Review of breastfeeding training in Aceh, Indonesia

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ABSTRACT

Background: Since 2004, Indonesia had followed WHO recommendation for exclusive breastfeeding (EBF) up to 6 months and continued breastfeeding (BF) until 2 years in addition to complementary feeding. National and local data showed that early initiation and EBF practices are not widely practiced.

Objective: This thesis is aimed to analyze the BF determinants, to review BF training in Aceh and other countries and analyze the impact of BF training in BF practices. Review of literature in BF determinants was carried out to see factors influence BF practices. For BF trainings from other countries, studies included in meta-analysis of Cochrane review by Britton et al. (2007) were analyzed. The impact of BF training was evaluated using Kirkpatrick's evaluation model.

Results: The analysis of BF determinants showed diverse factors affecting mothers to breastfeed their child. Traditional belief, misconception and lack of support from family members influence mothers not to breastfeed their children. Lack of health worker's (HW) BF knowledge, attitude and skill (KAS) and the massive promotion of breastmilk substitute also contribute to low BF practices. Both HW and peer counselor (PC) trainings aim to provide support by providing relevant information to mothers and other people including family members and assisting mothers to practice BF. BF trainings for HW and community health worker (CHW) conducted in Aceh have imperfection in terms of not conducting training need assessment as well as evaluation in impact of training to BF practices. BF training for HW in India and PC in Bangladesh can be seen as a good example. To be able to transfer the learning, motivation from trained HW and PC and support from work environment such as acceptance from other colleagues as well as from supervisor are needed. The BF determinants also influence the training implementation.

Conclusion: There are many factors influence the impact of BF training in addition to the training itself. They are including determinants of BF, motivation of trainees and support from work environment. Conducting BF training should be seen as one approach integrated with other interventions to improve the BF practices. For recommendation, implementing the training process based on the training cycle including community analysis to find the most influential person for BF decision is recommended. Assessing BF KAS of HWs and their workload is proposed in order to train the right people. Evaluate the BF practices as the impact of the training by using a combination of methods such as observation and interview with mothers. Advocacy for scaling up the training for HW and CHW is suggested. Along with BF training, other BF intervention such as campaign and research in the effectiveness of training for other target groups and measuring BF practices accurately are proposed.

LIST OF ABBREVIATIONS AND ACRONYMS

BF – Breastfeeding
BFHI – Baby Friendly Hospital Initiative
C – Control
CHW – Community Health Worker
DALYs – Disability Adjusted Life Years
DHO – District Health Office
DO – Dropped out
EBF – Exclusive Breastfeeding
FGD – Focus Group Discussion
GDP – Gross Domestic Product
HIV/AIDS – Human Immunodeficiency Virus/Acquired Immunodeficiency Syndrome
HW – Health Worker
I – Intervention
IBCLC – International Board Certified Lactation Consultant
IDHS – Indonesia Demographic Health Survey
IEC - Information, Education and Communication
IMCI – Integrated Management of Childhood Illness
KAS – Knowledge, Attitude, Skill
MoH – Ministry of Health
Mos – months
NAD – Nanggroe Aceh Darussalam
NGO – Non Government Organization
NM – Not Measured
NS – Not Specified
NSS – Nutrition Surveillance System
PBF – Predominant Breastfeeding
PartBF – Partially Breastfeeding
PC – Peer Counselor
PHC – Public Health Center
PHO – Provincial Health Office
SELASI – Sentra Laktasi Indonesia/Indonesia Breastfeeding Center
TBA – Traditional Birth Attendant
TNA – Training Needs Assessment
ToT – Training of Trainer
UNAIDS – United Nations Programme on HIV/AIDS
UNDP – United Nations Development Programme
UNICEF – United Nations Children's Fund
WHO – World Health Organization

INTRODUCTION

World Health Organization (WHO) recommends infants should be exclusively breastfed for the first six months of life and continue breastfeeding (BF) until 2 years or beyond in order to achieve optimal growth and development for children (WHO 2001). This is based on many and more recent studies that have shown the vast benefits of BF and the disadvantages of early complementary feeding for infants, mothers, family and community.

Unfortunately what has happened is not what was expected. Worldwide, only 38% children were exclusively BF up to 6 months and almost 40% still continue BF until 2 years (UNICEF 2007). In Indonesia, the situation is the same. The result of Indonesia Demographic Health Survey (IDHS) showed slight decline of exclusive breastfeeding (EBF) practice up to 6 months from 42% (1997) to 40% (2002-2003) (BPS and ORC Macro 2003).

Aceh was not included in IDHS 2002-2003 since at that time the situation was not secure due to armed conflict. The 30 years conflict affected the health status of Acehnese which was one of the lowest in the country (Bappenas 2005). Then there was the tsunami and the massive earthquake on 26 December 2004 that opened the province to contacts both inside and outside Indonesia. As a result much assistance such as expertise and funds came from various United Nations, donor and implementing agencies.

I used to work in CARE, an international Non Government Organization (NGO) which in response to this massive disaster, focused on maternal and child health with a nutrition program as one of its component. In 2005, surveys were conducted to see the health condition of Acehnese and one of the findings was the rate of EBF is the same as the national rate (CARE and CDC 2006; UNICEF and Nanggroe Aceh Darussalam Provincial Health Office/NAD PHO 2006). In fact, during 2.5 years worked in Aceh, I often found new babies were given banana, formula milk or other pre lacteal feeding by the mother or family members, since the grandmother told her to do so.

On February 2006, I received 40 hours WHO/UNICEF BF Counseling training which gave me more information and understanding about BF and the importance of BF for improving the malnutrition among children. After that, under the project that I was responsible for, BF trainings for health worker (HW) and community health worker (CHW) were organized. Other BF trainings also had been carried out by other humanitarian organizations and PHO.

This experience encouraged me to explore how BF training should be conducted in order to have the utmost improvement of BF practices in Aceh, Indonesia. Based on this study, I will propose recommendations for BF training program in Aceh for health offices and supporting agencies.

After the introduction, chapter 2 will focus on BF practices and factors that affect it. Chapter 3 will describe the BF trainings that have been done Aceh. Chapter 4 will discuss the findings from chapter 3 in comparison with BF trainings from other countries. In chapter 5, the conclusion and recommendation will be made.

CHAPTER 1

This chapter presents background information on the place of study, BF recommendation and its benefits. It also describes the problem statement and methodology used in developing this thesis.

1.1. BACKGROUND SITUATION

1.1.1. INDONESIA

GEOGRAPHIC, DEMOGRAPHIC AND SOCIO-ECONOMIC PROFILES

Indonesia is a nation located in Southeast Asia with estimated population of 230 million inhabitants per 2008 and annual growth rate of 1.1% in 2006. It is the fourth most populous country and the most populous Muslim-majority nation worldwide (Data Statistik Indonesia 2008; World Bank 2008a). By 2005, Indonesian Human Development Index is in ranking of 107 out of 177 nations (UNDP 2007). Its Gross Domestic Product (GDP) per capita on 2007 is US$ 1,947 (BPS 2008).

HEALTH CARE SYSTEM PROFILE

For health expenditure in 2006, government and private sector shares almost the same portion, 50.4% and 49.6% respectively. Social security fund constitutes 20% out of government health expenditure. While for private sector, the biggest contribution comes from households' out-of-pocket (66%), alongside with private employers' insurance and private households' or individual's insurance. The public health expenditure from general government expenditure is slightly increased every year. In 2006, it was 5.3% compare to 5.1% in 2005 (WHO 2008a). Unfortunately, the utilization of public health services remain low as more than half of the people prefer to go to private providers such as private nurses, midwives and doctors, especially the poor. The causes of low utilization are limited access both financial and geographic, low services quality, limited opening hours, and high of staffs' absenteeism especially in the Public Health Centre (PHC) level (World Bank 2007).

Related to health status indicators, the life expectancy at birth in 2006 is 68 years (World Bank 2008a). The percentage of deliveries helped by skilled birth attendants is 72% in 2004 an increase compared with 2002-2003 which was 66% (UNICEF 2008). Malnutrition among children under five (weight-for-age) per 2005 is 24.4% which is still classified as high (World Bank 2008a). Infant Mortality Rate per 2006 is 26 per 1,000 live births (UNICEF 2008).

1.1.2. ACEH

GEOGRAPHIC PROFILE

Nanggroe Aceh Darussalam or Aceh is the western province of Indonesia, with a status of special autonomy started in 2001 and has applied *Sharia* or Islamic Law since 2003 (Special Autonomy for NAD Province Act 2001; Sharia Law in NAD Province President's Decree 2003). Located in Sumatra Island, it has total landmass of 57,365 square km, bordering with Andaman Sea, Malacca straits, India Ocean and North Sumatra Province (NAD 2006). By January 2007, the province had expanded its region, from 17 districts and 4 municipalities, into 18 districts and 5 municipalities (Annex 1). This expansion was due to the need to accelerate the development of Aceh and fulfill the aspirations of the local community (Form of Pidie Jaya District in NAD Province Act 2007; Form of Subulussalam Municipality in NAD Act 2007).

DEMOGRAPHIC PROFILE

Per July 2008, it is estimated that Aceh province has nearly 4.1 million inhabitants (Data Statistik Indonesia 2008). The annual growth rate in 2005-2006 is 1.06%. The highest density population is in Banda Aceh municipality which serves as the capital of the province (NAD PHO 2007a). The majority of people in Aceh are Muslim. There are 3 major ethnic groups which are Acehnese, Gayo and Alas (NAD 2007).

SOCIO-ECONOMIC PROFILE

Aceh has long history of armed conflict and repeated natural disasters that made Aceh become one of the poorest provinces, though they are rich with natural resources such as gas and oil. Aceh's economy has grown based on GDP by 7.4% (excluding oil and gas) in 2007. The reconstruction and rehabilitation efforts as well as the agriculture and manufacturing also contribute to Aceh's economy (World Bank 2008b).

Agricultural sector with a traditional approach is still the main occupation for almost 60% of workforce in Aceh (World Bank 2008b). Female workers constitute 30% out of almost 1.8 million workforces (SPAN 2005 cited in Provincial Work Force Office 2005).

Compared with other provinces in Indonesia, poverty in Aceh is still higher. Poverty[1] in Aceh increased from 28.4 percent in 2004 to 32.6 percent in 2005 and decreased to 26.5 percent in 2006. There is a disparity of income according to geographical area whereby 30% of

[1] Poverty is defined based on consumption of the household, differs for urban and rural (World Bank 2008c)

households living rural areas are poor in contrast with urban, 15% (World Bank 2008c).

HEALTH CARE SYSTEM PROFILE

Out-of-pocket health expenditure in Aceh is relatively low (31%) as the result of local bill or *Qanun* launched in 2003 that entitles people to get free healthcare (World Bank 2008c).

Its health workforce is bigger for midwives, approximately 11 midwives as compared to 5 midwives nationally per 10,000 populations. For doctors, Aceh has the same national figure, 2 per 10,000 inhabitants. Unfortunately, there is a gap in the distribution due to the effects of long conflict; rural and remote areas have less HW compared to urban (World Bank 2008c).

For health seeking behavior, the poorer utilize mostly public health services while the richer prefer to go to public and private hospitals (World Bank 2008c). Some of health facilities were destroyed or deserted since many HW moved to big cities such as Banda Aceh and Aceh Besar (Bappenas 2005). Deliveries assisted by skilled attendants declined from 78% in 2003 to 69 percent in 2006 due to the conflict that forced midwives in the rural and remote areas to move to the cities. The coverage of all vaccinations was not reached the national target. In 2004, measles immunization coverage was 71%, Hepatitis B 60% and BCG 72% (Health Profile 2004 cited in NAD PHO 2006). The coverage of polio was increase up to more than 90% on 2006 due to a large effort from donor agencies (World Bank 2008c). Moderate and severe under nutrition among children under five per 2006 using weight-for-age indicator was 37.9% (NAD PHO 2007b)

After the tsunami and repeated earthquakes, local government got assistance from many funding agencies and implementing partners on health sector. Almost 14% out of 841 funding agencies and implementing partners in Aceh and Nias work in health program (BRR 2008).

1.1.3. BREASTFEEDING

BF is the ideal food for the healthy growth and development of infants as well as having important implications for the reproductive process of mothers. Prior 2001, WHO recommended infants to be exclusively breastfed up to the first four months of life. Then based on studies, in 2001 WHO launched a recommendation that it should up to the first six months of life and to have nutritionally adequate and safe complementary feeding in addition to continued BF until two years of age or beyond (WHO 2003a; WHO 2003b; WHO 2003c).

In 1991, WHO set up the indicators in order to assess BF practices from interview at household level. The past 24 hours recall from living children aged less than 24 months is used to describe the BF and complementary feeding practices (WHO 1991). This method has its own bias since it only describes the feeding pattern for the last 24 hours and is derived from the mother's statement instead of having efforts to triangulate it. Thus, not all studies followed these indicators. For example, IDHS (BPS and ORC Macro 2003) was using children under five as the study sample instead of under two years old that lead to recall bias especially for early initiation and EBF practices. There are also problems such as whether the study was representative or not of the population and to declare the sponsorship by the commercial infant food industry (Cattaneo, Davanzo and Ronfani 2000). Or if they claimed to follow the definitions, it appeared they were not reliable. Cattaneo, Davanzo and Ronfani (2000) found from two studies in Italy that declared the use of WHO definitions, actually did not use them. One study has merged the predominant breastfeeding (PBF) practice into EBF and the other one was misinterpreting the recall period. The result was overestimation of the rate of EBF. Following the new recommendation of 6 months EBF, WHO has revised the indicators in 2007 (WHO 2007).

Looking from human rights perspective, BF is related to both women's and children's rights. For women, it is related to reproductive right and for children, it is their right to get adequate nutrition that is essential for attaining the highest health condition (WHO 2003a; Menon and Holla 2004; Labbok 2006; Kent 2006). BF provides the ideal nutrition since it contains water, nutrients, antibodies and other factors that an infant needs for growth and development. It adapts based on need and environmental changes that the baby faces (UNICEF et al. 2002).

The foremost BF advantage for children is the impact on mortality and morbidity reduction. Black et al. (2008) estimated that not exclusively BF in the first 6 months is attributed to 1.4 million deaths, account for 12% of children under five deaths and 10% of disease burden among children under five. In relation to Disability Adjusted Life Years (DALYs), 43.5 million DALYs (10% of global children under five DALYs and 3% of total DALYs) can be averted by exclusively BF up to 6 months. This data is not included the newest evidence that showed 22% of neonatal deaths can be prevented if all infants were breastfed within the first hour of life (Edmond et al. 2006; Black et al. 2008).

This reduction of mortality is due to reduction of common illnesses during childhood such as diarrhea or pneumonia and helps for quicker recovery. Breastmilk contains the macro and micro nutrients as well as the antibodies that can protect infants from infectious and chronic diseases (WHO 2008b). By giving formula feeding to infants and children, it will

increase their risk of getting diseases including asthma, allergy, diabetes, otitis media and obesity (Sterken 2006).

In relation to women's health, most people are not aware that BF can save mother's life both in the short and long term. It helps contract the uterus after delivery and reduce extra weight gain from the pregnancy period since a woman that exclusively breastfed will burn 500-1,000 calories in one day. It assists mother to feel relaxed due to the effect of prolactin hormone (WHO and UNICEF 1993a; Baumslag and Michels 1995). BF improves recovery after delivery, less iron loss, reduces the incidence of cancer such as breast, ovarian and uterine and leads to better bone condition in old age (Labbok 2006).

Breastmilk is the only food that can be produced and consumed without unnecessary packaging or waste (Radford 1991 cited in Baumslag and Michels 1995) and therefore is less cost compared to other feeding such as formula milk. Giving formula milk or other early complementary food, for instance rice porridge, adds a burden on household's financial resources with direct costs and indirect costs especially for poor families. Direct costs that can be averted include the cost to buy infant formula, bottles, and fuel to cook water and clean the bottles. Added to this, the cost that derived from increased health services utilization due to frequent illnesses might be reduced (Ball and Wright 1999; Weimer 2001). For indirect cost, it relates to time and wages lost by parents, mainly mothers that accompany the sick child (Weimer 2001).

Another benefit of BF in relation to family planning program is that BF provides 98% conception protection in the first six months as long as mother exclusively breastfeeds and remains amenorrhea. This method is known as Lactation Amenorrhea Method or LAM. However it can only be used for short period, until 6 months after delivery (LINKAGES 2001).

1.2. PROBLEM STATEMENT

Data from 43 developing countries showed an increase in EBF up to 3 months from 39% to 46% between 1989 and 1999 (UNICEF 2002 cited in WHO 2003b). It is way less if compared to the target that has been set by WHO which is 90% of EBF up to 6 months (Jones et al. 2003). This situation is worsened with improper complementary feeding in terms of timing, either too early or too late and the inadequate and unsafe feeding (WHO 2003a).

Although BF in Indonesia is universal, unfortunately the other BF practices such as early initiation and EBF are not widely practiced. Forty percent of babies are put to the breast within one hour after delivery while 62 percent are initiated in the first day of life. The median duration of EBF is very low, 1.6 months (BPS and ORC Macro 2003). In fact de Pee et al.

(2002) found only 27-40% babies less than 2 months old were exclusively breastfed. And the percentage decreases for the infant aged 4-5 months, less than 10%.

In Aceh, the situation is even worse compared to the national figure. From survey done in 2002, EBF up to 4 months was 18.8% while 30% of infants less than aged one month have already received complementary feeding (NAD PHO 2002). According to NAD PHO (2007b), although exclusively BF up to 6 months is increased from 2005 to 2006, still it is very low, 4.3% and 7.5% respectively.

There are many factors that can support or hinder the BF practices. Although BF is a natural process that has been taught by women to women for over decades, it is a learned behavior. BF women need support in terms of accurate information and skilled assistance from the families, communities and the health care system (WHO 2003b).

In communities where BF is the norm like in Indonesia including Aceh, many people think that women may not need to be motivated to choose and practice BF; instead they are expected to do so (WHO 1998). BF is an art and requires efforts from both mother and baby. The problems that usually occur are not medical related but mostly due to incorrect BF techniques, lack of information regarding how to breastfeed and lack of family support. It makes mothers turn to formula feeding practice instead of looking for assistance from someone that may have knowledge and skill related to the problem (Baumslag and Michels 1995).

Another main contributing factor is the support from health services (WHO 2003b; WHO 2003c). The assumption that HW knows about BF and the attitude of HW that weakens the confidence of mother by blaming her for not breastfeed her child, can make mother not even try to breastfeed (WHO 1998). It becomes common practice in the maternity ward to give formula milk or glucose or plain water to the newborn either for pre-lacteal feeding or as a complement to BF. This is supported by IDHS 2002-2003 whereby children with mothers that deliver assisted by a HW are much more likely to receive pre-lacteal liquid than children assisted by traditional birth attendants (TBAs), 53% and 31% respectively (BPS and ORC Macro 2003).

WHO and UNICEF have formed two standardized trainings for BF, which are an18 hours course for making "baby friendly" maternity care and a 40 hours course for developing clinical skills in BF counseling. It is also being taught as part of Integrated Management of Childhood Illness (IMCI) training. Unfortunately, the training is not always available, quite expensive and difficult to sustain (WHO 2003b). Other common issues related to the training, not only for BF training, are lack of supporting systems such as Information, Education and Communication (IEC)

materials, workload capacity and supervision (Potter and Brough 2004). Thus although the HWs are trained about BF, they will not be able to be around and to give support to the mothers all the time (WHO 2003b).

1.3. STUDY OBJECTIVE

The general objective is to critically review and analyze the literature on the impact of BF training on BF practices and find potential BF training program in Aceh, Indonesia.

The specific objectives are:
- To identify BF practices in Aceh
- To describe factors that affect BF practices in Aceh
- To describe the BF trainings that have been conducted in Aceh
- To analyze the impact of BF training toward the BF practices
- To offer recommendations for BF training program in Aceh

1.4. METHODOLOGY

Review of literature on relevant public health journals, dissertation and books was conducted through internet and KIT library. Internet searching on international and national websites such as WHO, UNICEF, Pubmed, Google Scholar and NAD PHO is done.
I also made use of my own observation and experience in Aceh regarding BF practices as well as BF training.

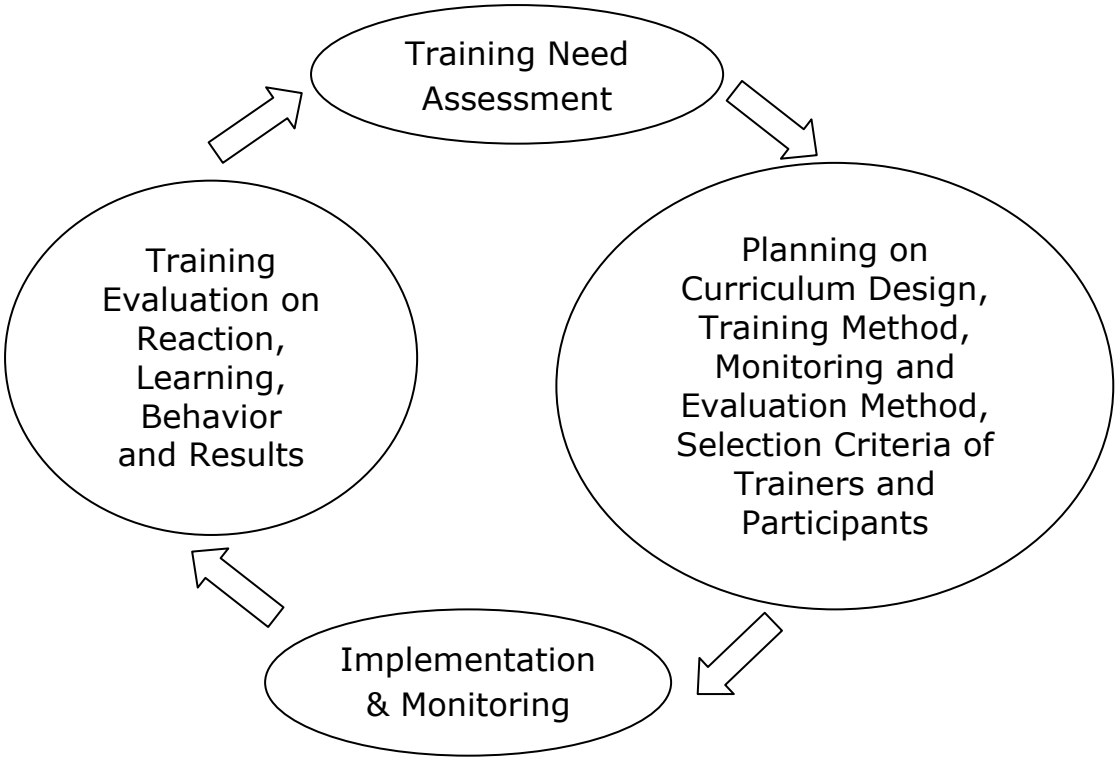
This study has several limitations i.e.:
- Only literature in English and Indonesian language (Bahasa) available from internet searching has been reviewed.
- Limitation of data related to BF practices and factors affecting BF practices in Aceh, therefore the review used other references with similar situations either within Indonesia or outside Indonesia in addition to my own observations.
- BF trainings in Aceh that will be reviewed were trainings conducted by CARE.

The key words and phrases used in this review were: *breastfeeding, exclusive, complementary feeding, early initiation, counseling, training, Aceh, practices, health providers, community health worker, peer support, counselor, knowledge, attitude, skill, evaluation, impact, framework*

THEOROTICAL MODEL

To analyze the training process, the project cycle management framework from CORE Initiative (2006) is adapted. This framework is aimed to manage project such as training in a systematical way. It starts from the needs assessment, planning, implementation, monitoring and evaluation.

It is an iterative process, in order to be able to adapt, change and improve the learning process for the next training.



Training needs assessment (TNA) is carried out prior to the training for several reasons. First and foremost is as the basic justification as to why training is needed. Then in response to the identified needs, the training objective is developed. The result of the TNA is also used to evaluate the output as well as the outcome of training (Arthur et al. 2003). It involves different stakeholders including future participants and people whom the training will be delivered such as mothers or community (KIT 2006).

There are 3 components in analyzing the training needs i.e. organizational, task and personal analysis (Tannenbaum and Yukl 1992). Through organizational analysis, it focuses on the resources availability, obstacles as well as supports in transferring the learning. This information corresponds to the objectives of training. Another component in determining the training objectives is task or job analysis. The purpose of task analysis is to see the detail of job description of the staff or person that need to be trained and the knowledge, attitude and skill (KAS) needed to perform the job. It also includes workload and performance prior to the training (Salas and Cannon-Bowers 2001). Personal analysis is used to identify the right person for the right training (Furze and Pearcey 1999 cited in Gould et al. 2004).

TNA is also served as pre training condition or baseline that will be used in analyzing the evaluation results. The findings from TNA can be analyzed as the factors that support or hinder the effectiveness of the training (Tannenbaum and Yukl 1992). Quantitative method such as questionnaire or qualitative method such as observation or focus group discussion (FGD) or combination can be used to do TNA.

Planning is made based on TNA in more detailed ways through the design of training. In this phase, training curriculum, method of learning, monitoring and evaluation method and needed materials are prepared. The selection criteria for participants and if needed, training of trainers (ToT) are decided (Tannenbaum and Yukl 1992; KIT 2006). The design of training reflects the KAS that are needed in applying the learning (Arthur et al. 2003). According to Salas and Cannon-Bowers (2001), there are several principles for deciding to use one method or various methods in training. The method(s) present the relevant KAS that need to be learned and how to perform it during training and apply it in work. Thus, the training method(s) are employed to provide feedback for participants during and after training.

Training implementation is the time to execute the planning that had previously been undertaken. And during the implementation, ***monitoring*** is conducted continuously by observation or using checklist. The checklist usually is used to measure the performance of participants during the training. Thus, the result of monitoring is used for feedback for the ongoing training as well as to inform the next training. Number of participants that drop out is also monitored.

Evaluation is performed after training is ended (KIT 2006). The purpose of evaluation is a way to measure the changes as the result of the training (Goldstein and Ford 2002 cited in Tan, Hall and Boyce 2003). Thus, evaluation is a way to measure accountability (Fenwick and Parsons 2000). From the donor's perspective, the cost for conducting training is quite expensive and therefore they demand for an evaluation.

In particular for the evaluation step, Kirkpatrick's training evaluation model is used in order to elaborate it. This four levels model has been established since 1976 and since then it has been used mostly to evaluate the outcome of training (Kirkpatrick 1976 cited in Bates 2004).

Level one, reaction, is used to assess the participants' reaction toward the training. Usually "smile sheets" or questionnaire or feedback forms or verbal reaction is used to obtain participants' opinion about the content of training (Haberstok 1997 cited in Pearl 2002; Kirkpatrick 1959 cited in Chapman 2007). Though it may not seem important, trainer or training organizer use mostly since the result can be used for quality control and as feedback for the next training (Hamblin 1974 cited in Stiernborg 1996;

Kirkpatrick 1994 cited in Matey 2002). Thus, when participants have positive attitude toward the training, it is more likely for them to transfer the learning (Kidder and Rouille 1997 cited in Pearl 2002).

The next level is learning. This level is used to evaluate the learned KAS from training (Hamblin 1974 cited in Stiernborg 1996). In measuring the learning changes, it is based on the training objectives (Kirkpatrick 1994 cited in Pearl 2002). Pre and post test is used to measure the change of participant's knowledge based on training objectives (Kirkpatrick 1994 cited in Matey 2002; Kirkpatrick 1994 cited in Pearl 2002). Interview or observation is used for measuring skill (Kirkpatrick 1959 cited in Chapman 2007). It can also be linked with evaluation of reaction. If participants like specific KAS during training, they may try to learn it more compare to other KAS and their measured KAS after training may better.

Even if the results of evaluation on reaction and learning are good, it is not definitely assured that the learning is occurred and that there will be transfer of learning in the work place. The evaluation of training can finish until this level if the objective of the training is to learn KAS. But, if training is used as a means, for example to improve HW's performance, the evaluation is continued to see the impact of the training (Kuchinke 1995 cited in Yamnill and McLean 2001).

Level three is behavior. It is employed to see the changes in the participants' behavior over time as the result of the training (Kirkpatrick 1994 cited in Matey 2002). To measure the behavior change and its sustainability, observation and/or interview directly with the participants or participants' supervisor or colleagues is carried out at different times. Self-reported assessment also can be used (Kirkpatrick 1959 cited in Chapman 2007). It is more difficult to measure the changes since many factors influence the transfer (Pearl 2002).

The last level is result or impact. It measures the impact of the training for the organization or the surrounding environment including the community. It is more difficult to measure it since many factors beyond the control of training and how to relate the impact to the training. Regular management information system and reporting is used to measure the impact (Kirkpatrick 1959 cited in Chapman 2007).

At the end of this introduction chapter, an overview of the background information about the place of study and preliminary literature review on BF including problem related to BF as well as training has been presented. The objectives and methodology will become the outline how the next two chapters to be developed.

CHAPTER 2: BREASTFEEDING PRACTICES AND FACTORS AFFECTING IT

This chapter aims to describe infant and young child feeding practices and what factors influence women to breastfeed in Aceh.

2.1. BREASTFEEDING PRACTICES

WHO recommends that BF should be started immediately after delivery and to be continued up to 6 months. After 6 months, infant needs complementary food in addition to BF that should be continued until the second year or beyond (WHO 2001).

2.1.1. EARLY INITIATION

Nutrition Surveillance System (NSS) survey has been done in 12 provinces excluding Aceh and covered 70% of Indonesia's rural population. It tried to oversee the BF and complementary feeding practices in Indonesia. They found that almost 40% of the mothers had started BF within the first two hours after delivery. Still, 14% of women in rural areas and 11-23% in urban areas had not started BF in the first day. Almost 20% of mothers reported that they did not give colostrums to their child (de Pee et al. 2002). Delaying early initiation of BF has consequence on the shorter duration of EBF or other problems such as sore nipples and mastitis (WHO 2000a).

In many developing countries including Indonesia, pre-lacteal feeding such as honey, water and animal milk are deep-rooted and practiced traditionally (Okolo, Adewunmi and Okonji 1999; WHO 2000a). In Aceh, based on my observation, there is no practice that mothers discard the colostrums. Mothers will breastfeed their child as soon as the baby is given to them. At the same time, they will also give honey to the newborn baby as a tradition (NAD PHO 2007a).

2.1.2. EXCLUSIVE BREASTFFEEDING

EBF per WHO definition is that infants receive only breastmilk. No other food or drink including water is allowed, except medicines, vitamin or mineral drops or syrup and Oral Rehydration Solution (ORS) (WHO 2007). Survey completed on September 2005 by UNICEF in 20 districts/ municipalities in Aceh and Nias (North Sumatera) showed that from 127 infants younger than six months old, 45% were exclusively BF at the time of survey. Further disaggregation found that the proportion of infants under 4 months that were exclusively BF is higher compared to infants age 4-6 months, 59% and 26.4% respectively (UNICEF and NAD PHO 2006). For the other 3 districts/municipality i.e. Banda Aceh, Aceh Besar and Simeuleu, the range of 6 months EBF is between 37% and 52% (CARE and CDC 2006).

However, in Aceh, PBF is the most common feeding that has been practiced. PBF means beside breastmilk, infants also receive liquids, but not animal milk (WHO 2007). Sixty two percent of infants have been given liquid feeding before the first month of life, based on a survey done in 2002 in 13 districts/municipalities (NAD PHO 2002). Based on my observation, the mother or grandmother usually gives plain water or flavored water such as tea, sugar and salty water. A bottle is used almost all the time for feeding the child or using a baby cup with a funnel.

Subsequently, the practice of early complementary feeding in addition to BF takes place. This practice is defined as partial breastfeeding (PartBF). Almost 30% of infants aged less than 6 months had received milk powder in the previous month (UNICEF and NAD PHO 2006). Other food commonly given to the infants is blended of banana and rice.

2.1.4. COMPLEMENTARY FEEDING AND CONTINUED BREASTFEEDING

After 6 months of age, breastmilk is no longer sufficient to meet infant's nutritional needs; therefore complementary foods should be added to the daily diet of the infant along with BF (WHO 2003a). In Aceh, the food given to infants, especially if they already have teeth is the same food as adults such as rice, vegetable and fish, only the consistency is softer. The reason to give the same food as adult is based on practical considerations. The frequency is also the same, 3 times a day, with additional snack such as biscuit or 'Chiki' which is salty and contain very small amount of calorie. Some mothers will also give commercial instant baby food and follow-up milk for a baby less than one year old.

In addition to complementary feeding, it is recommended to continue BF up to 2 years or beyond. Though after 6 months, breastmilk cannot fulfill the dietary needs of an infant, it still contributes up to 33% of child's nutrients requirement in the second year (WHO 2008b).

Around 60-80% of children aged 12-23 months still continue BF in 3 districts in Aceh (CARE and CDC 2006). According to NSS, the main reasons for weaning the children before two years of age was that the mother did not produce enough breastmilk or the child did not want it or the child became too big (de Pee et al. 2002). The same reasons also appeared in Aceh (NAD PHO 2002).

2.2. FACTORS AFFECTING BREASTFEEDING PRACTICES

There are many factors influencing mothers to breastfed her child. Huffman (1984) categorized the factors that influence the incidence and duration of BF in developing countries into 4 determinants.

2.2.1. SOCIO-CULTURAL

There is belief or perception of the mother or family members that breastmilk alone is not sufficient to make sure adequate growth of a baby (Davies-Adetugbo 1997a; WHO 2000a; Sachs, Dykes and Carter 2006). In fact, when baby is crying or demands for frequent feeds, it is interpreted as a consequence of not having enough milk. Meanwhile reliable signs (weight gain and urine concentration) (WHO and UNICEF 1993a) are not known by many mothers or others. Therefore, commonly in Aceh, they will give the baby extra food or liquid such as banana, tea, or formula milk beside the breastmilk. Or since the weather in Aceh is quite hot, it is thought that giving additional liquid such as water is needed. Study conducted by Sachdev et al. (1991) and supported by WHO (1997) concluded that even in summer times, water supplementation is not necessary for infants aged below 6 months old. In fact, giving water can reduce the breastmilk intake. On the contrary, other study found that no difference in breastmilk intake between EBF and PBF infants (Haisma et al. 2003).

Honey and salty water given to the newborn is considered as a representation of wisdom or symbolic. Giving honey means hopefully the children will have personality and behave as 'sweet' as honey. Salty water symbolizes not to be afraid of daily life. In relation to continue BF until 2 years, it is suggested in one verse in the Al Quran and since almost Acehnese are Muslim, they are following this verse.

Another barrier to achieve optimal BF is the lack of social support systems at the household and community level. To start or end BF or giving early weaning food, it is not only decided by the mother, it may be her mother or mother-in-law or husband that is the one who tells her to do so. Especially for inexperienced women such as teenage mothers or even adult mothers having their first child or never BF before and now want to breastfeed, they really need constant support from their family as well as community for establishing BF. If not, women can easily lose their confidence and it affects the BF process (Ineichen, Pierce and Lawrenson 1997; Semega-Janneh 1998; WHO 2000a; WHO 2003b).

When the mother feels worry or doubt whether she has enough milk or even slight stress in general, it can stop the oxytocin hormone from working well. Oxytocin makes the milk in the breast flow out, therefore it is called 'let-down reflex'. If the oxytocin reflex does not work well, the baby may have difficulty in getting the milk. It does not mean the breasts have stopped producing milk, only it is not flowing out. Oxyctocin reflex is easily affected by a mother's thoughts and emotions (WHO and UNICEF 1993a; Geddes 2007).

Another hormone that also works in producing breastmilk is prolactin. Prolactin will stimulate the alveoli in the breast to produce milk. Almost all women can produce more milk than their babies need, therefore it depends on the suckling, and the more often the baby suckles, the more milk will be produced (WHO and UNICEF 1993a). In order to be able to suckle, it is important for the baby to have correct positioning and attachment of the baby to the breast (Geddes 2007). Other factors that can decrease frequency of suckling are the early weaning feeding, practice of scheduled feedings, lack of night feedings and use of feeding bottles and pacifiers (Huffman 1984).

Another misconception that usually comes across in the community is if the mother is undernourished, she could not breastfeed her child or the child will not get sufficient milk due the mother's condition (Huffman 1984). In fact, maternal nutritional status has little effect on the volume or composition of breastmilk unless the malnutrition is severe (Allen 1994 cited in Black et al. 2008). Breastmilk from severe malnourished women may contain less fat and some vitamins than breastmilk produced by a well nourished mother, but other than that the quality is fine (WHO and UNICEF 1993a; Baumslag and Michels 1995).

The practice of giving early complementary feeding in Aceh, based on my observation, is mostly influenced and decided by grandmothers. When women want to deliver their child, they will go to their parents home or ask their mother or mother in law to come to accompany them whilst delivery and afterwards. Therefore, the influence of the grandmother in deciding what kind of feeding for the baby is really strong. The same situation was found in Malawi from a qualitative study. The grandmother especially from the paternal side is the one who gives the early infant feeding due to traditional reasons or due to their opinion that the baby is not having sufficient breastmilk from the mother. Likewise the grandmothers are also involved in the decision to stop BF (Kerr et al. 2008).

2.2.2. WORKING WOMEN

Another factor is if mother resumes work in the office or the rice field. Maternity leave for women working in the formal sector in Indonesia including Aceh is 3 months. As soon as the leave is ended, they immediately wean the baby and give artificial feeding as full or complementary feeding in addition to breastmilk. The purpose is for infants to adjust with the weaning food whenever mothers are ready to go back to work (WHO 2000a). The surrounding environment such as long hours for travel, no private room for nursing and issue of safety makes mothers afraid to bring the baby to work (Menon and Holla 2004). Thus, lack of knowledge and support on how to deal with BF for working

mothers also becomes the reason for giving early weaning food (Thompson and Bell 1997).

The same situation also happens for mothers who work as a farmer since especially in rural areas, for poor people and female-headed households, agriculture becomes the main occupation for households (World Bank 2008c). The siblings or grandmothers are the one who take care for the babies and responsible as well for the feeding.

2.2.3. HEALTH CARE SERVICES

Health care services also contribute to the low of BF practices by failing to encourage mothers to breastfeed and/or introducing practices that might interfering BF (Labbok 2006). During pre-service training, HWs were not taught about BF management including counseling skills. Textbooks used rarely discuss issues about BF which contributes to the widespread lack of knowledge and skills of HWs (WHO 2000a). Courant et al. (1993) cited in WHO (2000a) found that only 4 out of 180 textbooks used at medical schools in more than 90 countries have sufficient information about BF.

Lack of knowledge and clinical skills can make the HWs give inappropriate information and advice about practices that have a negative influence for optimal BF (WHO 2000a). Not until 2006 was BF training conducted in Aceh. Also, in trainings such as Basic Delivery Care or IMCI, HWs were also taught about early initiation, exclusive and continued BF.

This has consequence as shown from the results of NSS in Indonesia. Out of 78% of mothers in urban who delivered at health facilities such as midwife's house, maternity clinic or hospital, 26% received a free sample, 29% purchased a sample and 7% received information about formula milk. These practices also found in rural areas (de Pee et al. 2002). From my observation, the same situation is happening in Aceh. Various HWs ask the mother to buy formula milk or even sell it directly.

Another important factor is the attitude of HW which influences the mother's feelings toward BF and affects the feeding practice. One example is by expressing their hesitation about the supply of mother's breastmilk which could reduce the confidence of mother to breastfeed. Another attitude often displayed by HW is to criticize what the mother had intended to do or has already done in regards to her child feeding (WHO 1998).

In regard to Baby Friendly Hospital Initiative (BFHI), it was launched in 1991 by UNICEF and WHO to ensure that the maternity facility, whether free standing or in hospital, becomes a center of BF support (WHO 2008c). From 38 hospitals in Aceh per 2006 (NAD PHO 2007a), none of them are certified as BFHI. In fact, the biggest hospital in Aceh does not

practice rooming in and also asks the family to give formula milk to the baby.

Lack of knowledge related to the effect of medication and BF can also become a reason why HWs suggest to mothers to stop BF. Indeed, there are some medicines taken by mother which may have side effects to the breastmilk. If the mother is under medication such as anticancer and psychiatric drugs or anticonvulsants, it is necessary to stop BF since it will affect the baby. For antibiotics, most are safe, but better to avoid choramphenicol, tetracycline and metronidazole. However, if one of these antibiotics is needed, BF could still be continued whilst keeping observing the baby, since in most cases it is safe. The use of contraceptive methods which contain estrogens and diuretics such as chlorthiazide may reduce the breastmilk supply. Other than that, other contraceptive methods and commonly used medicines in the usual dosage are safe for BF (WHO and UNICEF 1993a; WHO and UNICEF 2003).

For HIV/AIDS endemic places, breastfeeding is not recommended (WHO, UNICEF and UNAIDS 2000). But since the HIV/AIDS prevalence in Aceh is very low, 0.56/100,000 population (MoH 2008 cited in Spiritia 2008), the HIV/AIDS determinant will not be discussed.

Another barrier specifically for Aceh based on my observation is inconsistency of information related to EBF. In 2004, the Ministry of Health (MoH) adopted the new WHO recommendation (MoH 2004) but unfortunately this policy is not disseminated until the low level. Some of the HWs still suggest mothers to have EBF until 4 months. This inconsistency in the recommendation makes confusion for mother and community.

2.2.4. AVAILABILITY OF BREASTMILK SUBSTITUTES

The high availability of breastmilk substitute is really associated with the aggressive marketing and promotion of the products. The infant formula companies spend a lot of money for promoting their products in various ways. Studies done in Bangladesh, South Africa and Thailand showed that information received from the companies is perceived by mothers as promotion of formula feeding and discouraging BF (Taylor 1998 cited in WHO 2000a).

In 1981, WHO and UNICEF commenced the International Code of Marketing of Breastmilk Substitutes as an international standard. Each nation is free to adapt within their national and legal frameworks (Baumslag and Michels 1995). The code is aimed intently to correct unnecessary use of breastmilk substitutes, inadequate information and inappropriate marketing and distribution. Breastmilk substitutes mean any product represented as suitable for feeding infants below 6 months

and any milk targeted for babies or toddlers. It covers infant formula, follow-up milks, commercially processed baby foods and packaged baby cereals, bottles and teats (Armstrong and Sokol 2001).

Unfortunately more than 25 years after the code was established, not all countries have taken full action and the violations against the Code still existed. Out of 193 countries, only 32 countries have implemented most of the Code using a comprehensive law. Indonesia has implemented much of the Code but not as a law (IBFAN 2006). Still, NSS results showed that the violations of the Code especially from HW keep on happening although some of the big companies such as Nestle, Wyeth, and Heinz claim to comply with the Code (de Pee et al. 2002; IBFAN 2004). In Aceh, I have met the representative of the formula milk company that was offering their product during a growth monitoring program in the community with a lower price. Also some of the formula milk products still put a picture of healthy baby in their product.

At the end of this chapter, it illustrated the BF practices in Aceh. The factors associated with the practices including the socio-cultural and health care system also have been explained.

CHAPTER 3: BREASTFEEDING TRAINING IN ACEH

This chapter analyzes BF trainings that have been conducted in Aceh.

Below is the sequence of BF trainings conducted in Aceh by CARE. For HW, there were two levels of training i.e. Training of Trainer (ToT) and counselor training. ToT was conducted on May 2006. The following week, the counselor training was carried out. The second training was conducted on June 2007.

For CHW training, ToT was conducted on July 2007. Then, the CHWs within CARE working areas were trained from July until August 2007 and January until April 2008.

Table 1 summarizes these trainings based on the theoretical framework and the analysis of each step is followed.

Table 1: Summary of BF Training in Aceh

Training	TNA	Planning			Implementation and Monitoring	Evaluation			
		Curriculum	Selection criteria of			Reaction	Learning	Behavior	Impact
			Trainer	Participant					
HW ToT	Not conducted	40 hours WHO/UNICEF Teaching method: combined Monitoring: checklist, daily meeting	Have followed ToT	HW with supervisory level, CARE staff, commit to follow and apply the training	- Facilitating skill checklist, 2 trainees low performed - Daily meeting, 2 trainees not met criteria	Verbal comment: some said it was challenging stick to the module, counseling skill was new and need more time for practice	Not measured (NM)	Observation: 5 trainees gave training for 1 time, 2 trainees gave training for 3 times	NM
HW Counselor 1st batch	Not conducted	40 hours WHO/UNICEF Teaching method, monitoring: same as above	Same as above	HW working in maternal and child health care, CARE staff, commit to follow and apply the training	- Skill checklist - Daily meeting, 2 participants dropped out (DO)	Verbal comment: liked BF knowledge and skill, counseling skill was considered difficult to practice	NM	Self reported: not all transferred the learning, challenges: lack IEC, work longer, lack support from colleagues and supervisor, clients not change behavior, aggressive formula milk promotion	NM
HW Counselor 2nd batch	Not conducted	40 hours WHO/UNICEF Teaching method, monitoring: same as above	Same as above	Women, have commitment to follow and apply the training	- Skill checklist - Daily meeting, no DO	Verbal comment: liked BF and counseling knowledge and skill, counseling skill difficult to practice	Pre and post test: knowledge increased	Self reported: practiced early initiation	NM
CHW ToT	Identified trained HWs	Adapted 40 hours Teaching method, monitoring: same as above	Same as above	Trained HW within CARE areas, commit to follow and apply the training	- Facilitating skill checklist - Daily meeting, 1 DO	Verbal comment: overall good, nervous for learning transfer	NM	Observation: all applied	NM
CHW Counselor	Not conducted	Adapted 40 hours Teaching method, monitoring: same as above	Trained HW	CHW within CARE areas, commit to follow and apply the training	- Expectation list: able to understand the training, increase of knowledge, apply the learning - Fear list: not understand and apply the training - Skill checklist - Daily meeting, 5 DO, number of pairs of mother-infant reduced	- Evaluation sheet: almost all understood - Verbal comment: obtained knowledge, motivated to apply, difficult to apply counseling, non married participants felt shy to apply	Pre and post test: increase of knowledge	Self reported: disseminated to pregnant and lactating women	NM

3.1. TNA

No TNA was conducted for HW training since training was initiated by author after following the same training. No local trainer existed according to PHO. No complete TNA was carried out as well for CHW training. The consideration to train CHW was based on discussion between CARE and course director. Training for HW was not adequate to reach out to mothers since they were limited in number and time to interact with mothers. To train CHW, trained HWs were identified to participate in ToT in addition to trained CARE staffs. The justification was CHWs and trained HWs could easily link up in terms of support and referral system due to working in the same geographical areas.

3.2. PLANNING

In this subsection, curriculum design including content, teaching method, monitoring and evaluation method was analyzed as well as the selection criteria for trainers and participants.

3.2.1. CURRICULUM DESIGN

The 40 hours WHO/UNICEF BF Counseling curriculum was used for HW trainings (Annex 2). Meanwhile, curriculum for CHW training was adapted by SELASI (Sentra Laktasi Indonesia/Indonesia BF Center) from the 40 hours training. This adjustment curriculum had been used to train CHWs in other province in Indonesia. Unfortunately the result of the training was not accessible. The low of educational level of CHWs and the limited time to follow the training was taken into consideration. The adjustments were by excluding sessions related to medical knowledge and skills and also using more pictures in combination to simple language. Other adjustments were merging several sessions that relate to each other. With these adjustments, the duration of training became shorter (Annex 3 and 4).

The **content** of both curriculums had covered all BF determinants except the KAS for recognizing the influential person in deciding the infant feeding. This is crucial since most of the time, other family members such as grandmother or husband was the one who decided the type of feeding. If only mother was counseled, the result might not effective.

Particularly for ToT, facilitating skill including giving constructive feedback was put in emphasized. This feedback skill was important in improvement of trainees' facilitating skill.

Combination of **teaching methods** was employed including lectures, case studies, role playing and hands-on practice in maternity ward and in community. This mix method was important in giving participants the

experience in managing different BF circumstances based on practice instead of only theory.

Both curriculums have the same **monitoring and evaluation methods**. Checklist skills were used to monitor the performance of participants and based on the checklist, feedback was given. Also by holding a daily meeting, training was monitored regularly and adjustments were made as necessary. Added to these, a list of expectations and fears was designed for CHW training. Using the lists, trainers tried to facilitate the hopes and elicit the fears during the training.

Pre and post test survey was developed to measure participants' knowledge. For HW training, 16 multiple choice questions were developed comprising of 11 questions related to BF knowledge and 5 questions in regard to knowledge of counseling skill (Annex 5). For CHW, 10 multiple choice questions, 7 related to BF and 3 for counseling skill (Annex 6).

Prior to training, training invitations for HW were sent in person and as for CHW, socialization to CHW as well as District Health Offices (DHO) and head of PHCs was conducted. By using these approached, details of the training were explained and the invited institution or participant could ask questions or seek clarification related to the training.

3.2.2. SELECTION CRITERIA OF TRAINER AND PARTICIPANT

For trainer of both ToTs, there was no other certain criteria for trainer other than they have participated in previous ToT. During HWs training, the course director who was also one of the trainers had extensive expertise and experience. This made the other trainers tend to have low confidence in facilitating the training by comparison with the experienced trainer.

One requirement for participants of HW ToT was that the HWs should be in a higher position or at supervisory level. The rationale was that they had more knowledge about BF so during ToT, they would be trained more on facilitating skills. Thus, they also have more control and influence to implement the training at their workplace.

In the first HW counselor training, only HWs working in maternal and child health care were required to participate. The reason was they could assist mothers for BF during their service delivery. For the second counselor training, the criteria were modified to all women and not only include HWs. Two persons from religious organization were also asked to participate. Based on discussions between CARE and the course director, it was noticed the importance of involving religious group in the training as part of the effort in promoting BF since their influence is vital in every aspect of life.

Reason for the involvement of CARE staff, as they are originally from Aceh, when CARE ends its activities, they will remain and can transfer the learning.

Other criteria for all participants were to have commitment to follow the training and apply the learning. These two criteria were aimed to reduce the drop out and ensure the learning transfer.

3.3. IMPLEMENTATION AND MONITORING

ToT for HW was followed by 9 trainees. Although the criteria for ToT's participants were set up and explained, some participants did not adhere to the criteria. As a result, the 2 trainees that did not meet the criteria, could not perform well. As for CHW ToT, there were 15 participants came on the first day, unfortunately, 1 participant has to quit on day one.

For the first HW counselor training, from 23 participants, two were dropped out. Three male participants could not apply the skill of assessing and observing BF due to religious and cultural reasons. The second counselor training was followed by 20 participants for the full training. No significant problem occurred during this training.

CHW trainings were conducted in 2007 for 60 CHWs but 5 were dropped out. Then, in 2008, trainings for 51 CHWs were carried out. All the trainings were conducted within 12 days with one day break in weeks between. Before the training was started, participants were asked about their expectations and fears. These hope and fear lists were used for trainers in facilitating the training. Two trainers supervised during the first week of the first phase. Unfortunately, the result of the supervision was not documented. The number of mothers-infants for clinical practice was two for each participant in the second phase based on demand from participants.

3.4. EVALUATION

3.4.1. EVALUATION OF REACTION

Actually a questionnaire to the evaluate reaction of participants was attached in the module (Annex 7), but it was not used. But comments from participants on training and the possibility to transfer the learned KAS were sought.

For HW ToT, it was quite challenging for some trainees to stick to the module since they preferred to do improvisation while facilitating. For CHW ToT, their response toward training was good. Thus, for transfer the

KAS, the participants expressed anxiety about CHWs' reaction toward the training.

All participants from HW counselor trainings were pleased about the training as they got new knowledge and skills about BF and counseling. For CHW trainings, from the evaluation sheet, most of them said that training was understandable. Participants felt that they got precious knowledge and were motivated to practice the learning.

For counseling skill, it was a new skill for HWs and CHWs and they need more time and opportunity to practice. Some said that it would be difficult to practice since they were not used to it. HWs considered practicing counseling skills was quite challenging since it required longer time. Unmarried CHWs felt shy to do the BF counseling. These challenges could hinder the learning transfer.

3.4.2. EVALUATION OF LEARNING

No learning evaluation was conducted to assess the KAS improvement after both ToTs and also for the first HW training. For the second HW training, the pre and post tests were carried out. The result showed an increase in participants' knowledge, from 43.4 to 61.1. Likewise for CHW training, the result for all groups was increased, from the average of 22 to 59 for pre test and for post test, 48 to 100. Unfortunately it was not possible to do further analysis which knowledge had improved since the hard copy of the result could not be accessed. Also no documentation by the end of training was done for the skill.

3.4.3. EVALUATION OF BEHAVIOR

From 7 well performed trainees during HW ToT, only 2 applied their learning in another time. For CHW ToT, all participants applied their learning. In fact as the result of the requirement for participants of HW ToT, 2 of CHW ToT participants were staff of one of the HW ToT trainees, which mean that the support was given from health supervisor to her staff.

To assess the learning transfer, self reported assessment was used by conducting a meeting once in every 3 months. Three meetings were conducted with good participation rates during two meetings, 80%. One meeting had lower participation rate, 63%, due to couples of reasons such as out of town and could not be contacted.

Not all trained HW had transferred their acquired learning. Some had counseled their clients but not always successfully. The challenges such as limited time and lack of support from other colleagues made them hesitate to apply the learning. They felt that promotion of the formula

milk company was too powerful not only to mothers but also to their working colleagues. Lack of work support such as IEC materials was also identified and CARE decided to provide this. After the second HW training, one PHC reported practice of early initiation using breast crawl method and documented it. To give appreciation, they were given certificate in the World BF Week ceremony.

For CHW ToT, based on CHWs' training report, all trainers applied their learning. As for CHW training, from the report given to CARE, CHWs disseminated the information to pregnant and lactating women through the maternal health activity.

3.4.4. EVALUATION OF IMPACT

No impact evaluation conducted yet after the HW and CHW trainings.

This chapter has presented the BF trainings conducted in Aceh starting from the need assessment until how the trainings evaluated.

CHAPTER 4: ANALYSIS OF TRAINING IN OTHER COUNTRIES AND DISCUSSION

This chapter aims to analyze BF training done in Aceh and in other countries using the theoretical framework.

4.1. EXAMPLES FROM OTHER COUNTRIES

All studies from the latest Cochrane review by Britton et al. (2007) that evaluate the support for BF mothers including BF training were searched. From 34 studies included in this review, 13 studies were found related to BF training. The other 8 studies found did not mention or have information on BF training as the form of support and 13 studies were not found or could not be accessed.

Thus, from 42 studies excluded in this review, one study is reviewed in this thesis. Although this study did not measure the impact of training on BF practices, it did evaluate the KAS of participants undertaking training, therefore this study has been included in this thesis. One qualitative study in Uganda is also reviewed.

Total 15 studies from 13 countries were reviewed using the training framework and Table 2 summarizes the review presented in publication year's order. The detailed review for each study can be found in Annex 8.

Several abbreviations and symbols are used within the summarize table. NS means it was not specified in the published study, I is intervention, C is control, mos is months, and when symbol * is showed, it means the result was statistically significant.

Table 2: Summary of BF Training in Other Countries

Study place, author, publication year	Type of study	TNA	Planning		Evaluation				Remarks
			Curriculum design	Selection criteria of trainer and participant	Reaction	Learning	Behavior	Impact	
Bangladesh1, Haider et al. 1996	Randomized controlled trial	Not conducted	40 hours WHO/UNICEF BF Counseling, diarrheal management Teaching methods, monitoring: NS	NS	NS	NS	NS	24 hours recall: - EBF at discharge, 60% I, 6% C* - PBF at discharge, 30% I, 19% C* - EBF 2 weeks after discharge, 75% I, 8% C* PartBF 2 weeks after discharge, 12% I, 49% C*	Different definition for EBF and PBF
Nigeria, Davies-Adetugbo et al. 1997b	Randomized controlled trial	Not conducted	18 hours UNICEF BFHI, added counseling skill from 40 hours Teaching methods, monitoring: NS	NS	NS	NS	NS	24 hours recall: - EBF at day 7, 49% I, 6% C* - EBF at day 21, 46% I, 8% C*	Baseline: BF rate, I = C
Bangladesh2, Haider 1998	Cluster randomized controlled trial	Several studies: EBF practice and its determinants	Adapted 40 hours WHO/UNICEF Teaching method: combined Monitoring: daily review	Participant specified: women, personal BF experience, commit to assist other women, lived within the I	FGD: all PCs liked	NS	Observation: most of PCs were performed well, 4 PCs not performed well, cut off score not mentioned	24 hours recall and observation: - Early initiation, 64% I, 15% C* - Pre-lacteal feeding, 89% I, 31% C* - EBF at 1 until 5 mos, I 3-10 times higher than C* FGDs mothers: knew importance of EBF and practiced it	PCs were paid
Mexico, Morrow et al. 1999	Cluster randomized controlled trial	Rapid ethnography: determinants of EBF	La Leche League Teaching method: combined Monitoring: NS	Participant specified: women, high school, have commitment to BF	NS	NS	Interview mothers: PCs helpful	One week recall: - EBF at 2 weeks, 80% (I with 6 visits), 62% (I with 3 visits), 24% (C)* - EBF at 3 mos, 67% (I with 6 visits), 50% (I with 3 visits), 12% (C)*	Rapid ethnography: developed key messages, visual aids to be used by PCs
Iran, Froozani et al. 1999	Quasi experimental	Not conducted	40 hours WHO/UNICEF Teaching methods, monitoring: NS	NS	NS	NS	NS	Interview mothers, tool not mentioned: - EBF at 3 mos, 71% I, 20% C* - EBF mean duration, 3 mos I, 1 mo C*	Excluded working mothers

Study place, author, publication year	Type of study	TNA	Planning		Evaluation				Remarks
			Curriculum design	Selection criteria of trainer and participant	Reaction	Learning	Behavior	Impact	
Brazil1, Rea et al. 1999	Randomized controlled trial	Not conducted	40 hours WHO/UNICEF Teaching method: combined Monitoring: participatory observation	Trainer specified: have experience in BF training Participant specified: work in maternal and child care	FGD trainers and participants: result not mentioned	Pre and post test: I has better knowledge than C Observation of skill and attitude: I more than C 3 mos after training: KAS of I better before training	NS	NS	
UK, Morrel et al. 2000	Randomized controlled trial	Not conducted	8 weeks on child care, midwives involved in designed Teaching methods, monitoring: NS	NS	NS	NS	Mothers filled in questionnaire: almost all mothers received 6 visits, 15% received 10 visits 3% discussed BF	Mothers filled in questionnaire, tool not mentioned: EBF, 12.7% I, 12% C I more costly	
Belarus, Kramer et al. 2001	Multi-site cluster randomized trial	Not conducted	18 hours UNICEF BFHI Teaching methods, monitoring: NS	NS	NS	NS	NS	24 hours recall: - EBF at 3 mos, 43% I, 6% C* - EBF at 6 mos age, 7.9% I, 0.6% C* - PBF at 3 mos, 28.3% I, 51.9% C* - PBF at 6 mos, 1.6% I VS 10.6% C*	High BF rates due to high price of formula and BF fear reduction due to Chernobyl
Canada, Dennis 2002a	Randomized controlled trial	Not conducted	2.5 hours orientation plus handbook Teaching method: lecture, role play Monitoring: NS	Participant specified: women, BF experience 6 months, positive BF attitude	Interview: almost all liked	NS	Log by PCs: 59% mothers contacted	24 hours recall: - EBF at 1 mo, 92% I, 84% C* - EBF at 3 mos, 81% I, 67% C* Interview mothers: 65%, said PCs helped	
India, Bhandari et al. 2003	Cluster randomized controlled trial	Conducted: formative research, BF determinants, HWs' work	IMCI on BF counseling Teaching method: combined Monitoring: NS	Not specified	NS	NS	Interview mothers: trained HWs counseled EBF	24 hours recall: at 3 mos: - EBF, 79% I, 48% C* - PBF, 6% I, 27% C* - EBF duration, 122 days I, 41 days C*	Training combined with other interventions

Study place, author, publication year	Type of study	TNA	Planning		Evaluation				Remarks
			Curriculum design	Selection criteria of trainer and participant	Reaction	Learning	Behavior	Impact	
Brazil2, Albernaz et al. 2003	Randomized controlled trial	Not conducted	40 hours WHO/UNICEF Teaching methods, monitoring: NS	Not specified	NS	NS	NS	24 hours recall: at 4 mos - EBF, 40% I, 31% C - PBF, 12% I & C - Any BF, 84% I, 71% C* Deuterium dilution: I less non-breastmilk fluid	
USA, Chapman et al. 2004	Randomized controlled trial	Not conducted	30 hours combination of La Leche League and local program, Teaching methods, monitoring: NS	Participant specified: women, BF experience for 6 months	NS	Written examination, experienced PCs reviewed competency, was not mentioned the result	Self-reported: all mothers received one visit	Interviewed mothers, not mentioned the tool: - Not initiating BF, 9% I, 23% C* - Stop BF at 3 mos, 56% I, 71% C*	PCs were paid PCs Latina women were not felt comfortable to breastfeed
Italy, Di Napoli et al. 2004	Randomized controlled trial	Not conducted	18 hours UNICEF BFHI Teaching methods, monitoring: NS	NS	NS	NS	NS	24 hours recall: the risk for not EBF, I lower to C, Hazard Ratio= 0.71	Baseline data: >70% of mothers I and C poor knowledge of BF techniques
Netherlands, Kools et al. 2005	Cluster randomized controlled trial	Study: BF determinants	6.5 hours training Teaching method: combined excluded hand-on practice 2 times of 2 hours refreshing sessions Monitoring: not specified (NS)	NS	Questionnaire: 80% good response	NS (only done pre test)	Mothers filled in questionnaire: No significant satisfaction on advice, I received less contrary advice than C Trained caregivers filled in questionnaire: >90% motivated, 44% made work longer	Mothers filled in questionnaire: EBF at 3 mos for 27% I, 32% C	Study result was used to develop key messages and common BF questions and answers to be used by caregivers
Uganda, Nankunda et al. 2006	Descriptive study	Not conducted	18 hours La Leche League Teaching method: combined Monitoring: expectation list, daily meeting	Participant specified: women, 24-35 years, have breastfed a child under five	FGD: all PCs liked the content of training	FGD: improvement of knowledge Observation during supervisory visit: PCs did not deliver relevant information	Self-reported assessment through monthly meeting: PCs able to identified common BF problems and solve it FGDs husband of counseled women: PCs were helpful	FGDs mothers: one mother reported PC helped sore nipples	

The discussion starts with TNA and planning analysis. After implementation and monitoring, evaluation is analyzed in order to assess the impact of the training.

4.2. TNA

Only one study in India did a complete TNA which included an analysis of organizational, task and personal. Since TNA is used to distinguish the difference between the perceived needs and the true needs for training (Nowack 1991), involvement of different stakeholders is extremely important. Also the perceived training needs differ for different levels of staff or institution or donor or by community. When training is initiated by institutions based on public health concerns like most of the reviewed trainings and also for Aceh's trainings, while the community themselves do not perceive the low BF practices as a problem, it affects the transfer of learning.

4.2.1. ORGANIZATIONAL ANALYSIS

The community is included as part of the organizational analysis since BF is influenced not only by the health care system, but also by socio cultural factors. Training for HW and peer counselor (PC) in almost all studies including in Aceh was conducted based on national or local data on BF practices or inspired by other studies. Only four studies i.e. Netherlands, Mexico, India and Bangladesh2 done TNA in terms of baseline data and assessed BF determinants for their settings. By carrying out TNA such as formative research, beliefs from culture or religion within community and other determinants that affect BF practices including the influential person in decision of BF are identified and to be covered in the training (WHO 2003b).

4.2.2. TASK ANALYSIS

Study in India did task analysis by observing the routine work of future trainees so they could do BF counseling without adding to their work burden. In contrast, the study in Netherlands and Aceh showed the work time of trained HW became longer by applying the learning. In relation to the strong role of HWs in promoting formula milk instead of BF, this could be due to low of HWs' BF knowledge. This also could be analyzed through task analysis.

4.2.3. PERSONAL ANALYSIS

Seven studies trained HWs and 8 studies were focused on PC but none of them except the study in India undertook personal analysis. The study from India analyzed which HW needed to be trained. Training in Aceh was targeting two different groups, HWs and CHWs. In relation to the need to

PC's training, according to WHO (2000b), this is due inadequate support given by HWs. HWs have limited time and numbers to provide continuous support to mothers. Thus, mothers do not come to HWs for BF problems; instead they come for usual health problems like immunization or sick children. By conducting personal analysis, the right person that needs to be trained is identified and makes easier in prioritizing when resources is limited.

4.3. PLANNING

4.3.1. CURRICULUM DESIGN

According to Prideaux (2003), there are 4 elements on which a curriculum is based i.e. content, teaching method, monitoring and evaluation method. When all of these elements are well determined based on TNA, it helps to implement the training as well as providing for an efficient evaluation (Serban 2001). Only study in India designed its training based on training objectives that were developed based on TNA.

Most of reviewed studies were using the standardized BF curriculum made by WHO and UNICEF or from international organization focused in supporting BF like La Leche League. These standardized curriculums had been designed to cover universal issues related to BF. Few studies were developing their own curriculum such as Netherlands and Canada. They also included common BF problems and myths such as mastitis and insufficient milk in their training.

Although **the content** of standardized curriculum was used, they should be modified based on local BF determinants. For example, the training in Bangladesh2 (Annex 9) and in Aceh adapted the 40 hours WHO/UNICEF BF counseling training. In Aceh, the session for low birth weight and sick babies was not taught, based on consideration that BF for low birth weight and sick babies will require a medical competency. Likewise, PCs' training in USA use the La Leche League curriculum which is modified based on their local BF program.

In relation to counseling, although counseling in BF is relatively newly recommended, it is realized the importance of this skill to support lactation management (Bueno and Teruya 2004). In fact, study in Nigeria and Netherlands also added counseling skill in their training curriculum (Davies-Adetugbo et al. 1997b; Kools et al. 2005). Counseling is used to overcome the perception that mother's breastmilk is not sufficient for the baby (Davies-Adetugbo et al. 1997b). This skill is also useful to change the common attitude of HW such as criticizing or blaming mothers regarding the BF practices (Bueno and Teruya 2004). These common perceptions and attitudes could reduce the confidence of mothers and

make them worry. Hence it can influence the BF process in relation to oxytocin and prolactin hormone (WHO and UNICEF 1993a).

A combination of **teaching methods** was employed by most of the studies including in Aceh. Most of the reviewed trainings included role play or clinical practice with the purpose that participants can apply the theory from lectures to the real cases. This could be explained by theory of reflective practice by Donald Schön. When trained HW or PC encounter BF problem, they can reflect on their past experience during training and use that experience or modify it (Kaufman 2003). This is also relevant to feedback session in ToT.

Only 3 studies (Uganda, Brazil1 and Bangladesh2) specified their **monitoring and evaluation method**. By determining the monitoring and evaluation method in planning process, it guided training implementation and evaluation.

According to Alderfer et al. (1991) cited in Tannenbaum and Yukl (1992) informing participants about the training including content, method and schedule prior to the training motivates participants to follow the training. By conducting or sending the invitation with detailed information like what was done in Aceh, participants could get the training's overview and may make some preparations related to their work or for the training. It also gives the opportunity for an invited institution to choose the right staff to be sent to the training.

4.3.2. SELECTION CRITERIA OF TRAINERS AND PARTICIPANTS

Setting criteria for the trainer as well as for participants can reduce the possibility of participants dropping out, ensure the quality of training and increase the chance of learning transfer.

According to Serban (2001), one of the significant factors influencing the quality of training is the quality of trainer. Only one study in Brazil1 specified their criteria for the trainer. Having one or two trainers that have advanced experience or a famous person like the course director for HW trainings in Aceh have its own advantage. It attracted and motivated trainees to participate for the training. Hence, with her knowledge and experience, trainees can learn more. It also had disadvantages for other trainers with less experience. They tend to have low confidence and always tried to look for help from the experienced trainer(s).

For HW training, only the study in Brazil1 specified the criteria for participants similar to Aceh's. If participants do not adhere to the criteria like happened in HW ToT in Aceh, it could hinder the training implementation.

For PC training, most of the reviewed training like Bangladesh2, Mexico, USA and Uganda had set up criteria such as having personal BF experience and having commitment to help other mothers. This is related with the definition of PC itself which is a person with equal circumstance giving support to another person (Dennis 2003). The equal circumstance in this situation means women who have personal BF experience or have the same socio economic background with the mothers that they counseled (WHO 2003b). Since these women have more experience in BF and a positive attitude toward BF, they can assist mothers by using their own experience or having more confidence in supporting mothers.

4.4. IMPLEMENTATION AND MONITORING

Implementation and monitoring of training depends on how well TNA and planning was done. It also relates to training evaluation since trainees' performance is monitored throughout the training like what happened in Bangladesh2. In PC training in Uganda and Aceh, participants were asked about their expectation for the training in the beginning. By monitoring the list, trainer can identify whether participants' expectation has been covered during training and also gives opportunity for the trainer to make some adjustment if needed (Serban 2001). The same thing goes for asking for participants' fears before the training.

4.5. EVALUATION

4.5.1. EVALUATION OF REACTION

Only a few of reviewed trainings which are Uganda, Netherlands, Canada, Bangladesh2 and also Aceh conducted evaluation of reaction. According to Kraiger et al. (1993) cited in Tan, Hall and Boyce (2003), participant's reaction can be used to predict the acquired learning transfer. If participants liked the training, it tends to motivate participants to transfer the learning. Like what happened in Uganda, PCs were motivated to transfer the learning since they were happy with the training (Nankunda et al. 2006). Unfortunately, according to Pearl (2002) although the result of this evaluation is good, it cannot predict that the acquired learning will be transferred.

4.5.2. EVALUATION OF LEARNING

Likewise the good result of reaction evaluation, the good result of learning evaluation cannot guarantee the transfer of learning. For example what happened in Bangladesh2 study, the 4 PCs that had low performance during the training could still create better impact (Haider 1998).

To know whether the result of reaction and learning evaluation is not just "excitement" phenomenon since it is measured right after the training

(Mathews et al. 2001 cited in Pearl 2002), these two evaluations can be re-measured after participants resume to their work. Thus, by measuring the KAS right after training and 3 or 6 months after the training, the retention of the learning can be seen as the effect of the training (Nowack 1991). Finding from the study in Brazil1 could become an example. They re-measured the KAS of participants 3 months after training. The result showed that their KAS although it was lower compare to their KAS right after training, still it was better compare to prior training (Rea et al. 1999).

4.5.3. EVALUATION OF BEHAVIOR

According to Kozlowski and Salas (1997) cited in Yamnill and McLean (2001), training is less value if the learning from the training is not transferred. Eight reviewed studies did behavior evaluation. To be able to transfer the acquired learning, there are several factors that influence the transfer. Holton (1996) cited in Yamnill and McLean (2001) pointed out 3 factors that can support or hinder the transfer i.e. motivation to transfer, training transfer design and transfer environment.

Motivation to transfer can derive from one's own personal motivation. For example one of the criteria to become PC in the studies from Bangladesh2 and Mexico is having commitment to help other mothers. In the other hand, if trainees got reward when transferring the learning, it can motivate them to continue to do so. Like PC in Bangladesh2 and USA, since they were paid, they were obliged to assist other mothers (Haider 1998; Chapman et al. 2004). Other motivation is if participants perceived the training as chance to get new KAS that needed for his/her job, the chance for transfer is greater (Porter and Lawler 1968 cited in Yamnill and McLean 2001). Trainees from Uganda and Netherlands confirmed this statement (Kools et al. 2005; Nankunda et al. 2006). There is also different kind of reward such as respect from other colleagues or praise from a supervisor *(*Yamnill and McLean 2001*).* For example, according to some of PCs in Bangladesh2 and Canada, they were more respected by the community as they are seen as knowledgeable person (Haider 1998; Dennis 2002a). Or by giving formal appreciation such as certificate for applying the learning like in Aceh.

Training transfer design factor means if training is not designed to support learning transfer, it may hinder the transfer. The learning may occur, but since the participant is not trained how to implement the learning in their work, they cannot implement the learning. The design training that supports the transfer is identified through TNA in particular the task analysis (Holton 1996 cited in Yamnill and McLean 2001) and also related to the teaching method*.* The more specific about how learning from the training should be implemented in their work, the greater possibility for transfer (Clark and Voogel 1985 cited in Yamnill and McLean

2001). For example, by developing standardized messages that should be conveyed by trained participants in Mexico and Bangladesh2 made it easier to do their work (Haider 1998; Morrow et al. 1999).

For **transfer environment**, it covers from acknowledgment from other colleagues, interaction with supervisor, and no reward or punishment mechanism for adopting the training. Within the organization, support from other colleagues or supervisor that gives the opportunity for participants to implement the training is required. Therefore, it is important to train the supervisor before the staff, for instance the proposed participants for ToT in Aceh were the head of PHCs or hospital staff with higher job structure. Or by sensitizing the supervisor about the training, he or she may assign trainees with new job based on the acquired KAS (Rouiller and Goldstein 1993). Other work factors that may support or delay the transfer is supporting equipment such as lack of BF IEC materials in Aceh.

On the other hand, if trainees get no support or negative reactions from other colleagues or their supervisor then they may not apply the learning (Rouiller and Goldstein 1993). This situation was experienced by participants from a hospital in Aceh. In particular for HW, they have to work more and this can be seen as a burden for them and can de-motivate them to transfer the learning. Finding from Netherlands supported this statement since trained HWs tried to apply the learning, it made their work longer (Kools et al. 2005).

By giving reward or punishment, it can also maintain the acquired learning (Rouiller and Goldstein 1993). Training also can be seen as reward mechanism for staff. Unfortunately, for most of public staff or civil servant in Indonesia, this mechanism is not applied.

The opportunity to apply the learning also has essential influence (Kirkpatrick 1994 cited in Pearl 2002) especially for trainees from ToT. Their competency is worthless if they do not have chance to apply their leaning by training other people.

Measuring this behavior evaluation requires more time and cost compared to reaction and learning evaluation (Pearl 2002). There are several methods to evaluate the changes. Some of the studies used self reported assessment to measure the transfer such as in Uganda, Canada, Netherlands, USA and Aceh. The results of this self reported tool could be cross checked by using other methods. For example in Uganda and Bangladesh2, supervisory visit was carried out to make sure that trainees applied their acquired KAS in addition to provide support (Haider 1998; Nankunda et al. 2006). Another method is by asking the target group of trainees. Studies in India, Mexico, Netherlands and UK were using interview with mothers to see whether trainees had applied their learning.

By using the supervisory visit or interview with mother, it is more objective in measuring the change of participants' KAS compare to self reported assessment.

4.5.4. EVALUATION OF IMPACT

A mother's decision to breastfeed her child is influenced by a multitude of complex determinants. These factors as have been discussed in Chapter 2 should be identified during TNA to be able if possible to be covered in the training. If these factors are abandoned, the impact of the training will not be optimal.

All reviewed studies except for Brazil1 measured the impact of their training. According to meta-analysis that reviewed the outcome of support given to BF mothers including BF trainings from the reviewed studies in this thesis, the impact was significant. HWs are effective in extending EBF duration while PCs are effective in promotion of EBF and duration of any BF. Combination of both supports had shown to be effective in extending the duration of any BF especially for the first two months as well as the prolonging of EBF (Britton et al. 2007). But since the training was stirred as a study, the impact of the training might not sustainable. According to Morrison (2003), the evaluation results from the research were usually used to be published in the literature and since the training was a part of the research, the behavior and impact of the training might not be sustained. For example, there is no guarantee that the paid PCs in Bangladesh2, Mexico and USA after the studies ended, will still continue to assist other mothers. This is supported by finding by Haider (1998). Only 28% of trained PCs kept doing their work without getting compensation. Whereas if PCs get respect from mothers and other community members, it may motivate them to continue their work as one way to do self actualization following the Maslow's Hierarchy of Needs (Maslow 2000 cited in Benson and Dundis 2003).

All intervention activities should be consistent and support each other. One example is the change of Indonesia policy for EBF from 4 months to 6 months. If HW or PC were trained about this new policy, they will pass the new recommendation to their clients. Meanwhile, other HWs or PCs that have not been trained still hold on to the old recommendation. It will confuse the mothers and even the community at large. Another example is for HW who gives advice to mothers about formula milk. This advice is contrary with advice given by trained HW or PC. Study in India can be used as a good example. In addition to BF training for HWs, other interventions to promote BF such as promotion of EBF through TBAs and during community meeting were also carried out (Bhandari et al. 2003).

From the reviewed studies about the effectiveness of BF training, several other factors affecting the BF training were identified. The frequency and

timing for contact with mothers should be considered as well (Haider 1998; Dennis 2002a). When other family member(s) was identified as the person who influences most decisions about BF such as grandmother or husband, they should also be included in the counseling (Haider 1998; Morrow et al. 1999). From the socio cultural factor, whereby BF is not a norm or traditional belief for example giving water is commonly practiced, the impact of BF training is less (Albernaz et al. 2002; Chapman et al. 2004). Likewise the promotion, availability and price of breastmilk substitutes influenced the BF practices (Kramer et al 2001). If resources are available, training for many HWs like in Belarus could be conducted. Unfortunately, most of the time, the resources are limited. The ratio between trained HWs with number of mothers who need assistance is very diminutive. Hence, it also should take into consideration less number of trained HWs apply their learning. Therefore, the impact resulting is not significant.

By conducting training evaluation, the results can be used to adjust the training itself (Pedder 1998 cited in Gould et al. 2004) and inform the development of refresher training or up grading the KAS of trained staff by following advanced training such as the International Board Certified Lactation Consultant (IBCLC) training. The evaluation results are also used as a feedback for other BF intervention such as in developing the campaign for BF promotion or BF policy program (Lung'aho et al. 1996; Wellstart International 1996 cited in WHO 2003b). See Annex 10 for comprehensive BF program suggested by Wellstart International (1996) as cited in WHO (2003b).

4.5.5. LIMITATION OF KIRKPATRICK'S EVALUATION MODEL

The Kirkpatrick's model has been used by most of institutions in training evaluation since 1976 (Nickols 2003). This is due to the model providing a direct system in evaluating training by knowing the information needed to be collected at each level. It makes easier for person or institution in assessing the outcome of their training. However, this model also has been criticized by others since it has several limitations. According to Bates (2004), there are 3 limitations. First, this model is not complete. It only looked straightforward the effect of the training toward the outcome and does not take into consideration other factors such as organizational or individual factors before and after training that may have greater effect on the effectiveness of training. Second, the model assumes the causal link between each level. According to Kirkpatrick's model, if trainees have good reaction toward the training, there is a greater the possibility for the acquired learning being transferred. But as has been discussed in the evaluation of reaction and learning, it is necessary but not sufficient to ensure the transfer (Tannenbaum and Yukl 1992). The last limitation is that higher the level of evaluation is measured, the result is more useful. In fact, it is not, due to the weak of causal link concept.

CHAPTER 5: CONCLUSION AND RECOMMENDATION

This final chapter is aimed to conclude the study and to provide recommendation based on the findings.

5.1. CONCLUSION

BF practice especially EBF in Indonesia including in Aceh is still low. This is due to various determinants. Traditional belief such giving honey or banana for newborn has established and practiced for years. Lack of support for mother and working mother in particular for practicing and sustaining breastfeeding also becomes an issue. In deciding infant feeding, it is not solely mother's decision; instead it could be decided by other family member such as grandmother or husband. From health care system, lack of breastfeeding KAS made health worker could not assist mother for practicing breastfeeding. Instead, they promoted the breastmilk substitute to mothers. This is also influenced by the immense and massive marketing promotion of breastmilk substitute. Although the Code for regulating the marketing of breastmilk substitute had established since 1981, still many violation happened.

BF training is an iterative cycle starting from training needs analysis and ending with evaluation. The BF trainings in Aceh still need improvement in order to have significant impact in improving BF practices and can learn from examples from other countries such as India and Bangladesh2. Both HW and peer counselor trainings aim to provide support to mothers. The learning KAS gives participants the ability to provide relevant information to mothers and other people including family members and assist mothers to practice BF (WHO 2003b).

In applying the acquired learning, motivation from trained HW and PC and support from work colleagues or community are needed. The BF determinants also influenced the impact of BF training. Thus, conducting BF training should be seen as one approach integrated with other interventions to improve the BF practices. When BF training is treated as a separate strategy and not following the full cycle in the process of developing the training, it has consequences in wasting of resources such as cost, time and human resource as well as less impact in improving BF practices.

5.2. RECOMMENDATION

Based on the review, in order to achieve the optimal benefits from the training, the following recommendations are suggested:

5.2.1. Training process

- Conduct community analysis to find the most influential person in deciding BF practices and train them
- Conduct task analysis to analyze HW's workload and their present BF KAS
- Conduct personal analysis to identify the right people to be trained
- Involve key stakeholders (community, trainees, trainer, other HWs)
- Develop curriculum based on TNA that well describe the content, teaching method, monitoring and evaluation method
- Set up criteria for trainers and participants and adhere to it
- Document, analyze and use the results of monitoring
- Evaluate the BF practices as the impact of the training by using a combination of methods such as observation and interview with mothers
- Involve community in evaluating the impact of training
- Link the evaluation with regular maternal and child health management and information system such as IDHS and local health profile

5.2.2. Policy

- Conduct other BF interventions to support BF training such as BF campaign, BFHI, supervision and complying the Code
- Advocacy to related stakeholders including PHO and NGOs to scale up the BF training for HW and CHW

5.2.3. Research

- Conduct research in the effectiveness of training following Kirkpatrick's model
- Conduct research in measuring BF practices accurately
- Conduct research in the effectiveness of training for other target groups such as mothers, grandmothers, husbands or religious groups

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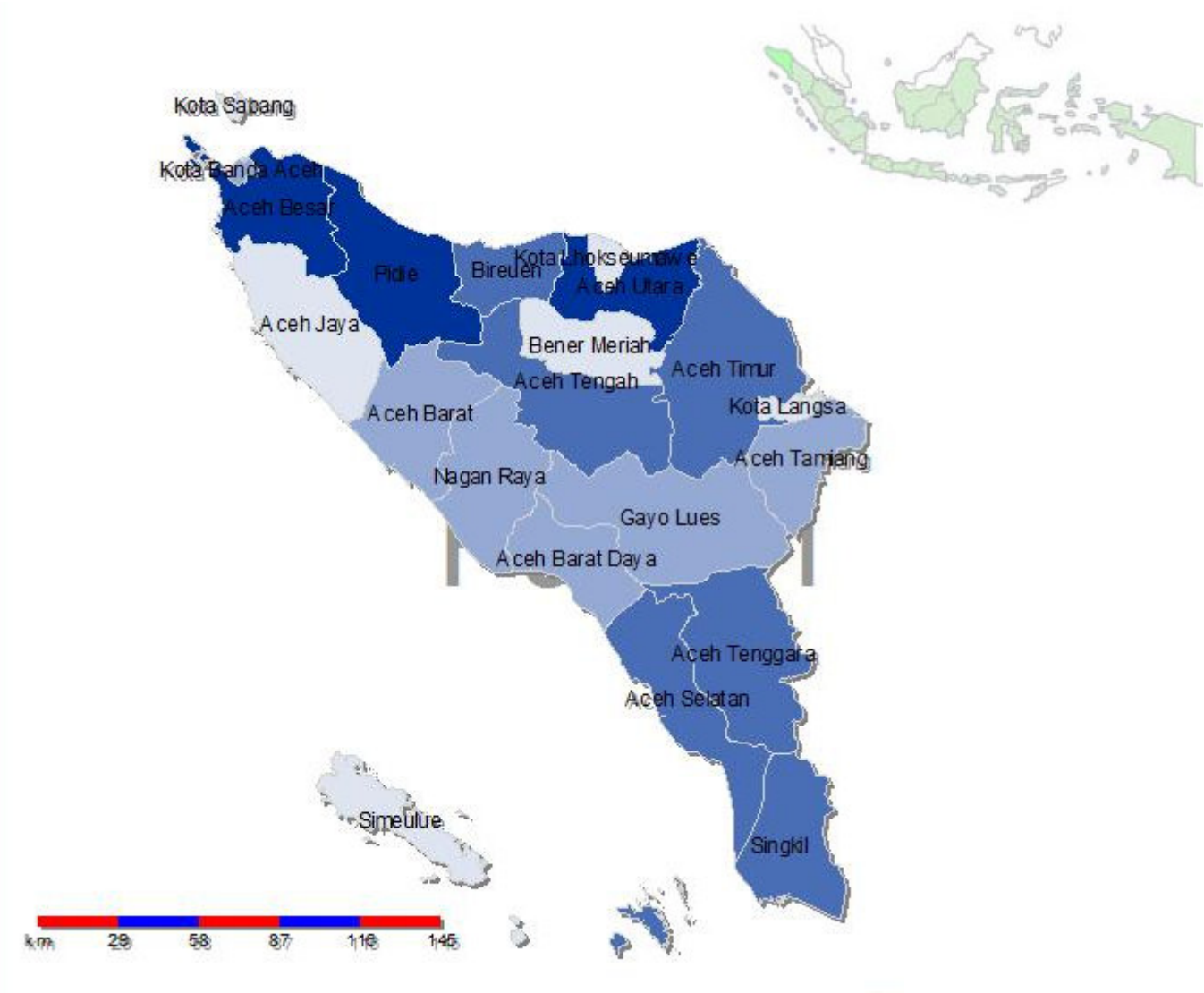
ANNEX 1: MAP OF ACEH'S PROVINCE (NAD PHO 2007a)[2]



[2] No new map that consist of 23 districts/municipalities is available in the internet

ANNEX 2: CURRICULUM OF 40 HOURS WHO/UNICEF BF COUNSELING TRAINING (WHO AND UNICEF 1993a)

Session		Type of session	Duration
Session 1	Why BF is important	Class	60 minutes
Session 2	Local BF situation	Class	30 minutes
Session 3	How BF works	Class	60 minutes
Session 4	Assessing a breastfeed	Class	60 minutes
Session 5	Observing a breastfeed	Class	60 minutes
Session 6	Listening and learning	Group	60 minutes
Session 7	Listening and learning exercises	Group	60 minutes
Session 8	Health care practices	Class and small groups	90 minutes
Session 9	Clinical practice 1: Listening and learning Assessing a breastfeed	Class and small groups	120 minutes
Session 10	Positioning a baby at breast	Class and small groups Optional video	60 minutes 30 minutes
Session 11	Building confidence and giving support	Groups	60 minutes
Session 12	Building confidence exercise	Groups	60 minutes
Session 13	Clinical practice 2: Building confidence Positioning a baby at breast	Class and small groups	120 minutes
Session 14	Breast conditions	Class	60 minutes
Session 15	Breast conditions exercise	Groups	30 minutes
Session 16	Refusal to breastfeed	Groups	60 minutes
Session 17	Taking a BF history	Groups	50 minutes
Session 18	History practice	Small groups	70 minutes
Session 19	Breasts examination	Groups	30 minutes
Session 20	Expressing breastmilk	Class	40-70 minutes
Session 21	"Not enough milk"	Groups	70 minutes
Session 22	Crying	Groups	30 minutes
Session 23	"Not enough milk" and crying exercise	Groups	50 minutes
Session 24	Clinical practice 3: Taking a BF history	Class and small groups	120 minutes

Session		Type of session	Duration
Session 25	Counseling practice	Small groups	75 minutes
Session 26	Low birth weight and sick babies	Class Optional video	75 minutes 30 minutes
Session 27	Increasing breastmilk and relactation	Class	60 minutes
Session 28	Sustaining BF	Groups	60 minutes
Session 29	Clinical practice 4: Counseling mother with different situations	Class and small groups	120 minutes
Session 30	Changing practices	Small groups	90 minutes
Total time for sessions 1-30 (+2 videos)			33½ + 1 hr

Additional sessions			
Session		**Type of session**	**Duration**
Session 31	Women's nutrition, health and fertility	Class	60 minutes
Session 32	Women and work	Groups	60 minutes
Session 33	Commercial promotion of breastmilk substitutes	Groups	60 minutes

Total time for sessions 1-33 (+2 videos)	**36½ + 1 hr**

ANNEX 3: CURRICULUM OF CHW BF COUNSELING TRAINING

Session		Duration
Session 1	Why BF is important	60 minutes
Session 2	How BF works	60 minutes
Session 3	Assessing a breastfeed	60 minutes
Session 4	Positioning a baby at breast	60 minutes
Session 5	Observing a breastfeed	60 minutes
Session 6	Expressing breastmilk	60 minutes
Session 7	Listening and learning + Exercise	60 minutes
Session 8	Clinical practice 1: Listening and learning Assessing a breastfeed	120 minutes
Session 9	Building confidence and giving support + Exercise	60 minutes
Session 10	Clinical practice 2: Building confidence Positioning a baby at breast	120 minutes
Session 11	Breast conditions	15 minutes
Session 12	Refusal to breastfeed	60 minutes
Session 13	Taking a BF history + History practice	60 minutes
Session 14	"Not enough milk" (including crying and "Not enough milk" and crying exercises)	90 minutes
Session 15	Clinical practice 3: Taking a BF history	120 minutes
Session 16	Counseling Practice	60 minutes
Session 17	Increasing breastmilk and re-lactation Sustaining BF	60 minutes
Session 18	Clinical practice 4: Counseling mother with different situations	120 minutes
Session 19	Women's nutrition	60 minutes
Session 20	Health care practices	45 minutes

Additional sessions		
Session		**Duration**
A	Food hygiene and feeding technique	60 minutes
B	Preparing formula milk	60 minutes

Total time for sessions 1-19 and A and B	**25 ½ hours**

ANNEX 4: TIME TABLE FOR TOT OF COMMUNITY HEALTH WORKER

DAY	TIME	SESSION	FACILITATOR
Day 1	08.00 - 08.30	Introduction	
	08.30 - 09.30	Why BF is important	
	09.30 - 09.45	Feedback	
	09.45 - 10.00	Tea/Coffee Break	
	10.00 - 11.00	How BF works	
	11.00 - 11.15	Feedback	
	11.15 - 12.15	Assessing a breastfeed	
	12.15 - 12.30	Feedback	
	12.30 - 13.15	Lunch Break	
	13.15 - 14.15	Positioning a baby at breast	
	14.15 - 15.30	Feedback	
	15.30 - 16.30	Listening and learning + Exercise	
	16.30 - 16.45	Feedback	
	16.45 - 17.00	Tea/Coffee Break	
	17.00 - 18.00	Observing a breastfeed	
	18.00 - 18.15	Feedback	
Day 2	08.00 - 09.30	"Not enough milk" (including crying and "Not enough milk" and crying exercises)	
	09.30 - 09.45	Feedback	
	09.45 - 10.00	Tea/Coffee Break	
	10.00 - 11.00	Taking a BF history + History practice	
	11.00 - 11.15	Feedback	
	11.15 - 13.00	Lunch Break	
	13.00 - 14.00	Building confidence and giving support + Exercise	
	14.00 - 14.15	Feedback	
	14.15 - 15.15	Expressing breastmilk	
	15.15 - 15.30	Feedback	
	15.30 - 15.45	Tea/Coffee Break	
	15.45 - 16.00	Breast conditions	
	16.00 - 16.15	Feedback	
	17.15 - 18.15	Refusal to breastfeed	
	18.15 - 18.30	Feedback	

DAY	TIME	SESSION	FACILITATOR
Day 3	08.00 – 08.45	Health care practices	
	08.45 – 09.00	Feedback	
	09.00 – 10.00	Additional Session A	
	10.00 – 10.15	Feedback	
	10.10 – 10.30	Tea/Coffee Break	
	10.30 – 11.30	Additional Session B	
	11.30 – 11.45	Feedback	
	11.45 – 13.00	Lunch Break	
	13.00 – 14.00	Women's nutrition	
	14.00 – 14.15	Feedback	
	14.15 – 15.15	Increasing breastmilk and re-lactation Sustaining BF	
	15.15 – 15.30	Feedback	
	15.30 – 15.45	Tea/Coffee Break	
	15.45 – 16.45	Counseling Practice	
	16.45 – 17.00	Feedback	

ANNEX 5: PRE AND POST TEST OF HEALTH WORKER TRAINING

Choose one correct answer.

Name : .....
Address: .....

Question	Answer
1. Early initiation is:	A. Baby is breastfed after delivery B. Put baby at mother's breasts for at least 30 minutes after delivery, let the baby breastfed by him/herself C. Baby is breastfed at least within 30 minutes after delivery D. Put baby at mother's breasts, then baby's mouth is put in mother's nipple at least within 30 minutes after delivery
2. If breastmilk is not present during the first postpartum day, in order to avoid dehydration:	A. Give baby small amount of water added with sugar B. Give baby small amount of formula milk C. Keep breastfed D. None above
3. The risk of pre-lacteal feeding:	A. "Nipple confusion" B. Replacing colostrums C. Baby will not like breastmilk D. All above is right
4. What is the most cause for lack of breastmilk production:	A. Water intake of mother is not adequate B. Food intake of mother is not adequate C. The work of oxytocin hormone is not adequate D. All above is right
5. Exclusive BF is:	A. Baby is given only breastmilk and small amount of vitamin B. Baby is given only breastmilk and small amount of formula milk C. Baby is given only breastmilk and small amount of solid food D. None above
6. Can we give pacifier to baby in order to make him/her calm and to avoid the baby to sucking his/her thumb?	A. Yes, because baby will become calm B. Occasionally, if needed C. No, due to it will disturb the establishment of BF D. No, due to baby will like pacifier more than BF

Question	Answer
7. The advantage of exclusive BF until 6 months for baby, **except**:	A. Reduce the risk of infection B. Reduce the risk allergy C. Reduce the risk cancer during children period D. Reduce the risk for HIV
8. Counseling is, **except**:	A. Working together with other people B. Try to understand other people's feeling C. Accept other people's opinion D. Give relevant advice
9. The cause of low exclusive BF rate in Indonesia:	A. Early complementary feeding B. Early formula feeding C. Lack of understanding about BF and management of BF D. Too strong influence of culture and family
10. The sign for not enough breastmilk:	A. Breastmilk looks like "too thin" B. Passing small amounts of concentrated urine C. Breastmilk is not dripping D. All above is right
11. The sign of good positioning:	A. Baby's neck and body is inline B. Mother is supporting baby's head C. Baby's chin touching mother's breast, baby's chest not close to mother's chest D. All above is right
12. The sign of good attachment, **except**:	A. Baby's upper and lower lip turned outwards B. Baby's mouth wide open C. More areola above baby's mouth D. Baby's chin touching mother's breast
13. Listening and learning skills, **except**:	A. Avoid words which sound judging B. Show our sympathy C. Ask open questions D. Use non verbal communication
14. Non verbal communication, **except**:	A. Paying attention B. Touch appropriately C. Greeting kindly D. Remove barriers
15. The sign of engorged breasts, **except**:	A. Breasts feel painful B. Nipple is stretched tight C. Breastmilk is still flowing D. Fever settles within 24 hours
16. Building confidence and giving support, **except**:	A. Accept what mother feels B. Recognize and praise what a mother and baby are doing right C. Give complete information about BF D. Give practical help

ANNEX 6: PRE AND POST TEST OF COMMUNITY HEALTH WORKER TRAINING

Choose one correct answer.

Name : .....

Address: .....

Question	Answer
1. Early initiation is:	A. Baby is breastfed after delivery B. Put baby at mother's breasts for at least 30 minutes after delivery, let the baby breastfed by him/herself C. Baby is breastfed at least within 30 minutes after delivery D. Put baby at mother's breasts, then baby's mouth is put in mother's nipple at least within 30 minutes after delivery
2. If breastmilk is not present during the first postpartum day, in order to avoid dehydration:	A. Give baby small amount of water added with sugar B. Give baby small amount of formula milk C. Keep breastfed D. None above
3. The risk of pre-lacteal feeding:	A. "Nipple confusion" B. Replacing colostrums C. Baby will not like breastmilk D. All above is right
4. What is the most cause for lack of breastmilk production:	A. Water intake of mother is not adequate B. Food intake of mother is not adequate C. The work of oxytocin hormone is not adequate D. All above is right
5. Exclusive BF is:	A. Baby is given only breastmilk and small amount of vitamin B. Baby is given only breastmilk and small amount of formula milk C. Baby is given only breastmilk and small amount of solid food D. None above
6. Counseling is:	A. Working together with other people B. Give sympathy C. Tell other people to follow our order D. Give relevant advice that needed at this moment

Question	Answer
7. The cause of low exclusive BF rate in Indonesia:	A. Early complementary feeding B. Early formula feeding C. Lack of understanding about BF and management of BF D. Too strong influence of culture and family
8. The sign for not enough breastmilk:	A. Breastmilk looks like "too thin" B. Passing small amounts of concentrated urine C. Breastmilk is not dripping D. All above is right
9. Listening and learning skills:	A. Using words which sound judging B. Show our sympathy C. Ask closed questions D. Use non verbal communication
10. Building confidence and giving support:	A. Give response for paying attention B. Blame on wrong opinion from mother C. Give education D. Accept what mother thinks

ANNEX 7: EVALUATION QUESTIONNAIRE OF 40 HOURS WHO/UNICEF BF COUNSELING TRAINING (WHO AND UNICEF 1993b)

To enable us to improve the training for others in the future, please fill out this questionnaire.

1. Briefly describe your responsibilities in relation to BF mothers and babies.
   In what type of setting do you work (e.g. private practice, health centre, hospital)?

2. Did you find any aspect of the training especially difficult?

3. For each activity listed below, tick one box to show whether you thought that the time spent on the activity was too short, adequate, or too long.

Type of activity	**Time spent was**		
	Too short	**Adequate**	**Too long**
Presentation			
Demonstration of clinical skills			
Group work of counseling skills			
Group work with 8-10 participants			
Group work with 8-10 participants			
Written exercises			
Clinical practice			

4. What additional support, if any, do you think you may need after this training to enable you to improve counseling for BF mothers in your own facility?

5. How could the content and/or management of this training course be improved for future participants?

Title of session	Very useful	Useful	Somewhat useful	Not useful	Comments
Session 1 Why BF is important					
Session 2 Local BF situation					
Session 3 How BF works					
Session 4 Assessing a breastfeed					
Session 5 Observing a breastfeed					
Session 6 Listening and learning					
Session 7 Listening and learning exercises					
Session 8 Health care practices					
Session 9 Clinical practice 1					
Session 10 Positioning a baby at breast					
Session 11 Building confidence and giving support					
Session 12 Building confidence exercise					
Session 13 Clinical practice 2					
Session 14 Breast conditions					
Session 15 Breast conditions exercise					
Session 16 Refusal to breastfeed					
Session 17 Taking a BF history					
Session 18 History practice					
Session 19 Breasts examination					
Session 20 Expressing breastmilk					
Session 21 “Not enough milk”					

Title of session	Very useful	Useful	Somewhat useful	Not useful	Comments
Session 22 Crying					
Session 23 "Not enough milk" and crying exercise					
Session 24 Clinical practice 3					
Session 25 Counseling practice					
Session 26 Low birth weight and sick babies					
Session 27 Increasing breastmilk and relactation					
Session 28 Sustaining BF					
Session 28 Clinical practice 4					
Session 29 Changing practices					
Session 30 Women's nutrition, health and fertility					
Session 31 Women and work					
Session 32 Commercial promotion of breastmilk substitutes					

ANNEX 8: BREASTFEEDING TRAINING IN OTHER COUNTRIES

Fifteen studies from 13 countries were reviewed using the training framework and presented in publication year's order.

BANGLADESH1

A randomized controlled trial was carried out to assess the effect of lactation counselors in giving support to mothers to continue BF in reduction of diarrheal incidence (Haider et al. 1996).

Lactation counselors were trained using 40 hours WHO/UNICEF for 3 weeks. They also trained about diarrheal management. They acquired to counsel mothers for 2 times with standardized messages in addition to 1 time counseling conducted by main author. The skill of LCs in assessing BF was monitored using frequent observation by main author (Haider et al. 1996).

To evaluate the impact of BF counseling, 24 hours recall was used. EBF was defined as infants receiving only breastmilk and for PBF, the definition was infants receiving breastmilk and ORS or water. EBF at discharge was 10 times higher in intervention group than control (6%). The PBF rate at discharge was higher in intervention compare to control, 30% and 19% respectively. EBF two weeks after discharge was much higher in intervention (75%) than control (8%). Thus partial BF was lower in intervention, 12%, compare to control, 49%. All result was significantly different (Haider et al. 1996).

NIGERIA

A randomized controlled trial to see the effect of BF counseling to EBF practices. The result of baseline data showed that infant feeding practices between intervention and control mothers were the same (Davies-Adetugbo et al. 1997).

Five CHWs and 2 research field assistants were trained with modified 18 hours UNICEF BFHI with study setting and added with BF counseling skill taken from 40 hours WHO/UNICEF BF counseling module. They were required to conduct 3 home visits at the day 0, 2 and 7 for 30 minutes. During the visits, they conveyed BF messages and provide assistance including expressing breastmilk (Davies-Adetugbo et al. 1997b).

Twenty fours recall was used to obtain infant feeding pattern. The result was EBF at day 7 for intervention was 49% compare to 6% for control group. For EBF at day 21, intervention mothers had much higher EBF rate than control, 46% and 8% respectively (Davies-Adetugbo et al. 1997b).

BANGLADESH2

A randomized controlled trial using PCs as the intervention for improving BF practices was inspired by several studies had been conducted by the author. Those studies found most women never received information about BF and that the low prevalence of EBF up to 6 months and its determinants that influence the practices (Haider et al. 2002).

In order to be PCs, the women who applied should fulfill several criteria i.e. have personal BF experience, have attended school minimum 4 years, have commitment to assist other women and live within the intervention community. Potential candidates were visited to explain the PCs' responsibilities and asked them to request for support from their husbands or other family members. Thus, they have to follow interview to appraise their attitude toward EBF, bottle feeding and complementary feeding as well as their ability to communicate (Haider 1998).

The purpose of this training was to improve PCs knowledge and skill on BF as well as counseling and communication skills to enhance their own competencies and confident in doing their responsibilities. The responsibilities of PCs were: able to provide information on BF and counsel the mothers including working mothers so mothers able to avoid common BF problems and refer mother for BF problems beyond PCs capacity following the set up criteria. They also should record all their counseling activities. Forty hours WHO/UNICEF BF counseling training was adapted with additional references was used by main researcher and two BF counselors to train PCs. Daily review used as monitoring method. These two BCs that had 2 years experience in BF counseling were employed to be supervisor and the first referral point for PCs (Haider 1998).

For total of 20 PCs, each of them was expected to support 18-24 mothers. They were designated to do 15 home visits to every intervention mother and to convey relevant messages related to mother's condition. These messages were adopted from training module and adapted with local context. For this part time work, PCs were paid for US$22 per month (Haider 1998).

Qualitative and quantitative methods were employed for collecting information from PCs and mothers. FGDs with PCs were held to obtain information regarding their thought about the intervention. All PCs admitted they like it and have the benefit of their work. They said that they gained respect from mothers and community members. They also appreciated the support given by the supervisors. During the FGDs, PCs also mentioned about their challenges during their work. One of the challenges was when health workers gave contrary advice to mothers for example mothers were told to give other milk instead of exclusive BF.

When asked about their willingness to continue their work without paid, mix responses were obtained (Haider 1998).

To evaluate whether PCs applied their learned KAS, PCs were observed during their work and their performance was scored. As the result, most of them performed well and only 4 of them could not. Unfortunately it was not mentioned the cut off for well performance or not. In fact, the low performance of these 4 PCs already identified during the training and they have been given more attention during the training. One of them was replaced and though the other 3 PCs were having low performance scores, they still able to give support to mothers and more than 60% of their assigned mothers were able to EBF until 5 months. In contrast, some of PCs who performed well during training and supervisory visits could not achieve high EBF rates for their assigned mothers. According to the researcher, this could be due to several factors such as they have more mothers to be supported, they cover larger area, and the supported mothers have more higher education or socio-economic status than PC and more working mothers (Haider 1998).

To get BF practices as the impact of the counseling, past 24 hours recall was used and it was triangulated with observation. Early initiation within one hour for intervention mothers (64%) was significantly higher than the control mothers (15%). Pre-lacteal feeding was three times higher than in control group compare to interventions, 89% and 31% respectively. The rate of EBF for 1 until 5 months of intervention group was 3 up to 10 times significantly higher than control (Haider 1998).

Semi-structured interview and FGDs were carried out to know about mothers' perception toward peer counseling as well as PCs. Most of the mothers enjoyed the visit and got benefit from the visit. They could learn from PCs about the importance of EBF and they were able to EBF until 5 months due to support given by PCs. Majority of mothers would recommend to keep continue PC program. The result of FGDs also supported these findings (Haider 1998).

MEXICO

Rapid ethnographic study was conducted prior to the trial to find out the determinants of EBF practice. Thus the result of this study was used to develop key messages and visual aids to be used by PCs (Guerrero et al. 1999).

A randomized controlled trial was carried out with purpose to measure the efficacy of home-based peer counseling to promote exclusive BF. Thus, it also tried to prove the premise that more frequent visit would increase more the EBF rate. For this study, one intervention group would receive 3 times home visits and other received 6 times (Morrow et al. 1999).

Three women who had high school education and have commitment to BF although they had no BF experience recruited to be PCs. They received training using La Leche League curriculum from 2 trainers, one was the LLL's staff and the other one was physician who happened to be one of the researchers. The training consist of 1 week training in the classroom, 2 months in BF clinics and with mother to mother support group, 1 day visit to observe the experts and 6 months practiced in the community near the study areas (Morrow et al. 1999).

During the pregnancy visit, PCs were expected to convey BF messages regarding the benefits of BF, BF anatomy and physiology, positioning and attachment of baby to the breast, common myths and BF common problem and its solution. For visit after delivery, it focused on establishment of BF, response on mothers' concern regarding BF and providing social support. PCs also asked to involve household members during the counseling (Morrow et al. 1999).

Interview to mothers at 6 months after delivery was showed that most mothers in the intervention groups consider PCs were helpful and provide support to them. One week recall was used to collect infant feeding practices. EBF rate at 2 weeks postpartum for both intervention groups were higher, 80% for 6 visits group and 62% for 3 visits group compare to 24% at control group. Though rate of 3 months EBF was decline compare to 2 weeks EBF, still the rate for 6 visits group was higher significantly, 67%, compare to 3 visits (50%) and control (12%) (Morrow et al. 1999).

IRAN

A quasi experimental study was carried out to see the impact on BF education to EBF practices. Working mothers were excluding in this study (Froozani et al. 1999).

Nutritionist was trained using 40 hours WHO/UNICEF module to deliver different key messages and assist mothers if needed. Four contacts were made i.e. immediately or within 24 hours after delivery, between 10 and 15 days, after 30 days, and monthly to the 4^{th} month after delivery at home or in a lactation clinic (Froozani et al. 1999).

Interview with mothers to obtain BF practices at 1^{st} up to 4^{th} month, but it was not mentioned about the tool to measure it. As the result, EBF at 1 month for intervention group was two-fold higher than control, 93% and 46% respectively. The EBF rate was decline by the 2^{nd} until 4^{th} month, but still EBF within intervention mothers was 2.5 up to 9 times higher than control. EBF at 4 months for intervention was 54% in contrast to control, 6.5%. Mean duration of EBF for mothers received BF education was 3

months compare to 1 month for control mothers. All findings were significant (Froozani et al. 1999).

BRAZIL1

A randomized controlled trial was conducted in 1999 to assess the impact of the 40 hours WHO/UNICEF BF counseling training on the knowledge of BF and the counseling skills of participants. Training was held within 4 hours for 2 weeks (Rea et al. 1999). A criteria for trainers was having previous experience in BF training. While for participants, they worked in maternal and child care.

To monitor the training process and evaluate the training, mixture of data collection techniques including participatory observation, interview and focus group discussion were employed. From the monitoring, it found that training was implemented successfully in terms of classroom sessions. Thus, many sessions were took time longer than planned due to the trainers tend to use more their own experience instead of following the guideline. And also due to develop skill for each participant required more time. Trainers' performance as well as participants' involvement was also good (Rea et al. 1999).

FGD with trainers and participants were conducted to know their reaction toward the training, but the result of FGD did not mention.For the evaluation of BF knowledge, intervention group has significantly higher score than the control group. Observation method was used to see the changes in skill and attitude of health workers during the consultation. All skill and attitudes thought in the training (BF history, assessment of BF, using non verbal communication, skills on listening and learning as well as building confidence and giving support) were more implemented in interventions group compare to control. Even 3 months after the training, they still have good overall knowledge, attitude and skill including the most difficult skill to learn which is giving empathy if compare to their pre test result (Rea et al. 1999).

UK

A randomized controlled trial was conducted to assess the cost effectiveness of postpartum support including infant feeding. Midwives were participated in designing the intervention and training (Morrell et al. 2000).

Community support workers were trained for 8 weeks about child care including infant feeding (Morrell et al. 2000).

After 6 months of intervention, mothers were asked to fill in questionnaire about health outcomes including the visit by community support worker.

Almost all mothers in intervention group received 6 visits and 15% received 10 visits. Only 3% of visits were talking about BF and 7% about bottle feeding. The EBF rate (not mentioned about the tool) for intervention was almost the same compare to control, 12.7% and 12% respectively, not significant. In fact, intervention group was having more National Health Service cost compare to control (Morrell et al. 2000).

BELARUS

There was no TNA in particular conducted based on published data. This cluster randomized trial was initiated to prove the effects of BFHI training on exclusive BF as well as the duration of BF (Kramer et al. 2001).

Eighteen hours BFHI lactation management module was used by WHO European Regional Office to train all health workers in 16 intervention hospitals. The course emphasized how to maintain BF, promotion of exclusive BF, and manage BF problems that usually occurred. It took 16 months to train all physicians including the head of obstetrician and pediatrician department as well as all nurses and midwives in maternity wards. The training also covered all health workers in outpatient departments to accomplish the 10^{th} step of the initiative which is the establishment of BF support groups in order to refer mothers after discharge from the hospital. The steering committee performed monitoring visits to all intervention hospitals during the implementation (Kramer et al. 2001).

To measure the impacts of the intervention, pairs of mother and infant were followed up for 12 months. Interview for 24 hours recall was used to assess the infant feeding practices at 3, 6, 9 and 12 months of age. As the result, the prevalence of exclusive BF at 3 months age was 7 times higher significantly in the intervention group (43.3%) compare to control group (6.4%). Despite of the decline of exclusive BF at 6 months age, still the rate of EBF in intervention group was higher significantly than the control group, 7.9% and 0.6% respectively. In contrast, the rate of predominantly BF at 3 months age in intervention group was half, 28.3%, compare to control, 51.9%. As for the PBF at 6 months age, the control group has 7-fold higher in comparison to intervention group (1.6%). Both were statistically significant. For continued BF up to 9 and 12 months, control group was more likely to wean the infants compare to intervention (Kramer et al. 2001).

The researchers were identified the high rates of exclusive BF and duration of BF were also attributed by the high price of formula feeding including the local made due to economic crisis within the country and also the reduce of fear of BF related to Chernobyl nuclear accident (Kramer et al. 2001).

CANADA

A study using randomized controlled trial carried out to evaluate perception of mothers as well as PCs toward the BF support program (Dennis 2002a).

To be voluntary PCs, it should follow requirement of mother with experience of BF at least 6 months and have positive attitude toward BF and able to participate in the training (Dennis, 2002a). The training itself was held in 2.5 hours to give orientation for PCs to develop their support's skill through role play and interactive discussion. PCs also received handbook that consist of information about BF including fact sheets and common myths, tips in giving support via telephone, list of health workers for referral (Dennis et al. 2002b).

Fifty eight trained PCs were assigned to call mothers within 48 hours after hospital discharge and then as needed. They should record their interaction in activity log and after 3 months, they return the log to the researcher (Dennis 2002a).

From 132 mothers that PCs should be contacted, 59% were able to be recorded in the log and from these logs 637 contacts were recorded including 223 unsuccessful attempted interactions. Out of 411 successful interactions, there was 3% of face to face contact. From 97% of telephone contact mostly was initiated by PCs, but there were 9.3% mothers who initiate to call PCs. One third of interactions stopped at first month and still almost 20% continued the contacts until 3 months after delivery (Dennis 2002a).

Thirty PCs were interviewed via telephone within 6 months of trial completion to evaluate their experience during training and trial implementation. Almost all PCs mention that the training sessions were able to provide them the information needed to do the counseling and they could meet with other women. They expected to have continue learning to refresh their knowledge and have up dated information and able to share their experience. They perceived supervision is needed and the supervision that had been done during the trial was not adequate. From the interactions made with mothers, PCs felt obliged since mothers put respect on them, listened to what they had suggested and appreciate for what they have been doing. Nevertheless, some PCs also have experience of not at ease at least once since they should initiated calling the mothers, or disappointed when knew mother stop BF. Overall, this voluntary program did not interfere their daily life and in fact by involve in this program, increase their self confidence and feel empowered. All PCs admitted if they were giving other opportunity to become PCs, they would do it (Dennis 2002a).

From the perspective of mothers toward the PCs program through interview, they feel PCs provides them with emotional, informational and appraisal supports and they would have peer volunteer again. When they asked about whether PCs assisted them in establishing their BF practice, 65% said yes (Dennis 2002a).

The rate of EBF at 1 month age was significantly higher in peer support's group (92%) than control (84%), likewise the EBF rate at 3 months age, 81% and 67% respectively (Dennis et al. 2002b).

INDIA

Study using cluster randomized controlled trial was conducted in 8 villages at Haryana State, India. TNA was carried out through formative research to find information about the characteristic of community including the feeding practices and nutritional status of children. It also found from observation that during the irregular home visits, the health workers promoted more messages on family planning and immunization rather than BF. In regards to BF, the education given was emphasizing more in any BF compare to EBF. Observation on the different interactions between various workers including the traditional birth attendants (TBAs), local village-based workers and auxiliary nurse midwives with families were also performed in order to find ways how to include the message on exclusive BF through these workers (Bhandari et al. 2003).

Three days training using IMCI Training Manual on BF Counseling was conducted for health and nutrition workers. The training covered on lactation management such as positioning and attachment of the baby to breast and how to solve the BF problems as well as the communication skills. Practice on perform counseling directly to mothers was also center of the course (Bhandari et al. 2003).

Trained health workers were expected to promote exclusive BF in every counseling interaction. Other interventions in addition to the health workers' training also carried out. Based on the result of formative research, messages on infant feeding was made and disseminated using diverse IEC materials such as poster, flip books and mother and child card. In the routine monthly meeting between auxiliary nurse midwife and community representatives, EBF was promoted. After the meeting, community representatives will convey the same messages at the community meetings once a month. The local authorities also responsible to give feedback to different workers based on the monitoring done in monthly review. These workers have their own role in the community. TBAs were suppose to deliver messages at birth, local village-based workers or Anganwadi through children weighing every 3 months and visit to newborn once a month and auxiliary nurse midwives at the immunization clinics. The messages that should be delivered were EBF up

to 6 months, BF the infant during day and night at least 8 times in one day and the disadvantages of early complementary feeding (Bhandari et al. 2003).

Many mothers admitted that they have been counseled about EBF by trained health workers during home visits (61%), immunization clinics (49%) and weighing activities (61%) based on interview with mothers in the intervention communities during visits at age 3 and 6 months old of infants. For primary outcome of the study related to BF practices at 3 months age based on 24 hours recall, the rate of EBF on the intervention community was 79% in contrast to 48% of control. Meanwhile, the proportion of PBF at the intervention villages was lower than the control, 6% and 27% respectively. The duration of EBF was 122 days in intervention groups compare to 41 days for control. EBF rates during age 4, 5 and 6 months were measured at 9 months visit as the secondary outcome. All EBF rates in intervention community showed significantly 5 until 10 times higher in comparison to control. Other interesting finding was doctors at primary health centers seldom counseled mothers in regards to EBF although they have been trained and showed good response toward the training (Bhandari et al. 2003).

The important lesson learned from this study was using the routine health delivery services done by health workers and community health workers to convey the messages in addition to support from the local community representatives in order to achieve behavior change on EBF practices (Bhandari et al. 2003).

BRAZIL2

A randomized controlled trial study was conducted with the purpose to see the impact of BF counseling as the intervention on the duration of BF and breastmilk intake (Albernaz et al. 2003).

Using 40 hours WHO/UNICEF BF training module, 2 nurses were trained by two certified lactation consultants. They were assigned to do BF counseling to mothers after delivery in the hospital and visit them maximum 7 times in their house (Albernaz et al. 2003).

No significant impact on the counseling toward the exclusive BF practice although the rate of EBF at 4 months was slightly higher in the intervention group than the control. Likewise the breastmilk intake, the infants in the intervention group consume less non-breastmilk fluid compare to control. The only significant different between intervention and control was on the prevalence for weaning BF. Control mothers were twice more likely to stop BF compare to intervention mothers. Other interesting finding was the rate of PBF for both intervention and control group was the same, 12% measured at 4 months age. This was proved

that the culture for giving other fluids beside breastmilk was already became custom in the community and was not easily reduced by the counseling (Albernaz et al. 2003).

USA

The study was aimed to assess the impact of BF support program by PCs in community where by predominantly Latina population, mostly Puerto Rican. A randomized controlled trial was used to evaluate the existed 10 years PCs program. The program itself made to promote BF since most Puerto Rican women were not felt comfortable to breastfeed and has their special staffing including program coordinator (Chapman et al. 2004).

To become PCs, women should fulfill 3 prerequisites i.e. completed high school, had experience in BF for at least 6 months and following the training. The recruitment was done through job announcement at hospital and council. Additional prerequisites including positive attitude toward BF, flexible schedule and able to speak 2 language were preferred. PCs received 30 hours training in the class from program coordinator, based on combination of La Leche League module and the Hispanic Health Council's BF Heritage and Pride program. It covered breast anatomy and lactation physiology, lactation management, counseling skill and socio-culture factors related to BF. PCs should score minimum 85% in a written examination. Then, they should spend 3 up to 6 months working with experienced PCs. When they could demonstrate they were competence, PCs worked alone with clients. Biweekly meeting was held with program coordinator. PCs received 1 hour continuing education every month and were paid for their work including health care benefits if working at least 20 hours per week (Chapman et al. 2004).

PCs should deliver counseling and provided assistance if needed at least once at prenatal home visit, daily visits during delivery hospitalization, and 3 postpartum home visit with the first visit within 24 hours after discharge. Also mothers in the intervention group were able to contact PCs via telephone or pager and ask for more home visits based on request (Chapman et al. 2004).

During half period of study, the trial was lack of PCs due to high staff turnover and as the result many clients received less visits than it should be based on PCs' report. At least all intervention mothers received one visit from PCs but only half reported prenatal home visit (Chapman et al. 2004).

Mothers were interviewed to collect data on infant feeding practices but it was not stated the used method. The risk for not initiating BF as the effect of peer counseling was two times lower in the intervention group than the control group significantly, 9% and 23% respectively. The risk to

stop BF at 1 and 3 months was lower in intervention group than control but it was marginally significant. For BF at 6 months, the impact of peer counseling was not significantly affect the incidence of any BF. This result was not surprisingly according to the researchers since due to cultural reason that have mentioned before (Chapman et al. 2004).

ITALY

A randomized controlled trial was conducted in 2004 to assess the impact of home visits done by health workers in order to improve the BF practices (Di Napoli et al. 2004). Baseline data showed that more than 70% of mothers both in intervention and control have poor knowledge about BF techniques.

Six midwives were trained using 18 hours UNICEF BFHI module. After training, they were required to do one home visit at least 30 minutes within 7 days after mothers were discharge and added to this, counseling via telephone also held (Di Napoli et al. 2004).

Based on 24 hours recall, despite the risk for not EBF in intervention group was lower than the control, Hazard Ratio was 0.71, it was not significant (Di Napoli et al. 2004).

NETHERLANDS

A study was carried out to assess the determinants of BF practices. Based on study, counseling process guideline that consists of key messages and common BF questions and answers was developed for counselors and included in booklet given to mothers. Then, a cluster randomized study was conducted to assess the impact of BF counseling toward BF practices (Kools et al. 2005).

Caregivers (maternity nurses, nurses and physicians) were trained for 6.5 hours on the guideline, counseling skill using demonstration and role play method and the referral criteria. Caregivers received 2 refreshing 2 hours session during intervention (Kools et al. 2005).

Caregivers have their specific time in interact with mothers and each has their own protocol for BF counseling. If necessary, based on referral criteria, lactation consultants were provided to assist caregivers (Kools et al. 2005).

To know the opinion of trained caregivers toward the training, questionnaire was used and 80% of them have good response to training (Kools et al. 2005).

Pre test to assess baseline knowledge of caregivers was done with the result caregivers in intervention group have 81% good knowledge, while control has 71% good knowledge. No post test was conducted (Kools et al. 2005).

Mothers were asked to fill in questionnaire about their satisfaction toward advices given by caregivers. No different satisfaction level between intervention and control except intervention mothers received significantly less contrary advice than control. Trained caregivers also asked to fill in questionnaire in regards to their applied learning. More than 90% were motivated to give BF support to mothers and according to 44% of them, BF counseling made their work longer than before (Kools et al. 2005).

To assess the impact on BF practices, mothers were asked to fill in questionnaire about their infants feeding practices at the moment they filled the questionnaire. EBF at 3 months for intervention was 27% compare to 32% for control, no significant difference (Kools et al. 2005).

UGANDA

This study was stirred by the low of EBF practice and effort on promoting BFHI strategy while the most women in Uganda were delivering without assistance of health workers. Therefore the study was conducted to assess the effect of peer counselors on promoting EBF using qualitative method in rural areas (Nankunda et al. 2006).

To select the participants, meeting with community leaders from study areas was held to sensitize them about the criteria on selecting the peer counselor and to estimate the number of peer counselors needed based on the population of pregnant women. The criteria was 24-35 years old, literate in local language, accepted by community, have a child under five and breastfeed him or her, not have visual and hearing impairment and should be able to attend the whole training sessions (Nankunda et al. 2006).

Training using 18 hours La Leche League for both TOT and PCs training was conducted by 2 lactation consultants. Three days of TOT was followed by 18 trainees including policy makers, BF trainers and health workers. Five days training for 15 peer counselors was done by trained trainers under the supervision of the two lactation consultants. At the beginning of training, expectation as well as the knowledge and skill they want to be learned from the training was made. This list was used to review during the training to make sure that the training has covered it. One of the expectations raised at the beginning of the training was provision of bicycle in order to make support PCs in conducting their work. Hence, all PCs were provided with bicycle. Methods of training were varied from lectures session, group discussion, role play and clinical practices in the

hospital. Thus, participants also went to communities to practice the counseling skill. Participants also taught to fill in form that they should use after the training while they implement the learning in their own community. Trainers monitored the knowledge and skill of participants by observation and ask questions. Trainers' meeting was held every afternoon after training to discuss participants' progress and plan for tomorrow's sessions. By the end of the training, plan of action was made by participants and trainers including visit once every two weeks by supervisor and monthly meeting as well (Nankunda et al. 2006).

Trainer peer counselors asked to do counseling to pregnant women in the last trimester and lactating mothers. Supervisory visit was carried out to observe and record the knowledge and skill of PC and if there was gap based on the observation, supervisor would discuss the gap with PC and provide feedback. And if needed, supervisor also could help PC. During the visit, it was found that PCs were enthusiastic to share all of the learning from the training to the mothers in spite of the certain problems faced by mothers. Thus, monthly meeting was also used to PCs reported their activities (Nankunda et al. 2006).

Focus group discussion was carried out before and after the training to obtain the response of participants toward the training. As the result, all participants admitted they understand the content of the training and gain knowledge and skill for supporting mothers to practice EBF. A quote from 28 years old participant (Nankunda et al. 2006):

"Before this training, I thought that breast milk alone was not enough for my baby. Now I know that my milk is enough even for as long as 6 months. It will save me a lot of problems."

In relation to the new acquired skill which is counseling, peer counselors faced difficulty to understand its concept. One of peer counselors gave her opinion (Nankunda et al. 2006):

"The consequences of giving advice are that the counselor is blamed for the results; you may be reported to the political local chairperson if things go wrong. It may damage the work done by the counselor because of lack of trust by the community. It is better to share with the mother and allow her to make a decision and the counselor will not be blamed for any unfavorable consequences."

From the reports made by peer counselors illustrated that most mothers had problems on positioning and attachment of the babies to the breast and they were able to solve these problems including cracked nipples and mastitis. They also observed that since mothers think that they did not

have enough milk, they gave cow’s milk as early complementary feeding (Nankunda et al. 2006).

Focus group discussions with counseled mothers also held to evaluate the program. One of the mothers expressed their appreciation toward the PCs by saying (Nankunda et al. 2006):

"Our peer counselor is a jolly person, friendly and is very patient with us; she is easy to approach and has children of her own who are healthy. She has helped us and my sore nipples felt better after she helped me with positioning my baby at the breast."

This statement was supported by FGDs with husband of counseled women. They affirmed that PCs were helpful in assisting mothers to breastfeed (Nankunda et al. 2006).

ANNEX 9: TRAINING SCHEDULE FOR PEER COUNSELOR IN BANGLADESH (HAIDER 1998)

DAY	09.00 - 09.30	09.30 – 10.30	11.00 – 11.30	11.35 – 12.30
1	Introductions Study objectives	Why BF is important and contents of human milk	- Feedback from participants about local BF situation - National situation	Individual expected targets
2	Review	How BF works	Assessing a breastfed (role play)	BF observation form
3	Review	Observing BF (slides)	Listening and Learning (L & L) – Demonstration and	L & L Exercises
4	Review	L & L Exercises	Positioning – Demonstration and video	Expression of breastmilk
5	Review	Building confidence and giving support	Role play in 2 groups	Role play
6	HOLIDAY			
7	Review	No enough milk and crying	BF history	Role play
8	Review	Women's nutrition, health and fertility	Feeding LBW and sick babies	Practice with real mothers
9	Review	Crying and refusal to BF	Role play	Working women and BF (video)
10	Review	PC responsibilities	Role play – from pregnancy to follow up counseling at 1 month	Role play – common BF problems

ANNEX 10: ELEMENTS OF A COMPREHENSIVE BF PROGRAM (WELLSTART INTERNATIONAL 1996 CITED IN WHO 2003b)