

BREASTFEEDING COUNSELING, BARRIERS AND FACILITATORS OF  
LACTATION IN THE MILITARY COMMUNITY

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**Breastfeeding has been endorsed by many professional organizations as the ideal infant feeding method. However, the literature shows that many health care providers do not actively endorse and support breastfeeding in their practices. This comparative descriptive study was designed to explore the extent to which breastfeeding is being facilitated at one military facility. This study also describes the differences in facilitators and barriers between women who breastfeed their infants for four months, versus those who did not. Sixty-four women completed a six page questionnaire that was analyzed using SPSS for Windows. Sixty-five percent of the respondents reported their Health Care Providers recommended breastfeeding. Pediatricians and Nurse Practitioners were the most frequent source of breastfeeding counseling. All HCPs were rated as helpful or very helpful with respect to the counseling they provided. However only staff nurses and lactation consultants were found to be helpful with breastfeeding assistance. A low attendance of breastfeeding classes (23%) was noted, and 63% reported no arrangements were made for follow up breastfeeding support. Eighty-eight percent of the respondents initiated breastfeeding while 39% were still exclusively breastfeeding at four months. Barriers cited were lack of pre-pregnancy breastfeeding counseling, high incidence of breastfeeding moms receiving gift packs of formula, infants receiving formula supplements in the hospital, and mothers being advised to supplement with formula after discharge. Other barriers included frequent moves, lack of familial support, active duty status and working mothers complaining of not having time to pump. Facilitators cited were a high incidence of rooming in and feeding on demand, and respondents reporting a high degree of satisfaction with their in-hospital breastfeeding experience. Women who breastfed less than four months were less likely to recall discharge instructions and how to tell if the baby was receiving enough milk. Despite a higher than average incidence of breastfeeding in this military community, increased health care provider awareness and support for lactation is recommended.**

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## ABSTRACT

Breastfeeding has been endorsed by many professional organizations as the ideal infant feeding method. However, the literature shows that many health care providers do not actively endorse and support breastfeeding in their practices. This comparative descriptive study was designed to explore the extent to which breastfeeding is being facilitated at one military facility. This study also describes the differences in facilitators and barriers between women who breastfeed their infants for four months, versus those who did not. Sixty-four women completed a six page questionnaire that was analyzed using SPSS for Windows. Sixty-five percent of the respondents reported their Health Care Providers recommended breastfeeding. Pediatricians and Nurse Practitioners were the most frequent source of breastfeeding counseling. All HCPs were rated as helpful or very helpful with respect to the counseling they provided. However only staff nurses and lactation consultants were found to be helpful with breastfeeding assistance. A low attendance of breastfeeding classes (23%) was noted, and 63% reported no arrangements were made for follow up breastfeeding support. Eighty-eight percent of the respondents initiated breastfeeding while 39% were still exclusively breastfeeding at four months. Barriers cited were lack of pre-pregnancy breastfeeding counseling, high incidence of breastfeeding moms receiving gift packs of formula, infants receiving formula supplements in the hospital, and mothers being advised to supplement with formula after discharge. Other barriers included frequent moves, lack of familial support, active duty status and working mothers complaining of not having time to pump. Facilitators cited were a high incidence of rooming in and feeding on demand, and respondents reporting a high degree of satisfaction with their in-hospital breastfeeding experience. Women who breastfed less than four months were less likely to recall discharge instructions and how to tell if the baby was receiving enough milk. Despite a higher than average incidence of breastfeeding in this military community, increased health care provider awareness and support for lactation is recommended.

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BREASTFEEDING COUNSELING, BARRIERS AND FACILITATORS OF LACTATION  
IN THE MILITARY COMMUNITY

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## DEDICATION

There is a reason behind everything in nature.

Aristotle

This work is dedicated to my husband, Philip, whose unfailing support and tireless patience has kept me sane through two very trying years, and to my beautiful son, Noah, whose arrival fostered the concept of this thesis. He is my single greatest accomplishment.

Much of the credit for the successful completion of this project belongs to Philip for his insightful editing and computer skills.

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## TABLE OF CONTENTS

CHAPTER ONE: THE RESEARCH PROBLEM.....	1
Introduction.....	1
History of Breastfeeding Trends in the United States.....	1
Current Goals for Breastfeeding.....	2
Counseling Practices.....	3
Relevance to Active Duty Military and Beneficiaries.....	4
Role of the Health Care Provider.....	6
Statement of the Problem.....	7
CHAPTER TWO: REVIEW OF THE LITERATURE.....	8
Facilitators of Breastfeeding.....	8
Contraindications to Breastfeeding.....	12
Barriers to Breastfeeding.....	13
The Effect of Counseling on Breastfeeding.....	14
CHAPTER THREE: FRAMEWORK OF THE STUDY.....	18
Application of the Model.....	18
Operational Definitions.....	20
Assumptions.....	21
CHAPTER FOUR: METHODOLOGY.....	22
Research Design and Procedures.....	22
Measurement Methods.....	23
Protection of Human Rights.....	24
Data Analysis.....	24
Research Questions and the Corresponding Questions in the Tool.....	25

CHAPTER FIVE: DESCRIPTION OF THE DATA.....	26
Return Rate.....	26
Demographics.....	26
Research Questions.....	28
Comments.....	48
CHAPTER SIX: CONCLUSIONS.....	50
Response Rate.....	50
Demographic Data.....	50
Research Questions.....	51
Limitations.....	56
Recommendations.....	58
REFERENCES.....	59
APPENDICES.....	64

## LIST OF TABLES

Table 1. Infants Age When Solids or Supplements Were First Introduced.....	29
Table 2. Discharge Instructions Received by Patients.....	31
Table 3. Sources of Infant Feeding Counseling.....	32
Table 4. Sources of Breastfeeding Assistance.....	34
Table 5. Amount of Breastmilk Received by Infants at Four Months of Age.....	35
Table 6. Amount of Formula Received by Infants at Four Months of Age.....	36
Table 7. Respondents Perception of Helpfulness of Providers by Category.....	37
Table 8. Respondents Rating of Providers Helpfulness with Breastfeeding.....	38
Table 9. Factors Influencing Respondents Decision to Breastfeed.....	40
Table 10. Respondents Rating of in Hospital Breastfeeding Experience.....	41
Table 11. Factors Influencing Respondents Decision to Bottle-feed.....	43
Table 12. Discharge Instructions Recalled by Comparison Groups.....	44
Table 13. Factor Ratings that Differed Between Comparison Groups.....	45
Table 14. Respondent Rating of Breastfeeding Information Provided.....	46
Table 15. Comparison of Respondent Ratings of Providers Assistance With Breastfeeding.....	46
Table 16. Respondent Rating of Factors Influencing the Decision to Bottle-feed.....	47

LIST OF FIGURES

Figure 1. Respondent Population Demographics.....27

Figure 2. Respondent Population by Sponsors Rank.....27

## CHAPTER ONE: THE RESEARCH PROBLEM

### Introduction

Breastfeeding has been endorsed as the ideal infant feeding method by many national, professional organizations, including the American Academy of Pediatrics (AAP, 1997), American Academy of Family Physicians (AAFP, 1994), and the American Dietetic Association (ADA, 1993). The AAP has recently expanded their recommendation and endorses breastfeeding for a minimum of 12 months, and thereafter encourages mothers to continue breastfeeding for as long as mutually desired. The ADA has recommended exclusive breastfeeding for the first four to six months of an infant's life (AAP, 1978; ADA, 1993).

Breastfeeding offers advantages to both infant and mother. Human milk is ideally suited to the digestive system of infants. It also provides the nutrients, electrolytes and immunological factors necessary for optimal growth and development of children (Akridge, 1994). Breastfeeding also decreases the incidence of infant infection because immunities specific to the environment are passed from mother to child. This immunological effect results in decreased incidence of hospital admission, diarrhea, respiratory and ear infections and atopic skin disease (Cunningham, Jelliffe, & Jelliffe, 1991; Fallot, Boyd, & Oski, 1980). In addition, the chance of contamination is reduced (when compared to bottle feeding) since the milk is passed from the breast into the child's mouth (Beischer & MacKay, 1986; Brown, 1987).

As is with the infant, breastfeeding is also beneficial to the mother. There are high levels of prolactin released during breastfeeding which enhances maternal/infant bonding (Brown, 1987; Freed, 1993). Additionally, breastfeeding reduces postpartum hemorrhage and promotes involution of the uterus (Akridge, 1994; Beischer et al. 1986; Patton, Beaman, Csar, & Lewinski, 1996)

### History of Breastfeeding Trends in the United States

The literature indicates that until the 1900's breastfeeding whether via the mother or a surrogate wet nurse was pretty much the inclusive method of infant feeding. With the research by Lister and others on germ theory, some providers began to question whether nursing was

sanitary . By the early 1900 s, some physicians began prescribing formulas for infant feeding. These were generally instituted by upper class women who could afford private physicians. As a consequence, use of formulas became associated with higher social status. This resulted in a rise in formula use by upper and middle classes (P. McMullen, personal communication, April, 1998).

The incidence and duration of breastfeeding in the United States declined for all populations from the beginning of the century to the early 1970 s (Scrimshaw, 1984). During the period between 1955 and 1970 the incidence had declined to lows ranging from 24-29% (Lawrence, 1994). In 1975, an increase to 33% was reported. The incidence continued to rise slowly, reaching a peak of 62% in 1982.

The duration of breastfeeding has also declined. At the turn of the 19<sup>th</sup> century, 50% of infants in the United States were being breastfed at one year of age (Lawrence, 1994). These rates diminished drastically. By 1966, only 5% of infants were still being breastfed at six months. Both the incidence and duration of breastfeeding declined by approximately 10 percentage points from the middle to late 1980 s (Bagwell, Kendrick, Stitt, & Leeper, 1993). Currently, Ross Laboratories report 59.2% of new mothers are breastfeeding upon discharge from the hospital; with 21.7% still breastfeeding at six months (Ross Products Division [Ross], 1996).

While statistics tend to be decreasing for both incidence and duration of breastfeeding, rates vary significantly when isolated for demographic variables. Women who breastfeed tend to be Caucasian, older, well educated, and living in the western states (Lawrence, 1994). Women from minority groups, low-income homes, and uneducated, younger women, living in the southwest, tend not to breastfeed or to terminate breastfeeding early.

#### Current Goals for Breastfeeding

World wide, many organizations have called for an increase in promotional efforts, with the goal of increasing the incidence and duration of breastfeeding. In a joint statement, the World Health Organization (WHO) and the United Nations Children s Fund (UNICEF) outlined the Ten Steps to Successful Breastfeeding (WHO, 1989). An attempt to increase global breastfeeding

rates, this guide delineates barriers to and facilitators of breastfeeding and recommends strategies for the promotion of breastfeeding by hospitals and health care providers (see Appendix A).

Suggested actions for the health care worker are also provided. Both WHO and UNICEF recommend that health care professionals use this guide to assess how well they are meeting the standards and where improvements can be made.

The Surgeon General of the United States also recognizes the special role breastfeeding can play in improving the health of the nation. Health goals for the nation, first published in 1978 and restated in 1989, have called for 75% of women to breastfeed during their initial postpartum period, with 50% still breastfeeding at six months (United States Department of Health & Human Services [USDHHS], 1991). Key elements for the promotion of breastfeeding within the health care system have been outlined by the DHHS in the Report of the Surgeon General's Workshop on Breastfeeding and Lactation (Scrimshaw, 1984). These elements focused on education and support in the primary care, prenatal, in-hospital, and postpartal ambulatory care settings (see Appendix B).

#### Counseling Practices

Studies have shown that while most health care providers have positive attitudes towards breastfeeding, many do not actively counsel women to breastfeed, nor do they initiate interventions to increase the duration of breastfeeding. A study of attitudes and practices of 59 pediatricians in the Baltimore area reported that 72% had favorable attitudes towards breastfeeding, however, 48% did not make infant feeding recommendations to mothers, and only 15% reported conducting educational support programs. Six of these practices offered prenatal classes, one special counseling and two followed breastfeeding mothers postnatally via telephone. Eighty percent of the 54 respondents who provided information on the types of materials they used for education, made pamphlets available to mothers. These pamphlets were provided by pharmaceutical companies who manufacture infant formulas (Michelman, Faden, Gielen & Buxton, 1990).

A Canadian study (Valaitis & Shea, 1993) assessed literature provided by hospitals, clinics, doctors offices, and the Department of Public Health for reading level, positive attitude towards breastfeeding, accuracy of information, and compliance with the World Health Organization & United Nations Children s Fund (WHO/UNICEF) Code on the Marketing of Breastmilk Substitutes. The literature was evaluated by two independent investigators who found that materials provided by pharmaceutical companies often portrayed breastfeeding in a negative manner.

In the second follow-up report to the Surgeon General s Workshop on Breastfeeding and Human Lactation (Spisak & Gross, 1991), the Public Health Service sent questionnaires to 555 individuals, organizations, and agencies involved with nutrition, maternal/child health and breastfeeding counseling. The purpose of this study was to describe what promotional breastfeeding activities were in progress in the decade following the initial workshop. This study had a low response rate of 20% (111 questionnaires returned). Of the perceived barriers to breastfeeding existing in health care facilities, professional education issues were mentioned by 51% of the respondents. Lack of professional support or encouragement, inaccurate or inappropriate advice, general lack of education among health professionals, and lack of access to professionals trained in breastfeeding were issues identified as barriers.

#### Relevance to Active Duty Military and Beneficiaries

Beneficiaries of military medicine, like all health care consumers, have the right and the responsibility to make informed health care decisions. Research indicates that many nurses and physicians are not adequately prepared to provide breastfeeding counseling and support (Freed, Clark, Sorenson, Lohr, Cafal & Curtis, 1995; Newton, 1992; Patton et al., 1996). Lawrence (1994) states that many physicians do not discuss lactation prenatally, and some feel that counseling on breastfeeding is not an appropriate use of their time. No data on the Breastfeeding counseling practices of Advanced Practice Nurses (APN) was found. Under Tri Care there is a great deal of emphasis placed on health promotion and disease prevention. This has been done to improve

quality of care, while reducing costs associated with illness (P. McMullen, personal communication, March 1997).

Breastfeeding may be beneficial for women in the military in preparation and decreased cost. The military community serving abroad may have concerns about the preparation of formula in areas without potable water. Turkey is one such area that military members might serve with their families. In addition to buying formula, families stationed in this area might have the added cost of buying extra bottled water for the preparation of concentrated or powdered formulas. Stateside, many military members with lower incomes or large families defray the expense of formula and feeding by utilizing WIC (Women Infant Children) benefits. However, according to K. Knolhoff (personal communication, 6 May 1997), an Associate Executive Director for WIC, funds are not available to Americans serving overseas. Breastfeeding eliminates both of these concerns because it is economical and sanitary.

#### Role of Health Care Provider

Health promotion has become a primary focus in nursing and in medicine (Snyder, 1995). Health care providers are a frequent source of prenatal and postnatal care for women and children. As such, they can play important roles in counseling, support, and problem solving in breastfeeding. A study by Kistin, Benton, Rao & Sullivan (1990) demonstrated that counseling has a positive impact on the initiation and duration of breastfeeding.

The Standards of Practice for advanced practice nurses define the role Advanced Practice Nurses (APNs) should play in health promotion and disease prevention. The advanced practice registered nurse employs complex strategies, interventions, and teaching to promote, maintain, and improve health, and prevent illness and injury (American Nurses Association [ANA], 1996, p.13). Several studies confirm that the APN focuses on health promotion and disease prevention (Avron, 1991; Hall, 1990; Salkever, 1992). Many active duty and dependent women in the military may lack familial support during pregnancy and the postpartum period. The APN can make the transition to breastfeeding a positive one by providing such support.

Studies comparing the quality and effectiveness of APNs and physicians have favored the APN as better listeners and history takers. According to Safriet (1992), patients expressed increased satisfaction with APNs, in part because of increased dissemination of information.

APNs often have on-going relationships with their patients, and such long-term relationships can provide a strong foundation for breastfeeding education. Educating patients on breastfeeding is one way a family nurse practitioner can promote health and prevent disease in infancy.

APNs work collaboratively with other members of the health care team, such as obstetricians, lactation nurses, postpartum staff nurses and technicians (Safriet, 1992). Through team work, APNs can foster positive breastfeeding behaviors. APNs, particularly Family Nurse Practitioners (FNP), address health care issues as family issues, not isolated patient concerns. The literature demonstrates that involvement of a woman's significant other positively impacts on her selection and continuance of breastfeeding (Kessler, Gielen, Diener-West & Paige, 1995).

This study will provide greater insight to the APN in understanding the special needs of women in the military community. The APN and other providers of family care can utilize this information to promote and support breastfeeding more effectively. The focus of this study is on the breastfeeding counseling provided by selected military health care providers who are in a position to influence the incidence and duration of breastfeeding. The purpose of this study was to describe differences in facilitators, barriers, and breastfeeding counseling practices for active duty and dependent women who exclusively breastfeed their infants for four months and those who did not. This research will increase the body of information focusing on the client's perspective of, and satisfaction with the counseling received at one military facility.

### Statement of the Problem

The research questions to be examined at this mid-sized Air Force hospital are:

1. To what extent is breastfeeding being promoted?
2. What types of counseling occur?
3. Who is providing this counseling?
4. What is the extent of breastfeeding?
5. To what degree are patients satisfied with the counseling they receive?
6. What are the perceived barriers to, and facilitators of successful breastfeeding?
7. Are there significant differences in counseling practices, barriers and facilitators between those mothers who do, or do not exclusively breastfeed for at least four months?

## CHAPTER TWO: REVIEW OF THE LITERATURE

The volume of breastfeeding related research is vast. Many researchers have addressed counseling issues, however, there has been limited research on counseling in military facilities. Authorities uniformly recommend prenatal and postnatal counseling and support to increase the incidence and duration of breastfeeding (Auerbach & Guss, 1984; Essex, Smale & Geddis, 1995; Janke, 1993; Kaplowitz & Olson, 1983; Kessler et al., 1995; Kistin et al., 1990; Kugler, Lee & Lewis, 1994; Lawson & Tulloch, 1995; Rodriguez-Garcia & Frazier, 1995; Timbo, Altekruse, Headrick & Klontz, 1996). Research indicates that health care professionals are regarded as important and trusted sources of infant feeding information (Bagwell et al., 1993). The goal of this research study was to determine the types and extent of breastfeeding counseling provided at one military facility; and to identify facilitators of, and barriers to successful breastfeeding.

This chapter will review pertinent literature concerning: facilitators of breastfeeding; contraindications to breastfeeding; disadvantages of and barriers to breastfeeding; and the impact of counseling. The primary focus, though, will be on the advantages of breastfeeding and the impact of counseling.

### Facilitators of Breastfeeding

Breastmilk contains antibacterial, antiprotozoal, and antiviral protection specific to the infants environment (Lawrence, 1994). Breastfed infants have decreased incidences of respiratory infection, as well as otitis media when compared to bottle fed infants. Gastrointestinal infection is virtually eliminated (Hancock, 1986). Breastmilk carries out its antiinfective benefits without inducing inflammation; this offers protection to the infant and the mammary gland (Goldman, 1993; Lawrence, 1994). Retrospective studies indicate that breastfed infants are at reduced risk for developing chronic diseases such as insulin dependent diabetes mellitus, lymphoma, and Crohn s disease. Decreased incidence of leukemia and multiple sclerosis have also been described (Lawrence, 1994). In addition, immunomodulating factors have been identified as possible explanations for these decreases (Goldman, 1993).

The use of cows' milk exposes the infant to foreign proteins and predisposes him/her to allergies. The gastrointestinal system of an infant is permeable to macromolecules.

Immunoglobulin A (IgA) in breastmilk prevents the absorption of foreign macromolecules until the infant's immune system is mature enough to assume this role (Lawrence, 1994). Many allergic syndromes have been associated with cow's milk allergy including gastritis, atopic dermatitis, and rhinitis.

A two year prospective study in Scotland examined the anti-infective protective effect attributed to breastfeeding (Howie, Forsyth, Ogston, Clark & du V Florey, 1990). This study met the methodological criteria established by Bauchner of avoidance of detection bias; adjustment for potential confounding variables; definition of the outcome events; and definition of infant feeding. A cohort of 674 mother/infant pairs were interviewed at standard intervals in their homes. Information regarding infant illness, infant feeding pattern, maternal health, and sibling illness was collected using a standardized form. The four comparative groups included: bottle feeders from birth; early weaners (before 13 weeks); partial breastfeeders (breastfed 13 weeks or more and introduced supplements during the first 13 weeks), and full breastfeeders (breastfed 13 weeks or more and did not introduce supplements during that time). The data was compared between the groups with respect to infant illness during four 12-13 week chronological periods in the infants' lives.

Howie and colleagues (1990) discovered that infants who were breastfed for at least 13 weeks showed significant reduction of gastrointestinal illness ( $p < 0.01$ ). These benefits persisted throughout the first year, even after breastfeeding had ceased. During the first 13 weeks, the breastfed infants had less than one third of the gastrointestinal illness experienced by the bottle fed infants, and throughout the first year, the breastfed group was also less likely to require hospital admission for gastrointestinal disturbances.

Howie and associates (1990) did not find any evidence supporting protective benefits for brief periods of breastfeeding. Additionally, they did not find that infants breastfed for more than

26 weeks had any more protection than those who were breastfed for 13-26 weeks. Similar, although smaller, protective effects were found against respiratory infection ( $p < 0.05$ ).

Morrow-Tlucak, Haude & Ernhart (1988) conducted a prospective study with stringent covariate control to determine if evidence of cognitive advantage was evident in breastfed children at six months, one year, and two years. Batteries of infant assessment measures and maternal interviews were conducted in the clients' home by trained examiners who were blinded to risk factors. The cohort included 229 infant/mother pairs. The infants were classified into three groups: bottlefed; breastfed four months or less; breastfed more than four months. Measurement tools used were the Home Observation for Measurement of the Environment (HOME) and Bayley Scales of Infant Development-Mental Development Index (MDI). HOME is a questionnaire/observation instrument used to assess the home environment in areas of emotional and verbal responsiveness, restriction and punishment, organization, play materials, maternal involvement with the child, and variety in stimulation. Differing maternal intelligence, authoritarian ideology, maternal age, race, cigarette use, marital status, parental education, and HOME were included as covariates.

Findings revealed significant differences in cognitive development at one and two years, favoring first those infants breastfed for more than four months, then infants breastfed four months or less. This trend was also noted at six months, although, it was not statistically significant.

Another study on the cognitive value of breastfeeding was conducted by Horwood and Fergusson (1998). In their 18 year longitudinal study of more than 1000 children in New Zealand, Horwood and Fergusson examined the associations between duration of breastfeeding, childhood cognitive ability, and academic achievement from ages 8-18. From birth to one year, information was collected on maternal breastfeeding practices. During the period from 8-18 years, the subjects were assessed on a range of measures of cognitive and academic outcomes including intelligence quotient; school performance; standardized tests of reading comprehension, mathematics, and scholastic ability. Pass rates in school and leaving school without qualifications were also examined.

Horwood and Fergusson (1998) concluded that increased duration of breastfeeding was associated with consistent and statistically significant increases intelligence quotient at eight and nine years; reading comprehension, mathematical ability, and scholastic ability at 10-13 years. Teacher ratings of reading and mathematics at 8 and 12 years, and higher grades in final examinations were also positively affected. Children who were breastfed for eight or more months had mean test scores that were between 0.35 and 0.59 standard deviations higher than those who were bottle-fed. Regression adjustment for maternal and other confounding factors reduced the associations between breastfeeding and cognitive or educational outcomes. However, duration of breastfeeding remained a significant predictor of cognitive abilities and educational outcomes. Children who were breastfed for at least eight months had mean test scores that were between 0.11 and 0.30 standard deviations higher than those who were not breastfed.

Improved infant development has been shown to be associated with breastfeeding. A Chinese study of 145 normal full term infants compared differences in infant development and resistance to infection between 57 exclusively breastfed and 83 partially breastfed or subsequently bottle-fed infants (Wang & Wu, 1996). All mothers received similar counseling and encouragement not to introduce supplements for at least four months. The mothers all lived in the same area, had an average income for Shanghai and all had a least nine years of formal education. The author did not elaborate further on educational differences. The infants were evaluated at one half, one, one and one half, two and one half, four, and twelve months. During the assessments, mothers were interviewed regarding infant feeding behaviors. Physical development was determined by weights and lengths at four and twelve months. Developmental status at one year was assessed by two trained medical persons using the Denver Developmental Screening Test. Personal-social, fine motor-adaptive, language, and gross motor responses were recorded and qualified as A or B. A meant the infant passed all items for his age. B meant he did not. The infants were held to standards for Chinese children. The incidence of infectious disease was determined from physical examination during the assessments, as well as reviewing medical

records. The incidence of respiratory, gastrointestinal and skin infections during each month were recorded for twelve months.

Differences between the two groups were determined using t-test and chi square analysis. The mean weight of the exclusively breastfed infants at four months was higher ( $p < .05$ ); at 12 months they showed more advanced personal-social development ( $p = .05$ ); gross motor development ( $p < .05$ ); and decreased incidence of infectious disease ( $p < .05$ ). Overall, the results indicated the exclusively breastfed infants had better development and lower incidences of infection (particularly respiratory and gastrointestinal) than their non-exclusively breastfed counterparts. The researchers concluded that non-exclusive breastfeeding limits the benefits of breastfeeding to the infant and increases the likelihood of infection in the infant in the first year of life (Wang & Wu, 1996).

#### Contraindications to Breastfeeding

There are some medical contraindications to breastfeeding. Breast cancer is one such contraindication. There is some concern that prolactin (increased during breastfeeding), along with sex steroids, contribute to accelerated growth of malignant cells (Lawrence, 1994). Serious infectious diseases that are known to be transmitted through breast milk are also contraindications. Examples include: Hepatitis C; active Herpes Simplex Virus lesions of the breast; Human Immunosuppressive Virus (except in developing countries where the risk of death from diarrheal and other infectious disease is 50% in the first year); Human T-cell leukemia virus (HTLV-I) which is endemic in parts of Japan, Africa, and the West Indies; and HTLV-II which is endemic in IV drug users. (Akridge, 1994; Beischer & Mackay, 1986; Lawrence, 1994). Tuberculosis is also a contraindication to breastfeeding until the woman has taken anti-tuberculosis medication for one week (Akridge, 1994).

The mother who abuses IV drugs should not breastfeed. Women taking large doses of potentially toxic drugs such as heroin, anticonvulsants, anticoagulants and antithyroid medications

should avoid breastfeeding (Beischer & Mackay, 1986). Life threatening or debilitating illness in the mother may also necessitate avoiding lactation.

### Barriers to Breastfeeding

Two primary reasons cited for early termination of breastfeeding are painful breasts and the perception of insufficient milk supply. A longitudinal study of 4286 mothers in New Zealand was conducted to establish the incidence of breastfeeding and the reasons for termination of breastfeeding (Essex et al., 1995). Information was obtained at six weeks, three months and six months postpartum. The data was collected from the primary care giver during interviews in the home which were guided by a structured questionnaire. Essex and colleagues found that in the first week postpartum mechanical problems such as sore nipples, difficulty latching on, and problems with sucking were the main reasons for stopping breastfeeding. The most common reason for terminating breastfeeding in the first six months was perceived insufficient milk supply. Behaviors suggestive to mothers of insufficient milk supply were color of the milk, suckling time, infant fussiness, poor infant weight gain, and the infant wanting to nurse frequently.

Additional studies have shown numerous other barriers to breastfeeding. Factors perceived by the mother as inconvenient to her are barriers to breastfeeding (Lawrence, 1994). Formula feeding is often chosen over breastfeeding by those who perceive it to be the easier, more convenient method (Kessler et al., 1995). Being uncomfortable with public breastfeeding also poses a barrier (Rodriguez-Garcia et al., 1995). In societies where public breastfeeding is common, breastfeeding is usually more acceptable (Lawrence, 1994).

Commonly listed barriers to breastfeeding are associated with return to work or school. Lack of flexible schedules, length of maternity leave, and lack of facilities for the pumping and storage of milk also have been cited as barriers (Spisak & Gross, 1991). A woman whose significant other is not supportive of breastfeeding will likely choose to bottle-feed or will wean early (Kessler et al., 1995). Supplementing early in lactation is associated with early weaning (Loughlin, Capp-Channing, Gehlbach, Pollard & McCutchen, 1985). Reasons cited for

supplementing are: insufficient milk, return to work/school, perception that formula is easier or more convenient, infant preference, infant illness, and ease in getting the infant to sleep at night (Janke, 1993).

In a yet unpublished study exploring the factors affecting breastfeeding in the military community, Kugler and colleagues (1994) found a high intent to breastfeed (80%) in their cohort of 356 active duty and dependent women. This rate dropped to 36% by six months postpartum. The highest rate of attrition took place in the first three months. Eighty-six percent of the 156 women who were no longer breastfeeding at six months, stated that they stopped breastfeeding sooner than they wanted. The author suggested that increased nutritional counseling during the first three months might decrease this attrition rate. Kugler also emphasized the need for further research exploring reasons for cessation of breastfeeding after return to work is needed. Several factors were noted to be facilitators of successful breastfeeding. Factors associated with breastfeeding at six months were a belief in the nutritional value of breast milk and a previous positive experience with breastfeeding. The researchers concluded that the primary variables influencing the infant feeding decision were past experience, knowledge about nutrition and maternal occupational status.

#### The Effect of Counseling on Breastfeeding

It is well documented that prenatal counseling increases the incidence of breastfeeding. Timbo and colleagues (1996) analyzed data collected during the 1988 National Maternal Infant Health Survey. They focused on African American women because of the low prevalence of breastfeeding in this population. Of the 8,830 African American women sent questionnaires 5,142 responded. This gave them a response rate of 58%. A higher incidence of breastfeeding was associated with women who recalled receiving prenatal advice to do so ( $p \leq 0.01$ ). Attendance at prenatal classes was also positively correlated with breastfeeding. The study reported limitations in recall bias, a loose definition of breastfeeding and the use of already dated data.

Several older studies have also shown that a supportive health care provider can increase the duration of breastfeeding (Barron, 1988; Hall, 1978; Saunders & Carrol, 1988). In a 1991

survey of 84 mothers, 32% cited lack of support from health care professionals as a barrier to successful breastfeeding (Spisak & Gross, 1989).

Salient others may play a role in the receptivity towards breastfeeding. Coreil, Bryant, Westover, and Bailey (1995) explored the breastfeeding views of both clients and providers through focus groups and in-depth interviews. Thirty-five focus groups, comprised of four to ten economically disadvantaged women from the southwest, were asked to discuss various aspects of the breastfeeding counseling they received. It was described as a common experience to have a provider ask what the preferred feeding method was without attempting to influence the decision. Some perceived this as disinterest, or non-supportive of breastfeeding. Others felt pressured into breastfeeding, stating that attempts were made to influence them to breastfeed without adequately explaining the benefits. Another common experience was in the management of breastfeeding problems. Clients felt that physicians, in particular, readily advised supplementation or weaning when problems were encountered.

Although the women held the advice of their physicians in high regard, most breastfeeding education actually came from nurses and dietitians. Educational pamphlets were well received, but the women did not feel these materials should replace individual counseling. Some women felt they had better comprehension when written materials were provided to reinforce breastfeeding discussions. They also seemed to be overwhelmed with large volumes of pamphlets. The author did not elaborate on the educational tactics preferred by different types of providers.

Interactive classes were better received than those with a one directional flow of information. It was also suggested that pros and cons of both feeding methods should be presented. In addition, mothers who planned to breastfeed would have liked more technical information, such as a breastfeeding demonstration.

The study also showed that providers almost universally complained of lack of time to adequately counsel women. Economically deprived women were perceived to be disinterested in breastfeeding and it was believed that they lacked the family support to be successful. It was

generally accepted that breastfeeding offered unique advantages to the physical health of the infant, although, the psychosocial benefits were not discussed by either group.

Several of the providers felt that breastfeeding was complicated and felt the need to be truthful about the disadvantages of breastfeeding when counseling clients. None of the providers brought up the disadvantages of formula during either the focus group sessions or the in-depth interviews. It was acknowledged by the providers that they would rarely attempt further discussion if the woman stated a preference for bottle feeding. The authors stated the providers assumed clients were sufficiently knowledgeable to make this decision without counseling. The study indicates, however, that some women stated a feeding choice prior to actually making a firm decision because they believed it was necessary to provide an immediate answer. The author suggested that these women may be amenable to further counseling.

The attitudes of 151 medical professionals towards breastfeeding were explored by Lazzaro, Anderson, and Auld (1995). A modified version of the questionnaire developed by Lawrence (1982) in her study on the same subject was sent to 464 health professionals. Their results were similar to those found by Lawrence. Lazzaro et al. (1995) discovered that all health professionals were less likely to advocate breastfeeding when mothers had made the decision to bottle feed. Additionally, not all providers initiated the topic of breastfeeding with their clients. They found that 52% of physicians and 71% of office nurses initiated counseling in the first trimester. This number dramatically decreased as the pregnancy progressed. Lazzaro et al. study was limited by a low (30%) response rate. Also, the study was conducted in Colorado, which has higher breastfeeding rates than the national average. Therefore, it would be improper to generalize these numbers to the nation as a whole.

In the only study of its kind, Kaplowitz and Olson (1983) found that increasing the knowledge base of 44 WIC participants, without promoting positive attitudes did not significantly increase the incidence of breastfeeding. They also found that the group most easily persuaded included women who were still undecided regarding which feeding method they would employ.

There is no question that breastfeeding offers unique protection to the infant. Therefore, increasing the frequency of breastfeeding is a desirable goal. The literature identifies that through personal counseling and education, health care providers can influence women to breastfeed. However, the literature also indicates that this intervention does not always occur.

## CHAPTER THREE: FRAMEWORK OF THE STUDY

Pender's Health Promotion Model (Marriner-Tomey, 1994) is applicable to this study. Based in part on Bandura's social learning theory, this model identifies cognitive-perceptual factors in the client that are modified by situational, personal, and interpersonal characteristics to result in the participation of health promoting behaviors in the presence of a cue to action (,). Cognitive-perceptual factors have a direct influence on client behavior; modifying factors have an indirect influence. Demographic and biologic characteristics, interpersonal influences, situational and behavioral factors are examples of modifying factors. Examples of cognitive-perceptual factors that the researcher believes can be responsive to breastfeeding counseling are:

1. *Perceived control of health.* The individual's perception of his own ability to change his health can motivate his desire for health.
2. *Perceived self-efficacy.* The individual's strong belief that a behavior is possible can influence the occurrence of that behavior.
3. *Perceived benefits of behaviors.* Individuals may be more inclined to begin or continue health-promoting behaviors if the benefits to such behaviors are considered high.
4. *Perceived barriers to health-promoting behaviors.* According to Pender, the individual's belief that an activity or behavior is difficult or unavailable may influence his intention to engage in it.

### Application of the Model

#### Perceived Control of Health

This factor has been extended to include the mother's perception that breastfeeding will have a positive impact on her infant's health. To achieve this perception, learning about the benefits of breastfeeding should occur.

### Perceived Self-Efficacy

The health care provider must present breastfeeding in a positive manner in both individual and group counseling sessions. Many women are of the opinion that breastfeeding is difficult and painful. Myths should be dispelled; perceived disadvantages clarified. The mother should be made aware that some problems may be encountered, but that with appropriate support, most problems are not insurmountable.

### Perceived Benefits of Behavior

A balanced approach to the pros/cons of all feeding methods should be provided, before the woman is asked to commit to one particular method, so that she can make an informed decision. This information could be incorporated into the standard obstetrical orientation in military facilities. The information should be reinforced individually by health care providers, offered later in the pregnancy during a breastfeeding class, and also during postpartum and well-baby checkups. Particular attention should be paid during the first six weeks postpartum when the attrition rate is high (Lawrence, 1994).

### Perceived Barriers to Health-Promoting Behaviors

Again, many misconceptions about breastfeeding exist. Some women believe that they are unable to breastfeed or that breastfeeding is painful or difficult. These women may have had an unsuccessful breastfeeding experience perhaps due to a lack of expert support. These women may share their negative experiences with other women, undermining their self confidence.

Women who must return to work may feel that pumping is painful, or too time consuming to incorporate into their work schedule. These individual barriers should be explored and addressed by the health care provider.

## Operational Definitions

For the purpose of this study, the following definitions were used:

### Specific Terms

Health Care Provider. A nurse practitioner, midwife, lactation consultant, family practice physician, obstetrician, or pediatrician.

Advanced Practice Nurse. A registered nurse with the additional formal education, clinical experience and certification necessary by law to practice as an advanced practice nurse. For the purpose of this study, an APN is an FNP, CNM or CNS.

Exclusive breastfeeding. Breastmilk is provided by the mother as the exclusive primary nutritional source for the infant during the first four months of life. The infant receives no formula, although some mothers may have started introducing solids such as cereal.

Non-exclusive breastfeeding. Breastmilk provided by the mother is not the exclusive source of primary nutrition for the infant during the first four months of life. This infant either solely or in part receives formula.

Early weaners. Breastfed less than 16 weeks.

Partial breastfeeders. Breastfed 16 weeks or more with formula being introduced as a regular supplement during the first 16 weeks.

Exclusive bottle feeders. Bottle fed from birth.

Barriers. Factors which a mother felt would deter her from successful breastfeeding.

Facilitators. Factors which a mother felt supported her in the goal of successful breastfeeding.

Healthy infant. An infant without medical problems which would prohibit the progression of breastfeeding.

Healthy mother. A woman without medical problems which might contraindicate or interfere with the normal progression of lactation or breastfeeding.

### Assumptions

This study makes the following assumptions:

1. The respondents understood the questions.
2. Each respondents answered the questions completely, truthfully, and accurately.

## CHAPTER FOUR: METHODOLOGY

### Research Design and Procedures

This was a comparative descriptive study using a quantitative approach. Data was collected using a six page questionnaire employing open and close ended questions as well as Likert scales. A comment section allowed the respondent greater opportunity for expression. This design was chosen in an attempt to identify the client's perceptions of the types and extent of breastfeeding counseling they received, as well as barriers to and facilitators of successful breastfeeding in this military community.

The data was collected at a mid-sized Air Force hospital located in the northeast United States. The researcher distributed questionnaires in the pediatric clinic from November 1997 through January 1998. The respondents were given the choice of being interviewed by the researcher, completing the questionnaire themselves, or taking the questionnaire home for completion before returning it via a stamped self-addressed envelope provided by the researcher. Many choose the interview process because they were encumbered with children.

The sampling was a non-random convenience sample of women with infants between the ages of four and twelve months. All of the respondents were military beneficiaries of health care, either active duty, retired or dependents. None of the infants included in the sample had medical prohibitions to breastfeeding either at birth or at the time the survey was completed. After the data was collected, the subjects were divided into two groups: (a) exclusive breastfeeders (breastmilk being the exclusive primary source of nutrition for the first four months), and (b) non-exclusive breastfeeders (early weaners, partial breastfeeders and exclusive bottle-feeders). Facilitators, barriers, and breastfeeding counseling practices were described for each group and then compared to determine if there are any differences between the two groups.

### Measurement Methods

The six page questionnaire (Appendix E) was developed through personal/professional experience, a review of the literature, and some of the recommendations made by the WHO and the Surgeon General. Questions 13 and 27 were modifications of questions developed by Lawrence (1982) and were used with her permission. The research questionnaire utilized close-ended, open-ended, and Likert scale questions to obtain information related to perception of breastfeeding support and counseling the respondents received through the military system. Barriers to, and facilitators of successful breastfeeding were also sought.

Estimates of content validity of the instrument were obtained through review by a panel of three experts who rated each question for relevance. The average rating was .99 out of 1.0. The panel consisted of a lactation consultant, a midwife, and a family practice physician. Expertise in the content area was evidenced by credentials, current teaching of breastfeeding, and regard by peers as experts in the content area.

A pilot study was conducted at a mid-sized military hospital to assess the reliability of the instrument. The test/retest method was utilized to measure stability of responses. The respondents were encouraged to complete the first survey in the pediatric clinic but a few chose to take it home for completion. A second survey was given to the client in a stamped, self addressed envelope with instructions to mail it to the researcher one week after the initial survey was completed. The respondents who chose to take both surveys home were provided with two envelopes with instructions to wait one week after mailing the first before completing and mailing the second. Of the 20 questionnaires distributed by the investigator, 65% were returned. Fifteen percent of the respondents returning the original survey, also returned the second survey. Stability of response between the first and second completion of the questionnaire was calculated at 86%.

### Protection of Human Rights

Participation in this study was voluntary. A cover letter was included with the survey to explain the purpose of the study and that completion of the survey implied informed consent (Appendix D). Guidelines established by the Uniformed Services University of the Health Sciences Investigative Research Board and the designated military facility were adhered to. Risks of this study were minimal. Subjects were not identified by name. Participants in the pilot study had numbered surveys to match the original survey with the second survey. Data was presented in aggregate form to maintain subject anonymity

### Data Analysis

The data was encoded to prepare it for descriptive statistical analysis. Using the SPSS for Windows program, data was summarized using the frequency procedure on all variables for the two groups. This was done to provide the necessary descriptive information. For interval level data (i.e. age, rank, Likert scale) the means, standard deviations, and ranges were provided as well as raw numbers and percentages. Descriptive analysis of nominal data (i.e. yes/no, infant feeding choice) and ordinal data (i.e. educational status) provided number or frequency of responses, and percentage derived from statistical analysis.

Comparative analysis was run on the variables to see if significant differences existed between the groups. Significance was determined by a  $p \leq .05$ . For nominal and ordinal data, Chi square analysis was used, looking for differences between the groups greater than would happen by chance.

A two tailed t-test was performed when comparing interval level data in the two groups. Using the t-test, the mean value of one group was compared with the other group, looking for significance as determined by a p value of  $\leq .05$ .

### Research Questions and the Corresponding Questions in the Tool

There were 30 questions included in this six page questionnaire. Questions 1-4 ascertained demographic information. The tool was divided into three sections, all respondents completed the first section (questions 1-12) regardless of their chosen feeding method. Section two (questions 13-25) pertained to all mothers who initiated breastfeeding, regardless of length of time achieved. The final section (question 26-29) was completed by all respondents who bottlefed at any point during the first year. Question 30 allowed all the respondents the opportunity to offer comments. Exclusive bottlefeeders did not complete section two. An exclusive breastfeeder would complete section three if she had switched to or included formula after four months of exclusive breastfeeding. What follows are the seven research questions with the corresponding question in the tool. Research question seven is answered by comparing the results of the first six research questions.

1. To what extent is breastfeeding being promoted? 6,10.
2. What type of breastfeeding counseling occurs? 7, 8, 11, 19, 20, 22.
3. Who is providing this counseling? 9a, 14a.
4. What is the extent of breastfeeding? 24, 26, 28.
5. To what degree are patients satisfied with the counseling received? 9b, 14b, 23.
6. What are the barriers to, and facilitators of successful breastfeeding? 12, 13, 15, 16, 17, 18, 21, 24, 25, 27, 29.
7. Are there significant differences in counseling practices, barriers and facilitators between those mothers who do, or do not exclusively breastfeed for a least four months?

## CHAPTER FIVE: DESCRIPTION OF THE DATA

This chapter will present the findings obtained from the data collection. Rate of return and demographic data will first be discussed. The research questions will then be presented, with statistical analysis of the individual survey questions which address that particular research question. All Likert scale questions are on a continuum of 1-5 with 1 being highly negative and 5 being highly positive.

### Return Rate

Seventy-one of 100 questionnaires were returned to the investigator. This provided an overall return rate of 71%. Sixty-four of these were included in the final study. Three were excluded because the infants were less than four months old, two because the mothers had medical contraindications to breastfeeding, and two because they were received after the deadline.

### Demographics

The age range of the participant mothers was 19-42 years, with a mean of 31 years and a standard deviation of 4.93. The infant age range was 4-12 months, with a mean of 7.81 months and a standard deviation of 2.80. Sixty-seven percent of the mothers were Caucasian, 22% were African American, three percent Hispanic, three percent Asian, and five percent were designated as other by the investigator because the respondents had circled more than one of the previously mentioned choices (see Figure 1).

The respondents were asked to indicate their highest educational level. Forty-seven percent respondents had at least a high school diploma, 34% were college graduates, and 19% had graduate level education.

Figure 1

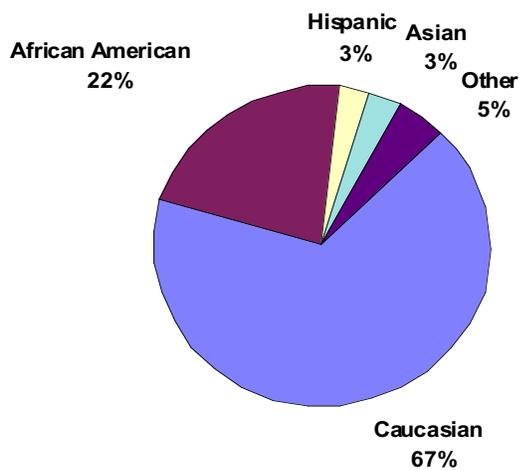
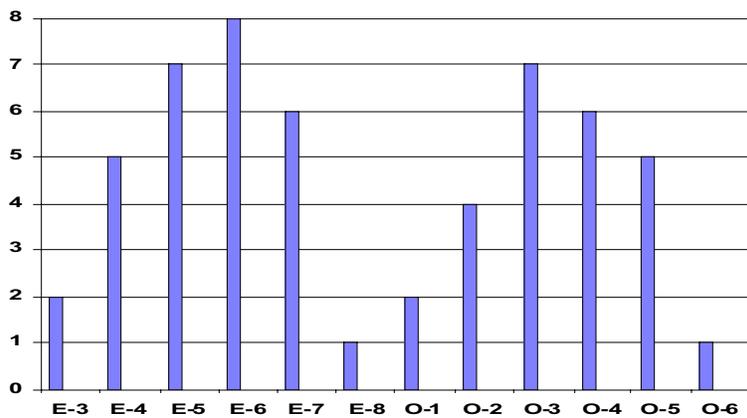
Respondent Population Demographics

Figure 2

Respondent Population by Sponsor's Rank

Twenty-three percent of the 64 participants were active duty military, and 76% were dependent wives. Fifty-four participants specified sponsor's rank. Of these, 54% were enlisted and 46% were officers. The sponsor's rank ranged from E-3 to O-6. E denotes enlisted, the possible range is (in ascending order) from E-1 to E-9. O denotes Officer, the range is (in ascending order) O-1 to O-6. The most frequently cited rank was E-6 (a mid-level enlisted rank) comprising 12% of the sample. There was a bi-modal pattern noted in the sample with the middle ranks of both enlisted and officer representing a greater portion of the sample than either the lower or higher end of their respective spectrums (see Figure 2).

***Research Question One: To what extent is breastfeeding being promoted?***

**Question Six**

Question six consisted of two parts. The first part of the question inquired as to whether the respondent's health care provider (HCP) recommended breastfeeding. Sixty-five percent of the respondents reported their health care provider recommended breastfeeding. The second part of question six addressed the extent breastfeeding was recommended. Twenty-five percent of the respondents reported that they had not been advised to breastfeed, 28% reported that breastfeeding was recommended but not strongly, and 32% reported that breastfeeding was strongly recommended by their health care provider.

**Question Ten**

Question 10 solicited information concerning when mothers received breastfeeding counseling. Respondents checked all the time periods during which they received counseling. Nineteen percent received counseling prior to pregnancy, 31% during their first trimester, 27% during their second trimester, 28% during their third trimester, 45% in

the hospital after the birth, 28% during pediatric appointments and 20 % never received counseling

***Research Question Two: What type of breastfeeding counseling occurs?***

Questions Seven and Eight

These two items discussed when the HCP advised starting supplements/solids, such as cereal and babyfoods, and when the mother actually started introducing supplements. Respondents were asked to note whether the HCP gave a range for the introduction of supplements, such as four to six months. If a range was given, the earliest recommended time was recorded. Eighty-eight percent of the HCPs were reported as recommending the introduction of supplements/solids at four to six months. The majority of the respondents started adding supplements at four months, while eight percent waited until six months to add supplements to their infants diet. (See Table 1)

Table 1

Infants Age When Solids or Supplements Were First Introduced

Age in Months	Frequency	Percent
4	35	56.5
5	13	21
3	6	9.7
6	5	8.1
2	2	3.2
1	1	1.6
Total	62	100

Note. Frequency refers to how many mothers introduced supplements or solids at this age.

### Question Eleven

Question 11 was a three part question which asked if a breastfeeding class was offered, was it attended and was it helpful? In regards to the first part of the question, 81% said a class was offered, and 19% said a class was not offered. Regarding attendance, 23% attended, 67% did not, and 10% said it wasn't applicable. Seventy-seven percent of the respondents who attended the class found it to be helpful.

### Questions Nineteen and Twenty

These two questions explored what instructions the mothers received prior to discharge from the hospital. Fifty-six mothers responded. Two mothers consistently answered not applicable because they had quit breastfeeding at the time of discharge.

Most of the women documented having received comprehensive discharge instructions. Birth control options were the most likely topics to be covered (87%). Breastfeeding topics most frequently discussed were: feeding positions; ascertaining if baby was getting sufficient milk; engorgement; and breast care. Instruction on when and how supplements/solids should be introduced was not provided 46% of the time. Anticipating leakage of milk from the breast and managing growth spurts were two other topics more likely not to be covered prior to discharge (see Table 2).

### Question Twenty-two

Question 22 requested information concerning what arrangements were made for post discharge instruction and support. Fifty-four mothers responded to this question. Sixty-three percent of the mothers said no arrangements were made. Nineteen percent were given a telephone number to call, if needed. Nine percent of the mothers were referred to a support group or class.

Table 2

Discharge Instructions Received by Patients

Topic Covered	Yes	No	NA
Birth control options	48	7	0
Correct positions for breastfeeding	47	7	2
How to tell if baby receiving enough milk	46	8	2
What to do if engorgement occurs	46	8	2
Breast care	45	9	2
Managing and preventing sore, cracked nipples	45	9	2
What to do if infection develops	44	10	2
Nutrition while breastfeeding	42	12	2
Drugs while breastfeeding	41	13	2
Alcohol while breastfeeding	40	14	2
Tobacco while breastfeeding	40	14	2
Pumping and storing breastmilk	39	15	2
Avoiding nipple confusion	38	16	2
How to increase milk supply	36	18	2
To anticipate leaking milk from breast	35	19	2
Managing growth/appetite spurts	31	23	2
How and when to introduce supplements/solids	28	26	2

Note. NA = not applicable. Numbers expressed are actual respondents. There were 56 respondents to all of the above factors, with the exception of Birth control options to which 55 participants responded.

Four percent of the study participants received a follow up call from the clinic. A follow up clinic appointment was given to a single participant. One woman received the home phone number of her family practice doctor who also introduced her to experienced breastfeeders for additional support. Another woman, who delivered in England, had home visits by a midwife every day for ten days. This is common practice in England and American service people abroad are eligible for this service.

***Research Question Three: Who is providing this breastfeeding counseling?***

Question Nine-A

Question nine-A addressed which providers offered infant feeding counseling. The number one cited source, (48%) was the pediatrician, the nurse practitioner was second with 31%, no one was recorded by 22% of the respondents.

Table 3

Sources of Infant Feeding Counseling

Provider	Frequency	Percent
Pediatrician	31	48
Nurse Practitioner	20	31
No One	14	22
Obstetrician	10	16
Other	10	16
Midwife	8	11
Family Practice Physician	4	6

Note. Frequency refers to the number of respondents who reported having received counseling.

Sixteen percent of the subjects reported the obstetrician or other as their source of breastfeeding counseling. Other was documented as relatives, books, friends, childbirth educators, and lactation consultants. The midwife was cited by 11%, and the least cited was the family practice physician, who was mentioned by 6% of the respondents. (See Table 3)

#### Question Fourteen

This question explored who helped the mothers to breastfeed during their hospital stay. Respondents were asked to indicate all of the personnel who had assisted them. Staff nurses were the predominate source of assistance, cited by 66% of the respondents. The only other significant source of assistance came from Lactation Consultants, reported by 25% of the subjects. Midwives and pediatricians were cited as assisting with post delivery breastfeeding by 9% and 5% respectively. Nurse Practitioners were not included in the options because they are not a usual source of in hospital breastfeeding assistance. The respondents had the opportunity to pencil in any others who might have assisted, the Nurse Practitioner was not selected (see Table 4).

#### ***Research Question Four: What is the extent of breastfeeding?***

#### Question Five

This question sought to determine nutrition sources the infant was receiving at four months of age. Thirty-nine percent received no other source of nutrition besides breastmilk. Eleven percent received formula only. Sixty-three percent of the breastfeeding mothers reported that at least 75% of their infant's total nutrition came from breast milk, whereas the formula feeding mothers were more inclined to include other forms of nutrition in their four month olds diet such as juice, baby food and cereal (see Tables 5 & 6).

Question Twenty-four

This item asked the mother how long she intended to breastfeed. Fifty-five mothers responded. The two most frequently cited goals were six months (13%) and 12 months (42.6%). The range was one month to two years, with a mean of five and a half months.

Question Twenty-eight

This item asked how long the mothers breastfed. Of the 42 respondents, 19% never breastfed. Forty-four percent of the 34 remaining mothers nursed for four to six months, 35% for less than four months, and 21% for 7-11 months. The mean length of breastfeeding time was 3.58 months. The range, for those starting out breastfeeding, was 3 days to 11 months.

Table 4

Sources of Breastfeeding Assistance

Provider	Frequency	Percent
Staff Nurse	37	66
Lactation Consultant	14	25
Technician	7	13
Midwife	5	9
Obstetrician	4	7
Family Practice Physician	4	7
Pediatrician	3	5

Question Twenty-six

Question 26 started the section pertaining to bottle-feeders. This question sought to determine which of the mothers switched from breastfeeding and which were dedicated bottle-feeders. Sixty-six percent of the total population of 64 women were bottle feeding at some point during the first 11 months. Two percent of the 42 bottle-feeders indicated they were both breast and bottle feeding at the time of the survey. Sixty-nine percent of the bottle-feeders had switched from breastfeeding and 19% were exclusive bottle feeders.

Table 5

Amount of Breastmilk Received by Infants at Four Months of Age

Percent of Breastmilk	Frequency	Percent of Total Population
100	25	39.1
95	4	6.3
90	5	7.8
85	1	1.6
80	3	4.7
75	2	3.1
70	1	1.6
50	1	1.6
40	1	1.6
20	1	1.6
8	1	1.6
0	19	29.7
Total	64	100

Table 6

Amount of Formula Received by Infant at Four Months of Age

Percent of Formula	Frequency	Percent of Total Population
100	7	10.9
95	3	4.7
90	6	9.4
80	2	3.1
50	3	4.7
48	1	1.6
25	1	1.6
20	3	4.7
15	1	1.6
10	1	1.6
8	1	1.6
5	2	3.1
0	33	51.6
Total	64	100

***Research Question Five: To what degree are patients satisfied with the counseling received?***

Question Nine-B

The second part of question nine explored how helpful the respondents found the information provided to them by various providers. Using a Likert scale, respondents rated information provided. The ratings for all categories of providers was skewed to the

right, with Nurse Practitioners and Midwives receiving the most favorable ratings. (See Table 7)

Table 7

Respondents Perception of Helpfulness of Providers by Category

Provider	Number	Mean	Standard Deviation
Nurse Practitioner	20	4.15	.88
Midwife	8	4.13	.99
Obstetrician	11	3.82	.98
Pediatrician	30	3.50	1.14
Family Practice Physician	4	3.25	1.26

Note. Rating is based on a five point Likert scale with 1 being not helpful , 3 helpful , and 5 being very helpful .

Question Fourteen-B

Part B of Question 14 requested a Likert scale rating on how helpful the providers assisting with in hospital post-partum breastfeeding were. Nurses, lactation consultants, and other were all rated as helpful or very helpful. The other category received the highest rating. Five women cited other influences. These were husband, sister, friends, a Bradley instructor, and a nurse practitioner. Pediatricians, obstetricians, technicians, family practice doctors and midwives were most often perceived as less than helpful (see Table 8).

### Question Twenty-three

Question 23 asked whether follow up support and instruction were needed. This question was answered by 55 mothers. Thirty-six percent said they needed follow up support and instruction, 64% percent said they did not.

Table 8

#### Respondents Rating of Providers Helpfulness with Breastfeeding

Provider	Frequency	Mean	Standard Deviation
Other	5	4.60	.89
Lactation Consultant	14	4.14	1.03
Staff Nurse	38	3.95	1.04
Midwife	6	2.83	1.60
Technician	8	2.50	1.51
Obstetrician	5	2.40	1.67
Family Practice Physician	5	2.40	1.67
Pediatrician	4	1.75	.96

Note. Rating is based on a five point Likert scale with 1 being not helpful , 3 helpful , and 5 being very helpful .

### ***Research Question Six: What are the barriers to, and facilitators of successful breastfeeding?***

#### Question Twelve

Question 12 inquired as to when the infant feeding decision was made. Sixty-two mothers responded. Seventy-seven percent stated that they made their decision prior to pregnancy, 9% during their first trimester, and 2% during her third trimester. Five percent

of the participants in the study did not make their decision until after the birth of their infant.

#### Question Thirteen

Respondents were asked to use a Likert scale to rate a series of factors which may have influenced their decision to breastfeed. Fifty-six women responded to all but the other category. Six factors stood out as having had the most influence on the woman's decision to breastfeed. These factors, in order of greatest influence, were: best for baby; nutritional value; protection against infection; closeness/emotional reasons; best for mom; and convenience. Using breastfeeding as birth control rated very low with 92% of the subjects categorizing it as not very important. Three mothers cited an Other as positive influences. One woman cited her physician, another noted reading material, and the third mother said her sister encouraged and supported her decision to breastfeed (see Table 9).

#### Question Fifteen

Question 15 inquired as to whether the baby roomed in. Fifty-six women answered this question. Forty-four (78.6%) said yes. Twelve (21.4%) said no.

#### Question Sixteen

Question 16 solicited information on demand or scheduled feeding in the hospital. This question was answered by 56 mothers. Fifty-one (91.1%) fed on demand, while five (8.9%) fed on a schedule.

#### Question Seventeen

This item asked whether the infant received supplements to breastfeeding while in the hospital. Thirty-three (58.9%) said no. Twenty-one (37.5%) said yes. Two (3.6%) didn't know.

Table 9

Factors Influencing Respondents Decision to Breastfeed

Factor	Mean	Standard Deviation
Best for baby	4.95	.23
Nutritional value	4.75	.92
Protection against infection	4.70	.85
Closeness/emotional reasons	4.29	1.19
Best for mother	3.95	1.34
Convenience	3.91	1.35
Cost	2.63	1.45
Husband	2.23	1.61
Other	2.11	1.76
Mother	1.71	1.34
Lactation Consultant	1.55	1.14
Childbirth Educator	1.45	1.04
Friends	1.43	.85
WIC Counselor	1.23	.83
LaLeache	1.21	.71
Birth Control	1.16	.53

Note. Rating is based on a five point Likert scale with 1 being not very important , 3 important , and 5 being very important . Fifty-six respondents rated each category except for other which had nine respondents.

### Question Eighteen

Respondents were asked to rate (on a Likert scale) their in-hospital breastfeeding experience. Fifty-six mothers responded. The majority (93%) found the experience to be satisfactory or better. Only seven percent of the mothers reported an unsatisfactory experience (see Table 10).

Table 10

### Respondents Rating of in Hospital Breastfeeding Experience

Rating	Frequency	Percent
5	24	42.9
3	17	30.4
4	11	19.6
1	2	3.6
2	2	3.6
Total	56	100

Note. Rating is based on a five point Likert scale with 1 meaning unsatisfactory , 3 satisfactory , and 5 excellent .

### Question Twenty-one

Question 21 asked breastfeeding mothers if they were given a gift pack containing formula at the time of discharge. Sixty-three percent (34) reported that they had received a formula gift pack.

### Question Twenty-four

The second part of this item asked the mothers why they had chosen their breastfeeding goal. The most frequently cited reason was the benefits to baby (35%).

Nine percent of the mothers cited return to work. Each of the following were reported by seven percent of the subjects: previous good experience, recent studies recommending breastfeeding for one year, as long as could be managed, and when teeth come in. Six percent of the respondents chose their goal to avoid using a bottle, 4% listed previous experience, and when they could switch to whole milk. No other recurring patterns were noted.

#### Question twenty-five

This question inquired as to whether the pediatrician ever advised supplementing with formula. Fifty-three mothers responded. Seventy-seven percent said no, 23% said yes.

Question 25 then asked why supplements were recommended. Nine mothers responded. Two reported that the health care provider was concerned over poor weight gain, and another two reported inadequate milk supply. The following were also reason, reported by the respondents, that HCPs gave for supplementing with formula: if she thought her baby wasn't getting enough breastmilk; because formula was better nutrition; for diarrhea; during the first few days because her milk wasn't in yet; to make weaning easier.

#### Question twenty-seven

A Likert scale was used to assess the influence of various factors, groups or individuals on the respondents' decision to bottle-feed. Of forty-two replies, four factors were most frequently cited as influences on the decision to bottle-feed. Returning to work and the perception of an insufficient milk supply were documented by 45% of the mothers. The inconvenience of breastfeeding and husband wanting to assist with feedings influenced 33% of the mothers. The remaining factors were of little significance (see Table 11).

Table 11

Factors Influencing Respondents Decision to Bottle-feed

Factor	Mean	Standard Deviation
Return to work/school	2.50	1.74
Insufficient milk supply	2.45	1.68
Inconvenient/time consuming	2.05	1.45
Husband wanted to assist with feeding	1.93	1.35
Other	1.57	1.43
Lack skills to breastfeed	1.50	1.21
Breast/nipple problems	1.31	1.05
Husband	1.26	.91
Mother	1.24	.91
Articles/books on infant feeding	1.19	.71
Friends/Neighbors	1.14	.65
Breastfeeding interferes with sex	1.10	.43
WIC Clinic Counselors	1.10	.62
Pediatrician	1.07	.46
Hospital Nursing Staff	1.05	.31
Family Physician	1.05	.31
Coupons/free samples in mail	1.05	.31
Formula discharge pack	1.05	.31
Lactation Consultant	1.02	.15
Other relatives	1.00	.00
Obstetrician	1.00	.00
Advertisement of formula on TV	1.00	.00

Note. Ratings are based on a five point Likert scale with 1 being not very important ,

3 important , and 5 being very important . Forty-two respondents rated all of the factors except for other to which 21 responded.

### Question twenty-nine

This item requested barriers to continuing breastfeeding. The mothers in this study were asked their reasons for terminating breastfeeding. Twenty six responded. Five of the respondents were both breast/formula feeding. Mentioned by four of the mothers were: needing more freedom, baby losing interest, and biting. Three of the women complained of insufficient milk supply which they attributed to supplementing. Two participants found pumping painful. Also mentioned as contributing factors were sore nipples, exhaustion, poor weight gain, and return to work.

***Research Question Seven: Are there significant differences in counseling practices, barriers and facilitators between those mothers who do, or do not exclusively breastfeed for at least four months?***

Chi square analysis of nominal and ordinal data proved significant only in the area of discharge instructions addressed in question 19. Woman who breastfed exclusively (Group 1) more frequently recalled receiving discharge instructions on: How to tell if the baby was getting enough milk ( $p \leq .018$ ); What to do for engorgement ( $p \leq .077$ ); What to do if they developed an infection in their breasts ( $p \leq .073$ ) (see Table 12 ).

Table 12

#### Discharge Instructions Recalled by Comparison Groups

Discharge Instruction	Chi Square	Group 1		Group 2	
		Yes	No	Yes	No
How to tell if baby was receiving enough milk?	$p \leq .018$	31	2	15	6
What to do for engorgement?	$p \leq .077$	30	3	16	5
What to do if an infection in the breasts developed?	$P \leq .073$	29	4	15	6

Note. Sample size for Group 1 = 33; Group 2 = 23; Equal variances not assumed.

Question six which asked if, and to what extent, the HCP recommended breastfeeding, was not found to be of significance when comparing the two groups through t-test analysis. Descriptive analysis shows the breastfeeding group to recall a slightly stronger recommendation to breastfeed. On a Likert scale of 1-5 with 1 meaning Not at all and 5 strongly recommended the mean for Group 1 was 3.24 with a standard deviation of 1.60 and the mean for Group 2 was 3.16 with a standard deviation of 1.55. Group 2 was comprised of all respondents who did not breastfeed exclusively for four months. This included early weaners, partial breastfeeders and dedicated bottle-feeders.

The age at which the respondents started supplements/solids was found to be significant with t-test analysis ( $p \leq .03$ ). The non-exclusive breastfed group tended to start supplements/solids earlier than the comparison group. The mean start age for Group 2 was 3.90 months with a standard deviation of .96. The mean for Group 1 was 4.41 months with a standard deviation of .87.

Table 13

Factor Ratings that Differed Between Comparison Groups

Factor	p value	Group 1		Group 2	
		Mean	SD	Mean	SD
Nutritional Value	$p \leq .07$	4.97	.17	4.43	1.38
Convenience	$p \leq .06$	4.21	1.11	3.48	1.56
Mother	$p \leq .01$	2.06	1.52	1.22	.85
Husband	$p \leq .07$	2.55	1.66	1.78	1.44

Note. Sample size for Group 1 = 33; Group 2 = 23; SD = standard deviation; Equal variances not assumed.

Table 14

Respondent Rating of Breastfeeding Information Provided

Provider	Group 1			Group 2		
	Mean	SD	N	Mean	SD	N
Nurse Practitioner	4.17	.94	12	4.13	.83	8
Midwife	4.75	.50	4	3.50	1.00	4
Family Practice Physician	3.33	1.53	3	3.00	.	1
Obstetrician	4.14	1.07	7	3.25	.50	4
Pediatrician	3.73	1.22	15	3.27	1.03	15

Note. N = sample size; SD = standard deviation; Rating are based on a 5 point Likert scale;

Equal variances not assumed.

Table 15

Comparison of Respondent Ratings of Providers Assistance with Breastfeeding

Provider	Group 1			Group 2		
	Mean	SD	N	Mean	SD	N
Staff Nurses	4.10	1.12	20	3.78	.94	18
Lactation Consultant	4.60	.89	5	3.89	1.05	9
Obstetrician	5.0	.	1	1.75	.96	4
Technicians	3.00	2.00	3	2.20	1.30	5
Family Practice Physician	5.0	.	1	1.75	.96	4
Midwife	3.50	.71	2	2.50	1.91	4

Note. N = sample size; SD = standard deviation; Equal variances not assumed.

Factors influencing the decision to breastfeed found significant by t-test analysis (or close enough to significance to warrant mentioning) were nutritional value; convenience; and the respondents mother or husband. All of these factors were rated higher by woman who breastfed exclusively for four months. (See Table 13).

Questions 9B and 14B, which ask for Likert scale ratings on the information and assistance provided, shows an interesting trend. While the sample size is too small for statistical significance, group 1 consistently rate the information and assistance received, higher than does group 2 (see Tables 14 & 15).

Question 27 addressed factors influencing the decision to bottle feed. Respondents were asked to rate these factors on a Likert scale of 1-5. While the sample size is too small for statistical significance, the trend of group 2 to rate the factors higher than group 1 is worth reporting. Table 16 lists the factors noted to be of most significance (see Table 16).

Table 16

Respondent Rating of Factors Influencing the Decision to Bottle-feed

Factor	Group 1		Group 2	
	Mean	SD	Mean	SD
Return to work/school	1.69	1.38	2.86	1.79
Husband wanted to assist with feedings	1.46	.88	2.14	1.48
Lacked skills to breastfeed	1.00	.00	1.72	1.41
Husband (general influence)	1.00	.00	1.38	1.08

Note. Sample size for group 1 = 13; group 2 = 29; SD = standard deviation. Rating is on a five point Likert scale with 1 being not important, 3 important, and 5 very important.

## Comments

Respondents were offered the opportunity to make any comments or clarifications. Many took advantage of this opportunity. Some comments were omitted from this discussion because the investigator felt they were adequately addressed in the previous questions. There were both positive and negative comments about the ability of the staff to assist with breastfeeding. A suggestion was made that a list of drugs safe for use during lactation be provided to all nursing mothers. One respondent felt that the television channel that addressed childcare and breastfeeding, provided by the hospital, was instrumental in her success. A comment on the breastfeeding class suggested that a demonstration would have been helpful. Another woman stated that she found the lactation consultant inaccessible because she would not consult over the phone. Some of the experienced mothers and an obstetrical nurse commented that they received little help with breastfeeding and that discharge instructions were handouts only. These mothers felt it was assumed that help wasn't needed.

One respondent revealed that she only nursed from one breast. This woman had been successfully nursing this way for eight months, it seems her baby wouldn't nurse from the other breast. Her physician had advised her to supplement with formula, which she declined to do. Her baby was healthy and had always followed the 50<sup>th</sup> percentile for height and weight. Another woman was advised to supplement due to infant weight loss. It was subsequently discovered that the scale was inaccurate and her baby had actually gained weight.

Several women attributed their weaning earlier than planned to supplementing. They ascribed early weaning to the subsequent decreased milk supply or their infants preference to the bottle.

An African American mother of four who had successfully nursed all of her children found family and friends to be very non-supportive of her decision to breastfeed. Those women who had a previous unsatisfactory experience with nursing were either inclined not to nurse or not very confident in their ability to be successful with this attempt.

Two of the respondents stated that they didn't nurse or stopped nursing because they were on antibiotics. One of these women started cows milk at seven months. Another bottle feeder conceded that breastfeeding was probably better, but since her son was healthy at birth, bottle feeding was fine for him. Being uncomfortable with the idea of breastfeeding, and reading that formula was sufficient, lead one mother to bottle-feed. The respondents own mothers were twice mentioned as a negative influence, they were informed by their mothers that breastfeeding was painful or too stressful.

Working mothers found it difficult to find time to pump, and one active duty mothers milk dried up when she forgot her pump while TDY. Other pumping issues mentioned were discomfort, mechanical problems with the pumps, and one woman complained that the base exchange at the base did not carry pumps or other breastfeeding supplies.

A dependent wife who hadn't breastfed any of her three children said her family always seemed to be moving right after delivery and she felt that bottle-feeding was easier while traveling. Another dependent wife stated that she was glad she had been able to breastfeed for as long as she did, but had to quit because her husband was TDY. She found breastfeeding to be too much work while trying to care for her other children without her husband.

## CHAPTER SIX: CONCLUSIONS

The purpose of this study was to describe the types and extent of breastfeeding counseling provided; the client's perception and level of satisfaction with counseling; the extent of exclusive breastfeeding; barriers and facilitators of lactation unique to the military community and any differences between those women who breastfeed exclusively versus those who do not. This chapter will first explore the data presented in chapter 5 as it relates to the research questions, related research, limitations of the study and recommendations for future research will also be discussed.

### Response Rate

This study had a rate of return of 71%. This is much better than the average response rate for a questionnaire. According to Burns and Grove (1993), if the response rate is less than 50%, the sample cannot be truly representative of the population. This study's rate of response can probably be attributed to the personal administration of the questionnaire by the investigator in the clinic. The majority of the questionnaires were completed in the clinic with the assistance or in the presence of the investigator. Those who did not have the time to complete the questionnaire in the clinic were provided with a stamped, self-addressed envelope in which to mail the questionnaire upon completion. Providing clients with a stamped, addressed envelope is one strategy recommended by Burns and Grove to increase participant response rate. Unfortunately, the inconsistency in administration of the questionnaire may have introduced bias unknown to the researcher.

### Demographic Data

Sixty-seven percent of the respondents were Caucasian and only 22% were African American. The average age was 31 years for the mothers and 7-8 months for the infants. Overall, the group was fairly well educated with almost half having at least a high school diploma, 34% being college graduates, and 19% having graduate level education. The respondents were predominately (76%) dependent wives of active duty military spouses. The sponsors rank

clustered around the middle ranks for both officer and enlisted. Few Hispanics, Asians, or Native American Indians were represented in the sample.

***Research Question One: To what extent is breastfeeding being promoted?***

It is well documented that prenatal counseling increases the incidence of breastfeeding. Timbo et al. (1996) found a higher incidence of breastfeeding associated with mothers who recalled receiving prenatal advice to do so. Respondents in this study reported that 65% of health care providers recommend breastfeeding to their patients. When queried as to the extent that breastfeeding was recommended, it was reported that only 32% strongly recommend breastfeeding. Twenty-two percent of the respondents reported never receiving any counseling. This is consistent with the findings of Lazzaro et al. (1995) that not all providers initiate the topic of breastfeeding with their clients. Lazzaro found that 52% of physicians provided counseling during the first trimester and thereafter the number decreased dramatically. Respondents in this study reported a lower rate (33%) of infant feeding counseling during the first trimester. However, counseling dropped off only slightly during the second and third trimesters, then picked up significantly to 45% during post delivery hospitalization. Nineteen percent of the respondents reported receiving counseling prior to pregnancy, yet this is the time when the majority (77%) of mothers reported making their infant feeding decision. HCP should recognize the cognitive-perceptual factors presented in chapter three, and apply them to their counseling practices.

***Research Question Two: What type of breastfeeding counseling occurs?***

Types of counseling explored in this study included individual counseling, classes, and pamphlets. This is similar to what has been described in the literature. The focus of this study was on content. It was found that most of the HCPs in this study recommend introducing supplements/solids to an infant's diet in the fourth to sixth month, this is consistent with recommendations by the AAP (1997) and the ADA (1993). The majority (79%) of the mothers followed this recommendation.

Regarding breastfeeding classes, 81% of the mothers surveyed said a class was offered but only 23% actually attended it. Of those reporting attending a class, 77% found it to be helpful.

Timbo and colleagues (1996) found that attendance at prenatal birth classes to be positively correlated with breastfeeding. Perhaps the class needs to be marketed better, or offered more flexible schedule. It is recommended that the clinic investigate the barriers to attendance.

Discharge instructions reported in this study seem to be comprehensive. However, managing growth spurts was one of the topics more likely not to be covered. This is concerning because maternal perception of insufficient milk supply was the most common reason given for cessation of breastfeeding during the first six months, by Essex and colleagues (1995). Behaviors suggestive to mothers of insufficient milk supply included infant fussiness and wanting to nurse frequently. An infant undergoing a growth spurt will exhibit these behaviors as he attempts to increase his milk supply. The process of increasing the milk supply takes a few days, the uninformed mother might start supplementing during this time because she is worried the infant is not getting enough breastmilk. The perception of insufficient milk supply is a perceived barrier to a health promoting behavior, as discussed in chapter three.

***Research Question Three: Who is providing this counseling?***

Pediatricians were the most frequent source of infant feeding counseling, cited by 48% of the respondents. The nurse practitioner was cited by 31% of the respondents. It is interesting that the midwife was reported by only 11% of the respondents and family practice physicians by only 6%. It may be that family practice physicians follow very few obstetrical patients. Coreil et al. (1995) reported in her study that most breastfeeding education came from nurses and dietitians.

This study also explored who was providing post partum in hospital breastfeeding assistance. It is not surprising that staff nurses were the most frequently cited source. What is surprising is that midwives were only reported by 9% and pediatricians by only 5%.

***Research question Four: What is the extent of breastfeeding?***

National statistics reported by Ross Laboratories (1996) indicate that 59.2% of mothers initiate breastfeeding and 21.7% are still breastfeeding at six months. Statistics for mothers breastfeeding at 12 months are not presented. Perhaps with the new recommendations put forward by the AAP, this information will be included in future surveys. It will be necessary to

collect this data to gauge our progress as a nation. Because this study included infants in the age range of 4-12 months, it is not possible to ascertain the incidence of breastfeeding at six or 12 months. The younger age range was necessary because the respondents were asked to recall prenatal counseling and factors influencing their infant feeding decision. The mother of an older child is likely to remember less accurately.

In the current study, the rate of exclusive breastfeeding at four months was found to be 39%. Wang et al. (1996) reported that infants who were exclusively breastfed for a minimum of four months had more advanced personal-social development, gross motor development and lower incidence of infection than those who were partially breastfed or bottle-fed.

This study found a high intent to breastfeed, with 88% initiating breastfeeding. A high rate of intent (80%) in the military community was also reported by Kugler et al. (1994). Kugler reported this rate dropped to 36% at six months, which is still higher than the national average. He found the highest rate of attrition occurred in the first three months. Thirty-five percent of respondents in this study breastfeed for at least three months. Howie and co-investigators (1990) did not find any protective benefits associated with breastfeeding for less than 13 weeks.

Forty-four percent of this study group reported either breastfeeding for or still breastfeeding at 4-6 months. According to Morrow-Tlucak et al. (1988), breastfeeding for more than four months was associated with statistically significant cognitive development at one and two years of age. Twenty-one percent of the population in this study were breastfeeding at 7-11 months. Horwood and Fergusson (1997) report increased cognitive ability and academic achievement from ages 8-18 associated with breastfeeding for at least eight months.

It is interesting to note that the formula feeding mothers introduced solids earlier than their breastfeeding counter parts. It has been well documented in the literature that breastfeeding mothers typically have achieved higher educational levels than bottle-feeders. Perhaps they engage in more information seeking behavior and are thus better informed. Further research is indicated to explore this trend. Certainly formula feeders should be targeted to ensure they know when and how to introduce supplements.

***Research Question Five: To what degree are patients satisfied with the counseling received?***

All the providers in this study were rated as helpful or very helpful in relation to the infant feeding counseling they provided. However, regarding post delivery breastfeeding assistance only lactation consultants, staff nurses, and the other category (personal assistants) were rated as helpful or very helpful. The remaining providers were perceived as less than helpful. Pediatricians received the lowest rating, which is interesting because, with the exception of during the post delivery hospitalization, they are reported as providing the most counseling. Pediatricians also receive a lower rating in relation to the counseling they provide.

Several studies have shown that a supportive health care provider can increase the duration of breastfeeding (Barron, 1988; Hall, 1978; Saunders et al., 1988). Thirty-two percent of Spisak and Gross's (1989) respondents cited lack of support from health care providers as a barrier to successful breastfeeding. In this study, 63% of the mothers reported that no arrangements for follow up assistance and support were made. Thirty-six percent stated they needed follow up assistance and support. In light of these findings, and the impact support can have on the success of breastfeeding it is recommended that plan of support be in place to be utilized if needed. Breastfeeding needs to be presented in a positive manner because perceived self-efficacy is another example of a cognitive-perceptual factor which is subject to influence.

***Research Question Six: What are the barriers to, and facilitators of successful breastfeeding?***

Several barriers to breastfeeding were reported by respondents in this study. While 77% of women made their infant feeding decision prior to pregnancy, only 19% reported any pre-pregnancy counseling. HCP should target non-pregnant women of reproductive age to increase their knowledge of breastfeeding and engender positive attitudes. This can be done by displaying positive images and of breastfeeding and providing informative literature in clinic waiting rooms. Annual gynecological exams are an ideal time for the HCP to explore the patients plans for pregnancy and provide necessary pre-pregnancy and lactation counseling.

Providing breastfeeding mothers with a gift pack of formula sends a confusing message about the patient's ability and the health care provider's commitment to breastfeeding. Yet 63% of this study's breastfeeding mothers reported receiving a formula gift pack.

HCPs have been documented as barriers to successful breastfeeding. In Coreil et al. (1995) it was reported by respondents that physicians readily advised supplementing or weaning when problems with breastfeeding were encountered. Thirty-eight percent of this survey's infants received supplements in hospital. Twenty-three percent of the mothers were advised to supplement breastfeeding with formula. The reasons for physician recommendations for supplementing reported in this study clearly show either a lack of knowledge or lack of commitment to breastfeeding.

The factors influencing a woman's decision to bottle-feed were rated surprisingly low. Return to work and insufficient milk supply rated higher than any other factors. None of the factors, however, were rated as important by the respondents. The open-ended questions also failed to elucidate the issue further. In-depth interviews are recommended for greater clarity.

Some barriers unique to the military population reported were frequent moves and lack of familial support. Active duty and working mothers reported having difficulty finding time to pump. The nurse practitioner should become an advocate for breastfeeding mothers, working with supervisors to find acceptable ways to ensure successful breastfeeding. Recognizing barriers to successful breastfeeding is one way the HCP can use Pender's Health Promotion Model to assist patients in living healthy lives.

The top six factors that influence a woman's decision to breastfeed were not surprising. It's interesting to note that cost rated as less than important. Also interesting is that child birth educators and lactation consultants rated so low. This data may suggest that the women have already made their decision before encountering these providers.

Respondents in this study reported a rooming-in rate of 79%, and 91% fed on demand. No studies for comparison are available, but these rates appear fairly high. Another facilitator to

breastfeeding found in this study was the high rate of satisfactory or excellent breastfeeding experience while in the hospital.

***Research Question Seven: Are there significant differences in counseling practices, barriers and facilitators between those mothers who do, or do not exclusively breastfeed for at least four months?***

Of the discharge instructions recalled by respondents reported in Table 12, only one is of statistical significance. How to tell if your baby is receiving enough milk? Chi square analysis showed a p value of .018, with group 1 reporting that direction on this subject were covered as part of their discharge instructions, whereas group 2 reported it was not. This is concerning because, as previously reported, perception of inadequate milk supply is the primary reason women terminate breastfeeding during the first six months. Further testing with a larger sample size is needed to further evaluate What to do for engorgement? and What to do if an infection in the breasts develops? Both of these came close enough to statistical significance to bear reporting.

Certain factors were held in higher value by the women in Group 1. These and all factors (nutritional value; convenience; and the influence of significant others) should be addressed by providers to all women during their pregnancy so that informed decisions can be made.

Factors having the most influence on the respondents in group 2 decision to bottle feed are cognitive-perceptual factors as discussed in Marriner-Tomey (1994). Concern over return to work and lacking the necessary skills are factors easily addressed by the informed HCP.

There were too few respondents to questions 9B & 14B, for statistical significance. The trend of Group 1 rating information and assistance with breastfeeding higher than Group 2 is interesting and should be further explored through studies with larger sample sizes and research techniques aimed at discerning the differences between the counseling practices and assistance provided to those women who successfully breastfeed versus those who do not.

#### Limitations

This study was a learning experience and as such it is fraught with limitations. Insufficient time for the method chosen for data collection lead to a small sample size.

Compensating for a sample size too small for statistical significance lead to the inclusion of multiparous mothers. The original proposal recommended including only primiparous women in order to control for past breast/bottle feeding experiential factors. In another attempt to increase the sample size, some subjects were allowed to take the questionnaire home with them for completion rather than completing it in the clinic. Some women completed the questionnaire themselves, while others had whoever had accompanied them to the clinic assist them.

The majority of the study participants were interviewed by the investigator. Interview by the investigator allowed the opportunity to clarify any questions that the respondent had. However, as the women were at the clinic for pediatric appointments, frequent interruptions and time constraints made further clarification and elucidation of the subject s responses difficult.

This questionnaire solicited the perception of respondents. Perception is a subjective rather than an objective measure. Variation in response is to be expected. For instance question five asked the respondents to record the percentages of different sources of nutrition their infant was receiving at four months. One woman s perception of 5% is likely to vary from another s. Also, the women had different concepts of four months . For some, this was the first day of the fourth month for others it was during the fourth month. For this reason, any women not giving formula to her infant at four months was considered to be exclusively breastfeeding, even if she had started solids.

The study questionnaire needs fine tuning and further testing. A six page questionnaire can be daunting. In order to streamline the questionnaire, the investigator plans to ferret out factors that were consistently rated as insignificant by the respondents. The other category will continue to allow women to include options not listed. It may also be possible to combine questions 9 A & B, and 14 A - B as it is questionable as to whether they provided significantly useful information written in two parts as they were. The questions where similar in format. Question 9A solicited information regarding who was providing breastfeeding counseling and 9B asked for a Likert scale rating on the helpfulness of the counseling provided. Question 14A asked

who provided breastfeeding assistance and 14B asked for a Likert scale rating on the helpfulness of that assistance.

### Recommendations

Many of the obvious recommendations to correct for study limitations are noted in the limitations section above. The study generated some useful information that will be provided to the clinic to allow them to improve the services they offer. Further research is necessary to understand the factors and influences on a woman's decision to bottle-feed, including those who switch from breastfeeding and those who never breastfeed. In depth qualitative interviews will probably be necessary to further understand this phenomenon. Recommended research in the related area would be to ascertain breastfeeding rates (in the military community) at six and 12 months. This would allow comparison to the national average and facilitate assessment of progress. Additionally, replication of studies exploring the knowledge, attitudes, and beliefs of military HCPs are needed. It would also be interesting to explore through qualitative methods the breastfeeding experience of active duty military women.

Nurse practitioners should be familiar with the recommended breastfeeding practices set forth by the AAP (see Appendix C). Nurse practitioners should also familiarize themselves with the recommended role for the pediatrician in the promotion and protection of breastfeeding ( see Appendix D) as should all providers who play a role in health promotion. In addition, NPs should become more involved on committees addressing workplace issues. On such committees, they could suggest ways commanders and supervisors could facilitate pumping while at the workplace.

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## APPENDICES

APPENDIX A. Ten Steps to Successful Breastfeeding

APPENDIX B. Key Elements for the Promotion of Breastfeeding in the  
Continuum of Maternal and Infant Health Care

APPENDIX C. Recommended Breastfeeding Practices

APPENDIX D. Role of the Pediatrician in Promoting and Protecting  
Breastfeeding

APPENDIX E. Questionnaire

## APPENDIX A

### Ten Steps to Successful Breast-Feeding

World Health Organization/UNICEF (1989). Protecting, promoting and supporting breast-feeding: The special role of maternity services. Geneva, Switzerland: WHO/UNICEF.

Every facility providing maternity services and care for newborn infants should:

1. Have a written breast-feeding policy that is routinely communicated to all health care staff.
2. Train all health care staff in skills necessary to implement this policy.
3. Inform all pregnant women about the benefits and management of breast-feeding.
4. Help mothers initiate breast-feeding within a half-hour of birth.
5. Show mothers how to breast-feed, and how to maintain lactation even if they should be separated from their infants.
6. Give newborn infants no food or drink other than breast milk, unless medically indicated.
7. Practice rooming-in allow mothers and infants to remain together 24 hours a day.
8. Encourage breast-feeding on demand.
9. Give no artificial teats or pacifiers (also called dummies or soothers) to breast-feeding infants.
10. Foster the establishment of breast-feeding support groups and refer mothers to them on discharge from the hospital or clinic.

## APPENDIX B

### Key Elements for Promotion of Breastfeeding in the Continuum of Maternal and Infant Health Care

U.S. Department of Health & Human Service (1984). Report of the Surgeon General s Workshop on Breastfeeding & Human Lactation. Washington DC: DHHS Publication no. HRS-D-MC 84-2

1. Primary-care settings for women of childbearing age should have:
  - a supportive milieu for lactation
  - educational opportunities (including availability of literature, personal counseling and information about community resources) for learning about lactation and its advantages
  - ready response to requests for further information
  - continuity allowing for the exposure to and development over time of a positive attitude regarding lactation on the part of the recipient of care.
2. Prenatal-care settings should have:
  - a specific assessment at the first prenatal visit of the physical capability and emotional predisposition to lactation. This assessment should include the potential role of the father of the child as well as other significant family members.
  - An educational program about the advantages of and ways of preparing for lactation should continue throughout the pregnancy.
  - Resource personnel-such as nutritionists/dietitians, social workers, public health nurses, La Leache League members, childbirth education groups-for assistance in preparing for lactation
  - availability and utilization of culturally suitable patient-education groups-for assistance in preparing for lactation

- an established mechanism for a predelivery visit to the newborn care provider to ensure initiation and maintenance of lactation
  - a means of communicating to the in-hospital team the infant feeding plans developed during the prenatal course.
3. In-hospital settings should have:
- a policy to determine the patient's infant-feeding plan on admission or during labor
  - a family-centered orientation to childbirth including the minimum use of intra-partum medications and anesthesia
  - a medical and nursing staff informed about and supportive of ways to facilitate the initiation and continuation of breastfeeding (including early mother-infant contact and ready access by the mother to her baby throughout the hospital stay)
  - the availability of individualized counseling and education by a specially trained breastfeeding coordinator to facilitate lactation for those planning to breastfeed and to counsel those who have not yet decided about their method of infant feeding.
  - ongoing inservice education about lactation and ways to support it. This program should be conducted by the breastfeeding coordinator for all relevant hospital staff.
  - proper space and equipment for breastfeeding in the postpartum and neonatal units. Attention should be given to the particular needs of women breastfeeding babies with special problems.
  - The elimination of hospital practices/policies which have the effect of the lactation process, e.g., rules separating mother and baby
  - the elimination of standing orders that inhibit lactation, e.g., lactation suppressants, fixed feeding schedules, maternal medications
  - discharge planning which includes referral to community agencies to aid in the continuing support of the lactating mother. This referral is especially important for patients discharged early.

- A policy to limit the distribution of packages of free formula at discharge only to those mothers who are not lactating
- the development of policies to support lactation throughout the hospital units (e.g., medicine, surgery, pediatrics, emergency room, etc.)
- the provision of continued lactation support throughout the hospital units (e.g., medicine surgery, pediatrics, emergency room, etc.)
- the provision of continued lactation support for those infants who must remain in the hospital after the mother s discharge.

4. Postpartum ambulatory settings should have:

- a capacity for telephone assistance to mothers experiencing problems with breastfeeding
- a policy for telephone follow-up 1-3 days after discharge
- a plan for an early follow-up visit (within first week after discharge)
- the availability of lactation counseling as a means of preventing or solving lactation problems
- access to lay support resources for the mother
- the presence of a supportive attitude by all staff
- a policy to encourage bringing the infant to postpartum appointments
- the availability of public/community-health nurse referral for those having problems with lactation
- a mechanism for the smooth transition to pediatric care of the infant, including good communication between obstetric and pediatric care providers.

## APPENDIX C

### RECOMMENDED BREASTFEEDING PRACTICES

Excerpt from: American Academy of Pediatrics. Work Group on Breastfeeding. Breastfeeding and the use of human milk. Pediatrics, Dec 1997, 100(6) p1035-9.

1. Human milk is the preferred feeding for all infants including premature and sick newborns, with rare exception. The ultimate decision feeding of the infant is the mother's. Pediatricians should provide parents with complete, current information on the benefits and methods of breastfeeding to ensure that the feeding decision is a fully informed one. When direct breastfeeding is not possible, expressed human milk, fortified when necessary for the premature infant, should be provided. Before advising against breastfeeding or recommending premature weaning, the practitioner should weigh thoughtfully the benefits of breastfeeding against the risks of not receiving human milk.
2. Breastfeeding should begin as soon as possible after birth, usually within the first hour. Except under special circumstances, the newborn infant should remain with the mother throughout the recovery period. Procedures that may interfere with breastfeeding or traumatize the infant should be avoided or minimized.
3. Newborns should be nursed whenever they show signs of hunger, such as increased alertness or activity, mouthing, or rooting. Crying is a late indicator of hunger. Newborns should be nursed approximately 8-12 times every 24 hours until satiety, usually 10 -15 minutes on each breast. In the early weeks after birth, non demanding babies should be aroused to feed if 4 hours have elapsed since the last nursing. Appropriate initiation of breastfeeding is facilitated by continuous rooming in . Formal evaluation of breastfeeding performance should be undertaken by trained observers and fully documented in the record during the first 24 - 48 hours after delivery and again at the early follow-up visit, which should occur 48 -72 hours after discharge. Maternal recording of the time of each breastfeeding and its duration, as well as voidings and stooling during the early days of breastfeeding in the hospital and at home, greatly facilitates the evaluation process.

4. No supplements (water, glucose water, formula, and so forth) should be given to breastfeeding newborns unless a medical indication exists. With sound breastfeeding knowledge and practices, supplements rarely are needed. Supplements and pacifiers should be avoided whenever possible and, if used at all, only after breastfeeding is well established.
5. When discharge < 48 hours after delivery, all breastfeeding mothers and their newborns should be seen by a pediatrician or other knowledgeable health care practitioner when the newborn is 2 -4 days of age. In addition to determination of infant weight and general health assessment, breastfeeding should be observed and evaluated for evidence of successful breastfeeding behavior. The infant should be assessed for jaundice, adequate hydration, and age-appropriate elimination patterns (at least six urinations per day and three to four stools per day) by 5 to 7 days of age. All newborns should be seen by 1 month of age.
6. Exclusive breastfeeding is ideal nutrition and sufficient to support optimal growth and development for approximately the first 6 months after birth. Infants weaned before 12 months of age should not receive cow s milk feedings but should receive iron-fortified infant formula. Gradual introduction of iron-enriched solid food in the second half of the first year should complement the breast milk diet. It is recommended that breastfeeding continue for at least 12 months, and thereafter for as long as mutually desired.
7. In the first 6 months, water, juice, and other foods are generally unnecessary for breastfed infants. Vitamin D and iron may need to be given before 6 months of age in selected groups of infants (vitamin D for infants whose mothers are vitamin D-deficient or those infants not exposed to adequate sunlight; iron for those who have low iron stores or anemia). Fluoride should not be administered to infants during the first 6 months after birth, whether they are breast- or formula-fed. During the period from 6 months to 3 years of age, breastfed infants (and formula-fed infants) require fluoride supplementation only if the water supply is severely deficient in fluoride (<0.3 ppm).

8. Should hospitalization of the breastfeeding mother or infant be necessary, every effort should be made to maintain breastfeeding, preferably directly, or by pumping the breasts and feeding expressed breast milk, if necessary.

## APPENDIX D

### ROLE OF THE PEDIATRICIANS IN PROMOTING AND PROTECTING BREASTFEEDING

Excerpt from: American Academy of Pediatrics. Work Group on Breastfeeding. Breastfeeding and the use of human milk. Pediatrics, Dec 1997, 100(6) p1035-9.

To provide an optimal environment for breastfeeding, pediatricians should follow these recommendations:

1. Promote and support breastfeeding enthusiastically. In consideration of the extensive published evidence for improved outcomes in breastfed infants and their mothers, a strong position on behalf of breastfeeding is justified.
2. Become knowledgeable and skilled in both the physiology and clinical management of breastfeeding.
3. Work collaboratively with the obstetric community to ensure that women receive adequate information throughout the prenatal period to make a fully informed decision about infant feeding. Pediatricians should also use opportunities to provide age-appropriate breastfeeding education to children and adults.
4. Promote hospital policies and procedures that facilitate breastfeeding. Electric breast pumps and private lactation areas should be available to all breastfeeding mothers in the hospital, both on ambulatory and inpatient services. Pediatricians are encouraged to work actively toward eliminating hospital practices that discourage breastfeeding (e.g., infant formula discharge packs and separation of mother and infant).
5. Become familiar with local breastfeeding resources (e.g., Special Supplemental Nutrition, Program for Women, Infants, and Children clinics, lactation educators and consultants, lay support groups, and breast pump rental stations) so that patients can be referred appropriately. When specialized breastfeeding services are used, pediatricians need to clarify for patients their essential role as the infant's primary medical care taker. Effective communication among the various counselors who advise breastfeeding women is essential.

6. Encourage routine insurance coverage for necessary breastfeeding services and supplies, including breast pump rental and the time required by pediatricians and other licensed health care professionals to assess and manage breastfeeding.
7. Promote breastfeeding as a normal part of daily life, and encourage family and societal support for breastfeeding.
8. Develop and maintain effective communications and collaboration with other health care providers to ensure optimal breastfeeding education, support, and counsel for mother and infant.
9. Advise mothers to return to their physician for a thorough breast examination when breastfeeding is terminated.
10. Encourage the media to portray breastfeeding as positive and the norm.
12. Encourage employers to provide appropriate facilities and adequate time in the workplace for breast-pumping.