Evaluation of Zinc Program in the Selected Districts of Nepal

Submitted to

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Acknowledgements

The Micronutrient Initiative (MI) started providing support to the Child Health Division of the Ministry of Health and Population by expanding and intensifying the zinc program to new three districts namely Sankhuwasabha, Gorkha and Bajura in early 2010. The intensified zinc program has six components namely training to all cadres of health workers and FCHVs, orientation to private pharmacies, introduction of compliance cards, awareness creation through local FM radios, strengthening existing government monitoring and reporting system and ensuring smooth supply of zinc supplements. The study was conducted to assess the effectiveness of zinc program in the three intensified program districts (Sankhuwasabha, Gorkha and Bajura) compared to non-intensified zinc program districts (Taplejung, Tanahun and Bajhang). Data was collected from 1200 mothers of children 2-59 months of age who had diarrhea in one month prior to survey, 110 health facilities, 125 female community health volunteers and 68 private pharmacies using structured and semi-structured questionnaires. Similarly, 6 focus group discussions were conducted among the key influencers in the family and society of the study areas.

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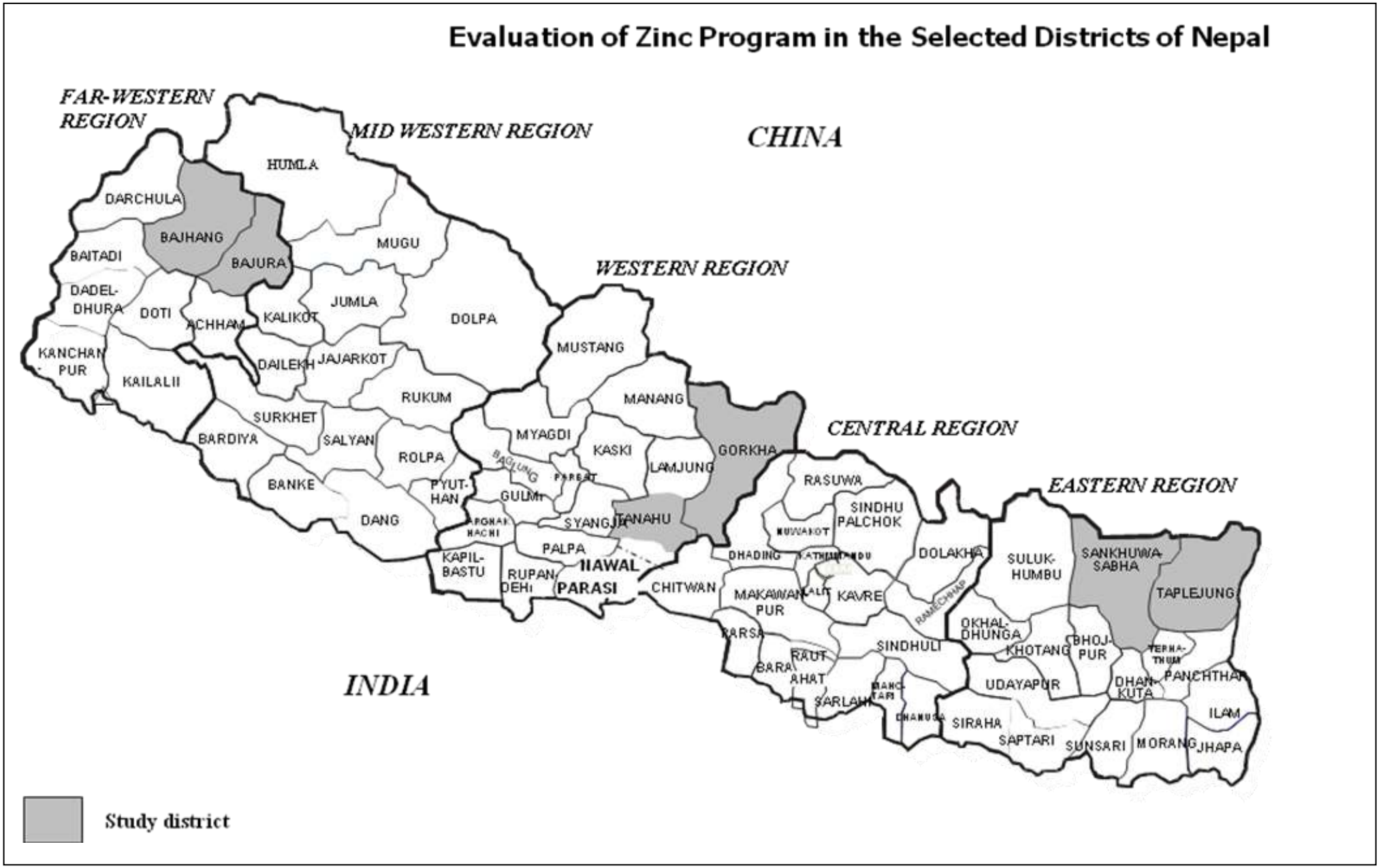
Contents

List of Tables

List of Figures


Evaluation of Zinc Program in the Selected Districts of Nepal
FAR-WESTERN REGION
MID WESTERN REGION
CHINA
WESTERN REGION
CENTRAL REGION
EASTERN REGION
INDIA
HUMLA
DARCHULA
BAJHANG
BAJURA
MUGU
BAITADI
DADEL-DHURA
DOTI
ACHHAM
KALIKOT
JUMLA
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ROLPA
MYAGDI
KASKI
GORKHA
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GULMI
LAMJUNG
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SYANGJA
TANAHU
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KAPIL-BASTU
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CHITWAN
RASUWA
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DHADING
DOLAKHA
SULUK-HUMBU
SANKHUWA-SABHA
TAPLEJUNG
MAKAWAN-PUR
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KHOTANG
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BARA
UDAYAPUR
DHAN-KUTA
PANCHTHAR
ILAM
SIRAHA
SAPTARI
SUNSARI
MORANG
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Study district

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Abbreviations

ARI	Acute Respiratory Infection
DNA	Deoxyribonucleic Acid
FCHV	Female Community Health Volunteer
FGD	Focus Group Discussion
GON	Government of Nepal
HP	Health Post
IEC	Information, Education and Communication
IMCI	Integrated Management of Childhood Illness
KAP	Knowledge, Attitude and Practice
MCHW	Maternal and Child Health Worker
MDG	Millennium Development Goal
MI	The Micronutrient Initiative
NFHP	Nepal Family Health Program
ORS	Oral Rehydration Solution
PHCC	Primary Health Care Center
RNA	Ribonucleic Acid
Rs	Nepalese Rupees
SD	Standard Deviation
SES	Socio-Economic Status
SHP	Sub-health Post
SLC	School Leaving Certificate
TV	Television
UNICEF	United Nations Children's Fund
USAID	United States Agency for International Development
VaRG	Valley Research Group
VDC	Village Development Committee
VHW	Village Health Worker
WHO	World Health Organization

Executive Summary

Introduction

The Micronutrient Initiatives (MI) started providing support to the Child Health Division, Department of Health Services by expanding the intensified zinc program to new three districts namely Sankhuwasabha, Gorkha and Bajura in early 2010. The overall objective of this evaluation was to assess the implementation of zinc program in the three intensified districts compared to three counterpart non-intensified zinc program districts (Taplejung, Tanahun and Bajhang). The study was conducted in those six districts. Information was collected from 1200 mothers/caretakers of children 2-59 months of age with diarrhea during one month prior to the survey, 110 health facilities, 102 health workers, 125 FCHVs and 68 pharmacists from intensified and non-intensified areas. In addition, six focus group discussions were conducted among the key influencers and communities. Field work was conducted during November – December 2010.

Findings on mothers of 2-59 months old children

Knowledge about at least three out of seven common causes of diarrhea was significantly higher (52%) among the mothers/caretakers of intensified areas than those of non-intensified areas (42%). Similarly, knowledge about signs and ways of preventing childhood diarrhea was much higher among the mothers of intensified areas. Overall, 34% of the mothers in intensified compared to 22% in non-intensified areas were able to mention three or more ways of preventing childhood diarrhea. Over (52%) of the mothers in intensified compared to 40% in non-intensified areas were aware of zinc tablets. However, the need for use of zinc tablets along with ORS for 10 days was mentioned by only about one-tenth of the respondents; those giving these responses were slightly higher in intensified areas (11%-13%) than in non-intensified areas (8%-9%).

More mothers in intensified than in non-intensified areas had correct knowledge about frequency (72% vs. 61%) and duration of administration (74% vs. 46%) of zinc for treatment of diarrhea. Over 3-in-5 women with a higher percentage in intensified areas knew that the use of zinc could reduce the duration and prevent severity of diarrhea.

Overall, 33% of children in intensified and 28% in non-intensified areas were given zinc tablets during their last diarrheal episode. Use of zinc tablets was highest among the children of relatively advantaged Janajati and lowest among disadvantaged Janajati. Almost all the mothers (98% in intensified and 96% in non-intensified) in both areas affirmed that they provided zinc tablets along with ORS to their child. Nearly 53% of the respondents in intensified areas reported that they obtained zinc tablets from FCHV while the corresponding figures in non-intensified areas 27% only.

The proportion of mothers who complied with administration of zinc continuously for 10 days was found significantly higher (70%) in intensified than in non-intensified (38%) areas. Majority of the mothers (87%-99%) with a higher percentage in intensified areas reported that the service providers informed them about the number and duration of zinc tablets to be given, need for giving zinc with ORS and ways of giving the zinc tablets.

Overall, 64% of the mothers in intensified areas affirmed that they were given zinc compliance card and also given instruction for filling and returning the card. Over 4-in-5 respondents in intensified areas were able to enumerate at least one benefit of zinc compliance card. The most frequently cited benefits were that it reminds to give zinc timely (75%) and any member can be reminded of giving zinc tablets (33%).

The FCHVs found to be the most preferred and appropriate channel for the distribution of zinc to the needy children in both the intensified (95%) and non-intensified (93%) areas. More mother from intensified (91%) than in non-intensified (79%) areas perceived that the zinc did not have side effects and perceived the zinc tablets very effective to somewhat effective in treating diarrhea. Majority of the mothers in intensified (98%) and non-intensified (96%) areas said that they would like to recommend others also to use zinc indicating their favorable attitudes towards treatment of diarrhea with zinc.

Findings on female community health volunteers

Over 95% of the FCHVs in intensified and 85% in non-intensified areas reported receiving orientation on treatment of childhood diarrhea with zinc tablets.

FCHVs of intensified areas were more knowledgeable about causes, signs and symptoms and essential management of diarrhea. The level of knowledge of intensified areas FCHVs regarding benefits of treatment of diarrhea with zinc found to be much higher than those of the non-intensified areas specifically the benefits like reducing the severity (94% vs. 83%), duration (91% vs. 60%) and frequency (72% vs. 60%) of diarrhea. Likewise, over 95% of the FCHVs in intensified as against 69% in non-intensified areas correctly mentioned that a child with diarrhea should be treated with zinc tablets continuously for 10 days.

The proportion of the FCHVs knowing the need for providing zinc along with ORS found to be higher (88%) in intensified than in non-intensified (78%) areas. Moreover, the FCHVs of intensified areas were more likely to strongly recommend other FCHVs to use zinc (85% vs. 79%) than those of non-intensified areas indicating their favorable attitudes towards zinc.

Over 70% of the FCHVs in intensified and 65% in non-intensified areas reported seeing any diarrhea cases of children aged 2-59 months in the past one month preceding the survey. Upon checking the register maintained by the FCHVs, the average number of children with diarrhea seen per month in the past 9 months varied from 2.4 to 3.4 in intensified and 2 to 3 in non-intensified areas. About 74% of the FCHVs in intensified and 67% in non-intensified areas had distributed ORS packets to anyone suffering from diarrhea in the last one month. Likewise, 54% of the FCHVs in intensified and 24% in non-intensified areas had distributed zinc tablets during the said period indicating that the overall coverage was not still to the optimum.

Nearly 65% of the FCHVs in intensified compared to only 55% in non-intensified areas affirmed that they have IEC materials related to zinc. Overall, 83% of the FCHVs in intensified and 74% in non-intensified areas had some ORS packets in stock. Similarly, those having stock of zinc tablets were much higher in intensified (74%) than in non-intensified (31%) areas.

Less FCHVs in intensified (22%) compared to non-intensified (55%) areas had to face an occasion when they could not give zinc tablets to the clients in the last one month due to the lack of zinc tablets with them indicting that the FCHVs in intensified areas were better with their supply of zinc and could cater more clients with zinc than did by their non-intensified group counterparts.

Nearly 3-in-4 FCHVs in intensified areas reported having stock of zinc compliance cards at the time of survey. Only 21% of the FCHVs reported that almost all the mothers/caretakers had returned the compliance cards after completing the treatment. Similarly, about 42% of the FCHVs reported that they also collect such cards during mother's group meeting. 65% of the

FCHVs also affirmed that they submit all filled up cards to VHW, MCHW or health facility every month and 15% do so whenever they receive from mothers or caretakers.

Findings on health workers

Over 90% of the health workers in both the intensified and non-intensified areas had received orientation on treatment of diarrhea with zinc tablets and found the orientation useful for their work.

Over 90% of the health workers in both areas had, with slightly a higher percentage in intensified areas, correct knowledge about the dosage, frequency and timing of giving zinc tablets to the children during diarrhea. Considerably a higher percentage of the health workers in intensified than in non-intensified areas had correct knowledge about the measures to be taken if it was forgotten to give zinc tablets to children at the prescribed day and if the child vomit after administration of zinc.

All the health workers in intensified and almost all in non-intensified areas reported carrying out specific activities such as examining the condition of the child suffering from diarrhea, explaining about doses of zinc, informing about number of days zinc to be given, explaining about the procedure of administering zinc and providing ORS and giving instruction to prepare it while providing zinc tablets to children. Over 86% of the health workers in intensified areas also affirmed that they explain mothers to fill up the zinc compliance cards and ask to return the filled up card upon completion of the treatment.

The proportion of health workers treating diarrhea with zinc and ORS together among children was more in intensified (75%) than in non-intensified (59%) areas while those treating with either zinc only or ORS only was more in non-intensified areas. This indicates that the coverage of diarrhea treatment with zinc and ORS together was much higher in intensified areas than in non-intensified areas.

A higher proportion (77%) of health workers in intensified than in non-intensified (61%) areas opined that the quantity of zinc tablets they received was enough compared to the number of children brought to the facility requiring zinc treatment. The majority (55%-63%) of the health workers with a higher percentage in intensified areas reported that they usually distribute the zinc tablets to FCHVs as and when needed.

Only about a quarter of the health workers from both the intensified and non-intensified areas reported having brochures on zinc and ORS at their health facilities. Nearly 80% of the health workers in both areas also reported having zinc job aid cards; but most of the facilities had only 1-2 such job aid cards. Likewise, 88% of the health workers in intensified compared to 73% in non-intensified areas affirmed that they used the cards while providing diarrheal treatment to the children.

Overall, 84% of the health workers of the intensified areas reported that they have stock of zinc compliance cards at their health facilities. Over 88% of the health workers also affirmed that they mostly provide the zinc compliance cards to the mothers/caretakers during the treatment of diarrhea with zinc tablets. According to the responding health workers the rate of return of filled up compliance cards varied greatly. About 15% of the health workers said that almost all the mothers/caretakers usually return such cards to them or their health facilities while over one-third said that only less than 25% mothers/caretakers had done so. Similarly, over 3-in-4 health workers also said that they usually collect the completed zinc compliance cards from FCHVs, pharmacists or mothers/caretakers; and most (83%) of them do so every month.

Findings on pharmacists

Overall, 68% of the pharmacists in intensified and 46% in non-intensified areas reported receiving one-day orientation on treatment of childhood diarrhea with zinc tablets and ORS.

The large majority of the pharmacists with a higher percentage in intensified (92%-98%) than in non-intensified (82%-93%) areas had correct knowledge about the dose, frequency, duration and timing of giving zinc tablets to the children during diarrhea. Majority of the pharmacists in both areas were of the opinion that use of zinc tablets and ORS could help reduce severity (80% in intensified and 86% in non-intensified) and frequency (90% intensified and 64% in non-intensified) of diarrhea. Over half of the respondents in intensified compared to about one-third in non-intensified areas believed that use of zinc tablets could also help to facilitate absorption of water and to reduce duration of diarrhea.

All the pharmacists in both areas reported that they explained about doses of zinc, number of days zinc to be given, procedure of administering zinc and providing ORS and given instruction to prepare it while providing zinc tablets to mothers or caretakers.

2-in-5 pharmacists in intensified areas reported that they usually explain the mothers or caretakers to fill up the zinc compliance cards and another one-third also said that they ask mothers or caretakers to return the filled up cards upon completion of treatment.

Over three-quarters (78%) of the pharmacists in both areas reported that at least one child aged 2-59 months old was brought to their pharmacies for the treatment of diarrhea in the last month. More pharmacists (73%) in intensified than in non-intensified (50%) areas reported that they treated diarrhea with ORS and zinc tablets together. The coverage of diarrhea cases treated with zinc and ORS was considerably high in intensified (54%) than in non-intensified (45%) areas.

1-in-5 pharmacists with slightly a higher percentage from intensified areas reported that they brought zinc tablets from suppliers or other sources in the past one month preceding the survey. Nearly three-quarters (73%) of the pharmacists in intensified compared to less than half (46%) in non-intensified areas reported having the stock of zinc tablets at the time of survey. More pharmacists (73%) in intensified than in non-intensified (46%) areas reported that the quantity of zinc tablets they received was enough compared to the number of children brought to the pharmacies requiring zinc treatment.

A quarter (23%) of the pharmacists in intensified areas reported having zinc compliance cards to provide mothers or caretakers of children during diarrheal treatment. However, only a small proportion (10%) of them reported that they had filled up the zinc compliance cards while providing the zinc and ORS to the mothers/caretakers. Most of the pharmacists reported that only less than 50% of the mothers/caretakers return the filled up cards upon completion of diarrheal treatment.

A higher proportion (38%) of the pharmacists in intensified than in non-intensified (29%) areas had advertisement materials on zinc to display in the pharmacy. The great majority of the pharmacists with a higher percentage in intensified (90%) than in non-intensified (82%) areas showed their willingness to sell dispersible zinc together with ORS from their shops.

Overall, the information collected from both the mothers/caretakers and service providers has provided evidence that the program has been effective in intensified areas as several indicators have been improved compared to those of the non-intensified areas.

The level of knowledge on diarrhea, its signs and symptoms, preventive measures and procedures of treating diarrhea with zinc and ORS combined is higher among the service providers and mothers of the intensified areas than in non-intensified areas. Likewise, more service providers as well as mothers of intensified areas are in favor of treating diarrhea with zinc and ORS. The study also showed that the use of zinc tablets along with ORS is higher in intensified than in non-intensified areas though the difference in proportion is not substantially high. Moreover the compliance to zinc and ORS treatment resume is significantly higher in intensified than in non-intensified areas. On the top the introduction of zinc compliance card has facilitated mothers to comply with the treatment resume. The information suggests that the purpose of introducing the zinc compliance cards i.e. to increase compliance to zinc treatment by reminding the mothers/caretakers to give zinc to the child had been met among a great majority of the respondents. The study also showed the better stock situation of zinc and ORS with the health facilities and service providers of the intensified areas compared to those of non-intensified areas.

Improvements and favorable situation regarding diarrhea and zinc treatment was found among majority of service providers and mothers of the intensified areas within a short duration as one year of the intensified intervention. These improvements and achievements in the intensified areas were observed more among the service providers and mothers/caretakers probably due to the result of intensified zinc intervention. However, there are still substantial proportion of service providers and mothers who have not achieved these improvements in a fuller extent. Therefore, to attain optimum improvements and progress in treatment of diarrhea with zinc and ORS some measures have to be taken or strengthen further, which are dealt with in detail in the recommendation section of this report.

Chapter 1

Introduction

1.1 Background

Considerable efforts have been made to reduce childhood morbidity and mortality at national and international levels. However, millions of children are dying from various diseases. Worldwide, diarrhea alone claiming more than 1.5 millions of deaths among children under five years of age.

Diarrheal diseases are very common in Nepal causing a major public health problem among children with an average of two episodes in a year. According to the Nepal Demographic and Health Survey 2006, diarrhea continues to be a major cause of childhood morbidity and mortality in Nepal. 12% of children under-five years of age had experienced diarrhea in the two weeks preceding the survey. Prevalence of diarrhea is highest among children 6-11 months (22.6%) and 12-23 months (19.6%).[1] The NFHP Mid-term Survey II also indicated that the prevalence of diarrhea for children below five years of age was 14.3% in 40 districts of the country.[2] It is estimated that annually about 15,000 deaths in children less than five occur because of diarrhea. The control and prevention of diarrhea is essential for the attainment of the Millennium Development Goal (MDG) target on child survival (MDG 4).

Zinc, one of the important micronutrients, is a component of many enzymes associated with the metabolism of carbohydrates, proteins and fats and in replication of deoxyribonucleic acid (DNA) and ribonucleic acid (RNA). One of the clinical signs of zinc deficiency is diarrhea. Various zinc trials have revealed that zinc supplementation can reduce the duration of acute diarrhea by 25% and treatment failure of persistent diarrhea by 40%. Preventive benefits include a reduction of 25% in subsequent episodes of diarrhea and 34% in subsequent episodes of pneumonia during two to three months after a 10-14 day treatment.

A recent meta-analysis demonstrated that a two-week course of zinc tablets once daily significantly reduces the severity and duration of diarrhea, hence mortality in young children. According to an international estimate, consistent treatment of diarrhea with zinc could reduce under 5 mortality by approximately 4% globally. This means averting about 3000 deaths annually in case of Nepal.

In view of these benefits, the Government of Nepal (GON) adopted the new WHO/UNICEF joint statement on clinical management of acute diarrhea in children under-five. The GON incorporated zinc therapy into the Integrated Management of Childhood Illness (IMCI) program by introducing it in two districts in 2006. In Nepal, the IMCI program was first introduced in 1999 and the program has gradually been expanded to new districts and the program is now operational in all 75 districts. Ever since zinc therapy was incorporated into IMCI, the government has been distributing dispersible zinc tablets along with oral rehydration solution (ORS) to children aged 2-59 months suffering from diarrhea for 10 days. Zinc supplementation along with ORS for the treatment of diarrhea in under-five children has been introduced in all the 75 districts by 2010. The program was implemented by the Government of Nepal with support from UNICEF, USAID, Plan Nepal and MI. Zinc treatment is primarily provided by the network of health facilities and Female Community Health Volunteers (FCHVs). With support from

[1] *Ministry of Health and Population (MOHP) [Nepal], New ERA, and Macro International Inc. 2007. Nepal Demographic and Health Survey 2006. Kathmandu, Nepal: Ministry of Health and Population, New ERA, and Macro International Inc.*

[2] *Nepal Family Health Program II and New ERA, 2010. Family Planning, Maternal, Newborn and Child Health Situation in Rural Nepal: A Mid-term Survey for NFHP II. Kathmandu, Nepal: Nepal Family Health Program and New ERA.*

USAID in 2006, the Government also initiated a Social Marketing Project for zinc treatment through private sector providers in 30 districts.

MI started providing support to the Child Health Division by expanding the zinc program to new three districts namely Sankhuwasabha, Gorkha and Bajura in early 2010 with some new activity components to intensify the program. Under the intensified model, training was imparted to all cadres of health workers and FCHVs. Similarly, existing government monitoring and reporting system was strengthened and smooth supply of zinc supplements ensured. Private pharmacies, where nearly 50% of diarrhea cases are brought for treatment, were also oriented and encouraged to sell zinc tablets along with ORS for treatment of childhood diarrhea. To ensure intake of zinc supplements for entire 10 days, compliance cards were introduced and service providers from both public and private sectors have been providing these cards to caretakers along with the zinc and ORS. Similarly, radio spots were aired through local FM stations to create awareness about the zinc supplementation for treatment of diarrhea.

MI intended to assess the effectiveness of the zinc program in the new three intensified districts where the intensified model was introduced with its support last year.

1.2 Objective of the evaluation

The overall objective of this process evaluation was to assess the implementation of zinc program in the three intensified districts compared to non-intensified zinc program districts.

The specific objectives of the study were as follows:

a) To compare coverage and compliance of zinc treatment (along with ORS) of childhood diarrhea in intensified and non-intensified districts;

b) To compare KAP of service providers and caregivers in relation to zinc treatment of childhood diarrhea in intensified and non-intensified districts;

c) To compare the availability of zinc and ORS with FCHVs; at health facilities and private pharmacies in intensified and non-intensified districts; and

d) To assess the effectiveness of the compliance cards for improving the compliance of zinc in the treatment of diarrhea in intensified districts.

1.3 Methodology

The evaluation study utilized both the quantitative and qualitative approaches to collect required information. Structured and semi-structured questionnaires were followed to collect quantitative information and focus group discussions to collect qualitative information. Information required for the present evaluation study was collected from different groups of the population including (a) mothers/caretakers of children between 2-59 months of age who had diarrhea at least for one time in one month preceding the survey, (b) Female Community Health Volunteers (FCHVs), (c) health workers (VHWs and MCHWs), (d) pharmacists, and (e) key influencers in the family and society of the sampled areas. The study was conducted in six districts, of which three (Sankhuwasabha, Gorkha and Bajura) were the intensified districts and another three (Taplejung, Tanahun and Bajhang) were non-intensified districts. The paired non-intensified district was Taplejung for Sankhuwasabha, Tanahun for Gorkha and Bajhang for Bajura.

A two stage sampling procedure was employed while selecting the study population. In the first stage required numbers of clusters (wards) were selected from each of the study districts following the probability proportional to size (PPS) method; and required numbers of households were selected from each of the sampled clusters in the second stage.

a) Selection of respondents for household survey

i) Selection of clusters/wards

Twenty clusters (wards) were selected from each district making a total of 120 clusters from six districts. In selecting the wards, all the VDCs of the six study districts were listed separately in alphabetical order together with the population in each ward. Then 20 wards were chosen from each district using Probability Proportional to Size (PPS) sampling method using the 2001 Census Data of the Central Bureau of Statistics. Hence, there were 60 clusters from each of the intensified and non-intensified areas. Table 1.1 presents the distribution of clusters and sample population included from each of the intensified and non-intensified areas.

ii) Selection of households

Prior to proceeding the data collection work, the field researchers prepared a sketch map of each sampled cluster in consultation with the local key persons such as FCHVs, teachers, social workers, politicians, etc. Then the field researchers divided the cluster (ward) into 3-5 segments, depending on the settlement pattern within the ward, with households in each segment. Then one segment within the cluster was chosen using random number table to identify an index house to start the interviews. This house was identified using the spin the bottle method. The study envisaged to interview 1200 mothers/caretakers (600 from each of intensified and non-intensified areas) of children 2-59 months of age with diarrhea during one month prior to the survey. A total of 10668 households (5661 in intensified and 5007 in non-intensified areas) were visited to interview 1200 mothers/caretakers of children aged 2-59 months who were suffering from diarrhea one month prior to the survey day. On average 1778 households were visited to interview 200 mothers of under five children from each district. Nearly half (47%) of the households visited had at least one mother/caretaker of children 2-59 months of age. On average it was required to visit 8-9 households to identify a child between 2-59 months of age suffering from diarrhea in one month preceding the survey.

Table 1.1 Distribution of sample clusters and respondents interviewed from each of the intensified and non-intensified areas

Description	Per district	Intensified	Non-intensified	Total
Number of clusters	20	60	60	120
Number of households	1778	5661	5007	10668
Number of mothers/caretakers with children 2-59 months of age	839	2439	2596	5035
Number of children between 2-59 months of age	111	3129	3550	6679
Number of children with diarrhea one month preceding the survey	200	600	600	1200

iii) Selection of respondents

The eligible respondents (mothers/caretakers of 2-59 months children suffering from diarrhea during the month prior to the survey) were identified using two sets of screening questionnaires.

The first set of the screening questionnaire was administered to the household head or knowledgeable person in the household to identify women with children between 2-59 months of age in the household. And the second set was administered to the mothers/caretakers of the children between 2-59 months of age to identify if their child had diarrhea in the month prior to the survey.

Mothers/caretakers with children between 2-59 months had diarrhea during the month prior to the survey were considered as eligible respondents for the study purpose. Ten mothers/caretakers were interviewed from each cluster. Where the household had more than one eligible child that had suffered from diarrhea, only one child was selected randomly at the spot by the interviewer for the data collection. If a child had suffered more than one episode of diarrhea in one month preceding the survey, information of all episodes was collected.

b) Selection of service providers and key influencers

Information required for the purpose of the study was also collected from service providers (VHWs, MCHWs, FCHVs, and pharmacists) and key influencers in the family and communities of the study areas. The selection procedures of each category of the respondents are described below:

i) Selection of facilities and health workers

All health facilities (PHC, health post or subhealth post) locating in the VDC of the sampled clusters were selected for information collection. Information was collected from 110 (55 in intensified and 55 in non-intensified areas) health facilities. One hundred and two health workers (MCHWs and VHWs) were successfully interviewed from these health facilities. In addition 25 health workers were contacted to collect health facility service data related to diarrheal treatment.

ii) Selection of FCHVs

The study envisaged to select at least one female community health volunteer from each of the sampled clusters. Thus a total of 125 FCHVs (65 in intensified and 60 in non-intensified areas) were successfully interviewed from the study areas.

iii) Selection of pharmacist

The study also included a number of pharmacists from the intensified and non-intensified areas. A total of 68 pharmacists – 40 from intensified and 28 from non-intensified areas – were included in the study. All pharmacies located in the VDCs of the sampled clusters were selected for interview. In addition, those pharmacies located at the district headquarters of the study districts were also included in the study.

Table 1.2 Distribution of service providers and key influencers included in each of the intensified and non-intensified areas

Description	Intensified	Non-intensified	Total
a) Health workers survey			
Number of health facilities	55	55	110
Number of VHWs	23	21	44
Number of MCHWs	28	30	58
Number of other staff	14	11	25
b) FCHVs	**65**	**60**	**125**
c) Private pharmacies	**40**	**28**	**68**
d) FGDs with key influencers	**3**	**3**	**6**

** Of the 127 health workers 102 were eligible for interview (i.e. VHW and MCHW) and rest (n=25) had given service data only.*

iv) FGDs among key influencers including mothers-in-law

In order to capture KAP on treatment of childhood diarrhea with zinc and ORS, qualitative information was collected from the key influencers in the family and society of the study areas. For this purpose, social workers, mothers-in-law, and other influential persons were included. Three focus group discussions (FGDs) were organized in each of the intensified and non-intensified areas thus making a total of six FGDs from six study districts. One FGD was organized in one of the clusters of each district; and the cluster was selected randomly. The key influencers were identified in consultation with the local key informants including FCHVs.

1.4 Instrumentations

Five sets of survey tools (questionnaires, interview schedule and focus group discussions guide) were developed and used for information collection. They were as follows:

a) Questionnaire for household head (screening questionnaire) and mothers/caretakers (screening and main questionnaire)
b) Interview schedule for FCHVs
c) Interview schedule for health facility staff (primarily VHWs and MCHWs)
d) Interview schedule for private pharmacists
e) FGD guide for key influencers in the family and society

These survey tools were pretested in the rural areas of Lalitpur and Kathmandu districts before mobilizing the team for data collection.

1.5 Field organization and data collection

The study was conducted under the overall supervision of the senior team members from VaRG. A total of 12 teams consisting of two field researchers in each team were mobilized in the study districts to collect information. Two teams were employed in each district. Field work was conducted during November – December 2010, and each team spent 5-6 weeks for data collection.

The field workers involved in this study had previous experience in field research. Field mobilization was done after thorough orientation and training to the field workers. Training topics included brief introduction of Zinc program in Nepal, objectives and methodology of the study, questionnaire presentation and discussion, role-plays, and field practice.

The senior team members also visited some of the study areas to supervise the fieldwork. They also observed the data collection activities and provided necessary guidance during fieldwork.

1.6 Data processing and analysis

Upon completion of the field activities, secondary checking of the questionnaires was performed at the VaRG Office. The questionnaires were coded for computer entry, key punched and validated by a data processing team consisting of a computer programmer and data entry personnel. The data processing was performed utilizing FoxPro software to generate a cleaned data set. The cleaned data set was transferred to SPSS and a SPSS system file was prepared for output generation.

Data are presented in the forms of tables and graphs. The analysis for this report mainly focused on comparison between the respondents of intensified and non-intensified areas with respect to their knowledge, attitude and practices related to program indicators. Basic statistical tools including percentage, measures of central tendency, measures of dispersion and degree of relationship between the selected variables have been used in the analysis. In addition, Pearson's Chi-square tests have also been performed to see if the observed differences were statistically significant.

Information collected through focus group discussions (FGDs) was manually processed and analyzed. The FGD results are integrated in the relevant chapters of the report. Wherever applicable, quotes in the words of the participants were extracted to highlight the feelings of the community people regarding the diarrhea and its treatment.

Chapter 2

Findings on Mothers/Caretakers of Children aged 2-59 Months Old

Twelve hundred (600 in intensified and 600 in non-intensified areas) mothers/caretakers of children between 2-59 months of age who had diarrhea within one month preceding the survey were included in the study. A series of questions related to their knowledge about diarrhea, its prevention measures, and current treatment practices including the use of zinc tablets and ORS during the last diarrheal episode of their children were put forward to the women included in the study. In addition, information regarding the use of zinc compliance card by the mothers/caretakers of the intensified districts was also collected. Six focus group discussions (3 each from intensified and non-intensified areas) were conducted among the key influencers and social workers of the community in order to obtain their perception and practices related to child health problems including diarrhea and its treatment with zinc tablets and ORS. On average, 10 persons participated in each of the focus group discussions. This chapter presents findings on these matters.

2.1 Characteristics of mothers/caretakers

a) Age, ethnicity, literacy status and occupation

Age

Table 2.1 shows the percentage distribution of mothers for intensified and non-intensified areas by their age group. No marked difference was observed on the age composition of the women of intensified and non-intensified areas. More than 3-in-5 respondents in both areas were between 20-29 years of age followed by about a quarter were between 30-39 years old. The median age of the respondents was slightly lower in intensified areas than in Non-intensified areas (27.2 years vs. 27.7 years).

Table 2.1 Percent distribution of mothers by age group

Age of mothers (in completed years)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
<20	4.3	26	5.5	33
20-24	35.2	211	32.5	195
25-29	31.5	189	28.5	171
30-34	15.0	90	15.7	94
35-39	8.8	53	9.2	55
40-45	3.5	21	5.3	32
45-49	1.2	7	2.8	17
50 +	0.5	3	0.5	3
Median (SD)	**27.2**	**(6.1)**	**27.7**	**(7.0)**
Total	**100.0**	**600**	**100.0**	**600**

Ethnicity

Table 2.2 depicts the ethnic composition of the mothers included in the study. Data shows that various caste or ethnic groups of population were represented in this study. About two-fifths (37%-45%) of the respondents with a higher percentage in intensified areas were Brahmin, Chhetri, Giri, Puri and Thakuri caste followed by over one-fourth were *disadvantaged janajati*

group. More than one-fifth (21%-25%) were from *dalit* and less than 10% were from *relatively advantaged janajati* group. Representation of religious minority group was negligible in both the intensified and non-intensified areas.

Table 2.2 Percent distribution of mothers by ethnicity

Caste/ethnicity	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Dalit	20.5	123	25.2	151
Disadvantaged Janajatis	25.8	155	30.5	183
Religious minorities	0.2	1	0.5	3
Relatively advantaged Janajatis	8.5	51	6.7	40
Brahmin/Chhetri/Giri/Puri/Thakuri	45.0	270	37.2	223
Total	**100.0**	**600**	**100.0**	**600**

Educational attainment

Table 2.3 shows the literacy status and educational attainment of mothers of both intensified and non-intensified areas. Slightly over half (51%) of the mothers in both areas were reported to be literate. Over 2-in-5 mothers had passed either primary or secondary level of education. About 11% of the mothers in intensified and 8% in non-intensified areas have passed School Leaving Certificate (SLC) or higher level of education.

Table 2.3 Percent distribution of mothers by literacy status

Description	Intensified areas (n=600)		Non-intensified areas (n=600)	
	%	No.	%	No.
Literacy status				
Illiterate	48.5	291	49.0	294
Literate	51.5	309	51.0	306
Level of education				
No schooling	46.5	279	45.3	272
Some primary	22.5	135	19.3	116
Some secondary	20.2	121	27.8	167
SLC or above	10.8	65	7.5	45

Occupation

Majority (76%-87%) of the respondents with a higher proportion in intensified areas were engaged in agriculture as their main occupation. Over 19% of the respondents in non-intensified and 5% in intensified areas also reported engaging in household work. Very small proportions (3%-5%) of the respondents in both areas were engaged in non-agriculture sector such as service, small business or industry (Table 2.4).

Table 2.4 Percent distribution of mothers by occupation

Occupation	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Agriculture	87.3	524	76.3	458
Household work	5.3	32	19.2	115
Small business/industry	3.2	19	1.5	9
Service (govt. or private)	2.3	14	1.7	10
Wage labor (agri or non-agri)	1.8	11	1.0	6
Student	-	-	0.3	2
Total	**100.0**	**600**	**100.0**	**600**

The aforesaid information on characteristics of the mothers or caretakers indicates that the socio-demographic statuses of the mothers of intensified and non-intensified areas were not different notably, therefore were comparable.

b) Exposure to radio and television

Information regarding the exposure of respondents to electronic media such as radio and television was collected in the study. Over 4-in-5 respondents in both intensified and non-intensified areas have life time exposure to the radio. Slightly a higher percentage (51%) of respondents in non-intensified areas than the respondents of intensified areas (44%) reported listening to the radio almost every day. Exposure to television was slightly higher among the respondents of intensified areas than the respondents of non-intensified areas. For instance, 54% of the respondents in intensified areas as against 43% in non-intensified areas reported watching television. However, only a small percentage (12%-15%) of the respondents in both areas reported watching television almost every day (Table 2.5).

Table 2.5 Percent distribution of mothers by frequency of listening to the radio and watching television

Description	Intensified areas (n=600)		Non-intensified areas (n=600)	
	%	No.	%	No.
Frequency of listening to the radio				
Almost every day	43.5	261	51.0	306
At least once a week	23.7	142	16.2	97
Less than once a week	18.0	108	16.5	99
Not at all	14.8	89	16.3	98
Frequency of watching television				
Almost every day	12.5	75	14.7	88
At least once a week	16.8	101	9.0	54
Less than once a week	24.3	146	20.7	124
Not at all	46.3	278	55.7	334

c) Household possession and housing characteristics

Possession of household items

Table 2.6 shows data on possession of household items among respondents. About 2-in-3 women in both the intensified and non-intensified areas reported having a radio set in their homes followed by nearly half of the women reported having a telephone or cell phone. Slightly a higher percentage (49%) of the respondents in intensified areas than in non-intensified areas (42%) has access to electricity in their homes. However, only a smaller percentage (16%-18%) of the respondents in both the intensified and non-intensified areas reported to have a television set in their houses. Overall, a higher percentage of respondents from intensified areas possessed several household items than did by their non-intensified counterparts.

Table 2.6 Percent distribution of mothers having different types of household items in their households

Household items	Intensified areas (n=600)		Non-intensified areas (n=600)	
	%	No.	%	No.
Radio	68.2	409	66.8	401
Electricity	48.5	291	41.7	250
Telephone/mobile phone	47.7	286	44.7	268
Television	18.3	110	16.3	98
Bicycle	-	-	0.3	2

Source of drinking water

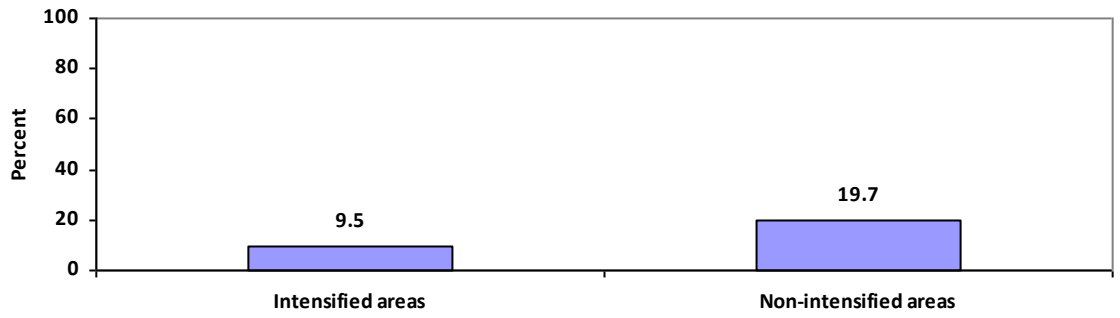
The source of drinking water for the majority of the households in the intensified (84%) and non-intensified (80%) areas was piped tap. Spring/kuwa remained another source for about 13% of the households both in the intensified and non-intensified areas (Table 2.7).

Table 2.7 Percent distribution of mothers by main source of drinking water for their households

Main source of drinking water	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Piped into house	2.5	15	12.3	74
Piped to yard/plot	9.0	54	12.5	75
Piped public / neighbor's tap	72.0	432	55.5	333
Dug well (protected)	1.2	7	-	-
Dug well (unprotected)	0.5	3	-	-
Spring; kuwa	13.2	79	12.7	76
Surface water (river; dam; lake; pond; stream; canal; irrigation canal)	0.2	1	4.8	29
Stone tap; dhara	1.5	9	2.2	13
Total	**100.0**	**600**	**100.0**	**600**

Respondents were also asked if they had treated water for drinking in their households. More respondents in intensified areas (20%) than in non-intensified areas (10%) reported treating water for drinking (Figure 2.1). Boiling was the commonly used water treatment method in many households in both the intensified (8%) and non-intensified (18%) areas. A few of the respondents also reported using filtration (2%) and chlorination (<1%) methods for the treatment of water. Notably, treating water by filtering through cloth was also mentioned by about 1% (n=6) of the respondents in intensified areas. None of the respondents reported the use of solar disinfection method to treat their drinking water (Table not shown).

Figure 2.1 Percentage of respondents who treat water for drinking in their households



n=600 in each of intensified and non-intensified areas

Toilet facility

Over 68% of the respondents in intensified and 61% in non-intensified areas reported having toilets in their houses (Table 2.8). Most of the households in both areas had either the traditional (36%-44%) or ventilated improved pit (24%) latrines. Nearly one-third of the households in intensified and 39% in non-intensified areas reported that they defecate in open space such as bush, field, etc. indicating the need for creating awareness among the people of both areas about the importance of constructing and using toilets in order to get prevent them from diseases.

Table 2.8 Percent distribution of mothers by existence of toilet in their houses

Type of toilet facilities	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Flush toilet	0.3	2	0.7	4
Traditional pit toilet	44.0	264	36.2	217
Ventilated improved pit latrine	23.8	143	23.8	143
No facility / bush / field	31.8	191	39.3	236
Total	**100.0**	**600**	**100.0**	**600**

Housing condition

Information regarding the housing conditions of the respondents was also collected in the survey. The roofing of the most of the households in both the intensified and non-intensified areas was thatch (33%-34%), metal (32%-34%) or stone (20%-31%). The most common materials used for walling was stone with mud or cement in both the intensified (94%) and non-intensified (89%) areas. Earth, mud or dung were the main material used on the floor in almost all (94%-98%) the houses of the responding women in both the intensified and non-intensified areas (Table 2.9).

Table 2.9 Percent distribution of mothers by their housing conditions

Description	Intensified areas (n=600)		Non-intensified areas (n=600)	
	%	No.	%	No.
Main material of the roof (observation)				
Thatch	33.8	203	33.0	198
Metal	32.0	192	34.2	205
Stone	31.0	186	19.8	119
Tiles/Khapada	0.7	4	11.8	71
Other (cement; wood/ wood plank)	2.5	15	1.2	7
Main material of the walls (observation)				
Stone with mud or cement	93.7	562	88.5	531
Bamboo with mud or cement	5.0	30	5.3	32
Cement	0.5	3	2.3	14
Other §	0.8	5	3.8	23
Main material of the floor (observation)				
Earth/mud/dung	97.5	585	94.0	564
Cement	2.5	15	4.7	28
Other ±	-	-	1.3	8

§ Other includes: adobe; unfinished wood; bricks; cement blocks, wood planks, no walls.

± Other includes: wooed planks, ceramic tiles; marble clips.

d) Socio-economic status index

The socio-economic status (SES) index of the households of the sampled mothers was constructed using *principal component analysis* (PCA). The PCA is a multivariate statistical technique, which uses household asset data, such as ownership of durable assets, infrastructure and housing characteristics, to create the SES indices. PCA is used to determine the weights for the various asset variables that are used to calculate the value of the asset index. The weights are the standardized first principal component of the variance-covariance matrix of the observed household assets.

For this, STATA statistical software package was used. The wealth index was constructed by considering specific variables such as housing characteristics (drinking water source, treatment of water for drinking, type of toilet, roof, floor and wall materials) and ownership of selected household items (electricity, bicycle, telephone or mobile phone, television and radio). Based on the value of the wealth index calculated for each household, households were then ranked into wealth quintiles. Data presented in Table 2.10 shows the almost equal distribution of responding women in each of the five SES level in the study areas.

Table 2.10 Percent distribution of mothers by their socio-economic status index

SES Index	%	Number
Lowest	21.1	253
Second	19.0	228
Middle	20.2	242
Fourth	19.8	237
Highest	20.0	240
Total	**100.0**	**1200**

e) Access to health facility and familiarity with FCHVs

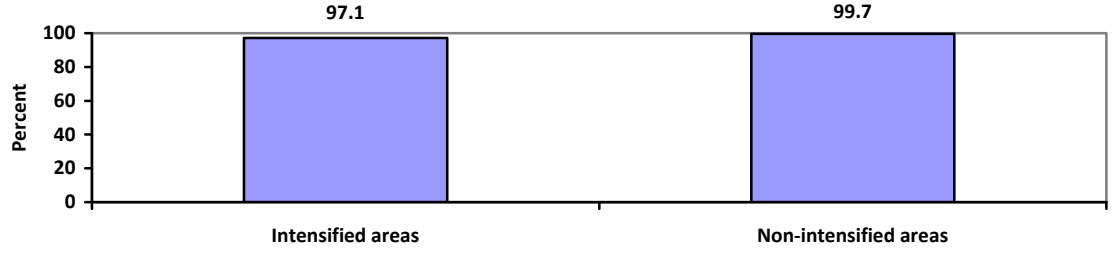
The respondents were enquired about the distance to the nearest health facilities from their residence. Forty-four percent of the respondents in intensified and 53% in non-intensified areas have access to a health facility within a distance of one hour. Likewise, about one-third (32%-36%) with a higher percentage from the intensified areas have to spend 1-2 hours to reach the nearest health facility, and nearly one-fifth have to spend more than 2 hours to get health services. The mean travel time to reach the nearest health facility was 68 minutes for the respondents of intensified areas and 57 minutes for the respondents of non-intensified areas (Table 2.11).

Table 2.11 Percent distribution of mothers by distance to the nearest health facility

Distance to the nearest health facility	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Less than 30 minutes	22.8	137	27.0	162
30-59 minutes	21.2	127	25.8	155
60-89 minutes	22.8	137	23.7	142
90-119 minutes	13.5	81	8.0	48
120 minutes or more	19.0	114	15.5	93
Do not know	0.7	4	-	-
Mean (SD)	**68.1**	**(56.8)**	**57.3**	**(45.8)**
Total	**100.0**	**600**	**100.0**	**600**

Respondents of both areas were also asked if they knew the female community health volunteers (FCHVs) of their areas. In response, almost all the respondents with a higher percentage in non-intensified areas affirmed that they knew FCHVs of their areas (Figure 2.2).

Figure 2.2 Percentage of respondents who know the FCHVs working in their areas



n= 600 in each of intensified and non-intensified areas

2.2 Knowledge of diarrhea and place of treatment

All the mothers included in the study were asked about the causes of diarrhea among children. The survey results reveal that almost all (97%) the respondents in both the intensified and non-intensified areas were aware of at least one cause of diarrhea (Table 2.12). Eating bad or dirty foods (87%) followed by eating bad or dirty water (57%-64%) were the most frequently mentioned causes of diarrhea in both the intensified and non-intensified areas. The other causes known by a sizeable percentage of the respondents in both areas were dirty environment (32%-46%), flies (23%-26%) and dirty hands (16%-25%). Knowledge of respondents regarding other common causes of diarrhea such as defecating in the open place (6%-10%) and germs (5%) was quite low in both areas. Further analysis indicate that knowledge about at least three out of seven common causes of diarrhea was significantly higher (52%) among the respondents of intensified areas than those of non-intensified areas (42%).

Table 2.12 Percent distribution of mothers by knowledge about causes of diarrhea among children

Knowledge about causes of diarrhea among children (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Bad/dirty food	87.3	524	87.0	522
Bad/dirty water	64.3	386	57.0	342
Dirty environment	45.7	274	32.3	194
Dirty hands	25.0	150	15.8	95
Flies	23.0	138	25.8	155
Defecating in the open place	6.2	37	9.7	58
Germs	4.8	29	4.5	27
Known at least three of above	***52.3***	***314***	***41.5***	***249***
Due to cold	32.5	195	29.7	178
Consumption of unripe or uncooked food/ consumption of spicy foods	2.5	15	1.0	6
Other§	3.7	22	0.8	5
Do not know	3.5	21	3.0	18
Total (n)	**-**	**600**	**-**	**600**

§ Other includes: eating stale foods; due to hot; consumption of excessive foods; due to deworming; lack of adequate care.

The FGD participants of both the intensified and non-intensified areas were also enquired about the causes of diarrhea among children. More participants in intensified than in non-intensified areas could mention relevant causes of diarrhea. The most frequently mentioned causes were eating contaminated foods, drinking contaminated water and eating without cleaning hands. During the discussions some participants commented that people in their areas do not seriously adopt important measures to prevent children from diarrhea either due to their lack of knowledge or negligence. In this context FGD participants from Gorkha added "*mothers give dirty water to drink, feed without washing hands and let the children crawl on the dirty floor; if the children of such mothers do not get diarrhea whose children will get?*"

Table 2.13 further analyzes the differentials on knowledge of respondents about at least three out of seven common causes of diarrhea according to their selected background characteristics. Women in intensified areas were significantly more likely to report three or more causes of diarrhea than those of non-intensified areas (p=.000). District wise data indicate that women of Gorkha were significantly more likely to report the causes of diarrhea than the women of other districts. Younger and literate women had greater knowledge about the causes of diarrhea than their respective elder and illiterate counterparts. Knowledge about at least three causes of diarrhea was significantly higher among the relatively advantaged Janajatis and Brahmin,

Chhetri, Giri, Puri caste group and lower among dalit and disadvantaged Janajatis. Respondents belonging to the higher socio-economic (SES) index had a greater knowledge on the causes of diarrhea than those of lower SES ones.

Table 2.13 Percent distribution of mothers by knowledge about at least three out of seven common causes of diarrhea by selected background characteristics

Background characteristics	Percent	Number
Program status	*	
Intensified areas	52.3	600
Non-intensified areas	41.5	600
District	*	
Sankhuwasabha (Intensified)	42.5	200
Gorkha (Intensified)	77.5	200
Bajura (Intensified)	37.0	200
Taplejung	36.5	200
Tanahun	36.5	200
Bajhang	51.5	200
Age of mother (in years)	*	
15-24	51.8	465
25-34	47.4	544
35+	33.5	191
Literacy status	*	
Illiterate	39.7	585
Literate	53.8	615
Ethnicity	*	
Dalit	41.2	274
Disadvantaged Janajatis	39.9	338
Relatively advantaged Janajatis	58.9	95
Brahmin, Chhetri, Giri, Puri	52.5	493
SES Index	*	
Lowest	38.8	240
Second	41.3	240
Middle	43.0	242
Fourth	55.6	239
Highest	56.1	239
Total	**46.9**	**1200**

**Significant at <.05 level* *ns= Not significant*

Respondent's level of knowledge regarding the common signs and symptoms of childhood diarrhea was also assessed in the study. Almost all the respondents with a higher percentage in intensified areas were able to mention at least one common sign and symptom of diarrhea among children. Majority (79%-89%) of the respondents in both areas considered "discharge of watery stool three or more times a day" and "child becoming weak" as the common signs and symptoms of diarrhea. Nearly one-third of the respondents in both areas also mentioned sunken eyes as the common signs and symptoms of diarrhea. Knowledge about other common signs and symptoms such as "drinking eagerly or thirsty" and "skin pinch going back slowly" was quite low among the respondents of both areas. Further analysis indicates that only one-third of the respondents in both areas were able to report at least three out of five common signs and symptoms of diarrhea (Table 2.14).

Table 2.14 Percent distribution of mothers by knowledge about common signs and symptoms of diarrhea among children

Knowledge about most common signs and symptoms of diarrhea among children (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Discharge of watery stool 3 or more than 3 times	89.2	535	79.2	475
Child becomes weak	79.3	476	85.0	510
Sunken eyes	30.7	184	30.5	183
Drinks eagerly, thirsty	11.5	69	13.2	79
Skin pinch goes back slowly	3.8	23	4.2	25
Known at least three of above	***32.8***	***197***	***31.3***	***188***
Vomiting/nausea	4.7	28	2.5	15
Stomach pain	4.3	26	1.7	10
Difficulty in drinking or eating	3.8	23	0.5	3
Fever	4.0	24	0.8	5
Frequent crying	2.5	15	0.3	2
Other §	0.8	5	1.0	6
Do not know	0.8	5	3.2	19
Total (n)	**-**	**600**	**-**	**600**

§ Other includes: if hands and feet turns in cold; yellow stool; cough and cold; headache.

Information obtained from FGDs also indicated that most of the key influencers and social workers in both intensified and non-intensified areas were also found to be aware about various signs and symptoms of childhood diarrhea such as watery stool, sunken eyes, weight loss and fever. However, the participants of intensified areas found to be aware of more signs and symptoms of diarrhea than did by their counterparts from non-intensified areas.

Table 2.15 shows the differentials on the knowledge of three or more common signs and symptoms among the respondents on the basis of their selected background characteristics. Knowledge about three or more common signs and symptoms of diarrhea was significantly higher (62%) among the respondents of Gorkha and lower (13%) among the respondents of Bajura. Literate respondents had greater knowledge about the common signs and symptoms of diarrhea than those of illiterate ones. Ethnicity wise data indicate that knowledge about signs and symptoms of diarrhea was significantly higher (52%) among relatively advantaged Janajatis and lower (26%) among dalit. Similarly, a strong association between the respondent's SES index and knowledge about common signs and symptoms of diarrhea was also noticed, as over 40% of the respondents belonging to higher level of SES index compared to less than 30% belonging to middle or lower level of SES index were able to enumerate at least three out of five common signs and symptoms of childhood diarrhea.

Table 2.15 Percent distribution of mothers by knowledge about at least three out of five common signs and symptoms of diarrhea by selected background characteristics

Background characteristics	Percent	Number
Program status	ns	
Intensified areas	32.8	600
Non-intensified areas	31.3	600
District	*	
Sankhuwasabha (Intensified)	24.0	200
Gorkha (Intensified)	62.0	200
Bajura (Intensified)	12.5	200
Taplejung	19.5	200
Tanahun	39.0	200
Bajhang	35.5	200
Age of mother (in years)	ns	
15-24	32.9	465
25-34	32.9	544
35+	27.7	191
Literacy status	*	
Illiterate	26.2	585
Literate	37.7	615
Ethnicity	*	
Dalit	25.9	274
Disadvantaged Janajatis	27.8	338
Relatively advantaged Janajatis	51.6	95
Brahmin, Chhetri, Giri, Puri	34.7	493
SES Index	*	
Lowest	23.8	240
Second	25.8	240
Middle	28.5	242
Fourth	42.7	239
Highest	39.7	239
Total	**32.1**	**1200**

**Significant at <.05 level* *ns= Not significant*

Respondents were also asked about the measures to be taken to prevent children from diarrhea. Although the vast majority (95%) of the respondents in both the intensified and non-intensified areas were able to mention at least one preventive measure, only 34% in intensified and 22% in non-intensified areas were able to report three or more types of preventive measures. The most frequently cited measures in both areas were eating fresh foods (81%-86%) and preparing foods hygienically and storing well (43%-57%). Knowledge about other important preventing measures such as washing hands with or without soap, treating water for drinking and defecating in latrines was quite low among the respondents of both areas (Table 2.16).

Table 2.16 Percent distribution of mothers by knowledge about ways of preventing diarrhea among children

Knowledge about the ways of preventing diarrhea among children (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Eating fresh foods	85.5	513	81.2	487
Preparing food hygienically/storing well	56.7	340	42.8	257
Washing hands	25.5	153	20.0	120
Treating water (boil, filter, chlorinate)	24.0	144	21.0	126
Washing hands with soap	12.0	72	16.0	96
Defecating in latrine	7.7	46	10.0	60
Known at least three of above	***33.7***	***202***	***22.0***	***132***
Keeping child away from cold/ giving oil massage	12.8	77	13.3	80
Maintaining personal hygiene/ keeping away from dirt	8.7	52	0.3	2
Feeding Jeevan Jal/ feeding nun-chini-pani	2.5	15	0.5	3
Other §	0.5	3	0.3	2
Do not know	5.0	30	5.2	31
Total (n)	**-**	**600**	**-**	**600**

§ Other includes: consulting health workers or health facility regularly; giving herbal medicines.

Table 2.17 further analyses differentials on the basis of background of the respondents on knowledge about three or more common measures of preventing diarrhea among children. Knowledge about three or more common measures of preventing diarrhea was significantly higher among the respondents of intensified areas (p=.000). Knowledge about such measures was significantly higher in the case of younger and literate mothers. Respondents belonging to relatively advantaged Janajatis and Brahmin, Chhetri, Giri, Puri caste groups had greater knowledge about the ways of preventing diarrhea than those of other ethnic groups. Again, those belonging to higher SES index had greater knowledge than those in the lower SES index.

Table 2.17 Percent distribution of mothers who have knowledge about three or more ways of preventing diarrhea by selected background characteristics

Background characteristics	Percent	Number
Program status	*	
Intensified areas	33.7	600
Non-intensified areas	22.0	600
District	*	
Sankhuwasabha (Intensified)	17.5	200
Gorkha (Intensified)	67.5	200
Bajura (Intensified)	16.0	200
Taplejung	18.0	200
Tanahun	20.5	200
Bajhang	27.5	200
Age of mother (in years)	*	
15-24	30.3	465
25-34	29.4	544
35+	17.3	191
Literacy status	*	
Illiterate	19.5	585
Literate	35.8	615
Ethnicity	*	
Dalit	24.1	274
Disadvantaged Janajatis	21.6	338
Relatively advantaged Janajatis	43.2	95
Brahmin, Chhetri, Giri, Puri	31.2	493
SES Index	*	
Lowest	15.0	240
Second	17.5	240
Middle	28.1	242
Fourth	34.3	239
Highest	44.4	239
Total	**27.8**	**1200**

**Significant at <.05 level* *ns= Not significant*

Over 80% of the respondents in intensified and 90% in non-intensified areas reported having knowledge about at least one common sign of dehydration which could occur due to diarrhea (Table 2.18). Over 1-in-5 respondents with slightly a higher percentage in intensified areas spelt out at least three out of five common signs. The most frequently cited signs of dehydration were many watery stool (59%-65%) and unconsciousness, restless or irritable (51%-53%). Nearly 3-in-10 respondents in both areas considered "sunken eyes" as a sign of dehydration. Knowledge about other common signs such as "drinking eagerly, drinking poorly or thirsty" and "skin pinch going back slowly" was quite low in both areas indicating the need for imparting knowledge about such signs to the community.

Table 2.18 Percent distribution of mothers by knowledge about common signs of dehydration which occur due to diarrhea

Knowledge about the common signs of dehydration which occur due to diarrhea (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Many watery stool	64.7	388	58.8	353
Unconsciousness/ restless/ irritable	51.2	307	53.0	318
Sunken eyes	29.0	174	28.2	169
Drinks eagerly, thirsty, drinking poorly	19.5	117	27.5	165
Skin pinch goes back slowly	6.2	37	7.3	44
Known at least three of above	***23.7***	***142***	***21.0***	***126***
Other§	5.0	30	2.2	13
Do not know	18.8	113	9.7	58
Total (n)	**-**	**600**	**-**	**600**

§ Other includes: stomach pain; yellow in hands and legs; fever; vomiting; weight loss; yellowish face; swelling in legs; weakness.

The information has also been analyzed on the basis of selected background characteristics of the responding women. The results show that women in Gorkha had greater knowledge about three or more common signs of dehydration than the women of other five districts. Knowledge about the common signs of dehydration was much higher among the women of mid-age group. Respondents belonging to the relatively advantaged Janajati or Brahmin, Chhetri, Giri, Puri caste group were significantly more likely to have greater knowledge about it than the women of other ethnic groups. Likewise, significantly a higher percentage of women belonging to higher SES index had greater knowledge about it than those of lower SES ones (Table 2.19).

Table 2.19 Percent distribution of mothers who have knowledge about three or more common signs of dehydration by selected background characteristics

Background characteristics	Percent	Number
Program status	ns	
Intensified areas	23.7	600
Non-intensified areas	21.0	600
District	*	
Sankhuwasabha (Intensified)	14.5	200
Gorkha (Intensified)	45.0	200
Bajura (Intensified)	11.5	200
Taplejung	8.5	200
Tanahun	21.5	200
Bajhang	33.0	200
Age of mother (in years)	*	
15-24	20.2	465
25-34	25.6	544
35+	18.3	191
Literacy status	ns	
Illiterate	20.3	585
Literate	24.2	615
Ethnicity	*	
Dalit	14.6	274
Disadvantaged Janajatis	18.9	338
Relatively advantaged Janajatis	26.3	95
Brahmin, Chhetri, Giri, Puri	28.2	493
SES Index	*	
Lowest	20.4	240
Second	14.6	240
Middle	23.1	242
Fourth	28.9	239
Highest	24.7	239
Total	**22.3**	**1200**

**Significant at <.05 level* *ns= Not significant*

In order to assess their level of knowledge, all respondents were asked about types of home care strategies to be adopted for a child with diarrhea. In response, the majority (73%-76%) of the respondents in both intensified and non-intensified areas said that a child with diarrhea should be given more fluids than usual followed by over 60% in both areas suggested for giving ORS. About one-third of the respondents with a higher percentage in intensified areas knew about the need for continuing breastfeeding (31%-36%) and giving usual amount of foods (32%-33%) to the child during diarrheal episode. The above findings indicate that knowledge about different home care strategies was slightly higher among the respondents of intensified areas than those of non-intensified areas. However, a sizeable number of respondents in both areas have still misunderstanding that a child should be given less amount of fluids and foods including breast milk during diarrhea indicating the need for making aware to the community about the need for giving more amount of foods and fluids to the child during diarrhea.

Table 2.20 Percent distribution of mothers stating the appropriate home care strategies they usually provide for a child with diarrhea

Appropriate home care strategies to be adopted (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Giving more fluids to the child than usual	75.7	454	72.7	436
Giving ORS (Jeevan Jal or Nawa Jeevan) to child	61.5	369	62.8	377
If breastfed, continue breastfeeding	36.3	218	30.7	184
Giving usual amount of foods to the child	32.8	197	31.8	191
Keeping away from cold/ giving oil massage/ providing warm clothes	12.8	77	10.0	60
Providing traditional treatment at home/ giving herbal medicines	12.3	74	0.8	5
Giving more than usual foods to the child	3.0	18	0.2	1
Giving less amount of foods to the child	2.5	15	2.2	13
If breastfed, discontinue breastfeeding	1.2	7	1.7	10
Giving less fluids to the child than usual	1.0	6	3.8	23
Giving extra food during week after illness	0.2	1	0.7	4
Other §	3.3	20	2.5	15
Do not know	1.2	7	2.0	12
Total (n)	**-**	**600**	**-**	**600**

§ Other includes: maintaining environment clean; giving zinc tablets; giving medicines; consulting traditional healer; feeding hot food; feeding fresh foods; not feeding sour items.

Similarly, the information obtained from FGDs also suggests that in addition to giving zinc and ORS together or ORS only the practice of treating diarrhea by providing more liquid and soft food was more prominent in intensified than in non-intensified areas. In this regard one of the participants from Sankhuwasabha shared own experience and said, "*when I saw my son passing away watery stools very frequently I thought he was getting dry and no water will remain in his body; so I gave him to drink more milk and water, in addition to zinc*". Most of the participants from Bajura and Bajhang, and some from Sankhuwasabha and Tanahun districts also said that there is a practice of using herbal medicines such as Rudilo Ko Jhol, Nihura ko Jara (root), Buhari Kanda Ko Jara (root), Amba (guava) ko Bokra (skin) for diarrheal treatment.

Respondents were also asked about the places from where they would like get treatment for the diarrhea of their children. The majority (60%-62%) of the respondents in both areas mentioned community level health facilities such as primary health care center, health post or subhealth post from where they would like to get treatment of the diarrhea. Nearly 15% of the respondents in intensified and 9% in non-intensified areas also preferred to seek treatment from FCHVs. Similarly, about 15% of the respondents in intensified and 18% in non-intensified areas preferred pharmacy for the treatment of the diarrhea (Table 2.21). The above findings clearly indicate that institutional rather than individual providers were the preferred mode of treatment service for the mothers of both areas.

Table 2.21 Percent distribution of respondents by preferred place for seeking treatment for diarrhea

Preferred place for treatment of the diarrhea	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Hospital	7.2	43	7.7	46
Primary health care center	8.7	52	3.2	19
Health post/ subhealth post	51.2	307	59.2	355
Private clinic/nursing home	1.5	9	0.8	5
Pharmacy	14.5	87	17.7	106
FCHV	15.7	94	9.2	55
Other §	2.2	13	4.2	25
Total	**100.0**	**600**	**100.0**	**600**

§ Other includes: mobile or outreach clinic; VHW or MCHW; Dhami Jhakri; ayurvedic pharmacy; traditional treatment at home.

When asked about the circumstances under which a child with diarrhea should be taken to a service provider for consultation or treatment, majority (75%-77%) of the respondents in both areas said that a child should be taken to a service provider in case of frequent watery stools followed by about 3-in-5 respondents stated that a child should be taken to a service providers if he/she not getting better within 3 days (Table 2.22). Over a quarter (26%-31%) of the respondents also mentioned fever as a sign to take a child for consultation or treatment. Likewise, nearly a quarter (22%-24%) of the respondents also opined that a child should be taken for consultation or treatment if not eating or drinking properly. However, knowledge of respondents about other important situations requiring consultation or treatment such as repeated vomiting, appearing blood in the stool, and child getting very thirsty was quite low in both areas. Further analysis show that only 40% of the respondents in intensified and 44% in non-intensified areas were able to mention three or more out of seven important situations under which a child with diarrhea should be taken to a service provider for consultation or treatment.

Table 2.22 Percent distribution of respondents stating the circumstances under which a child with diarrhea should be taken to a service provider for consultation or treatment

Circumstances under which a child with diarrhea should be taken to a service provider for consultation/treatment (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
If child does not get better within 3 days	61.5	369	58.7	352
Frequent watery stools	74.5	447	76.7	460
Fever	31.3	188	26.3	158
Eating or drinking poorly	24.2	145	22.3	134
Repeated vomiting	18.2	109	26.7	160
Blood in the stool	10.7	64	27.8	167
Child very thirsty	3.7	22	5.2	31
Known at least three of above	***40.0***	***240***	***43.8***	***263***
If child becomes serious or very sick	8.2	49	-	-
Immediately after having diarrhea	0.7	4	-	-
Other §	1.7	10	0.7	4
Do not know	0.3	2	0.7	4
Total (n)	**-**	**600**	**-**	**600**

§ Other includes: stomach pain; if child does not get better from home remedies; in case of cough; in case of unusual color of stool; in case of infection or wound; if does not get better in short duration.

To the question "*how should diarrhea be treated?*" more than 4-in-5 respondents with a higher proportion in non-intensified areas opined that ORS should be given followed by nearly half (43%-50%) suggested using anti-diarrheal. Use of zinc tablets or use of ORS along with zinc tablets for 10 days was mentioned by only about one-tenth of the respondents; those giving these

responses were slightly higher in intensified areas (11%-13%) than in non-intensified areas (8%-9%). The above findings indicate the need for informing community about the importance of using ORS along with zinc tablets continuously for 10 days for the treatment of childhood diarrhea.

Table 2.23 Percent distribution of mothers by opinion regarding the ways of treating diarrhea

Opinion regarding the ways of treating diarrhea (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Use ORS	83.2	499	88.7	532
Use anti-diarrheal	42.7	256	49.5	297
Continue feeding	18.2	109	15.2	91
Encourage child to eat and drink during diarrhea	14.2	85	11.3	68
Use zinc tablets	12.5	75	8.8	53
Use ORS along with zinc tablets for 10 days	10.5	63	7.7	46
Providing traditional treatment at home/ giving herbal medicines	8.5	51	0.7	4
Use antibiotics	6.5	39	6.5	39
Continue feeding liquid items; continue feeding beans soup; feeding nun-chini-pani	4.0	24	4.3	26
Keeping child away from cold/ giving oil massage	3.7	22	2.3	14
Consulting health workers/ taking child to health facility	2.5	15	0.8	5
Do not do anything	0.2	1	0.3	2
Other §	1.8	11	1.0	6
Do not know	1.2	7	0.2	1
Total (n)	**-**	**600**	**-**	**600**

§ Other includes: consulting traditional healers; keeping child clean; not feeding spicy and hot foods; maintaining environment around house clean; feeding vitamin.

2.3 Practices of hand washing and disposing feces

Information regarding hand washing practices and disposing the stool of the children was collected from the responding women of both the intensified and non-intensified areas. Respondents were questioned about place of disposal of their youngest child's stool the last time. A notably more percentage (24%) of mothers from intensified than in non-intensified (14%) areas reported that their children used toilet, hence did not have to handle children's stool. A higher percentage (38%) in non-intensified than in intensified (23%) areas reported that their children's stool were disposed either in toilet or rinsed into drain/ditch (Table 2.24). More than one-tenth in both areas had buried (11%-15%) or thrown into garbage (11%-14%). Considerable proportion of the respondents in both areas (26% in intensified and 22% in non-intensified) reported that they left their children's stool in the open space indicating the need for creating awareness among the community about the importance of using latrine or disposing the stools properly.

Table 2.24 Percent distribution of mothers by place of disposal of the stools of their child last time

Place of disposal of child's stool last time	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Left in the open	26.3	158	22.2	133
Child used toilet or latrine	24.2	145	13.8	83
Put/rinsed into toilet or latrine	15.5	93	27.7	166
Buried	15.0	90	10.8	65
Thrown into garbage	10.7	64	13.8	83
Put/rinsed into drain or ditch	7.2	43	10.5	63
Other §	1.2	7	1.2	7
Total	**100.0**	**600**	**100.0**	**600**

§ Other includes: rinsed near the drinking water source; left in yard; given to pig; defecated in the forest.

Almost all the respondents in both intensified (98%) and non-intensified (96%) areas reported that they normally wash their hand before meals (Table 2.25). Over 81% of the respondents in intensified and 62% in non-intensified areas reported washing hand after meals. Likewise, nearly three-quarters of the respondents in intensified and over half in non-intensified areas reported to have washed their hands after defecation and over 3-in-5 in both areas normally wash their hands after the completion of household chores. Overall, the practice of washing hands in other critical occasions such as before and after preparing meals, and before feeding baby was quite low in both study areas indicating the need for informing community regarding the importance of washing hands.

Table 2.25 Percent distribution of mothers by specific times of washing hands

Hand washing in different occasion (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Before meals	98.0	588	95.5	573
After meals	81.2	487	61.7	370
After defecation	71.7	430	54.3	326
After completion of household chores	65.2	391	60.2	361
Before preparing meals	31.3	188	33.2	199
Before feeding the baby	19.3	116	29.3	176
After preparing meals	12.0	72	18.5	111
Other §	1.7	10	1.0	6
Total (n)	**-**	**600**	**-**	**600**

§ Other includes: after work in the field; after cleaning baby's stool; before sleeping; in the morning after getting up.

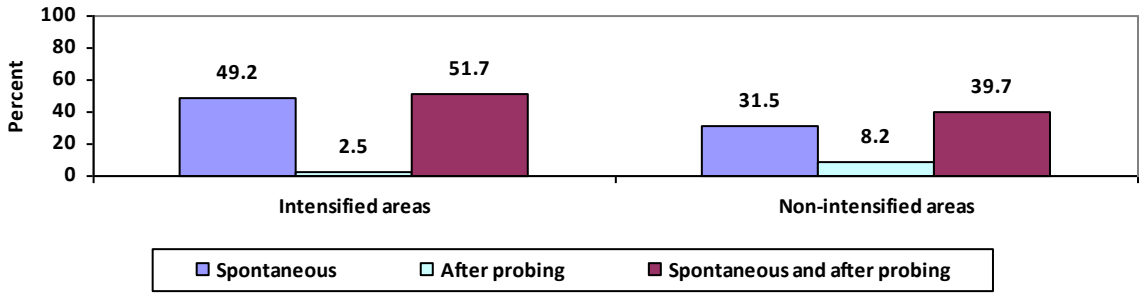
2.4 Knowledge about zinc and ORS

A series of questions related to zinc and ORS was asked to responding women in order to assess their level of knowledge about it. This section presents findings related to these aspects.

a) Knowledge about zinc including its sources of information

Respondents were enquired if they had ever seen or heard about zinc tablets. Those who responded negatively were again asked showing a file of zinc tablet if they had seen the tablets. Nearly half (49%) of the respondents in intensified and one-third (32%) in non-intensified areas spontaneously stated that they had seen or heard about zinc tablets. After probing this figure increased to 52% in intensified areas and 40% in non-intensified areas (Figure 2.3). Among those who had seen or heard about zinc tablets, almost all (99%) of them were also aware that zinc tablets are used for the prevention and treatment of diarrhea. A few (2%) of the respondents were also aware that use of zinc tablets could facilitate physical growth and increase immunity in the children (Table not shown).

Figure 2.3 Percentage of mothers who have seen or heard about zinc tablets



n= 600 in each of intensified and non-intensified areas

Table 2.26 further details data on the basis of respondent's background characteristics. Significantly a higher proportion of respondents in intensified areas (52%) than those in non-intensified areas (40%) reported to have seen or heard of zinc tablets (p=.000). Likewise, a higher proportion of younger and literate women had seen or heard of zinc than their elder and illiterate counterparts. Moreover, significantly a higher proportion of women belonging to higher SES index reported to have seen or heard about it than those in the lower SES index.

Table 2.26 Percent distribution of mothers who have seen or heard of zinc tablets by selected background characteristics

Background characteristics	Percent	Number
Program status	*	
Intensified districts	51.7	600
Non-intensified districts	39.7	600
District	*	
Sankhuwasabha (Intensified)	58.0	200
Gorkha (Intensified)	63.0	200
Bajura (Intensified)	34.0	200
Taplejung	29.5	200
Tanahun	46.5	200
Bajhang	43.0	200
Age of mother (in years)	*	
15-24	49.0	465
25-34	46.1	544
35+	36.1	191
Literacy status	*	
Illiterate	33.2	585
Literate	57.6	615
Ethnicity	ns	
Dalit	44.2	274
Disadvantaged Janajatis	44.1	338
Relatively advantaged Janajatis	57.9	95
Brahmin, Chhetri, Giri, Puri	45.2	493
SES Index	*	
Lowest	32.1	240
Second	38.8	240
Middle	46.7	242
Fourth	50.6	239
Highest	60.3	239
Total	**45.7**	**1200**

**Significant at <.05 level* *ns= Not significant*

Those respondents (n=310 in intensified and 238 in non-intensified areas) who reported having seen or heard of zinc tablets were further asked about the sources from which they got its information. The survey results indicate that community level health facilities (such as PHC, HP and SHP) and FCHVs were the main sources of information about zinc for the majority of the respondents of the study areas. For instance, 49% of the respondents in intensified and 52% in non-intensified areas reported obtaining information about zinc tablets from community level health facilities. Likewise, 51% in intensified and 38% in non-intensified areas affirmed to have received information from FCHVs. Electronic media such as national radio, local FM and television was also mentioned as the information source by a sizeable proportion of the respondents in both areas.

Table 2.27 Percent distribution of mothers by source of information about zinc tablets

Source of information (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Media				
Local FM	37.7	117	10.5	25
National Radio (Radio Nepal/ Kantipur)	27.4	85	30.7	73
Television	16.5	51	25.6	61
Print media (poster, pamphlets, flip chart, brochure, etc)	3.5	11	2.1	5
Health facility and service providers				
FCHV	51.0	158	38.2	91
PHC/HP/SHP	49.4	153	52.1	124
Pharmacy/ medical shop	10.0	31	16.0	38
Hospital	6.1	19	11.3	27
VHW/MCHW	4.5	14	4.6	11
Other sources				
Relatives/neighbors/friends	11.6	36	9.2	22
Family members	1.9	6	7.6	18
Other§	2.6	8	-	-
Total (n)	**-**	**310**	**-**	**238**

§ Other includes: training; mothers group meeting; ayurvedic aushadhalaya.

Respondents were also asked from where they first obtained information about zinc tablets. A higher proportion of the respondents in both areas mentioned FCHVs (25%-35%), PHC, HP or SHP (26%-32%) and national or FM radio (16%-21%) from which they first obtained information on zinc tablets. A few of the respondents also reported receiving information about zinc tablets for the first time from television, medical shop or pharmacy, hospital and VHW or MCHW (Table 2.28).

Table 2.28 Percent distribution of mothers from which they first received information about zinc tablets

Source of information on zinc tablets for the first time	Intensified areas		Non-intensified areas	
	%	No.	%	No.
FCHV	34.5	107	24.8	59
PHC/HP/SHP	26.1	81	31.5	75
Radio/ FM radio	21.3	66	16.4	39
Television	5.8	18	12.2	29
Medical shop/pharmacy	4.8	15	5.9	14
Hospital	3.5	11	6.7	16
VHW/MCHW	1.3	4	1.7	4
Other §	1.0	3	-	-
Total	**100.0**	**310**	**100.0**	**238**

§ Other includes: family members; friends, relatives and neighbors; training; poster.

The FGD results reveal that all the community influencers and social workers in both areas were well aware about the ORS as medicine for the treatment of diarrhea. Radio, FCHVs and health facilities were the most commonly mentioned information sources about ORS for the participants in intensified areas while radio, poster/pamphlet and television were the major information sources for the participants of non-intensified areas. Only a few participants in non-intensified areas mentioned FCHVs as their information source. The FGD results further reveal that pharmacists were the major information sources for the participants of Tanahun district. With respect to the zinc tablets, only about two-thirds of the community influencers and social workers in both the intensified and non-intensified areas affirmed to have heard about it indicating the low level of knowledge about zinc tablets among the community influencers. Radio, health facilities and FCHVs were reported as the main sources of information about zinc in both areas.

Those respondents who reported having seen or heard of zinc tablets were further enquired about the frequency and duration of giving zinc tablets to the children during diarrhea. Over 72% of the respondents in intensified and 61% in non-intensified areas were aware of the correct frequency (once a day) of giving zinc tablet to the children in a day. Likewise, nearly three quarters (74%) of the respondents in intensified and about half (46%) in non-intensified areas correctly stated that a child should be given zinc tablets continuously for 10 days. The information indicates the presence of more knowledge among the respondents of intensified than those of non-intensified areas.

Table 2.29 Percent distribution of mothers by knowledge about frequency and duration of giving zinc tablets during diarrhea

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Number of times in a day zinc tablets should be given to a child				
Once	72.3	224	60.5	144
Twice or more	11.6	36	23.1	55
Don not know	16.1	50	16.4	39
Total	100.0	310	100.0	238
Number of days a child should be given Zinc tablets during diarrhea				
<10	8.1	25	15.5	37
10	73.9	229	45.8	109
Until diarrhea is controlled	0.6	2	-	-
Do not know	17.4	54	38.7	92
Total	100.0	310	100.0	238

The FGD results reveal that the awareness on number of days zinc should be provided to the children suffering from diarrhea found to be inadequate among the community influencers and social workers of both the study groups. Most participants were either unaware or did not respond regarding the number of days the zinc tablets should be administered. However, more participants in two intensified districts (Sankhuwasabha and Gorkha) and one non-intensified district (Tanahun) had correct knowledge of administering zinc tablets i.e. giving continuously for 10 days.

Further analysis of data reveals that women in intensified areas were significantly more likely to have correct knowledge about frequency (p=.004) and duration (p=.000) of giving zinc tablets to a child during diarrhea. The analysis also shows significant relationship between the literacy status and correct knowledge on these aspects. By ethnicity, relatively advantaged Janajatis and

Brahmin, Chhetri, Giri, Puri groups were more likely to have correct knowledge about it than other ethnic groups. However, no significant difference was observed on correct knowledge about frequency and duration of giving zinc tablets across the age group and SES index of the respondents (Table 2.30).

Table 2.30 Percent distribution of mothers with correct knowledge about number of times and days zinc should be given by selected background characteristics

Background characteristics	Correct knowledge about number of times zinc should be given	Correct knowledge about number of days zinc should be given	Number
Program status	*	*	
Intensified districts	72.3	73.9	310
Non-intensified districts	60.5	45.8	238
District	*	*	
Sankhuwasabha (Intensified)	58.6	62.9	116
Gorkha (Intensified)	77.8	79.4	126
Bajura (Intensified)	85.3	82.4	68
Taplejung	49.2	44.1	59
Tanahun	82.8	63.4	93
Bajhang	44.2	27.9	86
Age of mother (in years)	ns	ns	
15-24	66.7	63.6	228
25-34	70.5	63.3	251
35+	56.5	49.3	69
Literacy status	*	*	
Illiterate	60.3	50.5	194
Literate	70.9	67.8	354
Ethnicity	*	*	
Dalit	66.9	55.4	121
Disadvantaged Janajatis	59.1	56.4	149
Relatively advantaged Janajatis	85.5	80.0	55
Brahmin, Chhetri, Giri, Puri	68.2	64.1	223
SES Index	ns	ns	
Lowest	61.0	49.4	77
Second	67.7	57.0	93
Middle	68.1	62.8	113
Fourth	66.1	66.1	121
Highest	70.1	66.7	144
Total	**67.2**	**61.7**	**548**

**Significant at <.05 level* *ns= Not significant*

Respondents who had seen or heard about zinc tablets were also inquired about the benefits of treating diarrhea with zinc tablets. Over 3-in-5 respondents in both areas stated that the use of zinc could reduce the duration (61%-68%) and prevent severity (63%) of diarrhea. Over half (51%) of the respondents in intensified and 41% in non-intensified areas also opined that use of zinc tablets could reduce frequency of diarrhea. However, knowledge about other type of benefits of zinc tablets such as preventing future episode of diarrhea and facilitating in absorption of water was quite low among the respondents of both areas. The overall results indicate that women in intensified areas were more likely to be aware of various benefits of zinc treatment than the women of non-intensified areas (Table 2.31).

Table 2.31 Percent distribution of mothers by their opinion regarding the benefits of treating diarrhea with zinc tablets

Perceived benefits of treating diarrhea with zinc tablets (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Prevent severity of diarrhea	62.9	195	63.0	150
Reduce frequency of diarrhea	50.6	157	41.2	98
Reduce duration of diarrhea	67.7	210	60.9	145
Facilitate absorption of water	6.1	19	3.4	8
Prevent future episode	12.3	38	8.0	19
Other §	3.9	12	1.3	3
Do not know	7.4	23	12.2	29
Total (n)	**100.0**	**310**	**100.0**	**238**

§ Other includes: increase appetite; no need of taking baby to hospital; control fever; prevent from anemia.

Information obtained from the focus group discussions also reveals that most of the community influencers and social workers (except in Bajura district) were aware about the benefits of treating diarrhea with zinc. The most frequently cited benefits were preventing severity and duration of diarrhea; and those giving these responses was much higher in intensified than in non-intensified districts. Highlighting the benefits of ORS and zinc treatment, those participants from both the groups who treated cases of diarrhea with zinc and ORS remarked that it helped to stop diarrhea soon. Notable observation was that the participants from intensified group opined that zinc/ORS treatment relieved them from walking a far distance for treatment and reduced the financial burden. Similarly, participants from non-intensified group added that upon such treatment the children started to eat more than usual, reduced the weakness and looked well. One of the grandmother participants of Tanahun FGD narrated, *"In last Bhadra I took my granddaughter suffering from diarrhea to a pharmacy shop and the shopkeeper gave me zinc and ORS; initially I gave only zinc to her, which she refused to take and upon forced feeding she vomited; later as per the advice of the shopkeeper I mixed the tablet with the ORS and started to give her; my granddaughter accepted the preparation and she got well in three days".*

Those respondents who had seen or heard of zinc tablets were also asked to mention the sources from where one could get zinc tablets. More than 95% of the respondents in both areas were aware of at least one source of supply of zinc tablets (Table 3.32). Majority (72%-75%) of the respondents from both areas mentioned community level health facilities (i.e. PHC, HP or SHP) from where one could obtain zinc tablets. Notably a higher percentage (62%) of the respondents in intensified compared to only 37% in non-intensified areas were also aware that zinc tablets could be obtained from FCHVs. About a quarter of the respondents with a higher percentage in non-intensified areas were aware that zinc tablets could be obtained from pharmacy or medical shop (24%-33%) and hospital (24%-26%).

Table 2.32 Percent distribution of mothers mentioning the sources of supply of zinc tablets

Knowledge of about source of supply of zinc tablets (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
PHC/HP/SHP	74.8	232	72.3	172
FCHV	61.6	191	36.6	87
Pharmacy/ medical shop	23.9	74	32.8	78
Hospital	23.5	73	25.6	61
VHW/MCHW	5.5	17	8.0	19
Do not know	3.5	11	5.0	12
Total (n)	**-**	**310**	**-**	**238**

b) Knowledge about ORS including its sources of information

Almost all (>99%) the respondents in both the intensified and non-intensified areas reported that they had seen or heard about ORS. Only 3 each of the respondents from both areas reported not seeing or hearing about ORS (Table 2.33). Similarly, over 7-in-10 respondents in both areas also had correct knowledge about how to prepare it. Further analysis shows that correct knowledge about ways of preparing ORS was significantly higher among younger, literate and those belonging to higher SES index than their respective counterparts. The universal awareness on ORS among the respondents were further confirmed by all the participants of FGD reporting that they knew about it.

Table 2.33 Percent distribution of mothers who have ever heard of ORS and knowledge about how to prepare ORS

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Ever seen or heard about ORS				
Yes	99.5	597	99.5	597
No	0.5	3	0.5	3
Total	**100.0**	**600**	**100.0**	**600**
Knowledge about ways of preparing ORS				
Correct	70.7	422	72.0	430
Incorrect	29.3	175	28.0	167
Total	**100.0**	**597**	**100.0**	**597**

Majority of the respondents with a higher percentage in non-intensified areas reported receiving information on ORS from community level health facilities such as PHC, HP or SHP (65%-72%) and FCHVs (54%-64%). The other sources of information for a sizeable percentage of the respondents were national radio (31%-32%) and local FM (14%-33%). Over 25% of the respondents in non-intensified and 16% in intensified areas also reported receiving information about ORS from pharmacy or medical shop. The role of print media and television in disseminating information about ORS was found to be quite low in both areas (Table 2.34).

Table 2.34 Percent distribution of mothers by source of information about ORS

Source of information about ORS (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Media				
Local FM	33.2	198	14.1	84
National Radio (Radio Nepal/ Kantipur)	31.7	189	30.8	184
Television	12.4	74	11.9	71
Print media (poster, pamphlets, flip chart, brochure, etc)	9.0	54	3.9	23
Health facility and service providers				
PHC/HP/SHP	64.5	385	71.9	429
FCHV	54.4	325	63.8	381
Pharmacy/ medical shop	16.2	97	25.3	151
Hospital	7.0	42	13.1	78
VHW/MCHW	5.4	32	10.7	64
Other sources				
Relatives/neighbors/friends	18.9	113	11.9	71
Family members	8.9	53	6.9	41
School/ books	2.2	13	2.0	12
Other §	0.8	5	1.0	6
Do not know	0.2	1	-	-
Total (n)	**-**	**597**	**-**	**597**

§ *Other includes: training/ mothers group meeting; newspaper; magazine; hospital; red cross.*

Almost all the respondents in both intensified and non-intensified areas were found to be aware of at least one source of supply of ORS. The most frequently cited supply sources were community level facilities (80%-82%) followed by FCHV (62%-64%) and pharmacy or medical shop (36%-40%). No marked difference was observed on the level of knowledge about the supply sources of ORS across the respondents of intensified and non-intensified areas as depicted in Table 2.35.

Table 2.35 Percent distribution of mothers by knowledge about supply source of ORS

Knowledge about source of supply of ORS (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
PHC/HP/SHP	81.7	488	80.2	479
FCHV	62.3	372	63.8	381
Pharmacy/ medical shop	39.7	237	36.3	217
Hospital	27.0	161	21.1	126
VHW/MCHW	10.2	61	8.7	52
Other (neighbors/ red cross)	0.3	2	0.8	5
Do not know	0.7	4	0.2	1
Total (n)	**-**	**597**	**-**	**597**

Information derived from FGDs also suggest that interpersonal mode of communication (such as health workers, FCHVs, friends and neighbors, etc.) was more prominent among the participants of both areas than the other sources of information such as TV and print materials. One of the participants from Bajhang said "*we do not have TV at home and no time to listen to the radio, when we go to the health post or meet the FCHV they give us the information on diarrhea medicine should be given to the children*".

The sources of availability of zinc and ORS mentioned by participants of FGDs of both the study groups were also invariably the same namely FCHVs, health posts/subhealth posts, hospitals and pharmacy shops. Some participants also mentioned additional sources such as MCHWs and VHWs.

2.5 Incidence of diarrhea and its treatment

a) Incidence of diarrhea

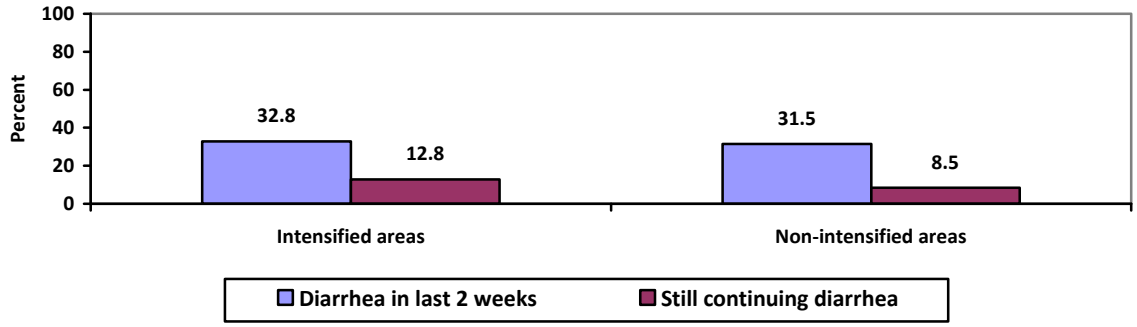
Table 2.36 presents data on distribution of children who had diarrhea in the last one month by their gender and age group. Over half (51%-58%) of the children with a higher percentage in intensified areas were boy child and the rest were girl child. The mean age of these children was found to be 27 months in intensified and 26 months in non-intensified areas.

Table 2.36 Percent distribution of children aged 2-59 months who were suffering from diarrhea in the last one month preceding the survey by their gender and age

Description	Intensified areas (n=600)		Non-intensified areas (n=600)	
	%	No.	%	No.
Sex of the child suffering from diarrhea				
Boy	58.0	348	50.7	304
Girl	42.0	252	49.3	296
Age of child (in completed months)				
2-5	5.0	30	4.5	27
6-11	12.3	74	12.5	75
12-23	30.0	180	29.5	177
24-35	19.2	115	24.7	148
36-47	18.3	110	16.8	101
48-59	15.2	91	12.0	72
Mean (SD)	**27.1 (15.5)**		**25.9 (14.1)**	

Of the children who had diarrhea in the last one month, 33% in intensified and 32% in non-intensified areas had diarrhea during the last two weeks prior to the survey day. Thirteen percent of the children in intensified and 9% in non-intensified areas were still suffering from diarrhea at the time of survey (Figure 2.4).

Figure 2.4 Percentage of children aged 2-59 months with diarrhea in the last two weeks and who had still diarrhea at the time of survey (among children who had diarrhea in the last one month)



n= 600 in each of intensified and non-intensified areas

Table 2.37 further shows the duration of last diarrheal episodes among the children included in the study. More than 2-in-5 children in both areas had diarrhea for less than four days and another 36% in intensified and 43% in non-intensified areas had diarrhea for 4-5 days. A higher proportion of children in intensified (24%) than in non-intensified (16%) areas had longer duration (i.e. >5 days) of diarrhea in the last time. The mean duration of last diarrheal episode was 4.5 days in intensified and 4.2 days in non-intensified areas.

Table 2.37 Percent distribution of children by duration of last diarrheal episode

Duration of last diarrheal episode	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Less than 4 days	40.7	244	41.0	246
4-5 days	35.7	214	42.8	257
6 days or more	23.7	142	16.2	97
Mean (SD)	**4.5**	**(2.2)**	**4.2**	**(1.8)**
Total	**100.0**	**600**	**100.0**	**600**

b) Care provided during diarrhea

The responding mothers were asked whether their child was given same amount of liquid and food items to consume as before the diarrhea, or more or less. About 2-in-5 respondents with a higher percentage in non-intensified areas reported giving same amount of liquid than usual while 38% of the mothers in intensified areas compared to only 33% in non-intensified areas reported providing more amount than usual. Considerable proportion (22%) of the respondents in both areas had given lesser amount of liquid items to drink. Likewise, 39% of the respondents in intensified and 56% in non-intensified areas said that child was given same amount of food as usual. With regard to the food items nearly one fifth (18%) of the respondents in intensified compared to 8% in non-intensified areas reported giving more than usual amount of food to their child during last diarrheal episode. It is to be noted that a considerable proportion (38% in intensified and 32% in non-intensified areas) of the respondents had given less food to their child

than usual. Some respondents (<5%) also reported not giving or stop giving liquid and food items during the last diarrheal episode of their child (Table 3.38). Though the proportion of mothers providing more liquid and food during diarrhea found to be more in intensified than in non-intensified areas, the overall practice of giving food and drinks during diarrhea found to be inadequate. This information clearly indicates the need for more intensified awareness creation campaigns in both the intensified and non-intensified areas about the importance of providing adequate liquid and solid items to the children during diarrhea.

Table 2.38 Percent distribution of mothers by amount of liquid and solid foods given to their child during last diarrheal episode

Description	Intensified areas (n=600)		Non-intensified areas (n=600)	
	%	No.	%	No.
Amount of liquid offered to the child to drink during diarrhea				
Less than usual	21.5	129	22.2	133
About the same	38.7	232	42.2	253
More than usual	37.7	226	33.3	200
Nothing to drink	2.0	12	1.7	10
Do not know	0.2	1	0.7	4
Amount of foods offered to child to eat during diarrhea				
Less than usual	37.8	227	31.8	191
About the same	39.2	235	55.7	334
More than usual	17.7	106	7.5	45
Stopped food	1.5	9	1.7	10
Never gave food	3.5	21	2.3	14
Do not know	0.3	2	1.0	6

Support from family

The FGD participants were also asked about type of support they had provided to women in their households to treat children suffering from diarrhea. The FGDs indicated that female members had received support from other family members to treat diarrhea cases at homes. However, the practice of providing such support was found more prevalent in one intensified (Bajura) and two non-intensified (Taplejung and Bajhang) districts. There was no marked difference in types of support provided to the female members in treating the diarrhea cases in the studied districts. Participants of both the intensified and non-intensified areas mentioned that the main mode of providing support included getting zinc from FCHVs and assistance in feeding it. Some mode supports such as bringing herbal medicine and assisting in taking the child to health facilities were mentioned by more participants of the intensified areas whereas bringing drugs from health post was mentioned by more participants of non-intensified areas. The FGD participants were also enquired about the reasons for not supporting the female member in their household in treating diarrhea. The main reasons as reported by the participants from intensified group FGDs were:

- no incidence of diarrhea in their households
- unaware of the need for providing support
- lack of leisure time
- being away from home most of the time (in Bajhang only)

c) Consultation and treatment during diarrhea

Further probing was done on the type of treatment given to the child during last diarrheal episode. Most (58%-61%) of the respondents with slightly a higher percentage in intensified areas reported giving traditional treatment to their child during diarrhea. Likewise, over a quarter (27%-30%) of the respondents in intensified and over two-fifths (41%) in non-intensified areas reported taking their child for consultations or treatment to community level health facilities (i.e. PHC, HP or SHP) or FCHVs. Nearly 1-in-5 respondents in both areas reporting consulting pharmacist for the management of diarrhea. A quarter of the respondents in intensified and 18% in non-intensified areas reported that they just gave medicines to the child that was available at their homes. A considerable proportion (19%-24%) of the respondents with a higher percentage in non-intensified areas also reported that they consulted traditional healers (Dhami/Jhakri) for the management of diarrhea. The information reveals that there was under use of modern and safe places for treatment of diarrhea in both the intensified and non-intensified areas.

Table 2.39 Percent distribution of mothers by type of treatment provided to their child during last diarrheal episode

Type of treatment provided (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Traditional treatment at home	61.5	369	57.7	346
Consulted an FCHV	29.8	179	41.3	248
Taken child to SHP/HP/PHC	26.8	161	41.3	248
Given medicine that was at home	24.8	149	18.3	110
Consulted a Dhami/Jhankri	19.2	115	24.2	145
Consulted pharmacist or bought medicine from a pharmacy	18.3	110	16.3	98
Taken child to hospital	4.7	28	6.5	39
Consulted VHW/MCHW	4.0	24	12.3	74
Taken child to a private clinic/nursing home	2.0	12	2.3	14
Consulted other health workers	-	-	1.3	8
Recovered without any medication	0.2	1	0.2	1
Total (n)	**-**	**600**	**-**	**600**

There were few FGD participants (n=2 in intensified and 5 in non-intensified areas) who reported any children below 5 years of age in their households suffered from diarrhea in the last one month. These participants also confirmed that they had consulted PHC and FCHV for treatment. However, most of them reported providing ORS only to the children during last diarrheal episode indicating that even the community influencers and social workers were not concerned about giving zinc tablets along with ORS.

Consultation with FCHVs

As discussed earlier, 30% (n=179) of the respondents in intensified and 41% (n=248) in non-intensified areas had taken their child for consultation or treatment to FCHV during the last diarrheal episode. These respondents were further enquired about how soon after the onset of diarrhea they consulted the FCHV for getting information and services. Over 20% of the respondents in intensified and 30% in non-intensified areas reported consulting FCHV immediately after the onset of diarrhea or the same day. About 3-in-5 respondents with a higher percentage in intensified areas said that they consulted FCHV in 1-2 days and slightly over one-tenth consulted her after 3 days following diarrhea. Respondents were also further queried on the type of information and services they received from FCHVs at the time of visit. With respect to the services, the majority (82%-84%) of the respondents in both areas reported that they received ORS and another 59% in intensified and 17% in non-intensified areas reported receiving zinc

tablets from FCHV during meeting. Over 2-in-5 respondents in both areas also reported getting advice from FCHV on ways of preventing diarrhea and need for feeding more quantity of liquid items. Only a small percentage (12%-16%) of the respondents reported receiving advice on ways of management of diarrhea and feeding more quantity of solid foods during diarrhea. Slightly over one-tenth of the respondents in intensified and over a quarter in non-intensified areas also mentioned that they were referred to a health facility for consultation and treatment (Table 2.40). The aforesaid information suggests that the mothers were not seeking immediate consultation with FCHVs during diarrhea episode among their children. Among those who consulted notably more mothers of intensified than non-intensified areas received zinc tablets from the FCHVs.

Table 2.40 Percent distribution of mothers by time when they first consulted FCHV and type of information and services received from FCHVs during consultation

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Time when first consulted with FCHV following diarrhea (in days)				
Immediately or same day	20.7	37	30.2	75
1	40.2	72	33.5	83
2	22.9	41	24.6	61
3 days or more	16.2	29	11.7	29
Total	**100.0**	**179**	**100.0**	**248**
Type of information and services provided by the FCHVs (Multiple Response)				
Given ORS	81.6	146	83.9	208
Given Zinc tablets	58.6	105	17.3	43
Advice on preventing diarrhea	46.4	83	45.2	112
Advised to feed more quantity of liquid	46.4	83	43.1	107
Advised to feed more quantity of solid food	15.6	28	12.5	31
Advice on ways of management of diarrhea	13.4	24	12.5	31
Referred to health facility	12.8	23	28.2	70
Other §	1.1	2	0.8	2
Total (n)	**-**	**179**	**-**	**248**

§ Other includes: advised to consult another FCHV; did not give medicine; provided medicines for fever.

Consultation with health workers

Over one-third (n=203) of the mothers in intensified and more than half (n=306) in non-intensified areas reported that they consulted a health worker during the last diarrheal episode of their child. The practice of consulting a health worker immediately after the onset of diarrhea was found to be quite low in both the intensified and non-intensified areas as only about one-tenth of the respondents reported that they consulted a health worker immediately after the onset of diarrhea or the same day. Majority (58%-68%) of the respondents with a higher percentage in non-intensified areas reported that they consulted health workers in 1-2 days following diarrhea. About a quarter (23%-29%) of the respondents with slightly a higher percentage in intensified areas reported consulting a health worker after 3 days following diarrhea (Table 2.41). When further enquired about type of information and services they received during their visit, majority (77%-88%) of the respondents with a higher percentage in non-intensified areas reported that they were given ORS for their child and another two-fifths (38%) mentioned zinc tablets. Nearly a quarter (23%) of the respondents in intensified and 6% in non-intensified areas also reported that they were given medicine other than ORS and zinc tablets during their visit. A sizeable percentage of the respondents in both areas also reported that they received advice on: ways of preventing diarrhea (47% in intensified and 60% in non-intensified areas), and feeding more quantity of liquid (53% in intensified and 48% in non-intensified areas). Relatively a small

percentage of the respondents in both areas affirmed that they received advice on ways of management of diarrhea (14%-18%) and feeding more quantity of solid foods (12%-16%) during their visit to a health worker. As in the case of consultation with FCHVs, the proportion of mothers seeking consultation with the health workers immediately while their children suffered from diarrhea was quite low in both study areas.

Table 2.41 Percent distribution of mothers by time when they first consulted health workers and type of information and services received from health workers during consultation

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Time when first consulted with health workers or visited health facility following diarrhea(in days)				
Immediately or same day	12.8	26	9.5	29
1	31.0	63	40.2	123
2	27.1	55	27.8	85
3 days or more	29.1	59	22.5	69
Total	**100.0**	**203**	**100.0**	**306**
Type of information and services provided by the health workers (Multiple Response)				
Given ORS	77.3	157	87.6	268
Advised to feed more quantity of liquid	52.7	107	47.7	146
Advice on preventing diarrhea	46.8	95	60.1	184
Given Zinc tablets	38.4	78	38.6	118
Given liquid medicine	18.2	37	4.6	14
Advised to feed more quantity of solid foods	16.3	33	12.4	38
Advice on ways of management of diarrhea	13.8	28	17.6	54
Given amjit, metrozol, antibiotics	4.4	9	1.0	3
Referred to health facility	1.0	2	2.6	8
Other §	4.4	9	-	-
Total (n)	**-**	**203**	**-**	**306**

§ Other includes: provided information on need for maintaining environment clean; advised to visit if diarrhea did not stop/ provided deworming tablets; provided medicines for fever.

Consultation with pharmacist

As discussed earlier, 18% (n=110) of the respondents in intensified and 16% (n=98) in non-intensified areas had visited pharmacist for consultation and treatment of diarrhea of their child. More than half (56%) of the respondents in intensified and over two-thirds (68%) in non-intensified areas had taken their child in 1-2 days following diarrhea and another 33% in intensified and 14% in non-intensified areas did so in more than 3 days. Slightly a higher (17%) percentage of respondents in non-intensified than in intensified (11%) areas reported taking their child for consultation on the same day (Table 2.42). A higher percentage of the respondents in non-intensified areas than in intensified areas reported that they received ORS and zinc tablets from pharmacist during their visit. Nearly 2-in-3 respondents also affirmed to have received advice on feeding more quantity of liquid items during diarrhea and another two-fifths got advice on ways of preventing diarrhea.

Table 2.42 Percent distribution of mothers by time when they first met pharmacists and type of information and services received from pharmacist during their visit

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Time when first met pharmacist following diarrhea (in days)				
Immediately or same day	10.9	12	17.3	17
1	30.0	33	51.0	50
2	26.4	29	17.3	17
3 days or more	32.7	36	14.3	14
Total	**100.0**	**110**	**100.0**	**98**
Type of information and services provided by the pharmacists (Multiple Response)				
Advised to feed more quantity of liquid	68.2	75	66.3	65
Given ORS	66.4	73	71.4	70
Advice on preventing diarrhea	48.2	53	42.9	42
Given liquid medicine	28.2	31	22.4	22
Advised to feed more quantity of solid food	27.3	30	36.7	36
Advice on ways of management of diarrhea	16.4	18	24.5	24
Given Zinc tablets	12.7	14	23.4	23
Given amjit, metrozol, antibiotics	7.3	8	4.1	4
Referred to health facility	2.7	3	2.0	2
Other (given vitamin and other medicines)	3.6	4	3.1	3
Total (n)	**-**	**110**	**-**	**98**

2.6 Use of zinc tablets during last diarrheal episode

Overall, the survey results reveal that 3-in-10 children were given zinc tablets during their last diarrheal episode. The children receiving zinc tablets were significantly higher in intensified areas (33%; n=199) than in non-intensified areas (28%; n=165) (p=.033). District wise data further reveal that children in Sankhuwasabha were significantly more likely and those in Taplejung were less likely to receive zinc tablets during diarrhea. Use of zinc tablets was significantly higher (35%) among the children of literate women than their illiterate counterparts (25%). Likewise, use of zinc tablets was highest among the children of relatively advantaged Janajati women and lowest among disadvantaged Janajati women. However, no significant association was observed on the use of zinc tablets by the children across the age group and SES index of the responding women. Likewise, no significant difference was observed on the use of zinc tablets according the sex of child (Table 2.43).

Table 2.43 Percent distribution of mothers who reported giving zinc tablets to their child during last diarrheal episode by selected background characteristics

Background characteristics	Percent	Number
Program status	*	
Intensified districts	33.2	600
Non-intensified districts	27.5	600
District	*	
Sankhuwasabha (Intensified)	40.0	200
Gorkha (Intensified)	32.5	200
Bajura (Intensified)	27.0	200
Taplejung	19.0	200
Tanahun	29.5	200
Bajhang	34.0	200
Age of mother (in years)	ns	
15-24	29.2	465
25-34	33.1	544
35+	25.1	191
Literacy status	*	
Illiterate	25.3	585
Literate	35.1	615
Ethnicity	*	
Dalit	33.9	274
Disadvantaged Janajatis	26.0	338
Relatively advantaged Janajatis	38.9	95
Brahmin, Chhetri, Giri, Puri	29.6	493
SES Index	ns	
Lowest	26.3	240
Second	30.8	242
Middle	33.9	242
Fourth	28.9	239
Highest	31.8	239
Sex of child	ns	
Boy	29.3	652
Girl	31.6	548
Total	**30.3**	**1200**

**Significant at <.05 level* *ns= Not significant*

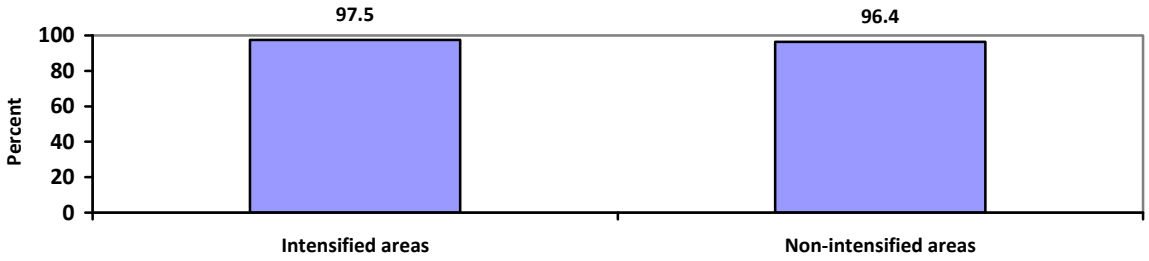
Majority (53%) of the respondents in intensified areas reported that they obtained zinc tablets from FCHV followed by 24% obtained them from subhealth post and 8% from pharmacy or medical shop. While the main source of supply of zinc tablets for the higher percentage of respondents in non-intensified areas was subhealth post (38%) followed by FCHV (27%). More than 15% of the respondents in non-intensified areas also mentioned health post and pharmacy or medical shop as their supply source of zinc tablets (Table 2.44).

Table 2.44 Percent distribution of mothers by their source of supply of zinc tablets

Source of supply of zinc tablets (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
FCHV	52.8	105	26.7	44
Subhealth post	24.1	48	37.6	62
Pharmacy/medical shop	7.5	15	15.2	25
Health post	5.5	11	15.2	25
Hospital	4.0	8	7.9	13
Primary health care center	3.5	7	4.2	7
VHW/MCHW	-	-	4.2	7
Other (ayurvedic pharmacy/ private clinic/ relatives)	1.0	2	1.2	2
Being an FCHV provided ORS available at home	2.5	5	-	-
Total (n)	**-**	**199**	**-**	**165**

It is recommended that zinc tablets should be given along with ORS for the treatment of childhood diarrhea. In this context, the responding mothers were further questioned if they had given zinc tablets along with ORS. Almost all the respondents in both areas affirmed that they provided zinc tablets along with ORS (Figure 2.5). Only 5 respondents in intensified and 6 in non-intensified areas reported that they did not give ORS mainly due to the lack of knowledge and unavailability of ORS at that time (Table not shown).

Figure 2.5 Percentage of mothers who provided zinc tablets along with ORS to their child during last diarrheal episode



n= 198 in intensified and 165 in non-intensified areas

Respondents were also further probed about number of ORS packets they received along with zinc tablets during the diarrhea of their child. About 7-in-10 respondents with slightly a higher percentage in non-intensified areas reported receiving two packets of ORS followed by over one-fifth said that they received one packet. Slightly over one-tenth of the respondents in intensified and about 6% in non-intensified areas also reported receiving three or more packets of ORS along with zinc tablets. The main source of supply of ORS packets were FCHV (54% in intensified and 38% in non-intensified areas) and subhealth post (26% in intensified and 36% in non-intensified areas). About one-tenth of the respondents had also received it from pharmacy or medical shops. Only a few respondents from both the intensified and non-intensified areas had received it from hospital, PHCC and health post (Table 2.45).

Table 2.45 Percent distribution of mothers by number of ORS packets received along with zinc tablets including source of supply of ORS

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Number of ORS packets received				
1	22.2	43	22.6	36
2	66.5	129	71.1	113
3 +	11.3	22	6.3	10
Total	100.0	194	100.0	159
Source of getting ORS (Multiple Response)				
FCHV	54.1	105	38.4	61
Subhealth post	26.3	51	35.8	57
Pharmacy/medical shop	9.3	18	12.6	20
Health post	6.7	13	13.8	22
Hospital	4.6	9	8.8	14
Primary health care center	3.6	7	4.4	7
VHW/MCHW	-	-	3.8	6
Other (private clinic/ relatives)	0.5	1	1.3	2
Being an FCHV provided ORS available at home	2.6	5	-	-
Total (n)	**-**	**194**	**-**	**159**

For the treatment of diarrhea it is recommended to give 10 mg of zinc tablet to a child aged 2-6 months and 20 mg to a child between 6-59 months of age along with ORS every day for the duration of 10 days. Data presented in Table 2.46 shows that over 4-in-5 children aged 2-6 months in intensified and all the children in non-intensified areas were reported to have been given recommended dose of zinc tablets during last diarrheal episode. Slightly over 9-in-10 children aged 6-59 months of age were reported to have given recommended dose of zinc tablets. However, about 8% of the children in both areas were reported to have given either under or over dose of zinc tablets indicating the need for informing the community about the correct dose of zinc tablets to be given to the children during diarrhea.

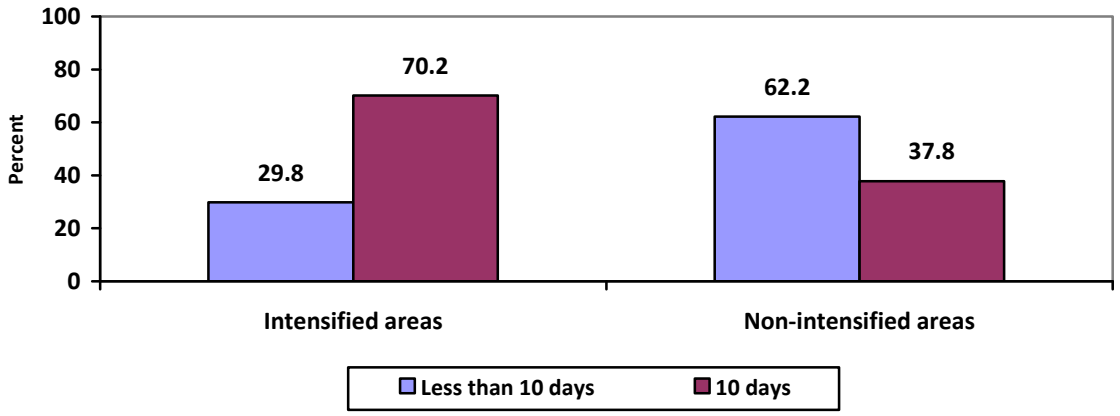
Table 2.46 Percent distribution of mothers by number of zinc tablets given to their child in a day during last diarrheal episode by age of child

Amount of zinc tablets given in a day	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Children between 2-6 months				
Half tablets (10 mg)	83.3	5	100.0	4
One tablet (20 mg)	-	-	-	-
More than one tablet	16.7	1	-	-
Total	**100.0**	**6**	**100.0**	**4**
Children between 6-59 months				
Half tablets (10 mg)	3.1	6	4.3	7
One tablet (20 mg)	92.2	178	92.5	149
More than one tablet	4.7	9	3.1	5
Total	**100.0**	**193**	**100.0**	**161**

Respondents whose child had diarrhea between last 11 and 30 days prior to the survey were further probed about the number of days they provided zinc tablets to their child. Significantly a higher percentage (70%) of the respondents in intensified areas than those in non-intensified areas (38%) reported that they gave zinc tablets to their child continuously for 10 days (Figure 2.6). The above findings indicate a pretty good compliance of zinc tablets in intensified areas

than in non-intensified areas. However, a substantial proportion of mothers were not providing zinc for full 10 days indicating the need for creating awareness on this aspect.

Figure 2.6 Percentage of mothers by number of days zinc tablets given to their child during last diarrhea episode (among those whose child had onset of diarrhea for more than 10 days prior to survey)



n= 181 in intensified and 164 in non-intensified areas
p<.001

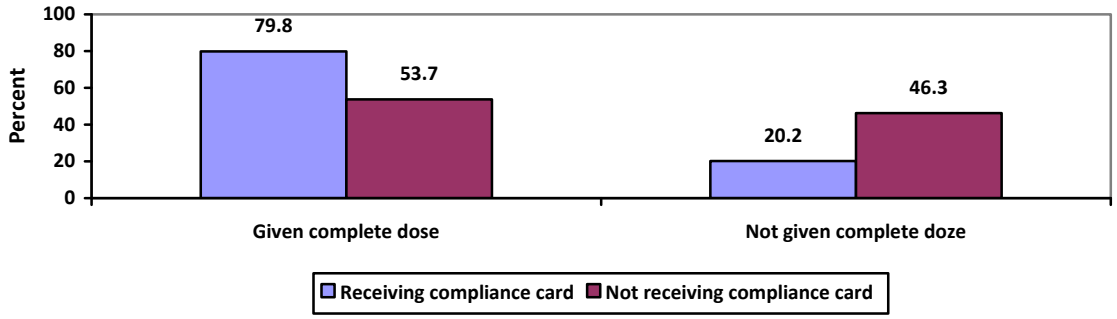
Further analysis shows that women with correct knowledge about the duration and frequency of giving the zinc tablets were significantly more likely to give the zinc for recommended 10 days to their children during diarrhea in both the intensified and non-intensified areas (p=.000). However, the level of compliance in this aspect was much higher in the intensified areas than in non-intensified areas (Table 2.47).

Table 2.47 Percent distribution of mothers who had given the zinc tablets for recommended duration by their correct knowledge about the number of days and doses the zinc should be given to the children during diarrhea

Description	Intensified areas (n=181)		Non-intensified areas (n=164)	
	Given complete dose	Not given complete doze	Given complete dose	Not given complete doze
Knowledge about number of days zinc be given				
Correct knowledge (10 days)	79.2	20.8	58.5	41.5
Incorrect	4.5	95.5	10.0	90.0
Knowledge about number of zinc be given				
Correct knowledge (1 tablet daily)	74.2	25.8	50.9	49.1
Incorrect	33.3	66.7	8.0	92.0
Total	**70.2**	**29.8**	**62.2**	**37.8**

Data presented in Figure 2.7 further shows a strong association between the compliance of providing zinc for recommended duration (10 days) and by receiving the zinc compliance cards (p<.001). For instance, 80% of the mothers who received zinc compliance cards as against 54% who did not received them reported giving zinc tablets to their child for 10 days.

Figure 2.7 Percentage of mothers giving zinc for recommended duration by receiving zinc card



P<.001
n=181

Among those (n= 54 in intensified and 102 non-intensified areas) who did not give zinc tablets to their child for recommended 10 days were further probed about the reasons for not giving complete dose. The results are presented in Table 2.48. The main reason for not giving zinc tablets continuously for 10 days as given by the respondents of both areas was due to control of diarrhea before 10 days (56% in intensified and 74% in non-intensified areas). The other reasons given by a sizeable percentage of the respondents in both areas were due to:

- lack of stock of tablets (9% in intensified and 28% in non-intensified areas)
- bad taste (24% in intensified and 6% in non-intensified areas)
- forgotten (6% in intensified and 11% in non-intensified areas)
- vomiting (7% in intensified and 9% in non-intensified areas)
- lack of knowledge (13% in intensified and 12% in non-intensified areas)

Table 2.48 Percent distribution of mothers by reasons for not giving zinc tablets to their child continuously for 10 days

Reasons for not giving Zinc tablets for 10 days (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Diarrhea stopped before 10 days	55.6	30	73.5	75
Child did not like the taste	24.1	13	5.9	6
Do not know that it has to be given continuously	13.0	7	11.8	12
Stock of tablets was finished	9.3	5	27.5	28
Due to vomiting	7.4	4	8.8	9
Forgot to give tablets	5.6	3	10.8	11
Other §	14.8	8	2.0	2
Total (n)	**-**	**54**	**-**	**102**

§ Other includes: due to allergy; lost of medicines; did not get better even after 3 days of medication; given 2 tablets every day for 5 days.

Respondents were also asked about the timing of initiating zinc tablets to their child following diarrhea. Slightly over 1-in-4 respondents in both areas reported that they started giving the zinc tablets on the same day of diarrhea. Similarly, nearly half (47%-49%) of the respondents with a higher percentage in non-intensified areas started giving zinc on the second day and another one fifth (20%-21%) did so on the third day of diarrhea. About 8% of the respondents in intensified and 4% in non-intensified areas started giving zinc tablets on the fourth or more days following diarrhea (Table 2.49). The information suggests that most of the mothers were initiating zinc treatment a bit late than the prescribed timing i.e. the same day or immediately.

Table 2.49 Percent distribution of mothers by timing of introducing zinc tablets to their child after diarrhea and reasons for not introducing it immediately after diarrhea

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Time when zinc treatment started				
Same day or immediately	25.6	51	26.7	44
Second day	46.2	92	48.5	80
Third day	19.6	39	21.2	35
Fourth day	5.5	11	1.8	3
Fifth or more days	3.0	6	1.8	3
Total	**100.0**	**199**	**100.0**	**165**
Reasons for not giving the zinc tablet the same day or immediately (Multiple Response)				
Waiting to consult HW or FCHV	35.1	52	29.8	36
Lack of knowledge	34.5	51	36.4	44
Provided home remedies/ consulted traditional healers	16.2	24	10.7	13
Was busy with work/ lack of time	12.2	18	0.0	0
Not available when needed	11.5	17	29.8	36
Not available nearby	10.8	16	26.4	32
Other §	3.4	4	-	-
Total (n)	**-**	**148**	**-**	**121**

§ Other includes: thought that ORS will cure; did not have zinc; due to public holiday.

Those who did not give zinc tablets on the same day or immediately were further enquired about the reasons of not doing so. Lack of knowledge (34%-36%) followed by waiting for consultation with health worker or FCHV (30%-35%) were the main reasons for not introducing zinc on the same day of diarrhea. Over one-tenth of the respondents in intensified and over a quarter in the non-intensified areas mentioned unavailability of zinc nearby or when it is needed as the reasons for not giving zinc tablets to their child(ren) during diarrheal episode. The above findings indicate the need for making aware to the community about the need for introducing zinc to their child soonest the possible following diarrhea. The survey results also indicate the need for making zinc tablets easily available at the community.

To the question "how *many days after the treatment the episode of diarrhea subsided?*" a higher proportion (44%) of respondents in intensified areas than those in non-intensified areas (35%) reported that it was subsided within 1-2 days after the treatment and another 40% in intensified and 55% in non-intensified areas mentioned 3-4 days. Less than 10% of the respondents in both areas reported that it took 5 days or more to stop diarrhea (Table 2.50).

Table 2.50 Percent distribution of mothers reporting the time that was taken for subsiding diarrhea after the initiation of treatment through zinc

Number of days taken to subside diarrhea (after days)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
1-2 days	44.2	88	35.2	58
3-4 days	39.7	79	55.2	91
5 days or more	8.5	17	8.5	14
Zinc did not work so had injection	2.0	4	-	-
Child has still diarrhea	5.5	11	1.2	2
Total	**100.0**	**199**	**100.0**	**165**

There were 401 mothers in intensified and 435 in non-intensified areas who did not treat their child with zinc during last diarrheal episode. These respondents were further probed about the reasons for not giving zinc tablets at that time. Lack of knowledge about zinc tablets (59%-77%) including its sources (17%-47%) were the most frequently cited reasons for not giving zinc tablets to their child during last diarrheal episode. A higher proportion of respondents in non-intensified areas than those in intensified areas gave the above reasons for not giving zinc tablets to their child. Unavailability of zinc at pharmacy or health facility was other noteworthy reasons given by about one-tenth of the respondents in both areas. Though the proportion of mothers who treated diarrhea with zinc found to be slightly more in intensified area than in non-intensified areas the coverage of diarrhea cases with zinc treatment was inadequate mainly due to lack of awareness about zinc coupled with its sources of supply. The above findings thus indicate the need for creating awareness about the importance of zinc tablets for the management diarrhea at the community. Likewise, adequate stock of zinc tablets at the health facility and pharmacy should also be ensured.

Table 2.51 Percent distribution of mothers by reasons for not giving zinc tablets to their child during last diarrheal episode

Reasons for not giving Zinc tablets to the child during last diarrheal episode (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Do not know about the medicine	59.4	238	77.2	336
Not given from the health facility	18.0	72	6.9	30
Do not know about the sources	17.0	68	46.7	203
Not available at pharmacy	15.5	62	12.6	55
Provided home remedies including herbal medicines	10.5	42	6.9	30
Not available nearby	3.5	14	10.6	46
Not given by the FCHV	3.5	14	2.1	9
Provided ORS only	2.7	11	0.5	2
Not given zinc tablet	2.5	10	0.5	2
No good taste	0.2	1	0.0	0
Causes side effects	-	-	0.5	2
Other §	4.2	17	4.4	19
Total (n)	**-**	**401**	**-**	**435**

§ Other includes: consulted traditional healers; health facility far away; diarrhea stopped soon; child too small; thinking of taking child to health facility; not thinking the need of zinc.

2.7 Counseling on zinc tablets and use of zinc compliance card

Among respondents (n=199 in intensified and 165 in non-intensified areas) who had given zinc tablets to their child during last diarrheal episode, all in non-intensified and 193 in intensified areas reported that they consulted either a health worker, pharmacist or FCHV. Of the 6 respondents in intensified areas who provided zinc tablets without consulting any providers 5 were FCHVs and 1 was lay mother (Table not shown). Among those who reported consulting any health provider during last diarrheal episode over 97% of the respondents in both areas affirmed that the service provider enquired them about diarrhea including duration, frequency and severity of the child during consultation. Likewise, 73% of the respondents in intensified and 79% in non-intensified areas also affirmed that the child was examined by the provider during the consultation (Table not shown).

Respondents were further asked about the type of information and counseling they received from service providers during consultation. The type of counseling expected to be provided by the provider during consultation were read out by the interviewers to the respondents during information collection. Almost all (>98%) the respondents in both areas reported that they were explained about the number of zinc tablets to be given every day followed by 97% in intensified

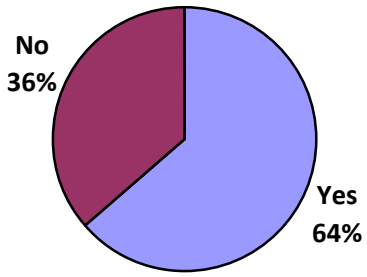
and 90% in non-intensified areas were explained by number of days zinc tablets to be given continuously to the child. Over 9-in10 respondents in both areas also reported receiving information about ways of giving the zinc tablet from providers. Similarly, nearly 9-in-10 respondents also got information about the need for giving zinc along with ORS. However, only a small percentage of the respondents – 5% in intensified and 4% in non-intensified areas – reported that they were given brochure on zinc during consultation (Table 2.52). The percentage of respondents who received above information was slightly higher in intensified than in non-intensified areas except for the advice on need for giving zinc tablets with ORS. The information indicates that the service providers had given adequate attention to the diarrhea cases and providing information to the mothers.

Table 2.52 Percent distribution of mothers by type of information and counseling provided by the providers during consultation

Type of information and counseling provided	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Number of zinc tablets to be given every day	99.0	191	98.2	162
Number of days zinc tablets to be given continuously	97.4	188	90.3	149
Ways of giving the zinc tablet	94.8	183	92.7	153
Need for giving zinc with ORS	86.5	167	89.7	148
Provided brochure to you	5.2	10	3.6	6
Total	**-**	**193**	**-**	**165**

All respondents in intensified areas (except one who did not consult any service provider) were also asked if the zinc compliance card was given to them and provided instruction for filling and returning the card. Overall, 64% (n=126) of the respondents affirmed that they were given zinc compliance card and also given instruction for filling and returning the card (Figure 2.8).

Figure 2.8 Percentage of respondents in intensified areas who received zinc compliance card from the service facility or provider

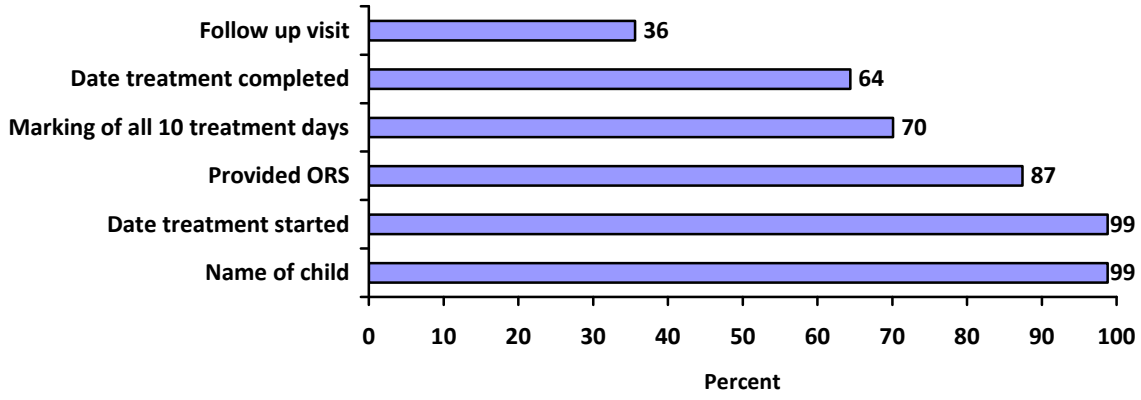


n=198

The FGD participants of three intensified districts were also asked if they had seen zinc compliance card. The FGD results show that most of the key influencers and social workers had not seen the zinc compliance card indicating the need for making them aware about the zinc cards. During the discussions, the survey team showed and explained the cards to all participants and asked to give their opinion regarding the importance of such cards. Most of the participants were of the opinion that such cards would help greatly to provide zinc regularly to the children for total duration. Highlighting the benefits of use of zinc compliance card, the participants from Sankhuwasabha viewed, "*while we have zinc cards with us it will be easier to remember that zinc should be given to the children, easy to notice the number of days zinc to be provided and the number of days already given; in addition it will be easier to check by the other members of the family as well*".

Respondents (n=126) who had received zinc compliance cards from the health facility or service provider were further requested to show the card to the study team. Among 126 respondents, 54% (n=68) reported that they already returned the card to the respective health facility or service provider followed by 25% (n=31) who said that the card was with them. One-fifth (n=27) of the respondents reported that they either lost or threw away the card. The field teams also visited the concerned health facility or service provider to get and see the information recorded in the cards already returned by the respondents. The field teams were able to observe 56 out of 68 compliance cards from the respective health facility or provider. The field teams thus were able to see the 87 filled-in compliance cards from three intensified districts. The type of information expected to be recorded by a service provider in the zinc compliance card were reviewed by the field staff and recorded in the questionnaire. Data presented in Figure 2.9 shows that in almost all the compliance cards there was a record of child's name and date of initiation of treatment. Record on administration of ORS and making of all 10 treatment days was mentioned respectively in 87% and 70% of the cards. However, records on "date of treatment completed" and "follow up visit" were found in only 64% and 36% of the compliance cards respectively.

Figure 2.9 Type of information recorded by the service providers in the zinc compliance card



n= 86

Those respondents (n=58) who did not return the zinc compliance cards to the respective health facility or providers were further enquired about the reasons for not doing so. Over 1-in-5 respondents reported that they did not return it due to time constraints and lost of the cards. Nearly 16% of respondents reasoned that they forgot to return the card and almost the same percentage reported that they were still using the zinc. The other reasons mentioned were ignorance about the need for returning it (Table 2.53).

Table 2.53 Percent distribution of mothers of intensified areas by reasons for not returning the zinc compliance cards to the respective health facility or provider

Reasons for not returning the zinc compliance card to the service provider	%	No.
Lost; destroyed by child	25.9	15
Lack of time	22.4	13
Forget to return	15.5	9
Still using	15.5	9
Did not strongly feel the need to return	8.6	5
Did not know that it should be returned	3.4	2
Other§	8.6	5
Total	**100.0**	**58**

§ Other includes: pharmacy far away; did not go to mother's group meeting; health facility far away; FCHV did not give card; kept by the FCHV herself.

All respondents in the intensified areas who had given zinc tablets to their child during last diarrheal episode were also asked about the benefits of receiving zinc compliance card during medication. Over 4-in-5 respondents were able to enumerate at least one benefit of zinc compliance card. The most frequently cited benefit was that it reminds to give zinc timely (75%) followed by 33% who viewed that any member can be reminded of giving zinc tablets. Ensuring authentic of the treatment and follow up by the providers as benefits of zinc compliance card was mentioned respectively by 13% and 3% of the respondents (Table 2.54). The information suggests that the purpose of introducing the zinc compliance cards lie to increase compliance to zinc treatment by reminding the mothers/caretakers to give zinc to the child had been met among a great majority of the respondents.

Table 2.54 Percent distribution of mothers of intensified areas by opinion regarding the benefits of receiving zinc compliance card

Benefits of receiving zinc compliance card (Multiple Response)	%	No.
Reminds to give zinc timely	75.4	95
Any member can be reminded of giving zinc	32.5	41
Ensuring authentic of the treatment	12.7	16
Ensuring follow up by the providers	3.2	4
Do not know	15.9	20
Total (n)	**-**	**126**

Opinion of respondents of both intensified and non-intensified areas on the suitable providers to distribute zinc tablets was also sought during the study. The great majority (93%-95%) of the respondent with slightly a higher percentage in intensified areas considered FCHV as appropriative channel for the distribution of zinc tablets (Table 2.55). Similarly, over 4-in-5 respondents in both areas also stated that it is appropriate to distribute zinc tablets from VHW or MCHW level. About half (48%-59%) of the respondents with a higher percentage in intensified areas also suggested distribution of zinc tablets from pharmacy level. The above findings clearly imply that FCHVs are the most appropriate channel for distribution of zinc tablets in the community.

Table 2.55 Percent distribution of mothers by their opinion regarding the appropriate channel to prescribe zinc tablets

Opinion on appropriateness of prescribing zinc by:	Intensified areas (n=199)		Non-intensified areas (n=165)	
	%	No.	%	No.
VHW/MCHW level				
Appropriate	80.9	161	80.6	133
Not appropriate	7.0	14	5.5	9
Do not know	12.1	24	13.9	23
Pharmacy Level				
Appropriate	59.3	118	47.9	79
Not appropriate	20.1	40	36.4	60
Do not know	20.6	41	15.8	26
FCHV level				
Appropriate	95.0	189	93.3	154
Not appropriate	-	-	2.4	4
Do not know	5.0	10	4.2	7

However, looking at the responses given by FGD participants portrays a slightly different picture. The participants of intensified areas were more confident that the treatment of diarrhea with zinc and provided by the health facilities would be more appropriate than those provided at

the pharmacy shops whereas the participants of non-intensified group found more inclined to have confidence on pharmacy shop instead of the other health facilities. Participants who were in favor of the health facilities for treatment with zinc and ORS gave the reasons that: the service was free of cost; locating nearby; and availability of quick services and trained providers. Certainty of services compared to the government facilities and quality of treatment were the main reasons mentioned by the participants for favoring the pharmacies for the treatment of diarrhea. It was also noticed that some participants of non-intensified areas were neutral in this issue. In this respect, the participants from Bajhang district said, "*we are not particular about which place is better for treatment, health facilities or pharmacy shop; all we want is that our children must be treated adequately and properly; medicine should be available when we visit there.*"

2.8 Perception on effectiveness of zinc

Respondents were also questioned whether their children liked the taste of zinc tablets. In response, over 3-in-4 respondents in both areas reported that their child liked the taste of zinc tablets. Nearly a quarter of the respondents in both areas said that their child did not like the taste of it. When further probed how did they feed the zinc tablets to their child in such a situation, 23% of the respondents in intensified and 20% in non-intensified areas reported that they provided it mixing with mother's milk and another 17% in intensified and 23% in non-intensified gave it mixing with sweet drinks. About 10% of the respondents in intensified and 5% in non-intensified areas fed zinc tablets either mixing with ORS or with sweet food. However, 17% of the mothers in intensified and 33% in non-intensified areas said they simply gave it mixing with water.

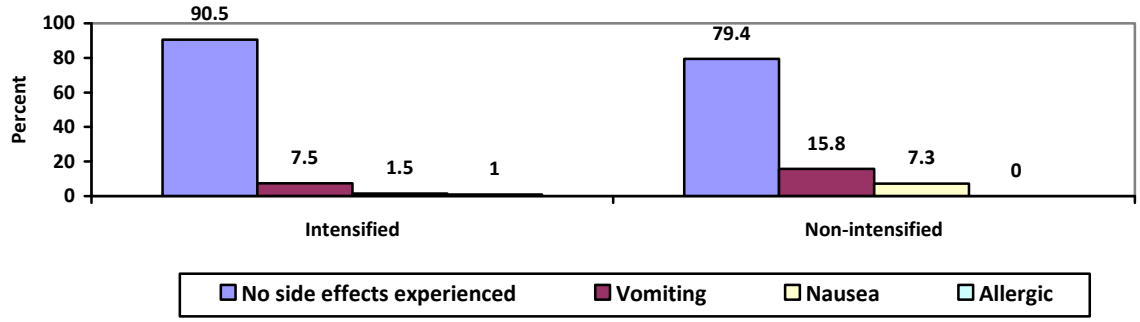
Table 2.56 Percent distribution of mothers by liking or disliking the taste of zinc tablets by their child

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Liking the taste of zinc tablet by children				
Yes	75.9	151	75.8	125
No	24.1	48	24.2	40
Total	**100.0**	**199**	**100.0**	**165**
Ways of feeding zinc to the child who did not like the taste				
Mixed with mothers' milk	22.9	11	20.0	8
Mixed with sweet drinks	16.7	8	22.5	9
Mixing with water	16.7	8	32.5	13
Fed forcefully	16.7	8	2.5	1
Mixed with ORS	10.4	5	5.0	2
Mixed with sweet food	8.3	4	5.0	2
Stopped giving zinc	8.3	4	12.5	5
Total	**100.0**	**48**	**100.0**	**40**

Over 90% of the respondents in intensified and 79% in non-intensified areas reported that their child did not experience any form of side effects from the use of zinc tablets (Figure 2.10). The proportion of children having side effects found to be less (10%; n=20) in intensified than in non-intensified areas (21%; n=34). The reported side effects from the use of zinc tablets were vomiting (8% in intensified and 16% in non-intensified) and nausea (2% in intensified and 7% in non-intensified). To the question "what did you do when your child experienced side effects?" 53% of the respondents in intensified and 47% in non-intensified areas reported that they continued giving zinc tablets followed by 42% in intensified and 24% in non-intensified areas

reported that they stopped giving zinc tablets to their child. About 1-in-10 respondents in both areas reported consulting pharmacist. Nearly one-fifth of the respondents in non-intensified areas also stated that they consulted either a health worker or FCHV after experiencing side effects (Table not shown).

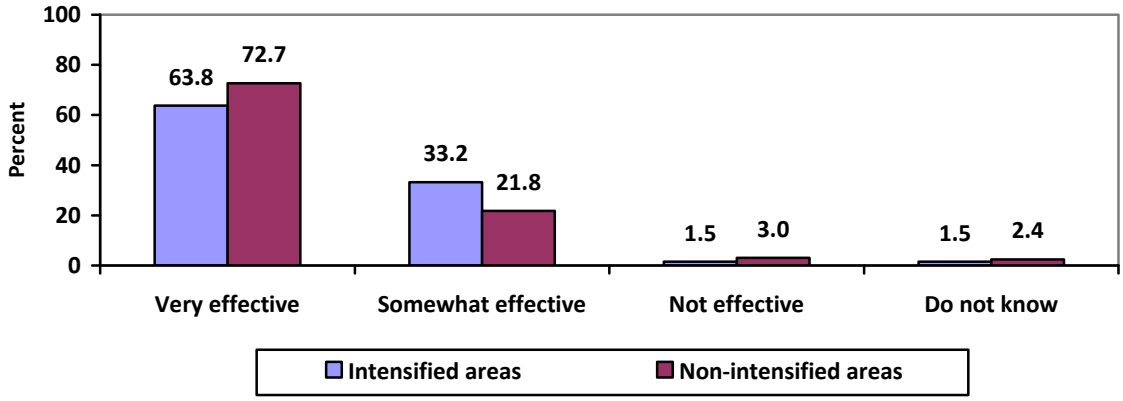
Figure 2.10 Percentage of mothers by type of side effects experienced by their children while on zinc tablets



n= 199 in intensified and 165 in non-intensified areas

Opinion of the respondents regarding the effectiveness of the zinc tablets for the management of diarrhea was also sought during the study. Almost all (97%) of the respondents in intensified and 95% in non-intensified areas perceived the zinc tablets to be very effective or somewhat effective for the control of diarrhea. Only a small percentage (2%-3%) of the respondents did not find the zinc tablets to be effective (Figure 2.11).

Figure 2.11 Percentage of respondents by opinion regarding the effectiveness of zinc tablets for the control of diarrhea



n= 199 in intensified and 165 in non-intensified areas

When asked whether they would like to recommend others to treat diarrhea with zinc tablets majority (96%-98%) of the respondents with slightly a higher percentage in intensified areas affirmed that they would recommend others to treat diarrhea with zinc tablets (Table 2.57). The main reasons for recommending others to treat diarrhea with zinc tablets were that it was effective or it helped stop diarrhea (93%-97%) and less expensive or available at free of cost (51%-54%). Easily available, easy to use and less side effects were other reasons mentioned by a considerable percentage of the respondents in both areas. Only 4 respondents in intensified and 6 in non-intensified areas did not show their willingness to recommend others to use zinc tables for the treatment of diarrhea giving the reasons that it is not effective to stop diarrhea, difficult to use and could cause side effects from its use (Table not shown).

Table 2.57 Percent distribution of mothers by recommending others to use zinc tablets for the treatment of diarrhea and reasons for recommending others

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Recommendation to others to treat diarrhea with Zinc tablet				
Yes	98.0	195	96.4	159
No	2.0	4	3.6	6
Total	**100.0**	**199**	**100.0**	**165**
Reasons for recommending zinc (Multiple Response)				
It is effective/stops diarrhea	93.3	182	96.9	154
Less expensive/free of cost	51.3	100	54.1	86
Easily available	28.2	55	15.7	25
Easy to use	13.3	26	5.0	8
Less side effects	6.7	13	3.1	5
Other (contains nutrients/ increase appetite/ advised by doctor)	1.0	2	1.3	2
Total (n)	**-**	**195**	**-**	**159**

Respondents were also inquired about their willingness to use zinc tablets in case their children get sick with diarrhea next time. Almost all the respondents (except 3 in intensified and 5 in non-intensified areas) said that they would use zinc tablets in the future. Those respondents who responded affirmatively were further enquired about the reasons for their desire of using the zinc tablets in the future. Effective to stop diarrhea (94%-98%) followed by less expensive or availability at free of cost (51%-54%) and easily available in the community (16%-26%) were the most commonly cited reasons for preferring to use zinc tablets in the future (Table 2.58). The main reasons for not preferring to use zinc tablets in the future were related to ineffectiveness, difficulty in using and side effects (Table not shown).

Table 2.58 Percent distribution of mothers by their desire to use zinc tablets for their children in the future

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Desire to use zinc tablet in the future in case of diarrhea				
Yes	98.5	196	97.0	160
No	1.5	3	3.0	5
Total	**100.0**	**199**	**100.0**	**165**
Reasons for using zinc in the future (Multiple Response)				
It is effective/stops diarrhea	93.9	184	98.1	157
Less expensive/free of cost	50.5	99	53.8	86
Easily available	26.0	51	16.3	26
Easy to use	14.8	29	5.0	8
Less side effects	6.1	12	1.3	2
Other (saves time to go health facility/ advised by doctor)	-	-	1.3	2
Total (n)	**-**	**196**	**-**	**160**

2.9 Suggestions on treatment of diarrhea with zinc

Suggestions of respondents for making the zinc distribution intensified more effective in the future was also sought during the study. More than half (53%) of the respondents in intensified and nearly half (46%) in non-intensified areas said that everything is fine in zinc distribution program (Table 2.59). However, a number of suggestions were also put forward by many respondents included in the study. A sizeable proportion of the respondents in both areas suggested making the zinc tablets available adequately, easily and in time at the health facility (10%-18%) and creating awareness on it among mothers, FCHVs and general public through publicity (11%-13%). Some respondents also suggested for making zinc tablets available at free of cost from pharmacy and stressed in availing them through all FCHVs of their areas on regular basis. Shortening the duration of consumption from 10 days, making available in liquid form and making them in sweet form were other suggestions made by a few respondents in both areas.

Table 2.59 Percent distribution of mothers by their suggestions with respect to zinc tablets

Suggestions on treatment of diarrhea with zinc (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Creating awareness on zinc through publicity among mothers, FCHVs and general people	10.6	21	12.7	21
Duration of zinc consumption should be shorter than 10 days	10.1	20	0.6	1
Zinc should be available in time, adequately and easily at health facility	9.5	19	17.6	29
Zinc should be produced with taste (sweet) so that child can accept easily	4.5	9	12.1	20
Zinc should be available at free of cost from pharmacy	3.5	7	0.0	0
Zinc should be provided in the liquid form also	3.0	6	7.3	12
Other §	7.0	14	6.1	10
Everything is alright/ no suggestions	53.3	106	45.5	75
Do not know	6.5	13	3.6	6
Total (n)	**-**	**199**	**-**	**165**

§ Other includes: zinc should be available in pharmacy; zinc should be made available through the FCHVs on regular basis; zinc job aid card should be made available to all mothers so that every could easily follow the instructions; zinc should be made available for children over 5 years; size of the zinc should be smaller; should teach every mother about the ways of treating zinc thoroughly.

FGD participants were also enquired to give their suggestions for better medium to inform the community about zinc treatment. The participants opined personal communication media (such as community meetings, mothers' group meeting, other group meetings, interaction programs) and mass media (such as radio, TV, posters and newspapers) as the better medium to disseminate information about treatment of diarrhea with zinc tablets. Radio and TV was suggested by most of the participants in Tanahun and Gorkha while community meetings and interaction programs were suggested by most of the participants in Sankhuwasabha, Gorkha and Bajura districts.

Chapter 3

Findings on Female Community Health Volunteers

To evaluate the effectiveness of zinc program in intensified districts (Sankhuwasabha, Gorkha, Bajura) compared to non-intensified districts (Taplejung, Tanahun, Bajhang) from the perspective of Female Community Health Volunteers (FCHVs) a total of 125 such volunteers (65 from intensified and 60 from non-intensified areas) were included and intercepted in the study. This chapter presents findings on KAP of FCHVs in relation to treatment of childhood diarrhea with zinc tablets including the availability of zinc and ORS with them.

3.1 Characteristics of FCHVs

Of the 65 FCHVs interviewed from intensified areas 20 each were from Gorkha and Bajura and the rest (n=25) were from Sankhuwasabha district while 20 FCHVs were included from each of the three non-intensified districts. Table 3.1 presents age, education and ethnicity of the FCHVs included in the study. The age range of the FCHVs from intensified and non-intensified areas was 22 to 66 years with the median age of 37 years in intensified and 39.5 years in non-intensified areas indicating a slightly older FCHVs belonging to non-intensified areas. Overall, 72% of the FCHVs in intensified and 60% in non-intensified areas reported attending formal schooling. However, only 14% in intensified and 8% in non-intensified areas had attained SLC or above level of education. Majority (71% in intensified and 60% in non-intensified) of the FCHVs included in the study belonged to Brahmin, Chhetri, Giri, Puri caste followed by disadvantaged Janajatis (19% in intensified and 28% in non-intensified). The Dalit represents only a few proportions (3%) in both areas.

Table 3.1 Percent distribution of FCHVs by their age, education and ethnicity

Description	Intensified areas (n=65)		Non-intensified areas (n=60)	
	%	No.	%	No.
Age (in completed years)				
Less than 30 years	27.7	18	10.0	6
30-39 years	27.7	18	48.3	29
40-49 years	33.8	22	25.0	15
50 years or more	10.8	7	16.7	10
Median (SD)	**37.0**	**(9.9)**	**39.5**	**(9.5)**
Level of education				
No schooling	27.7	18	40.0	24
Some primary	26.2	17	18.3	11
Some secondary	32.3	21	33.3	20
SLC or above	13.8	9	8.3	5
Caste/ethnicity				
Dalit	3.1	2	3.3	2
Disadvantaged Janajatis	18.5	12	28.3	17
Relatively advantaged Janajatis	7.7	5	8.3	5

About 2-in-5 respondents in both areas had 15 or more years of experience as FCHV and 14% in intensified and 28% in non-intensified areas had 10-14 years of experience. Over one-fourth of the FCHVs in intensified compared to only 3% in non-intensified areas had work experience of less than 5 years. On an average the respondents were working as FCHV for 11 years in

intensified and 13 years in non-intensified areas with the standard deviation of over 6 years (Table 3.2).

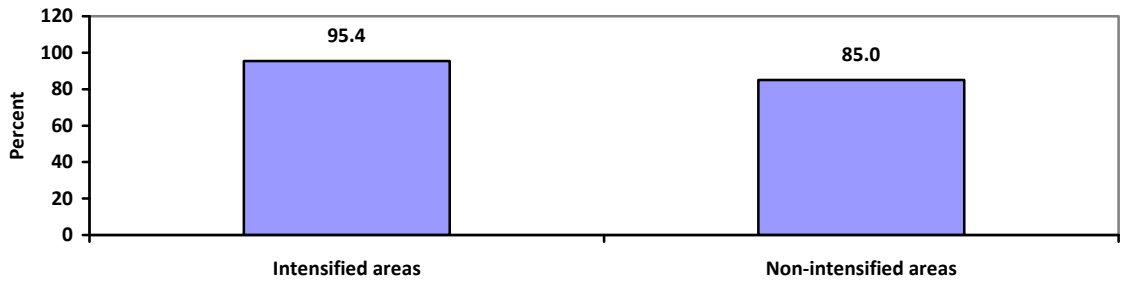
Table 3.2 Percent distribution of FCHVs by their duration of work as FCHV

Years of working experience	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Less than 5 years	27.7	18	3.3	2
5-9 years	18.5	12	30.0	18
10-14 years	13.8	9	28.3	17
15 years or more	40.0	26	38.3	23
Mean (SD)	**10.8**	**(6.9)**	**12.6**	**(5.6)**
Total	**100.0**	**65**	**100.0**	**60**

3.2 Orientation on treatment of diarrhea with zinc tablets

Over 95% of the FCHVs in intensified and 85% in non-intensified areas reported receiving orientation on treatment of childhood diarrhea with zinc tablets (Figure 3.1). The survey results further reveal that more FCHVs from intensified areas had received orientation on zinc tablets recently than their counterparts from non-intensified areas. For instance, over 4-in-5 FCHVs in intensified compared to only half in non-intensified areas had received orientation within the last one year from the survey date. Comparatively a smaller proportion of respondents in intensified (16%) than in non-intensified areas (51%) had received orientation on zinc tablets one or more years ago (Table not shown).

Figure 3.1 Percentage of FCHVs who had received orientation or training on treatment of childhood diarrhea with zinc

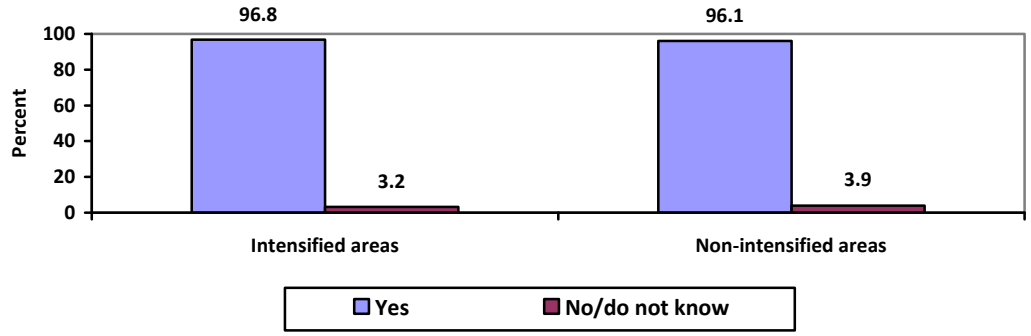


n= 65 in intensified and 60 in non-intensified areas

When further probed about the duration of orientation, 79% of FCHVs in intensified and 63% in non-intensified areas reported that they received orientation for one day. However, a sizeable proportion of the respondents from both (19% in intensified and 37% in non-intensified) areas reported receiving orientation on it for two days probably that they had received orientation twice in the past or were exposed to zinc and its treatment aspects in several other health training/orientation (Table not shown). More than half (51%-53%) of the FCHVs with slightly a higher percentage in intensified areas had received training from district health office followed by 34% in intensified and 49% in non-intensified areas had received it from the staff of health post or subhealth post. Some FCHVs (13%) in intensified areas also stated that they received orientation from PHC staff or person coming from Kathmandu (Table not shown). The survey results further reveal that a vast majority (96%-97%) of the responding FCHVs with a higher percentage in intensified areas perceived the orientation to be very useful for the treatment of diarrhea with zinc tablets (Figure 3.2). Only one respondent in intensified and two in non-

intensified areas did not find it to be useful giving the reason that it was difficult for them to follow or understand the orientation (Table not shown).

Figure 3.2 Percentage of FCHVs by usefulness of orientation on treatment of childhood diarrhea with zinc tablets



n= 62 in intensified and 51 in non-intensified areas

3.3 Knowledge of diarrhea and its treatment

All the responding FCHVs in both study areas considered ARI/pneumonia as the most common health problems of children in their areas. Likewise, all FCHVs in intensified and majority (90%) in non-intensified areas considered diarrhea as the most common health problems of children (Table 3.3). The other health problems prevalent in their community were malnutrition (10%-14%), fever (5%-14%) and measles (6%-7%). Findings obtained from the focus group discussions (FGDs) also indicated "diarrhea" and "respiratory infections" as the most common health problems among under five children prevalent in both the intensified and non-intensified areas. The FGD participants from both areas also stated that 10%-25% of the children used to suffer from diarrhea in their community mostly during summer season (i.e. Jestha to Bhadra).

Table 3.3 Percent distribution of FCHVs reporting the common health problems in children below five years of age in their areas

Most common health problems (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
ARI/Pneumonia	100.0	65	100.0	60
Diarrhea	100.0	65	90.0	60
Malnutrition	13.8	9	10.0	6
Fever	13.8	9	5.0	3
Measles	6.2	4	6.7	4
Other §	13.8	9	8.3	5
Total (n)	**-**	**65**	**-**	**60**

§ Other includes: inflammation of umbilical cord; sore on eyes; worms; jaundice; hernia; dysentery; lethargy; vomiting.

FCHVs were also asked about the causes and common signs and symptoms of diarrhea among children below five years of age. Respondents in intensified areas were more likely to report various causes of diarrhea than the respondents in non-intensified areas. For instance, 91% of the respondents in intensified compared to only 60% in non-intensified were able to report three or more common causes of diarrhea among under five children. All the FCHVs in intensified and 95% in non-intensified areas correctly mentioned poor hygiene as one of the important causes of diarrhea among children. Similarly, over 4-in-5 FCHVs with a higher percentage in intensified areas mentioned lack of clean drinking water as the cause of diarrhea. Likewise, a higher proportion (89%) of the respondents in intensified areas than those in non-intensified areas (52%) distantly perceived poor nutrition as one of the causes of diarrhea. Knowledge about other

causes of diarrhea such as infection and allergies were reported to be known by relatively a smaller proportion of the respondents in both areas.

Table 3.4 Percent distribution of FCHVs by their knowledge about causes and common signs and symptoms of diarrhea among children below five years of age

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Causes of diarrhea among children under 5 years of age (Multiple Response)				
Poor hygiene	100.0	65	95.0	57
Lack of clean drinking water	89.2	58	80.0	48
Poor nutrition	89.2	58	51.7	31
Infection	49.2	32	23.3	14
Allergies	29.2	19	23.3	14
Known at least 3 of above	***90.8***	***59***	***60.0***	***36***
Other §	15.4	10	18.3	11
Total (n)	**-**	**65**	**-**	**60**
Most common signs and symptoms of diarrhea (Multiple Response)				
Discharge of watery stool more than 3 or more times	93.8	61	81.7	49
Child becomes weak	92.3	60	88.3	53
Sunken eyes	86.2	56	56.7	34
Skin pinch goes back slowly	61.5	40	26.7	16
Child becomes very thirsty	41.5	27	21.7	13
Known at least 3 of above	***90.8***	***59***	***63.3***	***38***
Other ±	36.9	24	11.7	7
Do not know	1.5	1	-	-
Total (n)	**-**	**65**	**-**	**60**

§ Other includes: due to cold; eating stale foods; due to flies; incomplete immunization; belief on religion than health care.

± Other includes: Loss of appetite; loss of weight; inability to eat; fever; dysentery; irritation; vomiting; dehydration.

Respondents were also probed about the common signs and symptoms of diarrhea among children below five years of age. The results are presented in Table 3.4. The most commonly cited signs and symptoms were discharge of watery stool more than 3 times (82%-94%) followed by child becoming weak (88%-92%) and sunken eyes (57%-86%). Knowledge about other common signs and symptoms such as skin pinch going back slowly and child becoming too thirsty was relatively low among the respondents of both areas. More FCHVs in intensified areas were appropriately aware of various signs and symptoms of diarrhea than those in non-intensified areas. For instance, over 90% of the respondents in intensified compared to 63% in non-intensified areas were able to enumerate at least three out of above mentioned five common signs and symptoms.

Further FCHVs were probed about the four essential rules that should be followed in managing childhood diarrhea at home. Among the four essential rules that should be followed majority (92%-98%) of the FCHVs with a higher percentage in non-intensified areas mentioned giving more fluid or liquid (Table 3.5). The other essential rules to be followed for the management of diarrhea such as giving more food, treating child with zinc tablets and taking child to health facility if danger signs appear were mentioned by substantially higher proportion of FCHVs in intensified areas (54%-75%) than those of non-intensified areas (28%-68%). Further analysis show that the average number of essential rules known by the FCHVs was 2.9 in intensified and 2.5 in non-intensified areas indicating the greater knowledge of FCHVs of intensified areas on the essential rules than those of non-intensified areas.

Table 3.5 Percent distribution of FCHVs by knowledge about essentials rules that should be followed in managing childhood diarrhea at home

Knowledge on the four essential rules (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Giving more fluid/liquid	92.3	60	98.3	59
Giving more food	75.4	49	68.3	41
Taking child to health facility if danger signs appear	69.2	45	56.7	34
Treat with Zinc	53.8	35	28.3	17
Average number of essential rules known	***2.9***		***2.5***	
Providing ORS	36.9	24	11.7	7
Providing enough breast milk	15.4	10	3.3	2
Other §	18.5	12	15.0	9
Total (n)	**-**	**65**	**-**	**60**

§ Other includes: giving oil massage and keeping warm; providing pudding; maintaining personal hygiene; avoid giving contaminated water; providing herbal medicine.

3.4 Knowledge about and attitude towards zinc

A series of questions were asked to the FCHVs to assess their knowledge of and attitudes towards treating diarrhea with zinc and ORS. The findings are described in this section.

Respondents were enquired about the benefits of treating diarrhea with zinc tablets and ORS. The survey results show that the level of knowledge of respondents about the benefits of zinc tablets and ORS was much higher in intensified than in non-intensified areas. Reduction in severity of diarrhea (83%-94%) followed by reduction in its duration (60%-91%) and frequency (60%-72%) were the most frequently cited benefits. Knowledge of respondents about other benefits such as facilitating absorption of water, preventing future episode of diarrhea, and making the child stronger and protecting future illness were mentioned by relatively a smaller percentage of respondents in both areas (Table 3.6).

Table 3.6 Percent distribution of FCHVs by opinion on the benefits of treating diarrhea with zinc tablets and ORS

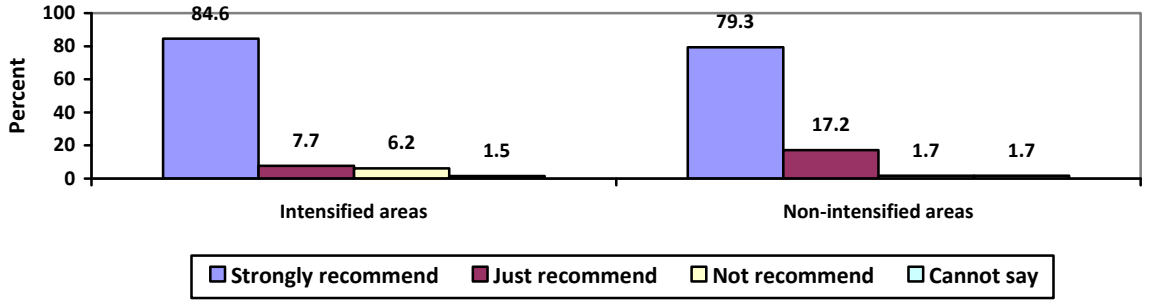
Opinion on the benefits of treating diarrhea with Zinc tablet and ORS (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Reduces severity of diarrhea	93.8	61	82.8	48
Reduce duration of diarrhea	90.8	59	60.3	35
Reduce frequency of diarrhea	72.3	47	60.3	35
Makes child stronger	52.3	34	17.2	10
Prevent future episode	36.9	24	25.9	15
Facilitate absorption of water	30.8	20	27.6	16
Protects future illness	13.8	9	6.9	4
Other §	9.2	6	6.9	4
Do not know	1.5	1	1.7	1
Total (n)	**-**	**65**	**-**	**58**

§ Other includes: child will be saved from becoming malnourished; likes to eat foods; saves money; reduces child deaths.

FCHVs were also asked whether they would recommend other colleague FCHVs to use zinc tablets to treat diarrhea among children. A vast majority (79%-85%) of the FCHVs with a higher percentage in intensified areas affirmed that they would strongly recommend other FCHVs to use zinc tablets (Figure 3.3). Nearly 8% of respondents in intensified and 17% in non-intensified areas said that they would just recommend their colleague FCHVs to use it. Only a few FCHVs (n=4 in intensified and 1 in non-intensified) were not positive in recommending other FCHVs to

use the zinc tablets giving the reason that other FCHVs of their areas have also already received orientation about it, so there was no need to recommend them (Table not shown).

Figure 3.3 Percentage of respondents recommending other FCHVs to use zinc tablets to treat diarrhea among children



n= 65 in intensified and 58 in non-intensified areas

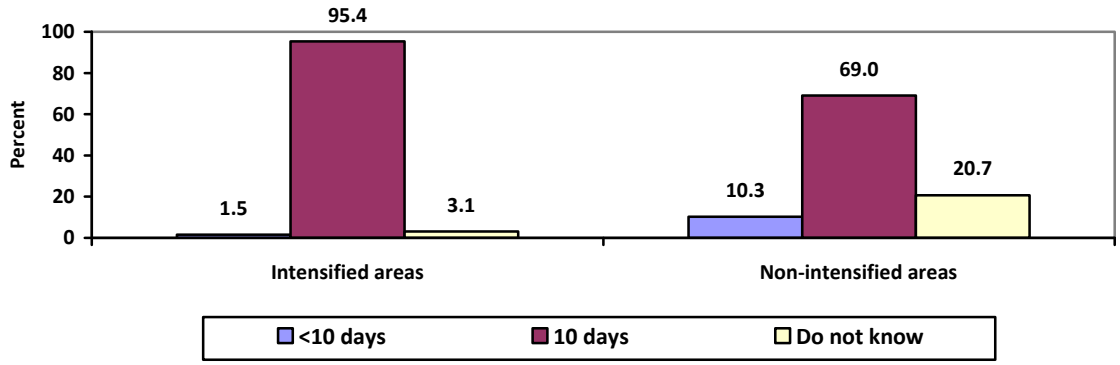
Regarding treatment of diarrhea with zinc tablets, more FCHVs from intensified (95%) than from non-intensified (85%) areas were aware that the dose of zinc tablet varies according to the age of child. More than 92% in intensified and 74% in non-intensified areas correctly mentioned that 10 mg of zinc tablet should be given for children 2-6 months of age. Likewise, 94% of respondents in intensified and 74% in non-intensified areas correctly stated that 20 mg of zinc tablet should be given for children aged 6-59 months (Table 3.7). The above findings clearly indicate that FCHVs in intensified areas are more likely to have correct knowledge about the dosage of zinc tablet to be given to the children of different age groups.

Table 3.7 Percent distribution of FCHVs by knowledge about doses of zinc tablets to be given to a child according to the age

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Knowledge about variation in doses of zinc tablets to be given according to the age				
Vary according to the age	95.4	62	84.5	49
Does not vary	-	-	5.2	3
Do not know	4.6	3	10.3	6
Total	**100.0**	**65**	**100.0**	**58**
Recommended dose of zinc for children according to the age groups				
10 mg for children between 2-6 months of age	92.3	60	74.1	43
20 mg for children between 6 months to 5 years of age	93.8	61	74.1	43
Total	**100.0**	**65**	**100.0**	**58**

FCHVs were also asked about the duration of treatment of diarrhea with zinc tablets. Data presented in Figure 3.4 indicate that FCHVs of intensified areas were more likely to have correct knowledge about the recommended duration of treatment of diarrhea with zinc tablets than those of non-intensified areas. For instance, over 95% of the FCHVs in intensified as against only 69% in non-intensified areas correctly stated that a child with diarrhea should be treated with zinc tablets continuously for 10 days (Figure 3.4).

Figure 3.4 Percentage of FCHVs mentioning number of days zinc tablets be given continuously to the children suffering from diarrhea



n= 65 in intensified and 58 in non-intensified areas

FCHVs were also asked about the frequency of giving zinc tablet to the children during diarrhea. Level of awareness regarding the correct knowledge about frequency of giving zinc tablets was much higher among the FCHVs of intensified areas than those of non-intensified areas. For instance, over 92% of the FCHVs in intensified compared to only 62% in non-intensified areas correctly mentioned that zinc tablets should be given once a day during diarrhea. Likewise, 88% of the FCHVs in intensified as against 78% in non-intensified areas correctly stated that zinc tablets should be given to the children along with ORS (Tablet 3.8).

Table 3.8 Percent distribution of FCHVs by their knowledge about timing and ways of feeding zinc tablets to the children during diarrhea

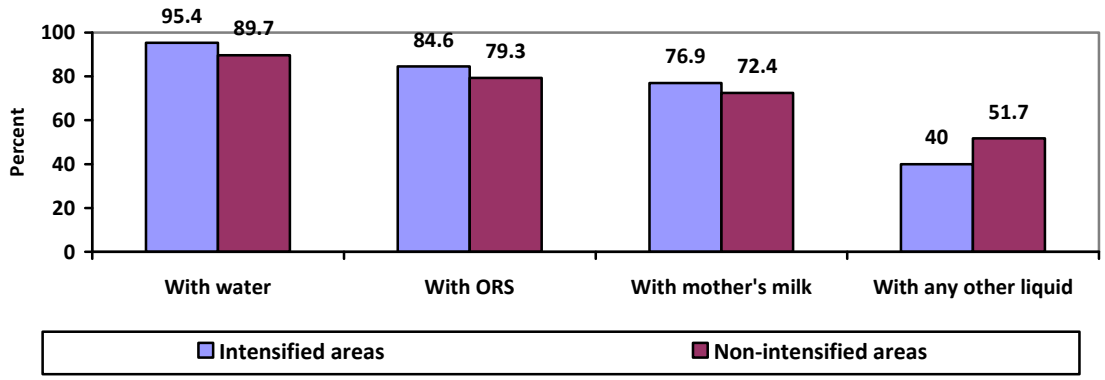
Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Number of times in a day zinc tablet should be given to the child suffering from diarrhea				
Once	92.3	60	62.1	36
Twice	3.1	2	19.0	11
Three times	1.5	1	5.2	3
Do not know	3.1	2	13.8	8
Total	**100.0**	**65**	**100.0**	**58**
Knowledge on zinc tablet be given to the children alone or along with ORS				
Alone	1.5	1	8.6	5
With ORS	87.7	57	77.6	45
Alone or along with ORS	10.8	7	13.8	8
Total	**100.0**	**65**	**100.0**	**58**

In order to assess their knowledge FGD participants were also asked whether it is necessary to provide zinc tablets together with ORS to the children suffering from diarrhea. The FGD results indicate that there was a lack of awareness on the need for providing zinc with ORS among the participants of both areas (except in Gorkha and Tanahun) as most of the community influencers and social workers in both areas reported that they do not know about this, indicating the needs for informing community about the ways of feeding zinc tablets to the children during diarrhea. However, most of the participants in Gorkha (intensified) and Tanahun (non-intensified) emphasized the need for providing zinc together with ORS giving the reasons that the combined

administration of zinc and ORS would help stop diarrhea soon, prevent from weight loss and weakness, replace the wasted liquid and nutrients from the body and increase interest in eating.

FCHVs were also further probed about the ways of feeding zinc tablets to the child suffering from diarrhea. The great majority of the respondents with a higher percentage in intensified areas correctly knew that zinc tablets should be given either mixing with water (90%-95%) or with ORS (79%-85%). Likewise, about 3-in-4 FCHVs also mentioned that it could be given mixing with mother's milk. Two-fifths of the FCHVs in intensified and over half in non-intensified areas also reported that zinc tablets could be given with any other liquid (Figure 3.5).

Figure 3.5 Percentage of FCHVs by knowledge about ways of feeding zinc tablets to the children during diarrhea



n= 65 in intensified and 58 in non-intensified areas

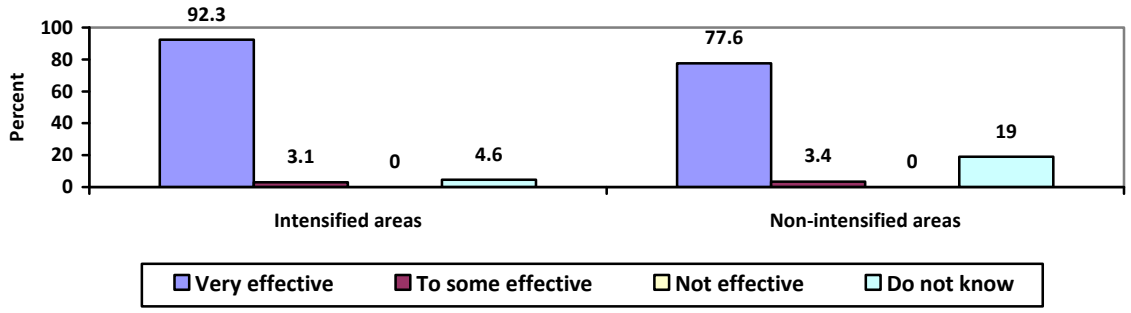
FCHVs were also asked what should be done if someone missed to give zinc tablets to their children in any of the prescribed days. Data presented in Table 3.9 show that more than three-quarters (79%) of the respondents in intensified compared to 52% in non-intensified areas were aware that if someone missed to give zinc to their children in any of the prescribed day it could be given whenever remembered but if remembered the next day should be given only one dose. Over 12% of the FCHVs in intensified and 33% in non-intensified areas said that they did not know about this alternative prescription.

Table 3.9 Percent distribution of FCHVs by knowledge about utilization of missing dose of prescribed zinc tablets

Things to be done while missed to give zinc in any of the prescribed days	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Can be given whenever remembered but if remembered the next day should be given only one dose	78.5	51	51.7	30
Can be given whenever remembered but if remembered the next day should be two doses	9.2	6	15.5	9
Do not know	12.3	8	32.8	19
Total	**100.0**	**65**	**100.0**	**58**

Over 92% of FCHVs in intensified and nearly 78% in non-intensified areas opined that the use of zinc together with ORS could be very effective in reducing duration, severity and frequency of diarrhea. However, a substantial proportion of FCHVs (19%) of non-intensified areas were not aware of effectiveness of zinc and ORS (Figure 3.6).

Figure 3.6 Percentage of FCHVs by their opinion regarding the effectiveness of zinc with ORS



n=65 in intensified and 58 in non-intensified areas

3.5 Coverage of diarrhea with zinc treatment

The study attempted to assess the coverage of diarrhea treatment with zinc and ORS by the FCHVs in their areas. For this purpose information was collected on the number of diarrhea cases encountered by the FCHVs and number treated with zinc and ORS.

FCHVs were asked about number of childhood diarrheal cases they had seen in the past one month preceding the survey. Over 70% of the FCHVs in intensified areas and 65% in non-intensified areas reported seeing any diarrhea cases of children aged 2-59 months in the past one month preceding the survey. Likewise, over 26% in intensified and 35% in non-intensified areas reported seeing the diarrhea cases of children above 59 months of age. A higher proportion of FCHVs in both areas had seen 1-2 cases of diarrhea among the children of both age categories i.e. 2-59 months and 60 months or above. The average number of children aged 2-59 months seen by the FCHVs in the last one month was slightly higher in intensified (2.2 children) than in non-intensified (2.0 children) areas (Table 3.10).

Table 3.10 Percent distribution of FCHVs by number of children with diarrhea seen in the last one month preceding the survey

Number of childhood diarrhea seen	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Diarrhea cases among children aged 2-59 months				
None	29.2	19	34.5	20
1-2	32.3	21	31.0	18
3-4	24.6	16	27.6	16
5+	13.8	9	6.9	4
Mean (SD)	**2.2**	**(2.0)**	**1.9**	**(2.0)**
Total	**100.0**	**65**	**100.0**	**58**
Diarrhea cases among children aged 60 months or above				
None	73.8	48	65.5	38
1-2	15.4	10	20.7	12
3-4	6.2	4	10.3	6
5+	4.6	3	3.4	2
Mean (SD)	**0.7**	**(1.4)**	**1.0**	**(1.9)**
Total	**100.0**	**65**	**100.0**	**58**

FCHVs were further asked if they had given ORS to anyone suffering from diarrhea in the past one month prior to the survey. The proportion of FCHVs who had given ORS to any one suffering from diarrhea was slightly higher (74%) in intensified than in non-intensified (67%) areas. The number of ORS packets distributed in the past one month varied greatly from 1 to 15 packets with most FCHVs distributing 5-6 packets in intensified and 1-2 packets in non-intensified areas. The average number of ORS packets distributed by the FCHV in the last one month was 5.9 in intensified and 5.1 in non-intensified areas (Tale 3.11).

Table 3.11 Percent distribution of FCHVs by distribution of ORS packets to anyone suffering from diarrhea in the last one month preceding the survey

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Whether distributed ORS to anyone suffering from diarrhea				
Yes	73.8	48	67.2	39
No	26.2	17	32.8	19
Total	**100.0**	**65**	**47.2**	**58**
Number of ORS packets distributed				
1-2	14.6	7	33.3	13
3-4	25.0	12	23.1	9
5-6	31.3	15	20.5	8
7+	29.2	14	23.1	9
Mean (SD)	**5.9**	**(3.3)**	**5.1**	**(3.6)**
Total	**100.0**	**48**	**100.0**	**39**

FCHVs were also enquired if they had distributed zinc tablets to any one suffering from diarrhea in the past one month preceding the survey. More than half (54%) of the FCHVs in intensified compared to only 24% in non-intensified areas affirmed that they had given zinc tablets to anyone suffering from diarrhea in the past one month (Table 3.12). Among those (n=35 in intensified and 14 in non-intensified areas) who reported to have distributed zinc were further enquired about the number of zinc tablets they distributed during that period. Majority of the FCHVs in both areas had distributed 20-30 tablets of zinc in the past one month. The average number of zinc tablets distributed by the FCHV in the past one month was 26 in both areas. All FCHVs also affirmed that they had distributed zinc tablets only to the children between 2-59 months of age. Most of the FCHVs had distributed zinc tablets to 2-3 children in both areas with the average of 2.7 children in intensified and 2.6 children in non-intensified areas. None of the FCHVs had distributed zinc to the children older than 59 months.

Table 3.12 Percent distribution of FCHVs by distribution of zinc tablets to anyone suffering from diarrhea in the last one month preceding the survey

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Whether distributed zinc tablets to anyone suffering from diarrhea				
Yes	53.8	35	24.1	14
No	46.2	30	75.9	44
Total	**100.0**	**65**	**100.0**	**58**
Number of zinc tablets distributed				
10	22.9	8	14.3	2
20	37.1	13	42.9	6
30	25.7	9	21.4	3
40+	14.3	5	21.4	3
Mean (SD)	**26.0**	**(15.9)**	**26.4**	**(12.8)**
Total	**100.0**	**35**	**100.0**	**14**
Number of zinc tablets distributed to children aged 2 to 59 months				
1	17.1	6	14.3	2
2	37.1	13	42.9	6
3	31.4	11	14.3	2
4+	14.4	5	28.5	4
Mean (SD)	**2.7**	**(1.5)**	**2.6**	**(1.2)**
Total	**100.0**	**35**	**100.0**	**14**

Those FCHVs (n=30 in intensified and 44 in non-intensified) who reported not giving zinc tablets to anyone in the past one month prior to the survey were further probed about the reasons for not giving it. The most frequently cited reasons for not giving zinc tablets were not seeing diarrhea cases (57% in intensified and 43% in non-intensified) and unavailability of zinc (33% in intensified and 66% in non-intensified). Unavailability of zinc was more profound among the FCHVs of non-intensified areas than those of intensified areas (Table 3.13).

Table 3.13 Percent distribution of FCHVs by reasons for not giving zinc tablets to anyone suffering from diarrhea

Reasons for not giving zinc tablets (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Have not seen any child suffering from diarrhea	56.7	17	43.2	19
No Zinc tablets with me	33.3	10	65.9	29
Do not know the doses and frequency of use	-	-	4.5	2
Lack of ORS	-	-	2.3	1
Have not received zinc from health facilities; have not distributed yet	6.7	2	11.4	5
Other §	10.0	3	2.3	1
Total (n)	**100.0**	**30**	**100.0**	**44**

§ Other includes: hospital is nearby; went to other places; did not agree to take; nobody came to get zinc.

Information regarding number of children with diarrhea treated by the FCHVs with zinc and ORS in the past 9 months preceding the survey was collected by reviewing the FCHV's register. Of the 65 FCHVs in intensified areas 5 FCHVs could not produce the register to the study team due to their misplacement (n=3) and not maintaining the record on diarrheal cases (n=2). In non-intensified areas, 20 out of 58 FCHVs could not produce it due to their misplacement (n=9), not

maintaining the record on diarrheal cases (n=11). The status of treatment (i.e. complete or incomplete) was also observed during the review of the FCHV's register. The average number of children treated monthly by the FCHV with zinc and ORS ranged from 2.4 to 3.4 in intensified and 2 to 3 in non-intensified areas. However, on average 0.6 to 1.5 children in intensified and 0.5 to 1 child in the non-intensified areas were provided with complete treatment with zinc tablets and ORS. The average number of children seen monthly by the FCHV of intensified areas was higher during Shrawan and Bhadra while in non-intensified areas it was higher during Jestha (May/June) and Ashadh (June/July).

Table 3.14 Average number of children treated with zinc and ORS in the past 9 months preceding the survey

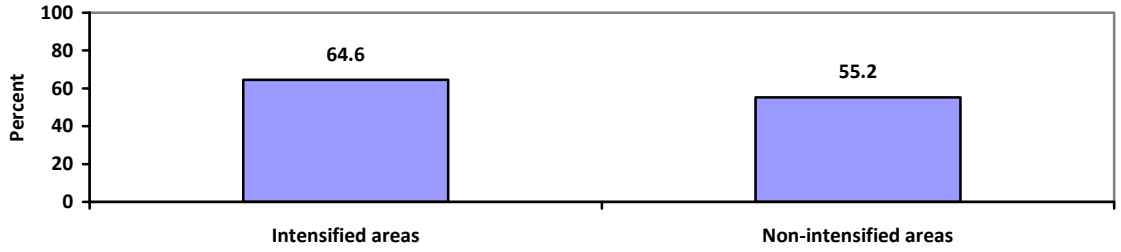
Month	Intensified district (n=60)			Non-intensified district (n=38)		
	Average number of children suffering from diarrhea	Treatment with zinc and ORS (complete)	Treatment with zinc and ORS (incomplete)	Average number of children suffering from diarrhea	Treatment with zinc and ORS (complete)	Treatment with zinc and ORS (incomplete)
Falgun, 2066 (Feb/Mar 2010)	2.4	0.6	1.8	2.0	0.5	1.5
Chaitra 2066 (Mar/Apr 2010)	2.9	0.7	2.2	2.6	0.6	1.9
Baisakh 2067 (Apr/May 2010)	2.7	1.0	1.7	2.5	0.7	1.8
Jestha 2067 (May/Jun 2010)	2.9	1.4	1.5	3.0	1.0	2.0
Asadh 2067 (Jun/Jul 2010)	2.9	1.4	1.5	3.0	0.9	2.1
Shrawan 2067 (Jul/Aug 2010)	3.4	1.5	1.9	2.8	0.7	2.1
Bhadra 2067 (Aug/Sep 2010)	3.3	1.5	1.8	2.8	0.7	2.1
Ashwin 2067 (Sep/Oct 2010)	2.9	1.2	1.7	2.0	0.7	1.3
Kartik 2067 (Oct/Nov 2010)	2.8	1.3	1.5	2.4	0.7	1.7

3.6 Stock situation of ORS, zinc and zinc compliance card

Information regarding the current stock situation of IEC materials on treating diarrhea with zinc, ORS, and zinc tablets were collected from all FCHVs of both study areas. The information on stock situation of zinc compliance cards was collected only from three intensified districts. The survey results are discussed in this section.

Nearly 65% (n=42) of the FCHVs in intensified compared to only 55% (n=32) in non-intensified areas affirmed that they have IEC materials on treating diarrhea with zinc (Figure 3.7). Among those who reported having IEC materials on zinc were further enquired about the type and number of IEC material they have at the time of survey. The FCHVs in both areas reported having "zinc job aid card" and "brochure" but with a limited number only. Almost all the FCHVs in both areas reported having at least one "zinc job aid card" with them. However, only 19% of the FCHV in intensified and 25% in non-intensified areas reported that they have 1-2 brochures on zinc (Table not shown).

Figure 3.7 Percentage of FCHVs having IEC materials on treating diarrhea with zinc



n= 65 in intensified and 58 in non-intensified areas

Regarding the current stock situation of ORS packets with the FCHVs, over a quarter (26%) of respondents in non-intensified and 17% in intensified areas stated that they did not have any packet of ORS at the time of survey (Table 3.15). Slightly over a quarter of the FCHVs in intensified and nearly two-fifths in non-intensified areas had less than 5 packets of ORS, and over one-third in intensified and nearly a quarter in non-intensified areas had 5-9 packets. On average each FCHV in intensified areas had a stock of 7 packets of ORS while the corresponding figure for the non-intensified areas was only 5 packets indicating the less quantity of ORS stock among the FCHVs of non-intensified areas.

Table 3.15 Percent distribution of FCHVs by their current stock of ORS packets

Number of ORS packets in stock at present	Intensified areas		Non-intensified areas	
	%	No.	%	No.
None	16.9	11	25.9	15
Less than 5	27.7	18	39.7	23
5-9	35.4	23	24.1	14
10+	20.0	13	10.3	6
Mean (SD)	**6.7**	**(5.6)**	**5.1**	**(3.2)**
Total	**100.0**	**65**	**100.0**	**58**

When asked about the current stock of zinc tablets, nearly three-quarters (74%) of the FCHVs in intensified areas as opposed only 31% in non-intensified areas affirmed that they have stock of zinc tablets at the time of survey. Most of the FCHVs in both areas (45% in intensified and 19% in non-intensified areas) had less than 50 tablets of zinc in stock. Over 20% of the FCHVs in intensified and 10% in non-intensified areas had 50-100 tablets. On average each FCHV in intensified and non-intensified areas had respectively 46 and 41 tablets of zinc stock (Table 3.16).

Table 3.16 Percent distribution of FCHVs by their current stock of zinc tablets

Number of zinc tablets in stock at present	Intensified areas		Non-intensified areas	
	%	No.	%	No.
None	26.2	17	69.0	40
Less than 50	44.6	29	18.8	11
50-100	21.5	14	10.4	6
100+	7.7	5	1.7	1
Mean (SD)	**45.6**	**(32.7)**	**40.6**	**(23.9)**
Total	**100.0**	**65**	**100.0**	**58**

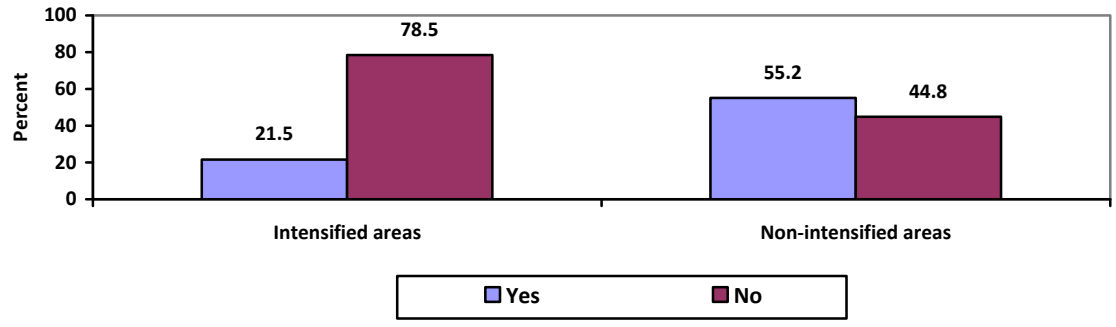
Overall, the supply situation of zinc tablets was not that promising in both study areas as more than half of the FCHVs in both areas had not received any zinc from VHW, MCHW or health facility in the past three months. The proportion of FCHVs who received zinc tablets from these sources in the past three months was slightly higher in intensified (42%) than in non-intensified (36%) areas. The number of zinc received varied greatly i.e. from 10 to 300 tablets. However, more FCHVs of intensified areas had received more supply of zinc than those in non-intensified areas during that period. The average number of zinc tablets received by each FCHV was 80 in intensified and 64 in non-intensified areas (Table 3.17).

Table 3.17 Percent distribution of FCHVs receiving zinc tablets from VHW, MCHW or health facilities in the past 3 months

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Whether received zinc tablets from VHW/MCHW or health facility in the past three months				
Yes	41.5	27	36.2	21
No	58.5	38	63.8	37
Total	**100.0**	**65**	**100.0**	**58**
Number of zinc tablets received				
Less than 50	37.0	10	33.3	7
50-99	25.9	7	42.9	9
100-149	25.9	7	19.0	4
150+	11.1	3	4.8	1
Mean (SD)	**80.0**	**(60.9)**	**63.8**	**(42.1)**
Total	**100.0**	**27**	**100.0**	**21**

More than half (55%) of the FCHVs from non-intensified areas and 22% in intensified areas had to face an occasion when they could not give zinc tablets to the clients in the last one month due to the lack of zinc tablets with them (Figure 3.8). The above findings indicate that the FCHVs in intensified areas were better with their supply of zinc and could cater more clients with zinc than did by their non-intensified group counterparts.

Figure 3.8 Percentage of FCHVs who had faced an occasion when they could not give zinc tablets to their clients in the past one month



n= 65 in intensified and 58 in non-intensified areas

3.7 Availability and use of zinc compliance cards

In order to ensure the intake of zinc supplements for entire 10 days the intensified program has introduced compliance cards in three intensified districts. The service providers from both public and private sectors in the intensified districts were supposed to provide these cards to

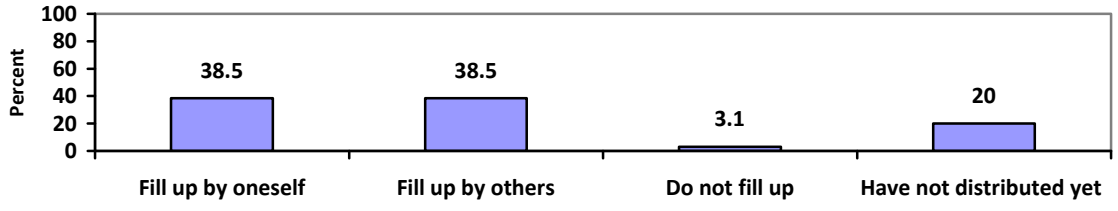
mothers/caretakers along with the zinc and ORS. The study also attempted to examine the status of availability and use of zinc compliance cards in three study districts. Data presented in Table 3.18 shows that nearly 3-in-4 FCHVs had stock of at least one zinc compliance cards at the time of survey. Those who responded affirmatively were further requested to show all the cards they have. The number of compliance cards currently present with the FCHVs ranged from 1 to 20 with more than half of them having less than 5 cards. On average, each FCHV were able to show 5 zinc compliance cards to the field team at the time of survey (Table 3.18).

Table 3.18 Percent distribution of FCHVs who received zinc compliance cards and its present stock

Description	%	No.
Possession of zinc compliance card		
Yes	72.3	47
No	27.7	18
Total	**100.0**	**65**
Number of cards at present		
Less than 5	57.4	27
5-9	27.7	13
10+	14.9	7
Mean	**5.1**	**(3.9)**
Total	**100.0**	**47**

FCHVs were also enquired about the persons who usually filled up the zinc compliance cards. Nearly 2-in-5 respondents reported that they themselves filled up everything in the cards. Almost the same percentage of the respondents also reported that it was usually done by others. However, one-fifth of the FCHVs said that they had not distributed the compliance cards yet (Figure 3.9).

Figure 3.9 Percentage of FCHVs by person who filled up the zinc compliance cards



n= 65

Those FCHVs (n=52) who reported distributing the zinc compliance cards during the treatment of childhood diarrhea were further asked about the proportion of mothers/caretakers who mostly return cards to them after completing the treatment. Only one-fifth fifth of the FCHVs reported that almost all the mothers/caretakers had returned the compliance cards after completing the treatment. However, over 44% of the FCHVs stated that less than 25% of the caretakers/mothers had returned the cards (Table 3.19). The above findings clearly indicate that most of the mothers/care takers had not returned the zinc compliance cards after completing the treatment which indicates the need for informing mothers/caretakers about the need for returning them upon its use.

Table 3.19 Percent distribution of FCHVs by proportion of the mothers/caretakers returning the zinc compliance cards after completing the treatment

Proportion of the caretakers/mothers returning the compliance card after completing the treatment	%	No.
Almost all	21.2	11
More than 75%	15.4	8
More than 50%	9.6	5
Less than 50%	5.8	3
Less than 25%	44.2	23
No one has returned yet	3.8	2
Total	**100.0**	**52**

FCHVs in intensified areas were also enquired if they had collected the completed zinc compliance cards during mothers' group meeting. In response, only about 42% of the FCHVs reported collecting such cards during mothers' group meeting. Nearly two-thirds (65%) of the FCHVs reported submitting such cards to VHW, MCHW or health facility every months and 15% said that they submit them whenever they receive from mothers or caretakers (Table 3.20). A notable proportion (15%; n=8) of the FCHVs reported that they have not yet submitted the completed compliance cards to VHW, MCHW or health facilities giving the main reasons that they had not received filled up cards from any mothers (n=3), no one had instructed them to return cards (n=2) and due to busy in own works (n=1) (Table not shown).

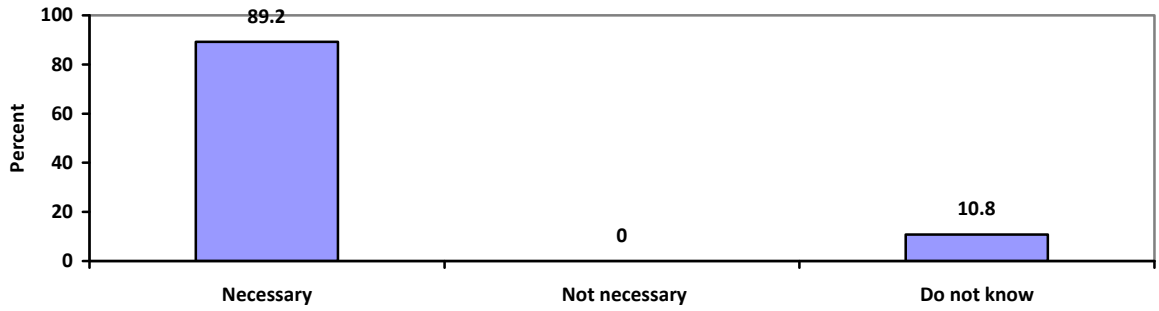
Table 3.20 Percent distribution of FCHVs by collection of completed compliance cards during mother's group meeting

Description	%	No.
Collecting the completed compliance cards during mothers' group meeting		
Yes	42.3	22
No	57.7	30
Total	**100.0**	**52**
Frequency of submitting the collected compliance card to VHW/MCHW/health facility		
Every month	65.4	34
Every 2 months	3.8	2
Whenever available or after collection; immediately after receiving	9.6	5
Other (in the month of Jestha; in every 4 month)	5.8	3
Have not submitted yet	15.4	8
Total	**100.0**	**52**

Opinion of FCHVs in intensified areas was also sought regarding the necessary of filling up of the zinc compliance cards. The vast majority (89%) of the FCHVs thought that it was necessary to fill up the compliance cards and small proportion (11%) of them were undecided whether it was necessary to fill up the card or not (Figure 3.10). The main reasons for being it to be necessary to fill up the compliance card were that it would help to (Table not shown):

- remind to give zinc timely (86%)
- ensure authentic of the treatment (45%)
- remind any member to give zinc in the absence of mother (31%)
- ensure follow up by the providers (16%)

Figure 3.10 Percentage of FCHVs by their opinion regarding the necessity of filling up zinc compliance card

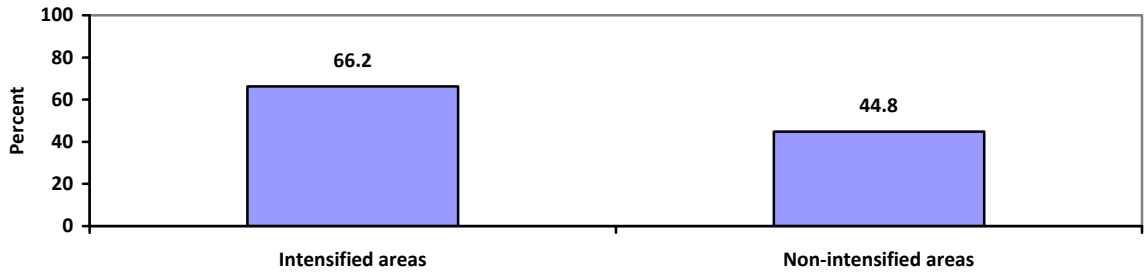


n= 65

3.8 Informing mother about the advantages of zinc and ORS

FCHVs in both intensified and non-intensified areas were asked if they had ever informed the mothers about the advantages of treating diarrhea with zinc tablets during mothers' group meeting held in the past one month. Nearly two-thirds (66%) of the FCHVs in intensified areas as opposed to only about half (45%) in non-intensified areas affirmed that they had told mothers about the advantages of treating diarrhea with zinc during mothers' group meetings (Figure 3.11). This finding indicates that FCHVs of intensified areas were more active in communicating about zinc treatment to mothers than those of non-intensified areas.

Figure 3.11 Percentage of FCHVs who informed mothers about the advantages of treating diarrhea with zinc during mothers' group meeting in the past one month



n= 65 in intensified and 58 in non-intensified areas

In order to estimate the acceptability of treatment of diarrhea with zinc and ORS, the FCHVs were enquired whether they had come across any appreciations or comments made by the mothers/caretakers about the treatment. It was found that a notably more FCHVs in intensified areas encountered favorable comments from the caretakers than did by the FCHVs from non-intensified areas. Such favorable comments included that the zinc and ORS combined treatment helped stop diarrhea quickly (75% in intensified and 24% in non-intensified), increased the appetite of the children (37% in intensified and 16% in non-intensified) and helped made the child stronger (31% in intensified and 12% non-intensified). Nearly three-fourths (74%) of the FCHVs from non-intensified as opposed to only about a quarter (23%) FCHVs from intensified areas had not encountered any favorable comments from the care takers.

Table 3.21 Percent distribution of FCHVs noticing good things reported by the mothers/ caretakers about the treatment of diarrhea with zinc tablets and ORS

Good things reported by the care takers about the treatment of diarrhea with zinc tablets and ORS (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Helped stop diarrhea quickly	75.4	49	24.1	14
Increased the appetite of the children	36.9	24	15.5	9
Helped made child stronger	30.8	20	12.1	7
Other §	6.2	4	-	-
Nothing	23.1	15	74.1	43
Total (n)	**-**	**65**	**-**	**58**

§ Other includes: expressed satisfaction for receiving free of cost; saving of money; pneumonia also cared.

When further enquired about any complaints they noticed from mothers/caretakers about the treatment of diarrhea with zinc tablets and ORS, only a small proportion of FCHVs from intensified (14%; n=9) and non-intensified (7%; n=4) areas reported receiving negative comments from the caretakers. The negative comments encountered by a small proportion of FCHVs included vomiting, children reluctant to take zinc, difficulty in swallowing and not helping to stop the diarrhea quickly (Table not shown).

3.9 Problems and suggestions

FCHVs in both areas were enquired if they had faced any problems or constraints in treatment of diarrhea cases with zinc tablets. Slightly over half (51%) of the FCHVs in intensified and over two-fifths (41%) in non-intensified areas reported facing at least one problems while providing treatment of diarrhea cases with zinc tablets. The most frequently cited problems in intensified areas were: not returning zinc card by mothers in time (19%), mothers having difficulties in filling up the compliance cards (14%), difficulties in identifying diarrhea cases due to far distance and topography of settlements within ward (14%), mothers not giving full dose of zinc to the children (8%) and loss of cards by mothers (8%). Most (28%) of the FCHVs in non-intensified areas mentioned the problems of unavailability of zinc tablets in time and adequately (Table 3.22).

Table 3.22 Percent distribution of FCHVs by type of problems or constraints they have faced in treatment of diarrhea cases with zinc tablets

Types of problems or constrains have you faced in treatment of diarrhea cases with Zinc	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Mothers do not return card in time	18.5	12	-	-
Mothers had difficulty in filling up the card and some did not know	13.8	9	-	-
Due to topography or big size of ward all mothers could not be met in time; difficulty in identifying diarrhea cases due to big size of the ward	13.8	9	-	-
Unavailability of zinc easily, in time and adequate quantity	7.7	5	27.6	16
Mothers did not give full dose of zinc to the children	7.7	5	1.7	1
Lost of zinc compliance card	7.7	5	-	-
Have not received zinc compliance card	4.6	3	-	-
Problem due to the need for collecting cards from the mothers	3.1	2	-	-
Other §	12.3	8	13.8	8
Have not faced any problem yet	49.2	32	58.6	34
Total (n)	**-**	**65**	**-**	**58**

§ Other includes: mothers were reluctant to give zinc to children; mothers were away; mothers did not come to get zinc and did not gave zinc to children for 10 days; children did not like to consume zinc; cause vomiting.

FCHVs were also asked to give their suggestions for the improvement in treatment of diarrhea with zinc tablets and ORS. Their suggestions are presented in Table 3.23. Most of the FCHVs from intensified areas suggested for publicity of zinc treatment to make more mothers aware of it (40%), making adequate supply of zinc tablets to them (25%) and provision of refresher training (20%). While most of the FCHVs from non-intensified areas emphasized on making adequate supply of zinc tablets (55%) and provision of publicity (22%). The other suggestions provided by a small proportion of the FCHVs in both areas were: provision of liquid form of zinc (5%-10%), making mothers group well aware about zinc tablets (2%-6%), provision of regular monitoring (5% in intensified), and provision of training on zinc to all FCHVs (10% in non-intensified).

Table 3.23 Percent distribution of FCHVs by type of suggestions given for the improvement in treating diarrhea with zinc tablets and ORS

Suggestions for the improvement in treating diarrhea with zinc and ORS	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Adequate amount of zinc should be made easily available; Health facility also should have adequate stock of zinc	24.6	16	55.2	32
Publicity of zinc should be done; mother or caretaker should be adequately made aware about zinc	40.0	26	22.4	13
Refresher training on zinc is needed for FCHVs	20.0	13	12.1	7
Mothers group should be made aware of zinc so that they would assist in zinc program	6.2	4	1.7	1
Liquid form of zinc should be made available so that it would be easy to convince mother	4.6	3	10.3	6
All FCHVs should be provided with adequate training	-	-	10.3	6
Need follow up of zinc program/ regular monitoring is needed	4.6	3	-	-
Other §	12.3	8	6.9	4
Nothing	18.5	12	8.6	5
Do not know	3.1	2	5.2	3
Total (n)	**-**	**65**	**-**	**58**

§ Other includes: should be made both 10 mg and 20 mg zinc tablets; should be prepared less duration zinc dose; zinc should be made available for the children above 5 year of age also; adequate amount of ORS (Jeevan Jal) should be made available; the task of filling up the zinc card should be given to the FCHVs; zinc should contain child friendly test; zinc should be distributed along with ORS.

Chapter 4

Findings on Health Workers

This chapter deals with the KAP of health service providers in relation to zinc treatment of childhood diarrhea including the availability of zinc and ORS at health facilities in intensified districts and non-intensified districts. Aspects discussed in this chapter are characteristics of health worker including their orientation status on treatment of childhood diarrhea with zinc and ORS, knowledge of diarrhea and its treatment, knowledge and attitudes towards zinc tablets, coverage of childhood diarrhea with zinc, stock situation of zinc and ORS at the health facilities and use of zinc compliance cards in intensified districts.

4.1 Characteristics of health workers

A total of 127 health workers (65 from intensified and 62 from non-intensified areas) were contacted and interviewed using a previously developed questionnaire. Between 18-24 health workers were selected in each of the intensified and non-intensified districts covered in this study (Table 4.1).

Table 4.1 Percent distribution of health workers included in the study

Districts	%	No.
Intensified districts		
Sankhuwasabha	15.0	19
Gorkha	18.9	24
Bajura	17.3	22
Non-intensified districts		
Taplejung	16.5	21
Tanahun	14.2	18
Bajhang	18.1	23
Total	**100.0**	**127**

Majority (71%-81%) of the health workers with a higher percentage from non-intensified areas were from subhealth posts. Nearly one-fourth of the health workers in intensified and one-sixth in non-intensified areas were from health posts. A few of the respondents were either from the primary health care centers or from district hospitals (Table 4.2).

Table 4.2 Percent distribution of health workers by type of health facility

Type of health facility	Intensified areas		Non-intensified areas	
	%	No.	%	No.
PHC	3.1	2	1.6	1
Health post	24.6	16	16.1	10
Subhealth post	70.8	46	80.6	50
District hospital	1.5	1	1.6	1
Total	**100.0**	**65**	**100.0**	**62**

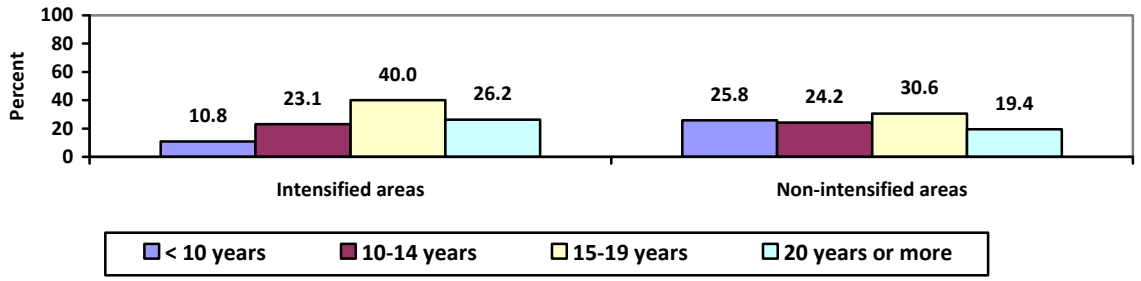
Among the health workers selected for the study, MCHWs and VHWs represented more than the other staff of the health facilities in both the study areas. Over one-third of the respondents in both areas were VHW and 43% in intensified and 48% in non-intensified areas were MCHWs. Nearly one-fifth of the respondents included were other staff of the health facility in both study areas (Table 4.3).

Table 4.3 Percent distribution of health workers by their designation

Designation	Intensified areas		Non-intensified areas	
	%	No.	%	No.
VHW	35.4	23	33.9	21
MCHW	43.1	28	48.4	30
Other staff of health facility	21.5	14	17.7	11
Total	**100.0**	**65**	**100.0**	**62**

Nearly two-thirds of the health workers in intensified and about half in non-intensified areas had more than 15 years of work experience in their current position (Figure 4.1). Nearly 1-in-4 respondents in both areas had 10-14 years of experience. The proportion of health workers who had work experience of less than 10 years found to be substantially high in non-intensified (26%) than in intensified (11%) areas. The average duration of work experience of the respondents of the study areas was notably different across the study areas (15.8 years in intensified and 13.5 years in non-intensified areas).

Figure 4.1 Percentage of health workers by their duration of work in the current position



n= 65 in intensified and 62 in non-intensified areas

Majority of the health workers in intensified (69%) and non-intensified (65%) areas belonged to Brahmin, Chhetri, Giri, Puri or Thakuri caste followed by relatively advantaged Janajati in intensified (22%) and disadvantaged Janajati in non-intensified (19%) areas (Table 4.4).

Table 4.4 Percent distribution of health workers by their ethnicity

Ethnicity	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Dalit	-	-	1.6	1
Disadvantaged Janajatis	7.7	5	19.4	12
Disadvantaged non Dalit Terai caste	1.5	1	1.6	1
Relatively advantaged Janajatis	21.5	14	12.9	8
Brahmin/Chhetri/Giri/Puri/Thakuri	69.2	45	64.5	40
Total	**100.0**	**65**	**100.0**	**62**

4.2 Training/orientation on treatment of diarrhea

Of the 65 health workers included in the intensified areas 51 health workers were selected for the interview while the rest (n=14) were contacted only for obtaining records on treatment of diarrhea with zinc and ORS. Likewise, 51 out of 62 health workers in non-intensified areas were selected for interview and another 11 health workers were contacted only for getting records on diarrheal treatment with zinc and ORS.

Over 90% of the health workers in both areas had received orientation on treatment of diarrhea with zinc tablets. Percentage of respondents receiving such orientation was slightly higher (by 2 percentage points) in intensified than in non-intensified areas. Nearly 90% of the health workers in intensified and nearly half (47%) in non-intensified areas had received orientation in the last 12 months preceding the survey (Table 4.5).

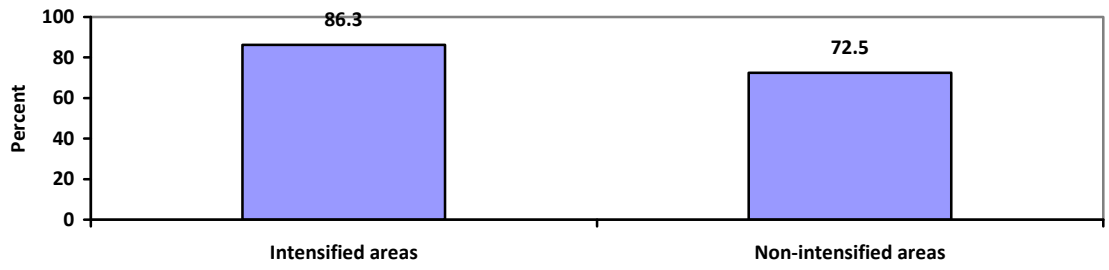
Table 4.5 Percent distribution of health workers by receiving orientation on treatment of childhood diarrhea with zinc tablet

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Orientation on treatment of childhood diarrhea with zinc tablet received				
Yes	94.1	48	92.2	47
No	5.9	3	7.8	4
Total	**100.0**	**51**	**100.0**	**51**
Months ago received the orientation on treatment of childhood diarrhea with Zinc tablet				
0-11 months	89.6	43	46.8	22
12-23 months	10.4	5	25.5	12
24 months and above	-	-	27.7	13
Total	**100.0**	**48**	**100.0**	**47**

Each health worker was expected to receive one day orientation on treatment of diarrhea with zinc tablets. The survey results indicate that 92% of the health workers in intensified and 62% in non-intensified areas had received orientation for one day. However, 8% of the respondents in intensified and 38% in non-intensified areas reported receiving two days' orientation. Normally the training was for one day or certain hour in a day. The two-day training was mentioned probably that they had either received such orientation twice or it was given two days integrating other training/orientation packages (Table not shown). Over 81% of the respondents reported that the orientation was given by the district health office. Nearly 19% of the health workers from non-intensified areas reported receiving orientation from health post or subhealth post and 17% in intensified areas received from NGOs or persons from Kathmandu (Table not shown). All the health workers in intensified and almost all (except one) in non-intensified areas felt that the orientation was useful for their work (Table not shown).

Health workers were also asked whether their health facility had ever conducted orientation on distribution and use of zinc tablets to the FCHVs of their working areas. Over 86% of the health workers in intensified and 73% in non-intensified areas responded affirmatively (Figure 4.2). Over 93% of the health workers in intensified and 76% in non-intensified areas reported that the orientation was conducted for one day. However, 7% of the health workers in intensified and 24% in non-intensified areas said that the orientation was lasted for two days probably that they had given orientation for two days integrating other training/orientation packages (Table not shown).

Figure 4.2 Percentage of health workers reporting that their health facility ever conducted orientation on distribution and use of zinc to the FCHVs



n=51 in each of intensified and non-intensified areas

4.3 Knowledge of diarrhea and its treatment

The health workers were also asked about the most common health problems of children under 5 years of age prevalent in their working areas. In response, all respondents in intensified and almost all (98%) in non-intensified areas considered ARI/pneumonia and diarrhea as the most common health problems in children prevalent in their working areas. Measles, malnutrition, fever, sores or scabies, and worm infestation was considered to be common health problems by a small proportion of health workers in both study areas (Table 4.6). The above information thus indicates that mainly two diseases, namely ARI/pneumonia and diarrhea were present among the children in the study areas.

Table 4.6 Percent distribution of health workers reporting the most common health problems in children in their working areas

Most common health problems of children under 5 year of age (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
ARI/Pneumonia	100.0	51	98.0	50
Diarrhea	100.0	51	98.0	50
Measles	17.6	9	3.9	2
Malnutrition	25.5	13	21.6	11
Sores; inflammation of eyes; scabies	9.8	5	11.8	6
Fever	7.8	4	5.9	3
Other §	5.9	3	7.8	4
Total (n)	**-**	**51**	**-**	**51**

§ Other includes: worms infestation; jaundice; malaria; due to not using toilet.

Almost equal proportion of health workers in intensified (98%) and non-intensified (96%) areas correctly mentioned poor hygiene and lack of clean drinking water as the causes of diarrhea among children. Substantially a higher proportion (88%) of the health workers in intensified areas perceived poor nutrition as one of the causes of diarrhea than those of non-intensified areas (55%). Infection and allergies as the causes of diarrhea were also mentioned by slightly a higher percentage of health workers of intensified areas than in non-intensified areas (Table 4.7). Further analysis reveal that significantly a higher proportion (94%) of health workers in intensified areas than in non-intensified areas (75%) had knowledge about at least three out of five common causes of diarrhea among children (p=.006).

Table 4.7 Percent distribution of health workers mentioning the common causes of diarrhea in children

Causes diarrhea among children under 5 years of age (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Poor hygiene	98.0	50	96.1	49
Lack of clean drinking water	98.0	50	96.1	49
Poor nutrition	88.2	45	54.9	28
Infection	37.3	19	19.6	10
Allergies	33.3	17	25.5	13
Known at least 3 of the above	***94.1***	***48***	***74.5***	***38***
Due to cold	9.8	5	3.9	2
Other §	9.8	5	5.9	3
Total (n)	**-**	**51**	-	**51**

§ Other includes: drinking raw milk; lack of education; incomplete dose of medicine; communicable disease; malnutrition; warm infestation.

To the question how do you treat under five children suffering from diarrhea, about three-quarters (75%) of the health workers in intensified areas as opposed to only 59% in non-intensified areas favorably reported that they treat childhood diarrhea with zinc tablets and ORS. However, a substantial number of the health workers from both areas (71% in intensified and 80% in non-intensified) also unfavorably reported that they treat diarrhea cases with ORS only. Similarly, over three-quarters (35%-39%) of the health workers with a higher percentage in non-intensified areas also reported treating diarrhea with zinc tablets only. About one-third of the health workers from both areas reported had used metronidazable for the diarrheal treatment. Likewise, one-fifth of the health workers in intensified and one-third in non-intensified areas also reported using other anti-diarrheal (Table 4.8). The overall findings indicates that the proportion of health workers treating diarrhea with zinc and ORS together among children was more in intensified than in non-intensified areas while those treating with either zinc only or ORS only was more in non-intensified areas.

Table 4.8 Percent distribution of health workers by ways of treating childhood diarrhea

Ways of treating under five children having diarrhea (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
ORS and Zinc together	74.5	38	58.8	30
ORS (Jeevan Jal/Nava Jeevan) only	70.6	36	80.4	41
Zinc only	35.3	18	39.2	20
Metronidazole	35.3	18	33.3	17
Other antidiarrheals	19.6	10	33.3	17
Antibiotics	13.7	7	9.8	5
Ciprofloxacin	3.9	2	5.9	3
IV drip	2.0	1	5.9	3
Other §	5.9	3	5.9	3
Total (n)	**-**	**51**	-	**51**

§ Other includes: helping to fill up zinc card; giving medicines for worm; giving Vitamin A; counseling to drink liquid items including milk.

Among the four essential rules that should be followed while managing childhood diarrhea at home the one which was known to a vast majority (96%) of the health works of both intensified and non-intensified areas was giving more liquid or fluid followed by providing more foods (78%). The least known rule was treating with zinc (39% in intensified and 33% non-intensified). About 3-in-5 health workers with a higher percentage in non-intensified areas were aware that the child should be taken to a health facility if danger sign appeared. A considerably more health workers of intensified areas were aware that the children suffering from diarrhea should be provided with ORS (26% in intensified vs. 8% non-intensified). The above

information indicates that there was no marked difference in level of awareness among the health workers of intensified and non-intensified areas regarding the four essentials things that need to be followed while managing a case of childhood diarrhea at home.

Table 4.9 Percent distribution of health workers by knowledge about four essential rules that should be followed in managing childhood diarrhea at home

Knowledge on the four essential rules (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Giving more fluid/liquid	96.1	49	96.1	49
Giving more food	78.4	40	78.4	40
Taking child to health facility if danger signs appear	56.9	29	64.7	33
Treat with Zinc	39.2	20	33.3	17
Providing Jeevan Jal/ORS	25.5	13	7.8	4
Providing breast milk	11.8	6	7.8	4
Keeping hands clean	11.8	6	19.6	10
Other §	3.9	2	3.9	2
Total (n)	**-**	**51**	**-**	**51**

§ Other includes: providing nutrition food; providing fresh and hygienic food.

4.4 Knowledge about and attitudes towards zinc

Several questions were asked to the health workers to assess their knowledge of and attitudes towards treating diarrhea with zinc and ORS. This section presents findings on these aspects.

Among the several benefits of treating diarrhea with zinc tablets and ORS the ones which were mentioned by a vast majority of the health workers with a higher proportion in intensified areas were reduction in severity (90%-92%) and reduction in frequency (69%-88%) of diarrhea (Table 4.10). A sizeable percentage of the health workers with a higher proportion in intensified areas were also aware that use of zinc tablets with ORS could help reduce duration of diarrhea (45%-55%), facilitate absorption of water (41%-71%) and prevent future episode of diarrhea (45%-47%). Knowledge of health workers regarding other important benefits such as recovering immunity, making child stronger and protecting future illness was quite low in both areas. Further analysis show that health workers in intensified areas were more likely to report the benefits of treating diarrhea with zinc and ORS than their counterparts from non-intensified areas. For instance, the average number of benefits known by the health workers of intensified areas was 4.1 as opposed to only 3.6 in non-intensified areas.

Table 4.10 Percent distribution of health workers by knowledge about the benefits of treating diarrhea with zinc and ORS

Opinion on the benefits of treating diarrhea with zinc and ORS (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Reduces severity of diarrhea	90.2	46	92.2	47
Reduce frequency of diarrhea	88.2	45	68.6	35
Reduce duration of diarrhea	54.9	28	45.1	23
Facilitate absorption of water	70.6	36	41.2	21
Prevent future episode	45.1	23	47.1	24
Recovers immunity	27.5	14	31.4	16
Makes child stronger	25.5	13	21.6	11
Protects future illness like Vitamin A deficiency	5.9	3	13.7	7
Average number of benefits known	***4.1***		***3.6***	
Other §	9.8	5	3.9	2
Do not know	-	-	2.0	1
Total (n)	**-**	**51**	**-**	**51**

§ Other includes: increases appetite; less cost and time saving; prevents from untimely death.

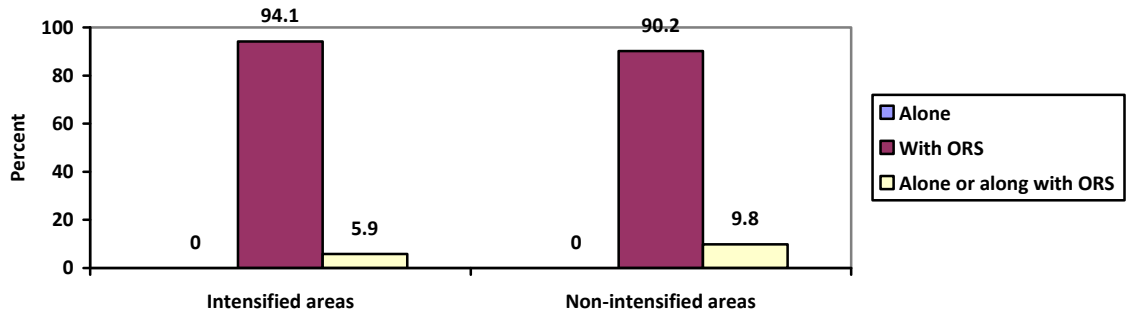
Regarding the treatment of diarrhea with zinc, more health workers in intensified than in non-intensified areas had correct knowledge of variation in amount of zinc tablets to be given according to variation in age of child suffering from diarrhea (Table 4.11). Almost all (98%) the health workers in intensified and 90% in non-intensified areas correctly mentioned that a child between 2-6 months of age should be given 10 mg of zinc tablets during diarrhea. Similarly, all the health workers in intensified as opposed to 92% in non-intensified areas correctly mentioned that 20 mg of zinc tablet should be given to the children between 6-59 months of age. Regarding the duration of treatment, all health workers in intensified and almost all (except one) in non-intensified areas correctly stated that a child with diarrhea should be given zinc tablets continuously for 10 days. Over 96% (n=49) of the health workers in intensified and 90% (n=46) in non-intensified areas were aware of correct frequency (i.e. one time in a day) of giving zinc tablets to the children during diarrheal episode. Surprisingly, 2 health workers in intensified and 5 in non-intensified areas incorrectly mentioned two times a day indicating the need for giving proper information and knowledge to the community level health workers about the correct frequency of giving zinc tablets to the children during diarrhea.

Table 4.11 Percentage of health workers by correct knowledge about the dosage, frequency and timing of giving zinc tablets to the children during diarrhea

% saying that……	Intensified areas (n=51)		Non-intensified areas (n=51)	
	%	No.	%	No.
10 mg of zinc tablets should be given to children aged 2-6 months	98.0	50	90.2	46
20 mg of zinc tablets be given to children aged 6-59 months	100.0	51	92.2	47
Zinc tablets should be given continuously for 10 days	100.0	51	98.0	50
Zinc tablets should be given once in a day	96.1	49	90.2	46

Health workers were also enquired about the ways of feeding zinc tablets to children during diarrhea. To the question "*should zinc tablets be given to the children alone or along with ORS?*" more than 9-in-10 health workers with slightly a higher percentage in intensified areas correctly mentioned that zinc tablets should be given along with ORS. However, some health workers (6% in intensified and 10% in non-intensified areas) reported that it should be given alone or along with ORS (Figure 4.3).

Figure 4.3 Percentage of health workers by knowledge about ways of feeding zinc tablets to children

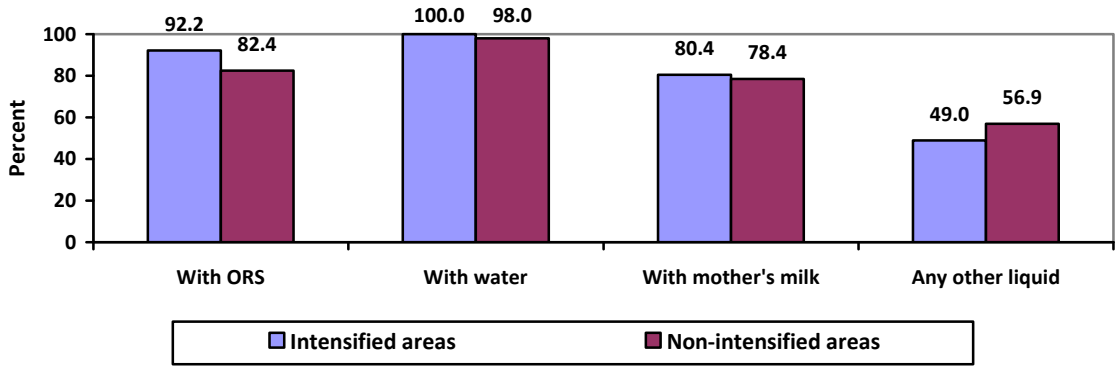


n= 51 in each of intensified and non-intensified areas

All the health workers in intensified and almost all (98%) in non-intensified areas correctly knew that zinc tablets should be given to the children with water. Similarly, over 92% in intensified and 82% in non-intensified areas appropriately said that zinc could be given to children mixing

with ORS. Likewise, about 4-in-5 health workers of both areas also said that it could be fed to the children mixing with mother's milk. About half of the health workers with slightly a higher percentage from non-intensified areas also reported that it could be given with any other liquid (Figure 4.4).

Figure 4.4 Percentage of health workers by knowledge about ways of feeding zinc tablets to the children during diarrhea



n= 51 in each of intensified and intensified areas

To the question "what should be done if someone missed to give zinc tablets to their children in any of the 10 prescribed days?" over three-quarters (78%) of the health workers in intensified compared to 67% in non-intensified areas correctly mentioned that it could be given whenever remembered but if remembered the next day should be given only one dose. However, some health workers (6% in intensified and 12% in non-intensified) in both areas incorrectly stated that if remembered the next day should be given two doses. A sizeable proportion (16% in intensified and 18% in non-intensified) of the health workers also reported that they did not know about this alternative prescription (Table 4.12). The above findings indicate the need for informing all health workers about the proper ways of utilizing the missing dose of prescribed zinc tablets.

Table 4.12 Percent distribution of health workers by knowledge about utilization of missing dose of prescribed zinc tablets

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Things to be done if someone missed to give zinc to their children in any of the prescribed days				
Can be given whenever remembered but if remembered the next day should be given only one dose	78.4	40	68.6	35
Can be given whenever remembered but if remembered the next day should be given two doses	5.9	3	11.8	6
Other (not giving zinc tablets)	-	-	2.0	1
Do not know	15.7	8	17.6	9
Total	**100.0**	**51**	**100.0**	**51**
Things to be done if a child vomited immediately after administering zinc tablet				
If vomited after one hour it is not necessary to repeat	17.6	9	7.8	4
If vomited within half an hour it is necessary to repeat	64.7	33	82.4	42
Administer zinc immediately after vomiting	7.8	4	2.0	1
Other (repeat if vomited anytime)	2.0	1	-	-
Do not know	7.8	4	7.8	4
Total	**100.0**	**51**	**100.0**	**51**

The health worker's knowledge about measures to be taken in case of child vomiting immediately after taking zinc was also assessed during the study. A vast majority of the health workers from non-intensified areas (82%) compared to 65% from intensified areas reported that if a child vomited within half an hour after taking zinc it was necessary to repeat the dose. The proportion of health workers who said that if a child vomited after one hour it was not necessary to repeat the dose found to be much higher in intensified (18%) than in non-intensified (8%) areas (Table 4.12).

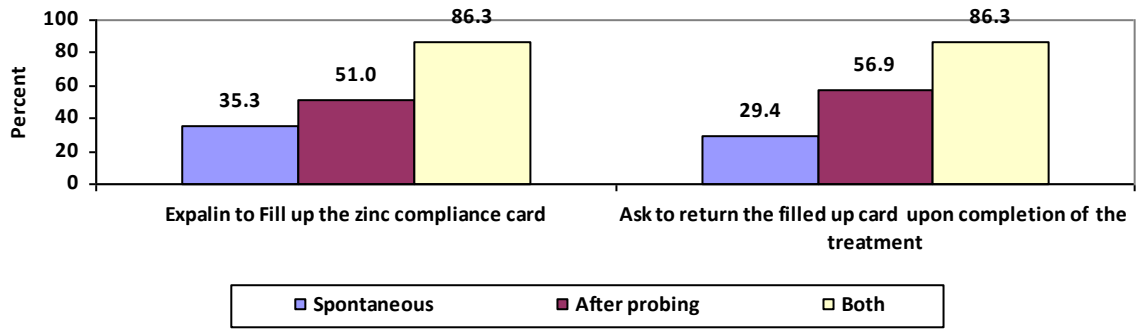
The health workers are expected to perform certain activities while providing zinc tablets to the mothers/caretakers of the children for the treatment of diarrhea. The type of activities expected to be carried out by the health workers were examining the condition of the child suffering from diarrhea, explaining about doses of zinc, informing about number of days zinc to be given, explaining about the procedure of administering zinc and providing ORS and giving instruction to prepare it. In this context, all health workers included in the study were asked about the type of advices they usually provide to the mothers/caretakers during the distribution of zinc tablets. Their responses were recorded categorically as spontaneous and after probing response. Data presented in Table 4.13 shows that more health workers of intensified than those of non-intensified areas spontaneously reported that they usually carry out all the necessary activities they were expected to do during diarrheal treatment. After probing all the health workers in intensified and nearly all in non-intensified areas affirmed to have carried out necessary activities during the treatment of diarrhea.

Table 4.13 Percent distribution of health workers by type of activities carried out while providing zinc tablets to mothers/caretakers of the children suffering from diarrhea

Type of activities carried out while providing zinc to the mothers/care takers of the children	Intensified areas (n=51)			Non-intensified areas (n=51)		
	Spontaneous	After probing	Total	Spontaneous	After probing	Total
Examine the condition of the child suffering from diarrhea	74.5	25.5	100.0	70.6	27.5	98.0
Explain about doses of zinc	80.4	19.6	100.0	66.7	31.4	98.0
Number of days zinc to be given	68.6	31.4	100.0	60.8	37.3	98.0
Explain about the procedure of administering zinc	66.7	33.3	100.0	56.9	41.2	98.0
Provide ORS and give instruction to prepare it	54.9	45.1	100.0	39.2	51.0	90.2

In addition, health workers of the intensified areas were also expected to explain the mothers/caretakers about the filling up of the zinc compliance cards and instructing mothers/caretakers returning the filled-up cards to the health facility or health worker after completing the treatment. Slightly over 1-in-3 health workers spontaneously reported that they had instructed all mothers/caretakers to fill up the zinc compliance cards and over one-fourth also spontaneously reported that they had instructed mothers/caretakers to return the filled up cards after completing the treatment. After probing, this figure increased to 86% in both cases indicting that majority of the health workers of the intensified areas strictly following the activities they were expected to do while providing zinc tablets to mothers/caretakers.

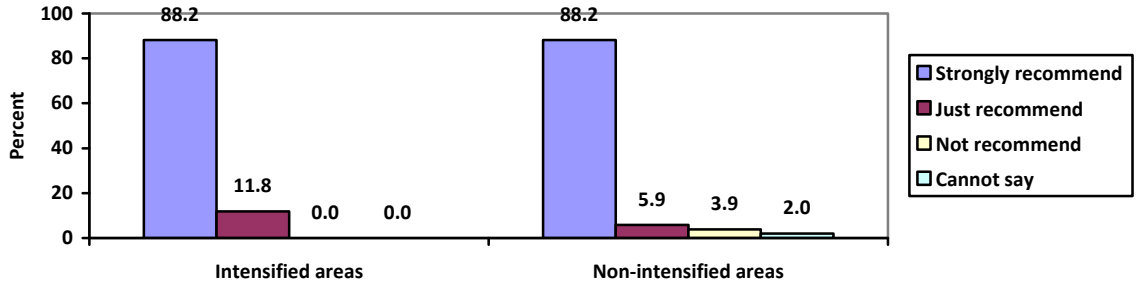
Figure 4.5 Percentage of health workers of program areas by specific activities carried out while providing zinc tablets to mothers/caretakers



n= 51

In order to assess the attitude of health workers towards zinc treatment they were inquired how strongly do they recommend or not recommend other health workers or volunteers to use zinc tablets to treat diarrhea among children. A vast majority (88%) of workers from both intensified and non-intensified areas said that they would "strongly recommend" other health workers or volunteers to use zinc tablets followed by 12% in intensified and 6% in non-intensified areas said that they would just recommend (Figure 4.6). However, 2 out of 51 health workers in non-intensified areas reported that they would not recommend other colleagues to use zinc tablets giving the reasons that all of them had already received orientation on it so no need to recommend them in this matter (Table not shown). The overall findings thus indicate that there was no marked difference between health workers of the two areas regarding degree of recommendation given to the other health workers or volunteers to use zinc. Both groups had positive inclination towards recommending zinc treatment to other.

Figure 4.6 Percentage of health workers recommending other health workers or FCHVs to use zinc tablets to treat diarrhea among children



n= 51 in each of intensified and non-intensified areas

4.5 Coverage of diarrhea with zinc treatment

The study attempted to assess the coverage of diarrhea episode treated with zinc and ORS by the health workers in their areas. For this purpose information was collected on the number of diarrhea cases encountered by them and number treated with zinc and ORS. Information regarding the treatment of diarrheal cases among the children aged 2-59 months was collected

from 110 health facilities – of which 55 were from intensified and another 55 were from non-intensified areas.

Information regarding the number of children aged 2-59 who visited health facility in the last month (i.e. in Kartik) preceding the survey for the treatment of diarrhea and type of treatment they received was collected reviewing the service data maintained by each of the sampled health facilities. Of the 110 health facilities included in the study one each of the health facility reported had not seen any case of childhood diarrhea in the past one month while the rest had seen at least some cases of diarrhea in their areas in the said period. Similarly, one health facility in non-intensified area could not produce the HMIS record to the study team during data collection period. The results are presented in Table 4.14. The average number of children taken to the health facility for the treatment of diarrhea during the month of Kartik was 28.4 in intensified and 25 children in non-intensified areas. On average, 21 children (74%) in intensified and 16.6 children (66%) in non-intensified areas were treated with zinc and ORS in Kartik while 6.9 children (24%) in intensified and 7.2 children (29%) in non-intensified areas were treated with ORS only. Similarly, a few children (0.3 in intensified and 0.4 in non-intensified) were treated with zinc only. Slightly, a higher number of children in non-intensified areas (0.3 vs. 0.8) were not receiving any treatment for diarrhea. The overall findings indicate that although the coverage of diarrhea treatment with zinc and ORS together was much higher in intensified areas than in non-intensified areas still a significant number of children in both areas had not received diarrheal treatment together with zinc and ORS indicating the need for improving the services on diarrheal treatment in both areas.

Table 4.14 Average number of children aged 2-59 months suffering from diarrhea visited the health facility and type of treatment given to the children in the last month preceding the survey

Number of children suffered from diarrhea and treated with Zinc and ORS , zinc only and ORS only from this health facility in the last one month i.e. in Kartik	Intensified areas (n=54)		Non-intensified areas (n=53)	
	No.	SD	No.	SD
Average number of children suffering from diarrhea visited health facility	28.4	(28.4)	25.0	(19.1)
Average number of children treated with Zinc and ORS	21.0	(24.7)	16.6	(19.0)
Average number of children treated with Zinc only	0.3	(2.0)	0.4	(3.0)
Average number of children treated with ORS only	6.9	(16.5)	7.2	(9.6)
Average number of children not treated	0.3	(1.2)	0.8	(3.1)

Of the 54 health facilities in intensified and 53 facilities in non-intensified areas, 19 facilities (35%) in intensified and 32 (60%) in non-intensified areas reported not treating diarrhea with zinc and ORS at least one child in their facilities. The main reasons for not treating diarrhea cases with zinc and ORS together at the health facilities of both areas was due to the shortage of zinc tablets at hands (42% in intensified and 31% in non-intensified). Over one in every 10 health workers of both areas also gave the reason of lack of training or orientation on treatment of diarrhea with zinc and ORS. Similarly, over half (53%) of the health workers from non-intensified areas did not treat diarrheal cases together with zinc and ORS due to the absence of severe cases of diarrhea among some children visiting their facilities (Table 4.15).

Table 4.15 Percent distribution of health workers by reasons for not treating childhood diarrhea together with zinc and ORS

Reasons for not giving zinc with ORS (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Shortage of zinc	42.1	8	31.3	10
No training/orientation (even by FCHVs)	10.5	2	12.5	4
Shortage of ORS	5.3	1	-	-
No serious diarrhea so did not provide	-	-	53.1	17
Other (no information; FCHVs were not provided with zinc)	5.3	1	12.5	4
Do not know	36.8	7	9.4	3
Total (n)	**-**	**19**	**-**	**32**

Information regarding number of children with diarrhea treated with zinc and ORS at the sampled health facilities in the past 9 months preceding the survey was collected by reviewing the IMCI OPD register of each health facility. Of the 110 health facilities included in the study three health facilities (1 in intensified and 2 in non-intensified areas) could not produce the IMCI OPD register to the study team due to the absence of concerned staff of the health facility. Table 4.16 presents data on monthly wise status of treatment (i.e. complete or incomplete) of childhood diarrhea with zinc and ORS in the last nine months preceding the survey. The average number of children treated with zinc and ORS by a health facility ranged from 6.4 to 20.4 in intensified and 5.4 to 17.0 in non-intensified areas. Likewise, the average number of children who received complete treatment of diarrhea with zinc and ORS ranged from 5.4 to 16.7 in intensified and 4.0 to 10.8 in non-intensified areas. In both areas, the average number of children treated with zinc and ORS was much higher during the months of Chaitra, Baisakh and Jestha and lower in Bhadra, Ashwin and Kartik. The overall findings reveal that a higher number of children in intensified than in non-intensified areas were found to be treated with complete dose of zinc and ORS.

Table 4.16 Average number of children treated with zinc and ORS in the past 9 months preceding the survey

Month	Intensified district (n=54)			Non-intensified district (n=53)		
	Average number of children	Treatment with zinc and ORS (complete)	Treatment with zinc and ORS (incomplete)	Average number of children	Treatment with zinc and ORS (complete)	Treatment with zinc and ORS (incomplete)
Falgun, 2066 (Feb/Mar 2010)	11.1	6.5	4.6	13.9	7.8	6.1
Chaitra 2066 (Mar/Apr 2010)	18.5	13.1	5.4	16.0	10.8	5.2
Baisakh 2067 (Apr/May 2010)	20.4	16.7	3.7	17.0	10.3	6.7
Jestha 2067 (May/Jun 2010)	18.7	13.9	4.8	13.8	9.3	4.5
Asadh 2067 (Jun/Jul 2010)	12.6	9.8	2.8	11.4	8.9	2.5
Shrawan 2067 (Jul/Aug 2010)	12.5	11.0	1.5	10.7	7.7	3.0
Bhadra 2067 (Aug/Sep 2010)	8.3	6.7	1.6	7.2	4.8	2.4
Ashwin 2067 (Sep/Oct 2010)	6.4	5.4	1.0	5.4	4.0	1.4
Kartik 2067 (Oct/Nov 2010)	7.9	6.1	1.8	5.8	4.2	1.6

4.6 Stock situation of zinc tablets and ORS

For the timely treatment and management of childhood diarrhea the health facilities should have adequate supply of ORS and zinc tablets. The study also tried to assess the supply situation of both the ORS and zinc tablets at the sampled health facilities of both intensified and non-intensified areas. The survey results are discussed in this section.

a) Supply situation of ORS

Nearly 90% of the health facilities in intensified and all in non-intensified areas reported receiving ORS packets in the past three months preceding the survey. The number of ORS packets received by the health facilities within the past three months ranged from 100 to 1300 with the average number of 329 packets in intensified and 341 packets in non-intensified areas (Table 4.17). Nearly half (46%) of the health facilities in intensified and over half (51%) in non-intensified areas had less than 200 packets of ORS at the time of survey while over a quarter in intensified as against only 15% in non-intensified areas had more than 400 packets of ORS in stock. The current stock of ORS packets at the facilities ranged from 10 to 1300 with the mean stock of 277 in intensified and 226 in non-intensified areas indicating the availability of more stock at the intensified areas facilities than in non-intensified areas facilities.

Table 4.17 Percent distribution of health workers by number of ORS packets received in the last three months and its current stock

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Number of ORS packets received in the past three months				
None	10.9	6	-	-
100 -199	10.9	6	20.0	11
200-299	25.5	14	29.1	16
300-399	23.6	13	18.2	10
400+	29.1	16	32.7	18
Mean (SD)	**329**	**(281)**	**341**	**(263)**
Total	**100.0**	**55**	**100.0**	**55**
Number of ORS packets in stock at the health facility at present				
None	-	-	-	-
10 -199	45.5	25	50.9	28
200-299	14.5	8	20.0	11
300-399	14.5	8	14.5	8
400+	25.5	14	14.5	8
Mean (SD)	**277**	**(237)**	**226**	**(209)**
Total	**100.0**	**55**	**100.0**	**55**

The health workers were also enquired about the adequacy of the ORS that they received compared to the number of children brought to the facility requiring ORS treatment. A vast majority (86%-92%) of the health workers with slightly a higher percentage in non-intensified areas said that the quantity of ORS they received was enough compared to the number of children brought to the health facility requiring ORS treatment. Most health workers (43%) in both areas had received the supply of ORS as and when needed. Notably more health workers of intensified (20%) than in non-intensified (4%) areas reported receiving the supply of ORS more frequently i.e. in every month. This information indicates that the intensified areas health

facilities were receiving the supply of ORS more frequently than did by their counterparts of non-intensified areas.

Table 4.18 Percent distribution of health workers by adequacy of ORS packets for their health facilities and frequency of getting them

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Opinion on the adequacy of the quantity of ORS received compared to the number of children brought to the facility requiring ORS treatment				
Yes	86.3	44	92.2	47
No	13.7	7	7.8	4
Total	**100.0**	**51**	100.0	**51**
Frequency of getting the supply of ORS				
Monthly	19.6	10	3.9	2
Trimesterly	35.3	18	41.2	21
Four monthly	2.0	1	11.8	6
As per need	43.1	22	43.1	22
Total	**100.0**	**51**	**100.0**	**51**

The health workers were also enquired about how frequently do they supply the ORS packets to the FCHVs of their areas. Over 43% of the health workers in intensified compared to only 24% in non-intensified areas reported that they usually distribute ORS to the FCHVs every month. Over half (57%) of the health workers in intensified and nearly three-quarters (73%) in non-intensified areas reported distributing ORS to the FCHVs as per their need (Table 4.19).

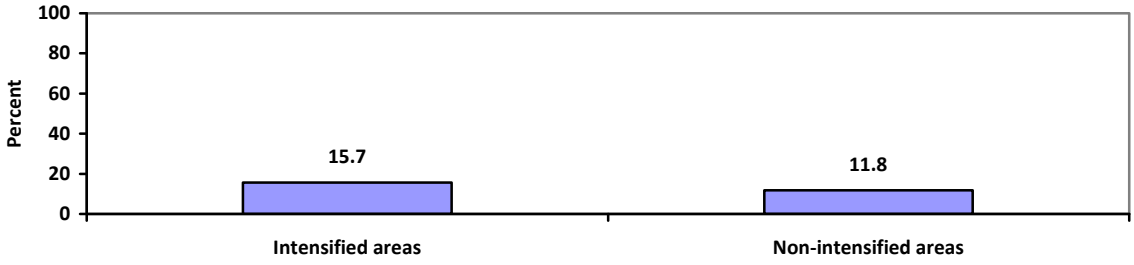
Table 4.19 Percent distribution of health workers by frequency of distributing ORS packets to the FCHVs of their areas

Frequency of supplying the ORS to FCHVs	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Monthly	43.1	22	23.5	12
Trimesterly	-	-	3.9	2
As per need	56.9	29	72.5	37
Total	**100.0**	**51**	**100.0**	**51**

When further probed if they had faced any problems regarding the supply of ORS packets slightly a higher proportion (16%; n=8) of the health workers in intensified as against 12% (n=6) in non-intensified areas reported encountering problems with supply of ORS packets (Figure 4.7). The types of problems stated were as follows (Table not shown):

- Unavailability of required amount of ORS (n=6 in intensified and 1 in non-intensified areas)
- Lack of transport provision for transporting ORS (n=1 in intensified and 3 in non-intensified areas)
- Unavailability of ORS in time (n=1 in intensified and 2 in non-intensified areas)

Figure 4.7 Percentage of health workers who had faced any problems regarding the supply of ORS packets



n= 51 in each of intensified and non-intensified areas

b) Supply situation of zinc tablets

Over 60% of the health facilities in intensified and nearly 90% in non-intensified areas had received zinc tablets in the past three months preceding the survey. The number of zinc tablets received by the health facilities ranged from 10 to more than 1000 tablets with the mean of 535 tablets in intensified and 776 tablets in non-intensified areas (Table 4.20). The current stock of zinc tablets at the facilities ranged from 10 tablets to more than 1000 tablets with the mean stock of 528 in intensified and 495 in non-intensified areas indicating availability of more stock at the intensified area facilities than in non-intensified area facilities. Most of the facilities in both areas (44% in intensified and 47% in non-intensified) had stock of less than 500 tablets at the time of survey. A higher percentage (20%) of health facilities in intensified areas had more than 1000 zinc tablets than those in non-intensified areas (16%). About one-tenth (n= 7 in intensified and 5 in non-intensified) of the health facilities of both areas did not have stock of zinc at the time of survey (Table 4.20). The reasons were that these facilities had not received zinc supply (n=4 in each of intensified and non-intensified) and the distribution of zinc was high (3 intensified and 1 non-intensified) (Table not shown).

Table 4.20 Percent distribution of health workers by number of zinc tablets received in the last three months and stock situation of zinc tablets at their health facility

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Number of zinc tablets received in the past three months (number of tablets)				
None	38.2	21	10.9	6
10-499	5.5	3	-	-
500-999	23.6	13	45.5	25
1000+	32.7	18	43.6	24
Mean (SD)	**535**	**(605)**	**776**	**(515)**
Total	**100.0**	**55**	**100.0**	**55**
Number of Zinc tablets in stock at the health facility at present				
None	12.7	7	9.1	5
10-499	43.6	24	47.3	26
500-999	23.6	13	27.3	15
1000+	20.0	11	16.4	9
Mean (SD)	**528**	**(498)**	**495**	**(472)**
Total	**100.0**	**55**	**100.0**	**55**

When further enquired about the adequacy of zinc tablets, 77% of the health workers in intensified and 61% in non-intensified areas opined that the quantity of zinc tablets they received was enough compared to the number of children brought to the facility requiring zinc treatment. However, considerable proportion (22%-35%) of the health workers with a higher proportion in non-intensified areas did not find it to be adequate for the treatment of diarrhea at least once in the past one year. Most (41%) of the health workers in both areas reported that they obtain zinc tablets as and when needed and about one-third receive it in every three months. Notably more health workers in intensified (20%) than in non-intensified (2%) areas reported getting zinc supply every month (Table 4.21). The above findings indicate that health facilities of intensified areas were more likely to receive the zinc tablets more frequently than those of non-intensified areas.

Table 4.21 Percent distribution of health workers by adequacy of zinc tablets packets for their health facilities and frequency of getting them

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Opinion on the adequacy of the quantity of zinc received compared to the number of children brought to the facility requiring zinc treatment				
Yes	76.5	39	60.8	31
No	21.6	11	35.3	18
Have not brought the zinc at the health facility so far	-	-	3.9	2
Do not know	2.0	1	-	-
Total	**100.0**	**51**	**100.0**	**51**
Frequency of getting the supply of zinc tablets				
Monthly	19.6	10	2.0	1
Trimesterly	31.4	16	36.7	18
Four monthly	2.0	1	20.4	10
As per need	41.2	21	40.8	20
Have not received since 5-6 months back; received only 1-2 times so far	5.9	3	-	-
Total	**100.0**	**51**	**100.0**	**49**

When further asked about the frequency of supplying the zinc tablets to the FCHVs of their areas the majority (55%-63%) of the health workers with a higher percentage in intensified areas reported that they distribute the zinc tablets to FCHVs as and when needed. One in every three health workers in intensified areas as opposed to only 2% in non-intensified areas reported distributing zinc tablets to FCHVs every month (Table 4.22).

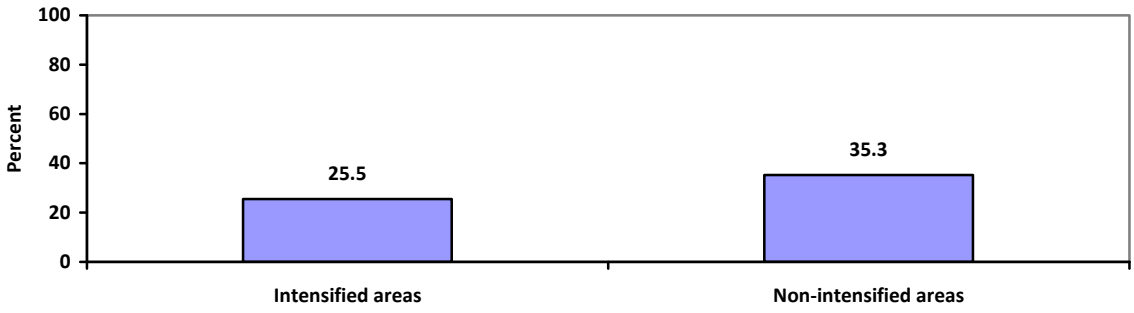
Table 4.22 Percent distribution of health workers by frequency of distributing zinc tablets to FCHVs

Frequency of supplying zinc tablets to FCHVs	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Monthly	33.3	17	2.0	1
Trimesterly	-	-	6.1	3
Four monthly	2.0	1	8.2	4
As per need	62.7	32	55.1	27
Only one time so far; every two months	2.0	1	-	-
Have not distributed to FCHV so far	-	-	28.6	14
Total	**100.0**	**51**	**100.0**	**49**

When asked if they had faced any problems regarding the supply of zinc tablets, 26% (n=13) of the health workers in intensified as opposed to 35% (n=18) in non-intensified areas reported facing problems with supply of zinc tablets (Figure 4.8). The types of problems faced by the health facilities with regard to the supply of zinc tablets were (Table not shown):

- Unavailability of zinc when needed (n=9 in intensified and 11 in non-intensified areas)
- Unavailability of adequate amount of zinc (n=2 each in intensified and non-intensified areas)
- Inability to provide patients (n=6 in non-intensified areas)
- Inability to provide FCHVs (n=4 in non-intensified areas)

Figure 4.8 Percentage of health workers who had faced any problems regarding the supply of zinc tablets



n= 51 in both of intensified and non-intensified areas

c) IEC materials on zinc and ORS

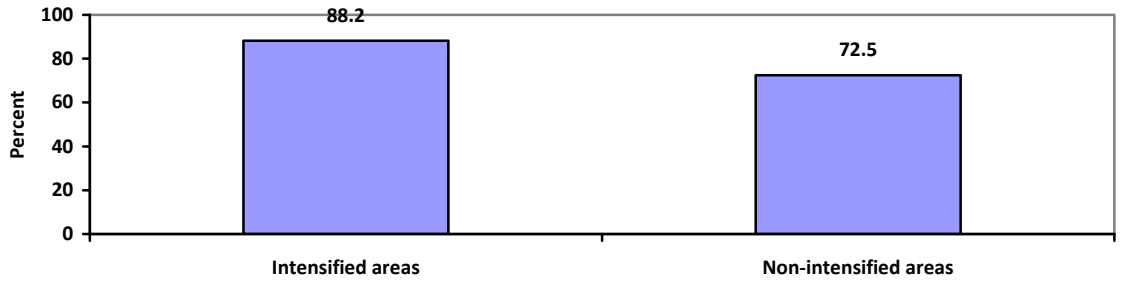
Majority (about 75%) of the health workers from both the intensified and non-intensified areas reported not having any brochure related to zinc and ORS at their health facilities at the time of survey. Only about one-fourth had brochures on zinc and ORS at their health facilities; and most of them had 1-2 such brochures in both areas. However, about 80% of the health workers in both areas reported to have zinc job aid card at their health facilities; but most of the health facilities had 1-2 such job aid cards (Table 4.23). A few of the respondents also reported having 1-2 introductory booklets on zinc (7 in intensified and 5 in non-intensified areas) and posters or pamphlets (4 in intensified and 2 in non-intensified areas) at their health facilities (Table not shown).

Table 4.23 Percent distribution of health workers by availability of zinc and ORS related brochure and job aid cards at their health facilities at the time of survey

Kind and number of IEC materials related to zinc and ORS at present	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Brochure				
None	74.5	41	76.4	42
1-2	14.5	8	7.3	4
3-4	5.5	3	3.6	2
5 or more	5.5	3	12.7	7
Total	**100.0**	**55**	**100.0**	**55**
Job Aid Card				
None	21.8	12	20.0	11
1-2	70.9	39	54.5	30
3-4	5.5	3	10.9	6
5 or more	1.8	1	14.6	8
Total	**100.0**	**55**	**100.0**	**55**

Health workers were also further asked if they had zinc job aid card on treating diarrhea with zinc tablets. In response, 88% of the health workers in intensified compared to 73% in non-intensified areas affirmed that they had zinc job aid cards to be used while providing diarrheal treatment to the children (Figure 4.9).

Figure 4.9 Percentage of health workers having zinc job aid cards with them



n= 51 in each of the intensified and non-intensified areas

4.7 Use of zinc compliance card

a) Availability of zinc compliance cards at the health facility

The zinc compliance cards were supplied to health workers/facilities of intensified areas only; and they have not been introduced to the non-intensified areas yet. Overall, 84% of the health workers of the intensified areas reported that they have stock of zinc compliance cards at their health facilities. A notable proportion (16%) of the heath workers reported that the health facilities had no stock of zinc compliance card currently. Nearly half (46%) of the health facilities had less than 100 cards followed by 22% who had 100-199 cards and the rest (15%) had 200 or more cards (Table 4.24). On average, 94 zinc compliance cards were available at the facilities currently indicating that there was no shortage of such cards to be distributed to the clients.

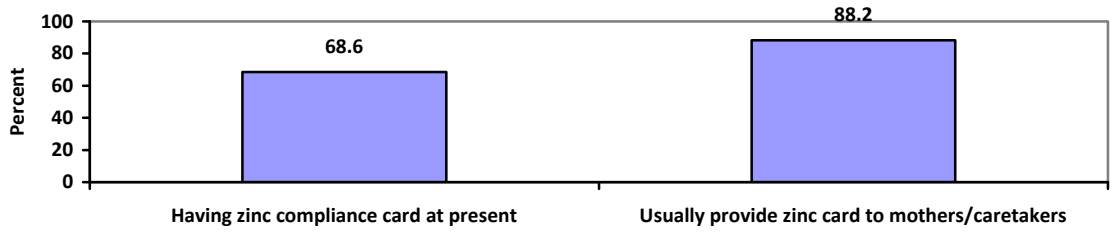
Table 4.24 Percent distribution of health workers by number of zinc compliance card available at their health facilities

Number of zinc compliance cards at present	%	No.
None	16.4	9
Less than 100	45.5	25
100-199	21.8	12
200 +	14.5	8
Mean (SD)	**94**	**(161)**
Do not know	1.8	1
Total	**100.0**	**55**

b) Availability of zinc compliance cards among health workers

Health workers of the intensified areas were enquired if they had zinc compliance cards to be given to the mothers/caretakers during the treatment of diarrhea with zinc and ORS. Slightly over 2-in-3 health workers reported having zinc compliance cards with them at the time of survey. However, nearly 9-in-10 health workers affirmed that they mostly provide the zinc compliance cards to the mothers/caretakers during the treatment of diarrhea with zinc tablets (Figure 4.10). However, five health workers reported that they had never provided zinc compliance cards to the mothers/caretakers during the treatment of childhood diarrhea.

Figure 4.10 Percentage of health workers of program areas who have zinc compliance cards at the time of survey and who usually provide zinc cards to mothers/caretakers during diarrheal treatment



n= 51

Among those (n=35) who reported having zinc compliance cards were further asked about the number of cards they have at the time of survey. The survey results reveal that a higher (34%) percentage of the health workers had less than 10 such cards and 26% had 10-19 cards. Nearly one-quarter (23%) of the health workers had 100 or more cards at the time of survey. On average each health worker had 44 zinc compliance cards at the time of survey (Table 4.25).

Table 4.25 Percent distribution of health workers of intensified areas by number of zinc compliance cards they have at the time of survey (among those who reported having zinc cards)

Number of zinc compliance cards at present	%	No.
Less than 10	34.3	12
10-19	25.7	9
20-49	8.6	3
50-99	8.6	3
100+	22.9	8
Mean (SD)	**44**	**(59)**
Total	**100.0**	**35**

c) Collection of zinc compliance cards from mothers/caretakers

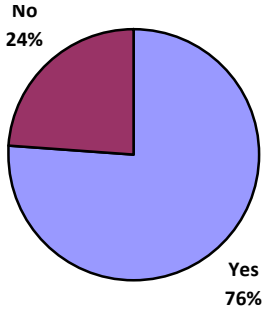
Those (n=46) who reported ever providing the zinc compliance cards to the mothers/caretakers of the children during diarrheal treatment with zinc tablets were further asked about proportion of the mothers/caretakers who usually return the compliance cards after completing the treatment to them or at the health facility. According to the responding health workers the rate of return of filled up compliance cards varied greatly. About 15% of the health workers said that almost all the mothers/caretakers usually return such cards to them or their health facilities while over one-third said that only less than 25% mothers/caretakers had done so (Table 4.26).

Table 4.26 Percent distribution of health workers of intensified areas by proportion of the mothers/caretakers who usually return the compliance cards to the health facility

Proportion of the caretakers/mothers returning the compliance card after completing the treatment to the health facility	%	No.
Almost all	15.2	7
More than 75%	17.4	8
More than 50%	10.9	5
Less than 50%	19.6	9
Less than 25%	34.8	16
Have not returned yet	2.2	1
Total	**100.0**	**46**

When further probed if they usually collect the completed zinc compliance cards from FCHVs, pharmacists or mothers/caretakers, three-quarters (76%; n=35) of the health workers responded affirmatively i.e. they get involved in collecting filled up compliance cards (Figure 4.11). The majority (83%) of the health workers said they collect filled up cards every month and another 3% do so every two months. However, 14% of the health workers reported doing so whenever needed or during the periodic meetings (Table not shown).

Figure 4.11 Percentage of health workers who usually collect filled up zinc compliance cards from FCHVs, pharmacists or mothers/caretakers



n=46

Health workers (n=35) were also asked how frequently do they submit the collected zinc compliance cards to their health facility. 4-in-5 health workers reported submitting the filled up cards every month, and the rest (20%) submit do so immediately after the collection (Table not shown). Almost all (92%; n=47) of the health workers opined that the task of recording the zinc administration on the compliance cards was necessary while only a negligible proportion (6%; n= 3) of them did not think it to be necessary to fill up the zinc compliance cards and one respondent said "do not know". Those (n=47) respondents who reported it to be necessary to fill up the compliance cards during the treatment of diarrhea with zinc tablets were further probed as to why they think it to be necessary. The most frequently reported reason for filling up the cards was that it would remind to give zinc timely (98%) followed by ensuring authenticity of the treatment (64%) and reminding any member of the family to give zinc (43%). Similarly, nearly

1-in-4 health workers viewed that filling up the cards would help the providers to follow up of the children treated with zinc (Table 4.27). Among those (n=3) who reported not being it to be necessary to fill up the zinc compliance cards gave the reasons that one could remember about the timing of giving zinc easily (n=2) and it would be only an extra burden to the mothers/caretakers (n=2) (Table not shown).

Table 4.27 Percent distribution of health workers of intensified areas by their opinion regarding the need for filling up the zinc compliance cards

Description	%	No.
Opinion about filling up the zinc compliance card		
Necessary	92.2	47
Not necessary	5.9	3
Do not know	2.0	1
Total	**100.0**	**51**
Reasons for being necessary to fill up the zinc compliance cards (Multiple Response)		
Reminds to give zinc timely	97.9	46
Ensuring authentic of the treatment	63.8	30
Any member can be reminded of giving zinc	42.6	20
Ensuring follow up by the providers	23.4	11
Other §	4.3	2
Total (n)	**-**	**47**

§ Other includes: makes easy to prepare report; easy to know the age and place of children.

4.8 Problems and suggestions

In order to estimate the acceptability of treatment of diarrhea with zinc and ORS the health workers included in the study were enquired whether they had come across any appreciations or comments made by the mothers or caretakers about the treatment of diarrhea with zinc. It was found that a notably more health workers of intensified areas reported had received positive comments from the mothers or caretakers than did by the health workers from non-intensified areas. Such positive comments included that the zinc and ORS combined treatment helped stop diarrhea quickly (86% in intensified and 53% in non-intensified); helped made the child stronger (51% in intensified and 31% in non-intensified) and increased the appetite of the children (47% in intensified and 24% in non-intensified). Nearly half (45%) of the health workers from non-intensified as opposed to only 12% from intensified areas had not received any positive comments from the caretakers. Only about 18% of the health workers in intensified and 8% in non-intensified areas had noticed at least one negative comment made by the mothers/caretakers with respect to the treatment of childhood diarrhea with zinc tablets. The negative comments encountered by a small proportion (less that 10%) of the health workers of both study areas included caused vomiting, children reluctant to take zinc, and difficulty in giving continuously for 10 days (Table 4.28).

Table 4.28 Percent distribution of health workers who have noticed good things and comments from the mothers/caretakers about the treatment of diarrhea with zinc tablets and ORS

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Notice of good things reported by the care takers about the treatment of diarrhea with zinc tablets and ORS (Multiple Response)				
Helped stop diarrhea quickly	86.3	44	52.9	27
Increased the appetite of the children	47.1	24	23.5	12
Helped made child stronger	51.0	26	31.4	16
Other §	5.9	3	2.0	1
Nothing	11.8	6	45.1	23
Total (n)	**-**	**51**	**-**	**51**
Notice of complaints from the care takers about the treatment of diarrhea with zinc tablets and ORS (Multiple Response)				
Problem of vomiting	9.8	5	3.9	2
Children do not like; difficulty in feeding	7.8	4	-	-
Difficulty in feeding for ten days; long duration	2.0	1	-	-
Diarrhea did not stop even after three days of feeding	2.0	1	-	-
Forgetting to fill up the card	2.0	1	-	-
More frequent diarrhea after consuming the zinc	2.0	1	-	-
Did not like the test	-	-	2.0	1
Have not used zinc so far	-	-	3.9	2
Nothing	82.4	42	92.2	47
Total (n)	**-**	**51**	**-**	**51**

§ Other includes: passing out the worms; essential to treat diarrhea with zinc.

When asked whether they had faced any problem in treating diarrhea cases with zinc and ORS, one-third of the health workers in intensified and nearly one-fifth in non-intensified areas reported facing any kind of problems. Unavailability of zinc tablets in adequate amount (44%) and in time (33%) were the most frequently cited problems faced by the health workers of non-intensified areas. While mothers not returning the filled up cards (35%) followed by problems in filling up the cards by the mothers/caretakers (24%) were the most frequently cited problems among the health workers of intensified areas (Table 4.29). Nearly one-fifth of the health workers of intensified areas also mentioned problems such as unavailability of zinc in adequate amount, not giving full dose of zinc tablets to the children by the caretakers and tendency of mothers consulting pharmacy when diarrhea does not stop soon. A few of the health workers of both the intensified and non-intensified areas also mentioned problems such as difficulties in giving zinc tablets to small babies and complain from mothers/caretakers regarding vomiting after consumption of zinc.

Table 4.29 Percent distribution of health workers by type of problems encountered for treating the diarrhea cases with zinc and ORS

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Whether faced any problem for treating the diarrhea cases with ORS and zinc				
Yes	33.3	17	17.6	9
No	66.7	34	82.4	42
Total	**100.0**	**51**	**100.0**	**51**
Types of problems or constraints faced in treatment of diarrhea cases with zinc (Multiple Response)				
Mother's failure to return the zinc card	35.3	6	-	-
Problems in filling up the card	23.5	4	-	-
Unavailability of adequate amount of zinc timely	17.6	3	44.4	4
Caretakers do not provide full dose of zinc for 10 days	17.6	3	11.1	1
Tendency of mothers to consult pharmacy shop when diarrhea does not stop soon; difficulty to convince them	17.6	3	11.1	1
Wanted to have the zinc in liquid form; difficulty in giving zinc to small babies	11.8	2	11.1	1
Problem of losing the card	5.9	1	-	-
Cause vomiting	11.8	2	11.1	1
Zinc were not made available to children suffering from diarrhea in time	-	-	33.3	3
Other (lack of time; lack of zinc card in the time of need)	11.8	2	-	-
Total (n)	**-**	**17**	-	**9**

Health workers were also asked to give their suggestions for the improvement in treatment of diarrhea with zinc tablets and ORS. Most of the health worker from both areas suggested to make zinc available in adequate amount and in time (31% in intensified and 35% in non-intensified) and educating people on zinc using various media and materials (29% in intensified and 33% non-intensified). Nearly two-fifths of health workers in intensified and about a quarter in non-intensified areas also felt the need for providing refresher training on diarrheal treatment with zinc and ORS on regular basis to FCHVs, MCHWs and VHWs. A considerable number of the health workers with a higher percentage in intensified areas also suggested to create awareness on zinc among the mothers and mothers group members (18% in intensified and 2% in non-intensified) and to increase regular monitoring visits from the district office (14% in intensified and 2% in non-intensified).

Table 4.30 Percent distribution of health workers by type of suggestions given for the improvement in treating diarrhea with zinc tablets and ORS

Suggestions to facilitate treatment of children suffering from diarrhea with zinc (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Refresher training for FCHVs, MCHWs and VHWs	39.2	20	25.5	13
Zinc should be made available in adequate amount and in time	31.4	16	35.3	18
Needs to provide education to the people on Zinc through the use of various media and educational materials such as posters pamphlets	29.4	15	33.3	17
Awareness on zinc for mothers and mothers group members	17.6	9	2.0	1
Regular monitoring visit from district	13.7	7	2.0	1
Should be prepared in liquid from for small babies	7.8	4	11.8	6
Training for FCHVs	7.8	4	9.8	5
Should shortened the duration of zinc consumption	5.9	3	0.0	0
Make available of separate zinc of 10 mg and 20 mg	2.0	1	3.9	2
Adequate amount of ORS should be made available to provide to sick children	-	-	3.9	2
Other §	7.8	4	7.8	4
Everything is fine; no suggestion	7.8	4	7.8	4
Total (n)	**-**	**51**	**-**	**51**

§ Other includes: make child friendly taste; should implement as campaign; zinc card should be made available; creating awareness to provide zinc for 10 days.

Chapter 5

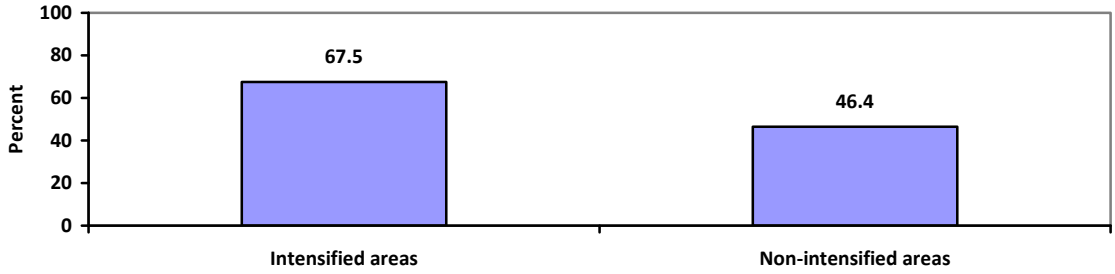
Findings on Pharmacists

The study included 40 pharmacists (7 in Sankhuwasabha, 20 in Gorkha and 13 in Bajura) from intensified and 28 pharmacists (5 in Taplejung, 13 in Tanahun and 10 in Bajhang) from non-intensified areas. This chapter deals with the KAP of pharmacists in relation to zinc treatment of childhood diarrhea including the availability of zinc and ORS at pharmacies in intensified districts and non-intensified districts.

5.1 Training/orientation on treatment of diarrhea with zinc and ORS

All pharmacist included in the study were enquired if they had received pharmacist training. In response, 68% (n=27) of the respondents in intensified compared to only 46% (n=13) in non-intensified areas reported receiving pharmacist training in the past (Table not shown). Respondents were further asked if they had ever received orientation on treatment of childhood diarrhea with zinc tablets and ORS. Data presented in Figure 5.1 shows that a higher proportion (68%) of the pharmacists in intensified than those in non-intensified (46%) areas reported receiving orientation on it. Among those who received the orientation, all the pharmacists in intensified areas had received in the last one year preceding the survey. In non-intensified areas only 8% of the pharmacists had received orientation in the last one year while over half (54%) had received 2 or more years ago. Nearly two-fifths (39%) of the pharmacists however could not recall about the time when they received orientation on it (Table not shown). The above information thus reveals that the pharmacists from intensified areas had received orientation on zinc much recently than did by the pharmacists of non-intensified areas.

Figure 5.1 Percentage of pharmacists who had received orientation on treatment of childhood diarrhea with zinc tablets and ORS



n= 40 in intensified and 28 in non-intensified areas

Those (n= 27 in intensified and 13 in non-intensified) pharmacists who reported receiving orientation on treatment of childhood diarrhea with zinc tablets and ORS were further enquired about the duration of training including type of trainers and number of times they received it. The results are presented in Table 5.1. All the pharmacists from both the intensified and non-intensified areas received orientation only once and the duration of orientation was one day only. Most of the pharmacists (82%-85%) from both areas had received orientation from district health offices, and the rest had received either from health posts or persons visiting from Kathmandu. All the pharmacists of both the intensified and non-intensified areas found the orientation useful in providing diarrheal treatment to children below five years of age. Thus, the overall findings on training reveal that there was no marked difference in the duration, frequency and views towards usefulness of training between intensified and non-intensified area.

Table 5.1 Percent distribution of pharmacists by duration of orientation on treatment of diarrhea with zinc and ORS, persons provided orientation and usefulness of orientation

Description	Intensified areas (n=27)		Non-intensified areas (n=13)	
	%	No.	%	No.
Duration of orientation one day	**100.0**	**27**	**100.0**	**13**
Place of training received from				
District health office	81.5	22	84.6	11
Health post/ persons form the center in Kathmandu	18.5	5	15.4	2
Orientation received one time	**100.0**	**27**	**100.0**	**13**
% saying that orientation was useful	**100.0**	**27**	**100.0**	**13**

5.2 Knowledge of diarrhea and its treatment

All the pharmacist respondents included in the study from intensified as well as non-intensified areas considered ARI/pneumonia as the most common health problem of children in their areas. Similarly, all the pharmacists from intensified and almost all (96%) from non-intensified areas noticed diarrhea among the childhood health problems. Malnutrition was listed as common problem by 23% of the pharmacists from intensified and 14% from non-intensified areas (Table 5.2). Overall more pharmacists from intensified than non-intensified areas found to be aware of several common health problems of children under 5 years of age.

Table 5.2 Percent distribution of pharmacists mentioning the most common health problems in children in their areas

Most common health problems of children under 5 year of age in the area (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
ARI/Pneumonia	100.0	40	100.0	28
Diarrhea	100.0	40	96.4	27
Malnutrition	22.5	9	14.3	4
Inflammation of ears; itching; allergy	12.5	5	7.1	2
Fever	10.0	4	7.1	2
Measles	5.0	2	3.6	1
Other (eating spoiled foods; typhoid)	2.5	1	-	-
Total (n)	-	**40**	-	**28**

In order to assess their level of knowledge the pharmacists were asked about the causes of diarrhea among children under 5 years of age. All the pharmacists from intensified and almost all (96%) from non-intensified areas correctly mentioned "poor hygiene" as one of the causes of diarrhea among the children. The other causes of diarrhea known by the pharmacists of both areas were lack of clean drinking water (90% in intensified and 71% in non-intensified) and poor nutrition (75% in intensified and 57% in non-intensified). Infection and allergies as the causes of diarrhea was mentioned by less than one-fourth of the pharmacists of both areas (Table 5.3). In totality more pharmacists from intensified than non-intensified areas were aware of various factors leading to diarrhea among the children of under 5 years such as poor hygiene, lack of safe drinking water, and poor nutrition.

Table 5.3 Percent distribution of pharmacists by their knowledge about the causes of diarrhea among children under 5 years of age

Knowledge about causes diarrhea among children under 5 years of age (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Poor hygiene	100.0	40	96.4	27
Lack of clean drinking water	90.0	36	71.4	20
Poor nutrition	75.0	30	57.1	16
Infection	20.0	8	25.0	7
Allergies	20.0	8	17.9	5
Due to severe cold	12.5	5	-	-
Other §	10.0	4	10.7	3
Total (n)	**-**	**40**	**-**	**28**

§ Other includes: drinking raw milk; contamination with germs; malnutrition; lack of awareness; change in weather.

When asked about the ways of treating under five years children suffering from diarrhea, a higher proportion (73%) of pharmacists from intensified than those of non-intensified (50%) areas reported treating diarrhea with ORS and zinc together. However, more pharmacists (75%) from non-intensified areas than from intensified areas (68%) unfavorably reported that they treated diarrhea with ORS only (Table 5.4). The use of antibiotics and other medicines for the treatment of childhood diarrhea was also found to be more common in both areas indicating that the intensified should encourage pharmacists to treat childhood diarrheal cases by providing only the zinc and ORS.

Table 5.4 Percent distribution of pharmacists by ways of treating childhood diarrhea

Ways of treating under five children having diarrhea (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
ORS and Zinc together	72.5	29	50.0	14
ORS (Jeevan Jal/Nava Jeevan) only	67.5	27	75.0	21
Metronidazole	65.0	26	39.3	11
Antibiotics	42.5	17	32.1	9
Zinc only	37.5	15	10.7	3
Other antidiarrheals	20.0	8	25.0	7
Ciprofloxacil	12.5	5	17.9	5
IV drip	7.5	3	7.1	2
9= Other §	5.0	2	17.9	5
Total (n)	**-**	**40**	**-**	**28**

§ Other includes: examine the baby; send to the hospital if not cured; advise for maintaining cleanliness; provide drug.

5.3 Knowledge and attitudes towards zinc

Opinion of the pharmacists of both areas regarding the benefits of treating diarrhea with zinc tablets and ORS was also sought during the study. More than 4-in-5 respondents with slightly a higher percentage from non-intensified areas were of the opinion that use of zinc tablets and ORS could help reduce severity of diarrhea. Quite a high percentage (90%) of the pharmacists in intensified as against only 64% in non-intensified areas opined that use of zinc tablets and ORS could help reduce frequency of diarrhea. Over half of the respondents in intensified compared to about one-third in non-intensified areas believed that use of zinc tablets could help to facilitate absorption of water and to reduce duration of diarrhea. The level of knowledge of pharmacists of both areas about other important benefits of treating diarrhea with zinc and ORS such as preventing future episode, recovering immunity, making child stronger and protecting future illness was quite low (Table 5.5). The overall findings indicate that comparatively more

pharmacists of intensified areas than those of non-intensified areas could identify the appropriate benefits of treating diarrhea with zinc and ORS.

Table 5.5 Percent distribution of pharmacists by knowledge about the benefits of treating diarrhea with zinc and ORS

Perceived benefits of treating diarrhea with Zinc tablet and ORS (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Reduces severity of diarrhea	80.0	32	85.7	24
Reduce frequency of diarrhea	90.0	36	64.3	18
Reduce duration of diarrhea	55.0	22	32.1	9
Facilitate absorption of water	55.0	22	35.7	10
Prevent future episode	30.0	12	39.3	11
Recovers immunity	22.5	9	21.4	6
Makes child stronger	20.0	8	14.3	4
Protects future illness like Vitamin A deficiency	10.0	4	7.1	2
Other §	5.0	2	7.1	2
Do not know	2.5	1	7.1	2
Total (n)	**-**	**40**	**-**	**28**

§ *Other includes: increases appetite; replaces the wasted potassium from the body; reduces economic burden.*

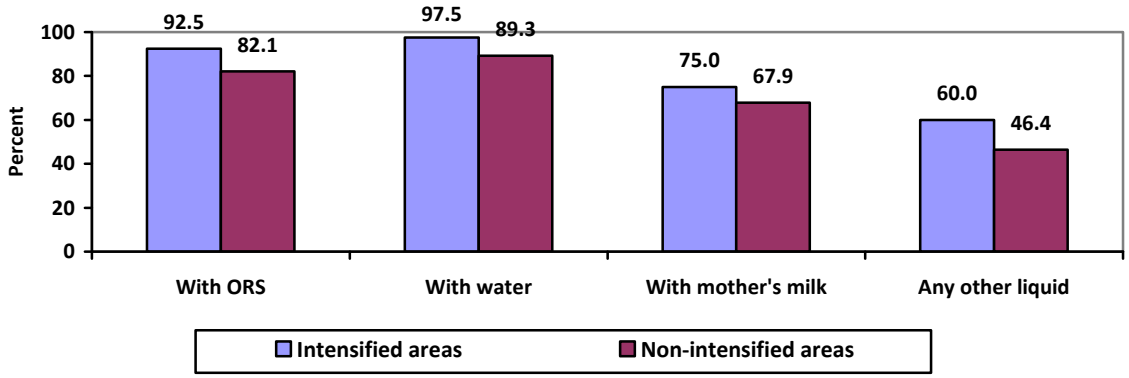
Regarding the treatment of childhood diarrhea with zinc, slightly a higher proportion (93%) of the pharmacists in intensified than those in non-intensified (89%) areas correctly mentioned that 10 mg of zinc tablets should be given to children 2-6 months of age while the same proportion (93%) of the pharmacists from both areas suggested giving 20 mg of zinc tablets to children 6-59 months of age. With respect to the duration more than 9-in-10 pharmacists with a higher percentage in intensified areas were well aware that zinc tablets should be given continuously for 10 days. Likewise, almost all (98%) the pharmacists in intensified areas as against less than 90% in non-intensified areas correctly mentioned that zinc tablets should be given once a day and together with ORS (Table 5.6).

Table 5.6 Percent distribution of pharmacists by correct knowledge about the dosage, frequency and timing of giving zinc tablets to the children during diarrhea

% saying that……	Intensified areas (n=40)		Non-intensified areas (n=28)	
	%	No.	%	No.
10 mg of zinc tablets to be given to children aged 2-6 months	92.5	37	89.3	25
20 mg of zinc tablets to be given to children aged 6-59 months	92.5	37	92.9	26
Zinc tablets to be given continuously for 10 days	95.0	38	92.9	26
Zinc tablets to be given once in a day	97.5	39	89.3	25
Zinc tablet to be given to the children along with ORS	97.5	39	82.1	23

A higher proportion (75%-98%) of pharmacists in intensified areas than that of non-intensified areas (68%-89%) appropriately said that zinc could be given to the children during diarrhea mixing with ORS, mother's milk, or water. Similarly, a notably more (60%) pharmacists from intensified areas compared to those from non-intensified areas (46%) also said that zinc could be given together with any liquid drinks (Figure 5.2).

Figure 5.2 Percentage of health workers by knowledge about ways of feeding zinc tablets to the children during diarrhea



n= 40 in intensified and 28 in non-intensified areas

A higher proportion (85%) of the pharmacists in intensified than in non-intensified (71%) areas were aware that if someone missed to give zinc to their children in any of the prescribed day it could be given whenever remembered but if remembered the next day should be given only one dose. A sizeable proportion (5% in intensified and 14% in non-intensified) of the pharmacists from both areas incorrectly reported that if remembered the next day two doses should be given. A notable proportion (14%) of the pharmacists in non-intensified areas also reported that they did not know about this alternative prescription (Table 5.7). The aforesaid information indicates that more pharmacists of intensified areas than those from non-intensified areas were aware of appropriate procedures of treatment of diarrhea with zinc among the under five children.

Table 5.7 Percent distribution of pharmacists by knowledge about utilization of missing dose of prescribed zinc tablets

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Measures to be followed if someone missed to give zinc to their children in any of the prescribed days				
Can be given whenever remembered but if remembered the next day should be given only one dose	85.0	34	71.4	20
Can be given whenever remembered but if remembered the next day should be given two doses	5.0	2	14.3	4
Do not know	1.0	4	14.3	4
Total	**100.0**	**40**	**100.0**	**28**
Measures to be followed if a child vomited immediately after administering zinc tablet				
If vomited after one hour it is not necessary to repeat	32.5	13	10.7	3
If vomited within half an hour it is necessary to repeat	57.5	23	53.6	15
Administer zinc immediately after vomiting	-	-	14.3	4
Do not know	10.0	4	21.4	6
Total	**100.0**	**40**	**100.0**	**28**

The pharmacists' knowledge about measures to be taken in case of child vomiting immediately after taking zinc was assessed. A slightly more pharmacists from intensified areas (57%) compared to 54% from non-intensified areas reported that if child vomited within half an hour after taking zinc it was necessary to repeat the dose. The proportion of pharmacists who said that

if the child vomited after one hour it was not necessary to repeat the dose was slightly more in intensified (33%) than in non-intensified (11%) areas (Table 5.7).

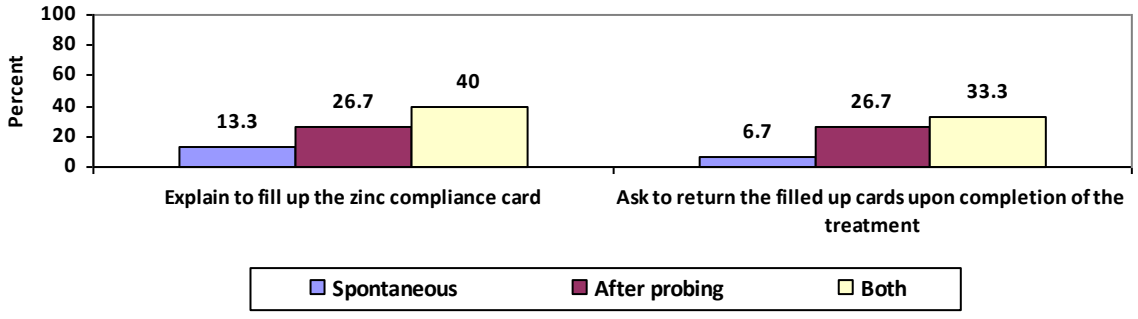
The pharmacists are expected to carry out certain activities while providing zinc tablets to the mothers/caretakers of the children for treatment of diarrhea. The type of activities expected to be carried out by the pharmacists were examining the condition of the child suffering from diarrhea, explaining about doses of zinc, informing number of days zinc to be given, explaining about the procedure of administering zinc and providing ORS and giving instruction to prepare it. Thirty out of the 40 pharmacists in intensified and 16 out of 28 in non-intensified areas affirmed that they had ever distributed zinc tablets from their pharmacy. The majority of the pharmacists (80%-87%) in intensified areas spontaneously reported that they carry out the above mentioned five activities while providing zinc tablets to mothers/caretakers of the children for the treatment of diarrhea. Except the activity on examining the condition of the child suffering from diarrhea all other activities were also spontaneously reported to be carried out by over three-quarters of the respondents in non-intensified areas. After probing all the pharmacists from both areas reported carrying out the above discussed five activities during childhood diarrheal treatment (Table 5.8).

Table 5.8 Percent distribution of pharmacists by type of activities carried out while providing zinc tablets to mothers/caretakers of the children suffering from diarrhea

Activities carried out while providing zinc tablets to mothers/caretakers	Intensified areas (n=30)			Non-intensified areas (n=16)		
	Spontaneous	After probing	Total	Spontaneous	After probing	Total
Examined the condition of the child suffering from diarrhea?	83.3	16.7	100.0	56.3	43.8	100.0
Told about doses of zinc	80.0	20.0	100.0	87.5	12.5	100.0
Told about number of days zinc to be given	83.3	16.7	100.0	75.0	25.0	100.0
Explained about the procedure of administering zinc	86.7	13.3	100.0	100.0	100.0	100.0
Provided ORS and gave instruction to prepare it	83.3	13.3	96.7	87.5	12.5	100.0

Pharmacists of the intensified areas were expected to explain the mothers/caretakers about the filling up of the zinc compliance cards and instructing mothers/caretakers returning the cards to the health facility or health worker after completing the treatment. It was found that 2-in-5 pharmacists had instructed the mothers/caretakers to fill up the zinc compliance cards during the diarrheal treatment. Similarly, one-third of the pharmacists also reported that they had instructed mothers/caretakers to return the filled up cards after completing the treatment (Figure 5.3).

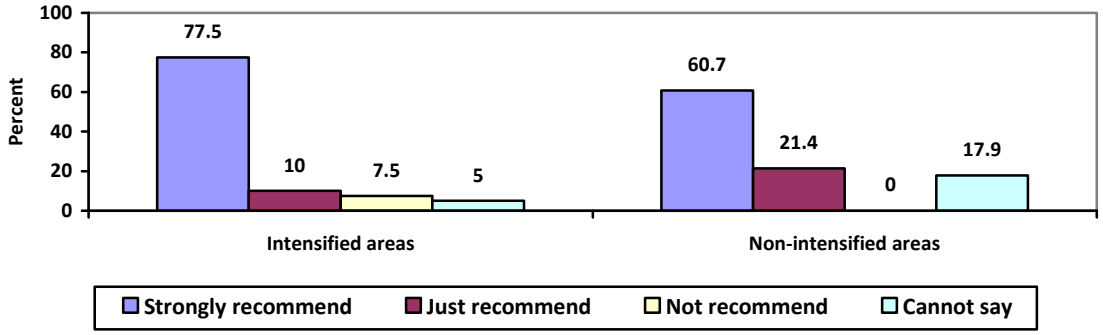
Figure 5.3 Percentage of pharmacists of intensified areas by specific activities carried out while providing zinc tablets to mothers/caretakers



n= 30

Pharmacists were also asked if they would recommend others to treat childhood diarrhea with zinc and ORS. A majority of the pharmacists (82%-88%) with slightly a higher percentage in intensified areas said that they would recommend others to use zinc tablets to treat childhood diarrhea (Figure 5.4). A considerable proportion of the pharmacists from both the intensified (5%) and non-intensified (18%) areas were also undecided about recommending others to use zinc. Three out of 40 pharmacists of intensified areas reported that they would not recommend others to use zinc tablets giving the reasons that: they did not have the stock of zinc (n=2), it was hurdle some to provide zinc for 10 days (n=1), and syrup or metro could cure quickly (n=1) (Table not shown). The above information reveals that more pharmacists from intensified than those from non-intensified areas are in favor of recommending others as well to use zinc for treatment of diarrhea.

Figure 5.4 Percentage of pharmacists recommending other to use zinc tablets to treat diarrhea among children



n= 40 in intensified and 28 in non-intensified areas

5.4 Coverage of diarrhea with zinc treatment

Information regarding the number of children aged 2-59 months who visited the pharmacy in the last month preceding the survey for the treatment of diarrhea and type of treatment they received was collected from the sampled pharmacies. Thirty-one out of 40 pharmacists in intensified and 22 out of 28 pharmacists in non-intensified areas reported that at least one child aged 2-59 months old was brought to their pharmacies for the treatment of diarrhea in the last month. The average number of children brought to them was higher in non-intensified (38.1) than in intensified (15.7) areas indicating the less incidence of childhood diarrhea in the intensified areas; naturally the average number treated with zinc and ORS was also found to be less in intensified areas. However, the coverage of diarrhea cases treated with zinc and ORS was considerably high in intensified (8.5 children or 54%) than in non-intensified (17.0 children or 45%) areas. On average 6 children in intensified and 19 in non-intensified areas were treated with ORS only. Only a negligible number of cases of diarrhea were not treated at both the study areas pharmacies (Table 5.9).

Table 5.9 Average number of children aged 2-59 months suffering from diarrhea brought to the pharmacies in the last month preceding the survey and type of treatment given to the children

Number of children with diarrhea brought to the pharmacy in the last one month and number of children treated with Zinc and ORS, zinc only and ORS only	Intensified areas (n=31)		Non-intensified areas (n=22)	
	No.	SD	No.	SD
Average number of children suffering from diarrhea visited pharmacy	15.7	(13.9)	38.1	(44.0)
Average number of children treated with Zinc and ORS	8.5	(11.1)	17.0	(33.4)
Average number of children treated with zinc only	0.5	(1.8)	1.3	(5.4)
Average number of children treated with ORS only	6.3	(11.5)	19.2	(29.2)
Average number of children not treated	0.3	(1.8)	0.7	(3.2)

There were 18 pharmacists in intensified and 14 pharmacists in non-intensified areas who did not give zinc and ORS together during the treatment of diarrhea cases in the last one month preceding the survey. These pharmacists were asked about the reasons for not giving combine dose of zinc and ORS. About 44% (n=8) of the pharmacists in intensified and half (50%; n=7) in non-intensified areas did not give the zinc and ORS together due to the shortage of zinc tablets in their pharmacy. The other reasons given by the pharmacists of both areas were: felt that it was not necessary to give zinc with ORS (n= 11 in intensified and 5 in non-intensified), mothers did not want to take zinc (n=2 in non-intensified) and advised to get them from health post due to the availability at free of cost (n=1 in non-intensified) (Table not shown).

5.5 Stock situation of zinc tablets and ORS

a) Stock situation of ORS

The study tried to assess the stock situation of zinc and ORS in the pharmacies as well. For this purpose the pharmacists were asked whether they brought ORS packets from suppliers or other sources in the past one month. 3-in-5 pharmacists from both areas responded affirmatively, depicting equal status of acquiring ORS supply at pharmacies of both study areas (Table 5.10). Those who reported having brought ORS packets in the last month were further probed about the quantity of ORS they acquired. Most pharmacies locating in both areas brought 100 or more packets of ORS with average of 246 packets in intensified and 156 packets in non-intensified areas indicating more packets acquired by the intensified than by the pharmacists of non-intensified areas (Table 5.10).

Table 5.10 Percent distribution of pharmacists who brought ORS packets from suppliers or other sources in the past one month

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Whether brought ORS packets from suppliers or other sources in the past one month				
Yes	60.0	24	60.7	17
No	40.0	16	39.3	11
Total	**100.0**	**40**	**100.0**	**28**
Number of ORS packets brought				
Less than 100	16.7	4	17.6	3
100-199	41.7	10	35.3	6
200 +	41.7	10	47.1	8
Mean (SD)	**246**	**(271)**	**156**	**(90)**
Total	**100.0**	**24**	**100.0**	**17**

The pharmacists were further asked about their current stock of ORS packets. Two pharmacies in intensified and four in non-intensified areas did not have even a single packet of ORS at the time of survey. Over half (55%-61%) of the pharmacies with a higher percentage in non-intensified areas had less than 100 packets of ORS stock at the time of survey. The average stock of ORS packets found to be more in intensified (118 packets) than in non-intensified (53 packets) areas. More pharmacists of intensified (95%) than of non-intensified (79%) areas reported that the quantity of ORS they brought was enough compared to the number of children brought to their pharmacies requiring ORS treatment (Table 5.11).

Table 5.11 Percent distribution of pharmacists by current stock situation of ORS packets

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Number of ORS packets in stock at present				
None	5.0	2	14.3	4
1-99	55.0	22	60.7	17
100-199	15.0	6	21.4	6
200 +	25.0	10	3.6	1
Mean (SD)	**118**	**(138)**	**53**	**(47)**
Total	**100.0**	**40**	**100.0**	**28**
Opinion on the adequacy of ORS brought compared to the number of children brought to the pharmacy requiring ORS treatment				
Yes	95.0	38	78.6	22
No	-	-	14.3	4
Do not know	5.0	2	7.1	2
Total	**100.0**	**40**	**100.0**	**28**

b) Stock situation of zinc tablets

1-in-5 pharmacists with slightly a higher percentage from intensified areas reported that they brought zinc tablets from suppliers or other sources in the past one month preceding the survey. The quantity of zinc tablets so brought ranged from 50 tablets to more than 400 tablets (Table 5.12).

Table 5.12 Percent distribution of pharmacists who brought zinc tablets from suppliers or other sources in the past one month

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Whether brought zinc tablets from supplier or other sources in the past one month				
Yes	20.0	8	17.9	5
No	80.0	32	82.1	23
Total	**100.0**	**40**	**100.0**	**28**
Number of zinc tablets brought				
50-200	37.5	3	-	-
200-400	12.5	1	20.0	1
400+	50.0	4	80.0	4
Total	**100.0**	**8**	**100.0**	**5**

Nearly three-quarters (73%) of the pharmacists in intensified compared to less than half (46%) in non-intensified areas reported having the stock of zinc tablets at the time of survey. The average quantity of zinc tablets currently at stock was slightly more in intensified (215 tablets) than in

non-intensified (189 tablets) areas. A notably more pharmacist of intensified (73%) than those of non-intensified (46%) areas reported that the quantity of zinc tablets they received was enough compared to the number of children brought to the pharmacies requiring zinc treatment (Table 5.13).

Table 5.13 Percent distribution of pharmacists by current stock situation of zinc tablets

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Number of zinc tablets in stock at present				
None	27.5	11	53.6	15
1-100	27.5	11	10.7	3
101-300	17.5	7	14.3	4
301-600	22.5	9	17.9	5
601+	5.0	2	3.6	1
Mean (SD)	**215**	**(313)**	**189**	**(397)**
Total	**100.0**	**40**	**100.0**	**28**
Tablets compared to the number of children brought to this pharmacy requiring zinc treatment				
Yes	72.5	29	46.4	13
No	2.5	1	10.7	3
Have not sold yet	25.0	10	42.9	12
Total	**100.0**	**40**	**100.0**	**28**

Those (n=30 in intensified and 16 in non-intensified areas) pharmacists who reported having ever sold the zinc tablets were again asked about number of zinc tablets together with ORS they sold in the last 30 days from the survey date. A higher percentage (60%) of the pharmacists in intensified areas reported selling 10-100 tablets in the last 30 days whereas most pharmacists (56%) from non-intensified areas did so more than 100 tablets. Overall the average number of sales of zinc tablets in the last 30 days was less in intensified (85 tablets) than in non-intensified (236 tablets) areas (Table 5.14).

Table 5.14 Percent distribution of pharmacists by number of zinc tablets together with ORS packets sold in the last 30 days preceding the survey

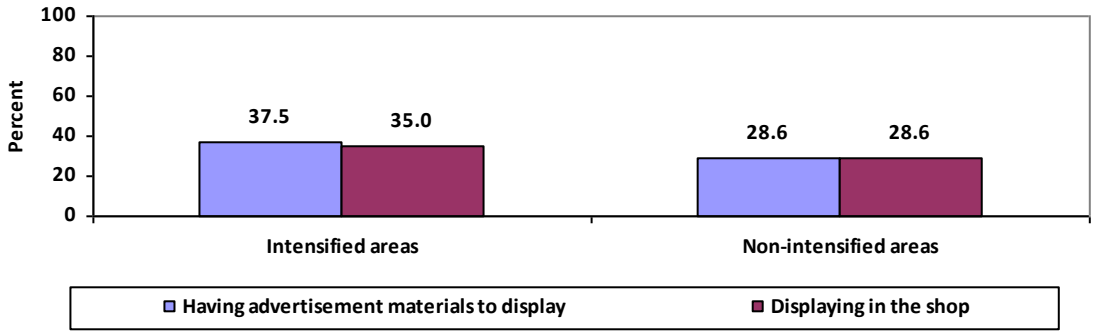
Number of zinc tablets sold together with ORS in the last 30 days	Intensified areas		Non-intensified areas	
	%	No.	%	No.
None	20.0	6	18.8	3
10-100	60.0	18	25.0	4
101-200	13.3	4	25.0	4
201+	6.7	2	31.3	5
Mean (SD)	**85**	**(110)**	**236**	**(375)**
Total	**100.0**	**30**	**100.0**	**16**

The pharmacists were also asked to mention the most, moderate and least selling months of the zinc tablets from their pharmacies. The most selling of zinc tablets in the pharmacies of both areas occurred in the warmer months between Baisakh to Shrawan, and the least selling months was from Ashwin to Paush. The moderate selling of zinc tablets occurred in the months of Bhadra, Magh, Falgun and Chaitra (see below). The information indicates that the volume of selling of zinc tablets varied by season of year.

Most, moderate and least selling months of zinc tablets	
Most selling months	Baisakh, Jestha, Ashadh, Shrawan
Moderate selling months	Bhadra, Magh, Falgun, Chaitra
Least selling months	Ashwin, Kartik, Marga, Paush

Pharmacists of both intensified and non-intensified areas were also asked if they had any advertisement materials on zinc such as wall hanging, dangler, poster, etc. to display in the pharmacy. In response, over one-third (38%) of the pharmacists compared to only about one-fourth (29%) in non-intensified areas reported having at least one of such materials in their pharmacies. Among those who reported having such materials, all the pharmacists in non-intensified and almost all (except one) in intensified areas said that they had displayed advertising materials related to zinc in their shops.

Figure 5.5 Percentage of pharmacists who have zinc advertisement materials to display and who are displaying in their pharmacy

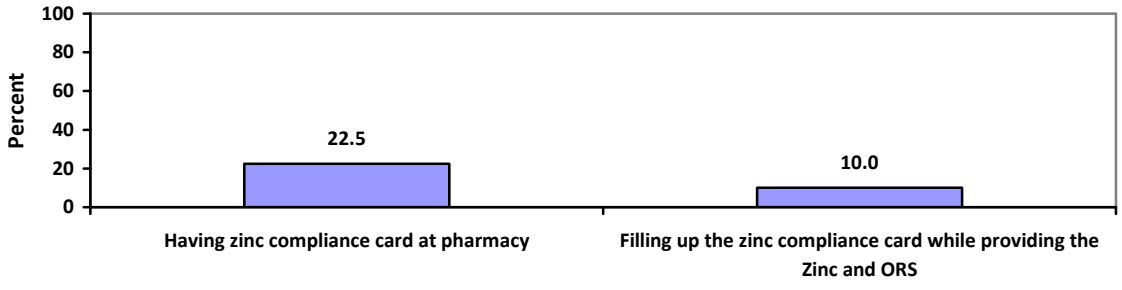


n= 40 in intensified and 28 in non-intensified areas

5.6 Use of zinc compliance cards

Of the 40 pharmacists interviewed in the intensified areas only one-fourth (23%; n=9) said that they had zinc compliance cards in their pharmacies. Only a small proportion (10%; n=4) of the pharmacies got opportunity to fill up the zinc compliance cards while providing the zinc and ORS to the mothers/caretakers (Figure 5.6). The average number of zinc cards available in those 9 pharmacies was 89 ranging from a minimum of 10 to the maximum of 206 cards (Table not shown).

Figure 5.6 Percentage of pharmacists by availability and filling up of the zinc compliance cards while providing treatment of childhood diarrhea with zinc tablets



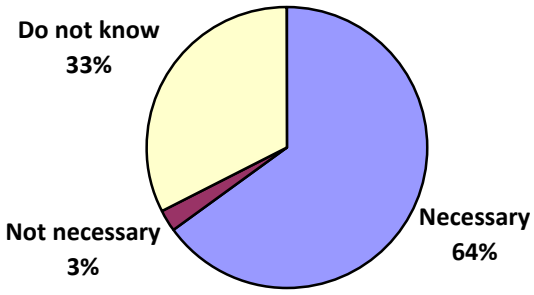
n=40

Those (n=11) pharmacists who distributed the zinc compliance cards reported that only a small proportion (n=2) of them had got back the cards from more than 75% of the mothers/caretakers otherwise most (n=7) of them got back from less than 50% of the mothers only. Even 2

pharmacists further added that no one had returned the cards yet to them. The information indicated that the return rate of filled up zinc compliance cards by all the mothers/caretakers was much less. When further questioned about the frequency of submitting the filled up cards by themselves to the health facilities nearly half (n=5) out of 11 pharmacists reported that they usually submit the filled up cards every month and 1 pharmacist do so every two months. However, 5 out of 11 pharmacists reported that they have not submitted the filled up cards to the health facilities yet giving the reasons that they were not instructed to submit them and at the same time they were busy to go to the facilities to submit the cards (Table not shown).

Opinion of the pharmacists of intensified areas regarding the necessity of filling up the zinc compliance cards was also sought during the survey. Nearly 2-in-3 (n=26) pharmacists thought that it was necessary to fill up the zinc compliance cards during diarrheal treatment of under five children. One third (n=13) of the pharmacist however did not know about the necessity of filling up the cards (Figure 5.7). Only one pharmacist was against the filling up of the cards giving the reason that it was an extra burden to them. Among those (n=26) who opined necessity of filling up the cards a vast majority (96%) reasoned that such task would help remind to give zinc timely followed by ensuring authenticity of the treatment of diarrhea with zinc (50%), reminding others in the family to give zinc (31%) and ensuring follow up by the providers (15%) (Table not shown).

Figure 5.7 Percentage of pharmacists by their opinion regarding the need for filling up of the zinc compliance cards



n=40

5.7 Willingness to sell zinc

Information regarding the wiliness of the pharmacists in selling the zinc tablets along with ORS from their shops was also collected during the survey. The great majority of the pharmacists with a higher percentage in intensified (90%) than in non-intensified (82%) areas showed their willingness to sell dispersible zinc together with ORS from their shops (Table 5.15). The reason for their willingness was that it would cure diarrhea effectively and quickly (94% in intensified and 91% in non-intensified) followed by causing less side effects from its use (14% in intensified and 17% in non-intensified) and increase business or earn profit (3% in intensified and 13% in non-intensified). However, some pharmacists (n=4 in intensified and 5 in non-intensified) did not show their willingness to sell the zinc tablets giving the main reason that they could be easily obtained freely from the health facilities (Table not shown). The above information suggests that more pharmacists of intensified areas than those of non-intensified areas had favorable attitudes towards zinc and ORS combined treatment of diarrhea.

Table 5.15 Percent distribution of pharmacists by their willingness to sell the dispersible zinc tablets along with ORS

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Willingness to sell the dispersible zinc tablets along with ORS				
Yes	90.0	36	82.1	23
No	10.0	4	17.9	5
Total	**100.0**	**40**	**100.0**	**28**
Reasons for being willingness to sell				
Cures diarrhea quickly; helps develop protection from diseases; prevents dehydration	94.4	34	91.3	21
Prevents from becoming weak; no side effects	13.9	5	17.4	4
Easy to use; increases confidence when given zinc and ORS together	5.6	2	8.7	2
Increases business/ can earn profit	2.8	1	13.0	3
Other §	8.3	3	4.3	1
Total (n)	**-**	**36**	**-**	**23**

§ Other includes: fulfills the amount of zinc in the body; replaces the wasted water from the body; reduces the child mortality rate; less expensive and easily available.

The survey results reveal that different brands of zinc tablets were available in the pharmacies of both study areas. However, most of the pharmacists in both the intensified and non-intensified areas have the brand of "Zinc-DT". There were variations on selling price of zinc tablets across the study areas. The price of each brand of zinc tablets was found to be much higher in Bajura and Bajhang districts than in other four study districts. The commonly available brand of zinc tablets including their selling price is presented in Table 5.16.

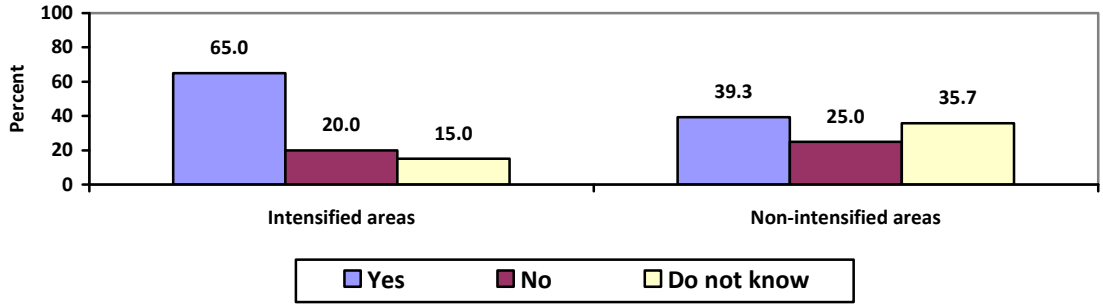
Table 5.16 Number of pharmacists currently selling different brands of zinc tablets and their selling prices

Brands of zinc	Intensified areas (n=40)		Non-intensified areas (n=28)	
	Number of pharmacies	Price (Rs per file)	Number of pharmacies	Price (Rs per file)
Zinc - DT (Deurali Janata Company) (10 mg)	11	15-30	9	15-20
Zinc - DT (Deurali Janata Company) (20 mg)	16	20-35	11	20-30
Zincova (CTL Company) (20 mg)	5	25-30	-	-
Zinep DT (Lomus Company) (10 mg)	7	15	1	15
Zinep DT (Lomus Company) (20 mg)	4	20	1	20
Z-Dis (NPL Company) (10 mg)	4	15	2	20
Z-Dis (NPL Company) (20 mg)	4	20-30	2	30
DT DN National (10mg)	2	20	-	-
DT DN National 20mg	2	30	-	-
Zinc comine (20mg)	2	30-40	-	-
Zinc comine (10mg)	1	30	-	-

5.8 Comments on mothers/caretakers views and suggestions of pharmacists to improve the support system and treatment of diarrhea with zinc

To the question whether most of the mothers/caretakers would accept and ready to purchase zinc tablets along with ORS for the treatment of childhood diarrhea, notably a higher proportion (65%) of the pharmacists in intensified than in non-intensified areas (39%) viewed that most of the caretakers would accept and purchase zinc tablets along with ORS packets (Figure 5.8).

Figure 5.8 Percentage of pharmacists reporting that most of the mothers/caretakers would accept and purchase zinc tablets along with ORS packets



n= 40 in intensified and 28 in non-intensified areas

In order to know the reactions of the mothers/caretakers on zinc treatment the pharmacist were also inquired whether they had come across any good things reported or comments made by the mothers/caretakers. Most of the pharmacists with more from intensified areas said that the good comments included helped stopping diarrhea quickly (36%-58%) followed by increasing the appetite of the children (21%-33%) and helping children to become stronger (7%-30%). Only 17% of the pharmacists in intensified and 29% in non-intensified areas reported having noticed negative comments from the mothers/caretakers about the treatment of diarrhea with zinc tablets and ORS. Vomiting after taking zinc/ORS was the frequently cited comment of the mothers/caretakers noticed by a higher percentage of the pharmacists of both the intensified (8%) and non-intensified (21%) areas. The other comments noticed by a few (3%-10%) pharmacists were: child refusing to take it, requiring longer duration for treatment, and not effective (Table 5.17).

Table 5.17 Percent distribution of pharmacists who have noticed good things and comments from the mothers/caretakers about the treatment of diarrhea with zinc tablets and ORS

Description	Intensified areas		Non-intensified areas	
	%	No.	%	No.
Good things reported by the care takers about the treatment of diarrhea with zinc tablets and ORS (Multiple Response)				
Helped stop diarrhea quickly	57.5	23	35.7	10
Increased the appetite of the children	32.5	13	21.4	6
Helped made child stronger	30.0	12	7.1	2
The diarrhea was not stopped when treated at other places but it was fine after treating with zinc	2.5	1	-	-
Nobody has commented because zinc has not been distributed from the store yet	5.0	2	3.6	1
Nothing	37.5	15	60.7	17
Total (n)	**-**	**40**	**-**	**28**
Complaints from the care takers about the treatment of diarrhea with zinc tablets and ORS (Multiple Response)				
Vomiting	7.5	3	21.4	6
Zinc did not help to get well; did not get well till the completion of the dose	7.5	3	3.6	1
Child refused to take	2.5	1	-	-
Long duration of treatment (10 days)	2.5	1	-	-
Should be tasteless	-	-	3.6	1
Did say nothing because zinc had not been distributed yet	2.5	1	3.6	1
Nothing	82.5	33	71.4	20
Total (n)	**-**	**40**	**-**	**28**

For the facilitation of treatment of diarrhea with zinc tablets the pharmacists had provided some suggestions. Most of the pharmacists of intensified (48%) and non-intensified (61%) areas suggested that the general public including school population should be made aware about the importance of treating diarrhea with zinc tablets and ORS. A sizeable proportion of the pharmacists (13% in intensified and 7% in non-intensified) also suggested that zinc should be made available adequately, timely and easily. The other suggestions made by a sizeable number of the pharmacists were that there should be a provision of training and orientation to all mothers group, FCHVs and pharmacists, and effective and periodic monitoring of zinc distribution tasks should be carried out (Table 5.18).

Table 5.18 Percent distribution of pharmacists by type of suggestions given for the improvement in treating diarrhea with zinc tablets and ORS

Suggestions to facilitate treatment of children suffering from diarrhea with Zinc (Multiple Response)	Intensified areas		Non-intensified areas	
	%	No.	%	No.
General public should be made aware about zinc; should organize orientation to the school teachers and students	47.5	19	60.7	17
Should conduct training/orientation for the pharmacists also	30.0	12	14.3	4
Should orient the mothers group on zinc	17.5	7	-	-
Should conduct reorientation training on zinc including reorientation training for FCHVs	15.0	6	-	-
Should be monitored periodically and effectively	12.5	5	3.6	1
Zinc should be made available adequately, timely and easily at the pharmacies	12.5	5	7.1	2
Zinc should be made available in liquid or syrup form	5.0	2	14.3	4
FCHVs should be adequately trained/oriented	5.0	2	-	-
Other §	15.0	6	10.7	3
Everything is fine	10.0	4	10.7	3
Do not know	-	-	7.1	2
Total (n)	**-**	**40**	**-**	**28**

§ Other includes: implement the system of zinc card effectively; should take active initiative from the center; zinc should be child friendly in terms of taste, size, dose and duration of administration; should be of no side effects.

Chapter 6

Summary, Conclusions and Recommendations

6.1 Summary of findings

a) Introduction

The Micronutrient Initiatives (MI) started providing support to the Child Health Division, Department of Health Services by expanding the intensified zinc program to new three districts namely Sankhuwasabha, Gorkha and Bajura in early 2010. Under the intensified model, training was imparted to all cadres of health workers and FCHVs. Similarly, existing government monitoring and reporting system was strengthened and smooth supply of zinc supplements ensured. Private pharmacies, where nearly 50% of diarrhea cases are brought for treatment, were also oriented and encouraged to sell zinc tablets along with ORS for treatment of childhood diarrhea. To ensure intake of zinc supplements for entire 10 days, compliance cards were introduced and service providers from both public and private sectors have been providing these cards to caretakers along with the zinc and ORS.

The overall objective of this evaluation was to assess the implementation of zinc program in three intensified districts compared to non-intensified zinc program districts.

The study was conducted in six districts, of which three (Sankhuwasabha, Gorkha and Bajura) were intensified districts and another three (Taplejung, Tanahun and Bajhang) were the non-intensified districts. Information was collected from various categories of respondents. A total of 1200 mothers/caretakers (600 from each of intensified and non-intensified areas) of children 2-59 months of age with diarrhea during one month prior to the survey were included in the study. Similarly, information was collected from 110 (55 from intensified and 55 from non-intensified areas) health facilities and 102 health workers (MCHWs and VHWs) were interviewed from these health facilities. Likewise, 125 FCHVs (65 from intensified and 60 from non-intensified areas) and 68 pharmacists (40 from intensified and 28 from non-intensified areas) were included in the study. In addition six focus group discussions (1 in each district) were conducted among the key influencers and social workers in the family and society of the study areas. Field work was conducted during November – December 2010.

b) Findings on mothers of 2-59 months old children

<u>Knowledge of diarrhea and place of treatment</u>

Knowledge on common causes of diarrhea such as eating contaminated foods, drinking polluted water, use of dirty hands; relevant symptoms of diarrhea like discharge of watery stool 3 or more than 3 times; and preventing measures such as proper hand washing practices and other home care strategies including providing more fluids, ORS and breast feeding found to be present among more mothers of intensified than non-intensified areas. However, there were some aspects of diarrhea on which knowledge of the mothers still needed to be increased for proper handling of diarrhea cases. Knowledge about at least three out of seven common causes of diarrhea was significantly higher (52%) among the respondents of intensified areas than those of non-intensified areas (42%). Knowledge about at least three causes of diarrhea was significantly higher among the relatively advantaged Janajatis and Brahmin, Chhetri, Giri, Puri caste groups and lower among dalit and disadvantaged Janajatis.

Majority (79%-89%) of the respondents in both areas rightly considered "discharge of watery stool three or more times a day" and "child becoming weak" as the common signs and symptoms of diarrhea. Nearly one-third of the respondents in both areas also mentioned sunken eyes as the common signs and symptoms of diarrhea. Knowledge about other common signs and symptoms such as "drinking eagerly or thirsty" and "skin pinch going back slowly" was quite low among the respondents of both areas. Only one-third of the respondents in both areas were able to report at least three out of five common signs and symptoms of diarrhea.

Knowledge about ways of preventing diarrhea among children was much higher among the mothers of intensified areas than those of non-intensified areas. Overall, 34% of the mothers in intensified compared to 22% in non-intensified areas were able to mention three or more ways of preventing diarrhea among children.

Similarly, a higher proportion of mothers from intensified area were aware of more signs of dehydration than the mothers of non-intensified areas. The most frequently cited signs of dehydration were passing to much watery stool, unconsciousness, restless or irritable and sunken eyes. Nearly a quarter (24%) of the mothers in intensified compared to 21% in non-intensified areas were found to be aware of at least three signs of dehydration that could occur in children due to diarrhea.

Majority (75%-77%) of the mothers with a higher percentage in non-intensified areas correctly said that a child should be taken to a service provider in case of frequent watery stools followed by about 3-in-5 respondents stated that a child should be taken to a service providers if he/she not getting better within 3 days. Over a quarter of the respondents also mentioned fever as a sign to take a child for consultation or treatment.

More than 4-in-5 respondents with a higher proportion in non-intensified areas opined that ORS should be given followed by nearly half suggested using anti-diarrheal. Use of zinc tablets or use of ORS along with zinc tablets for 10 days was mentioned by only about one-tenth of the respondents; those giving these responses were slightly higher in intensified areas (11%-13%) than in non-intensified areas (8%-9%). The above findings indicate the need for informing community about the importance of using ORS along with zinc tablets continuously for 10 days for the treatment of childhood diarrhea.

Practices of hand washing and disposing feces

A notably more percentage (24%) of mothers from intensified than in non-intensified (14%) areas reported that their children used toilet. Considerable proportion of the respondents in both areas (26% in intensified and 22% in non-intensified) reported that they left their children's stool in the open space indicating the need for creating awareness among the community about the importance of using latrine or disposing the stools properly.

Almost all the mothers in both intensified (98%) and non-intensified (96%) areas reported that they normally wash their hands before meals. Over 81% of the respondents in intensified and 62% in non-intensified areas reported washing hand after meals. Likewise, nearly three-quarters of the respondents in intensified and over half in non-intensified areas reported to have washed their hands after defecation and over 3-in-5 in both areas normally wash their hands after the completion of household chores. Overall, the practice of washing hands in other critical occasions such as before and after preparing meals, and before feeding baby was quite low in both study areas indicating the need for informing community regarding the importance of washing hands.

Knowledge about zinc including its sources of information

More than half (52%) of the mothers in intensified compared to 40% in non-intensified areas were aware of zinc tablets. However, a substantial proportion of mothers particularly from low SES level were still unaware of zinc. Nearly half (49%) of the mothers in intensified and 52% in non-intensified areas had obtained information about zinc tablets from community level health facilities such as PHC, HP or SHP. Besides the health facilities, FCHVs have a greater role in disseminating information about zinc in both the intensified (51%) and non-intensified (38%) areas. Electronic media such as national radio, local FM and television was also mentioned as the information source by a sizeable proportion of the respondents in both areas.

Majority of the respondents (75% in intensified and 72% in non-intensified) from both areas mentioned zinc tablets could be obtained from community level health facilities (i.e. PHC, HP or SHP). Notably a higher percentage (62%) of the respondents in intensified compared to only 37% in non-intensified areas were also aware that zinc tablets could be obtained from FCHVs. About a quarter (24%-33%) of the respondents with a higher percentage in non-intensified areas were aware that zinc tablets could be obtained from pharmacy or medical shop.

Knowledge about frequency and duration of zinc treatment

More mothers in intensified than in non-intensified areas had correct knowledge about frequency (72% vs. 61%) and duration of administration (74% vs. 46%) of zinc for treatment of diarrhea. However, a substantial proportion of the mothers in both areas were unaware of frequency and duration of the treatment. By ethnicity, relatively advantaged Janajatis and Brahmin, Chhetri, Giri, Puri groups were more likely to have correct knowledge about the frequency and duration of zinc treatment than other ethnic groups.

Knowledge about benefits of zinc treatment

Over 3-in-5 respondents in both areas stated that the use of zinc could reduce the duration and prevent severity of diarrhea. Nearly 51% of the respondents in intensified and 41% in non-intensified areas also opined that use of zinc tablets could reduce frequency of diarrhea. However, knowledge about other type of benefits of zinc tablets such as preventing future episode of diarrhea and facilitating in absorption of water was quite low among the respondents of both areas.

Knowledge about ORS

Almost all (>99%) the respondents in both the intensified and non-intensified areas reported that they had seen or heard about ORS. Similarly, over 7-in-10 respondents in both areas also had correct knowledge about how to prepare it. Majority of the respondents with a higher percentage in non-intensified areas reported receiving information on ORS from community level health facilities such as PHC, HP or SHP (65%-72%) and FCHVs (54%-64%). The role of print media and television in disseminating information about ORS was found to be quite low in both areas. The most frequently cited supply sources of ORS were community level facilities (>80%) followed by FCHV (>62%) and pharmacy or medical shop (>36%) in both the intensified and non-intensified areas.

Incidence of diarrhea and its treatment

More than 2-in-5 children in both areas had diarrhea for less than four days and another 36% in intensified and 43% in non-intensified areas had diarrhea for 4-5 days. A higher proportion of

children in intensified (24%) than in non-intensified (16%) areas had longer duration (i.e. >5 days) of diarrhea in the last time.

Most (58%-61%) of the respondents with slightly a higher percentage in intensified areas reported giving traditional treatment to their child during diarrhea. Likewise, over a quarter (27%-30%) of the respondents in intensified and over two-fifths (41%) in non-intensified areas reported taking their child for consultations or treatment to community level health facilities (i.e. PHC, HP or SHP) or FCHVs. Nearly 1-in-5 respondents in both areas reporting consulting pharmacist for the management of diarrhea. A quarter of the respondents in intensified and 18% in non-intensified areas reported that they just gave medicines to the child that was available at their homes. A considerable proportion (19%-24%) of the respondents with a higher percentage in non-intensified areas also reported that they consulted traditional healers (Dhami/Jhakri) for the management of diarrhea. The information reveals that there was under use of modern and safe places for treatment of diarrhea in both the intensified and non-intensified areas.

Use, source and compliance to use of zinc tablets during last diarrheal episode

Overall, 33% of children in intensified and 28% in non-intensified areas were given zinc tablets during their last diarrheal episode. Children in Sankhuwasabha district were significantly more likely and those in Taplejung were less likely to receive zinc tablets during diarrhea. Use of zinc tablets was significantly higher (35%) among the children of literate women than their illiterate counterparts (25%). Likewise, use of zinc tablets was highest among the children of relatively advantaged Janajati women and lowest among disadvantaged Janajati women. Almost all the mothers (98% in intensified and 96% in non-intensified) in both areas affirmed that they provided zinc tablets along with ORS to their child.

Nearly 53% of the respondents in intensified areas reported that they obtained zinc tablets from FCHV followed by 24% who obtained them from subhealth post and 8% from pharmacy or medical shop. In non-intensified areas, majority (38%) of the respondents obtained it from subhealth post followed by 27% obtained from FCHV and 15% from health post. Most mothers from intensified areas were likely to receive zinc from FCHVs while more mothers from non-intensified areas were likely to receive from subhealth post. Slightly a higher percentage of respondents in non-intensified (15%) than in intensified (8%) areas reported getting zinc from pharmacy or medical shop. The main source of supply of ORS packets were FCHV (54% in intensified and 38% in non-intensified areas) and subhealth post (26% in intensified and 36% in non-intensified areas) in both study areas. About one-tenth of the respondents had also received it from pharmacy or medical shops. Only a few respondents from both the intensified and non-intensified areas had received it from hospital, PHCC and health post.

Regarding the consultation seeking behavior of mothers, more mothers from both the study areas tended to seek consultation at later days from the onset of diarrhea among their children

Compliance to proper ways of treatment of diarrhea with zinc and ORS

There was no marked difference in the proportion of mothers of intensified and non-intensified areas in terms of administration of correct does of zinc by variation in age category of the children suffering from diarrhea. A vast majority of mothers provided 10 mg zinc to children 2 to 6 months and 20 mg of zinc to the children aged 6 to 59 months. A notable difference was found in compliance to the duration of administration of zinc i.e. 10 conjugative days. The proportion of mothers who complied with administration of zinc continuously for 10 days was found significantly higher (70%) in intensified than in non-intensified (38%) areas. Nearly 1-in-3 mothers in intensified and two-thirds in non-intensified areas had given zinc for less than 10 days

though more than 90% of the mothers had been explained about the need for providing zinc for 10 days by the service providers during consultation. The main reasons for not giving zinc tablets continuously for 10 days was due to control of diarrhea before 10 days (56% in intensified and 74% in non-intensified), lack of stock of tablets (9% in intensified and 29% in non-intensified), lack of knowledge (13% in intensified and 12% in non-intensified) and bad taste (24% in intensified and 6% in non-intensified).

Compliance to the proper timing of initiation of zinc in diarrhea episode was rather poor as only a quarter of mothers in both areas started to give zinc in the same day or immediately after the onset of diarrhea.

Reasons for not giving zinc tablets

Lack of knowledge about zinc tablets including its sources were the most frequently cited reasons for not giving zinc tablets to their child during last diarrheal episode. Unavailability of zinc at pharmacy or health facility was other noteworthy reasons given by about one-tenth of the respondents in both areas.

Counseling on zinc tablets and use of zinc compliance card

Among mothers who reported consulting any health provider during last diarrheal episode over 97% in both areas affirmed that the service provider enquired them about diarrhea episode including duration, frequency and severity of the child during consultation. Likewise, 73% of the respondents in intensified and 79% in non-intensified areas also affirmed that the child was examined by the provider during the consultation. Majority of the mothers (87%-99%) with a higher percentage in intensified areas reported that the service providers informed them about the number and duration of zinc tablets to be given, need for giving zinc with ORS and ways of giving the zinc tablets. However, only a small percentage (<5%) were given informational brochure on diarrhea and zinc during the consultation.

Overall, 64% of the mothers in intensified areas affirmed that they were given zinc compliance card and also given instruction for filling and returning the card. Upon checking the filled-in cards, the most completed information found to be the recording of name of child and date of treatment started with zinc, and the least recorded information was the date that the treatment was completed and record for follow up visit. This information indicates the zinc compliance cards were filled-in but without completeness. Though majority (64%) of mothers were provided with zinc compliance cards a substantial proportion of them still remained with unavailability of such cards with them. A substantial proportion of the mothers (46%) had not returned the cards. A notable proportion (20%) of the mothers had even lost the cards.

Over 4-in-5 respondents in intensified areas were able to enumerate at least one benefit of zinc compliance card. The most frequently cited benefit was that it reminds to give zinc timely (75%) followed by 33% who viewed that any member can be reminded of giving zinc tablets. Ensuring authentic of the treatment and follow up by the providers as benefits of zinc compliance card was mentioned respectively by 13% and 3% of the respondents. Despite the vast majority of mothers perceived the benefits of the zinc compliance card, a notable proportion of them failed to return the cards due to forgetfulness (16%) and lack of time to do so (22%). The information suggests that the purpose of introducing the zinc compliance cards i.e. to increase compliance to zinc treatment by reminding the mothers/caretakers to give zinc to the child had been met among a great majority of the respondents.

Zinc distribution channels

The FCHVs found to be the most preferred and appropriate channel for the distribution of zinc to the needy children in both the intensified (95%) and non-intensified (93%) areas. However, the mothers of intensified area were more likely to prefer pharmacy as one of the appropriate distribution channels (59% vs. 48%). VHWs and MCHWs were equally preferred channels by the mothers of both study areas (81%). The information suggests that the mothers were not choosy about a particular channel for the distribution of zinc.

Perception on effectiveness of zinc

One of the indicators used to examine the effectiveness of zinc was the mother's perception of acceptability of taste of the zinc by the children. In this regard, 3-in-4 mothers from both areas found their children liking the taste while a substantial proportion found disliking. However, the proportion of mothers stopped to give zinc to the children due to disliking of the taste was fewer in intensified (8%) than in non-intensified (13%) areas, indicating more mothers from intensified areas had perceived the value of providing zinc to the children during diarrhea

More mother from intensified (91%) than non-intensified (79%) areas perceived that the zinc did not have side effects as such effects were not seen among their children. Even if side effects were seen more mothers from intensified (53%) than those from non-intensified (47%) areas continued giving zinc, further indicating favorable perception of intensified area mothers towards zinc treatment. Almost all the mothers, with slightly more in intensified (97%) than in non-intensified (95%) areas perceived the zinc tablets very effective to somewhat effective in treating diarrhea. Majority of the mothers in intensified (98%) and non-intensified (96%) areas said that they would like to recommend others also to use zinc giving the reasons that it is very effective to stop diarrhea and also less expensive or available at free of cost. Likewise, almost all the respondents in both areas also affirmed that they would use zinc tablets in the future.

c) Findings on female community health volunteers

Orientation on treatment of diarrhea with zinc tablets

Over 95% of the FCHVs in intensified and 85% in non-intensified areas reported receiving orientation on treatment of childhood diarrhea with zinc tablets. The survey results further reveal that more FCHVs from intensified areas had received orientation on zinc tablets recently than their counterparts from non-intensified areas. The vast majority (>96%) of the FCHVs in both the intensified and non-intensified areas perceived the orientation to be very useful for the treatment of diarrhea with zinc tablets.

Knowledge of diarrhea and its treatment

All the FCHVs were rightly aware of pneumonia and diarrhea as the most common health problems of the children in their areas, indicating they were not indifferent about what were happening in their surroundings in terms of health problems. A notably more FCHVs (91%) of intensified than of non-intensified (60%) areas were knowledgeable about three or more causes of diarrhea among children, including poor hygiene, use of contaminated drinking water and poor nutrition. Similarly, a notably more FCHVs of intensified (90%) than those of non-intensified (63%) areas were aware of at least three out of five most important signs and symptoms of childhood diarrhea. Likewise, the proportion of FCHVs who knew the four essential rules that should be followed in domiciliary management of diarrhea was more in intensified than in non-intensified areas. The average number of essentials rules known by the

FCHVs was 2.9 in intensified and 2.5 in non-intensified areas. The information indicates that FCHVs of intensified areas were more knowledgeable about causes, signs and symptoms and essential management of diarrhea.

Knowledge about and attitude towards zinc

The level of knowledge of intensified areas FCHVs regarding benefits of treatment of diarrhea with zinc found to be much higher than those of the non-intensified areas specifically the benefits of reducing the severity (94% vs. 83%), duration (91% vs. 60%) and frequency (72% vs. 60%). Though prevention of future episode of diarrhea (37% vs. 26%) and facilitation of absorption of water (31% vs. 28%) were also important benefits but they were recalled by relatively a less proportion of the FCHVs of both areas. In addition, it was also found over 90% (92%-95%) of the FCHVs in intensified areas compared to less than 85% (62%-84%) in non-intensified areas had correct knowledge about dose, duration and frequency of treatment of diarrhea with zinc. Likewise, over 95% of the FCHVs in intensified as against 69% in non-intensified areas correctly mentioned that a child with diarrhea should be treated with zinc tablets continuously for 10 days.

The proportion of the FCHVs knowing the need for providing zinc along with ORS found to be slightly higher (88%) in intensified than in non-intensified (78%) areas. However, still a notable percentage of FCHVs in both areas were found to be unaware of the combined treatment resume. A notably more FCHVs of intensified (79%) than in non-intensified (52%) areas were aware about the measures to be taken when someone missed to give zinc to the child as scheduled. However, the percentage of FCHVs not knowing the measures to be taken was still substantial (29 in intensified and 48% in non-intensified) in both areas. Moreover, the FCHVs of intensified areas were more likely to strongly recommend other FCHVs to use zinc (85% vs. 79%) than those of non-intensified areas indicating their favorable attitudes towards zinc.

Coverage of diarrhea with zinc treatment

Over 70% of the FCHVs in intensified and 65% in non-intensified areas reported seeing any diarrhea cases of children aged 2-59 months in the past one month preceding the survey. The number of diarrhea cases that the FCHVs encountered among children age 2 – 59 months in the last one month was slightly higher in intensified (n=2.2) than in non-intensified (n=2.0) areas while such cases among children aged 60 or more months were slightly higher in non-intensified (n=1) than in intensified (n= 0.7) areas. Upon checking the register maintained by the FCHVs the average number of children with diarrhea seen per month in the past 9 months varied from 2.4 to 3.4 in intensified and 2 to 3 in non-intensified areas.

About 74% of the FCHVs in intensified and 67% in non-intensified areas had distributed ORS packets to anyone suffering from diarrhea in the last one month. Likewise, 54% of the FCHVs in intensified and 24% in non-intensified areas had distributed zinc tablets during the said period indicating that the overall coverage was not still to the optimum. Compared to the distribution of ORS the coverage by zinc was even lower. Such disparity in coverage of zinc and ORS treatment by the FCHVs might have affected the practice of treating diarrhea with zinc and ORS together. The most frequently reported reason for not distributing ORS and zinc tablets together in both areas was lack of zinc tablets with them (33% intensified and 66% non-intensified).

Stock situation of ORS, zinc and zinc compliance card

Nearly 65% of the FCHVs in intensified compared to only 55% in non-intensified areas affirmed that they have IEC materials primarily the zinc job aid card (in intensified areas only) and brochure on treating diarrhea with zinc; but most of them had 1-2 pieces of such IEC materials.

Overall, 83% of the FCHVs in intensified and 74% in non-intensified areas had some amount of ORS packets in stock with the average of 7 packets in intensified and 5 packets in non-intensified areas. Similarly, those having stock of zinc tablets were much higher in intensified (74%) than in non-intensified (31%) areas. One the average each FCHV in intensified and non-intensified areas had stock of 46 and 41 zinc tablets respectively. The above findings indicate the better stock situation of both the ORS and zinc tablets in intensified areas than in non-intensified areas.

More than half of the FCHVs in both areas reported that they had not received any zinc from VHW, MCHW or health facility in the past three months. Only 42% of the FCHVs in intensified and 36% in non-intensified areas reported receiving zinc tablets in the last three months with the average number of 80 tablets in intensified and 64 tablets in non-intensified areas.

Nearly 22% of the FCHVs in intensified and 55% in non-intensified areas had to face an occasion when they could not give zinc tablets to the clients in the last one month due to the lack of zinc tablets with them indicting that the FCHVs in intensified areas were better with their supply of zinc and could cater more clients with zinc than did by their non-intensified group counterparts.

Availability and use of zinc compliance cards

Nearly 3-in-4 FCHVs in intensified areas reported having stock of zinc compliance cards at the time of survey. On average, each FCHV had 5 zinc compliance cards. Over a quarter of the FCHVs did not have such cards at all with them, indicating possibility of less coverage of treatment of diarrhea cases along with provision for recording the treatment process. Most of the FCHVs who distributed zinc compliance cards found to have filled in either by themselves (39%) or asked others to do so (39%)

Only 21% of the FCHVs reported that almost all the mothers/caretakers had returned the compliance cards after completing the treatment. However, over 44% of the FCHVs stated that less than 25% of the mothers/caretakers had returned the cards indicating the need for informing mothers/caretakers about the need for returning them upon its use.

Similarly, about 42% of the FCHVs reported that they also collect such cards during mother's group meeting. 65% of the FCHVs also affirmed that they submit all filled up cards to VHW, MCHW or health facility every month and 15% do so whenever they receive from mothers or caretakers. However, a notable proportion (15%) of the FCHVs reported that they have not yet submitted the completed compliance cards to VHW, MCHW or health facility.

The vast majority (89%) of the FCHVs also thought that it is necessary to fill up the compliance cards.

Informing mother about the advantages of zinc and ORS

Nearly two-thirds (66%) of the FCHVs in intensified areas as opposed to only about half (45%) in non-intensified areas affirmed that they had told mothers about the advantages of treating

diarrhea with zinc during mothers' group meetings indicating that FCHVs of intensified areas were more active in communicating about zinc treatment to mothers than those of non-intensified areas.

d) Findings on health workers

Training/orientation on treatment of diarrhea

Over 90% of the health workers in both areas had received orientation on treatment of diarrhea with zinc tablets. Nearly 90% in intensified and 47% in non-intensified areas had received orientation in the last 12 months preceding the survey. All the health workers in intensified and almost all (except one) in non-intensified areas found the orientation useful for their work. Slightly a higher proportion (86%) of health workers in intensified than those in non-intensified (73%) had conducted orientation on distribution and use of zinc tablets to the FCHVs of their working areas.

Knowledge of diarrhea and its treatment

All the health workers in intensified and almost all (98%) in non-intensified areas considered ARI/pneumonia and diarrhea as the most common health problems in children prevalent in their working areas. Over 96% of the health workers in both areas correctly mentioned poor hygiene and lack of clean drinking water as the causes of diarrhea among children. Similarly, over 88% in intensified and 55% in non-intensified areas also perceived poor nutrition as one of the causes of diarrhea. Significantly a higher proportion (94%) of health workers in intensified than in non-intensified (75%) areas had knowledge about at least three out of five common causes of diarrhea among children.

Nearly 75% of the health workers in intensified as opposed to only 59% in non-intensified areas favorably reported that they treat childhood diarrhea with zinc tablets and ORS. However, a substantial number of the health workers from both areas (71% in intensified and 80% in non-intensified) also unfavorably reported that they treat diarrhea cases with ORS only. The overall findings indicates that the proportion of health workers treating diarrhea with zinc and ORS together among children was more in intensified than in non-intensified areas while those treating with either zinc only or ORS only was more in non-intensified areas.

There was no marked difference between the health workers of intensified and non-intensified areas as far as their awareness on the four essential things that need to be observed in treating diarrhea at home, which were giving more fluid or liquid and foods; treatment with zinc and taking the child to the health facilities if danger signs appeared. However, the proportion of those who reporting treatment with zinc was notably low in both the study areas (39% intensified and 33% non-intensified).

Knowledge about and attitudes towards zinc

Of the five major benefits of treating diarrhea with zinc and ORS, a vast majority of the health workers with a higher proportion in intensified areas mentioned reduction in severity (90%-92%) and frequency (69%-88%) of diarrhea. The average number of benefits known by the health workers of intensified areas was 4.1 as opposed to only 3.6 in non-intensified areas. Over 90% of the health workers in both areas had, with slightly a higher percentage in intensified areas, correct knowledge about the dosage, frequency and timing of giving zinc tablets to the children during diarrhea. Similarly, over 90% of the health workers with slightly a higher percentage in intensified areas correctly mentioned that zinc tablets should be given along with ORS.

Considerably a higher percentage of the health workers in intensified than in non-intensified areas had correct knowledge about the measures to be taken if it was forgotten to give zinc tablets to children at the prescribed day and if the child vomit after administration of zinc.

All the health workers in intensified and almost all in non-intensified areas reported carrying out specific activities such as examining the condition of the child suffering from diarrhea, explaining about doses of zinc, informing about number of days zinc to be given, explaining about the procedure of administering zinc and providing ORS and giving instruction to prepare it while providing zinc tablets to children. In addition, over 86% of the health workers in intensified areas also affirmed that they explain mothers to fill up the zinc compliance cards and ask to return the filled up card upon completion of the treatment.

A vast majority (88%) of the health workers from both areas said that they would "strongly recommend" other health workers or volunteers to use zinc tablets followed by 12% in intensified and 6% in non-intensified areas said that they would just recommend indicating that health workers in both areas have positive inclination towards recommending zinc treatment to other.

Coverage of diarrhea with zinc treatment

The service statistics maintained by each of the sampled health facilities reveal that on average there were 28 children in intensified and 25 children in non-intensified areas who visited the health facilities during the month of Kartik for the treatment of diarrhea On average, 21 children (74%) in intensified and 17 children (66%) in non-intensified areas were treated with zinc and ORS while 7 children (24%) in intensified and 7 children (29%) in non-intensified areas were treated with ORS only. Similarly, less than one child in both areas was treated with zinc only. The overall findings indicate that although the coverage of diarrhea treatment with zinc and ORS together was much higher in intensified areas than in non-intensified areas still a significant number of children in both areas had not received diarrheal treatment together with zinc and ORS indicating the need for improving the services on diarrheal treatment in both areas.

Stock situation of zinc tablets and ORS

Nearly 90% of the health facilities in intensified and all in non-intensified areas reported receiving ORS packets in the past three months preceding the survey. The current stock of ORS packets at the facilities ranged from 10 to 1300 with the mean stock of 277 in intensified and 226 in non-intensified areas indicating the availability of more stock at the intensified areas facilities than in non-intensified areas facilities.

A vast majority (86%-92%) of the health workers with slightly a higher percentage in non-intensified areas said that the quantity of ORS they received was enough compared to the number of children brought to the health facility requiring ORS treatment.

With respect to the supply of ORS packets to the FCHVs, 43% of the health workers in intensified compared to only 24% in non-intensified areas reported that they usually distribute ORS to the FCHVs every month. However, 57% of the health workers in intensified and 73% in non-intensified areas reported distributing ORS to the FCHVs as per their need.

Supply situation of zinc tablets

Over 60% of the health facilities in intensified and nearly 90% in non-intensified areas had received zinc tablets in the past three months preceding the survey. The average number of zinc

received by the health facilities in the past three months was 535 tablets in intensified and 776 tablets in non-intensified areas. On average, each health facility had the current stock of 528 zinc tablets in intensified and 495 in non-intensified areas indicating availability of more stock at the intensified area's facilities than in non-intensified area's facilities.

A higher proportion (77%) of health workers than in non-intensified (61%) areas opined that the quantity of zinc tablets they received was enough compared to the number of children brought to the facility requiring zinc treatment. However, considerable proportion (22%-35%) of the health workers with a higher proportion in non-intensified areas did not find it to be adequate for the treatment of diarrhea.

The majority (55%-63%) of the health workers with a higher percentage in intensified areas reported that they usually distribute the zinc tablets to FCHVs as and when needed. One in every three health workers in intensified areas as opposed to only 2% in non-intensified areas reported distributing zinc tablets to FCHVs every month.

Overall, 26% of the health workers in intensified as opposed to 35% in non-intensified areas reported facing problems at least once in the past year regarding the supply of zinc tablets. The types of problems faced by the health facilities were unavailability of zinc when needed and in adequate amount.

IEC materials on zinc and ORS

Only about a quarter of the health workers from both the intensified and non-intensified areas reported having brochures on zinc and ORS at their health facilities; and most of the facilities had 1-2 such brochures in both areas. Nearly 80% of the health workers in both areas also reported having zinc job aid card at their health facilities; but most of the health facilities had 1-2 such job aid cards. Likewise, 88% of the health workers in intensified compared to 73% in non-intensified areas also affirmed that they had zinc job aid cards to be used while providing diarrheal treatment to the children.

Availability and use of zinc compliance card

Overall, 84% of the health workers of the intensified areas reported that they have stock of zinc compliance cards at their health facilities. Nearly half (46%) of the health facilities had less than 100 cards followed by 22% who had 100-199 cards and the rest (15%) had 200 or more cards. On average, 94 zinc compliance cards were available at the facilities currently.

Nearly 69% of the health workers in intensified areas also reported having zinc compliance cards, and on average each of them had 44 such compliance cards at the time of survey. Over 88% of the health workers also affirmed that they mostly provide the zinc compliance cards to the mothers/caretakers during the treatment of diarrhea with zinc tablets.

Collection of zinc compliance cards from mothers/caretakers

According to the responding health workers the rate of return of filled up compliance cards varied greatly. About 15% of the health workers said that almost all the mothers/caretakers usually return such cards to them or their health facilities while over one-third said that only less than 25% mothers/caretakers had done so. Similarly, over 3-in-4 health workers also said that they usually collect the completed zinc compliance cards from FCHVs, pharmacists or mothers/caretakers; and most (83%) of them do so every month. More than 80% of the health reported submitting the filled up zinc compliance cards to their health facility every month and

rest do so immediately after the collection of the cards. More than 90% of the health workers opined that the task of recording the zinc administration on the compliance cards was necessary giving the main reasons that it would remind to give zinc timely (98%) followed by ensuring authenticity of the treatment (64%) and reminding any member of the family to give zinc (43%).

e) Findings on pharmacists

Training/orientation on treatment of diarrhea with zinc and ORS

Overall, 68% of the pharmacists in intensified and 46% in non-intensified areas reported receiving one-day orientation on treatment of childhood diarrhea with zinc tablets and ORS. All the pharmacists in intensified areas had received orientation in the last one year while over half (54%) in non-intensified areas had received 2 or more years ago. All the pharmacists of both areas found the orientation useful in providing treatment of diarrhea among children below five years of age.

Knowledge of diarrhea and its treatment

All the pharmacists in both areas (except one in non-intensified areas) considered ARI/pneumonia and diarrhea as the most common health problem of children in their areas.

A higher proportion (75%-100%) of pharmacists in intensified than in non-intensified (57%-96%) areas correctly mentioned poor hygiene, lack of clean drinking water and poor nutrition as the common causes of diarrhea in children. More pharmacists (73%) in intensified and than in non-intensified (50%) areas reported that they treated diarrhea with ORS and zinc tablets together. However, more pharmacists (75%) from non-intensified areas than from intensified areas (68%) reported that they also treat diarrhea with ORS only. The use of antibiotics and other medicines for the treatment of childhood diarrhea was also found to be more common in both areas.

Knowledge and attitudes towards zinc

Majority of the pharmacists in both areas were of the opinion that use of zinc tablets and ORS could help reduce severity (80% in intensified and 86% in non-intensified) and frequency (90% intensified and 64% in non-intensified) of diarrhea. Over half of the respondents in intensified compared to about one-third in non-intensified areas believed that use of zinc tablets could also help to facilitate absorption of water and to reduce duration of diarrhea. However, the level of knowledge of pharmacists of both areas about other important benefits of treating diarrhea with zinc and ORS such as preventing future episode, recovering immunity, making child stronger and protecting future illness was quite low.

The large majority of the pharmacists with a higher percentage in intensified (92%-98%) than in non-intensified (82%-93%) areas had correct knowledge about the dose, frequency, duration and timing of giving zinc tablets to the children during diarrhea. Similarly, more (75%-98%) pharmacists in intensified than in non-intensified (68%-89%) areas appropriately said that zinc could be given to the children during diarrhea mixing with ORS, mother's milk, or water. Similarly, a notably more (60%) pharmacists in intensified than in non-intensified (46%) areas also said that zinc could be given together with any liquid drinks.

About 85% of the pharmacists in intensified compared to only 71% in non-intensified areas were aware that if someone missed to give zinc to their children in any of the prescribed day it could be given whenever remembered but if remembered the next day only one dose should be given.

A slightly more (57%) pharmacists in intensified than in non-intensified (54%) areas reported that if a child vomited within half an hour after taking zinc it is necessary to repeat the dose. The proportion of pharmacists who said that if the child vomited after one hour it is not necessary to repeat the dose was slightly more in intensified (33%) than in non-intensified (11%) areas.

All the pharmacists in both areas reported that they carry out different activities such as examining the condition of the child suffering from diarrhea, explaining about doses of zinc, informing number of days zinc to be given, explaining about the procedure of administering zinc and providing ORS and giving instruction to prepare it while providing zinc tablets to mothers or caretakers.

2-in-5 pharmacists in intensified areas reported that they usually explain the mothers or caretakers to fill up the zinc compliance cards and another one-third also said that they ask mothers or caretakers to return the filled up cards upon completion of treatment.

More pharmacists in intensified than in non-intensified areas were in favor of recommending others to use zinc tablets for treatment of diarrhea. Nearly 88% of the pharmacists in intensified and 82% in non-intensified areas said that they would recommend others to use zinc tablets to treat childhood diarrhea.

Coverage of diarrhea with zinc treatment

Over three-quarters (78%) of the pharmacists in both areas reported that at least one child aged 2-59 months old was brought to their pharmacies for the treatment of diarrhea in the last month with the average number of 16 children in intensified and 38 children in non-intensified areas. The coverage of diarrhea cases treated with zinc and ORS was considerably high in intensified (54%) than in non-intensified (45%) areas. On average 6 children in intensified and 19 in non-intensified areas were treated with ORS only.

Stock situation of zinc tablets and ORS

About 3-in-5 pharmacists from both areas reported that they brought ORS packets from suppliers in the past one month with the average number of 246 packets in intensified and 156 packets in non-intensified areas indicating more packets acquired by the intensified than by the pharmacists of non-intensified areas. The average number of ORS packets current at stock was found to be more in intensified (118 packets) than in non-intensified (53 packets) areas.

1-in-5 pharmacists with slightly a higher percentage from intensified areas reported that they brought zinc tablets from suppliers or other sources in the past one month preceding the survey. The quantity of zinc tablets so brought ranged from 50 tablets to more than 400 tablets.

Nearly three-quarters (73%) of the pharmacists in intensified compared to less than half (46%) in non-intensified areas reported having the stock of zinc tablets at the time of survey with the average stock of 215 tablets in intensified and 189 tablets in non-intensified areas. More pharmacists (73%) in intensified than in non-intensified (46%) areas reported that the quantity of zinc tablets they received was enough compared to the number of children brought to the pharmacies requiring zinc treatment. Overall the average number of sales of zinc tablets in the last 30 days was less in intensified (85 tablets) than in non-intensified (236 tablets) areas.

A higher proportion (38%) of the pharmacists in intensified than in non-intensified (29%) areas had advertisement materials on zinc to display in the pharmacy. Overall, majority of pharmacists did not have such advertisement materials.

Use of zinc compliance cards

Only a quarter (23%) of the pharmacists in intensified areas reported having zinc compliance cards to provide mothers or caretakers of children during diarrhea treatment. On average each pharmacist had stock of 89 zinc compliance cards at the time of survey. However, only a small proportion (10%) of them reported that they had filled up the zinc compliance cards while providing the zinc and ORS to the mothers/caretakers. The aforesaid information indicate that the proportion of the pharmacists who felt the need for use of compliance cards was more than those who reported had filled up the cards while providing zinc and ORS to the mothers. Most of the pharmacists reported that only less than 50% of the mothers/caretakers return the filled up cards upon completion of diarrheal treatment. Nearly two-thirds (64%) of the pharmacists thought that it is necessary to fill up the zinc compliance cards during diarrheal treatment.

Willingness to sell zinc

The great majority of the pharmacists with a higher percentage in intensified (90%) than in non-intensified (82%) areas showed their willingness to sell dispersible zinc together with ORS from their shops.

6.2 Conclusions

The zinc program under the support of the Micronutrient Initiative (MI) has covered three districts with the objectives of increasing the knowledge, attitudes and practice of services providers and mothers for better management including the compliance to treatment of childhood diarrhea with zinc and ORS. The information collected from both the service providers and mothers/caretakers has provided evidence that the program has been effective in intensified areas as several indicators have been improved compared to those of the non-intensified areas.

Overall, the level of knowledge on diarrhea, its signs and symptoms, preventive measures and procedures of treating diarrhea with zinc and ORS combined is higher among the service providers and mothers of the intensified areas than in non-intensified areas. Likewise, more service providers as well as mothers of intensified areas are in favor of treating diarrhea with zinc and ORS. The study also showed that the use of zinc tablets along with ORS is higher in intensified than in non-intensified areas though the difference in proportion is not substantially high (by 5 percentage points). Moreover the compliance to zinc and ORS treatment resume is significantly higher in intensified than in non-intensified areas (70% vs. 38%). On the top the introduction of zinc compliance card has facilitated mothers to comply with the treatment resume as almost all the mothers affirmed that the cards have been instrumental in reminding them or their families to give zinc and ORS regularly for 10 days to their children. The study also showed the better stock situation of zinc and ORS with the health facilities and service providers of the intensified areas compared to those of non-intensified areas.

All these aforesaid improvements and favorable situation regarding diarrhea and zinc treatment was found among majority of service providers and mothers of the intensified areas which was achieved within a short duration as one year of the intensified intervention is laudable, since behavioral changes among the people normally would take longer duration. All these improvements and achievements in the intensified areas were observed more among the service providers and mothers/caretakers probably due to the result of intensified zinc intervention. However, there are still substantial proportion of service providers and mothers who have not achieved these improvements or are not in the favorable situation in these aspects. Therefore, if the program has to attain optimum improvements and progress in treatment of diarrhea with zinc

and ORS some measures have to be taken or strengthen further, and they are suggested in the recommendation section.

6.3 Recommendations

This section deals with the recommendations made based on the study findings are basically on knowledge/awareness, coverage of diarrhea cases with zinc and ORS treatment, supply and stock of zinc, and ORS and zinc compliance cards. Recommendations are divided into four categories, namely related to mothers, FCHVs, health workers, and pharmacists.

a) Recommendations: Mothers

i) To increase optimum level of knowledge of mothers on diarrhea, the awareness/education activities should include dissemination of information on:
- Proper toilet habits
- Signs and symptoms of diarrhea particularly like sunken eyes, and skin pinch going back slowly
- Giving more foods and drinks than usual during diarrhea
- Zinc and treating with zinc and ORS together
- Measures of preventing diarrhea particularly proper hand washing practice and use of toilets
- Need for taking the children with danger signs of diarrhea to the health facilities for treatment
- Zinc and its treatment should emphasize dissemination of information on these benefits
- That zinc could be obtained from the FCHVs

ii) Education of mothers on zinc treatment should give priority to interpersonal mode of communication through the health workers and FCHVs in addition to the local FM. Since local FM, health facilities and FCHVs were the most frequently cited source of information on zinc, these sources need to be utilized optimally for zinc education activities.

iii) The zinc awareness activities need to be accelerated particularly among the mothers/caretakers of illiterate and low SES level.

iv) The mothers need to be made aware that zinc could be used for treatment of diarrhea and the places from where zinc could be obtained.

v) The mothers need to be encouraged to use safe facilities like HP, SHP and trained volunteers to consult or treat the children suffering from diarrhea. If treatment has to be taken place at home encourage the mothers to include ORS and zinc for the treatment. Mothers should also be encouraged to provide zinc in all episode of diarrhea.

vi) The FCHVs need to be encouraged to provide zinc and ORS together and for this purpose they should be provided with adequate amount of zinc to match with the amount of zinc they have. Such provision should be taken into consideration with regard to distribution of zinc and ORS from the pharmacists as well as during consultation of the mothers with the pharmacists, as only 13% of mothers in intensified and 22% in non-intensified received zinc from pharmacy while 66% in intensified and 71% in non-intensified areas had received ORS.

vii) Mothers need to be informed about the availability of zinc at the pharmacies also, and should be encouraged to get supply from the pharmacies as well.

viii) To obtain full compliance of mothers to treat with zinc for 10 days they need to be adequately informed about the need for giving zinc for 10 days and to initiate zinc treatment as soonest as possible following onset of diarrhea. At the same time they should be provided with adequate number of zinc tablets.

ix) Zinc should be continued to be distributed through FCHVs, VHWs, MCHWs and pharmacies with more efforts for making the pharmacies capable to do so.

x) Mothers should be reminded of the need for returning the compliance cards and motivated to visit the health facilities for this purpose.

xi) In order to increase the acceptability of zinc by the children the taste of the zinc should be made child friendly i.e. making it tasty, if feasible or to inform mothers to give the zinc with mother's milk or other sweet foods the practice which was followed by only a limited proportion of the mothers.

xii) The efforts to motivate mothers to treat diarrhea with zinc and to recommend others also should be continued since almost all the mothers found such treatment very effective and were eager to recommend others as well.

xiii) Zinc should be made available adequately, easily, and in time in the health facilities and pharmacies.

xiv) General public as well as the FCHVs should be made fully aware of treating diarrhea with zinc and ORS.

xv) Making the zinc available in liquid form with child friendly taste.

b) Recommendations: FCHVs

i) Since there were still some FCHVs who were not well acquainted with diarrhea in terms of its causes, signs and symptoms and management, orientation of the FCHVs needs to be focused on providing adequate information on these aspects of diarrhea.

ii) Education of the FCHVs on zinc should include dissemination of message that zinc treatment would help prevent future episode of diarrhea and facilitate absorption of water in the body to avoid dehydration. The message on the need for treatment of diarrhea with zinc and ORS together and measures to be taken when administration of zinc happened to miss as schedule should also be emphasized.

iii) In order to increase the coverage of diarrhea cases by the FCHVs with zinc treatment the FCHVs need to be encouraged to assist mothers to treat diarrhea with ORS and zinc in the first place and secondly these volunteers should be provided with adequate and balanced amount of both the ORS and zinc to be further distributed to the children.

iv) Those FCHVs who did not have any stock of ORS and zinc should be provided with such supplies. They should also be provided with adequate number of zinc compliance cards and oriented fully on the processes of filling-in the cards.

c) Recommendations: Health Workers

i) Overall, the level of knowledge on diarrhea and zinc treatment was high among the health workers of intensified than those of non-intensified areas. However, a considerable percentage of the health workers lacked correct information on various aspects of zinc and treatment of diarrhea with zinc. Therefore, the health workers need to be reoriented particularly on the following aspects:
- The need for treating diarrhea cases with both zinc and ORS or at least with zinc
- Benefits of treating diarrhea with zinc and ORS together
- Proper measures to be taken in case of vomiting after taking zinc
- Need for explaining the duration and procedures of use of zinc and to fill up and return the zinc compliance cards

ii) Efforts should be made to increase the coverage of diarrhea cases treated with both zinc and ORS together by preventing the shortage of zinc supply with the health workers. For this purpose all health workers should have received adequate quantity of ORS and zinc compared to the number of children brought to them requiring ORS and zinc treatment. The problems faced in supply of zinc need to be addressed since many health workers were facing the problems.

iii) The health workers should be provided with adequate IEC materials, including brochures so that they could in turn distribute to the target population to increase community's awareness on diarrhea and treatment of diarrhea with zinc.

iv) Overall, the health workers were well equipped with the zinc compliance cards. However, the return rate of filled-in cards found to be a constraint. Therefore, the health workers should be instructed to explain the mothers about the importance and procedures of filling-in and returning the cards to the health facilities or workers.

v) The health workers should be encouraged to play their educational role in treatment of diarrhea with zinc and ORS including use of compliance cards.

d) Recommendations: Pharmacists

i) Though the proportion of pharmacists of intensified areas who received orientation on treatment of diarrhea with zinc and ORS was higher than the pharmacists of non-intensified areas there were still a substantial proportion of them had not received the orientation. Therefore, these pharmacists should be provided with the orientation so that they would be capable of providing appropriate and adequate services regarding zinc treatment of diarrhea. Since there were many aspects of treatment of diarrhea with zinc and ORS which were not clear to the pharmacists the orientation should focused on providing adequate information to correct these unclear or deficient aspects which are as follow:
- Need for treating diarrhea with zinc and ORS together
- The benefit of zinc and ORS combined treatment, such as reduction in duration of diarrhea, prevention of future episode of diarrhea and facilitation of absorption of water in the body
- Differences in doses of zinc to be given according to the age of the children
- Providing zinc with mother's milk and other liquids as well if ORS is not readily available
- Amount of zinc to be given next day if missed to give in the prescribed day, and if child vomited after giving zinc

ii) Since a considerable proportion of the pharmacists had not provided full consultation to the mothers while visiting the pharmacies, they should be encouraged to provide information to the visiting mothers/caretakers on doses, duration, and procedures of giving zinc, and distribution and explanation of use of zinc compliance cards (in intensified areas). For this purpose, a checklist chart should be developed and distributed to the pharmacists so that they could be displayed in the pharmacies as a reminder regarding things to be done during the mothers visit to the pharmacies.

iii) Despite the pharmacist's opinion on availability of adequate supply of ORS and to some extent zinc in their pharmacies only half of the children suffering from diarrhea brought to the pharmacies were treated with zinc and ORS. Therefore, to maximize the coverage of treatment of diarrhea with zinc, the pharmacists should be encouraged to provide zinc and ORS treatment to all the cases brought to them. For this purpose, they should be provided with zinc and ORS supplies in adequate and balanced manner. It should be considered that the supply of zinc and ORS should be regular in the most selling months, namely from Baisakh to Shrawan.

iv) Since the pharmacists were found to be willing to sell zinc together with ORS provision should made to make these supplies easily available. As most of the study pharmacies kept Zinc DT 10 mg and Zinc DT 20 mg these brands could be made available for selling.

v) Since the pharmacists encountered several comments regarding zinc and ORS treatment from the mothers/caretakers during their visits to them, they should be well informed about the ways to respond to the comments related to vomiting by the children after taking zinc, refusal of zinc by the children, long duration of 10 days treatment, and child not getting better even after administration of zinc.

vi) Since the use of zinc compliance cards by the pharmacists of intensified areas found to be minimal due to shortage of the cards, unawareness of the need for the use of the cards and thinking that it is not necessary to use, orientation or reorientation of the pharmacists on its need and usefulness should be conducted and adequate number of cards be made available.

vii) Periodic follow up of the pharmacies from the concerned agencies should be carried out to get information on the problems encountered by the pharmacies in dealing with diarrhea cases with emphasis on treatment with zinc and ORS and more particularly the use of compliance cards. At the same time the follow up should assess the supply situation and measures to maintain regular and adequate supply of zinc, ORS and compliance cards.

Annex

Survey Instruments

Evaluation of Zinc Program in Nepal 2010

Questionnaire for Mothers/Caretakers of Children aged 2-59 months old

Child Health Division/ Micronutrient Initiative/ Valley Research Group

Form No.				

District:……	Sankhuwasabha ..... 9 Gorkha ..... 36 Bajura..... 67 Taplejung..... 1 Tanahun ..... 38 Bajhang..... 68
Name of VDC /municipality ……	
Ward No ……	
Village name ……	
Cluster No. ……	
Name of the household head ……	
Name of the respondent ……	
Name of interviewer……..	
Interview date…….	

INTRODUCTION AND CONSENT

Namaste! My name is _____, and I am from Valley Research Group (VaRG) Kathmandu. VaRG is conducting this study for the Micronutrient Initiative (MI) which is supporting to the Child Health Division of the Ministry of Health and Population by expanding zinc program in different districts. We are here to find about the health of children to help you and your community to keep children healthy. We are asking many women in many communities the same questions in order to understand their knowledge, attitudes and behavior regarding the child health specifically diarrhea and its treatment. We would very much appreciate your participation in this survey. The survey usually takes around 45 minutes. But I assure you that your name will not be shared with anyone else and your answers to my questions will be combined with answers from many other people so that no one will know that the answers you give me today belong to you. Your privacy is protected and I assure that your answers are kept confidential.

Your participation in this survey is voluntary and you can choose not to answer any individual question or all of the questions. However, we hope that you will participate in this survey since your views are important.
May I proceed with the questions?

Respondent agrees to be interviewed ……	1
Respondent does not agree to be interviewed ……	2 → **End interview and thank the respondent.**

Section 1: Respondent's Background

<u>Interviewer</u>: "Now I would like to ask some questions about you and your household."

Q. #	Question	Codes	Go to Q
101	How old are you?	Age in completed years [___ | ___]	
102	Have you ever attended school?	Yes ..... 1 No 2	→105
103	What is the highest class you completed?	Grade…… ☐☐	
104	**(Interviewer: Check Q. 103)**	Grade 5 or below..... 1 Grade 6 and above 2	→106

Q. #	Question	Codes	Go to Q
105	Now, I would like you to read out loud as much of this sentence as you can. *"Churot khanu ramro bani hoina"* **(Show card to the respondents)**	Cannot read at all ..... 1 Able to read only parts of sentence ..... 2 Able to read whole sentence 3	
106	What is your occupation, that is, what kind of work do you mainly do?	Agriculture ..... 1 Wage labor (agri. or non-agri.) ..... 2 Service (govt. or private) ..... 3 Small business/industry ..... 4 Household work ..... 5 Other (specify) _____ ..... 6 Not working 8	
107	What is your caste/ethnicity? _____ Caste or ethnicity	Dalit ..... 1 Disadvantaged Janajatis ..... 2 Disadvantaged non Dalit Terai caste ..... 3 Religious minorities ..... 4 Relatively advantaged Janajatis ..... 5 Brahmin/Chhetri/Giri/Puri/Thakuri 6	
108	Does your household have the following items?		
		Yes / No	
	1 Electricity?	1 / 2	
	2 Bicycle?	1 / 2	
	3 Telephone/mobile phone?	1 / 2	
	4 Television?	1 / 2	
	5 Radio?	1 / 2	
109	What is the main source of drinking water for members of your household?	**Piped water** • Piped into house ..... 1 • Piped to yard/plot ..... 2 • Public / neighbor's tap ..... 3 • Tube well or borehole ..... 4 **Dug well** • Protected ..... 5 • Unprotected ..... 6 • Spring/kuwa ..... 7 • Surface water (river/dam/ lake/ pond/stream/canal/irrigation canal) .. 8 • Stone tap/dhara ..... 9 • Other (specify) _____ 10	
110	Do you treat water for drinking?	Yes ..... 1 No 2	→112
111	How do you treat water for drinking? Probe: Any other ways? **(Multiple Response)**	Boiling…… .....1 Filtration .....2 Chlorination .....3 Solar disinfection…….4 Other (specify)_____…… 5	
112	What type of toilet facilities does your house have?	Flush toilet ..... 1 Traditional pit toilet ..... 2 Ventilated improved pit latrine ..... 3 No facility / bush / field ..... 4 Other (specify)_____ 5	

Q. #	Question	Codes	Go to Q
113	Main material of the floor **Record observation**	Earth/mud/dung ..... 1 Wood planks ..... 2 Linoleum / carpet ..... 3 Ceramic tiles, marble chips ..... 4 Cement ..... 5 Other (specify) _____ 6	
114	Main material of the roof **Record observation**	Thatch ..... 1 Metal ..... 2 Tiles/Khapada ..... 3 Cement ..... 4 Other (specify) _____ 5	
115	Main material of the walls Record observation	Bamboo with mud ..... 1 Bamboo with cement ..... 2 Adobe ..... 3 Unfinished wood ..... 4 Cement ..... 5 Bricks ..... 6 Cement blocks ..... 7 Wood planks ..... 8 Stone with mud or cement ..... 9 No walls ..... 10 Other (specify) _____ 11	
116	Do you watch television almost every day, at least once a week, less than once a week, or not at all?	Almost every day ..... 1 At least once a week ..... 2 Less than once a week ..... 3 Not at all 4	
117	Do you listen to the radio almost every day, at least once a week, less than once a week, or not at all?	Almost every day ..... 1 At least once a week ..... 2 Less than once a week ..... 3 Not at all 4	
118	How many hours or minutes does it take you to reach the nearest health facility? (Hours:_____ Minutes:_____)	In minutes:_____ Don't know 998	
119	Do you know who is the FCHV of your area? **(Probe: "Do you know the woman who gives out vitamin A to children under five in your area twice a year")**	Yes ..... 1 No ..... 2 Do not know 8	

Section 2: Knowledge of Diarrhea and its Treatment

Now, I would like to ask you some questions about child health.

Q. #	Question	Codes	Go to Q
201	What are the causes of diarrhea among children? Probe: Any other causes? **(Multiple Response)**	Bad/dirty food ..... 1 Bad/dirty water ..... 2 Dirty environment ..... 3 Dirty hands ..... 4 Flies ..... 5 Defecating in the open place ..... 6 Germs ..... 7 Other (specify)_____ ..... 8 Do not know 98	

Q. #	Question	Codes	Go to Q
202	What are the most common signs and symptoms of diarrhea among children? Probe: Any other causes? **(Multiple Response)**	Child becomes weak ..... 1 Sunken eyes ..... 2 Drinks eagerly, thirsty..... 3 Skin pinch goes back slowly..... 4 Discharge of watery stool 3 or more than 3 times ..... 5 Other (specify)_____ ..... 6 Do not know 98	
203	What are the ways of preventing diarrhea among children? Probe: Any other ways? **(Multiple Response)**	Eating fresh foods ..... 1 Washing hands..... 2 Preparing food hygienically/storing well 3 Washing hands with soap ..... 4 Defecating in latrine..... 5 Treating water (boil, filter, chlorinate) ... 6 Other (specify)_____.....7 Do not know 98	
204	What are the common signs of dehydration which occur due to diarrhea? Probe: Any other ways? **(Multiple Response)**	Unconsciousness/ restless/ irritable ..... 1 Many watery stool ..... 2 Skin pinch goes back slowly..... 3 Sunken eyes ..... 4 Drinks eagerly, thirsty, drinking poorly.. 5 Others (specify) _____..... 6	
205	How do you look after a child with diarrhea at home? Probe: Any other? **(Multiple Response)**	Giving more fluids to the child than usual..... 1 Giving usual amount of foods to the child..... 2 If breastfed, continue breastfeeding..... 3 Giving ORS (Jeevan Jal or Nawa Jeevan) to child ..... 4 Giving less fluids to the child than usual..... 5 Giving less amount of foods to the child ..... 6 If breastfed, discontinue breastfeeding ..... 7 Giving extra food during week after illness..... 8 Other (specify)_____ ..... 9 Do not know..... 98	
206	Where would you seek for treatment of the diarrhea?	Hospital..... 1 Primary health care center ..... 2 Health post/ subhealth post..... 3 Mobile/outreach clinic ..... 4 Private clinic/nursing home ..... 5 Pharmacy ..... 6 FCHV..... 7 TBA ..... 8 VHW/MCHW..... 9 Dhami/Jhakri..... 10 Other (specify) _____.. . 11 Do not know 98	
207	Under what circumstances a child with diarrhea should be taken to a service provider for consultation/treatment? Probe: Any other circumstances? **(Multiple Response)**	If child does not get better within 3 days 1 Frequent watery stools..... 2 Repeated vomiting..... 3 Child very thirsty ..... 4 Eating or drinking poorly..... 5 Fever ..... 6 Blood in the stool..... 7 Other (specify)_____ .... 8 Do not know 98	

Q. #	Question	Codes	Go to Q
208	In your opinion, how should diarrhea be treated? Probe: Any other? **(Multiple Response)**	Use ORS ..... 1 Use zinc tablets ..... 2 Use ORS along with zinc tablets for 10 days ..... 3 Use anti-diarrheal ..... 4 Use antibiotics ..... 5 Encourage child to eat and drink during diarrhea ..... 6 Continue feeding ..... 7 Do not do anything ..... 8 Other (specify)_____ 9	
209	The last time (Name of Youngest Child) passed stools, what was done to dispose of the stools?	Child used toilet or latrine ..... 1 Put/rinsed into toilet or latrine ..... 2 Put/rinsed into drain or ditch ..... 3 Thrown into garbage ..... 4 Buried ..... 5 Left in the open ..... 6 Other (specify)_____ 7	
210	Normally, when do you wash your hands? Probe: Any other? **(Multiple Response)**	Before meals ..... 1 After meals ..... 2 After defecation ..... 3 Before preparing meals ..... 4 After preparing meals ..... 5 After completion of household chores .... 6 Before feeding the baby ..... 7 Other (specify)_____ 8	
211	Have you heard about Zinc tablet?	Yes ..... 1 No 2	→213
212	**If no, show a file of Zinc Tablet and ask:** Have you seen the tablet like this?	Yes ..... 1 No 2	
213	**Check Q211 and Q212 and circle below:** Seen or heard about Zinc tablet ..... 1 Neither seen nor heard about Zinc tablet 2		 →222
214	What is it used for? Probe: Any other uses? **(Multiple Response)**	Prevention and treatment of diarrhea ..... 1 Facilitate physical growth ..... 2 Increase immunity ..... 3 Other (specify)_____ 4	→216
215	**If diarrhea is not mentioned, probe:** Whether or not Zinc tablet can be used to prevent and treat diarrhea?	Yes ..... 1 No ..... 2 Do not know 8	
216	From where or whom did you hear of Zinc tablet? Probe: Any other sources? **(Multiple Response)**	National Radio (Radio Nepal/ Kantipur) ..... 1 Local FM ..... 2 Television ..... 3 Print media (poster, pamphlets, flip chart, brochure, etc).. ..... 4 Hospital ..... 5 PHC/HP/SHP ..... 6 VHW/MCHW ..... 7 FCHV ..... 8 Pharmacy/ medical shop ..... 9 Family members ..... 10 Relatives/neighbors/friends ..... 11 Other (specify) _____ 12	

Q. #	Question	Codes	Go to Q
217	Where or from whom did you see/hear of the Zinc tablet for the first time?	Hospital ..... 1 PHC/HP/SHP ..... 2 VHW/MCHW ..... 3 FCHV ..... 4 Medical shop/pharmacy ..... 5 Other (specify)_____ 6	
218	How many times in a day zinc tablets should be given to a child?	Once…… ..... 1 Twice ..... 2 Other (specify) _____… .3 Don not know..... 8	
219	For how many days a child should be given Zinc tablets during diarrhea?	Days:_____ Do not know…..... 98	
220	In your opinion, what are the benefits of treating diarrhea with Zinc tablets? Probe: Any other benefits? **(Multiple Response)**	Prevent severity of diarrhea……..... 1 Reduce frequency of diarrhea……..... 2 Reduce duration of diarrhea…… ..... 3 Facilitate absorption of water..... 4 Prevent future episode…… ..... 5 Other (specify)_____..... 6 Do not know..... 98	
221	Do you know from where one could get Zinc tablets? Probe: Any other sources? **(Multiple Response)**	Hospital ..... 1 PHC/HP/SHP ..... 2 VHW/MCHW ..... 3 FCHV ..... 4 Pharmacy/ medical shop ..... 5 Other (specify)_____ ..... 6 Do not know..... 98	
222	Have you seen or heard about ORS?	Yes ..... 1 No..... 2	→301
223	If yes, would you please tell me how one should prepare ORS? **(Correct answer is 1 packet of ORS mixed with 6 tea glasses or 1 liter of clean water)**	Correct ..... 1 Incorrect 2	
224	From where or whom did you hear of ORS? Probe: Any other sources? **(Multiple Response)**	National Radio (Radio Nepal/ Kantipur) ..... 1 Local FM..... 2 Television..... 3 Print media (poster, pamphlets, flip chart, brochure, etc).. ..... 4 Hospital ..... 5 PHC/HP/SHP ..... 6 VHW/MCHW ..... 7 FCHV ..... 8 Pharmacy/ medical shop ..... 9 Family members..... 10 Relatives/neighbors/friends..... 11 Other (specify) _____ 12	
225	Do you know from where one could get ORS packets? Probe: Any other sources? **(Multiple Response)**	Hospital ..... 1 PHC/HP/SHP ..... 2 VHW/MCHW ..... 3 FCHV ..... 4 Pharmacy/ medical shop ..... 5 Other (specify)_____ ..... 6 Do not know 98	

Section 3: Incidence of Diarrhea and its Treatment

Now I would like to ask you if diarrhea occurred during the last one month (30 days) in any of your children between 2 to 59 months of age. Please give the name, sex and age of your child aged 2-59 months old suffering from diarrhea within 30 days prior to the survey.

Q. #	Question	Codes	Go to Q
301	How many children between 2-59 months were suffering from diarrhea in the last 30 days? Please give their name, sex and age. **(Note to interviewer: Select only one child randomly (lottery method) in case of more than one child who was suffering from diarrhea).**	Age (in completed months) / Sex: Boy / Girl	
	1 Name:	1 / 2	
	2 Name:	1 / 2	
	3 Name:	1 / 2	
302	Names of eligible child (copy from Q301)	Name of child:_____	
303	Sex of the child (copy from Q301)	Boy.....1 Girl.....2	
304	Age of child (in completed months) (copy from Q301)	Months: _____	
305	Was this diarrhea during the last 2 weeks?	Yes.....1 No.....2	→308
306	If yes, is it still continuing?	Yes.....1 No.....2	→308
307	If yes, how many days it has been continuing?	Number of days:_____	→309
308	How many days did the child (NAME) had diarrhea? (number of days)	Number of days:_____	
309	When (NAME) had diarrhea was he/she offered/being offered less than usual to drink, about the same amount, more than usual, or nothing to drink?	Less than usual.....1 About the same.....2 More than usual.....3 Nothing to drink.....4 Do not know.....8	
310	When (NAME) had diarrhea was he/she offered/being offered less than usual to eat, about the same amount, more than usual, or nothing to eat?	Less than usual.....1 About the same.....2 More than usual.....3 Stopped food.....4 Never gave food.....5 Do not know.....8	
311	When (NAME) had diarrhea did you do the following consultations/ treatments? Probe: Any other? **(Read All; Multiple Response)**	Yes / No	
	1 Traditional treatment at home?	1 / 2	
	2 Gave medicine that was at home?	1 / 2	
	3 Consulted a Dhami/Jhankri?	1 / 2	
	4 Consulted an FCHV?	1 / 2	
	5 Consulted VHW/MCHW?	1 / 2	
	6 Took child to SHP/HP/PHC?	1 / 2	
	7 Took child to hospital?	1 / 2	
	8 Took child to a private clinic/nursing home?	1 / 2	
	9 Consulted other health workers?	1 / 2	
	10 Consulted pharmacist or bought medicine from a pharmacy?	1 / 2	
	11 Any other? (specify)_____	1 / 2	

Q. #	Question	Codes	Go to Q
312	**Check Q311 and circle below** Consulted FCHV (**Code 4**) .....1 Not consulted FCHV 2		→316
313	When did you meet FCHV while your child suffered from diarrhea? **(if immediately or same day write "0")**	In day: _____	
314	During the meeting, what information and services did she (FCHV) provide you on management of diarrhea? Probe: Any other information and services? **(Multiple Response)**	Advice on preventing diarrhea..... 1 Advice on ways of management of diarrhea ..... 2 Advised to feed more quantity of liquid . 3 Advised to feed more quantity of solid food ..... 4 Given ORS..... 5 Given Zinc tablets..... 6 Referred to health facility ..... 7 Other (specify)_____ 8	→316
315	**If zinc is not mentioned above in Q314, ask the following question:** Did the FCHV give you zinc tablet?	Yes ..... 1 No 2	
316	**Check Q311 and circle below** Consulted health worker (**5, 6, 7, 8 or 9**) .....1 Not consulted health worker 2		→320
317	When did you meet health worker or visited health facility while your child suffered from diarrhea? **(if immediately or same day write "0")**	In day: _____	
318	During the meeting, what information and services did health worker provide you on management of diarrhea? Probe: Any other information and services? **(Multiple Response)**	Advice on preventing diarrhea..... 1 Advice on ways of management of diarrhea ..... 2 Advised to feed more quantity of liquid . 3 Advised to feed more quantity of solid foods ..... 4 Given ORS..... 5 Given Zinc tablets..... 6 Referred to health facility ..... 7 Other (specify) _____ 8	→320
319	**If zinc is not mentioned above in Q318, ask the following question:** Did the health worker give you zinc tablet?	Yes ..... 1 No 2	
320	**Check Q311 and circle below** Consulted pharmacist (**Code 10**).....1 Not consulted pharmacist.....2		→324
321	When did you meet pharmacist while your child suffered from diarrhea? **(if immediately or same day write "0")**	In day: _____	

Q. #	Question	Codes	Go to Q
322	During the meeting, what information and services did the pharmacist provide you on management of diarrhea? Probe: Any other information and services? **(Multiple Response)**	Advice on preventing diarrhea ..... 1 Advice on ways of management of diarrhea ..... 2 Advised to feed more quantity of liquid . 3 Advised to feed more quantity of solid food ..... 4 Given ORS ..... 5 Given Zinc tablets ..... 6 Referred to health facility ..... 7 Other (specify)_____ 8	→324
323	**<u>If zinc is not mentioned above in Q322, ask the following question:</u>** Did the pharmacist give you zinc tablet?	Yes ..... 1 No 2	
324	**<u>Check Q311 to Q323 and circle below</u>**		
	Consulted HW, pharmacist or FCHV (**Code 4, 5, 6, 7, 8, 9 or 10**) and given zinc 1		→327
	Consulted HW, pharmacist or FCHV (**Code 4, 5, 6, 7, 8, 9 or 10**) but not given zinc...1		→326
	Not consulted any one (**Code 1, 2 or 3**).....2		
325	**<u>Show a file of Zinc Tablet and ask:</u>** Did you give this (Zinc) tablet to (NAME) during last diarrheal episode?	Yes ..... 1 No 2	→327
326	What are the reasons for not giving Zinc tablets to your child during last diarrheal episode? Probe: Any other reasons? **(Multiple Response)**	Do not know about the medicine ..... 1 Do not know about the sources ..... 2 Not available nearby ..... 3 No good taste ..... 4 Causes side effects ..... 5 Other (specify) _____ 6	→stop
327	From where did you get Zinc tablets? Probe: Any other sources? **(Multiple Response)**	Hospital ..... 1 Primary health care center ..... 2 Health post ..... 3 Subhealth post ..... 4 VHW/MCHW ..... 5 FCHV ..... 6 Pharmacy/medical shop ..... 7 Other (specify)_____ ..... 8 Do not know 98	
328	Did you give Zinc tablet to (NAME) with ORS?	Yes ..... 1 No 2	→331
329	How many packets of ORS did you receive for (NAME)?	Number of packets: _____	
330	From where did you get ORS? Probe: Any other sources? **(Multiple Response)**	Hospital ..... 1 Primary health care center ..... 2 Health post ..... 3 Subhealth post ..... 4 VHW/MCHW ..... 5 FCHV ..... 6 Pharmacy/medical shop ..... 7 Other (specify)_____ ..... 8 Do not know 98	→332
331	If no, what are the reasons for not giving Zinc with ORS? Probe: Any other reasons? **(Multiple Response)**	Do not know that it should be given together ..... 1 Lack of ORS ..... 2 Other (specify) _____ 3	

Q. #	Question	Codes	Go to Q
332	How many tablets of Zinc did you give (NAME) in a day?	Half tablet (10 mg)..... 1 One tablet (20 mg) ..... 2 Other (specify)_____ 3	
333	For how many days did you give Zinc tablets to (NAME)?	Number of days: _____	
334	**Check Q333, If the child was not given continuously for 10 days**, what are the reasons for not giving Zinc tablets for 10 days? Probe: Any other reasons? **(Multiple Response)**	Stock of tablets was finished ..... 1 Diarrhea stopped before 10 days..... 2 Child did not like the taste ..... 3 Forgot to give tablets ..... 4 Due to vomiting ..... 5 Do not know that it has to be given continuously..... 6 Onset of diarrhea less than 10 days..... 7 Other (specify)_____ ..... 8 Not Applicable (given 10 days) 99	
335	When did you start giving Zinc tablet to (NAME)?	Same day or immediately ..... 1 Second day..... 2 Third day..... 3 Fourth day..... 4 Fifth or more days..... 5	→337
336	If not given same day or immediately, what are the reasons for not giving immediately the Zinc tablet to (NAME)? Probe: Any other reasons? **(Multiple Response)**	Lack of knowledge..... 1 Not available nearby ..... 2 Not available when needed..... 3 Waiting to consult HW or FCHV ..... 4 Other (specify)_____ 5	
337	How many days after the treatment the episode of diarrhea subsided?	After days:_____	

Section 4: Perception on Effectiveness of Zinc

Q. #	Question	Codes	Go to Q
401	Did the child like the taste of Zinc tablet?	Yes ..... 1 No..... 2	→403
402	If the child did not like the taste of Zinc, how did you feed then next time?	Mixed with mothers' milk ..... 1 Mixed with ORS ..... 2 Mixed with sweet drinks..... 3 Mixed with sweet food..... 4 Other (specify)_____ 5	
403	Did the child experience any side effects from the use of Zinc? If yes, what were they? Probe: Any other side effects? **(Multiple Response)**	Vomiting…. ..... 1 Nausea…..... 2 Other (specify)_____ ..... 3 No side effects experienced 7	→405
404	What did you do when your child experienced side effects? Probe: Any other reasons? **(Multiple Response)**	Stopped giving Zinc totally..... 1 Stopped giving Zinc for a couple of days..... 2 Continued giving Zinc ..... 3 Consulted FCHV..... 4 Consulted other HW ..... 5 Consulted pharmacist..... 6 Other (specify)_____ 7	

Q. #	Question	Codes	Go to Q
405	How effective did you find the Zinc to control diarrhea?	Very effective.....1 Somewhat effective.....2 Not effective.....3 Do not know.....8	
406	Do you recommend others to treat diarrhea with Zinc tablet?	Yes .....1 No.....2	→408
407	If yes, why? Probe: Any other reasons? **(Multiple Response)**	It is effective/stops diarrhea .....1 Less expensive/free of cost .....2 Easily available .....3 Easy to use .....4 Less side effects .....5 Other (specify)_____ 6	→409
408	If no, why Probe: Any other reasons? **(Multiple Response)**	Not effective……1 Easily not available……2 Difficult to use……3 Cause side effects.....4 Other (specify)_____. 5	
409	Would you use Zinc tablet in case your child/children get sick with diarrhea next time?	Yes .....1 No.....2	→411
410	If yes, why? Probe: Any other reasons? **(Multiple Response)**	It is effective/stops diarrhea .....1 Less expensive/free of cost .....2 Easily available .....3 Easy to use .....4 Less side effects .....5 Other (specify) _____ 6	→412
411	If no, why? Probe: Any other reasons? **(Multiple Response)**	Not effective.....1 Easily not available .....2 Difficult to use .....3 Cause side effects.....4 Other (specify) _____ 5	
412	**Check Q311 and circle below:** Consulted HW, pharmacist or FCHV (Code 4, 5, 6, 7, 8, 9 or 10) .....1 Not consulted any one (Code 1, 2 or 3) 2		→421
413	When you consulted with (Type of provider; **See Q311**), did he/she enquire you about diarrhea including duration, frequency and severity of the child?	Yes .....1 No.....2	
414	Did the provider examine the child during consultation?	Yes .....1 No.....2 Child not taken.....3	
415	Did the provider explain you the following? (Read All)	Yes / No	
	1 Number of zinc tablets to be given every day	1 / 2	
	2 Number of days zinc tablets to be given continuously	1 / 2	
	3 Need for giving zinc with ORS	1 / 2	
	4 Provided brochure to you	1 / 2	
	5 Ways of giving the zinc tablet	1 / 2	
	6 (Note: show the card to the respondent and ask) Given zinc compliance card to you and instruction for filling and returning the card	1 / 2→421	
416	Do you have zinc compliance card with you?	Yes .....1 No.....2	→418

Q. #	Question	Codes			Go to Q
417	***Ask the respondent to show the card,*** Check and record the following information from the zinc compliance card		Yes	No	
	1 Name of child		1	2	
	2 Date treatment started		1	2	→419
	3 Date treatment completed		1	2	
	4 Provided ORS		1	2	
	5 Marking of all 10 treatment days		1	2	
	6 Follow up visit		1	2	
418	What happened to the zinc compliance card given to you? (**Note: If the respondent has already returned to health facility, pharmacy or health worker go to the respective person/facility, get the card and record information in Q417 above**)	Returned to PHC/HP/SHP ..... 1 Returned to VHW/MCHW ..... 2 Returned to FCHV ..... 3 Returned to pharmacist ..... 4 Lost ..... 5 Thrown away ..... 6 Other (specify)_____ 7			→420 →420 →420 →420
419	Why did not you return the zinc compliance card to the service provider?	Did not know that it should be returned.. 1 Forget to return ..... 2 Lack of time ..... 3 Did not strongly feel the need to return ..... 4 Still using ..... 5 Other (specify)_____ 6			
420	In your opinion, what are the benefits of receiving such card? Probe: Any other benefits? **(Multiple Response)**	Reminds to give zinc timely ..... 1 Any member can be reminded of giving zinc..... 2 Ensuring follow up by the providers..... 3 Ensuring authentic of the treatment ..... 4 Other (specify) _____ 5			
421	In your opinion, is it appropriate to prescribe zinc by the following level of providers?	Appropriate	Not appropriate	Do not know	
	1 VHW/MCHW level	1	2	8	
	2 Pharmacy Level	1	2	8	
	3 FCHV level	1	2	8	
422	Do you have any other comments on treatment of diarrhea with Zinc? Probe: Any other comments? **(Multiple Response)**	…… …… ……			

Evaluation of Zinc Program in Nepal 2010

Questionnaire for Female Community Health Volunteers

Child Health Division/ Micronutrient Initiative/ Valley Research Group

Form No.				

District:……	Sankhuwasabha ..... 9 Gorkha ..... 36 Bajura..... 67 Taplejung..... 1 Tanahun ..... 38 Bajhang..... 68
Name of VDC/municipality ……	
Ward No ……	
Village name ……	
Cluster No. ……	
Name of the respondent (FCHV) ……	
Name of interviewer……..	
Interview date…….	

Section 1: Respondent's Background

0 Q. #	1 Question	Codes	GO TO Q.
101	How old are you?	Age in completed years:……	
102	Have you ever-attended school?	Yes ..... 1 No..... 2	→104
103	What is the highest class you completed?	Grade…….	
104	What is your caste/ethnicity? _____ Caste or ethnicity	Dalit ..... 1 Disadvantaged Janajatis ..... 2 Disadvantaged non Dalit Terai caste ..... 3 Religious minorities ..... 4 Relatively advantaged Janajatis ..... 5 Brahmin/Chhetri/Giri/Puri/Thakuri 6	
105	For how long are you working as FCHV?	Years……	

Section 2: Knowledge of Diarrhea and its Treatment

2 Q. #	3 Question	Codes	GO TO Q.
201	What are the most common health problems of children under 5 year of age in this area ? **Probe: Any other?** **(Multiple Response)**	ARI/Pneumonia..... 1 Measles ..... 2 Diarrhea..... 3 Malnutrition ..... 4 Other (specify)_____ 5	→203

2 Q. #	3 Question	Codes	GO TO Q.
202	**Note: If diarrhea is not mentioned as the most common health problem, ask:** Is diarrhea a common problem of children under 5 years of age in this area?	Yes ..... 1 No ..... 2 Do not know ..... 8 NAP 9	
203	What causes diarrhea among children under 5 years of age? **Probe: Any other?** **(Multiple Response)**	Poor hygiene ..... 1 Lack of clean drinking water ..... 2 Poor nutrition ..... 3 Infection ..... 4 Allergies ..... 5 Other (specify)_____ ..... 6 Do not know 98	
204	What are the most common signs and symptoms of diarrhea among children under 5 year of age? **Probe: Any other?** **(Multiple Response)**	Child becomes weak ..... 1 Sunken eyes ..... 2 Child becomes very thirsty ..... 3 Skin pinch goes back slowly ..... 4 Discharge of watery stool more than 3 or more times ..... 5 Other (specify)_____ ..... 6 Do not know 98	
205	What are the four essential rules (things) that should be followed in managing childhood diarrhea at home? **Probe: Any other?** **(Multiple Response)**	Giving more fluid/liquid..... 1 Giving more food..... 2 Treat with Zinc..... 3 Taking child to health facility if danger signs appear..... 4 Other (specify)_____ .. .. 5 Do not know..... 8	
206	Have you ever received any orientation on treatment of childhood diarrhea with Zinc tablet?	Yes ..... 1 No ..... 2 Not heard of zinc 3	→212 →Stop
207	When did you receive the orientation on treatment of childhood diarrhea with Zinc tablet? Year:_____ Month: _____	____ months ago	
208	What was the duration of training?	One day ..... 1 Two days ..... 2 Three days 3	
209	Who provided the training?	District health office ..... 1 HP/SHP staff ..... 2 Other (specify)_____ 3	
210	Did you find the training useful?	Yes ..... 1 No ..... 2 Do not know 8	→212 →212
211	If no, why it is not useful? **Probe: Any other?** **(Multiple Response)**	Short duration ..... 1 Poor quality of training ..... 2 Difficult to understand ..... 3 Other (specify)_____ 4	
212	In your opinion what are the benefits of treating diarrhea with Zinc tablet and ORS? **Probe: Any other?** **(Multiple Response)**	Reduces severity of diarrhea ..... 1 Reduce frequency of diarrhea ..... 2 Reduce duration of diarrhea ..... 3 Facilitate absorption of water ..... 4 Prevent future episode ..... 5 Makes child stronger ..... 6 Protects future illness like Vit A 7	

2 Q. #	3 Question	Codes	GO TO Q.
		Other (specify)_____ ..... 8 Do not know..... 98	
213	How strongly do you recommend or not recommend other FCHVs to use Zinc tablets to treat diarrhea among children?	Strongly recommend..... 1 Just recommend ..... 2 Not recommend ..... 3 Cannot say..... 8	→215 →215 →215
214	If do not recommend, why? **Probe: Any other?**	…… ……	
215	Does the number of Zinc tablets given to children suffering from diarrhea vary according to their age or it does not vary by age?	Vary according to the age ..... 1 Does not vary ..... 2 Don't know 8	 →217 →217
216	If the number of tablets given does vary according to the age of children; what is the recommended dose of zinc for the children of the following age groups: (**show the tablets**)	10 mg / 20 mg / Other (specify) / Do not know	
	1 Children between 2-6 months of age?	1 / 2 / 3 / 8	
	2 Children between 6 months to 5 years of age?	1 / 2 / 3 / 8	
217	For how many days should Zinc tablets be given continuously (without missing any day) to a child suffering from diarrhea?	Number of days:_____ Other (specify)_____ ..... 96 Do not know..... 98	
218	How many times in a day zinc tablet should be given to the child suffering from diarrhea?	Once ..... 1 Twice ..... 2 Other (specify)_____ ..... 3 Do not know 8	
219	Should zinc tablet be given to the children alone or along with ORS?	Alone ..... 1 With ORS ..... 2 Alone or along with ORS ..... 3 Do not know 8	
220	Can zinc be given to the children during diarrhea mixing with the following? (**Read All**)	Yes / No / Do not know	
	1 With ORS	1 / 2 / 8	
	2 With water	1 / 2 / 8	
	3 With mother's milk	1 / 2 / 8	
	4 Any other liquid	1 / 2 / 8	
221	What should be done if someone missed to give zinc to their children in any of the prescribed days?	Can be given whenever remembered but if remembered the next day should be given only one dose ..... 1 Can be given whenever remembered but if remembered the next day should be two doses ..... 2 Other (specify)_____ ..... 3 Do not know..... 8	

Section 3: Management of Diarrhea

4 Q. #	5 Question	Codes	GO TO Q.
301	In the past one month how many children with diarrhea have you seen?	Number	
	1 Number of children aged 2-59 months		
	2 Number of children aged 60 months or above		
302	In the last one month, have you given ORS to anyone suffering from diarrhea?	Yes ..... 1 No 2	→304
303	If yes, how many packets did you distribute for the last one month?	Number of ORS packets:_____	
304	How many ORS packets do you have at present?	Number of packets: _____ None 997	
305	In the last one month have you given Zinc tablets to anyone suffering from diarrhea?	Yes ..... 1 No 2	→308
306	If yes, how may zinc tablets did you distribute in the last one month (within 30 days)?	Number of zinc tablets:_____	
307	Of the people you gave Zinc tablets in the last one month: (**Observe the ward register and record; if register is available note the verbal report**)	Number / Do not know	
	1 How many were between 2 to 59 months old?	Do not know: 998	→309
	2 How many were 5 years or older?	Do not know: 998	→309
308	If no, why did you not give Zinc tablet to anyone suffering from diarrhea? **Probe: Any other reason?** **(Multiple Response)**	Have not seen any child suffering from diarrhea ..... 1 No Zinc tablets with me ..... 2 Do not know the doses and frequency of use ..... 3 Lack of ORS ..... 4 Mothers/child do not like it ..... 5 Other (specify)_____ 6	
309	What is your opinion regarding the effectiveness of zinc with ORS in reducing duration, severity and frequency of diarrhea?	Very effective ..... 1 To some effective ..... 2 Not effective ..... 3 Do not know 8	
310	Do you have any IEC materials on treating diarrhea with Zinc?	Yes ..... 1 No 2	→312
311	If yes, what kind and how many materials do you have at present? (**Read All**)	Number	
	1 Brochure		
	2 Zinc Job Aid Card		
	3 Other (specify)_____		
312	How many Zinc tablets do you have at present?	Number of tablets: _____ None 997	
313	Have you received Zinc tablets from VHW/MCHW or health facility in the past three months?	Yes ..... 1 No 2	→315
314	If yes, how many tablets did you receive?	Number of tablets:_____	
315	In the last one month was there an occasion when you could not give Zinc tablet to a client because you ran out of supplies?	Yes ..... 1 No 2	

4 Q. #	5 Question	Codes	GO TO Q.
316	Do you have Zinc compliance card with you?	Yes ..... 1 No ..... 2 Not available/program not implemented. 3	 →318 →326
317	If yes, how many cards do you have now? (Ask the respondent to show the cards)	Number of cards:_____	
318	Do you fill up the zinc compliance card by yourself or ask others to fill up?	Fill up by oneself ..... 1 Fill up by others ..... 2 Do not fill up 3	
319	What proportion of the caretakers/mothers return the compliance card after completing the treatment?	Almost all ..... 1 More than 75% ..... 2 More than 50% ..... 3 Less than 50% ..... 4 Less than 25% 5	
320	Do you collect the completed compliance cards during mothers' group meeting?	Yes ..... 1 No 2	
321	How frequently do you submit the collected compliance card to VHW/MCHW/health facility?	Every month ..... 1 Every 2 months ..... 2 Other (specify)_____ ..... 3 Have not submitted yet 7	→323 →323 →323
322	What are the reasons for not submitting the collected compliance cards to VHW/ MCHW/ health facility? **Probe: Any other reason?** **(Multiple Response)**	No one instructed ..... 1 Forgotten ..... 2 Lost ..... 3 Busy ..... 4 Other (specify)_____ 5	
323	What do you think about filling up the zinc compliance card? Is it necessary to fill up or not?	Necessary ..... 1 Not necessary ..... 2 Do not know 8	 →325 →326
324	If necessary, why? **(Multiple Response)**	Reminds to give zinc timely ..... 1 Any member can be reminded of giving zinc ..... 2 Ensuring follow up by the providers ..... 3 Ensuring authentic of the treatment ..... 4 Other (specify) _____ 5	 →326
325	If not necessary, why? **(Multiple Response)**	Can remember about the timing of giving zinc easily ..... 1 It's a extra burden ..... 2 Other (specify)_____ 3	
326	Have you ever told the advantages of treating diarrhea with Zinc to the mothers at the group meeting in the past one month?	Yes ..... 1 No 2	
327	Have you noticed any good things reported by the care takers about the treatment of diarrhea with zinc tablets and ORS? If yes, what are they? **Probe: Any other reason?** **(Multiple Response)**	Helped stop diarrhea quickly ..... 1 Increased the appetite of the children ..... 2 Helped made child stronger ..... 3 Other (specify)_____ ..... 4 Nothing 97	
328	Have you noticed any complaints from the care takers about the treatment of diarrhea with zinc tablets and ORS? If yes what are they?	.... Nothing 97	
329	What types of problems or constrains have you faced in treatment of diarrhea cases with Zinc?	....	

4 Q. #	5 Question	Codes	GO TO Q.
330	Do you have any suggestions for the improvement in treating diarrhea with zinc and ORS?	....	

Section 4: Information on compliance card

Note: Ask the FCHV to show their register and collect the following information for the last 9 months from the register.

6 Q. #	7 Question				Codes		GO TO Q.
		Total children consulted for diarrhea			Treatment with Zinc and ORS		
	Month	Boys	Girls	Total	Completed	Not completed	
	Falgun, 2066						
	Chaitra, 2066						
	Baisakh, 2067						
	Jestha, 2067						
	Ashadh, 2067						
	Shrawan, 2067						
	Bhadra, 2067						
	Ashwin, 2067						
	Kartik, 2067						
	Total						

Evaluation of Zinc Program in Nepal 2010

Questionnaire for Health Workers

Child Health Division/ Micronutrient Initiative/ Valley Research Group

Form No.					

District:……	Sankhuwasabha ..... 9 Gorkha ..... 36 Bajura..... 67 Taplejung..... 1 Tanahun ..... 38 Bajhang..... 68
Name of health facility:……	
Type of health facility:……..	PHC .....1 Health post.....2 Subhealth post.....3
Name of VDC/municipality ……	
Name of the respondent (health worker) ……	
Designation:……..	VHW.....1 MCHW 2
Duration of work in the present position (in years)	_____
Name of interviewer……..	
Interview date…….	

Section 1: Diarrhoeal Problems

8 Q. #	9 Question	Codes	GO TO Q.
101	What are the most common health problems of children under 5 year of age in this area? **(Multiple Response)** **(in the service coverage area)**	ARI/Pneumonia.....1 Measles .....2 Diarrhea .....3 Malnutrition .....4 Other (specify)_____ 5	
102	What causes diarrhea among children under 5 years of age? **Probe: Any other?** **(Multiple Response)**	Poor hygiene .....1 Lack of clean drinking water .....2 Poor nutrition .....3 Infection .....4 Allergies.....5 Other (specify)_____ .....6 Do not know.....98	
103	Have you ever received any orientation on treatment of childhood diarrhea with Zinc tablet?	Yes ..... 1 No..... 2	→109
104	When did you receive the orientation on treatment of childhood diarrhea with Zinc tablet? Year:_____ Month: _____	____ months ago	

8 Q. #	9 Question	Codes	GO TO Q.
105	What was the duration of training?	One day ..... 1 Two days ..... 2 Three days 3	
106	Who provided the training?	District health office ..... 1 Other (specify)_____ 2	
107	Did you find the training useful?	Yes ..... 1 No ..... 2 Do not know 8	→109 →109
108	If no, why it is not useful? **Probe: Any other?** **(Multiple Response)**	Short duration ..... 1 Poor quality of training ..... 2 Difficult to understand ..... 3 Other (specify)_____ 4	
109	Has this health facility ever conducted orientation on distribution and use of Zinc to the FCHVs?	Yes.. ..... 1 No ..... 2 Do not know 8	 →201 →201
110	If yes, what was the duration of training?	One day ..... 1 Two days ..... 2 Three days 3	

Section 2: Knowledge and Use of Zinc

10 Q. #	11 Question	Codes	GO TO Q.
201	How do you treat under five children having diarrhea? **Probe: Any other?** **(Multiple Response)**	Antibiotics ..... 1 ORS (Jeevan Jal/Nava Jeevan) only ..... 2 Zinc only ..... 3 ORS and Zinc together ..... 4 Metronidazole ..... 5 Other antidiarrheals ..... 6 Ciprofloxacin ..... 7 IV drip ..... 8 Other (specify)_____ 9	
202	What are the four essential rules (things) that should be followed in managing childhood diarrhea at home? **Probe: Any other?** **(Multiple Response)**	Giving more fluid/liquid…… . 1 Giving more food…… .... 2 Treat with Zinc……..... 3 Taking child to health facility if danger signs appear..... 4 Other (specify)_____ .. .. 5 Do not know..... 8	
203	In your opinion what are the benefits of treating diarrhea with Zinc and ORS? **Probe: Any other?** **(Multiple Response)**	Reduces severity of diarrhea ..... 1 Reduce frequency of diarrhea ..... 2 Reduce duration of diarrhea ..... 3 Facilitate absorption of water ..... 4 Prevent future episode ..... 5 Recovers immunity ..... 6 Makes child stronger ..... 7 Protects future illness like Vit A deficiency ..... 8 Other (specify)_____ ..... 9 Do not know 98	

10 Q. #	11 Question	Codes			GO TO Q.
204	What is the recommended dose of zinc for the children aged 2-6 months suffering from diarrhea?	10 mg .....1 20 mg .....2 Other (specify)_____ .....3 Do not know.....8			
205	What is the recommended dose of zinc tablet for the children aged 6 months to 5 years suffering from diarrhea?	10 mg .....1 20 mg .....2 Other (specify)_____ .....3 Do not know.....8			
206	For how many days a child should be given Zinc tablets during diarrhea?	Days: _____ Do not know.....98			
207	How many times in a day zinc tablet should be given to the children suffering from diarrhea?	Once .....1 Twice.....2 Other (specify)_____ .....3 Do not know.....8			
208	Should zinc tablet be given to the children alone or along with ORS?	Alone .....1 With ORS .....2 Alone or along with ORS .....3 Do not know 8			
209	Can zinc be given to the children during diarrhea mixing with the following? (**Read All**)	Yes	No	Do not know	
	1 With ORS	1	2	8	
	2 With water	1	2	8	
	3 With mother's milk	1	2	8	
	4 Any other liquid	1	2	8	
210	What should be done if someone missed to give zinc to their children in any of the prescribed days?	Can be given whenever remembered but if remembered the next day should be given only one dose.....1 Can be given whenever remembered but if remembered the next day should be two doses .....2 Other (specify)_____ .....3 Do not know.....8			
211	What should be done if a child vomited immediately after administering zinc tablet?	If vomited after one hour it is not necessary to repeat .....1 If vomited within half an hour it is necessary to repeat .....2 Administer the zinc tablet the next day only .....3 Administer zinc immediately after vomiting.....4 Other (specify)_____ .....5 Do not know 8			
212	What do you do while you are providing zinc to the mothers/care takers of the children for the treatment of diarrhea? (**DO NOT READ THE POSSIBLE RESPONSES**) Probe the responses which was not mentioned spontaneously and circle in appropriate code number.	Spontaneous yes	After probing		
			Yes	No	
	1 Examine the condition of the child suffering from diarrhea?	1	2	3	
	2 Explain about doses of zinc	1	2	3	

10 Q. #	11 Question	Codes			GO TO Q.
	3 Number of days zinc to be given	1	2	3	
	4 Explain about the procedure of administering zinc	1	2	3	
	5 Fill up the zinc compliance card	1	2	3	
	6 Instruct to complete the card and return after completing the treatment	1	2	3	
	7 Provide ORS and give instruction to prepare it	1	2	3	
213	How strongly do you recommend or not recommend other health workers or volunteers to use Zinc tablets to treat diarrhea among children?	Strongly recommend ..... 1 Just recommend..... 2 Not recommend ..... 3 Cannot say..... 8			→301 →301 →301
214	If do not recommend, why? Probe: Any other?	…… …… ……..……			

Section 3: Stock Situation and Support to FCHVs

12 Q. #	13 Question	Codes	GO TO Q.
301	Do you think that the quantity of ORS you receive enough compared to the number of children brought to the facility requiring ORS treatment?	Yes ..... 1 No..... 2 Do not know..... 8	
302	How often do you get the supply of ORS?	Monthly..... 1 Trimesterly..... 2 Four monthly..... 3 As per need 4	
303	How often do you supply ORS to FCHVs?	Monthly..... 1 Trimesterly..... 2 Four monthly..... 3 As per need 4	
304	Have you faced any problems regarding the supply of ORS?	Yes ..... 1 No..... 2	→306
305	If yes, what types of problems have you faced?	....	
306	Do you think that the quantity of Zinc you received is enough compared to the number of children brought to the facility requiring Zinc treatment?	Yes ..... 1 No..... 2 Do not know..... 8	
307	How often do you get the supply of zinc tablets?	Monthly..... 1 Trimesterly..... 2 Four monthly..... 3 As per need 4	
308	How often do you supply zinc tablets to FCHVs?	Monthly..... 1 Trimesterly..... 2 Four monthly..... 3 As per need 4	
309	Have you faced any problems regarding the supply of zinc tablets?	Yes ..... 1 No..... 2	→311

12 Q. #	13 Question	Codes	GO TO Q.
310	If yes, what types of problems have you faced?	....	
311	Do you have any IEC materials (e.g. Zinc Job aid) on treating diarrhea with Zinc?	Yes ..... 1 No..... 2	
312	Do you have Zinc compliance card with you?	Yes ..... 1 No..... 2 Not available in this facility..... 3	 →314 →322
313	If yes, how many cards do you have now? (Ask the respondent to show the card)	Number of cards:_____	
314	Do you provide the zinc compliance card to the care takers?	Yes ..... 1 No..... 2	
315	What proportion of the caretakers/mothers return the compliance card after completing the treatment to the health facility?	Almost all..... 1 More than 75%..... 2 More than 50%..... 3 Less than 50%..... 4 Less than 25%..... 5	
316	Do you collect the completed compliance cards from FCHVs, pharmacist and care takers?	Yes ..... 1 No..... 2	 →319
317	How frequently do you collect the compliance card from FCHVs, pharmacist and care takers?	Every month..... 1 Every 2 months ..... 2 Other (specify)_____ ..... 3 Have not submitted yet 7	
318	How frequently do you submit the collected compliance card to the health facility?	Every month..... 1 Every 2 months ..... 2 Other (specify)_____ ..... 3 Have not submitted yet 7	
319	What do you think about filling up the zinc compliance card? Is it necessary to fill up or not?	Necessary ..... 1 Not necessary..... 2 Do not know..... 8	 →321 →322
320	If necessary, why? (**Multiple Response**)	Reminds to give zinc timely ..... 1 Any member can be reminded of giving zinc..... 2 Ensuring follow up by the providers..... 3 Ensuring authentic of the treatment ..... 4 Other (specify) _____ 5	 →322
321	If not necessary, why? (**Multiple Response**)	Can remember about the timing of giving zinc easily..... 1 It's a extra burden ..... 2 Other (specify)_____ 3	
322	Have you faced any problem for treating the diarrhea cases with ORS and zinc?	Yes ..... 1 No..... 2	 →324
323	If yes, what types of problems or constraints have you faced in treatment of diarrhea cases with Zinc?	....	
324	Have you noticed any good things reported by the care takers about the treatment of diarrhea with zinc tablets and ORS? If yes, what are they? **Probe: Any other reason?** **(Multiple Response)**	Helped stop diarrhea quickly ..... 1 Increased the appetite of the children ..... 2 Helped made child stronger ..... 3 Other (specify)_____ ..... 4 Nothing 97	

12 Q. #	13 Question	Codes	GO TO Q.
325	Have you noticed any complaints from the care takers about the treatment of diarrhea with zinc tablets and ORS? If yes what are they?	.... Nothing 97	
326	Do you have any suggestions to facilitate treatment of children suffering from diarrhea with Zinc? If yes, what are they? Probe: Any other? (**Multiple Response**)	…… …… ……	

Section 4: Facility based information

Note: Collect the following information from the sampled health facility based on the facility based register/record. If there are more than one respondent from the same facility ask only one respondent to provide information.

401	Number of ORS packets received in the past three months	Number of packets:_____
402	Number of ORS packets in stock at the health facility at present	Number of packets: _____ None 9997
403	If the stock is nil, reasons for being out of stock	Supply has not received.....1 Distribution is high.....2 Other (specify)_____ 3
404	Number of zinc tablets received in the past theee months	Number of tablets:_____
405	Number of Zinc tablets in stock at the health facility at present	Number of tablets:_____ None 9997
406	If the stock is nil, reasons for being out of stock	Supply has not received.....1 Distribution is high.....2 Other (specify)_____ 3
407	Kind and number of IEC materials related to zinc and ORS at present (**Read All**)	Number
	1 Brochure	
	2 Job Aid Card	
	3 Other (specify):_____	
408	Number of zinc compliance cards at present	
409	How many children were suffered from diarrhea and treated with Zinc and ORS , zinc only and ORS only from this health facility in the last one month i.e. in Kartik (within 30 days)? (**Services provided at health facility including services provided by VHW, MCHW and FCHVs**) **(Observe Register or HMIS 32 Monthly Report Form; and record accordingly)**	Number of children
	1 Number of children suffering from diarrhea	
	2 Number treated with Zinc and ORS	
	3 Number treated with Zinc only	
	4 Number treated with ORS only	
	5 Number not treated	

410	**<u>Check Q409, if both ORS and zinc are not given together ask this question:</u>** What are the reasons for not giving zinc with ORS?	Shortage of ORS.....1 Shortage of zinc.....2 No training/orientation .....3 Other (specify)_____ 4

411 **Information on compliance card (Obtain from IMCI OPD Register)**

Month	Total children consulted for diarrhea			Treatment with Zinc and ORS	
	Boys	Girls	Total	Completed	Not completed
Falgun, 2066					
Chaitra, 2066					
Baisakh, 2067					
Jestha, 2067					
Ashadh, 2067					
Shrawan, 2067					
Bhadra, 2067					
Ashwin, 2067					
Kartik, 2067					
Total					

Evaluation of Zinc Program in Nepal 2010

Questionnaire for Pharmacist

Child Health Division/ Micronutrient Initiative/ Valley Research Group

Form No.				

District:……	Sankhuwasabha ..... 9 Gorkha ..... 36 Bajura..... 67 Taplejung..... 1 Tanahun ..... 38 Bajhang..... 68
Name of pharmacy:……	
Name of VDC/municipality ……	
Name of the respondent ……	
Name of interviewer……..	
Interview date…….	

Section 1: Diarrhoeal Problems

14 Q. #	15 Question	Codes	GO TO Q.
101	What are the most common health problems of children under 5 year of age in this area? **(Multiple Response)**	ARI/Pneumonia..... 1 Measles ..... 2 Diarrhea ..... 3 Malnutrition ..... 4 Other (specify)_____ 5	
102	What causes diarrhea among children under 5 years of age? **Probe: Any other?** **(Multiple Response)**	Poor hygiene ..... 1 Lack of clean drinking water ..... 2 Poor nutrition ..... 3 Infection ..... 4 Allergies..... 5 Other (specify)_____ ..... 6 Do not know..... 98	
103	Have you ever received training on pharmacy?	Yes ..... 1 No 2	
104	Have you ever received any orientation on treatment of childhood diarrhea with Zinc tablet and ORS?	Yes ..... 1 No..... 2	→201
105	When did you receive the orientation on treatment of childhood diarrhea with Zinc tablet and ORS? Year:_____ Month: _____	____ months ago	
106	What was the duration of training?	One day ..... 1 Two days..... 2 Three days..... 3	
107	Who provided the training?	District health office ..... 1 Other (specify)_____ 2	

108	How many times did you receive the orientation on treatment of childhood diarrhea with zinc tablets and ORS?	One ..... 1 Two ..... 2 Three 3	
109	Did you find the training useful?	Yes ..... 1 No ..... 2 Do not know 8	→201 →201
110	If no, why it is not useful? **Probe: Any other?** **(Multiple Response)**	Short duration ..... 1 Poor quality of training ..... 2 Difficult to understand ..... 3 Other (specify)_____ 4	

Section 2: Knowledge and Use of Zinc

16 Q. #	17 Question	Codes	GO TO Q.
201	How do you treat under five children having diarrhea? **Probe: Any other?** **(Multiple Response)**	Antibiotics ..... 1 ORS (Jeevan Jal/Nava Jeevan) only ..... 2 Zinc only ..... 3 ORS and Zinc together ..... 4 Metronidazole ..... 5 Other antidiarrheals ..... 6 Ciprofloxacil ..... 7 IV drip ..... 8 Other (specify)_____ 9	
202	In your opinion what are the benefits of treating diarrhea with Zinc tablet and ORS? **Probe: Any other?** **(Multiple Response)**	Reduces severity of diarrhea ..... 1 Reduce frequency of diarrhea ..... 2 Reduce duration of diarrhea ..... 3 Facilitate absorption of water ..... 4 Prevent future episode ..... 5 Recovers immunity ..... 6 Makes child stronger ..... 7 Protects future illness like Vit A deficiency ..... 8 Other (specify)_____ ..... 9 Do not know 98	
203	What is the recommended dose of zinc for the children aged 2-6 months suffering from diarrhea?	10 mg ..... 1 20 mg ..... 2 Other (specify)_____ ..... 3 Do not know 8	
204	What is the recommended dose of zinc tablet for the children aged 6 months to 5 years suffering from diarrhea?	10 mg ..... 1 20 mg ..... 2 Other (specify)_____ ..... 3 Do not know 8	
205	For how many days a child should be given Zinc tablets during diarrhea?	Days: _____ Do not know 98	
206	How many times in a day zinc tablet should be given to the children suffering from diarrhea?	Once ..... 1 Twice ..... 2 Do not know 8	
207	Should zinc tablet be given to the children alone or along with ORS?	Alone ..... 1 With ORS ..... 2 Alone or along with ORS ..... 3 Do not know 8	

208	Can zinc be given to the children during diarrhea mixing with the following? (**Read All**)	Yes	No	Do not know	
	1 With ORS	1	2	8	
	2 With water	1	2	8	
	3 With mother's milk	1	2	8	
	4 Any other liquid	1	2	8	
209	What should be done if someone missed to give zinc to their children in any of the prescribed days?	Can be given whenever remembered but if remembered the next day should be given only one dose ..... 1 Can be given whenever remembered but if remembered the next day should be two doses ..... 2 Other (specify)_____ ..... 3 Do not know..... 8			
210	What should be done if a child vomited immediately after administering zinc tablet?	If vomited after one hour it is not necessary to repeat ..... 1 If vomited within half an hour it is necessary to repeat ..... 2 Administer the zinc tablet the next day only ..... 3 Administer zinc immediately after vomiting..... 4 Other (specify)_____ ..... 5 Do not know 8			
211	How many children with diarrhea brought to this pharmacy in the last one month? Among them approximately how many children were treated with Zinc and <u>ORS</u>, zinc only and ORS only from this pharmacy in the last one month (within 30 days)?	Number of children			
	1 Number of children suffering from diarrhea				
	2 Number treated with Zinc and ORS				
	3 Number treated with Zinc only				
	4 Number treated with ORS only				
	5 Number not treated				
212	**<u>Check Q211, if both ORS and zinc are not given together ask this question:</u>** What are the reasons for not giving zinc with ORS?	Shortage of ORS ..... 1 Shortage of zinc ..... 2 Not necessary to give zinc with ORS..... 3 Other (specify)_____ ..... 4 Do not know..... 8			
213	What do you do while you are providing zinc to the mothers/care takers of the children for the treatment of diarrhea? (**DO NOT READ THE POSSIBLE RESPONSES**) Probe the responses which was not mentioned spontaneously and circle in appropriate code number.	Spontaneous yes	After probing		
			Yes	No	
	1 Examine the condition of the child suffering from diarrhea?	1	2	3	
	2 Told about doses of zinc	1	2	3	
	3 Number of days zinc to be given	1	2	3	
	4 Explain about the procedure of administering zinc	1	2	3	
	5 Fill up the zinc compliance card	1	2	3	
	6 Instruct to complete the card and return after completing the treatment	1	2	3	
	7 Provide ORS and give instruction to prepare it	1	2	3	

214	How strongly do you recommend or not recommend other to treat diarrhea among children?	Strongly recommend ..... 1 Just recommend ..... 2 Not recommend ..... 3 Cannot say 8	→301 →301 →301
215	If do not recommend, why? Probe: Any other?	…… ……	

Section 3: Stock Situation and Support to FCHVs

18 Q. #	19 Question	Codes	GO TO Q.
301	Have you brought ORS packets from suppliers or other sources in the past one month?	Yes ..... 1 No 2	 →303
302	If yes, how many packets did you bring?	Number of tablets:_____	
303	How many ORS packets are in stock at present?	Number of packets: _____ None 9997	
304	Do you think that the quantity of ORS you brought enough compared to the number of children brought to this pharmacy requiring ORS treatment?	Yes ..... 1 No ..... 2 Do not know 8	
305	Have you brought Zinc tablets from supplier or other sources in the past one month?	Yes ..... 1 No 2	 →307
306	If yes, how many tablets did you bring?	Number of tablets:_____	
307	How many Zinc tablets are in stock at present?	Number of tablets:_____ None 9997	
308	Do you think that the quantity of Zinc tablets you brought is enough compared to the number of children brought to this pharmacy requiring Zinc treatment?	Yes ..... 1 No ..... 2 Do not know 8	
309	How many zinc tablets together with ORS did you sell in the last 30 days?	Number:_____	
310	In which month did you sell the zinc together with ORS the most, moderate and the least in the last 9 months (Falgun 2066 to Kartik 2067)?	Most sold month:_____ Moderate sold month:_____ Least sold month:_____	
311	Do you have any zinc advertisement materials to display in the pharmacy such as wall hanging, dangler, poster, etc?	Yes ..... 1 No 2	 →313
312	Are you displaying any of the above advertisement materials in your shop?	Yes ..... 1 No 2	
313	Do you have Zinc compliance card with you?	Yes ..... 1 No ..... 2 Not available in this facility 3	 →315 →322
314	If yes, how many cards do you have now? (Ask the respondent to show the card)	Number of cards:_____	
315	Do you fill up the zinc compliance card while providing the Zinc and ORS to the mothers/caretakers?	Yes ..... 1 No 2	
316	What proportion of the caretakers/mothers return the compliance card after completing the treatment to you?	Almost all ..... 1 More than 75% ..... 2 More than 50% ..... 3 Less than 50% ..... 4 Less than 25% 5	

18 Q. #	19 Question	Codes	GO TO Q.
327	How frequently do you submit the collected compliance card to the health facility?	Every month ..... 1 Every 2 months ..... 2 Other (specify)_____ ..... 3 Have not submitted yet 7	→319 →319 →319
318	What are the reasons for not submitting the collected compliance cards to health facility? Probe: Any other? **(Multiple Response)**	No one instructed ..... 1 Forgotten ..... 2 Lost ..... 3 Busy ..... 4 Other (specify)_____ 5	
319	What do you think about filling up the zinc compliance card? Is it necessary to fill up or not?	Necessary ..... 1 Not necessary ..... 2 Do not know 8	 →321 →322
320	If necessary, why? **(Multiple Response)**	Reminds to give zinc timely ..... 1 Any member can be reminded of giving zinc ..... 2 Ensuring follow up by the providers ..... 3 Ensuring authentic of the treatment ..... 4 Other (specify) _____ 5	 →322
321	If not necessary, why? **(Multiple Response)**	Can remember about the timing of giving zinc easily ..... 1 It's a extra burden ..... 2 Other (specify)_____ 3	
322	Do most of the care takers accept and ready to purchase zinc tablets along with ORS for the treatment of childhood diarrhea?	Yes ..... 1 No ..... 2 Do not know 8	
323	Are you interested to sell the Dispersible zinc tablets along with ORS?	Yes ..... 1 No 2	 →325
324	If yes, why?	....	 →326
325	If not, why?	....	
326	Have you noticed any good things reported by the care takers about the treatment of diarrhea with zinc tablets and ORS? If yes, what are they? Probe: Any other? **(Multiple Response)**	Helped stop diarrhea quickly ..... 1 Increased the appetite of the children ..... 2 Helped made child stronger ..... 3 Other (specify)_____ ..... 4 Nothing 97	
327	Have you noticed any complaints from the care takers about the treatment of diarrhea with zinc tablets and ORS? If yes what are they?	.... Nothing 97	
328	What brands of zinc do you have in your shop? Please give us the selling price of each brand of zincs?		

S. No.	Brand name	Mg	Unit price (per file)
1	Zinc - DT (Deurali Janata Company)	10	
2	Zinc - DT (Deurali Janata Company)	20	
3	Zincova (CTL Company)	20	
4	Zinep DT (Lomus Company)	10	

18 Q. #	19 Question		Codes		GO TO Q.
	5	Zinep DT (Lomus Company)	20		
	6	Z-Dis (NPL Company)	10		
	7	Z-Dis (NPL Company)	20		
	8	Other (specify)			
	9	Other (specify)			
329	Do you have any suggestions to facilitate treatment of children suffering from diarrhea with Zinc? If yes, what are they? **Probe: Any other?** **(Multiple Response)**		…… …… ……		

Evaluation of Zinc Program in Nepal 2010

FGD Guide for Key Influencers and Social Workers

Child Health Division/ Micronutrient Initiative/ Valley Research Group

District:	Sankhuwasabha ..... Gorkha..... Bajura ..... Taplejung ..... Tanahun..... Bajhang .....
Name of VDC/municipality:	
Ward Number:	
Village name:	
Cluster No. ……	
Name of facilitator	
Name of note taker	
Date	

Description of FGD Participants

S#	Name	Caste	Sex	Age	Literacy status	Occupation
1						
2						
3						
4						
5						
6						
7						
8						
9						

1	In your observations, what are the major health problems of children under five years in your locality? If they mention diarrhea too, ask how frequently do the children of this locality suffer from diarrhea? If they do not mention diarrhea, probe for episode of diarrhea.
2	What could be the main causes of diarrhea? What are the symptoms of diarrhea?
3	In what ways are the children suffered from diarrhea treated in your community?
4	Had any children below five years of age suffered from diarrhea in your household in the last 30 days? If yes, where did you seek advice for treatment and how did you treat them?
5	How many of you have ever heard of ORS for the treatment of diarrhea? From where did you hear about ORS?
6	How many of you have ever heard of zinc tablet to be used for the treatment of diarrhea? From where did you hear about zinc tablets?
7	Have you ever treated diarrhea with zinc and ORS together? How do you find treating diarrhea with zinc and ORS?
8	When Zinc tablet is given to a child suffering from diarrhea should it be given alone or simultaneously with ORS?

9	What do you think about treatment of diarrhea by zinc tablets together with ORS? Is it necessary to treat by zinc with ORS? If yes, why? If no, why?
10	For how many days should Zinc tablets be given to a child suffering from diarrhea?
11	In your opinion what are the benefits of treating diarrhea with Zinc?
12	Have you ever supported any women in your household to treat children suffering from diarrhea? If yes, in what ways have your supported them? (Probe: advising to use zinc and ORS; bringing zinc and ORS from facility; preparing zinc, etc.) If not, what are the reasons for not supporting her?

13	From where can you get zinc tablets and ORS?
14	In your opinion, what is the acceptance level of zinc for the treatment of childhood diarrhea by the care takers (either from health facility or from private pharmacy)? Please give your opinion with reasons.
15	In your opinion, what are the best ways for this community to create awareness about zinc and ORS for the treatment of diarrhea?
16	Have you seen the compliance card which is given to the care takers whose children have diarrhea? What do you think about the importance of zinc compliance card for improving the compliance of zinc tablets and utilization of cards by the care takers? How does the card help to improve the compliance?