

**THE EFFECT OF A TRAINING PROGRAM ON THE KNOWLEDGE AND  
SKILLS OF BARANGAY HEALTH WORKERS IN THE DETECTION  
AND MANAGEMENT OF DIARRHEAL  
DISEASES IN PIÑAN, ZAMBOANGA DEL NORTE**

A Research Paper Presented to

The Faculty of  
Ateneo de Zamboanga School of Medicine

In Partial Fulfillment of the Requirements  
for the Degree of Doctor of Medicine

**MA. CRISTINA RIVERA ALFARO**

April 2008

## TABLE OF CONTENTS

	Page	
APPROVAL SHEET	i	
TABLE OF CONTENTS	ii	
LIST OF TABLES	iii	
LIST OF FIGURES	iii	
ACKNOWLEDGEMENT	iv	
ABSTRACT	v	
CHAPTER I	INTRODUCTION	
	Background of the Study	1
	Statement of Objectives	3
	Significance of the Study	4
	Scope and Delimitation of the Study	4
	Definition of Terms	4
	Conceptual Framework	6
CHAPTER II	REVIEW OF RELATED LITERATURE	7
CHAPTER III	METHODOLOGY	
	Research Design	10
	Respondents	10
	Sampling Design	10
	Research Setting	10
	Research Instruments	11
	Data Gathering Procedures	11
	Statistical Instrument	12
	Flow of Activities	13
CHAPTER IV	RESULTS	14
CHAPTER V	DISCUSSION	18
CHAPTER VI	CONCLUSION AND RECOMMENDATIONS	20
BIBLIOGRAPHY		
APPENDICES		
	A. Questionnaire	
	B. Questionnaire (translated)	
	C. Objective Checklist	
	D. Module	
CURRICULUM VITAE		

## LIST OF TABLES

		Page
Table 1	The P-values of Mean Knowledge Scores during the Pre-intervention, Post-intervention 1, Post-intervention 2, and Post-intervention 3 Tests	14
Table 2	The P-values of Mean Skill Scores during the Pre-intervention, Post-intervention 1, Post-intervention 2, and Post-intervention 3 Skill Exam	16

## LIST OF FIGURES

		Page
Figure 1	Conceptual framework	5
Figure 2	Flow of Activities	12
Figure 3	Comparisons of Mean Knowledge Scores during the Pre-Intervention, Post-intervention 1, Post-intervention 2, and Post-intervention 3 Tests	14
Figure 4	Comparison of Mean Skill Scores during the Pre-intervention, Post-intervention 1, Post-intervention 2, and Post-intervention 3 Tests	15

## ACKNOWLEDGEMENT

I would like to express my gratitude to those who had helped in the completion of this paper:

First of all, our *God Almighty*, for making everything possible.

*Dr. Ricardo Awit*, Municipal Health Officer of Piñan, for allowing me to work with his barangay health workers and for serving as the trainer for my research.

*Dr. Samuel Cristobal*, my adviser, for his guidance and time in editing my paper.

*Dr. Felicita Sampul*, for letting me have my pre-tests with the barangay health workers of Mutya and for welcoming us into her community.

*Dr. Afdal Kunting*, our community preceptor, for guiding us in our research and encouraging us to always do our best.

The *Barangay Health Workers of Mutya, Osmeña, and Piñan*, for their participation and eagerness to attend the meetings conducted.

*Kuya Boyet*, for the one-hour drive to Piñan despite the rough road; *Kuya Mike*, for translating my questionnaires to Bisaya; *Kuya Macoy*, for providing the snacks during my post-intervention tests.

*Putri, Shara, and Naez*, my sisters in Alto, for their friendship and great effort in assisting me during my intervention.

The *Alto Syndicate, Sinai Band, Team Bajo, and Venus Group*, for making the Osmeña experience a very memorable one.

*Joseph*, for his sacrifices, and for showing me that strength can be limitless.

*Uncle Lionel, Ninay, and Eloy*, for providing me a house to live and embracing me as part of their family.

My brothers *Sonny and Stephen*, and my sister *Pamela*, for financing this research and for their support in my medical studies.

My late parents, *Santiago and Cecilia Alfaro*, for serving as my inspiration.

Thank You!

*Ma. Cristina R. Alfaro*

## ABSTRACT

*Barangay Health Workers are the front-liners of our health care system. Further trainings of BHWs could improve their competency in terms of detection and first-line management of common illnesses in the community. Thus, this study was focused in determining the effect of a training program on the knowledge and skills of BHWs in the detection and management of diarrheal diseases in the Piñan, Zamboanga del Norte.*

*The training program consisted of lecture, demonstration, problem-solving exercises, and video clips; which were conducted in a span of 3 hours to 17 BHWs of Piñan. Knowledge was measured using a self-administered 20-item questionnaire and skills were determined through an 15-item objective checklist. The results showed that before the training, the mean knowledge score is 8.471 (42%), which increased significantly to 13.235 (66%) during post-intervention 1 test taken immediately after the training ( $p$ -value  $<.05$ ). The score decreased to 12.588 (63%) during post-intervention 2 test taken after 1 month and 11.882 (62%) during post-intervention 3 test taken 2 months after the training. For the skills assessment, the score was 4.765 (32%) before the training and increased significantly to 10.353 (69%) in post-intervention 1 test. The score decreased to 9.412 (63%) and 9.588 (64%), during the second and third post-intervention test, respectively.*

*The training program was effective in increasing the knowledge and skills of the BHWs, making them competent health workers regarding the assessment and initial management of diarrheal diseases. However, re-trainings are recommended due to the knowledge decay noted two months after the intervention.*

# CHAPTER I INTRODUCTION

## **Background of the Study**

According to Sonny Africa (2007), 67% of Filipinos die without getting any medical attention. This is mainly due to the inability of poor Filipinos to afford medical care and services, and the country's shortage of medical professionals. Sto. Tomas (2002) cited that in 2001 alone, overseas deployment of health professionals - including nurses, dentists, doctors, pharmacists, midwives, and medical technicians - reached more than 16,472, or 69.3% higher than the 9,716 health workers deployed the previous year. However, despite the shortage of health professionals, there are the Barangay Health Workers (BHWs) who seem ever ubiquitous, and enhancing their capacities can be a way to compensate for the health human scarcity in the country especially in rural areas (Montalbanm, 2007).

BHWs were the product of the nationwide implementation of Primary Health Care (PHC) in 1981. They were trained and sent to pilot areas that adopted the PHC approach (UP College of Medicine, 2000). Under R.A. 7883, a Barangay Health Worker is defined as a person who has undergone training programs under any accredited government and non-government organization and who voluntarily renders primary health care services in the community after having been accredited to function as such by the local health board in accordance to the guidelines promulgated by the Department of Health (DOH). Despite the importance of trainings for BHWs to be qualified as such, and be competent health workers, these are rarely being implemented. According to an evaluation done by Lacuesta (1993) on the Barangay Health Workers Program, the

perception of the people on BHWs was of a friendly, well-intentioned but not terribly knowledgeable person.

Further trainings of BHWs could improve their competency in terms of detection and first-line management of common illnesses in the community. This study, however, does not suggest that BHWs can assume the roles of other health professionals due to its shortage, or that they can be as competent in terms of health management. This study stresses the importance of enhancing the capabilities of the BHWs.

Trainings had been previously done to Barangay Health Workers and included different sets of activities, but are nevertheless effective in improving the competency of BHWs. Quilling (2003) conducted a 3-day training using the prescribed modules developed by the DOH, which includes lectures, simulation and small group discussions, as well as skills demonstration guided by a training officer on national Dengue Prevention and Control Program. In 2007, Alpichi included film showing along with the training session on health teaching regarding diabetes. Sinkee (1998) conducted a need-based training program on the Municipality Health Personnel of Labangan. Evaluation was first done, and then a training program was patterned according to the strengths and weaknesses of the health personnel.

In Pinan, according to the Secretary of the Barangay Health Workers, qualifications of BHWs only include recommendations from their respective barangay health officials. Accordingly, trainings are rarely being conducted.

The rural health unit of Pinan has a total of 14 health personnel. This health team serves the total population of 19, 419 (Pinan Rural Health Unit, 2006) in a land area of 17.073 hectares. The training of the 25 BHWs could provide additional health services

especially to those living in areas far from the main health center, and first-line management will already be available to these people.

Barangay Health Workers should be capable of handling common cases seen in the community. Out of the ten most common childhood diseases in the Philippines, diarrhea ranks first, claiming 866,411 lives (DOH, 2001). In 2005, diarrhea ranked number 9 in the leading causes of morbidity in Pinan. Considering it is one of the most common illnesses seen in the community, a training program on diarrhea is helpful as a start in making these BHWs competent health workers.

## **Statement of Objectives**

### **General Objective**

This study aimed to determine the effect of a training program on the knowledge and skills of BHWs in the detection and management of diarrheal diseases in the Municipality of Piñan, Zamboanga del Norte.

### **Specific Objectives**

1. To determine the knowledge and skills of BHWs in the detection and management of diarrheal diseases in Pinan, Zamboanga del Norte, before and after the intervention.
2. To compare the knowledge and skills of BHWs in the detection in management of diarrheal diseases in Pinan, Zamboanga del Norte before and after the intervention

## **Significance of the Study**

Although there has been no shortage of Barangay Health Workers that could cater the needs of the people especially in far flung areas, there has been the question on their competency. The study then stresses the importance of training programs in increasing the knowledge and skills of the BHws, thus increasing their competency as Barangay Health Workers. This could lead to promotion of programs for barangay health workers from the LGU and NGOs with regards to training and incentives. It promotes their importance in our health care system

## **Scope and Delimitation**

The study focused on all the BHWs of every barangay in Piñan with regards to their knowledge and skills in the detection and management of diarrheal diseases. This study was done from September to November 2007.

## **Definition of Terms**

**Training program** – program conducted on BHWs regarding diarrheal diseases through lecture and demonstration.

**Knowledge** – The capacity of the BHWs to detect and manage diarrheal diseases through multiple choice questionnaires

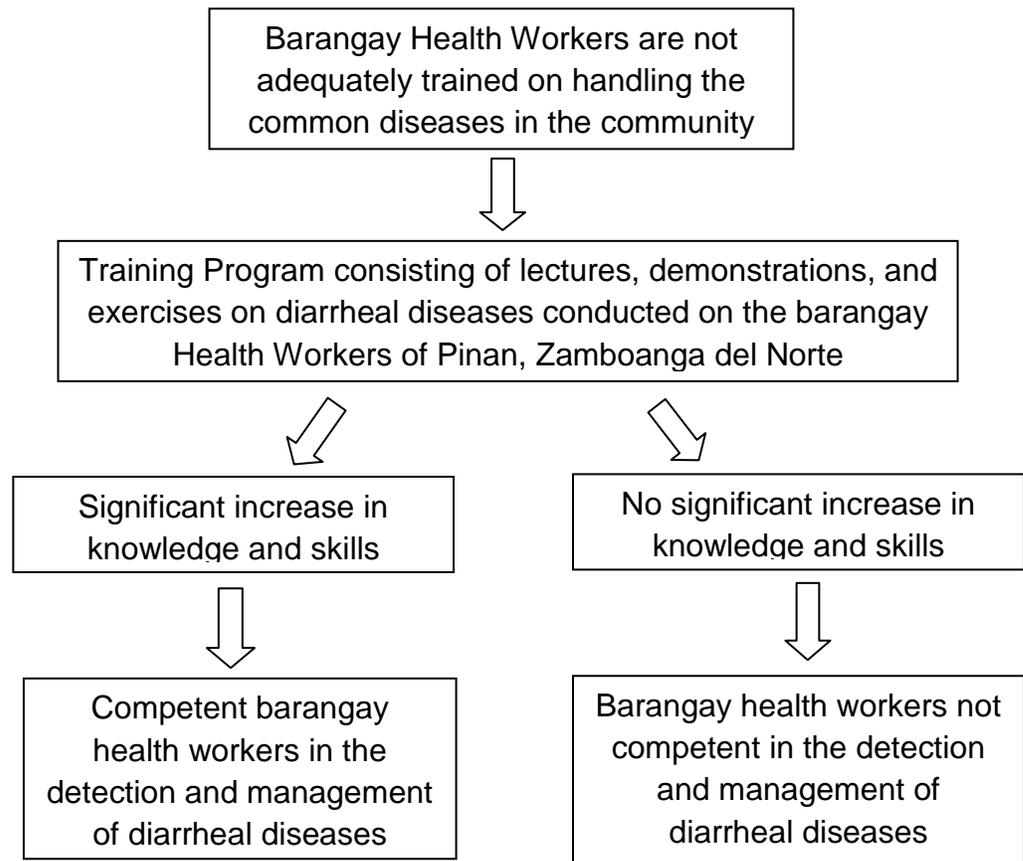
**Skills** – The ability to determine the signs of dehydration, and classification of dehydration through pictures and videos, when to refer patients with loose bowel movement to the hospital, how to prepare rehydration solution, and perform physical exam on a patient with diarrhea.

**Barangay Health Worker** (BHW) – a person who has applied and accepted to work at the health center to provide assistance to the municipal health officer and the midwives.

**Detection** – The assessment of patients with loose bowel movement; classification of diarrhea as acute or persistent; and classification of dehydration as No Dehydration, Some Dehydration, or Severe Dehydration.

**Management** – The handling of patients with diarrhea, which includes the giving of oral rehydration fluids and referral skills.

## Conceptual Framework



**Figure 1. Conceptual Framework**

The study is concerned if the training program on diarrheal diseases will increase significantly the knowledge and skills of the barangay health workers.

## **CHAPTER II REVIEW OF LITERATURE**

Few studies were done in the effect of training programs on Barangay Health Workers. A study done by Lacuesta in the Philippines evaluated the Department of Health volunteer program. Lacuesta recommended improved recruitment and training activities for Barangay Health Workers. The study showed some shortcomings of the respondents which includes: the image of BHWs was of a friendly, well-intentioned but not terribly knowledgeable person; furthermore, they provided follow-up services but failed to refer clients to the health centers; clients also reported that the BHWs gave them no choice about which family planning method to use. The study specifically dealt with family planning. It examined the characteristics of Barangay Health Workers, describe their recruitment and training, reveal what their work entailed and how they felt about it, identify the factors affecting their ability to deliver FP services, and determine clients' attitudes towards them. The study suggested that improvement in outreach objectives could be reached by improved recruitment and training activities, the provision of more generous incentives, and improved logistics.

Another study done in Australia (Sibthorpe, 2004) pointed out the basic structures for a successful community health workers' (CHW) program. It depend on 1) appropriate, relevant, and balanced training and refresher training, 2) continuous mentoring and supervision, and 3) community support and participation in their selection, job definition, training, and supervision. In addition, peer support through CHW associations is emerging as another motivational factor in the recognition of legitimacy of CHW work. The training of the community health workers should also be conducted in a

conducive setting with adequate hands-on training and skill development in health and in problem solving. Lack of general and skills-based was frequently mentioned as a barrier to effective CHW performance. As recommended by Sibthorpe, further research could also look into how often CHWs are re-tested and updated in their skills.

In the local setting, Sinkee (1998) conducted a study on the personnel of the municipal health unit of Labangan, Zamboanga del Sur. The study was undertaken to look into their clinical and managerial skills, identify training needs based on national health program they are involved in, create a need-based training program for them, implement the training program, and determine if there was an improvement in their clinical and management skills. Pre- and post- interventional assessment was carried on for one year and showed improvement after the conduction of the training program. There were 67 items out of 141 in the checklist used in the study that the respondents had deficiencies during the pre-intervention. Overall, the efficiency rate for clinical skills in pre-intervention was 62.95% and at post intervention it has increased to 94.50%. As to the management skills, pre-intervention score was 30% while at post intervention, it rose to 82% for problem identification, planning, implementation, protocol design and evaluation. Singkee suggested that a need-based training intervention program could be an effective tool in enhancing the efficiency of the MHU personnel. In turn, it can enhance the capability of the health unit to deliver effectively the impact programs of the Department of Health.

A study done in Liloy, Zamboanga del Norte (Alpichi, 2007), determined the effect of film plus health teaching training session on the knowledge and health-teaching skill/competency on diabetes of barangay health workers. It is a pre and post-

interventional study. In the pretest, a self-administered 30-item knowledge questionnaire was distributed to the respondents to assess the knowledge base of the subjects regarding diabetes. Two BHWs from each of the three catchment areas included in the study were required to perform an actual health teaching session on sexually transmitted diseases, which served as baseline information on the health teaching skill of the respondents. The first post-intervention tests were done a week after the intervention. Results showed that there was a significant increase in the mean knowledge scores of respondents when pre-intervention and post one mean scores are compared. A follow-up on the retention of knowledge one month after the intervention, reveals a significant decrease in the mean knowledge score. The health teaching skill of respondents also improved significantly. Thus, film viewing plus health teaching training session are effective in improving the knowledge and health-teaching skill/competency of barangay the health workers.

Another interventional study by Quiling (2003) was conducted to determine the effectiveness of the DOH basic training course on dengue prevention and control on the knowledge, attitude and practice of 25 barangay health workers in Pinan, Zamboanga del Norte. A 3-day training was done using the prescribed modules developed by the DOH, which includes lectures, simulation and small group discussions, as well as skills demonstration guided by a training officer on national Dengue Prevention and Control Program from the office of the Department of Health in Region IX. Data gathering was done through self-administered test questionnaires. After the intervention, the test results showed a significant increase in knowledge, a shift into more favorable attitude and a marked improvement in the practice on Dengue prevention and control among majority of the subject barangay health workers.

## **CHAPTER III METHODOLOGY**

### **Research Design**

This research utilized a pre- and post- intervention assessment on the knowledge and skills of BHWs on diarrheal diseases.

### **Respondents**

The respondents in this study were the 25 barangay health workers in the Municipality of Piñan, Zamboanga del Norte.

Inclusion criteria –BHWs who have been rendering services at the health center regardless of sex, ethnicity, religion, and number of previous trainings attended.

Drop-out criteria – failure to attend any of the post-intervention tests.

### **Sampling Design**

Total count of the Barangay Health Workers was used as a sampling design.

### **Research Setting**

The study was conducted in the Municipality of Piñan, Zamboanga del Norte. Pinan is a 5<sup>th</sup> class municipality with 22 barangays and a total land area of 21, 765 hectares.

The municipality is located in the interior part of Zamboanga del Norte under Region IX, having a distance of 22 kilometers from the capital city of Dipolog. Bounded on the North by the City of Dapitan, the Shrine City; on the East by the Municipality of Mutia; on the South by the Municipality of Sergio Osmena, Sr., and Polanco; and on the west the Municipality of Polanco.

## **Research Instruments**

A self-administered questionnaire and objective checklist on diarrheal disease was used in the pre- and post intervention tests for assessing the knowledge and skills of BHWs. The questionnaires were pre-tested on 10 BHWs in the Municipality of Mutya.

The content of the 20-item questionnaire and 15-item checklist is based from the Training Manual for Barangay Health Workers (DOH, 1997), Policies and Guidelines for the National Control of Diarrheal Diseases Program (DOH, 1993), and Integrated management of Childhood Illnesses (WHO, 2004).

## **Data Gathering Procedures**

The respondents were gathered at the Municipal Nutrition Center in Barangay Poblacion South. Before the intervention, the knowledge and skills evaluation were made to the 22 BHWs who were present. The respondents were then given one hour to answer the 20-item multiple-choice questionnaire, which was used to measure the knowledge on diarrheal diseases. Topics include: Definition of Diarrhea, Mode of Transmission, Definition of Dehydration, Signs of Dehydration, How to Assess Dehydration, Classifying Dehydration, Management of Diarrhea, Persistent Diarrhea, Dysentery, How to Prevent Diarrhea, and Roles of Barangay Health Workers in the Control of Diarrheal Diseases

The skills assessment consisted of 4 stations with a total of 15 items. Each respondent was given 5 minutes per station. The skill checklist measured the ability of the respondents to determine the signs of dehydration, classification of dehydration through pictures and videos, when to refer patients with loose bowel movement to the

hospital, how to prepare rehydration solution, and perform physical exam on a patient with diarrhea. The results provided as baseline data.

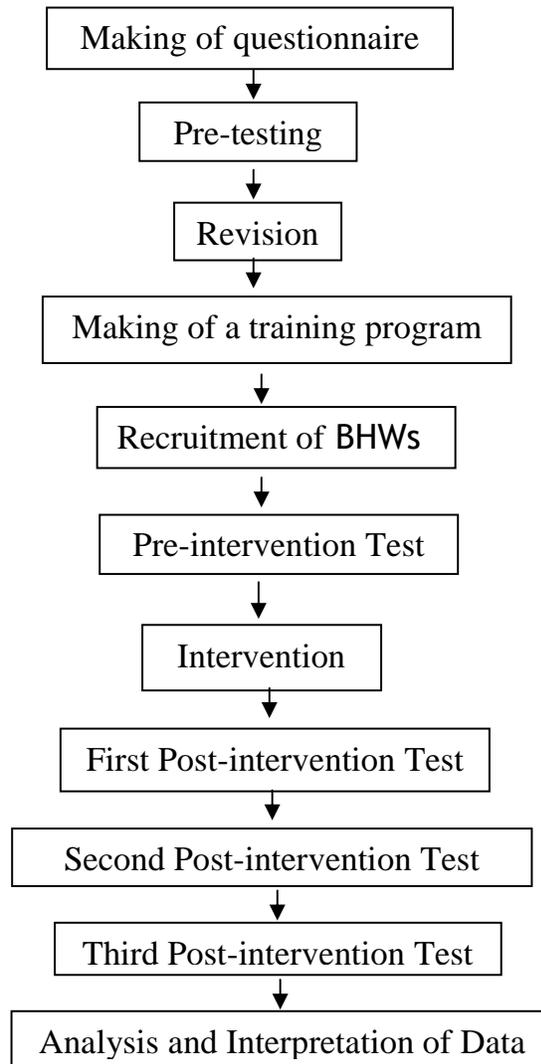
A 3-hour training was then conducted immediately after the pre-intervention assessment by the Municipal Health Officer of Pinan, who was trained to give training programs on Integrated Management of Childhood Illnesses. The training consisted of lectures, demonstrations, showing of videos, and problem-solving exercises. Immediately after the intervention, the same questionnaires and checklists were used to determine the knowledge and skills.

One month after, the respondents were gathered at the Rural Health Unit for the second post-intervention using the same questionnaires and skills checklist. This was also done two months after the intervention.

## **Statistical Instrument**

The demographic profile of the respondents was analyzed using frequencies. The knowledge and skill scores of the respondents during the pre-intervention, post-intervention 1, post-intervention 2, and post-intervention 3 tests were analyzed using ANOVA for repeated measures. The knowledge/skill improvement, and knowledge/skill retention or decay were also determined with significant p-value set at  $<0.05$ .

## Flow of Activities



**Figure 2. Flow of Activities**

## **CHAPTER IV RESULTS**

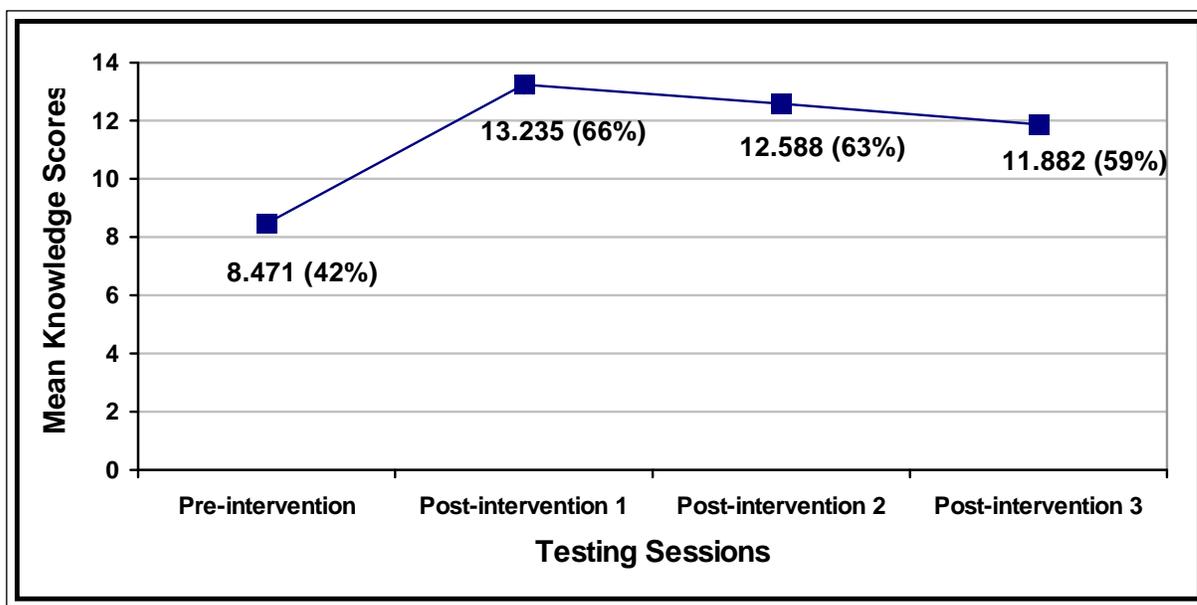
### **Demographic Profile**

Initially, there were 22 Barangay Health Workers present at the training program. All took the pre-intervention and post-intervention 1 tests. However, 5 respondents failed to take the second or third post-intervention tests and are then considered as drop-outs.

All of the 17 respondents are females, with the mean age of 43.82. Twelve percent of the respondents are from 20-29 years old, 24% from 30-39 years old, 29% from 40-49 years old, and 35% from 50-59 years old.

### **Knowledge**

Figure 3 on page 14 shows the mean knowledge scores during the pre-intervention, post-intervention 1, post-intervention 2, and post-intervention 3 tests. On the knowledge test before the intervention, out of the 20 questions, the mean score of the respondents was 8.684 or 42%. Immediately after the intervention, the mean score increased to 13.053 or 66%. There was a decrease in the mean score during the second and third post-intervention tests, which are 12.588 and 11.882 respectively.



**Figure 3. Comparison of Mean Knowledge Scores during the Pre-intervention, Post-intervention 1, Post-intervention 2, and Post-intervention 3 Tests (20 items).**

Table 1 shows that the increase of the mean scores of the pre-intervention and post-intervention test 1 is significant with a p-value of .000. A p-value of 1.000 for the mean scores of the first and second post-intervention test showed no significant difference. However, there was a significant decrease in the mean score in the third post-intervention test from the first post-intervention test, with a p-value of .020; as well as in the pre-intervention and post-intervention 3 test with a p-value of .001.

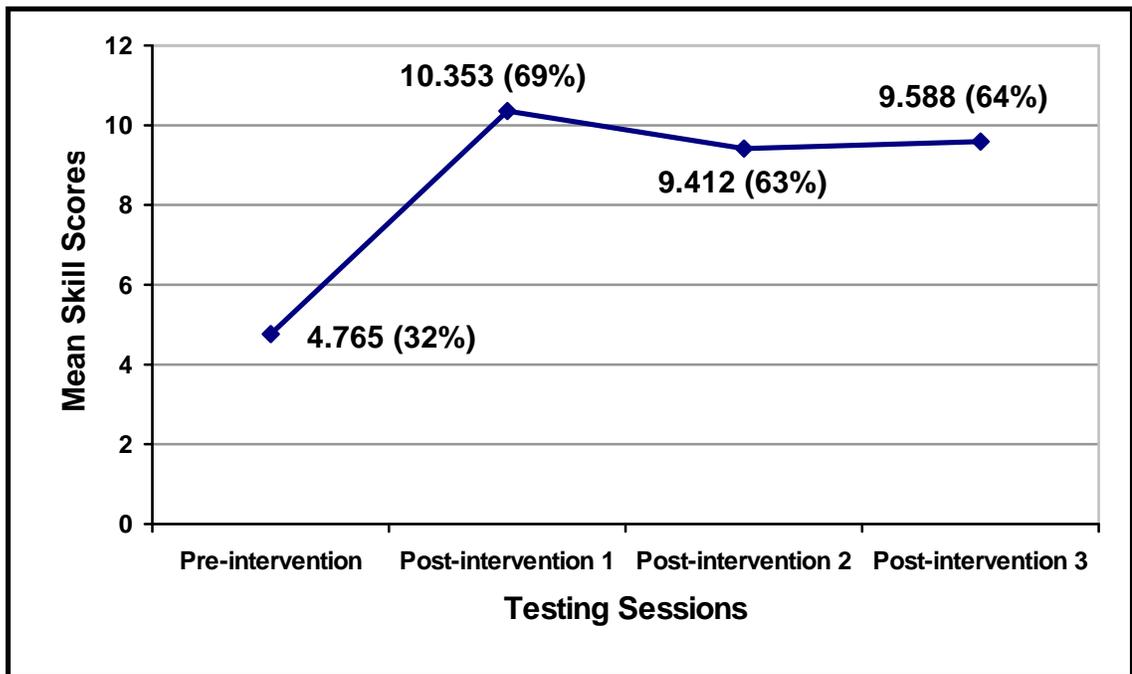
**Table 1. The P-values of Mean Knowledge Scores during the Pre-intervention, Post-intervention 1, Post-intervention 2, and Post-intervention 3 Tests (N=17)**

	Pre	Post 1	Post 2	Post 3
Pre	...	.000*	.000*	.001*
Post 1	.000*	...	1.000	.020*
Post 2	.000*	1.000	...	1.000
Post 3	.001*	.020*	1.000	...

\*Significant change: p-value < .050

## Skills

For the skills test, there is an increase in the mean skill scores from the pre-intervention test (32%) to the post-intervention 1 test (69%). The mean score decreased to 63% a month after, but increased to 64% two months after the training, as shown in the figure below.



**Figure 4. Comparison of Mean Skill Scores during the Pre-intervention, Post-intervention 1, Post-intervention 2, and Post-intervention 3 Tests (15 items).**

There is a significant increase in the mean scores from the pre-intervention test to the post-intervention 1 test with a p-value of .000, as shown in Table 2. The decrease in the mean scores from the first post-intervention test to the succeeding tests was not significant. The p-value is .146 for the second post-intervention test and .329 for the third post-intervention test.

**Table 2. The P-values of Mean Skill Scores during the Pre-intervention, Post-intervention 1, Post-intervention 2, and Post-intervention 3 Skill Exams (N=17).**

	Pre	Post 1	Post 2	Post 3
Pre	...	.000*	.000*	.000*
Post 1	.000*	...	.146	.020*
Post 2	.000*	.146	...	.329
Post 3	.000*	.329	1.000	...

**\*Significant change: p-value < .050**

## **CHAPTER V DISCUSSION**

The Barangay Health Workers of Pinan, Zamboanga del Norte were given a training program on the detection and management of diarrheal diseases, which aimed to determine the effect of the training program on the competency of the barangay health workers, namely their knowledge and skills regarding diarrhea.

The results of the study showed an overall significant increase in the knowledge and skills of barangay health workers immediately after the intervention. Hence, the training program conducted to the Barangay Health Workers was effective. This was also seen in the trainings done by Sinkee (1998), Alpichi (2007), and Quilling (2003). In addition, training builds competency and confidence because participants know what level of performance is expected and how knowledge and skills will be evaluated (Sullivan, 1995).

It can be speculated that the various methods integrated in the program helped in the increase of knowledge and skills of the Barangay Health Workers. As cited by Newsome (2005), no single teaching method is necessarily more effective, but argues the use for careful selection and use of variety of teaching methods. The training conducted includes lecture, demonstrations, exercises on the assessment and classification of dehydration, and pictures and video clips presented as visual aids during the lecture.

According to Baker (2006), an individual learns through five senses – hearing, sight, touch, smell, taste and combinations of these. Hearing, such as in the lecture done during the training, accounts for only 13% of learning. However, 75% of learning is

derived from the eyes; thus, the pictures, video clips, and demonstrations took part in the effectiveness of the program. Stokes (2008) also stated that the use of visuals results in greater degree of learning. Another method used in the program was problem-solving exercises, which helped in the increase in knowledge. According to Halpen (2003), the use of hands-on activities enhances the ability to obtain, retain, and retrieve knowledge.

Knowledge decay was noted two months after the intervention; however, there was no decay in the skills of the respondents after the second and third post-intervention tests. The knowledge decay may be due to the following reasons: too much information is given in a short span of time (Abutazil, 2007), and trainings should be done repeatedly until mastery is achieved (Sullivan, 1995). The training program was conducted in a span of 3 hours which covered 11 subtopics. The training must have been given in more than one day where topics can be distributed for better knowledge retention. However, the training was done only in one day due to difficulties encountered when multiple gatherings are needed, such as increase in the number of drop-outs.

The decreases in both knowledge and skills indicate that it can still be further lowered in the succeeding months, rendering the BHWs probably with the same amount of knowledge and skills as they had before the intervention. Re-training now comes into the picture. As medicine advances very quickly, refresher courses are important for proper assessment and management.

## **CHAPTER VI CONCLUSION AND RECOMMENDATIONS**

### **Conclusion**

Based from the results, the training program conducted is effective in improving the knowledge and skills of barangay health workers in the detection and management of diarrheal diseases. Thus, they are considered as competent health workers with regards to diarrheal diseases. However, there was knowledge decay noted on the knowledge of barangay health workers two months after the intervention

### **Recommendations**

Considering the effectiveness of the training program on the knowledge and skills of barangay health workers, this study recommends the following

1. Training of barangay health workers in improving their competency as primary health care providers.
2. The trainings should be centered on the most common illnesses seen in the community, such as diarrheal diseases.
3. Other set of teaching methods should also be used in the training program for more effective increase in knowledge and skills.
4. The noted knowledge decay two months after the intervention indicates that re-trainings are to be done to ensure retention, as well as for skills retention.

5. The researcher also recommends over-all evaluation of barangay health workers as baseline for training programs; trainings should be patterned according to the present performance of BHWs.

## BIBLIOGRAPHY

- Alpichi, A. M. (2007). *The Effect of Film Showing Plus Health Teaching Training Session on the Knowledge and Health Teaching Skill on Diabetes of Barangay Health Workers of Liloay Municipality, Zamboanga del Norte*. Ateneo de Zamboanga University.
- Baker, D. (2006). *Teaching Techniques*. University of Arkansas.
- Halpern, D.F. (2003). *Thought and knowledge: An introduction to critical thinking* (4th edition) Mahwah, NJ: Lawrence Erlbaum Associates
- Health Work is Team Work! An Operations Manual for Community Volunteer Health Workers (CVHW)*, Department of Health, 1995.
- Lacuesta, M.C., S.T. Sarangani, N.D. Amoyen (1993), *A Diagnostic Study of the DOH Health Volunteer Workers Program*. Philippine Population Journal. December 1993; 9 (1-4); 26-36
- Montalban, J. M. (2006) *Telehealth and e-Learning: Out-of-the-Box Cures to Inequitable Access to Health Care*. <http://www.telehealth.ph/elearnings/display/>. University of the Philippines National Telehealth Center.
- Newsome, L.A., G.W. Wardlow (2005). *Effects of Lecture versus Experimental Teaching Method on Cognitive Achievement Retention, and Attitude among High School Agriscience Students*. National AAAE Research Conference.
- Quilling, E. (2003). *An Interventional Study on the Effectiveness of Basic Training Course on Dengue Prevention and Control Program among Barangay Health Workers of Pinan, Zamboanga del Norte*. Ateneo de Zamboanga University.
- Sibthorpe, B. (2004). *A Proposed Conceptual Framework for Performance Assessment in Primary Health Care: A Tool for Policy and Practice*. Australian Primary Health Care Institute.
- Singkee, D.H. (1998). *The Effect of a Need-Based Training Program in Enhancing the Capability of Labagan Municipal Health Personnel*. Zamboanga Medical School Foundation, Inc., Ateneo de Zamboanga.
- Stokes, S. (2008). *Visual Literacy in Teaching and Learning: A Literature Perspective*. Troy State University.
- Sullivan, R. (1995). *The Competency-Based Approach to Training*.
- Training Manual for Barangay Health Workers*. Department of Health. 1997.

## **APPENDIX A QUESTIONNAIRE**

1. What is diarrhea?
  - a. Watery stools regardless of the number of times per day
  - b. 3 or more watery stools per day
  - c. More than 10 watery stools in a span of 1 week
  - d. Bloody stools three times within 24 hours
  
2. A person can get diarrhea through:
  - a. not washing hands before eating and after defecating
  - b. eating dirty food
  - c. drinking unsafe water
  - d. all of the above
  
3. What is dehydration?
  - a. Loss of water in the body
  - b. Loss of salt and water in the body
  - c. Watery stools of at least 5 times per day
  - d. Lack of water intake
  
4. How do you assess dehydration?
  - a. Check for general condition, sunken eyes, thirst, and skin pinch
  - b. Check irritability, dry lips, and presence of tears
  - c. Ask for the number of times the patient had watery stools per day
  - d. Check for fever and the presence of blood in stools
  
5. How can dehydration be prevented?
  - a. Prevent bowel movement by drinking anti-diarrheals (Lomotil, Diatabs, Imodium, etc.)
  - b. Drink ORS or other home fluids to replace the loss of salt and water in the body
  - c. Prevent bowel movement by not eating and drinking
  - d. None of the above
  
6. Least recommended home fluid for dehydration:
  - a. Fresh fruit juices
  - b. Soup
  - c. softdrinks
  - d. Rice water

7. Table salt sugar solution (TSSS) is used if ORESOL is unavailable. What are the components of TSSS?
  - a. 1 glass water + a pinch of table salt + 1 teaspoon sugar
  - b. 1 glass water + 1 teaspoon table salt + a pinch of sugar
  - c. 1 glass water + a pinch of table salt + a pinch of sugar
  - d. 1 glass water + 1 teaspoon table salt + 1 teaspoon sugar
  
8. Diarrhea can be prevented through:
  - a. washing hands before eating
  - b. washing hands after defecating
  - c. Measles immunization right after having watery diarrhea
  - d. Mixed feeding during the first 4 months
  
9. A 4-month old child was brought to you by the mother because of loose bowel movement, what are you going to ask the mother first?
  - a. Did the child vomit?
  - b. Was medication given for the loose bowel movement??
  - c. How many times did the child have watery stools?
  - d. Is the child lethargic/ abnormally sleepy?
  
10. The child has been having diarrhea for 4 days, what are you going to check next?
  - a. General condition of the child
  - b. Height and weight
  - c. Presence of fever
  - d. Skin pinch
  
11. The child is irritable, with sunken eyes. When offered fluid, he drinks it eagerly. How will you classify dehydration in this child?
  - a. No dehydration
  - b. Some dehydration
  - c. Severe dehydration
  - d. No diarrhea
  
12. When you pinch the abdomen of the child, the skin pinch goes back slowly. Aside from dehydration, what other problems would you consider in this child?
  - a. The child is overweight
  - b. The child is malnourished
  - c. The child has skin disease
  - d. The child has parasitic worms
  
13. The child weighs 6 kg, how will you give the rehydration solution?
  - a. 200 mL within 4 hours
  - b. 400-700 mL within 4 hours
  - c. 200-500 mL within 2 hours
  - d. < 200 mL within 4 hours

14. If the child vomits,
- wait for 10 minutes, then slowly continue to give the ORS
  - continue giving the ORS
  - stop giving ORS, give rice water instead
  - stop giving fluids
15. A 20 year old male is having loose bowel movement since last night. He is eager to drink, his eyes are not sunken, and skin pinch goes back immediately. The patient has:
- No dehydration
  - Some dehydration
  - Severe dehydration
  - No diarrhea
16. A mother comes to you because her child has been having loose bowel movement for one day. The child does not exhibit any signs of dehydration. Your barangay is about 2 hours away from the health center and transportation is difficult, what advice would you give to the mother?
- Go to the health center
  - Assure that the symptoms will just go away
  - Advice volume per volume replacement and to come back the next day if symptoms persist
17. When there is dysentery or blood in the stool,
- antibiotics is needed
  - anti-diarrheals are needed
  - don't give anything except ORS
  - give both anti-biotics and anti-diarrheals
18. When will you consider diarrhea as persistent?
- Watery stools for more than 1 week
  - Watery stools for more than 14 days
  - Watery stools with fever
  - More than 10 episodes of watery stools within 1 day
19. If a 10 month-old child with diarrhea is not eating or drinking normally, what would you do?
- Give fresh fruit juices
  - Continue breastfeeding
  - Start giving ORS
  - Start giving ORS and refer immediately to the hospital

20. With regards to the control of diarrheal diseases, what should a barangay health worker do?
- a. Observe patients with diarrhea and know when to refer to the hospital
  - b. Report at once to the rural health unit if there are more cases of diarrhea in adults and children than usual
  - c. Teach the community on the signs of dehydration, how to prevent it, and how to prepare ORESOL
  - d. All of the above

## APPENDIX B

### QUESTIONNAIRE (translated to Bisaya)

Markahi ug lignin ang letra nga angay sa pangutana.

1. Ang kalibanga ay ang paglibang ug:
  - a. Tubigon na tae maskin pila ka beses
  - b. 3 o kapin pa nga paglibang ug tubigon na tae sa sulod na 1 ka adlaw
  - c. sobra 10 nga paglibang ug tubigon na tae sa 1 ka semana
  - d. Tae sugol dugo 3 ka beses sulod sa 1 ka adlaw
  
2. Makuha ang kalibanga pinaagi sa:
  - a. Dili paghugas ug kamot bag-o mukaon ug pagkahuman malibang
  - b. Pagkaon ug hugaw na pagkaon
  - c. Pag-inum ug hugaw na tubig
  - d. Tanan na gipangsulat sa taas
  
3. Unsa ang *dehydration*?
  - a. kawad-on sa tubig sa lawas
  - b. kawad-on sa tubig ug asin sa lawas
  - c. Ang paglibang ug 5 o kapin pa nga tubigon na tae
  - d. Kulang sa pag-inom ug tubig
  
4. Paunsa nimo maingon na dehydrated ang bata?
  - a. I-check ang katibu-an kondisyon, lalom ug mata, makainum, ug pagpislit sa panit
  - b. I-check ang pagka-irritable, mala na ngabil, ug kung adunay luha
  - c. Pangutan-on kung pila ka beses malibang kada adlaw
  - d. I-check kung naay hilanat ug naay dugo sa tae
  
5. Unsaon paglikay sa dehydration?
  - a. Pug-ngan ang paglibang pinaagi sa pag-inom ug anti-diarrheals (ex. Diatabs, Imodium, Lomotil)
  - b. Pag-inom ug ORS o uban pa na mainum sa balay para ilisan ang nawala na tubig ug asin sa lawas
  - c. Paglikay ug kaon o inom ug tubig aron dili na malibang
  - d. Wala sa mga gisulat sa taas
  
6. Ang dili kayo na I-rekomend na imnum sa balay para sa dehydration:
  - a. Fresh fruit juices
  - b. Sabaw
  - c. Sofdrinks
  - d. Lanut o tubig gikan sa linung-ag na kan-on

7. Ang *table salt sugar solution* (TSSS) ang gamiton kung walay ORESOL. Unsa ang timpla sa TSSS?
  - a. 1 baso na tubig + a pinch of table salt + 1 kutsarita na asukal
  - b. 1 baso na tubig + 1 kutsarita na asin + a pinch of sugar
  - c. 1 baso na tubig + a pinch of table salt + a pinch of sugar
  - d. 1 baso na tubig + 1 kutsarita sa asin + 1 kutsarita na asukal
  
8. Ang kalibanga malikayan pnaagi sa:
  - a. Mang hugas ug kamot bag-o mukaon
  - b. Mang hugas lang ug kamot bag-o maglibang
  - c. Magpa-immunize dayon ug Measles pagkahuman ug libang ug tubigon na tae
  - d. Mixed feedng o sagol na pagtutoy (breastmilk ug formula milk) sa primerong 4 ka bulan na edad sa bata.
  
9. Usa ka 4-bulan na bata gidala sa imo sa iyang inahan tungod sa paglibang ug tubigon na tae, unsa ang imong ipangutana sa inahan una?
  - a. Misuka ba ang bata?
  - b. Gitagaan ba ug tambal ang bata para sa kalibanga?
  - c. Pila ka beses nalibang ang bata?
  - d. Sige ba katulgon ang bata?
  
10. Ang bata gikalibanga sa sulod na 4 ka adlaw, unsa ang sunod nimong bantayan?
  - a. Ang tibuok na kondisyon sa bata
  - b. Ang katas-on ug kabug-aton sa bata
  - c. Kung adunay hilanat ang bata
  - d. Pagpislit sa panit
  
11. Ang bata irritable ug lalom ang mata. Kung hatagan ug inim-nom, kusog muinum ang bata. Unsa ang klase *dehydration* naa ang bata?
  - a. Walay o *No dehydration*
  - b. Gamay o *Some dehydration*
  - c. Grabe o *Severe dehydration*
  - d. Wala gikalibanga o *No dehydration*
  
12. Kung pisliton ang tiyan sa bata, ang panit sa tiyan nga gipislit, hinay hinay mubalik. Gawas sa dehydration, unsa pa ang laing problema sa bata?
  - a. Ang bata sobra sa timbang
  - b. Ang bata pwedeng kulang sa nutrisyon o malnourished
  - c. Ang bata naay sakit sa panit
  - d. Ang bata naay bulati sa tiyan
  
13. Ang bata motimbang ug 6 ka kilo, paunsa nimo ihatag ang *rehydration solution*?
  - a. 200 mL sulod sa 4 oras
  - b. 400-700 mL sulod sa 4 oras
  - c. 200-500 mL sulod sa 2 oras
  - d. <200 mL sulod sa 4 oras

14. Kung ang bata magsuka,
  - a. huwat ug 10 minuto, unya padayon ug hatag sa ORS pero hinay hinay na
  - b. padayon ug hatag sa ORS
  - c. undang ug hatag sa ORS, hatagi na lang ug lanot o tubig gikan sa linung-ag na kan-on
  - d. undang ug hatag maskin unsang imno-non
  
15. Usa ka 20 anyos na lalaki nagkalibanga sukad gabii. Ganahan mu-inum, dili lalum ang mata, ug ang panit mubalik dayon pagkahuman pisliton. Ang pasyente adunay:
  - a. Walay o *No dehydration*
  - b. Gamay o *Some dehydration*
  - c. Grabe o *Severe dehydration*
  - d. Wala gikalibanga o *No dehydration*
  
16. Usa ka inahan miduol nimo tungod ang iya anak adunay kalibanga sa sulod sa usa ka adlaw. Ang bata wala nagpakita ug senyales nga dehydration. And imong barangay mga 2 ka oras ang gilay-on sa health center ug lisod ang sasakyan. Unsa ang imo ingon sa inahan?
  - a. adto sa health center
  - b. pasalingan na mawala lang ang kalibanga
  - c. tambagan na paimnon ug tubig kung unsa kadaghanon ang gigawas sa lawas ug mubalik kung nagpadayon ang kalibanga o wala nawala
  
17. Kung naay *dysentery* or dugo sa tae,
  - a. kinahanglan ug *antibiotics*
  - b. kinahanglan ug *anti-diarrheals* (Ex. Diatabs, Lomotil, Imodium)
  - c. ayaw hatag ug tambal gawas sa ORESOL
  - d. hatagan ug *antibiotics* ug *anti-diarrheals*
  
18. Kanus-a nimo maingon na *persistent* ang kalibanga?
  - a. Kalibanga sobra sa 1 ka semana
  - b. Kalibanga sobra 14 ka adlaw
  - c. Kalibanga ug hilanat
  - d. Sobra 10 ka beses malibang sulod sa 1 ka adlaw
  
19. Kung ang bata edad 10 ka bulan na adunay kalibanga na dili na mokaon ug muinum, unsa ang imong buhaton?
  - a. Hatagan ug fresh fruit juices
  - b. Padayon ug patotoy
  - c. Sugdan na hatagan ug ORESOL
  - d. Sugdan na hatagan ug ORESOL ug paadtuon dayon sa hospital

20. Mahitungod sa pagpugong sa kalibanga, unsa ang angay buhaton sa BHW?
- a. Bantayan ang pasyente na naay kalibanga ug paadtuon sa ospital
  - b. I-repost dayon sa health center kung naay daghan na kaso sa kalibanga
  - c. Tudluan ang mga pasyente ug inahan sa mga senyales sa dehydration, paunsa likayan ug paunsa mag-himo ug rehydration solution
  - d. Tanan na gisulat sa taas

## APPENDIX C CHECKLIST

### STATION 1: VIDEO CLIP OF A CHILD WITH DEHYDRATION

Identified sunken eyes	
Skin pinch goes back very slowly	
Classified as severe dehydration	
Management: Referred the patient to the health center/hospital	

### STATION 2: ASSESSMENT OF A PATIENT WITH DIARRHEA

Checked for general condition	
Looked for sunken eyes	
Demonstrated skin pinch	
Asked/looked for increased thirst/ unable to drink	

### STATION 3: MANGEMENT OF NO DEHYDRATION:

Volume per volume replacement	
Increase food intake	
Watch for danger signs (e.g. fever, blood in stool, unable to drink/breastfeed, lethargy)	

### STATION 4: PREPARE TABLE SALT SUGAR SOLUTION

Wash hands properly with soap and water	
Measure 250 mL of clean drinking water (~1 glass)	
Mix well: A pinch of salt with one teaspoon of sugar into the glass of water	
Discard after 1 day	

## **APPENDIX D MODULE**

### ❖ Learning Objectives

At the end of the module, Barangay Health Workers will learn the following:

- Definition of Diarrhea
- Mode of Transmission
- Definition of Dehydration
- Signs of Dehydration
- How to Assess Dehydration
- Classifying Dehydration
- Management of Diarrhea
- Persistent Diarrhea
- Dysentery
- How to Prevent Diarrhea
- Roles of Barangay Health Workers in the Control of Diarrheal Diseases

❖ Venue: Nutrition Center, Pinan, Zamboanga del Norte

❖ Target Audience: All Barangay Health Workers of Pinan

❖ Trainer: Dr. Ricardo Awit

❖ Source: Training Manual for Barangay Health Workers (DOH, 1997)

Policies and Guidelines for the National Control of Diarrheal Diseases  
Program (DOH, 1993)

Integrated Management of Childhood Illnesses (WHO, 2004)

## **I. DIARRHEA**

Diarrhea is the passing of 3 or more watery stools within 24 hours. It is caused mainly by germs that enter the body through the mouth. The body naturally gets rid of the germs that are ingested through the repetitive bowel movements in diarrhea.

Diarrhea of less than 14 days is considered as acute diarrhea. Persistent diarrhea is if it lasts more than 14 days. Diarrhea along with the presence of blood in stool is called dysentery.

## **II. MODE OF TRANSMISSION**

A person can get diarrhea through:

- Poor personal Hygiene
  - Not washing hands before cooking and preparing food
  - Not washing hands before eating
  - Not washing hands after defecating
- Poor environmental sanitation
  - Eating dirty food
  - Drinking unsafe water

## **III. DEHYDRATION**

Dehydration is the loss of fluid and salt in the body. Acute watery diarrhea causes dehydration and contributes to malnutrition. The death of a child with acute diarrhea is usually due to dehydration. Poorly-fed persons and malnourished children are likely to get dehydrated.

## **IV. SIGNS OF DEHYDRATION**

Dehydration is assessed by checking the following signs:

- General condition – restlessness, irritability, lethargy
- Sunken eyes – presence or absence
- Thirst – eagerness or unable to drink
- Skin pinch – goes back in less than two seconds, slowly, or very slowly

## **V. HOW TO ASSES DEHYDRATION**

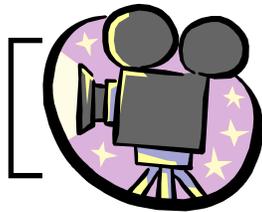
The first step is to look at the **general condition**. The first important sign is the level of consciousness. Is the patient lethargic, unconscious, irritable, or restless? If the patient is lethargic or unconscious, he/she has a general danger sign.

Look for **sunken eyes**. Ask the companion/mother/caretaker if he/she thinks the patient's eyes look unusual. His/her opinion helps you confirm that the eyes are sunken.

Check for **thirst**. Offer some water in a cup or spoon then watch the patient drink. A child is not able to drink if he is not able to take fluid in his mouth and swallow it. This is seen when the child is lethargic or unconscious. Or the child may not be able to suck or swallow. A child is drinking poorly if the child is weak and cannot drink without help. He may be able to swallow only if fluid is put into his mouth. A patient has the sign of drinking eagerly/ thirsty if it is clear that he/she wants to drink.

For pediatric cases, ask the mother/caretaker to place the child on the examining table so that the child is flat on his back with his arms on his sides and his legs straight. Locate the area on the child's abdomen halfway between the navel and the side of the abdomen. To do the **skin pinch**, use your thumb and first finger. Firmly pick up all of the layers of the skin and the tissue under them. Pinch the skin for one second and then release it. When you release the skin, look to see if the skin pinch goes back: slowly (skin stays up for a brief instant) or very slowly (longer than two seconds) or immediately.

**Note:** In a child with marasmus (severe malnutrition), the skin may go back slowly even if the child is not dehydrated. In an overweight child, or a child with edema, the skin may go back immediately even if the child is dehydrated. Even though skin pinch is less reliable in these children, still use it to classify the child's dehydration.



Video clips on:

- A child with sunken eyes
- Skin pinching

## VI. CLASSIFYING DEHYDRATION

Severe Dehydration	Lethargic or unconscious	*2 or more signs
	Sunken Eyes	
	Not able to drink or Drinking poorly	
	Skin pinch goes back very slowly	
Some Dehydration	Restless, irritable	*2 or more signs
	Sunken eyes	*1 sign in the pink rows (top) and 1 sign in the yellow rows (middle)
	Drinks eagerly, thirsty	
	Skin pinch goes back slowly	
No dehydration	Not enough signs to classify as some or severe dehydration	

Refer to the table above:

- If there are two (2) or more of the following signs: lethargic or unconscious, not able to drink or drinking poorly, sunken eyes, skin pinch goes back very slowly – classify as **severe dehydration**.
- If there are two (2) or more of the following signs – restless, irritable, drinks eagerly, thirsty, sunken eyes; skin pinch goes back slowly – classify as **some dehydration**.
- A patient who does not have two or more signs is classified as having **no dehydration**.



Picture of a child with:

- SEVERE DEHYDRATION
- SOME DEHYDRATION
- NO DEHYDRATION



## EXERCISES

Classify the following as NO DEHYDRATION, SOME DEHYDRATION, or SEVERE DEHYDRATION

### SITUATION 1:

John has had diarrhea for 5 days. He has no blood in the stool. He is irritable; his eyes are sunken. When offered water, the child drinks it eagerly. After pinching the skin on the child's abdomen, it goes back slowly.

### SITUATION 2:

Jasmine has had diarrhea for 3 days. There was no blood in the stool. The child was not abnormally sleepy or difficult to awaken. She was not irritable or restless. Her eyes were sunken. She was able to drink, but she was not thirsty. The skin pinch went back immediately.

### SITUATION 3:

Fely has had diarrhea for 2 days. She does not have blood in the stool. She is restless and irritable. Her eyes are sunken. She is not able to drink. A skin pinch goes back very slowly.

### SITUATION 4:

Nardo has had diarrhea for 5 days. There is no blood in the stool. The child is not abnormally sleepy or difficult to awaken. He is not restless and irritable. His eyes look normal and are not sunken. When offered water, the child drinks it eagerly. A skin pinch goes back immediately.

\*Answers: (1) some dehydration (2) no dehydration (3) severe dehydration (4) no dehydration

## VII. MANAGEMENT OF DIARRHEA

### NO DEHYDRATION

The patient with no dehydration needs extra fluid and foods to prevent dehydration. Counsel the patient or the child's mother about the 3 Rules of Home Treatment. These are:

**1. Give extra fluid** – the purpose of giving extra fluid is to replace the fluid lost in diarrhea and prevent dehydration. The critical action is to give more fluid than usual, as soon as the diarrhea starts.

- Tell the mother to breastfeed frequently and for longer at each feed
- If the child is exclusively breastfed, it is important for this child to be breastfed more frequently than usual. Also give ORS solution or clean water. Breastfed children under 4 months should first be offered a breastfeed, then give ORS.
- If the child is not exclusively breastfed, give one or more of the following: ORS solution, food-based fluids, clean water.

Acceptable home fluids, in addition to water are:

- Rice water or “am”
- Fresh fruit juices
- Soups and broths

Advice on the amount of extra fluid to give after each loose stool:

- For a child less than 2 years old give 50-100 ml (1 oz to 3 oz) after each loose stool
- For a child 2 years old or older give 100-200 ml (3 oz to 6 oz) after each loose stool

Explain that the diarrhea should stop soon:

- Give frequent small sips from a cup. Use a spoon to give fluid to a young child.
- If the child vomits, wait 10 minutes before giving more fluid. Then resume giving the fluid, but more slowly.
- Continue giving extra fluid until the diarrhea stops

**2. Continue feeding.**

**3. Return immediately if danger signs develop** - not able to drink or breastfeed, becomes sicker, develops a fever, has blood in the stool, and drinks poorly.

## SOME DEHYDRATION

A patient who has some dehydration needs fluid and foods. Treat with Oral Rehydrating Solution (ORS). In addition to fluid, the child with some dehydration needs food. Breastfed children should continue breastfeeding. Other children should receive their usual milk or some nutritious food after 4 hours of treatment with ORS.

- Give frequent small sips from a cup.
- If the child vomits, wait for 10 minutes. Then continue, but more slowly.
- Continue giving extra fluid until the diarrhea stops.
- Reassess after 4 hours and classify for dehydration.

If the patient/mother must leave before completing treatment:

- Show how to prepare the ORS solution at home.
- Show how much to give to finish the 4-hour treatment at home.
- Give enough ORS packets to complete rehydration.

Determine the amount of ORS to be given in four hours. Below is a table for children 5 years and below:

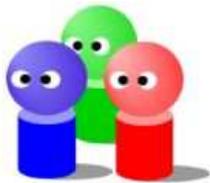
Age	Up to 4 mos	4 mos – 12 mos	12 mos – 2 years	2 – 5 years
Weight	< 6 kgs	6 to < 10 kgs	10 to < 12 kgs	12 – 19 kgs
mL	<b>200 - 400</b>	<b>400 - 700</b>	<b>700 - 900</b>	<b>900 - 1400</b>

The approximate amount of ORS can also be calculated by multiplying the child's weight (in kg) by 75.

## SEVERE DEHYDRATION

Any patient with severe dehydration needs fluids quickly. Refer to the hospital immediately for intravenous fluids.

**Note:** Anti-diarrheals have no role in the treatment of diarrhea and maybe harmful if given to children. The use of anti-diarrheals can interfere with the natural elimination of these germs and should never be used. Antibiotics are not needed for most common causes of diarrhea.



### ACTIVITY

- Show how to prepare ORESOL and a home-made rehydration solution
- Ask the BHWs to return the demonstration

#### How to prepare Oral Rehydration Solution (ORESOL):

1. Wash hands properly with soap and water.
2. Measure 1 liter of clean drinking water from an empty container (ex. 1 liter empty softdrink bottle).
3. Add one sachet of ORESOL in one liter of water and mix well.
4. The mixture can be used only for 1 day. Discard remaining mixture and make new ORESOL if the patient needs it.

**How to prepare table salt sugar solution (TSSS):**

1. Wash hands properly with soap and water.
2. Measure 1 liter of clean drinking water from an empty container.
3. Mix a pinch of salt and one teaspoon of sugar into the water.
4. The solution can be used only for 1 day.

## **VIII. PERSISTENT DIARRHEA**

After classifying dehydration, classify for persistent diarrhea if the patient has had diarrhea for 14 days or more. There are two possible classifications for persistent diarrhea: (1) severe persistent diarrhea and (2) persistent diarrhea.

For **severe persistent diarrhea**, the patient has had diarrhea for 14 days or more and also has some or severe dehydration. They need urgent referral to the hospital. They may need a change in diet and laboratory tests to identify the cause of diarrhea. Treat the dehydration first before referral to the hospital unless the patient has another severe classification. Treating dehydration in children with another severe disease can be difficult. These children should be treated in a hospital.

For **persistent diarrhea**, the patient has had diarrhea for 14 days or more but has no signs of dehydration; children may need special feeding recommendations. They may have difficulty digesting milk other than breastmilk. They need to temporarily reduce the amount of other milk in the diet.

Teach the mother/caretaker the following feeding recommendations:

- Breastfeed more frequently and for a longer time if possible
- Use nutritious, soft, varied, appetizing, favorite foods to encourage the child to eat as much as possible, and offer small feeding
- Clear blocked nose if it interferes with feeding.
- Expect that appetite will improve as the child gets better.
- Expect that appetite will improve as the child gets better.
- Add or mix with *lugaw* or rice, protein-rich sources of food such as flaked fish, chicken, pulverized roasted *dilis*, chopped meat, egg yolk, steamed *tokwa*, and *munggo*.

Follow-up is important after 5 days.

## **IX. DYSENTERY**

Treatment includes first the dehydration. Then refer to the health center, antibiotics is needed for dysentery.

Follow-up care should be within 2 days. Assess again for diarrhea:

- Ask the following questions:
  - Are there fewer stools?
  - Is there less blood in the stool?
  - Is there less fever?
  - Is there less abdominal pain?
  - Is the child eating better?
- Treatment:
  - If there is any dehydration, treat it.
  - If the number of stools, amount of blood in stools, fever, abdominal pain or eating is the same or worse, refer to the health center/hospital.

## **X. HOW TO PREVENT DIARRHEA**

- Maintain good personal hygiene
  - Wash hands before eating, cooking, and preparing food
  - Wash hands after defecating
- Maintain good environmental sanitation:
  - Proper human waste disposal
  - Proper garbage disposal (e.g. cover trash cans)
- Immunize children against measles
- Breastfeed babies
  - Give only breastmilk for the first 4-6 months and continue to breastfeed for the first year
  - Breastfeeding helps prevent diarrhea
  - Breastfeeding helps prevent malnutrition

## **XI. ROLES OF BHWS IN THE CONTROL OF DIARRHEAL DISEASES**

What to do as a community health worker:

1. Observe patients with diarrhea and refer them to the hospital if:
  - Patient has some or severe dehydration
  - Patient has persistent diarrhea
  - Patient has blood in stool

**Important:** continue giving rehydration solution or any home fluid on the way to the hospital

2. Report at once to the rural health unit if there are more cases of diarrhea in adults and children than usual.
3. Teach the community on the signs of dehydration, how to prevent it, and how to prepare ORESOL.

# CURRICULUM VITAE

## PERSONAL INFORMATION

Name: Ma. Cristina R. Alfaro  
Age: 23 years old  
Sex: Female  
Civil Status: Single  
Date of Birth: April 6, 1984  
Address: 087 Marcos Drive, Putik, Zamboanga City  
Religion: Roman Catholic  
Father: Santiago A. Alfaro, Jr. (deceased)  
Mother: Cecilia R. Alfaro (deceased)

## EDUCATIONAL BACKGROUND

Degree Doctor of Medicine  
School Ateneo de Zamboanga University  
Place Zamboanga City, Philippines  
Year of Graduation April 2008

**COLLEGE** B.S. Biology  
University of Santo Tomas  
Manila City, Philippines  
March 2004

**HIGH SCHOOL** Ateneo de Zamboanga High School  
March 2001

**ELEMENTARY** Immaculate Conception Archdiocesan School (Grade 1– 2)  
Ateneo de Zambonga Elementary (Grade 3 – 6)  
March 1997