survey has assessed the prevalence of pneumonia, knowledge of mothers about pneumonia, and health seeking practices of mothers when the child has pneumonia. The findings are compared with the baseline statistics and available relevant information.

### 6.1 Knowledge of mothers about Acute Respiratory Infection

Knowledge about Acute Respiratory Infection is based on verbal responses of mothers about the signs/symptoms of pneumonia and danger signs/symptoms of pneumonia requiring immediate medical care.

**Table 52. Knowledge of mothers about signs/symptoms of pneumonia in children (N=300) Multiple responses**

Sign symptoms of pneumonia	Frequency	Percent	Baseline 2000
Fast or difficult breathing	213	71.0	54.3
Chest in- drawing	198	66.0	38.7
Fever	151	50.3	32.9
Cough	167	55.7	22.0
Other*	61	20.3	NA
Do not know	36	12.0	22.0

\* Headache, dryness of mouth, weakness

The majority of the mothers (71%) recognized fast or difficult breathing as a sign of pneumonia. Another 66% mentioned chest in-drawing as a feature of pneumonia. Only 12% of the responding mothers did not know about the signs/symptoms of pneumonia. More than half of the mothers associated cough and fever with pneumonia. Similarly, some of the mothers also associated general features like weakness, headache, etc with

pneumonia. The level of knowledge among the mothers in recognizing pneumonia is encouraging compared to the baseline level.

**Table 53. Knowledge of mothers about danger signs of pneumonia requiring urgent medical treatment (N=300) Multiple responses**

<b>Danger signs/symptoms</b>	<b>Frequency</b>	<b>Percent</b>	<b>Baseline 2000</b>
Fast or difficult breathing	200	66.7	50.3
Chest in-drawing	167	55.7	33.7
Loss of appetite/stopped feeding	70	23.3	7.0
Fever	163	54.5	37.6
Cough	162	54.0	39.0
Others*	21	2.3	NA
Do not know	37	12.5	26.3
<b>By age of mothers</b>			
< 25 years (n=169)	118	69.8	NA
= 25 years (n=131)	93	70.9	NA
<b>Total</b>	<b>211</b>	<b>70.3</b>	<b>NA</b>

\* Sunken fontanel, weakness, dryness

As protocol suggests, fast or difficult breathing, chest in-drawing, loss of appetite and fever are considered as signs/symptoms of pneumonia requiring urgent medical treatment. Two thirds of the mothers considered fast or difficult breathing as an alarming sign of pneumonia requiring immediate medical treatment. 55.7% of the mothers mentioned chest in-drawing as such a sign. About the same proportion of mothers were concerned about fever, whereas about 12.5% of them had no idea about the danger signs of pneumonia. 70.3% of mothers recognized at least two of the four danger signs of pneumonia requiring urgent medical attention. Level of knowledge about at least two danger signs of pneumonia was similar in mothers of age group below or above 25 years. Results of tables 52 and 53 are comparable, suggesting that most mothers perceive pneumonia in children as a condition that needs immediate medical treatment.

**Table 54. Prevalence of ARI (no pneumonia) and pneumonia in two weeks prior to interview**

<b>Prevalence of ARI</b>	<b>Frequency</b>	<b>Percent</b>
<b><u>Pneumonia</u></b>		
Yes	25	8.3
No	275	91.7
<b>Total</b>	<b>300</b>	<b>100.0</b>
<b><u>ARI (no pneumonia)</u></b>		
Yes	55	18.3
No	245	81.7
<b>Total</b>	<b>300</b>	<b>100.0</b>

Mothers were asked if their children had any respiratory problem in the past two weeks. The cases were identified as pneumonia if mother said there was either fast/difficult breathing, or chest in-drawing, or both. If the mothers reported only cough without these symptoms, the case was identified as ARI, not pneumonia. Based on these cut off criteria, 25 cases of pneumonia (8.3%) and 55 cases of ARI (no pneumonia) (18.3%) were reported by mothers in the past two weeks. The baseline report does not provide information about the prevalence of pneumonia. The baseline report estimated ARI prevalence at 30.7 %. According to the annual report of DHS 2001/2002, incidences of pneumonia and ARI (no pneumonia) among the children less than 5 years of age in Kanchanpur district were 6.7% and 21.4% respectively. These data are based on the reports from health facilities; therefore, they may not reflect the true prevalence of the problem in the population since a large proportion of the ARI cases seek medical care from private clinics. These cases are not reported. In addition, since ARI and pneumonia are more common in early childhood, prevalence is expected to be higher among the children younger than 2 years.

Occurrence of simple ARI and pneumonia has a seasonal variation. The present survey was conducted in the month when ARI incidence is normally low. Therefore, the average incidence of ARI and pneumonia could be higher than the present report level.

## **6.2 Practices of mothers during ARI** \_\_\_\_\_

Practices of mothers were evaluated on the basis of whether mothers sought treatment for children suffering from simple ARI or pneumonia. Because of the small number of total cases, the data is not further stratified into age and ethnicity of mothers.

**Table 55. Treatment sought by mothers in pneumonia and ARI (no pneumonia)**

<b>Treatment sought from</b>	<b>Frequency</b>	<b>Percent</b>
<b><u>In pneumonia (25)</u></b>		
Qualified, trained providers	10	40.0
Other providers	15	60.0
<b>Total</b>	<b>25</b>	<b>100.0</b>
<b><u>In ARI (no pneumonia) (n=55)</u></b>		
Qualified, trained providers	23	41.8
Other providers	32	58.2
<b>Total</b>	<b>55</b>	<b>100.0</b>

Of the total of 25 cases of pneumonia (40%) of mothers sought medical care from qualified and trained providers in the past two weeks. These qualified or trained providers were health workers of the hospital, PHCC, health post or sub health post and trained FCHV. Other providers included traditional healers, TBAs, relatives. Private medical shops are categorized with others since these medical shopkeepers are not qualified to treat pneumonia. Mothers sought treatment for simple ARI almost in the same proportion from qualified and other providers.

Treatment seeking practice of mothers in pneumonia of children is crucial in terms of reducing child mortality from pneumonia. Results have shown that majority of the mothers are taking their children to unqualified or untrained persons for the treatment of pneumonia. Because of small caseloads, the data in the table is categorized only into two groups. However, it is found that most of the mothers are seeking medical care in pneumonia and simple ARI from private medical shops. Others are taking their children to the health posts, sub health post, PHCC and Hospital.

The CS Project has focused on FCHVs to manage the pneumonia cases at the community level. They are well trained and supplied with necessary logistics, such as ARI sound timer, cotrimoxazole, etc. FCHVs were not a separate category of service providers and they were combined with MCHW in the questionnaire. Hence, desegregated data of utilization of FCHV cannot be calculated from this data set. Although overall, only a few mothers have sought medical care from this category of providers. This situation indicates that either people do not have significant trust in FCHV for treatment of serious disease like pneumonia or they do not know that FCHV have also started treating pneumonia, which they were not doing before. In any case, it is important that there is need for making the people aware of the new the role of FCHV through different channels.

## CHAPTER 7. MALARIA

Kanchanpur is one of the malaria endemic districts of Nepal. According to the Annual Report of DHS 2001/2002, Kanchanpur had the highest blood slides collection/examination rate per population (6% compared to national average of 0.6%) and the highest malaria parasite incidence rate (16.4 per 1000 population compared to national average of 0.5 per 1000 population) in the fiscal year 2001/2002.

CSP in Kanchanpur initiated a unique program to mobilize FCHVs in diagnosis and treatment of malaria at the community level. In the VDCs with high malaria prevalence, FCHVs were trained to promote malaria prevention, diagnosis by clinical signs and symptoms, collecting blood slides and providing first line treatment. The project's aim was to bring behavioral change in community in prevention and seeking early treatment for malaria and to increase access to the services.

### 7.1 malaria prevalence and practice of mothers

Table 56. Prevalence of malaria among the children 0-23 months in the past two weeks.

Malaria	Frequency	Percent	Baseline 2000
Yes	27	9.0	4.0
No	273	91.0	96.0
<b>Total</b>	<b>300</b>	<b>100.0</b>	<b>100.0</b>

Malaria cases were identified on the basis of verbal responses of mothers, suggesting that the child had fever with rigor and chills or sweating in the past two weeks. The prevalence of malaria was calculated at 9% for children age 0-23 months. Although this level of prevalence seems reasonable for the district, this is quite high compared to baseline data. One likely reason for such difference could be the season of survey. Baseline data was collected during winter, when malaria incidence is low. On the other hand, the present survey was conducted in a high malaria prevalence month.

**Table 57. Places where mother took their children first for treatment (N=27)**

Places	Frequency	Percent
Hospital	4	14.8
HP/SHP	3	11.1
Private clinic/medical shop	11	40.8
FCHV	1	3.7
Faith healers	3	11.1
Nowhere	5	18.5
<b>Total</b>	<b>27</b>	<b>100.0</b>

Like in other illness, the majority of mothers took the child to a private clinic for the treatment of malaria. About one fifth of the mothers did not seek any medical care. Use of FCHV was a minimum for service providers. Since the private clinic is the most commonly sought place for the treatment of malaria, it is important for the project to explore the treatment pattern in private clinics. If the private practitioner and medical shopkeeper are not qualified, they should be provided orientation and training on malaria diagnosis and management.

## 7.2 Knowledge of mothers about prevention

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Table 58. Knowledge of mothers about the prevention malaria (N-300) **Multiple responses**

Methods of prevention	Frequency	Percent	Baseline 2000
Use bed net	272	90.7	74.7
Use wire net to the doors and windows	85	28.3	1.3
Make smoke	67	22.3	42.7
Cover the pits	108	36.0	NA
Use mosquito repellent	61	20.3	6.0
Clean the surroundings	158	52.7	2.7
Spray	43	14.3	NA
Others (use of fan)	33	11.0	NA
Do not know	23	7.7	NA
<b>At least two ways of prevention</b>			
<u>By age of mothers</u>			
	134	79.3	NA
< 25 years (n=169)	95	72.5	NA
= 25 years (n=131)			
<b>Total (N=300)</b>	<b>229</b>	<b>76.4</b>	

It is encouraging to note that the majority of mothers (90.7%) have knowledge about at least one way of preventing malaria and 76.4% of them knew at least two ways of

malaria prevention. Slightly better knowledge is found among the younger mothers. Compared to baseline data, improvement in knowledge is remarkable. Change in knowledge about cleaning the surrounding area is impressive. Similarly, the concept of the use of smoke to prevent malaria has declined, which is positive since smoke may cause other health problems.

**Table 59. Household with the bed nets (N=300)**

<b>Household with bed net</b>	<b>Frequency</b>	<b>Percent</b>
Have bed nets	279	93.0
Do not have bed nets	21	7.0
<b>Total</b>	<b>300</b>	<b>100.0</b>
<b>Medicated bed nets</b>	<b>7</b>	<b>2.5</b>

A majority of the households (93%) had a bed net at the time of the survey. But the use of the medicated bed net was minimal (2.5%). The project did not have any activity to promote medicated bed nets. Therefore, a low percentage of families using medicated bed nets should not be seen as an indicator of low project impact, but such low rates for medicated bed nets are indicative of need of intervention in this area in the future.

**Table 60. Use of the bed nets during the last night (N=279) Multiple responses**

<b>Persons using bed net</b>	<b>Frequency</b>	<b>Percent with bed nets (N=279)</b>	<b>Percent Total N=300</b>	<b>Baseline 2000 N=300</b>
Child	223	79.9	74.3	28.7
Mother	220	78.9	73.3	30.3
Husband and other family member	279	100.0	93.0	34.3
<b>All family members</b>	<b>185</b>	<b>66.3</b>	<b>52.7</b>	<b>43.3</b>

Use of bed nets by children and family members is considerably increased since the time of the baseline survey. This variation could also be due to difference in season of the baseline and final surveys. Bed nets are less commonly used during the winter season when the baseline survey was done. The common observation in both surveys is that children and mothers are using bed nets less frequently compared to husbands and other family members.

## CHAPTER 8. MATERNAL AND NEW BORN CARE

Maternal and newborn care (MNC) is one area of interventions of CSP in Kanchanpur. The project aims included: promotion of healthy behaviors during pregnancy, delivery and postnatal period; optimal health seeking practices and improving service; utilization at health facilities. Promotion of birth plans and utilization of services of skilled persons during delivery were given special attention. The project trained the government service providers and FCHVs to mobilize mothers group to enhance awareness among the mothers.

**Table 61. Possession of maternal health cards (N=300)**

Maternal health cards	Frequency	Percent	Baseline 2000
Yes	43	14.3	5.7
No	257	85.7	94.3
<b>Total</b>	<b>300</b>	<b>100</b>	

Among the surveyed mothers, only 43 (14.3%) had maternal cards. Others either never possessed them or have lost the cards. Possession of health card is a good proxy indicator of awareness among the mothers about their health conditions. This indicator shows the effectiveness of health facilities in issuing cards and educating mothers to preserve them. The card possession rate tripled from the baseline period, however, is still very low.

### 8.1 Ante natal care of mothers

**Table 62. Number of antenatal check ups during the last pregnancy based on card and verbal responses(N=300)**

Number of check ups	Cards Frequency	Verbal Frequency	Total Frequency	Total Percent	Baseline Card
One time	10	26	36	12.0	1.4
Two times	12	27	39	13.3	1.4
Three times	7	28	35	12.0	0.7
Four times	5	24	29	10.0	0.3
Five times	4	22	26	9.7	0.7
More than five times	5	17	22	6.3	
<b>At least one visit</b>	<b>43 (14.3%)</b>	<b>146</b>	<b>187</b>	<b>62.3</b>	<b>4.3</b>
<b>At least two visits</b>	<b>33 (11%)</b>	<b>118</b>	<b>151</b>	<b>50.3</b>	<b>3.1</b>

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Based on card and verbal responses, 62% of the women had received ANC service at least once during the last pregnancy. Approximately half of these mothers had received ANC services at least twice during their last pregnancy, whereas only a small percent of mothers had received more than five visits. Based on card record only, 11% of the mothers had at least two ANC check ups. The baseline report does not provide the information about the ANC visit based on verbal responses. Based on card information ANC coverage has significantly improved compared to baseline data. The ANC utilization (half of the mothers having visited had at least two ANC visits) is better than the national average, which is 41%, according to DHS 2001.

Verbal responses may have recall error in actual frequency of ANC visits. In addition, the number of ANC visits alone may not be adequate to assess the services, quality of care is equally important.

**Table 63. At least 2 times ANC visit by the mothers of children 0-23 months during the last Pregnancy based on card and verbal response by ethnicity and age of mothers (N-300)**

	Frequency	Percent
<b><u>Ethnicity of mothers</u></b>		
Brahmin, Chhetri, Gurung, Magar, Tamang (N=169)	105	62.1
Tharu and Dalit (N=131)	46	35.1
<b>Total (N=300)</b>	<b>151</b>	<b>50.3</b>
<b><u>Age of mothers</u></b>		
< 25 years (169)	97	57.4
= 25 years (131)	54	41.2
<b>Total (N=300)</b>	<b>151</b>	<b>50.3</b>

The ethnic difference in ANC coverage is significant. ANC check up among the Tharu and Dalit mothers is much lower compared to other ethnic groups. Similarly, young mothers below 25 years of age have better ANC services utilization rates compared to the older mothers. Low ANC service coverage in Tharu and Dalit ethnic groups may be due to either limited access to services for them or low level of awareness about the importance of ANC services or a combination of both these factors. It is important to explore the underlying factors affecting differential utilization of ANC services among the mothers of Tharu and Dalit ethnicity and of older age. Data is not available for comparing the trend over time.

**Table 64. Persons who conducted antenatal check up (N=187)**

<b>Person conducting Antenatal check up</b>	<b>Frequency</b>	<b>Percent N=187</b>	<b>Percent of the total N=300</b>	<b>Baseline 2000 N=300</b>
Doctor	73	39.1	24.3	10.7
Nurse/ANM	92	49.2	30.7	21.0
MCH worker	17	9.1	5.7	2.4
Trained TBA	1	0.5	0.3	3.0 *
Untrained TBA	0	0	0	
FCHV	3	1.6	1.0	0
Missing	1	0.5	0.3	
AHW	0	0	0	1.7
<b>Total</b>	<b>187</b>	<b>100</b>	<b>62.3</b>	<b>39.0</b>

\* Not specified whether trained or untrained

A majority of mothers have visited a nurse/ ANM for an antenatal check up. Very few mothers have gone to MCH workers, indicating that mothers for antenatal check up rarely use sub health posts. Percentage of antenatal check up by doctors has increased slightly compared to baseline information whereas the use of TBAs has declined.

**Table 65. TT injections taken by the mothers during the last pregnancy as mentioned in the ANC Cards (N=43)**

<b>TT vaccines</b>	<b>Frequency</b>	<b>Percent N=43</b>	<b>Percent of total N=300</b>	<b>Baseline 2000 N=300</b>
One dose	5	11.6	1.6	1.6
Two doses	25	58.2	8.3	2.3
Three doses	10	23.2	3.4	0.7
More than three doses	3	7.0	1.0	
<b>Total</b>	<b>43</b>	<b>100</b>	<b>14.3</b>	<b>4.6</b>
At least two doses	<b>38</b>	<b>88.6</b>	<b>12.7</b>	<b>3.0</b>

**Table 66. TT injection taken by the mothers during the last pregnancy as in the card and recalled by the mothers (N=300)**

<b>TT injection taken</b>	<b>Frequency</b>	<b>Percent</b>
One dose	25	8.3
Two doses	106	35.3
Three doses	84	28.0
Four doses	6	2.0
Never	79	26.4
<b>Total</b>	<b>300</b>	<b>100</b>
At least one dose	221	73.6
At least two doses	196	65.3
At least three doses	90	30.0
Four doses	6	2.0
Never	79	26.4

Based on mother's recall and card, about two thirds of the mothers have received at least two doses of TT during the last pregnancy, 30% of them reported receiving three or more doses of TT vaccine. Of the total mothers, 26.4% did not receive any dose of TT vaccine. This level of coverage is slightly higher than the average coverage in the Far West Tarai sub region, which is estimated to be 56.8% by the DHS 2001. Baseline reports do not provide this information in the format necessary for comparing the trend.

**Table 67. Consumption of Iron/Folic Acid**

<b>Consumption of Iron/Folic Acid</b>	<b>Frequency</b>	<b>Percent</b>
Yes	169	56.3
No	122	40.7
Do not know	9	3.0
<b>Total</b>	<b>300</b>	<b>100</b>

More than half of the responding mothers reported consuming Iron/ Folic Acid ever during the last pregnancy for any period of time. Table 67 provides the information about the duration of IFA consumption by mothers during the last pregnancy.

**Table 68. Duration of consumption of Iron Folic Acid during the last pregnancy (N=169)**

<b>Duration of consumption</b>	Frequency	Duration of IFA consumption amongst recipients (N=169)	Percent of total sample (N=300)
Less than one month	23	13.7	7.7
30-59 days	44	26.2	14.7
50- 89 days	24	14.3	8.0
90- 119 days	31	18.4	10.3
120-149 days	18	10.7	6.0
150- 179 days	12	7.2	4.0
180 or more days	16	9.5	5.3
Never consumed IFA	132	-	44.0
<b>Total</b>	<b>168</b>	<b>100</b>	
<b><u>By age of mothers</u></b>			
< 25 years (n=169)	56	33.1	
= 25 years (n=131)	21	16.3	
<b>Total</b>	<b>77</b>	<b>25.7</b>	
<b><u>By ethnicity of mothers</u></b>			
Brahmin, Chhetri, Tamang, Magar, Gurung (n=169)	43	25.4	
Tharu, Dalit (n=131)	34	25.9	
<b>Total</b>	<b>77</b>	<b>25.7</b>	

One fourth of mothers reported consuming IFA tablets for 3 months or more during the last pregnancy. Consumption of IFA seems to have improved compared to the baseline information, which reported that only 18 of 300 (6%) mothers consumed IFA for at least 3 months. Data on national coverage is not available for comparison. It was found that the IFA consumption rate is higher among the young mothers. No difference is seen between the mothers of different ethnic groups.

**Table 69. Knowledge of mothers about danger symptoms/signs during pregnancy requiring urgent treatment (N=300) Multiple responses**

<b>Danger signs/symptoms</b>	<b>Frequency</b>	<b>Percent</b>	<b>Baseline 2000</b>
Fast breathing	226	75.3	3.3
Excessive bleeding	177	41.0	1.3
Swelling faces and limbs	86	28.7	8.7
High fever	84	28.0	8.0
High blood pressure	14	4.7	0.7
Blurred vision	10	3.3	3.0
Anemia	21	7.0	3.3
Persisting vomiting	76	25.3	5.3
Failure to gain weight	21	7.0	1.0
Pain abdomen	92	30.7	19.0
Convulsions	2	0.7	NA
Do not know	74	24.7	53.3
<b>Knows at least two signs/symptoms by age and ethnicity of mothers</b>	<b>Frequency</b>	<b>Percent</b>	
<b><u>By age of mothers</u></b>			
< 25 years (n=169)	87	51.5	
= 25 years (n=131)	61	46.7	NA
<b>Total</b>	<b>148</b>	<b>49.3</b>	
<b><u>By ethnicity of mothers</u></b>			
Brahmin, Chhetri etc. (n=169)	95	56.2	
Tharu, Dalit (n=131)	53	40.5	NA
<b>Total</b>	<b>148</b>	<b>49.3</b>	

Three fourths of the mothers knew at least one danger sign during pregnancy requiring urgent medical attention. About half of the mothers knew at least two dangers signs during pregnancy. The majority of them mentioned fast breathing as a condition during pregnancy that requires seeking immediate medical care. Compared to the Baseline report, knowledge about danger signs seems to have improved in all aspects. Similarly, mothers who did not know any danger sign or symptom during pregnancy, has decreased by half since the baseline survey period. Level of knowledge about danger signs/symptoms during pregnancy is found to be slightly higher among the mothers below 25 years compared to older mothers. However, the gap in knowledge is greater between the mothers of different ethnic group.

## 8.2 Delivery and new born care

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**Table 70. Places of index child delivery (N=300)**

Places of birth	Frequency	Percent	Baseline 2000
Own home/room	217	72.4	83.3
Separate room of own home	24	8.0	8.0
Other's home	1	0.3	0.3
Hospital	50	16.7	4.7
PHCC	1	0.3	
HP/SHP	1	0.3	1.0
Private clinic/medical shop	4	1.3	2.0
Other	2	0.7	0.7
<b>Total</b>	<b>300</b>	<b>100</b>	

Home deliveries are common in Nepal. This trend has not significantly changed over time. According to DHS 1996, only 8% of deliveries took place in health facilities. This figure has increased to only to 9% in 2001. According to DHS 2001, the home delivery rate in Far West Tarai sub-region was 86%. Although an increase in hospital delivery was seen in Kanchanpur since the baseline survey, home delivery is still very common with 80% of delivery still being conducted at home. Several factors may hinder the family from taking mothers to health service facilities for delivery. Availability and trust in the services available in health facility is one of the major factors influencing the household decision about the place of delivery. Although deliveries in hospitals have increased in Kanchanpur, deliveries in health post and PHCC are negligible. One reason for this could be the low number of health facilities in Kanchanpur compared to many other districts. Secondly, all of these facilities do not provide the delivery services and do not have emergency obstetric services except in PHCC.

Awareness of the family about the importance of delivery in health facility, decision-making process in the family, and financial situation may equally affect the delivery practices. Education to the mothers and family members and improving availability of services may result in better delivery practices.

**Table 71. Birth (delivery) planning (N=300) Multiple responses**

<b>Birth plans</b>	<b>Frequency</b>	<b>Percent</b>	<b>Baseline 2000 (N-300)</b>
Take help from TBAs	97	33.2	8.7
Arrange expenses for delivery	81	27.6	4.0
Place to stay after delivery	49	16.8	4.0
Place to go in difficulty	49	16.8	8.3
Means of transportation	40	13.6	3.7
Helping person in household works	11	3.7	2.0
Others (Inform relatives, neighbors, Doctors)	23	7.6	NA
<b>Mothers who had birth plan</b>	<b>202</b>	<b>67.0</b>	<b>28.0</b>
<b><u>By age of mothers</u></b>			
< 25 years (n=169)	120	71.0	NA
= 25 years (n=131)	82	62.6	NA
<b>Total (N=300)</b>	<b>202</b>	<b>67.0</b>	
<b><u>By ethnicity of mothers</u></b>			
Brahmin, Chhetri, Gurung, Magar, Tamang (n=169)	114	67.4	NA
Tharu, Dalit (n=131)	88	67.1	NA
<b>Total (N=300)</b>	<b>202</b>	<b>67.0</b>	

More than two third of mothers had at least planned for one or the other component of birth preparedness. Birth planning for mothers is improved from 28% during the baseline survey to 67% during this survey. Although the project target of 75% was not achieved, this improvement is encouraging. Birth planning also includes seeking help from neighbors and community. Therefore, social interaction in different groups and meetings may help to promote birth plan practices in the family and communities.

**Table 72. Person assisting delivery of child (Multiple responses)**

<b>Persons assisting in delivery</b>	<b>Frequency</b>	<b>Percent</b>
Doctor	26	3.7
Nurse/ANM	64	21.3
MCHW	2	0.6
Trained TBA	55	18.0
Untrained TBA	53	17.7
Community Health Worker (FCHV)	7	2.3
Family members	139	46.3
Others (Relatives, neighbors)	18	6.0
No one	17	5.7

Table 72 shows a general overview of person assisting mothers in delivery. In almost half of the cases, family members are involved in the delivery process while in some cases no one has assisted the mothers during delivery of baby. Since this table is based on multiple responses and more than one person is involved in delivery, this table does not provide a clear picture on percentage of delivery assisted by trained persons, which is given in table 73.

**Table 73. Delivery assisted by the trained personal (N=300)**

Persons assisting in delivery	Frequency	Percent	
Doctor	6	2.0	
Doctor, Nurse/MCHW	1	0.3	
Doctor, Nurse/ANM	19	6.3	
Nurse/ANM	44	14.7	
MCHW	1	0.3	
<b>Total</b>	<b>71</b>	<b>23.7</b>	

Skilled persons assisted about 24% of the total deliveries. Nurse/ANM assisted the largest proportion of deliveries. Nurse/ANM are posted in the health facilities i.e., hospital, PHCC and sub health post, but since fewer deliveries are reported to be taking place in those health facilities compared with the number of deliveries conducted by nurses (Table 70), this finding suggests that the nurses are probably called at home for assisting in delivery. This practice is not uncommon in Nepal (where nurses are available). In 8.6% of cases, doctors were involved in assistance of delivery. Because of different methods of analysis in the baseline report, it is difficult to compare the data. However, reanalysis of baseline database revealed that skilled person assisted only 9% of the total deliveries. Although the project had not set any specific goal for this, it is encouraging to observe an increased utilization of trained/skilled personnel for conducting deliveries. This level is higher compared to the sub regional and national averages, which are 14.3% and 12.9% respectively, as reported in DHS 2001.

**Table 74. Types of assistance received during the last delivery (N=300)**

Multiple responses

Types of assistance	Frequency	Percent	Baseline 2000 N=300
Massage	202	32.0	60.0
Cutting cord	198	67.5	38.3
Remove placenta	84	29.1	17.3
Bathe the baby	163	55.4	31.7
Give food to mother	43	14.7	8.0
Consolation	81	27.6	11.0
Examine internal organs	25	8.6	1.7

Help to take out the baby	37	12.3	9.3
Cooking food/household works	38	12.7	3.3

Although mothers may not accurately recall all kinds of assistance provided during delivery, this table provides a general overview of the nature of assistance. The nature of assistance may depend on the assisting person. Massage, cord cutting, removal of placenta and bathing the baby seem to be the main area of assistance to the mother. It is interesting to note that the bathing of the baby had significantly increased, indicating the need for health education to discourage the practice in the first 24 hours after birth.

**Table 75. Persons cutting the umbilical cord (N=300)**

Persons cutting the cord	Frequency	Percent	Baseline 2000 N=300
Doctor	7	2.3	0.7
Nurse/ANM	63	21.2	8.3
MCHW	1	0.3	0
Trained TBA	53	16.8	7.0
Untrained TBA	47	15.8	30.0
Community Health Worker (FCHV)	2	0.7	0.3
Family members	38	12.8	12.3
Others	53	17.8	6.0
Mothers themselves	36	12.3	35.3
<b>Total</b>	<b>300</b>	<b>100</b>	

Who cuts the cord depend upon who assists in delivery. In about 24% of cases, skilled persons are involved in cutting the cord, which corresponds to the percentage of deliveries assisted by skilled persons. In nearly one third of cases, TBAs have cut the cord. Compared to the baseline report, the practice of self-cord cutting was reduced from 35% to 12%. The self-cord cutting practice could be a cultural and traditional issue in Kanchanpur.

**Table 76. Instrument used for cutting cord (N=300)**

<b>Instruments used</b>	<b>Frequency</b>	<b>Percent</b>	<b>Baseline 2000 N=300</b>
New razor blade	243	81.0	63.0
Old blade	11	3.7	10.3
Sickle	13	4.3	19.0
Others	24	8.0	1.9
Do not know	9	3.0	4.0
<b>Total</b>	<b>300</b>	<b>100.0</b>	

Instruments used in the cutting of the cord are very important in safe delivery practice. The instrument, if contaminated, will lead to infection of the wound, resulting in cord infection and other serious complications including neonatal tetanus. Use of a new razor blade for cutting the cord is considered a safe practice, which has increased from 63% in the baseline to 81%. Consequently, the use of old blades and sickles has decreased from 30% to 8%. Safe cord cutting practice is ensured by the use of safe home delivery kits. The project has not set a specific goal to improve cord cutting practice.

**Table 77. Use of Safe Home Delivery Kit (SHDK) during delivery in places other than health institutions (N=244\*)**

	<b>Frequency</b>	<b>Percent of home delivery</b>	<b>Percent of total N=300</b>	<b>Baseline 2000 N=300</b>
Used SHDK	77	31.6	44.4 **	16.0
Did not use the Kit	154	63.1	51.3	75.3
Do not know	13	5.3	4.3	8.7
<b>Total</b>	<b>244</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>
<b><u>Age of mothers</u></b>				
< 25 years (n=169)	48	28.4		NA
= 25 years (n=131)	29	22.1		NA
<b>Total (N=300)</b>	<b>77</b>	<b>25.7</b>		
<b><u>Ethnicity of mothers</u></b>				
Brahmin, Chhetri, Gurung, Magar, Tamang (n=169)	37	21.9		NA
Tharu, Dalit (n=131)	40	30.5		NA
<b>Total (N=300)</b>	<b>77</b>	<b>25.7</b>		

- \* Excluded those who delivered in health facilities and private clinic
- \*\* Calculated using number of SHDK plus deliveries in health facilities and private clinic

While analyzing the data, the use of SHDK deliveries in health facility and private clinics were excluded assuming that births are conducted in a safe environment in those places. Therefore, only 244 deliveries are included in analysis. In the analysis, the number of deliveries where SHDK was used and deliveries in health facilities and private clinic were considered as clean delivery. These two groups were totaled up and used as numerators in the calculations.

Among the home deliveries 31.6% of mothers used SHDK. Compared to the baseline report, this level is encouraging and the project target (30%) has been achieved. Use of SHDK at the national level is still very low. According to the DHS 2001, only 9.4% of deliveries used SHDKs. The corresponding figure for the Far West region was even lower (8%). Increased awareness of availability of the kit may have contributed to this improvement. Promotion of SHDKs is an important strategy to make the delivery safe in areas where majority of deliveries takes place at home.

Normally, deliveries in hospitals, health posts, sub health posts, PHCCs and private clinics can be considered to be clean and safe. Assuming this, nearly 45% of the total deliveries in Kanchanpur take place in clean environment.

**Table 78. Sources of Safe Home Delivery Kit (N=77)**

Sources	Frequency	Percent	Baseline 2000 N=48
Shop	13	16.5	33.3
TBAs/FCHVs	28	35.8	14.5
Medical shop	32	41.3	6.3
Other places	4	5.1	NA
Do not know	1	1.3	45.8
<b>Total</b>	<b>78</b>	<b>100</b>	

Compared to about 40% during the baseline survey period, in 58% of the cases SHDK is bought from the medical shops and other shops. This may indicate the success of social marketing strategy for SHDK in Kanchanpur. Or, alternatively, it might be the result of a significant increase in access due to the increased number of medical shops in the area. Availability of SHDK for TBAs and FCHVs has also significantly improved since the baseline. This may also be due to increased numbers of FCHVs in the district.

**Table 79. Immediate care given to the newborn (N=300) Multiple responses**

Immediate care given	Frequency	Percent	Baseline 2000
Bathed	238	79.3	85.3
Wrapped with warm clothes	202	67.3	52.3
Breast fed	130	43.3	12.0
Cleaned face nose	102	34.0	6.3
Cleaned eyes	65	21.7	3.0
Other	43	14.3	10.0
Do not know	8	2.7	5.7

Bathing the baby soon after birth is a common tradition in Nepal. Similarly, wrapping it in warm clothes and cleaning the face, nose and eyes are common practices of newborn care in most parts of the country. However, initiation of breastfeeding is different in different sub regions. According to the DHS 2001, initiation of breastfeeding within one hour ranged from 7.9% in central Tarai to 65.3% in mid west hill and 66.7% in mid western Tarai. The practice of immediate breastfeeding has increased from 12% to 34% suggesting improved practices among the mothers.

**Table 80. Knowledge of mothers about the danger signs/symptoms during delivery requiring immediate medical assistance (N=300) Multiple responses**

Danger sign/symptoms	Frequency	Percent
Prolonged labor	206	68.7
Convulsions	27	9.0
Excessive bleeding	129	43.0
Placenta not expelled within 30 minutes	44	14.7
High fever	8	2.7
Excessive abdomen pain	33	11.0
Mal presentation	26	8.7
Others	32	10.7
Do not know	58	19.5
<b>At least two danger signs</b>	<b>139</b>	<b>46.3</b>
<b>Mothers by age and ethnicity who know at least 2 danger signs during delivery</b>	<b>Frequency</b>	<b>Percent</b>
<b>Age of mothers</b>		
< 25 years (n=169)	81	47.9
= 25 years (n=131)	58	44.3
<b>Total</b>	<b>139</b>	<b>46.3</b>

<b>Ethnicity of mothers</b>		
Brahmin, Chhetri, Gurung, Magar, Tamang (n=169)	89	52.6
Tharu , Dalit (n=131)	50	38.1
<b>Total</b>	<b>139</b>	<b>46.3</b>

It was found that 46.3% of mothers know at least two danger signs/symptoms during delivery. Prolonged labor is perceived by more than two thirds of mothers as a dangerous condition needing immediate medical assistance during delivery. Although perception about what constitutes prolonged duration of labor vary from mother to mother, this survey result provides a general idea on increased awareness amongst mothers regarding the need to seek care if the duration of labor is prolonged. Excessive bleeding is another important feature that 43% of mothers considered as a danger sign during labor. Retention of placenta, convulsions, and excessive pain, mal presentation of baby are some other features that alert the mother. Knowledge on danger sign/symptom during delivery was not different in different age groups of mother. However, a slight difference is found between the different ethnic groups.

### 8.3 Post natal care

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**Table 81. Post natal check up of mothers**

	<b>Frequency</b>	<b>Percent</b>	<b>Baseline 2000 N=300</b>
Check up after delivery	53	17.7	5.7
No check up after delivery	247	82.3	94.3
<b>Total</b>	<b>300</b>	<b>100</b>	

Only 17.7% of mothers received any check up after delivery. Although there was encouraging improvement in postnatal check ups since the baseline survey, the present level cannot be considered adequate. A higher percentage of mothers were expected to be utilizing postnatal check ups in a CSP district that had a specific intervention to promote maternal and newborn care. It is important to explore the underlying causes for low PNC coverage. This could be due to low level of awareness, or inaccessibility of services, or other reasons. PNC care is important for both mothers and newborn children.

**Table 82. Persons who checked up mothers after delivery (N=53)**

<b>Persons who checked the mothers</b>	<b>Frequency</b>	<b>Percent</b>	<b>Baseline 2000 N=17</b>
Hospital/Doctor	18	34.0	41.2
Nurse/ANM	32	60.3	41.2
MCHW	1	1.9	NA

Trained TBAs	1	1.9	17.6
Others	1	1.9	NA
<b>Total</b>	<b>53</b>	<b>100.0</b>	<b>100.0</b>

The majority of postnatal check ups are conducted by nurses/ANMs. Nurse/ANMs are posted only in health posts and PHCCs, whereas MCHWs are posted in sub health post (these are closer to the community so they should have performed more check ups). Therefore, such a low use of MCHWs indicates that mothers are not utilizing sub health posts for postnatal check ups. The use of sub health post should be encouraged.

**Table 83. Duration of first PNC check up after delivery (N=53)**

<b>Duration</b>	<b>Frequency</b>	<b>Percent</b>	<b>Baseline 2000 N=17</b>
Within two days after delivery	18	34.0	88.2
Within 3-5 days	4	7.5	0
Within 6-9 days	4	7.5	0
After 10 days	20	37.7	11.8
Other	2	3.8	0
Do not know/missing	5	9.5	0
<b>Total</b>	<b>53</b>	<b>100.0</b>	<b>100.0</b>

For more than one third of mothers who had postnatal check ups, the visits took place within two days of delivery. This is much lower than the baseline data. However, during the baseline, coverage of PNC was extremely low; therefore, the actual number of people getting PNC within two days in this survey (18) indicates a slight improvement (15 in baseline), although the percentages indicate otherwise. The early check up may also be associated with complications or problems. According to the DHS 2001 report, percent of mothers who had first postnatal check up within two days of delivery is 17.1%; the corresponding figure for Far West Tarai is only 2.5%. Most mothers showed up for their first postnatal check up 10 days after delivery or later.

**Table 84. Check up of new born (N= 53)**

	<b>Frequency</b>	<b>Percent among those with PNC check up N=53</b>	<b>Percent of the total N=300</b>
Yes	42	79.2	14.0
No	11	20.8	86.0
<b>Total</b>	<b>53</b>	<b>100.0</b>	<b>100.0</b>

Among the mother who had postnatal check ups during their visits to the clinic, about 80% of their newborns were also checked. As per protocol, during routine postnatal care, babies should be checked together with mother. The reason for not checking one fifth of the babies could be due to postnatal problems for which mothers might have sought specific care or they might not have taken the baby along with them to the health care provider

**Table 85. Advice given during newborn check up (N=42) Multiple responses**

<b>Advice</b>	<b>Frequency</b>	<b>Percent</b>	<b>Baseline 2000 N=11</b>
Protect from infection	25	59.5	27.3
Bathe the baby timely	16	38.1	27.3
Visit HP if fever	21	50.0	9.1
About breast feeding	27	64.3	18.2
Keep the baby warm	16	38.1	18.2
Immunization	24	57.1	0
Family planning	5	11.9	0
Others (Protein food, no advice)	4	9.3	0

During the check up of the baby, about two thirds of mothers received advice about breastfeeding. Compared to 18.2 % in baseline, this figure is encouraging. Also, during the final evaluation, 57% mothers received advice on immunization while no one received advice about immunization in the baseline. According to national protocol, health workers are expected to advise mothers about family planning during postnatal check ups. The results show that providing family planning advice is not common and only about 12% of the mothers received any advice in this regard, indicating the need for orientation of the service providers.

**Table 86. Knowledge of mothers about danger signs/symptoms after delivery requiring immediate medical assistance (N=300) Multiple responses**

<b>Danger signs/symptoms</b>	<b>Frequency</b>	<b>Percent</b>	<b>Baseline 2000 N=300</b>
Fever	135	45.0	15.3
Excessive bleeding	176	58.7	17.7
Smelly vaginal discharge	26	8.7	2.3
Pain in lower abdomen	98	32.7	17.7
Others (Convulsion, Pale and weak,)	57	19.0	5.7
Do not know	58	19.3	56.3
<b>At least two signs/symptoms</b>	<b>159</b>	<b>53.0</b>	<b>NA</b>

<b>Age of mothers</b>			
< 25 years (n=169)	93	55.0	NA
= 25 years (n=131)	66	50.4	NA
<b>Ethnicity of mothers</b>			
Brahmin, Chhetri, Gurung, Magar, Tamang (n=169)	101	59.7	NA
Tharu, Dalit (n=131)	58	44.3	NA
<b>Total (N=300)</b>	<b>159</b>	<b>53.0</b>	

Compared to the baseline survey, mothers' knowledge about the danger signs/symptoms requiring medical assistance has significantly improved. 53% of mothers knew at least two danger signs/symptoms after delivery requiring immediate medical assistance. During the baseline survey, 56% of mothers did not know any danger sign/symptom. This level has decreased to 19% in the final survey. Excessive bleeding after delivery is viewed by the majority of mothers as a danger sign requiring immediate medical care. Fever, pain in lower abdomen, smelly vaginal discharge, and convulsions are other signs/symptoms that were mentioned by mothers. Brahmin, Chhetri, Gurung, and Magar communities seem to have slightly better knowledge compared to Tharu and Dalit communities. Age of mothers was not found to be a factor associated with the level of knowledge about danger signs /symptoms after delivery.

**Table 87. Knowledge of mothers about the signs/symptoms of illness of newborn (N=300) Multiple responses**

<b>Signs and symptoms</b>	<b>Frequency</b>	<b>Percent</b>	<b>Baseline 2000 N=300</b>
Baby does not suck the breast	236	78.7	32.0
Fast or difficult breathing	93	31.0	10.0
Looks weak and not active	132	44.0	1.0
Redness around the cord	12	4.0	0.3
Red/discharging eyes	38	12.7	2.3
Fever	79	26.3	19.0
Convulsion	1	0.3	--
Crying	67	22.3	--
Others (Vomiting, diarrhea)	13	4.3	--
Do not know	6	2.0	36.3
<b>At least two signs/symptoms</b>	<b>202</b>	<b>67.3</b>	<b>NA</b>

<b><u>Age of mothers</u></b>			
< 25 years (n=169)	119	70.4	NA
= 25 years (n=131)	83	63.3	NA
<b>Total (N=300)</b>	<b>202</b>	<b>67.3</b>	
<b><u>Ethnicity of mothers</u></b>			
Brahmin, Chhetri, Gurung, Magar, Tamang (n=169)	126	74.5	NA
Tharu, Dalit (n=131)	76	58.0	NA
<b>Total (N=300)</b>	<b>202</b>	<b>67.3</b>	

Knowledge of mothers about the illness of a child may lead to seeking services in time, which is crucial for preventing complications and mortality. Awareness about symptoms of sickness of newborn has increased, in general. During the baseline survey, 36% of mothers did not know any of the signs/symptoms of sickness amongst newborns; this figure has now decreased to 2%. More than two thirds of the mothers know at least two signs/symptoms of illness in children. Baby's capacity to suckle seems to be the major concern for mothers regarding the health of their newborn. About 79% of mothers perceive a serious illness if the child does not suck the breast. Awareness concerning this symptom has increased remarkably among the mothers since baseline survey. Fever, reduced physical activity, crying, and cord infection/redness/discharge are other features which were perceived by mothers as conditions in which immediate care should be sought for newborns.

A higher percentage of mothers of Brahmin, Chhetri, Gurung, and Magar communities seem to have knowledge about illnesses of children compared to the mothers of Tharu and Dalit ethnicity. It is important to explore the underlying causes of such differences. One possible reason could be that Tharu and Dalit women have less involvement in mothers' groups, which is an important forum for information dissemination. If this is the case, the project should have a special focus to involve these women in mothers' groups in the future.

**Table 88. Consumption of Vitamin A by mothers within 45 days of delivery by age and ethnicity of mothers (N=300)**

<b>Vitamin A consumption</b>	<b>Frequency</b>	<b>Percent</b>	<b>Baseline 2000 N=300</b>
Yes	191	63.7	25.3
No	109	36.3	72.0
Do not know			2.7
<b>Total</b>	<b>300</b>	<b>100.0</b>	<b>100.0</b>
<b><u>Age of mothers</u></b>			
< 25 years (n=169)	111	65.7	NA
= 25 years (n=131)	80	61.0	NA
<b>Total</b>	<b>191</b>	<b>63.7</b>	
<b><u>Ethnicity of mothers</u></b>			
Brahmin, Chhetri, Gurung, Magar, Tamang (n=169)	115	68.0	NA
Tharu, Dalit (n=131)	76	58.0	NA
<b>Total</b>	<b>191</b>	<b>63.7</b>	

Consumption of vitamin A by mothers within 45 days of delivery has increased from 25% to 63% since the baseline survey. The National figure for vitamin A coverage of postpartum mothers according to the DHS 2001 was 10.3%. Compared to the baseline data and national average, the present level of vitamin A coverage has significantly improved. Although the project target of 75% was not achieved, the present level of vitamin A coverage in Kanchanpur seems encouraging. Age of mothers does not seem to influence the consumption of vitamin A, whereas a slight difference exists between the different ethnic groups.

## CHAPTER 9. MATERNAL NUTRITION

The status of maternal nutrition is an important indicator to assess the health status of women. The body mass index (BMI) is a general indicator to assess the nutritional status of mothers. However, for practical reasons, MUAC and Blood Hemoglobin levels were used to assess the nutritional status of women in the present survey.

**Table 91. Mid Upper Arm Circumference (MUAC) of mother with children age 0-23 months (N=300)**

Ethnicity of mothers	MUAC of mothers				Missing (%)
	<21 cm (%)	21-22.5 cm (%)	22.5-23.5 cm (%)	>23.5 cm (%)	
Brahmin, Chhetri, Gurung, Magar (N=169)	41 (24.2)	47 (27.8)	31 (18.4)	49 (30.0)	1 (0.6)
Tharu, Dalit (N=131)	39 (29.8)	40 (30.5)	24 (18.3)	28 (21.4)	
<b>Total (N=300)</b>	<b>80 26.7</b>	<b>87 29.0</b>	<b>55 18.3</b>	<b>77 25.7</b>	<b>1 0.3</b>

A MUAC of more than 23.5 is considered normal and a MUAC of < 21 is considered malnourished; between 21 and 23.5 cm is considered borderline. Based on this standard, 47% of mothers were found to be borderline, 26.7% have inadequate nutritional status and 25.7% are normal. According to the baseline report, 34.7% of the mothers measured more than 23 cm and 57% were borderline. There was a slight decline in the percentage of mothers with normal nutritional status. The seasonal variation as a responsible factor for such difference cannot be excluded. However, other possible factors should be explored. National data is not available for comparison. A slight variation between the mothers of different ethnic groups is found.

**Table 92. Hemoglobin of mothers with children age 0-23 months (N=300)**

<b>Hemoglobin %</b>	<b>Frequency</b>	<b>Percent</b>	<b>Baseline 2000 N=275</b>
5-6 gm %	6	2.0	3.6
7-10 gm %	82	27.3	42.2
11-13 gm %	120	40.0	49.0
> 13 gm %	89	29.7	5.1
Missing	3	1.0	
<b>Total</b>	<b>300</b>	<b>100.0</b>	<b>100.0</b>

Hemoglobin level provides important information about the nutritional status of women. Using 11gm as a cut off point, about 30% of mothers in Kanchanpur are found to be anemic, which is slightly better than the baseline report of 46%. Anemia status seems to have improved in Kanchanpur. The project has not set any target at impact level, so it is difficult to attribute the results to the project effort, although the focus on IFA consumption and other dietary interventions may have had an impact.

## CHAPTER 10. KNOWLEDGE OF MOTHERS ABOUT HIV/AIDS

Considering the spreading epidemic of HIV/AIDS in Nepal and the universal risk of its transmission, an integrated approach to raise awareness among the general population is required as a major strategy. Although the CSP in Kanchanpur had not addressed HIV/AIDS, in future there will be an opportunity to integrate HIV/AIDS in various training and orientation activities to mothers. Therefore, during this survey, a few questions were included to assess the knowledge of mothers of children age 0-23 months in Kanchanpur about HIV/AIDS.

**Table 89. Mothers who have heard about HIV/AIDS**

<b>Knowledge about HIV/AIDS</b>	<b>Frequency</b>	<b>Percent</b>
Have heard about AIDS	169	56.3
Have not heard about AIDS	131	43.7
<b>Total</b>	<b>300</b>	<b>100.0</b>
<b><u>Age of mothers</u></b>		
< 25 years (n=169)	111	65.7
= 25 years (n=131)	59	45.0
<b>Total</b>	<b>169</b>	<b>56.3</b>
<b><u>Ethnicity of mothers</u></b>		
Brahmin, Chhetri, Magar, Gurung, Tamang (n=169)	121	71.6
Tharu, Dalit (n=131)	48	36.6
<b>Total</b>	<b>300</b>	<b>100.0</b>

Among the mothers, 56.3% reported having heard about HIV/AIDS. No data from the baseline is available for comparison. This level of awareness is slightly higher than the overall average for the sub region of Far West Tarai as well as the national average, which are 51.8 and 49.6% respectively according to the DHS 2001. The younger mothers have better knowledge compared to older mothers and a similar trend was found in the DHS 2001. This may be due to literacy and exposure to media. A significant difference in knowledge is seen between the mothers of different ethnic groups. Like in other awareness indicators, fewer Tharu and Dalit mothers have heard about HIV/AIDS compared to mothers of other ethnicities. This finding reinforces the assumption that project should focus on Tharu and Dalit mothers' inclusion in mothers' groups.

**Table 90. Knowledge of mothers about prevention of HIV/AIDS (N=166)**  
Multiple responses

<b>Means of prevention</b>	<b>Frequency</b>	<b>Percent of who heard (N=169)</b>	<b>Percent of total (N=300)</b>
Nothing	0	0	0
Abstain sex	3	1.8	1.0
Use condom	101	59.8	33.7
Limit sex to one partner/ stay Faithful to one partner	45	26.6	15.0
Limit Number of sexual partners	98	58.0	32.7
Avoid sex with prostitute	23	13.6	7.7
Avoid intercourse with persons of The same sex	2	1.2	0.7
Avoid sex with the persons who Have many sex partners	24	14.2	8.0
Avoid sex with persons who inject Drug Intravenously	17	10.1	5.7
Avoid blood transfusions	56	33.1	18.7
Avoid injections	71	42.0	23.7
Avoid kissing	1	0.6	0.3
Avoid mosquito bites	4	2.4	1.3
Seek protection from traditional Healers	0	0	0
Avoid sharing razor, blades	36	21.3	12.0
Others*	10	5.9	3.3
Do not know	39	23.1	13.0
<b>At least 2 known ways of prevention **</b>	<b>76</b>	<b>45.0</b>	<b>25.3</b>
<b>Age and ethnicity of mothers who knows at least 2 ways of HIV prevention</b>	<b>Frequency</b>	<b>Percent</b>	
<b>Age of mothers</b>			
< 25 years (n=169)	53	31.3	
= 25 years (n=131)	23	17.5	
<b>Total</b>	<b>76</b>	<b>25.3</b>	
<b>Ethnicity of mothers</b>			
Brahmin, Chhetri, Gurung, Magar, Tamang (n=169)	61	36.1	
Tharu, Dalit (n=131)	15	11.4	
<b>Total</b>	<b>76</b>	<b>25.3</b>	

\* Avoid use of soap used by HIV positive, hugging, sharing utensils

\*\* At least two of Condom, multiple partners, blood transfusion and sharing needles/injection

About 34% of mothers were aware that the use of condoms can help prevent HIV/AIDS. The awareness of condoms' role in prevention of HIV/AIDS is relatively high compared

to the national average of 20.6% awareness amongst the women of reproductive age. Nearly the same percentage of mothers (32.7%) said limiting number of sex partners as a way to prevent HIV transmission compared to 12.9% as the national average. One fourth of the mothers knew at least two known ways of HIV prevention while 13% of the mother did not have any idea about the ways to prevent HIV. Few mothers know about other transmission methods, such as sharing needles and razors, injections, and blood transfusions. Regarding misconceptions about HIV transmission, only 1.3% of mothers mentioned avoiding mosquito bites and none of them considered that traditional healers can help them prevent contracting HIV/AIDS. Like in the results shown in Table 89, difference in the level of knowledge between the mothers of different age groups and ethnic groups is found in relation to knowing at least two ways of HIV prevention.

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