

THE EFFECTS OF A STRUCTURED
BREASTFEEDING TEACHING PLAN
ON THE
OUTCOME OF BREASTFEEDING SUCCESS

by

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STATEMENT BY AUTHOR

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To my husband, Alfonso and our three children, Leonard, Michael and Anna, without whose support and understanding this thesis would or could not have been possible.

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ABSTRACT

This quasi-experimental study was implemented to examine if a structured breastfeeding Teaching Plan, presented to pregnant women at 35-36 weeks gestation, would promote breastfeeding success. The study sample consisted of thirty pregnant women who were planning to breastfeed their newborn for the first time. Each of the pregnant women were randomly assigned to the control group (N=15) or the experimental group (N=15). All pregnant women were contacted one month before her expected delivery date at which time each woman completed an ante-partal questionnaire and a ten-item pre-test. If the woman was in experimental group she participated in the Structured Breastfeeding Teaching Plan. One month after delivery each woman was interviewed, at which time she completed a post-partal questionnaire and a post-test (a replica of the pre-test).

Twelve women (80%) in the experimental group and nine (60%) in the control group were breastfeeding successfully at the one month interview. A paired t-test resulted in no significant difference.

CHAPTER I

INTRODUCTION

For thousands of years, breastfeeding, via the infant's mother or a wet nurse, was the exclusive method for feeding an infant. The human species could not have survived without successful breastfeeding (Jelliffe and Jelliffe, 1978). Breastfeeding knowledge was, usually, taught to a daughter by her mother, as well as by other women in the "community". The daughter learned by observing her mother and other women breastfeeding their babies. The learning by observation was later verbally reinforced while the daughter was breastfeeding her own infant. Breast milk is the perfect nutrition for human infants, but breastfeeding is not the most common method of feeding an infant in the Western World.

During the Industrial Revolution, a technological means was developed to feed an infant replacing the use of the human breast...a bottle! Bottle feeding spread slowly between the end of the eighteenth century and throughout the nineteenth century (Pelto, 1981). However, in the Western World bottle feeding spread rapidly during the first half of the twentieth century (Jelliffe, 1976). Breastfeeding was on a definite decline in the first half of the twentieth century. Jelliffe (1976) identified several reasons for the decline of breastfeeding in the Western World as excerpted below:

insufficient emphasis and understanding by health professionals and ill-adapted health services; the changing role of urban women, including an increased frequency of salaried work out of the home; the pressures of commercial advertising for baby formulas; the belief that bottle feeding is modern and scientific; and the adaptation of cultural attitudes in which the female breasts have an exclusive esthetic and erotic role, without significant nurturing functions (p.2)

There has been a resurgence of interest in breastfeeding in the past fifteen years (Jelliffe, 1976). More women who are pregnant for the first time, are indicating a desire to breastfeed their newborn. Multiparas, who have never breastfed a previous child, are expressing a desire to breastfeed their infant. Even women who are adopting infants are desiring to breastfeed their adopted newborn. But desire is not enough to insure success. Many of these women exhibit a noticeable lack of knowledge and understanding about breastfeeding. They enter the hospital, deliver their baby and then expect to know what to do instinctively, or expect the hospital staff to impart all the information necessary for successful breastfeeding in the limited post-partum time spent in the hospital. Many of these women are not prepared for breastfeeding. They assume offering the breast to an infant is the same as offering the bottle, just another method of satisfying the infant's hunger and thirst.

Helsing (1976) identified two needs of breastfeeding mothers: "1) clear information and advice about what to do and when, verbally or in writing and 2) moral support and encouragement, through the presence of somebody who is kind and experienced." (p.218). In many different cultures lactation education, support and encouragement have been conveyed from the experienced woman to the inexperienced through-

out the centuries. A woman was available to assist the pregnant women during the pregnancy, childbirth and the post-partum period. The woman supplied information and gave emotional and physical support to the prospective and new mother. Helsing (1976) indicated that breastfeeding know-how is not inborn or inherited in any woman. Breastfeeding is a learned art and not an instinctive ability. In the past American generations a limited percentage of women have breastfed their infants thereby creating a shortage of women closest to the pregnant woman who are able to provide the lactation education. The increasing move toward the nuclear family has, also, left the future mother without the support system of the extended family.

The literature indicates that two factors greatly affect whether a breastfeeding experience will be successful or not; correct and factual information coupled with support and encouragement. The proposed study will investigate one of these two factors, the impact of correct and factual breastfeeding information on successful breastfeeding outcomes.

Purpose of the Study

This study addressed the question, does a structured breastfeeding teaching plan promote breastfeeding success? The null hypothesis tested was there will be no significant difference in breastfeeding success one month postnatally between two groups of first time breastfeeding women, one group who received a Structured Breastfeeding Teaching Plan and the other group did not. A Structured Breastfeeding Teaching Plan was developed and presented to one group

of pregnant women in their 35th to 36th week gestation, another group of women did not receive the Structured Breastfeeding Teaching Plan during their 35th to 36th week gestation. Both groups of first-time breastfeeding women were evaluated one month after delivery to assess breastfeeding success.

Significance of the Problem

Montagu (1979) indicated that breastfeeding should be an infant's birthright. The human infant "is born in a highly immature condition that requires a very special kind of nutrition for it, if it is to grow and develop in a healthy manner." (p.189). All the special ingredients required by the newborn is contained in the mother's breast milk. To date, there is no substitute for the breast milk. The contents of human breast milk change from week-to-week, day-to-day, and even minute-to-minute. Breast milk gradually changes to meet the needs of the growing baby. It is extremely unlikely that the ingredients of human breast milk could ever be artificially imitated. (Montagu, 1979)

Gaull (1979), indicated that the human neonate acquires only 25% of his or her mature brain weight at birth and is in a rapid phase of growth. Because the newborn is so undeveloped, there is a great need for specific nutrients after birth. At the same time, the neonate's organ systems are functioning immaturity which makes it more difficult for the infant's metabolism to be regulated than the adult's. An infant's nutritional requirements are critical during the post-natal period (Gaull 1979: p. 217). Gaull concluded that the

more closely artificial formulas have been studied the more nutritional drawbacks have been encountered.

Human breast milk contains many beneficial components to decrease the incidence of illness in the newborn. Lactoferrin, an effective antimicrobial agent present in human milk, actively inhibits the growth of *E.coli* and *Candida albicans*. The phagocytic activity of the macrophages and lymphocytes, abundant in human milk, effectively kill *Pseudomonas* and *E.coli*. IgA and to a lesser degree IgG and IgM, also present in human milk, provides antibodies to a host of microbial antigens including common bacteria and viral pathogens. The immunologic superiority of human milk has been well established (Goldman, 1976).

The nutritional (Gaul, 1979; Montagu, 1979), anti-infective and anti-allergic (Goldman, 1979) properties of human breast milk are superior to any known substitute. In addition to the physiological benefits of breastfeeding, an interpersonal relationship develops between mother and infant. (Thompson, 1976). There is a warm skin-to-skin contact and a sense of security for the infant in being held close. Breastfeeding is a special experience in love for mother and infant (Pyle 1982).

Breastfeeding is considered to be the superior method for nurturing one's offspring but had been on a worldwide decline at the turn of the century. In the United States breastfeeding, especially for any length of time, was almost non-existent. A woman's knowledge of breastfeeding has correspondingly decreased with the incidence of breastfeeding. Knowledge of the art of breastfeeding has tradition-

ally been a part of the female culture, and, as with other aspects of child rearing, was taught by observation and participation. (Jelliffe 1978:176). As a result of the decline in the practice of breastfeeding in the past fifty to one hundred years, the women available to teach new mothers the knowledge necessary to breastfeed successfully are missing.

The trend, in the past fifteen years in the United States, is toward increasing numbers of women initiating breastfeeding (Jelliffe, 1976). However, many of these new mothers will encounter problems for which they do not have adequate knowledge or information to base a solution. The result of this lack of knowledge is early abandonment of breastfeeding. The highest incidence of breastfeeding termination occurs within the first month after beginning to breastfeed (Yeung, 1981; Gulick, 1982; Sjolín, 1977). Many of the reasons, given by the new mothers for terminating breastfeeding that first month postpartum, are related to inadequate or inaccurate knowledge about breastfeeding (Gulick, 1982).

Nurses, midwives and childbirth educators, who are involved in the pre-natal and post-natal care of women, can benefit from a teaching protocol for implementing lactation education. An example of the knowledge level of nurses regarding breastfeeding information was reported by Crowder (1981) in a study of maternity nurses' knowledge of factors promoting successful breastfeeding. She administered a questionnaire to 53 maternity nurses at two urban hospitals to examine their breastfeeding knowledge. She concluded that nurses in her study revealed "limited knowledge about breastfeeding success

factors and concomitant nursing intervention" (p. 30). Although Crowder's study involved a limited number of nurses, it is an example of the knowledge level of nurses involved in teaching women about breastfeeding.

A Structured Breastfeeding Teaching Plan could act as a teaching protocol for nurses, midwives and childbirth educators involved in lactation education. Factual information on breastfeeding can improve the successful breastfeeding experience for mothers and infants. Increasing the number of infants, who are successfully breastfed, will contribute to a higher level of health for the baby and family in the American society.

Theoretical Framework

The theoretical framework of this study is based upon a cognitive-field model (Figure 1). Cognitive-field theory, also called the Gestalt-field theory, views the learning process as a crucial aspect of a person's psychological environment (Bigge, 1976_201). Cognitive-field theory deals with the person or individual within his whole field or total environment. The theory proposes that learning is a matter of understanding relationships within a total field or area. A thing is what it is because it exists in relationship to other things (Bevis, 1982:81). Cognitive-field theory conceives of perception as all the different ways one becomes familiar with the environment and not mere consciousness of the environment (Bevis, 1982:80).

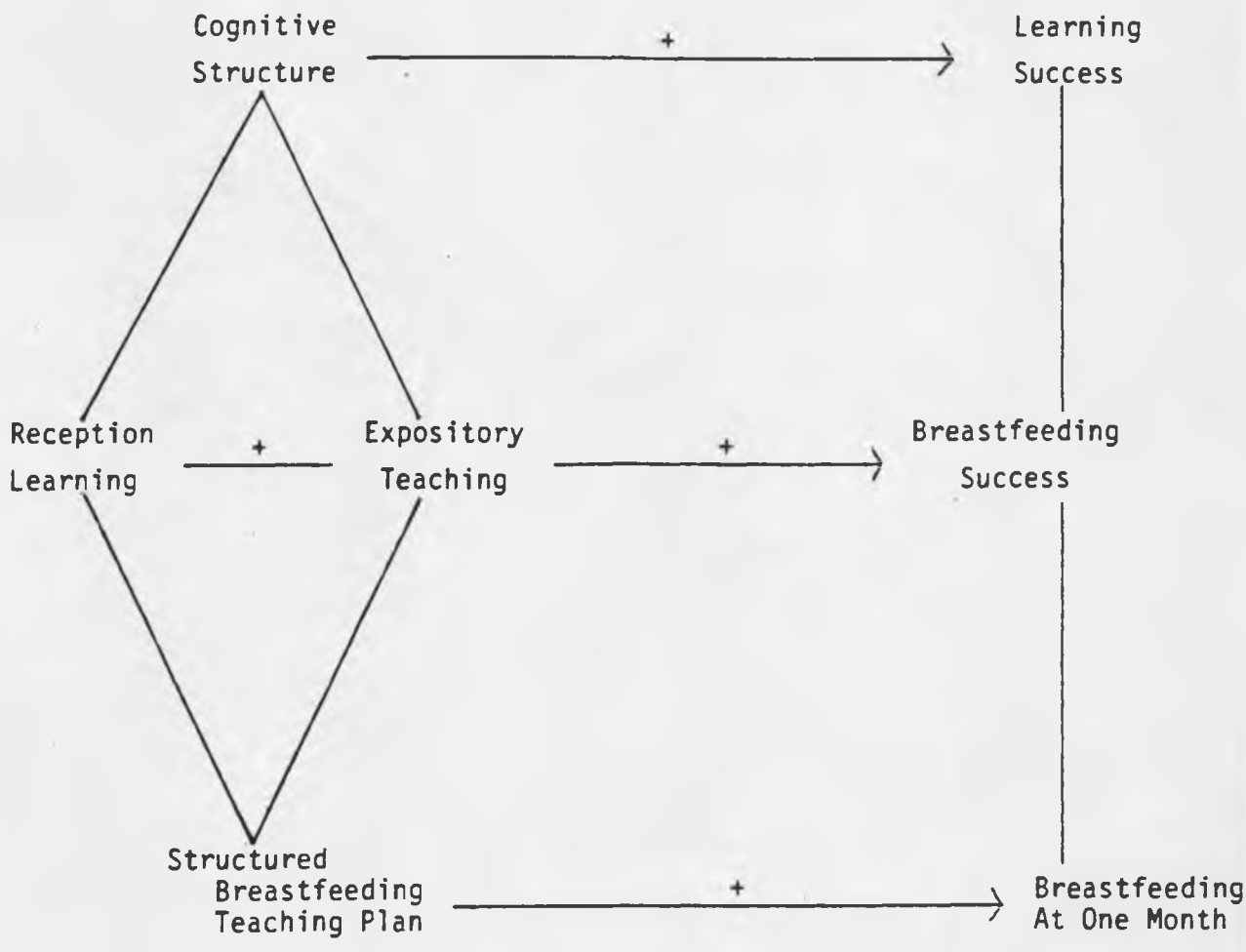


Figure 1. A Theoretical Model for Promoting Breastfeeding Success.

David Ausubel, a cognitive theorist, uses a reception learning model. In reception learning, the teacher presents the materials to the learner in a carefully organized, sequence and structured form. The learner will thus receive the most useable material. Ausubel contends that most classroom learning is reception learning (Lefrancois, 1972:224).

The perspective of cognitive-field theory views learning as an internal process within which a person attains new insights or cognitive structures or changes the old ones (Bigge, 1976:201). Cognitive-field theory of learning views people as active participants in learning. Instead of being passively influenced by environmental events, people actively seek out information to solve problems, rearranging the reorganizing what they already know to achieve new learning (Woolfolk, 1980: 204). As depicted in the model (Figure 1), cognitive structure influences a person's learning success.

Reception learning, on the conceptual level of the model, is Ausubel's (1969, 1978) view of cognitive-field theory. Ausubel believes cognitive learning occurs through reception. The meaningful material to be presented to the learner should be organized in hierarchical order and presented in a structural format. The learner, therefore, receives the most usable material and incorporates it into his cognitive structure. The learned material is then available for either reproduction, related learning or problem solving at some future date (Ausubel, 1978:24).

Expository teaching is Ausubel's method of teaching reception type of learning. Ausubel's theory is intended to deal with verbal

learning, or as he calls it "meaningful verbal learning." Meaningful verbal learning

"takes place if the learning task can be related in non-arbitrary, substantive fashion to what the learner already knows, and if the learner adopts a corresponding learning set to do so.... Meaning-full verbal learning is the principle means of acquiring large bodies of knowledge" (Ausubel 1978:27).

On the conceptual level of the theoretical model for breastfeeding success (Figure 1), reception learning, a product of expository teaching is viewed as having a positive correlation on breastfeeding success.

Breastfeeding an infant is not an instinctive ability (Helsing 1976), but an art that normally would be passed down from mother to daughter. Breastfeeding is not just a feeding method to satisfy an infant's hunger and thirst needs. It is a means of imparting comfort, warmth and security to the infant. Breastfeeding is more than just putting the baby to the breast and letting nature take its course. Breastfeeding is a very special relationship between the mother and her baby. (Thompson 1976:165).

Breastfeeding knowledge and information is recognized by many authors (Gulick, 1982; Whitley, 1978; Beske, 1982; Yeung et. al., 1981) to be an important variable affecting breastfeeding success. In a six week post-delivery questionnaire, Gulick (1982) noted that the new mothers reason for discontinuing breastfeeding related "to gaps in knowledge about the breastfeeding process" (p.363). Whitney's (1978) survey of breastfeeding mothers one year after completing breast-

feeding classes indicated that women who received information about breastfeeding had a longer duration of nursing their babies. Beske (1982), in a survey of post-partum women, identified "practical information" as one of the three areas breastfeeding women desired assistance. Yeung et. al. (1981) concluded, after a longitudinal survey of infant nutrition, that in order to promote successful breastfeeding "the art and science of breastfeeding must be conveyed" (p. 329). Yeung et. al. goes on to say that a good knowledge of the art and science of breastfeeding coupled with an understanding of the physiological advantages of breastfeeding will reduce anxiety and create confidence in the breastfeeding woman.

Ausebel's concept of reception learning views learning taking place because of the organized structured presentation. Ausubel suggests that the more organized and meaningful the presentation, the more thoroughly the person will learn (Woolfolk, 1980). Therefore on the conceptual level, reception learning is expected to have a positive correlation with breastfeeding success.

The pregnant woman who is in her third trimester and indicates a desire to breastfeed her infant is exhibiting the emotional readiness and motivations necessary to put forth the effort to learn about breastfeeding (Clark, 1979:272). Cognitive theory views motivation as an intrinsic factor that directs the learner. The learner is seen as an active and curious person searching for information to solve personally relevant problems (Woolfolk, 1980:320).

On the operational level of the theoretical model for improving breastfeeding success (Figure 1) the Structured Breastfeeding

Teaching Plan is a structured, organized presentation of breastfeeding as delineated by Ausubel. The Structured Breastfeeding Teaching Plan will cover pre-natal breast preparation, basic physiological aspects of breastfeeding, benefits of breastfeeding, breastfeeding technique and treatment of common breastfeeding problems. The Structured Breastfeeding Teaching Plan will utilize the major characteristics of Ausubel's expository teaching and reception learning. The Structured Breastfeeding Teaching Plan will present, general concepts of breastfeeding and progress to specific practical information, to the pregnant woman who plans to breastfeed for the first time. Audio-visual examples of pre-natal nipple care, the how-to of breastfeeding and the care of post-partum nipple and breast concerns will be graphically presented. Throughout the presentation, areas for clarification will be solicited from the woman.

Reaction learning, a product of the expository teaching will be expected to take place because the learning task can be related to what the learner, the pregnant woman, already knows.

The highest incidence of women, who terminate breastfeeding, occurs within the first month after beginning to breastfeed (Yeung, 1981; Gulick, 1982; Sjolín, 1977). Following Ausubel's view of learning, more women can be anticipated to be breastfeeding at one month. Therefore, on the operational level of the theoretical framework, the Structured Breastfeeding Teaching Plan is expected to have a positive correlation on breastfeeding at one month post-partum.

CHAPTER II

REVIEW OF LITERATURE

The review of literature will cover the following topics:

- 1) cognitive structure of learning, 2) outcomes of breastfeeding and
- 3) a critique of current nursing research literature on knowledge and support.

Cognitive Structure of Learning

Cognitive theorists are a relatively new breed of theorists in the technique/learning field. The Cognitive theorists believe that learning is the result of a person's attempt to make sense of the world. The way people think and process information will influence what the person learns (Woolfolk, 1980:204). Cognitive theorists are interested in a person's perception, problem solving through insight, decision making, information processing and understanding (Lefrancois, 1972:186).

Cognitive theorists include such psychologists as Jean Piaget, Jerome Bruner and David Ausubel. Jean Piaget developed a model describing how humans go about making sense of their world by gathering and structuring information from the environment in which they live (Woolfolk 1980:46). Jerome Bruner, a modern cognitive theorist and developmental psychologist, advocates a discovery learning model. Teachers should provide problem situations that

stimulate the learner to discover for himself the structure of the subject matter. David Ausubel, a psychologist and a cognitive theorist, advocates a reception learning model. In reception learning the material to be learned is presented in an organized hierarchical format called expository teaching. Ausubel contends that learning takes place through reception, and not through discovery as Bruner suggests.

Ausubel's expository teachings has four major characteristics. First, it calls for a great deal of interaction between the teacher and the learner. Although the teacher may do the initial presentation, the learner's ideas and responses are solicited throughout. Second, expository teaching makes great use of examples. Although the stress is on meaningful verbal learning, examples may include drawings, diagrams, or pictures. Third, expository teaching is deductive. The most general and inclusive concepts are presented first and the more specific concepts are derived from them. Fourth, expository teaching is sequential and hierarchical fashion (Woolfolk, 1980:217)

Ausubel (1978) believes that learning should progress deductively from an understanding of the general concepts to an understanding of the specifics. The more organized and meaningful the presentation, the more thoroughly the person will learn. Ausubel indicates that the purpose of teaching is to help the learner understand the meaning of the information presented so that the learner can combine the new material with what the person already knows.

Ausubel (1978) identified five intra-personal variables and four situational variables that influenced the learning process of an individual. The intra-personal variables are: 1) Cognitive structure variables--what a person already knows in a given field and how well the person knows it, will influence the person's readiness for related new learnings. 2) Developmental readiness--refers to the particular kind of readiness that reflects the learner's stage of intellectual development and the intellectual capacities and modes of intellectual functioning characteristic of that stage. 3) Intellectual ability--how well a person learns the subject matter depends on his/her general intelligence, verbal and quantitative abilities and problem-solving ability. 4) Motivational and attitude factors-influence the person's desire for knowledge, need for achievement and self-enhancement and ego interest in a particular kind of subject matter. 5) Personality factors--individual differences in level and kind of motivation, personal adjustment, other personality characteristics and level of anxiety have profound effects on quantitative and qualitative aspects of the learning process. (p.29).

The situational variables that influence the learning process of an individual are: 1) Practice--its frequency, distribution, method and general conditions including feedback or knowledge of results. 2) The arrangement of instructional materials-in terms of amount, difficulty, underlying logic, sequence, pacing, and the use of instructional aids. 3) Certain group and social factors--learning area, climate, cooperation and competition, social-class stratification,

cultural disadvantages, and racial segregation. 4) Characteristics of the teacher--cognitive abilities, knowledge of subject matter, personality and behavior (p.30).

Expository teaching involves the manipulation of the intrapersonal and situational variables influencing the learning of an individual.

Outcomes of Breastfeeding

The success or failure of breastfeeding depends on many different variables. The following section will cover: 1) variables that effect early termination of breastfeeding; 2) variables that increase the incidence and duration of breastfeeding and, 3) the current trends in breastfeeding.

Variables That Effect Early Termination of Breastfeeding

Despite a consistent increase in the number of women deciding to breastfeed their newborn, there is a rapid failure rate (Houston, 1981). The following is a discussion of the current literatures reported and concluded reasons for early termination of breastfeeding.

In British Columbia, Wallace (1980) surveyed two hundred mothers during a ten month period in 1975-76 and repeated the survey with fifty different mothers during a two month period in 1979. The intention was to compare results obtained in the two investigations. The prospective surveys were designed to find out how long the mothers breastfed their infants and why the mothers stopped nursing. Follow-up data collection was by telephone one week, two weeks, eight weeks,

three months, and six months post-natally. The reasons for discontinuing breastfeeding were: 1) insufficient milk--46% in the first survey and 29% in the second survey. 2) Sickness of either infant or mother-- 15% in the first survey and 10½% in the second survey. 3) Returning to work--5% in the first survey and 8% in the 1979 survey. 4) Nursed long enough--17% in the 1975-76 group and 21% in the 1979 group. This reason was given as early as six weeks in the first survey but did not show up until four months in the second. 5) Social reasons--10% in the first survey and 16% in the second survey. In the 1975-76 group the explanations included such responses as nursing was too time consuming, interfered with social life, and that friends and relatives persuaded the mother to stop. Explanations given by the 1979 group sibling jealousy, interfering with sibling activities such as sports, feeling awkward when nursing, too much company, and stress. 6) Sore nipples--1% in the first survey; no mothers gave this reason in the second survey. 7) Infants refused to nurse--1½% in the 1975-76 group and 8% in the 1979 group.

Sjolin et.al. (1977) conducted a retrospective study in Sweden in 1972 of two hundred ninety eight mothers. The women were randomly sampled from women who had given birth the previous year at the University Hospital in Uppsala. Each woman was interviewed for approximately one hour. The reasons given for terminating breastfeeding include: 1) sore nipples and milk congestion (9½%) 2) child illness (5%) 3) milk dried up (63%) and other reasons (19%). Other reasons included anxiety, stress, tiredness, lack of motivation, and occupations away from home.

In conclusion, Sjolín et. al. commented:

Although this study has disclosed many factors which help to explain the reasons for early weaning, it has become more and more obvious to us that other reasons may very well very well be of immediate importance. These factors would seem to be connected directly with the individual mother and her immediate environment, with her personality, her emotions, her relations to husband and family and with her response to all kinds of minor everyday problems. There is also reason to suspect that a mother's failure to continue breastfeeding despite a strong wish is often to a lack of access to prompt and adequate support from Child Health Centers or experienced persons from within or outside the family. (p.510).

Yeung et. al. (1981) conducted a longitudinal survey of infant nutrition in Toronto and Montreal, Canada between 1977 and 1979. Home interviews were conducted with three hundred seventeen mothers (the original sample consisted of four hundred three infants with three hundred seventeen remaining at the end of the survey) at three weeks, one, three, five, six, seven, eight, ten, twelve, fifteen and eighteen months post-partum. At the interviews, the mothers were requested to provide information on the type of milk chosen to feed their newborn and the reason for their choice. The mothers who nursed their infants (71%) were questioned why they terminated breastfeeding at the specified time. During the first month post-partum, the main reason for terminating breastfeeding was "lack of or fear of lack of sufficient quantity of quality milk" (p.326). Fifty-one percent of the women stopping breastfeeding in the first month stopped for this reason. Painful breasts was the reason 16% of the women terminated breastfeeding in the first month. Eleven percent stopped because of rejection of milk or breast by the infant and 13% because of inconvenience.

Between three and six months, the main reason for terminating breastfeeding was inconvenience, with insufficient milk as the second most common reason. From eight to twelve months, the following reasons were given for cessation of breastfeeding; 35% of the mothers indicated it was time to wean, 19% mentioned it was inconvenient to continue breastfeeding, 18% indicated their infants were no longer interested in breastfeeding, 11% identified insufficient milk as the reason and 11% terminated because of teething.

Yeung et. al. observed an interesting trend with women who smoke. Mothers who were cigarette smokers had a greater tendency not to breastfeed than mothers who were non-cigarette smokers. The mothers who did smoke and breastfeed terminated earlier than non-smokers.

In conclusion Yeung et. al. attributed the many reasons behind unsuccessful breastfeeding to be related to a lack of proper information on the art of breastfeeding. Expectant mothers who intend to breastfeed need to be taught the art. They should be given instructions on how to care for their nipples so that they will not become sore, cracked, or infected. They should also be taught 1) the physical and psychological factors of lactation, 2) the biological value of breast milk including its quantity and quality, 3) the advantages of successful breastfeeding, 4) how to store their milk for times when they cannot feed the children themselves, and 5) how to feed their milk from the bottle when it is not convenient to breastfeed.

Raphael (1979) contends that breastfeeding will fail if the social networks that function to support the new mother are inadequate or unavailable. In many cultures there is a woman, a doula, who is available to the new mother. It is the doula's function "to mother the mother, to cushion her. It is the doula's responsibility to see that all goes well" (p.60). Raphael maintains that if that role, the role of the doula, is not filled, and supportive help is not available, the new mother is unlikely, even with sufficient milk, to be able to let down, to eject the breast milk. The doula supplies information about the art of breastfeeding as well as providing the emotional support needed by the new mother.

Lozoff et. al. (1977) indicate that certain maternity hospital practices interfere with breastfeeding and early maternal affection. Breastfeeding may be impaired by the following hospital routines: 1) the separation of healthy mothers and infants after delivery, 2) intra-partum medication, 3) the delay of nursing after birth, 4) providing supplementary bottles, 5) enforcing four-hour feeding schedules, 6) weighing babies before and after breastfeeding, 7) excluding fathers and, 8) giving little support to the breastfeeding mother.

Kimberling (1979), reviewed his own pediatric practice and indicated that breastfeeding failures fell into three categories: 1) unsupportive husband--some men feel that breastfeeding interferes with a satisfactory sex life, 2) physical factors--such as breast engorgement, mastitis, or insufficient milk, 3) absent pediatrician--especially during the first critical first three weeks.

Arafat et. al. (1981) administered a twenty-one item forced-choice questionnaire to four hundred eleven mothers in New York City. Among the findings they concluded that "social inhibitors of breastfeeding, such as a lack of breastfeeding models and a supportive social environment, may strongly influence the decision not to initiate, or to discontinue, breastfeeding early in the maternal career." (p.95)

Gulick (1982) administered a twenty-six item, multiple choice questionnaire to two hundred fifty-one women attending expectant-parent education programs. Of the two hundred fifty-one women, forty-four were classified as unsuccessful breast-feeders (discontinued breastfeeding before one month). The unsuccessful breast-feeders were matched for age and education with forty-four successful breast-feeders (women who continued breastfeeding beyond one month). The study indicated that the successful breastfeeding group had significantly more information on breastfeeding than the unsuccessful group. The reasons for terminating breastfeeding related to gaps in knowledge about the breastfeeding process. The reasons for stopping breastfeeding by the unsuccessful group include: 1) 32% stated that they had insufficient milk. 2) 11% reported nervous, uncomfortable, and embarrassed feelings, and 3) 11% complained of cracked, sore nipples.

In conclusion, the literature reviewed cited two main variables that adversely effect the outcome of breastfeeding success; lack of knowledge and inadequate support system. The learned art of breastfeeding must be taught to the new or prospective mother and she

must have someone, a mother, aunt, sister, or husband, who will provide positive reinforcement for her breastfeeding experience.

Variables That Increase the Incidence and Duration of Breastfeeding

Despite high failure rate in breastfeeding there are women who are breastfeeding at one month. The following citations are a presentation of the factors of variables that have a positive effect or correlation with successful breastfeeding outcomes.

Yeung et. al. (1981) longitudinal survey of over four hundred new mothers on infant nutrition in the Toronto and Montreal area described many influencing factors that had a positive effect on breastfeeding outcome. They indicated that significantly more mothers with higher education breastfed their infants than those with less education. The father's educational background had a similar effect. Furthermore, a greater number of mothers who received health-related education breastfed their infants. The importance of education was further reflected by the observation that it was one of the only two factors statistically related to prolonged lactation. Yeung et. al. concluded that parents "who are better educated are more likely to seek information on infant feeding and nutrition" (p.328). The other factor that was statistically related to prolonged lactation was smoking. Non-cigarette smokers breastfed significantly longer than smokers.

In Yeung et.al.'s study, 12% of the women were breastfeeding at eight months. Several reasons were given for the prolonged breastfeeding. The main reasons were convenience, closeness and warmth

between mother and child, healthiness of breastfeeding and the baby being used to breastfeeding. A small number of women indicated they still enjoyed breastfeeding. A smaller number of mothers continued to breastfeed because it delayed the onset of menstruation.

As mentioned earlier, Yeung et. al. concluded that in order to promote successful breastfeeding "the art and science of breastfeeding must be conveyed to all sectors of the population (p.329).

Kennell and Klaus (1979) and Lozoff et. al. (1979) have reported on the impact of early and extended contact between the new mother and her neonate. Studies were conducted that compared new mothers who had early and extended contact with their infant and mothers who were separated from their infants for a period of time after the delivery. One of the studies compared 20 mothers who were separated from their infants from the time of delivery until the first feeding at 24 hours with 20 new mothers who spent 45 minutes alone, skin-to-skin, in a private room with their undressed infant. The care of the mothers and infants in the two groups were reported as identical after the first 45 minutes. Although 100% of the mothers in both groups were breastfeeding at discharge, the mean length of breastfeeding for the experimental mothers was significantly greater than the control group at six and twelve months. In summary Kennell and Klaus concluded "that early intimate contact between the mother and her infant is associated with significantly increased breastfeeding" (p.206).

Salariya et. al. (1978) also studied the effects of early initiation of breastfeeding and increased early contact on the

duration of breastfeeding. One hundred eleven primiparas were randomly assigned to one of four groups: 1) baby put at breast within 10 minutes of delivery and fed at 2-hour intervals; 2) infant put at breast within 10 minutes of delivery and fed at 4-hour intervals; 3) baby put at breast four to six hours after delivery and fed at 2-hour intervals; 4) baby put to breast four to six hours after delivery and fed at 4-hour intervals. Follow-up over 18 months revealed that both early initiation and increased frequency of breastfeeding extended the nursing period, but increased frequency of feedings had the greatest impact on overall success of breastfeeding.

Kimberling (1979) concluded from his private practice as a pediatrician of exclusively breastfed families that the single most important determinate of successful breastfeeding is confidence. "If the mother thinks she will succeed, she most likely will." (p.60).

Sjolin et. al. (1977) and Houston (1981) indicate that in Western society, the upper classes more often choose to breastfeed and are more successful than the lower social class groups.

Martinez and Nalezienski (1979), in a survey of U.S. mothers from 1971 through 1978, disagreed. They indicated that there had been a sharp increase in the incidence of breastfeeding at all ages and throughout all demographic characteristics surveyed. Not only an increased incidence but also an increase in the duration of breastfeeding. It was also apparent to the authors that the increased incidence had not been limited to higher income or better educated mothers. "The increase in breastfeeding among the lower income, less

educated mothers and those attending public clinics has been comparable, and in many instances greater, than in mothers from higher socio-economic strata" (p.686).

Smith et. al. conducted a survey of women living in fifty one selected U.S.- counties on the U.S.-Mexico border. Information on the incidence of breastfeeding for the period 1971-1979 was analyzed on three hundred forty-five Anglo women and six hundred eighty-nine Hispanic women of Mexican origin. Results indicated that the Anglos are following the national trend of increased breastfeeding, but Hispanics show no indication of an increase in the practice of breastfeeding.

An in depth discussion of the two variables, knowledge and support, and their effect on the successful outcome of breastfeeding will be covered in the section for critiquing the current breastfeeding research.

The Current Trends in Breastfeeding

Smith et. al. (1982), Sjolin et. al. (1977), Martinez and Nalezienski (1979), Jelliffe and Jelliffe (1978) indicate a consistent increase in the numbers of women choosing to breastfeed their infants in the "developed" societies. The downward trend in breastfeeding has been reversed in the last ten to fifteen years. Nurturing an infant with the mother's milk is increasing in popularity.

A large number of women are indicating intentions to breastfeed but a very high percentage of these women abandon breastfeeding before one month. Yeung et. al. (1981) reported that during the first

week of life 71% of the four hundred three infants were breastfed. Thirty percent of that group terminated in the first month. During the next two months another 19% of the mothers stopped breastfeeding. The median time of termination was 3.5 months. Despite the high termination rate their research showed that the duration of breastfeeding is increasing. At six months 21% of the infants were still being nursed and at twelve months 5% were being nursed.

Critique of Current Nursing Literature on Knowledge and Support

This section will critique four relevant publications on the variables, knowledge and support. Nursing literature discusses the need for knowledge of breastfeeding and support for the breastfeeding dyad in detail. Research literature specific to knowledge and support of breastfeeding is limited. The following author's current nursing research will be discussed: Beske and Garvis (1982), Hall (1978), Cohen (1980), and Baranowski (1979).

Beske and Garvis (1982) conducted a study at the University of Minnesota Hospital to identify factors influencing the breastfeeding experience. Ninety-four breastfeeding primiparas who had a vaginal birth were selected in a convenience sample. A structured questionnaire was developed to elicit demographic information: influences on the decision to breastfeed; sources of breastfeeding information, encouragement, and discouragement; difficulties anticipated and experienced; and reasons for weaning. The questionnaire was filled out by the women at three different times, while in the hospital, at

one month, and after weaning or at six months post partum. Data were collected over 13 months. There was an eighty-eight percent return rate for completion of all three questionnaires.

Most women made their decision to breastfeed during the first few months of pregnancy, and information from books and pamphlets was the most frequently reported influence on the decision to breastfeed. The predominate sources of encouragement were the baby's father and the baby. Over one half of the mothers reported that their own mothers had breastfed. The length of time the women planned to breastfeed was congruent with the actual duration of the nursing experience. The number of difficulties experienced or anticipated did not significantly influence the length of breastfeeding. The length of the nursing experience also did not influence the woman's perception of herself as a successful breast-feeder.

Beske and Garvis identified three areas where the mothers desired assistance: encouragement and support, practical information and help from the hospital nurses. The Beske and Garvis survey presented interesting observations not reported by other authors. The importance of both the baby and the baby's father as an integral part of the new mother's support system had not been documented previously. Beske and Garvis' conclusion that the women wanted more "practical information" was a conclusion also drawn from Gulick's survey. Knowledge of the art of breastfeeding is important to the new mothers who plan to breastfeed.

Hall (1978) conducted an experimental study using forty new mothers who gave birth in a small community hospital. The purpose of her study was to identify factors mothers viewed as helping or hindering success and to identify areas a nurse could help enhance a woman's breastfeeding success. The women were randomly assigned into three groups. Group I, the control group, received routine hospital care. Group II received routine care plus a slide-tape presentation and a pamphlet on breastfeeding. Group III received the same teaching plan as Group II plus personal encouragement and post-hospitalization follow-up from the researcher. The minimum amount of support Hall provided "was to be with the mother at least one time while she was nursing, to visit or call each day in the hospital and to call one to two days after discharge and one week later." (p.29)

Success was defined as "still nursing at six weeks" (p.29). No differentiation was made for women who might be supplementing with water or formula. Without information on the amount or type of supplementing, it is difficult to assess the degree of success with breastfeeding. The "success" rate of Group I and II was fifty percent success rate.

Hall's study had several areas that needed clarification. She did not describe "routine hospital care." Perhaps the staff on the maternity unit modified their behavior toward the study population in some manner so the women did not actually receive usual routine care. No documentation was made of each woman's prior breastfeeding knowledge. With a small sample size (N=40), the groups could have been

unequally divided. No description was given of the slide-tape presentation or the breastfeeding pamphlet. Was the presentation adequate and accurate? Hall did not indicate if the women had an opportunity to ask questions about the slide-tape presentation. There was also no documentation of learning taking place after the presentation.

Another important point was the timing of the presentation. The immediate post-partum period may not be the optimal time for indepth breastfeeding teaching since there may be a great deal of internal adjusting occurring for the new mother, both physically and psychologically. The women may have been better able to learn before the birth of the baby since it is during the last trimester that preparation for caretaking is usually at its peak (Reeder et. al. 1976:218).

Cohen (1980) conducted a study with seventy breastfeeding, healthy, primiparous mothers with uncomplicated vaginal deliveries of healthy single babies at a hospital in Tucson. Thirty-five of the new mothers were randomly given a single postpartum teaching session on breastfeeding in the first twenty-four hours after delivery. Content of the "Structured Teaching Session" included: 1) Mechanism of milk production and ejection, including effects of supplemental feedings, breast massage, alternate breast massage, manual expression of milk, positioning of the baby for feeding, stimulation of the infant, and breaking suction to remove the infant from the breast.

Mothers in both the teaching and the control groups were contacted by phone or mail at six weeks and at three months postpartum. The postpartum interview consisted of three main questions: 1) Are you still breastfeeding your baby? If no, when and why did you stop? 2) Are you supplementing? If yes, when did you start, how often and why? and 3) Are you having problems? Specify.

Interviews at six weeks revealed that significantly more of the new mothers who had been taught about breastfeeding were not using milk supplements and had not discontinued breastfeeding. Ten of the thirty-five in the control were supplementing while only four in the teaching group were supplementing. Nine of the control and four of the experimental women had discontinued breastfeeding at six weeks.

By three months (13 weeks) postpartum, the differences in the numbers of experimental and control women who were supplementing with formula were not significant. Eight of the remaining control and five of the remaining experimental women were supplementing. A total of thirteen women in the control group and eight women in the experimental group had discontinued breastfeeding by the three month interview.

A beneficial feature of the Cohen study is the distinction she makes between partial and full breastfeeding. Identifying the use of supplementing presented a clearer understanding of the actual breastfeeding practice.

In a table Cohen presented the number of women who discontinued breastfeeding, were supplementing (partial breast-feeders) and not supplementing (full breast-feeders) in the control and experi-

mental group at six weeks and at thirteen weeks. She did not give the percentages. The percentages are impressive and worthy of mention. At six weeks postpartum, twenty-five and one half percent of the control mothers (no teaching session) had discontinued breastfeeding as compared to only eleven and one half percent of the control and seventy-seven percent of the experimental group were breastfeeding totally. At thirteen weeks, thirty-seven percent of the control group had abandoned breastfeeding compared to less than twenty-three percent of the experimental group; fourteen percent of the control and sixty-three percent of the experimental group were breastfeeding totally. The three month results were "not significant" but the percentages were impressive.

As mentioned earlier with the Hall (1978) study, the Cohen study did not provide documentation for the learning that occurred after the teaching session, nor was there any documentation of the baseline knowledge for each woman in the group. A larger sample size (N=70) in Cohen's study compared to Hall's (N=40) decreased the need for documentation of the women's baseline knowledge.

Cohen's study concluded that a teaching session in the first twenty-four hours post-partum did significantly improve the breastfeeding success rate at six weeks post-partum. Hall's study concluded (no test for significance was reported) that the teaching session along (without her added support) did not improve the breastfeeding rate.

Cohen did not discuss a support system. The women's marital status (i.e. support of a husband) was not identified. Beske and Garvis identified the father of the baby as an important member of the women's support system. Comparative studies with the demographic data might have identified a possible support system.

Baranowski (1979) conducted a study to compare a group of mothers who were instructed in prenatal breast preparation, breastfeeding management, and provided with increased support beginning in the third trimester of pregnancy and continuing through the sixth week postpartally. There were ten subjects with no previous breastfeeding experience randomly assigned to one of two groups. All subjects were instructed in a four-step method of prenatal breast preparation for breastfeeding in order to provide for uniform prenatal breast preparation between groups and to attempt to prevent some of the common problems with sore nipples and engorgement in the postpartum period. Group I received no further instructions in breast management and no direct encouragement in their breastfeeding efforts. Group II was instructed in breastfeeding management and deliberately encouraged in their breastfeeding efforts, from their third trimester through the sixth week postpartum. Differences between the two groups were measured in terms of the number of days of breastfeeding (p.85).

The women in group I who received breast-feeding management and personal support of the researcher breastfed 3.4 days more than Group I. Data analysis revealed no significant difference.

Baranowski critiqued the results of her own findings and identified three areas of concern. First, she concluded that her definition for breastfeeding, no more than one bottle of formula or water per day for longer than one week in conjunction with suckling was too narrow and non-flexible. A more liberal definition of breastfeeding was needed. Baranowski's findings resulted in the definition selected for this study.

Baranowski identified a second area of concern with her study, the unknown level of knowledge regarding breastfeeding management among members of Group I and II. She had observed that four of the five women in Group I (no information or support) had friends who had breastfed. She stated "although it was not possible to know whether the contact with persons with breastfeeding experience included instruction in breastfeeding management, neither was it possible to state with certainty that there remained a large difference between the two groups with respect to knowledge of breastfeeding management following the unplanned contacts of subjects in Group I" (p.93).

Baranowski suggested another area that needed improvement. After the instruction in breastfeeding management via a slide/tape presentation to Group II, there was no documentation of the women's understanding of the material presented. During home visits and follow-up telephone calls, she noted that it was necessary to review and reinforce the material presented in the slide/tape. Baranowski summarized by stating:

Since there was no documentation of the subjects' knowledge of breastfeeding management during the prenatal

period, it was not possible to ascertain whether review was necessary because the subjects did not understand the material presented, had forgotten the material between the time it was presented in the prenatal period and the time it was applied in the postpartum period, or if subjects had knowledge of breastfeeding management but could not apply it to their own situation (p. 94).

Baranowski concluded that the study would have been improved if several tests had been administered to the women to establish knowledge of breastfeeding management. She indicated a need to have administered a pre-test to all the women, a test to the experimental group after the breastfeeding information had been presented and another test to all the women at their final six week interview.

Documentation of knowledge of breastfeeding management at those times would have permitted evaluation of the subjects' baseline knowledge of breastfeeding management, differences associated with presence or absence of instruction in breastfeeding management by the investigator, and consideration of changes in level of knowledge of breastfeeding management as a result of experience or unplanned association with persons with breastfeeding experience. Absence of such documentation in the study precludes assessment of actual differences in knowledge of breastfeeding management between the two study groups (p. 95).

Baranowski's findings resulted in the inclusion of pre- and post-tests, at her specified times, in this study.

CHAPTER III

METHODOLOGY

This chapter will present the research design, null hypothesis, definition of terms, setting, sample selection, randomization of subjects, instruments, data collection and analysis of data.

Research Design

A quasi-experimental design was implemented to determine if a Structured Breastfeeding Teaching Plan, presented to pregnant women at 35-36 weeks gestation, would promote breastfeeding success. A quasi-experimental study was selected because the proliferation of breastfeeding literature has progressed beyond the exploratory and descriptive approach. A quasi-experimental design is scientifically more rigorous than other types of research (Polit and Hungler, 1978;149), but would provide more understanding of important relationships.

This quasi-experimental project utilized three characteristics specific to experimental and quasi-experimental studies, manipulation, control, and randomization. The independent variable, the Structured Breastfeeding Teaching Plan, was manipulated by presenting the breastfeeding information to randomly selected first-time breastfeeding women and withholding the Structured Breastfeeding Teaching Plan from a control group of first-time breastfeeding women. Breastfeeding

success, the dependent variable, was measured by substantiating the method of infant feeding one month postnatally.

Null Hypothesis

The null hypothesis tested was: there will be no significant difference in breastfeeding success one month postnatally between two groups of first time breastfeeding women, one group who received a Structured Breastfeeding Teaching Plan and the other group did not.

A Structured Breastfeeding Teaching Plan was developed and presented to one group of pregnant women in their 35th to 36th week gestation, another group of women did not receive the Structured Breastfeeding Teaching Plan during their 35th to 36th week gestation. Both groups of first time breastfeeding women were evaluated one month after delivery to assess breastfeeding success.

Definition of Terms

1. Structured Breastfeeding Teaching Plan--The presentation of specific factual breastfeeding information in a structured format. The breastfeeding information will include:
 - A) Prenatal Breast Preparation--an explanation of breast massage, methods to toughen the nipples, methods to improve erectility of the nipples and hand expression.
 - B) Basic Physiological Aspects of Breastfeeding--An explanation of the anatomy and physiology of breasts and lactation.

- C) Benefits of Breastfeeding--An explanation of the beneficial outcomes of breastfeeding for infants and mothers.
 - D) Breastfeeding Technique--A description of the "how-to" of breastfeeding.
 - E) Treatment of Common Breastfeeding Problems--An explanation of different methods for treating common concerns of the breastfeeding woman.
2. Promote Breastfeeding Success--A woman who is totally or partially breastfeeding her infant one month (\pm 3 days) postnatally.
- A) Total Breastfeeding--The act of feeding an infant human breast-milk either via the breast or intermittently via the bottle. A woman was considered to be totally breastfeeding if no more than one formula bottle was supplemented per day. Plain water may be fed as desired and still be classified as total breastfeeding.
 - B) Partial Breastfeeding--The act of feeding an infant both human breast milk and artificial formula. To be classified as partial breastfeeding, artificial formula or cereals was two or more feedings per day, but without the intention to terminate breastfeeding.

Setting

Subjects for the experimental project were taken from the population of clients who received their maternity care from five

general practitioners and one obstetrician, in a southwestern community. All six of the physicians are relatively conservative in their approach to maternity care and infant delivery. Neither epidurals, nor spinal anesthesia nor paracervical blocks are used during vaginal deliveries. Minimal amounts of analgesics are prescribed by the physicians and are administered sparingly. External fetal monitoring is not ordered routinely but the incidence of its use is increasing. The physician's maternity population is predominantly a low risk population. The community hospitals prenatal care rating is a level one or primary care center. As a primary care facility they serve primarily the uncomplicated maternity and neonatal patient. Any woman who is identified with risk factors beyond the cope of the physician and/or hospital is transferred to tertiary care centers in Tucson and Phoenix. The maternity population who received their prenatal care locally are in the low to middle class and of varied ethnic background. The ethnic backgrounds include: Anglo, Mexican, Black, and American Indian. The women have less than a high school education and frequently do not attend prepared childbirth classes.

Sample Selection

Criteria

The criteria for inclusion in the study were women who:

1. were to breastfeed for the first time, whether primiparas or not,
2. expressed desire to breastfeed,

3. were 35 to 36 weeks gestation,
4. were 16 to 35 years of age,
5. did not have obstetrical complications,
6. read and spoke English, and,
7. gave verbal consent, after reading the disclaimer.

Rationale for Criteria

First time breastfeeding women were primiparas and multiparas, who indicated a desire to breastfeed their newborn, but who had not breastfed previously. The Structured Breastfeeding Teaching Plan was presented to women who expressed a desire to breastfeed and who were in the latter half of their third trimester. A woman in the last trimester of pregnancy is more conducive to learn about events relevant to birth. According to Clark (1979) there are four fundamental tasks of pregnancy: pregnancy validation, fetal embodiment, fetal distinction, and role transition. During role transition, the fourth task of pregnancy, the woman prepares to give up the fetus, to experience labor and birth, and to mother the infant. The pregnant woman's response at this time is manifested by a heightened interest in knowledge about labor, birth, and infant feeding (p. 272). A woman who indicates a desire to breastfeed her infant is exhibiting the emotional readiness and motivation necessary to put forth the effort to learn about breastfeeding. Learning is more effective when the learner is ready to learn (Redman, 1980, p. 94). A time of 35-36 weeks gestation was also indicated to allow the woman time to absorb the information and to practice the breast preparation. Most women

will deliver from two weeks before to two weeks after their approximate date of delivery, therefore, most of the women will have between two weeks and six weeks to prepare for breastfeeding.

The research project excluded women who have previously breastfed an infant. Women who have breastfed previously have learned through experience the intricacies of breastfeeding and would bias the sample because of previous knowledge and experience.

All women, to be included in the project, will be 16 to 35 years of age. Under 16 and over 35 are classified as high risk pregnancies (Clark and Affonso, 1979). Women with obstetrical complications such as preeclampsia, eclampsia, multiple pregnancy, or hydraminos may jeopardize the health of the mother and/or the infant. (Jensen et. al. 1981, p. 315). A high risk pregnancy presents many intervening variables that would confound the results, therefore, a low risk population was identified.

A low risk maternity population was identified, but if the birth resulted in a Ceasarean section, the woman was not eliminated from the research project. The incidence of Ceasarean births has been increasing in the past decade. (Affonso, 1979, p. 718), a Ceasarean Section does not interfere with the physiological mechanisms of lactation (Hall, 1978). A woman with a Ceasarean birth can breastfeed here infant with a few minor adjustments in positioning of the infant (Frantz, 1979). Including women with abdominal deliveries increased the generalizability of the results.

All the women will be required to speak English. The breastfeeding information will be given in English, therefore, in order to

understand the presentation the woman must speak English. An English written booklet about breastfeeding was also distributed, therefore the woman must have been able to read English.

A subject's disclaimer form (Appendix F) was presented to all the subjects willing to participate in the research project. Each of the women was informed of her right to refuse participation at any time during the project.

The study methodology, procedures, and instruments were presented to the Human Subjects Committee, University of Arizona, for ethical review. Approval was granted to conduct the study May 13, 1983. A copy of the approval letter from the chairman of the Human Subjects Committee is in Appendix Q.

Randomization of Subjects

The office personnel at each doctor's office was solicited, either in person or by telephone, to identify the women who would meet the criteria for inclusion into the research project. The name and EDC of all women who intended to breastfeed were listed on the Maternity Population Work Sheet (Appendix C).

The physician's prenatal records did not indicate if the woman who intends to breastfeed had ever breastfed previously. Therefore, the first criterion of selecting women who would be breastfeeding for the first time, was identified during the initial telephone contact (Appendix D). If the woman did not have a telephone or could not be contacted by telephone, she was visited at the doctor's office during the 35 to 36 week gestation office visit.

After a woman had been identified as a first-time breast-feeder, she was given a sequence number from one to thirty. The woman was then randomly assigned to a control or an experimental group. A computerized random number table (Appendix E) from one to thirty was utilized. The woman's sequence number indicated the random number for her. (Example: if she was the ninth woman to meet the criteria and consented to participation, her random table number was 15). If the random table number is an even number, she was assigned to the experimental group and visa versa, an odd number indicated control group.

Instruments

The instruments for this study include: 1) the Structured Breastfeeding Teaching Plan, 2) pre-and post-tests and 3) ante and post-partal information questionnaires.

The Structured Breastfeeding Teaching Plan

The Structured Breastfeeding Teaching Plan is a comprehensive presentation of specific and factual breastfeeding information. Breastfeeding information is important for a woman who plans to breastfeed her infant since breastfeeding is not an inborn trait (Helsing, 1976) but a learned art. The Structured Breastfeeding Teaching Plan, presented to first-time breastfeeding women is composed of an Outline (Appendix A), a film on breastfeeding (Appendix I), a question and answer session, and a booklet about breastfeeding (Appendix J).

The current nursing literature was reviewed for a comprehensive outline or protocol for teaching lactation education. The

available literature was fragmented and frequently outdated. It was deemed necessary to develop a comprehensive structured outline on breastfeeding. After an extensive review of the current literature a seven part outline, titled the Structured Breastfeeding Teaching Plan Outline (Appendix A) was written using twenty-one of the most recent relevant articles. The five topic areas that were believed to be most pertinent to lactation education include: prenatal breast preparation, physiological aspects of breastfeeding, benefits of breastfeeding, breastfeeding technique and treatment of common breastfeeding problems.

The Structured Breastfeeding Teaching Plan Outline acted as a guide for the evaluation of the breastfeeding film. The outline was also used as the basis for answering any questions the women in the experimental group had about breastfeeding.

To prevent or at least decrease researcher bias that might occur with a verbal presentation of the Structured Breastfeeding Teaching Plan, a slide-sound audio-visual on breastfeeding was utilized for the basic presentation to the women in the experimental group. The film, titled "Breastfeeding" by Marjorie Pyle R.N.C. is a fifty minute presentation that discusses many aspects relevant to breastfeeding and the breastfeeding mother-infant dyad. A narrative of the fifty minute, 103 slide presentation is available in Appendix I.

To evaluate the content of the breastfeeding film, a panel of experts was asked to view the fifty minute film on breastfeeding. The five panel of experts included: a La Leche League representative, a

certified childbirth educator, a university teacher of Maternal-Child nursing, and two breastfeeding mothers, one a La Leche League member and one not a member. Each of the five experts were asked to evaluate in writing the breastfeeding film.

An evaluation form (Appendix 0) was used by the breastfeeding experts to critique the film in the five areas identified in the Structured Breastfeeding Teaching Plan Outline. The five areas are: prenatal breast preparation, physiological aspects of breastfeeding, benefits of breastfeeding, breastfeeding technique, and treatment of common breastfeeding problems. A Likert scale was developed consisting of ten declarative statements, one negative and one positive on the five topic areas. The respondents were asked to indicate the degree to which they agreed or disagreed with each statement by circling a number on a seven-point scale. All five of the breastfeeding experts evaluated the breastfeeding film positively. Several experts indicated that the film was "comprehensive" but "a little overwhelming". The women suggested that the film be stopped several times and the content be re-explained, rather than viewing the entire film before discussing specific topics. The experts' suggestion was incorporated into the Structural Breastfeeding Teaching Plan presentation.

A third portion of the Structured Breastfeeding Teaching Plan included a Question and Answer session. Each woman in the experimental group was asked if she had any questions about the content presented in the breastfeeding film. The Structured Breastfeeding

Teaching Plan Outline acted as a teaching guide during the question and answer session.

In addition to the breastfeeding film and the question and answer session, a booklet about breastfeeding was given to each woman in the experimental group. The twenty-nine page booklet (Appendix J) titled "Breast Feeding, A Family Affair", by Marjorie M. Pyle R.N.C. is a thorough description of the art of breastfeeding. The booklet was chosen for several reasons. First, Ms. Pyle provides a Bibliography. The articles and books she used for writing the booklet are recent writings published in well-known nursing journals and books. Ms. Pyle also provides a book list for the mothers of relevant books on breastfeeding (ex. The Womanly Art of Breastfeeding. Franklin Park, Illinois: La Leche League International.). Second, Ms. Pyle provides the names and addresses of suppliers of such items as "Lact-Aid, Breast Pumps and Nursing Cups. Third, the booklet is small in size. It could easily be carried in a purse and therefore be read when time was available. Fourth, the booklet is readable in that the words are simple and easily understood. Fifth, numerous illustrations are used to depict such topics as nipple rolling, breast massage and breastfeeding positions. A woman does not need a high school education to "read the pictures". Sixth, the booklet was not prepared and/or distributed by a formula company but written and produced by a nurse interested in breastfeeding.

The booklet will act as reference material for the woman to read prior to and/or after the birth of her infant. She could use the

booklet as a refresher of the material contained in the breastfeeding film and, therefore, reinforce the content covered.

Pre-and Post-Tests

The second set of instruments used in this research project included three ten-item multiple-choice tests with questions about breastfeeding. The three tests are the: 1) Pretest (Appendix H), administered to all the women in the experimental control group at the first meeting after receiving consent to participate, 2) Post-Test I (Appendix K) taken by each woman in the experimental group approximately one week after participating in the Structured Breastfeeding Teaching Plan, and 3) Post-Test II (Appendix N), a replica of the pre-test, administered to all the women in the experimental and control group, approximately one month after delivery.

In Chapter II a detailed rationale for the use of the pre-and post-tests was discussed. In summary, Baranowski (1979) deemed it necessary to have documentation of each woman's breastfeeding knowledge prior to teaching them about breastfeeding. The pre-test provided documentation of each woman's baseline knowledge of breastfeeding and substantiated the homogeneity of the two groups. The Post-Test I was to assess the amount of learning that had occurred as a result of the Structured Breastfeeding Teaching Plan with the women in the experimental group. The Post-Test II, a replica of the Pre-Test was intended to identify a difference in the breastfeeding knowledge between the control and the experimental group. The Post-Test II would validate or disprove the second hypothesis.

The multiple-choice question items used in the pre-and post-tests are a modification of the Gulick (1982) tool (Appendix P). Gulick developed twenty-six questions "to measure the expectant mother's knowledge about breastfeeding" (p. 370). Twenty questions, relevant to the Structured Breastfeeding Teaching Plan were selected from Gulick's twenty-six items. The six items not selected for inclusion in the pre-and post-tests were deemed irrelevant to the Structured Breastfeeding Teaching Plan. The twenty items were divided between the pre- and post-tests. Ten items were chosen for the pre-test (and the post-test II) and ten different items were selected for the post-test I.

Gulick's twenty-six multiple-choice questionnaire was given to 251 primipara women who attended expectant-parent classes. She indicated that the questionnaire had content validity, test re-test validity (.87) and internal consistency (.72).

The pre- and post-tests were restricted to ten items each to maintain simplicity and to minimize the time necessary to take the test. Gulick's sample population was predominately white, middle class married women with a minimum of a high school education and in order to participate in her study the women were required to take only one test. The women in this study were from a lower socio-economic group, frequently with less than a high school education, and half the women (the experimental group) participated in the Structured Breastfeeding Teaching Plan. Each of the three tests would take from ten to fifteen minutes to complete.

For content validity, the five women viewing the breastfeeding film were requested to evaluate the pre- and post-tests. Each of the five breastfeeding experts scored above average, from 100% to 80%, on the two tests. Several breastfeeding experts verbally and in writing indicated that some of the test question items were "tricky" or "confusing". One woman stated that the tests were "a little detailed for the breastfeeding mother". All three of the tests, Pre-test, Post-test I, and Post-test II were administered as originally designed.

Ante- and Post-Partial Information Questionnaires

The ante- and post-partial information questionnaires consisted of the Antepartial Data Questionnaire (Appendix G) and the Post-Partial Evaluation Guide for Breastfeeding Success (Appendix M). Both questionnaires were developed to provide supplemental information into the woman's cognitive style and perceptions of breastfeeding, for descriptive analysis in comparing the experimental group with the control group.

The Ante-partial Data Questionnaire consists of: 1) demographic data items, 2) questions relevant to the woman's support system, and, 3) items pertaining to the woman's decision to breastfeed. The questionnaire was developed to provide some background information about the pregnant woman's socio-economic status and to attempt to discover her perception and motivation for breastfeeding.

TABLE 3.1
OUTLINE OF PRE & POST-TESTS

NAME	SUBJECTS	CONTENT	PURPOSE	FORMAT OF TEST
Pre-Test	Control & Experimental Groups	Questions about: 1) Benefits of breastfeeding (x1) 2) Physicological aspects of breast-feeding (x1) 3) Breastfeeding Technique (x4) 4) Treatment for common breastfeed- ing problems (x4)	To establish: 1) baseline knowledge of breastfeeding 2) homogeneity of the two groups	Ten multiple-choice questions, each question with five options
Post-Test I	Experimental Group	Questions about: 1) Benefits of breastfeeding (x1) 2) Breast prep- aration (x1) 3) Physiological aspects of breast-feeding (x2) 4) Breastfeeding techniques (x3) 5) Treatment for common breastfeeding problems (x3)	To assess the amount of learning that has occurred as a result of the Structured Breast-feeding Teaching Plan	Ten multiple-choice questions, each question with five options
Post-Test II	Control & Experimental Group	Identical to Pre-Test	To validate or disprove the second hypothesis	Same

The demographic data provided information for comparative analysis at the completion of the project. One author, Neifert (1978), identified the present day woman who breastfeeds her infant as a well educated primipara and in a high-income group. But Martinez (1979) indicated that the incidence of breastfeeding among the lower income, less educated mothers was "comparable", and in many instances greater, than in mothers from higher socio-economic strata." (p. 686).

Information about the woman's support system could help to identify the presence of absence of supportive members and a possible relationship to the decision to breastfeed as well as success at breastfeeding. Several authors (Helsing, 1976; Hall, 1978; Johnson, 1976; Houston, 1981; Lawson, 1976) identify support as an important variable in the success or failure of breastfeeding.

One of the questions asked the woman to describe her reason for wanting to breastfeed and how she arrived at that decision. Identifying a woman's reason for deciding to breastfeed would provide some insight into the individual woman's cognitive drive and motivation in learning about breastfeeding.

The second instrument for the information questionnaire is the Post-Partal Evaluation Guide for Breastfeeding Success (Appendix M). Each woman in the experimental and control group were visited one month (+/- 3 days) after her delivery. Each woman was called several weeks after he EDC to set up an appropriate interview time. Prior to administering the Post-Test II, each woman was asked the questions in the Post-Partum Evaluation Guide for Breastfeeding Success.

The Post-Partial Evaluation Guide for Breastfeeding Success consists of: 1) social and psychological items relevant to the woman's birthing experience and, 2) physiological and psychological items specific to the breastfeeding experience.

The first page of the questionnaire would help to re-establish a social rapport with each woman. Women are interested in discussing their birthing experience. Therefore, questions pertaining to the baby's sex, weight, and delivery date were asked as well as the type of delivery, i.e., vaginal or Ceasarean, and length of labor. A question about who was present at the delivery was designed to identify a possible support person and to see if that person was available for support with breastfeeding. A description of the birthing experience and a description of her feelings about that experience was solicited. A woman's thoughts, feelings, and attitudes about her childbirth experience will affect her concept of self as a woman and as a mother (Butane, 19--:73). It would be interesting to see if the woman's birthing experience effects her breastfeeding experience. Each woman was also asked to rate her birthing experience from 1 to 10.

On the Post-Partial Evaluation Guide for Breastfeeding Success questions relevant to the Structured Breastfeeding Teaching Plan were asked. Questions pertaining to how soon after delivery she breastfed her infant and the frequency of breastfeeding and supplementing while in the hospital were asked. Several authors (Neifert, 1978; Greiner, 1981; Applebaum, 1976) recommend breastfeeding be started as soon

after delivery as possible and to breastfeed at least every 2 to 3 hours in order to bring in the mature milk sooner and reduce the effects of engorgement. Salariya (1978) indicated that early initiation and increased frequency of breastfeeding extended the nursing period, but increased frequency of feedings had the greatest impact on overall success of breastfeeding.

Frequent and early nursing and an abundance of physical interaction between the mother and infant helps to initiate a special relationship between the mother and infant, and significantly increases breastfeeding (Kennell and Klaus, 1979, Lozoff et. al. 1977; Johnson, 1976). A satisfying breastfeeding experience can give the woman a feeling of tranquility and a confirmation of her love of her baby (Gunther, 1976). Because a woman's psychological impression of her breastfeeding experience may affect the outcome of breastfeeding success, the new mother was asked to retrospectively summarize her breastfeeding experience while in the hospital as well as summarize her breastfeeding experience for the past month.

Questions related to how the new mother handled the common breastfeeding problems that occurred in the first couple of weeks post-partum were asked. The possible problems include: sore to tender nipples, engorgement, plugged duct, insufficient milk, and baby not sucking. Mismanagement and inadequate preparation for common breastfeeding problems have been implicated in early termination of breastfeeding (Neifert, 1976; Hall, 1978; Frantz, 1982; Greiner, 1981). Possible treatment measures had been presented in the Structured

Breastfeeding Teaching Plan to the women in the experimental group.

Data Collection

The researcher visited all the first-time breastfeeding women who verbally consented to participate in the research project within one week after initial telephone contact. A subject's disclaimer form (Appendix F) was described and presented to each woman. The woman was asked to fill out the Antepartal Data Questionnaire (Appendix G) at that time. Following completion of the prepartal questionnaire, all the women in both groups completed a pre-test (Appendix H). Women in the control group were thanked for their participation and informed of the follow-up home visit approximately one month after their delivery. viewed a film on breastfeeding (Appendix I) and any questions elicited were answered. A booklet, titled "Breast Feeding, A Family Affair" by Marjorie Pyle R.N.C. (Appendix J) was given to each woman after the A telephone contact (Appendix L) was made to establish birth of baby and set up the second home visit. The women in the experimental group breastfeeding film, to provide written reinforcement about breastfeeding.

Approximately one week after the breastfeeding film was viewed the women in the experimental group completed the post-test I (Appendix K) to determine if any increase in breastfeeding knowledge took place after the presentation of the Structured Breastfeeding Teaching Plan. Approximately two to three weeks after each of the new mothers EDC, she was contacted (Appendix L) to set up a time and date for the final home visit.

TABLE 3.2
DATA COLLECTION TIME TABLE

TIME	SETTING	INSTRUMENT	SUBJECTS
35-36 weeks gestation	Researcher's home or selected doctor's	Script for Initial Telephone Contact (Appendix D)	Women who intend to breastfeed their infant.
Immediately after telephone contact	Researcher's home	Random Number Table (Appendix E)	First-time breastfeeding women who have verbally consented to project
36-37 weeks gestation	Woman's home	Subject's Disclaimer Form (Appendix F) Initial Information Questionnaire (Appendix G) Pre-Test (Appendix H)	First-time breastfeeding women who consented to participate
37-38 weeks gestation Within one week after contact	Woman's home or other predetermined place	Post-Test I (Appendix K)	Experimental and Control Group
Approx. 2-3 weeks post-partum.	Researcher's home	Post-partum Telephone Contact Script (Appendix L)	Experimental group
One month (+/- 3 days)	New mother's home or other predetermined place	Post-partum Information Questionnaire (Appendix M). Post-Test II (Appendix N)	Experimental and Control Groups

One month post-partum (+/- three days) a home visit was made to each new mother in the experimental and control group. A post-partum questionnaire (Appendix M) was answered. The post-partum questionnaire contained questions about their labor and delivery, post-partum course, problems with breastfeeding and breastfeeding outcome. The post-test II (Appendix N) was given to substantiate the current knowledge about breastfeeding. After post-test II and post-partum questionnaire each woman was asked if she had any questions about breastfeeding. Information, encouragement and support was given to all women at this time.

Analysis of Data

Descriptive statistics were used to describe and synthesize the data obtained from the three tests and the initial Post-Partum Information Questionnaire. Percentages, frequency distributions and measures of central tendency were figured. The range and standard deviation of test scores were calculated. Comparisons for relationships or lack of relationships between the test scores as well as comparison studies between the demographic data information and test results were figured. The following demographic data were selected for comparison studies: age, education, ethnicity, parity, marital status, and support system.

Inferential statistics were utilized to draw conclusions or make inferences about the characteristics of the first-time breastfeeding population based on the data obtained in the sample. A paired T-Test was used to compare the raw mean scores on the Pre-Test with

the raw mean scores on the Post-Test II for the experimental group to determine whether significant learning took place as a result of the Structured Breastfeeding Teaching Plan.

CHAPTER IV

PRESENTATION AND ANALYSIS OF DATA

This chapter addresses data analysis pertaining to the following: characteristics of the sample population, results from the pre- and post-tests, outcomes of the birthing experience, responses to treatment of breastfeeding problems, assessment of breastfeeding after one month, and data on women who terminated breastfeeding.

Characteristics of the Sample Population

The study sample consisted of thirty pregnant women who were planning to breastfeed their newborn for the first time. All subjects met the inclusion criteria established prior to the study (page 389). Each of the thirty pregnant women were randomly assigned to the control group or the experimental group.

As shown in table 4.1 the two groups of women were closely matched in age distribution. The mean age for the total group was 20.93 years. The experimental group's mean was slightly older at 21.3 years of age while the control group's mean was slightly younger at 20.6 years of age.

Educational levels of the pregnant women, in years of formal education completed, ranged from eight years to sixteen years, in the total group and the experimental group. The women in the control group had a narrower range of ten years to sixteen years of education.

The homogeneity of the thirty pregnant women was evident with exact means of 11.867 years of education.

Table 4.1 Demographic and Personal Data of Respondents

	Experimental N=15	Control N=15	Total N=30
Age			
Range	16-27	16-31	16-31
Mean	21.267	20.6	20.93
Education			
Years completed	8-16	10-16	8-16
Mean	11.867	11.867	11.867
Gravidity			
First	10	13	23
Second	3	1	4
Third	1	1	2
Sixth	1	0	1
Parity			
Zero	12	13	25
One	1	1	2
Two	2	1	3
Marital Status			
Married	10	9	19
Single	5	6	11
Ethnicity			
Anglo	11	7	18
Mexican	4	6	10
Mexican/Indian		1	1
Mexican/White		1	1
Predominant Language			
English	13	13	26
English and Spanish	2	2	4
Smoker			
Yes	4	3	7
No	11	12	23

Twenty-five of the pregnant women were planning to breastfeed their first newborn, two women were planning to breastfeed their second child and three women were to breastfeed their third child. A discrepancy in the gravidity and parity of the women (see Table 4.1) occurs because three of the women, in the experimental group reported having had abortions. One woman claimed to have had three abortions. Both groups are similar in their parity. In the experimental group twelve of the women were planning to breastfeed their first baby while in the control group, thirteen women were planning to breastfeed their first newborn.

Almost two-thirds of the pregnant women were married. Of the eleven women who indicated they were single, at least half of them either lived with the father of the baby or continued to have close contact with him. The experimental and the control groups were similar. Ten women in the experimental group and nine women in the control group reported being married.

Ethnic group membership and the predominant language spoken in the household are also displayed in table 4.1. Both the experimental and the control group had Anglo women as its largest component (eleven in the experimental group and seven in the control group). The Mexican population was also represented. Four of the women in the experimental group and six in the control group claimed to be Mexican. In the control group one woman wrote Mexican and White and one wrote Mexican and Indian. Even with the high population of Mexican heritage, all but four of the women claimed English as their predominant

language (thirteen in the experimental group and thirteen in the control group). Four women, two in the experimental group and two in the control group, claimed both English and Spanish as the predominant language.

When questioned about smoking, four women in the experimental group and three women in the control group indicated that they did smoke. Twenty-three women, eleven in the experimental group and twelve in the control group, denied smoking.

The demographic and personal data of the fifteen women in the experimental group is relatively homogenous with the fifteen women in the control group. The experimental group was slightly older and composed of more Anglos than the control group.

To identify support for the pregnant woman who planned to breastfeed for the first time, each woman was asked if she had a family member or close friend who had breastfed a baby. Table 4.2 shows the number of women who answered "yes" or "no" to questions on support and/or knowledge of breastfeeding. A total of twenty-three women indicated that they had one or several family members who had breastfed, eleven of the women were in the experimental group and twelve were in the control group.

Each pregnant woman was also asked if she would have "help and encouragement with breastfeeding". Fourteen women in the experimental group and twelve in the control group indicated that there was someone available to provide her with support in her endeavor to breastfeed.

Results from the chi-square analysis (Table 4.3) indicated no significant differences in the availability of support between the experimental and control group.

Table 4.2 Respondents Availability of a Support System and Childbirth Class Attendance

	Experimental N=15	Control N=15	Total N=30
Family History of Breastfeeding			
Yes	11	12	23
No	4	3	7
Support			
Yes	14	12	26
No	1	3	4
Childbirth Class Attendance			
Yes	10	9	19
No	5	6	11

Table 4.3 Chi-square Test Results for Availability of Support between the Experimental and Control groups.

	OBSERVED			EXPECTED		
	Yes	No	Total	Yes	No	Total
Experimental	14	1	15	13	2	15
Control	12	3	15	13	2	15
Total	26	4	30	26	4	30

$$\chi^2 .077 + .077 + .5 + .5 = 1.154, \text{ N.S.}$$

Table 4.4 Chi-square Test Results for Attendance at Childbirth Class between Experimental and Control groups.

	OBSERVED			EXPECTED		
	Yes	No	Total	Yes	No	Total
Experimental	10	5	15	9.5	5.5	15
Control	9	6	15	9.5	5.5	15
Total	19	11	30	19	11	30

$$\chi^2 .026 + .026 + .045 + .045 = .142, \text{ N.S.}$$

Childbirth classes can provide both knowledge about breastfeeding and a possible support network for the new breastfeeding mother. Each woman was asked if she had attended childbirth classes. Ten pregnant women in the experimental group and nine in the control group had attended or were attending childbirth classes. Results from the chi-square analysis (Table 4.4) indicated no significant difference in attendance at childbirth classes between the experimental and control group. Almost two-thirds of the pregnant women reported attendance at childbirth class.

Results From the Pre- and Post-Tests

The ten-item multiple choice Pre-test (Appendix H) was given to the thirty first-time breastfeeding women one month prior to the woman's expected date of delivery. The exact same test, Post-Test II (Appendix N) was given to the thirty women one month postnatally. The Post-Test I (Appendix K) was given to the fifteen women in the experi-

mental group within one week after the presentation of the Structured Breastfeeding Teaching Plan. Table 4.5 shows the raw score range and percent, and the raw score mean on the pre- and post-tests.

The Pre-Test, establishes homogeneity between the experimental and the control group. The mean raw score of 5.267 is the same for the experimental and control group. The raw score range is slightly different, two to eight correct answers in the experimental group and three to seven correct answers in the control group.

The Post-test I was administered to the women in the experimental group, within a week after participating in the Structured Breast-feeding Teaching Plan. The raw score mean was 6.267 correct answers.

The Post-test II, a replica of the Pre-test, identifies a higher raw score mean as compared to the Pre-test by one raw score point. All the new breastfeeding mothers were, on the average, able to answer one additional test question item correctly as compared to their Pre-test. The raw score mean for the experimental group is 6.267 and 6.4 for the control group. The control group raw score mean is slightly higher than the experimental group.

Table 4.5 Pre- and Post-test Raw Score Range, Percent and Mean

	Experimental N=15	Control N=15	Total N=30
Pre-Test			
raw score range	8 to 2	7 to 3	8 to 2
range as percent	80% to 20%	70% to 30%	80% to 20%
raw score mean	5.267	5.267	5.267

Table 4.5 (Continued)

Post-Test I			
raw score range	9 to 3		
range as percent	90% to 30%		
raw score mean	6.267		
Post-Test II			
raw score range	9 to 2	8 to 4	9 to 2
range as percent	90% to 20%	80% to 40%	90% to 20%
raw score mean	6.267	6.4	6.333

Outcomes of the Birthing Experience

The first half of the Post-Partial Evaluation Guide for Breast-feeding Success (Appendix M) was devoted to obtaining information about the woman's birthing experience. The thirty first-time breast-feeding women answered the questionnaire approximately one month after the birth of their infant and in the privacy of their own home. Table 4.6 shows the type of delivery, sex, of the newborn, rating of the birthing experience, time span that occurred before initiating breast-feeding, and frequency the new mother breastfed while in the hospital.

A vaginal birth was experienced by eleven of fifteen women or 73.3%, in the experimental group. All but one of the fifteen women in the control group reported having a vaginal birth. The experimental group experienced more Cesarean births (four) than the control group (one). Results from the chi-square analysis (Table 4.7) indicated no significant difference in the type of delivery between the experimental and control group.

In the experimental group eight of the newborns were male and seven were female, a relatively normal sex ratio. In the control group, ten of the newborns were male and only five were females. Results from the chi-square analysis (Table 4.8) indicated no significant difference in the sex of the newborn between the experimental and control group.

Each woman was asked to rate her birthing experience on a scale of one to ten. A rating of "1" indicated poor and "10" indicated excellent. The experimental and control groups are relatively similar in the rating of their birthing experience.

Table 4.6 Type of Delivery, Sex of the Newborn, Rating of the Birthing Experience, Time Span Before Initiating Breastfeeding and Frequency of Breastfeeding While in the Hospital

	Experimental N=15		Control N=15		Total N=30	
	f	%	f	%	f	%
Type of Delivery						
Vaginal	11	73.3%	14	93.3%	25	83.3%
Cesarean Section	4	26.7%	1	6.7%	5	16.7%
Sex of Newborn						
Male	8	53.3%	10	66.7%	18	60%
Female	7	46.7%	5	33.3%	12	40%
Birth Rating						
10-6	12	80%	11	73.3%	23	76.7%
5-1	3	20%	4	26.7%	7	23.3%
Time Span within one hour	7	46.7%	3	20%	10	33.3%

Table 4.6 (Continued)

Time Span (continued)							
two hours to four hours	4	26.7%	5	33.3%	9	30%	
five to eight hours	2	13.3%	4	26.7%	6	20%	
over eight hours	1	6.7%	3	20%	4	13.3%	
no reply	1	6.7%	0		1	3.3%	
Frequency							
every two to three hours	12	80%	8	53.3%	20	66.7%	
every three to four hours	2	13.3%	4	26.7%	6	20%	
over four hours	1	6.7%	3	20%	4	13.3%	

Table 4.7 Chi-square Test Results for Type of Delivery Between Experimental and Control groups.

	OBSERVED			EXPECTED		
	Vaginal	C-Section	Total	Vaginal	C-Section	Total
Experimental	11	4	15	12.5	2.5	15
Control	14	1	15	12.5	2.5	15
Total	25	5	30	25	5	30

$$\chi^2 = .18 + .18 + .6 + .6 = 1.56, \text{ N.S.}$$

Table 4.8 Chi-square Test Results for Sex of the Newborn Between the Experimental and Control groups.

	OBSERVED			EXPECTED		
	Male	Female	Total	Male	Female	Total
Experimental	8	7	15	9	6	15
Control	10	5	15	9	6	15
Total	18	12	30	18	12	30

$$\chi^2 = .111 + .111 + .167 + .167 = .556, \text{ N.S.}$$

Table 4.9 Chi-square Test Results for Rating of Birthing Experience Between the Experimental and Control groups.

	OBSERVED			EXPECTED		
	Positive	Negative	Total	Positive	Negative	Total
Experimental	12	3	15	11.5	3.5	15
Control	11	4	15	11.5	3.5	15
Total	23	7	30	23	7	30

$$\chi^2 = .022 + .022 + .071 + .071 = .186, \text{ N.S.}$$

In the experimental group twelve of the women rated their experiences from six to ten thereby indicating a positive experience. In the control group, eleven of the women rated their experiences in

the six to ten range. Three women in the experimental group and four women in the control group rated their birthing experiences negatively. Results from the chi-square analysis (Table 4.9) indicated no significant difference in the rating of their birthing experience between the experimental and control groups.

An interesting point to note is that five women with unscheduled Cesarean Sections rated their birthing experiences as 10, 8, 5, 1, and 5. Three or 60% were rated negatively, whereas only 23.3% of all thirty of the first-time breastfeeding women rated the experience negatively.

Frequent and early onset of breastfeeding is recommended in the Structured Breastfeeding Teaching Plan. Thus each woman was asked to identify the time span that occurred before she first breastfed her newborn. The experimental group, who received the Structured Breastfeeding Teaching Plan, identified an early onset to breastfeeding more frequently than the control group. Over seventy percent of the women in the experimental group breastfed within the first four hours after delivery as compared to approximately fifty percent of the control group. In the experimental group one woman indicated that she was unable to breastfeed her baby for seven days because of a spinal headache. Another woman in the experimental group did not answer the question.

Each woman was also asked how often she breastfed her newborn while she was in the hospital. The Structured Breastfeeding Teaching Plan recommended every two to three hours to establish an adequate

milk supply. In the experimental group, twelve women or 80% wrote that they breastfed every two to three hours while in the control group eight women or 53.3% indicated that they breastfed every two to three hours. Two women in the experimental group and four in the control group indicated every three to four hours. Four women, one in the experimental group and three in the control identified frequencies of over four hours.

Responses to Treatment of Breastfeeding Problems

The Structured Breastfeeding Teaching Plan identified numerous methods to treat breastfeeding problems. The second portion of the Post-Partal Evaluation Guide for Breastfeeding Success (Appendix M) was aimed at identifying first, if the new mother encountered any breastfeeding problems and second, how she treated those problems. The five breastfeeding problems were: sore or tender nipples, engorgement, plugged ducts, not enough milk and baby wouldn't suck. Table 4.10 lists the treatment used for common breastfeeding problems encountered by the thirty first-time breastfeeding women. Several of the problems listed in Table 4.10 add up to more than fifteen because several women wrote more than one treatment per problem.

The most common breastfeeding problem encountered by the new mothers was sore or tender nipples. The most common treatment was the commercial breast creams supplied by the hospitals, which was identified almost equally by the experimental and control groups. Other treatments included breast shield, used by three women in the control group and, cold wash cloths, exposure to air, going braless

and use of lanolin. One woman in the control group indicated that she restricted the breastfeeding. Three women "tolerated it", two in the group and once be a woman in the control group. Other treatments included a hot wash cloth applied to the breasts, wearing a tight bra, use of Aspirin and relaxation techniques. Five women, two in the experimental group and three in the control group, wrote "no problem". One woman in each group left the section blank.

An interesting note, more women in the control group, as compared to the experimental group denied having problems with nipple soreness or engorgement. A possible reason or explanation might be that the women in the experimental group were told via the Structured Breastfeeding Teaching Plan that nipple soreness and engorgement were common and almost expected problems to be encountered with breastfeeding. Possibly, some of the women in the control group did not expect to encounter nipple tenderness or engorgement and therefore did not encounter or did not recognize tenderness or engorgement as a problem.

Most women, twelve in the experimental group and eleven in the control group, did not observe a plugged duct. Those who did, treated the plugged duct with gentle breast massage or "relaxation".

Insufficient milk was encountered by eight women, four in the experimental group and four in the control group. Women in the experimental group, who encountered the problem identified three acceptable treatments; 1) fed the baby more often (the best treatment), 2) use of manual expression, or 3) use a breast pump. Three

women in the control group indicated that their physicians instructed them to stop breastfeeding and give the baby formula. That is obviously a poor suggestion or recommendation on the part of the doctor but it also exemplifies the level of knowledge on breastfeeding by some physicians. The three women in the control group who left that section blank, terminated breastfeeding prior to the one month interview. This may indicate that they did not know how to maintain their milk supply.

Poor sucking or "baby won't suck" was not identified as a problem by nineteen women, ten in the experimental group and nine in the control group. The women who did identify poor sucking as a problem used interesting methods of treatment such as: "keep trying", "wait until he was hungry", "find out baby's reason, probably needed to burp", "tease baby with my nipple", and give "more skin to skin contact". One woman wrote "no luck-baby refused to eat." This woman terminated breastfeeding prior to the one month interview.

All but two women did not identify any additional problems with breastfeeding. One woman in the experimental group identified "bleeding and chapped nipples" as a problem. She terminated breastfeeding prior to the one month interview. One woman in the control group wrote that she stopped breastfeeding for forty-eight hours because her baby was jaundiced, but she resumed breastfeeding without additional problems.

Assessment of Breastfeeding After One Month

The final portion of the Post-Partal Evaluation Guide for Breastfeeding Success (Appendix M) was devoted to assessing the new

mother's current status with breastfeeding after one month. The questions were aimed at identifying each woman's breastfeeding and supplementing status, reasons for stopping breastfeeding, description of her breastfeeding experience and a rating with the explanation of her breastfeeding experience. Table 4.11 identifies each group's breastfeeding status after one month and the rating of the breastfeeding experience. Table 4.12 quotes each woman's description of her breastfeeding experience along with her rating of that experience. Table 4.13 quotes the unsuccessful breastfeeding mothers on their reasons for terminating breastfeeding.

In the experimental group, twelve women (80%) were totally or partially breastfeeding their infant at the one month interview. In the control group, nine women (60%) were totally or partially breastfeeding at one month. A paired T-test resulted in no significant difference, between the experimental and the control group. In total twenty-one women were breastfeeding successfully. Nine women, three in the experimental group and six in the control group, who terminated prior to the one month interview, were unsuccessful with breastfeeding. These women will be addressed in greater detail in the next section and in Chapter 5.

Each woman was asked to rate her breastfeeding experience. The rating was numbered from one to ten, "1" was labeled as a poor experience and "10" indicated an excellent experience. Twelve women in the experimental group and ten in the control group rated their experience positively by circling a number from six to ten. Seventeen

of those women, nine in the experimental group and eight in the control group, circled "10" indicating a very positive experience. The remaining eight women, five in the experimental group and three in the control group, rated their experience negatively.

Table 4.12 presents each woman's quoted response to an open-ended question about her breastfeeding experience. Her rating of that experience is also presented. An asterisk has been placed next to the women's group identification to indicate the responses by women who had terminated breastfeeding. The rating of the woman's breastfeeding experience was relatively similar to her quoted description of that experience. Twenty of the twenty-one women who were currently breastfeeding described and rated the experience positively. Three of the nine women who terminated breastfeeding described and rated the experience positively, while the remaining six rated and described the experience negatively.

The nine women who were unsuccessful with breastfeeding described their reasons for terminating breastfeeding. These responses along with their breastfeeding rating score are presented in table 4.13. Insufficient milk was identified six times, two women in the experimental group and four women in the control group, as the reason for terminating breastfeeding. Two women, both in the control group, complained that breastfeeding was "too hard". Three women, one in the experimental group and two in the control group, possibly were describing "nipple confusion". All three of these women indicated that water bottles were given while in the hospital. One woman, in the

control group, identified poor physical health as a reason for terminating breastfeeding. A woman's nutritional status is an important consideration for a successful breastfeeding experience. Lastly, one woman in the experimental group never attempted to breastfeed. A non-milk formula was provided in the hospital which fulfilled her reason, to prevent milk allergies, for breastfeeding.

Table 4.10 Treatment used for Common Breastfeeding Problems Reported by Respondents

Problem	Treatment	F r e q u e n c y	
		Experimental	Control
Sore or Tender Nipples	breast cream	8	7
	breast shield	0	3
	expose to air	1	1
	cold wash cloth	1	0
	lanolin	0	1
	went without bra	1	0
	restrict feeding	0	1
	tolerate it	2	1
	no problem	1	3
	blank	1	1
Engorgement	breast pump	3	5
	manual expression	5	4
	hot wash cloth	2	3
	feed baby more frequently	3	1
	tight bra	1	1
	Aspirin	1	0
	relaxation	1	0
	tolerate it	1	1
	no problem	2	3
	blank	1	1
Plugged duct	massage	1	2
	relaxation	1	0
	went away by self	0	1
	no problem	12	11
	blank	1	1

Table 4.10 (Continued)

Problem	Treatment	F r e q u e n c y	
		Experimental	Control
Not Enough Milk	Doctor said to stop	0	3
	have baby feed more often	2	0
	drink fluids, juices and eat	0	1
	breast pump	2	0
	manual expression	1	0
	give bottle	1	0
	no problem	10	8
Baby Wouldn't Suck	blank	1	3
	wait until he was hungry	1	1
	keep trying	1	1
	tease baby with nipple	1	0
	found out reason, probably		
	needed to burp	0	1
	more skin to skin contact	0	1
	no luck-baby refused to eat	1	0
Other Problems	no problem	10	9
	blank	1	2
	bleeding and chapped nipples	1	0
	stopped breastfeeding for 48 hours because of jaundice. Went back to breastfeeding with no problem	0	1

Table 4.11 Breastfeeding Status After One Month and the Rating of the Breastfeeding Experience

	Experimental N=15	Control N=15	Total N=30
Infant Feeding			
Total Breastfeeding	8	7	15
Partial Breastfeeding	4	2	6
Formula	3	6	9
Breastfeeding Rating			
10 to 6	12	10	22
5 to 1	5	3	8

Table 4.12 Describing and Rating of Breastfeeding Experience Reported by Respondents

Group	Description	Rating
Control	"I have had no bad experience."	10
*Experimental	"Very disappointing. Also very sad to have to put baby on a formula when I had produced the milk to feed her."	1
*Control	"It was a special bond between my baby and I. It made us closer."	10
Experimental	"I've had a few problems, but overall it has been all right."	7
Experimental	"Wonderful."	10
Experimental	"I enjoyed it."	10
*Control	"Not so hot--very hard and frustrating."	1
*Experimental	"It was a nice feeling. I wish I could of done it longer. I felt close to baby."	10
Control	"It's great! Baby is more secure."	10
Control	"Great."	10
*Control	"I felt sore and kinda hurt."	3
Experimental	"It was good to have my baby near me and it made me really have something special between him and me."	10
Control	"It's great. I feel a closeness with baby."	4
Experimental	"I enjoy it very much."	10
Control	"Very good."	10
Experimental	"Great."	10
Control	"I feel good about it and I enjoy being able to feed my little one."	10
Control	"It's really neat and makes me feel close to her."	10

Table 4.12 (Continued)

Control	"I'm not real thrilled with the experience but I realize it is best for the baby."	7
*Control	"Well it took a lot of my time but it didn't bother me."	10
*Control	"My experience was very poor. I wish it would have been to my baby."	2
Experimental	"I like it. Sometimes I feel like I am tied down. I know my son is happy."	5
*Experimental	blank	1
Experimental	"I feel very happy that all is going well and that she is taking to breastfeeding after a bottle bottle feeding of seven days."	10
Control	"A very fulfilling experience."	10
Control	"I think it was worthwhile, because the closeness is very important between the mother and child."	8
*Control"	"It's an OK experience."	2
Experimental	"Glad and happy that baby seems to enjoy."	9

* = terminated breastfeeding

Table 4.13. Reasons for Terminating Breastfeeding Reported by Nine Respondents

Group	Response	Breastfeeding Rating
Experimental	"I was very disappointed. The baby never seemed satisfied. She wouldn't suck long enough to get the milk. I tried nipple shields and my breast got so sore I couldn't continue."	1

Table 4.13 (Continued)

Experimental	"I dried up too fast. I couldn't get milk to come in anymore."	10
Experimental	"I never actually started. They put my baby onto a special formula that she won't be allergic to. She has not been sick like the other two were."	1
Control	"It seemed that he was never content. Milk wasn't coming in."	10
Control	"1) I didn't want baby to starve. 2) Too hard--physically I was not able to work with him to try to get him to feed. 3) With formula, husband could help with feeding--share."	1
Control	"Anemic and low blood. Doctor said to stop."	3
Control	"I didn't have enough milk on my left breast, so doctor put the baby on a bottle."	10
Control	"Baby not taking to the milk. Likes the bottle better."	2
Control	"It was too hard. Baby wasn't getting enough milk."	2

Data on Women Who Terminated Breastfeeding

In order to understand more fully the data obtained from this study, the nine women who terminated breastfeeding prior to one month, were analyzed to identify the possible contributing variables, and to link those variables. The following discussion is limited to the common factors reported by the nine women who terminated breastfeeding and is compared to the women who are breastfeeding successfully. The common factors are divided between the prenatal factors and the

postnatal factors. The common prenatal factors, listed in Table 4.14, are: age, educational level, availability of a support system, attendance at childbirth classes and occurrence of smoking. The common postnatal factors, listed in Table 4.17 are: sex of the baby, time span before initiating breastfeeding, frequency of breastfeeding while in the hospital and the rating of the breastfeeding experience.

Table 4.14 The Common Prenatal Factors of the Nine Women Who Terminated Breastfeeding: Age, Education, Availability of a Support System, Attendance at Childbirth Classes and Occurrence of Smoking

Group	Age	Education	Support	Childbirth Class	Smoke
Experimental	21	12	yes	yes	yes
Experimental	19	11	yes	yes	yes
Experimental	20	11	yes	no	no
Control	16	10	yes	no	no
Control	20	14½	yes	yes	no
Control	17	10	yes	no	no
Control	16	10	no	no	yes
Control	21	12	yes	yes*	no
Control	19	11	no	no	yes

* Missed class on breastfeeding.

Table 4.15 Chi-square Test Results for Childbirth Class Attendance Between Successful Breastfeeding Women and Women Who Terminated Breastfeeding.

	OBSERVED			EXPECTED		
	Yes	No	Total	Yes	No	Total
Successful	15	6	21	13.3	7.7	21
Terminated	4	5	9	5.7	3.3	9
Total	19	11	30	19	11	30

$$\chi^2 = .217 + .375 + .507 + .876 = 1.975, \text{ N.S.}$$

Table 4.16 Chi-square Test Results for Smoking Between Successful Breastfeeding Women and Women Who Terminated Breastfeeding.

	OBSERVED			EXPECTED		
	Yes	No	Total	Yes	No	Total
Successful	3	18	21	4.9	16.1	21
Terminated	4	5	9	2.1	6.9	9
Total	7	23	30	7	23	30

$$\chi^2 = .737 + .224 + 1.719 + .523 = 3.203, \text{ N.S.}$$

Table 4.17 The Common Postnatal Factors of the Nine Women Who Terminated Breastfeeding: Sex of the Baby, Time Span Before Initiating Breastfeeding, Frequency of Breastfeeding While in the Hospital and Their Rating of the Breastfeeding Experience.

Group	Sex	Time Span	Hospital Frequency	Rating
Experimental	F	(Attempted) 2 hours	Every 2-3 hours	1
Experimental	M	Within 1 hour	Every 2 hours	10
Experimental	M	Did not	Did not	1
Control	M	7 hours	Two times	10
Control	M	6 hours	He breastfed poorly every 3-4 hours	1
Control	M	1 day later	Every 3-4 hours	3
Control	M	3 hours	Every 3-4 hours	10
Control	F	Within 1 hour	Every 2 hours	2
Control	M	Next day	Every 2-3 hours	2

Table 4.18 Chi-square Test Results for Time Span Before Initiating Breastfeeding Between Successful Breastfeeding Women and Women Who Terminated Breastfeeding.

	OBSERVED			EXPECTED		
	Early	Late	Total	Early	Late	Total
Successful	10	11	21	9.1	11.9	21
Terminated	3	6	9	3.9	5.1	9
Total	13	17	30	13	17	30

$$\chi^2 = .089 + .208 + .068 + .159 = .524, \text{ N.S.}$$

Table 4.19 Chi-square Test Results for Sex of the Baby Between Successful Breastfeeding Women and Women Who Terminated Breastfeeding.

	OBSERVED			EXPECTED		
	Male	Female	Total	Male	Female	Total
Successful	11	10	21	12.6	8.4	21
Terminated	7	2	9	5.4	3.6	9
Total	18	12	30	18	12	30

$$\chi^2 = .203 + .305 + .474 + .711 = 1.693, \text{ N.S.}$$

The age range for the nine women who terminated breastfeeding was 16 to 21 years of age. The mean age was 18.8 years old. The mean age for the twenty-one women who were breastfeeding successfully at one month was 21.9 years old. A difference of 3.1 years of age exists. The women who were breastfeeding successfully, on the average, were three years older than the women who terminated breastfeeding.

The mean or average grade level for the nine women who terminated breastfeeding was 11.3 years of education, while the average grade level for the twenty-one successful breastfeeding women was 12.2 years of education. The women who were breastfeeding successfully were approximately one grade level higher than the women who terminated breastfeeding. According to Yeung et. al. (1981) significantly more mothers with higher education breastfed their infants longer than those women with less education. In this study not only the woman's educational level, which was a grade higher, but her age maturity,

which was three years older, had a positive effect on the outcome of breastfeeding success.

Four of the nine women who terminated breastfeeding and fifteen of the twenty-one successful breastfeeding women had attended childbirth classes. Results from the chi-square analysis (Table 4.15) for childbirth class attendance indicated no significant difference between the twenty-one women who were successful with breastfeeding and the nine women who terminated breastfeeding.

Three of the twenty-one successful breastfeeding women and four of the nine unsuccessful breastfeeding women answered "yes" to the question about smoking. Results from the chi-square analysis (Table 4.16) for smoking indicated no significant difference between women who were successful with breastfeeding and women who terminated breastfeeding.

Table 4.17 lists the time span before the nine unsuccessful breastfeeding women initiated breastfeeding. Table 4.18 is the chi-square test results comparing the time span before initiating breastfeeding between the twenty-one successful breastfeeding women and the nine women who terminated breastfeeding. Early initiation of breastfeeding is less than three hours after giving birth and late initiation of breastfeeding is three hours or greater after the birth of the baby. Ten of the twenty-one successful breastfeeding women and three of the nine who terminated, breastfed their newborn less than three hours after giving birth. Results from the chi-square analysis for the time span before initiating breastfeeding indicated no signi-

ficant difference between the successful and unsuccessful breastfeeding women.

Seven of the nine unsuccessful breastfeeding women and eleven of the twenty-one successful breastfeeding women give birth to male infants. Results from the chi-square analysis (Table 4.19) for the sex of the baby indicated no significant difference between successful breastfeeding women and women who terminated breastfeeding.

CHAPTER V

DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

This final chapter will discuss the findings of the study, nursing implications, and recommendations for further study.

Discussion of the Findings

The discussion of the research findings will focus on the effectiveness of the Structured Breastfeeding Teaching Plan upon breastfeeding success and the null hypothesis. The purpose of this study was to evaluate the effectiveness of a Structured Breastfeeding Teaching Plan on the outcome of breastfeeding success. Breastfeeding at one month postnatally was the criteria for breastfeeding success. Twenty-one of the thirty women, twelve in the experimental group and nine in the control group, were breastfeeding successfully. The discussion of the findings will focus on knowledge and support because they were identified in the literature as the two major variables necessary for breastfeeding success. In this study the knowledge variable was emphasized by use of the Structured Breastfeeding Teaching Plan and the support variable was identified in the Antenatal Questionnaire. The succeeding discussions will focus on these two variables of knowledge and support, emphasizing data on women who terminated breastfeeding because of the salient features that interfered with their breastfeeding success.

Knowledge and Its Impact on Breastfeeding Success

A source of breastfeeding information is from childbirth classes. Five of the nine women who terminated breastfeeding denied attendance at childbirth classes. One of the remaining four women, who did report attending childbirth classes, indicated that she did not attend the childbirth class devoted to breastfeeding. Therefore, six or 67% of the unsuccessful breastfeeding women did not attend childbirth classes with possible instruction in breastfeeding. Five of those six women were in the control group and, therefore, did not receive the Structured Breastfeeding Teaching Plan. The indepth program on breastfeeding would have provided these women with the needed knowledge for successful breastfeeding. Sixteen women, eight in the experimental group and eight in the control group, who were breastfeeding successfully, did attend childbirth classes. Attendance at childbirth classes improved the woman's success with breastfeeding. Either the motivational force that impels a woman to attend childbirth classes also provides the incentive to breastfeed her newborn or, the instructional elements of childbirth classes increase the woman's knowledge base of breastfeeding. Either explanation or a combination of both explanations may provide a plausible reason for improved success with breastfeeding in conjunction with childbirth classes.

The breastfeeding booklet (Appendix J), a part of the Structured Breastfeeding Teaching Plan, indicates that smoking can adversely affect the breastfeeding woman's let-down reflex. Four of the nine women, who terminated breastfeeding by one month reported,

antenatally, that they did smoke. Of the four, two women were in the experimental group and two women were in the control group. Three of the twenty-one women who were breastfeeding successfully answered "yes" to the question about smoking on the Antepartal Data Questionnaire. During the one month postnatal interview, two of the three women, both in the experimental group, verbally commented that they had not smoked since the birth of their baby.

A needed revision on the postnatal data questionnaire would be a follow-up question about the breastfeeding woman's smoking status. A woman might have answered "yes" on the prenatal questionnaire but stopped smoking after the birth of the baby. In reference to breastfeeding success, a non-smoking status is desirable. Since smoking interferes with the woman's let-down reflex, the infant's ability to receive adequate nourishment would diminish, which would increase the baby's need for more frequent feedings. This would increase the baby's need for more frequent feedings. This would increase the mothers anxiety and possibly increase her need for more cigarettes. A frustrating cycle would easily ensue. In reviewing the nine women's reason for terminating breastfeeding, the four women who smoked described problems with their let-down reflex and/or insufficient milk syndrome. The following are quoted responses from the four women who smoked and stopped breastfeeding:

"The baby never seemed satisfied."

"I dried up too fast. I couldn't get milk to come in anymore."

"I didn't have enough milk in my left breast."

"Baby wasn't getting enough milk."

The incidence of smoking did adversely affect the woman's success with the breastfeeding experience.

An unexpected, but hopefully coincidental, occurrence was noted about the sex of the baby to whom the woman gave birth. (Refer to Table 4.17.) Seven or 78% of the nine women, who terminated breastfeeding gave birth to male infants. In the successful breastfeeding group, eleven or 52% of the twenty-one births were male infants. A one-fourth or 25% difference is note worthy. A couple of possible answers might explain the phenomenon. Possibly, a male infant was not the desired sex. Possibly, the male sucking was greater which resulted in an unusually excessive amount of nipple soreness. This study provides preliminary data for further assessment on the relationship of the infant's sex on breastfeeding success.

Kennell and Klaus (1979), Lozoff et. al. (1977), as well as, the Structured Breastfeeding Teaching Plan, recommended early and frequent infant feeding to significantly increase the duration of breastfeeding. Six of the nine women, who terminated breastfeeding, reported a time span of three or more hours after delivery before having the opportunity to breastfeed their newborn. Five of those women reported a breastfeeding frequency of greater than every two to three hours, the recommended frequency. Infrequent feeding and/or a delay in the first feeding may have adversely affected the breastfeeding outcome of these women. Lozoff et. al. (1977) and Salriya et. al. (1978) indicated that maternity hospital practices of mother-

infant separation, the delay of nursing after birth and infrequent feeding impacted negatively on the overall success of breastfeeding.

One woman in the experimental group reported that she did not even attempt to breastfeed. Coincidentally, she was the last woman in the experimental group to be contacted for this research project. She was referred by a clinic nurse, who later reported that she persuaded her to participate in the project for the benefit of her future baby. She had had two previous children, both of whom had developed severe milk allergies. The clinic nurse convinced her that milk allergies would not develop if she breastfed the infant. Upon contact with the researcher, the woman did not exhibit a strong desire to breastfeed but indicated she wanted to "attempt" to breastfeed her future newborn. This researcher should have eliminated her from the project at the onset but the time element involved in data collection (a total of seven months) prohibited clear thinking. Postnatally, she reported that after she gave birth at the local county hospital, the personnel recommended bottle feeding with a non-milk formula. She was very proud to stress that her newborn had not been sick like the two previous children.

Support and Its Impact on Breastfeeding Success

At the local county hospital, breastfeeding is not a feeding practice supported or encouraged by the medical or nursing staff. Another woman unsuccessful at breastfeeding, who delivered at the county hospital reported she was allowed to breastfeed her infant only twice during her hospitalization. This woman was in the control group

and, therefore, did not participate in the Structured Breastfeeding Teaching Plan. She expressed a sincere desire to breastfeed but the instructional element and staff support was lacking. Hospital maternity personnel positively or negatively affect the outcome of breastfeeding. Beske and Garvis (1982) identified three areas the new mother desired assistance: encouragement and support, practical information and help from the hospital nurses. Of course, maternity nurses must possess lactation knowledge before he/she can impart that information. Crowder (1981) contends that maternity nurses exhibit a limited knowledge about breastfeeding and factors that aid in breastfeeding success.

An important variable for successful breastfeeding is the necessity of a support system to provide the help and encouragement needed by the new mother with her breastfeeding endeavors. Helsing (1976) and Raphael (1979) contend that breastfeeding will fail if the social networks that function to support the new mother are unavailable or inadequate. Two of the nine unsuccessful breastfeeding women answered "no" to the question about a support system for breastfeeding. Both of these women were in the control group and, therefore, did not participate in the Structured Breastfeeding Teaching Plan. These two women did not have the support variable nor the knowledge variable necessary for successful breastfeeding.

Incidentally, two women who were successfully breastfeeding their newborns at the one month interview, indicated that they also would not have "help and encouragement" with breastfeeding. One of

the two women was in the experimental group and, therefore, participated in the Structured Breastfeeding Teaching Plan. Even if she did not have the support variable she did have the education of knowledge variable by participating in the Structured Breastfeeding Teaching Plan. The other woman, who answered "no" to the question about a support system for breastfeeding, was in the control group. Even though she indicated that she would not have support with her breastfeeding endeavors, she did report that four of her family members had previously breastfed an infant. She also reported attending childbirth classes, a source for breastfeeding information. It is obvious that this woman did have both a support network and some education about breastfeeding, via the childbirth classes and her experienced relatives. This woman may have perceived she did not have support for her breastfeeding endeavors but it is apparent that she indeed did have an adequate support system.

How a woman rates her birthing experience can be a supportive element in breastfeeding success. A satisfying breastfeeding experience can give the woman a feeling of tranquility and a confirmation of her love of her baby (Gunther, 1976). Six of the nine women rated their breastfeeding experience negatively as might be expected. The six women rated their experience a 1, 1, 1, 2, 2 and 3, indicating a strongly negative response. By contrast, three women who terminated breastfeeding, rated the experience a "10", a strongly positive response. One of the three women verbally stated, "I enjoyed breastfeeding my son. I only wish my milk would have stayed." These three

women were able to convert an apparently unsuccessful event into a positive perception.

In summary, this study supported the thesis found in the literature that breastfeeding success is dependent upon the two variables of knowledge and support. A new mother needs an adequate knowledge base and a social support network to establish and maintain an adequate milk supply in order to properly nourish her infant. In this study, selected characteristics of the women, appeared to play an active role in the women's success or failure with breastfeeding. These attribute variables that had a negative effect on breastfeeding success included: under the age of 19 years, less than a high school education, no prenatal birthing classes, smoking, a male infant, limited hospital staff support, a delay in the first feeding and infrequent feeding. No one attribute variable, except for possible smoking, directly caused an unsuccessful breastfeeding outcome. A combination of the variables produced a stressful environment non-conducive to breastfeeding a woman's newborn infant.

Nursing Implications

A broader knowledge base of breastfeeding is needed by women who plan to breastfeed, as well as a comprehensive knowledge base of breastfeeding for the nursing and medical staff working with pregnant women and new mothers. Clinic nurses, private practice nurses, maternity hospital nurses, public health nurses, all nurses must have a firm understanding about the components of breastfeeding success. Nursing service must provide the ancillary nursing personnel with the

needed instruction in breastfeeding. The teaching plan should include methods in prenatal breast preparation, the physiological aspects of breastfeeding, the advantages of breastfeeding, "how to" breastfeed and treatment for common breastfeeding problems. Yes, a Structured Breastfeeding Teaching Plan for nurses. After the nursing personnel have been trained in methods of improving breastfeeding success, the nurses working with these pregnant women and new mothers must be able to assess each woman's knowledge base, motivation, and social support network surrounding the woman's decision or consideration to breastfeed. Following the initial assessment, a specific plan is necessary to provide the needed instructional element in breastfeeding. A means of implementing the plan should then be considered. The instructional materials, via films, booklets, question and answer sessions must be firmly based in current scientific rationale. The learning process would not be complete without a method of evaluation. Evaluation is an on-going process utilized by the nurse to establish if learning is taking place, and how much follow-up instruction is needed.

This study supports the value of classes in breastfeeding education. Prenatal and childbirth classes are a good method of providing some breastfeeding education but these classes should not be a woman's only source of breastfeeding knowledge. As mentioned, the knowledge should be made available by all nursing personnel who come in contact with the pregnant woman or new mother. Another method would be monthly or bi-monthly classes, specific to breastfeeding, offered through the local county or community hospital for all people

interested in breastfeeding. These classes could provide more indepth instruction in the art of breastfeeding. The classes would also provide a social network between women who are planning to breastfeed and those who are currently breastfeeding.

This research study placed heavy emphasis on a teaching-learning method. The study focused on one variable, knowledge. The structured teaching plan was based on the presentation of knowledge, absorption of that knowledge, and performance of an act based upon that knowledge. In the last several decades nursing has been content oriented. If the content is presented, learning is expected to take place. Learning the content is assumed as the method for improving compliance with the desired action. The desired action in this study was breastfeeding successfully, or more specifically, breastfeeding at one month.

A teaching plan for breastfeeding must include the variable support. The two, knowledge and support, should not be separated. There needs to be an interaction between knowledge and support. Besides presenting the information, the nurse must support the woman in her decision to, or not to, breastfeed, provide help and encouragement throughout her breastfeeding experience and help the woman to identify or recognize the potential of her own social support network. The nurse provides the foundation for a positive self-concept. If the woman has positive perceptions of her role as mother and nurturer her self concept will improve, providing a foundation for a positive maternal child relationship.

Breastfeeding success should not be based only upon empirical data such as the number of days the woman breastfed her infant, but also include the woman's perceptions of her own success. A scientific measurement of "success" is unrealistic. It is unfair to label the three women who terminated breastfeeding before one month and rated that experience with a "10", as unsuccessful or "failures". These three women perceived the event positively even though by the original criteria they were "unsuccessful". Their perceptions of the event were more important than the actual number of days they breastfed. Success of breastfeeding should be redefined to include a woman's subjective perceptions of the event rather than objective criteria.

Is nursing missing the boat? Are we placing our emphasis in its correct perspective? Is a teaching-learning model totally appropriate for nursing? Nursing cannot divorce itself from the principles of teaching and learning theories but an expanded perception as opposed to a narrowed view would be more feasible. Nurses need to be more in tune to the process of teaching and learning instead of the content of the teaching plan. Instead of placing emphasis on the structured format of a teaching plan, the process for delivery of necessary content should also be stressed. Instead of presenting content in a one to two hour presentation a multifaceted approach might be appropriate. Instead of a structured presentation, the nurse could use discussion groups thereby inviting input from the group rather than the didactic approach.

Nurses have an obligation to all people, not just people who solicit specific services, to be caring, empathetic, understanding and non-judgemental. If these four characteristics are present, the process involved in a teaching plan will be more conducive to the learning process. Coupled with this approach, nurses would be interested in the individuals own interpretation of "success" as opposed to some predetermined objective criteria. Nurses effectiveness as teachers can be enhanced if the teaching plan focuses on a process orientation as opposed to a strict content orientation.

Recommendation for Further Study

This study, conducted with a relatively small sample population, identified several areas for future modifications before its duplication can yield reliable results. First, an improved test for identifying the groups' knowledge base of breastfeeding would be beneficial. The current test is too short and some of the questions are "confusing" and "tricky". A pre- and post-test with about twenty test questions items should be written to cover more specifically the points in the Structured Breastfeeding Teaching Plan. This test would then require some validity and reliability measurements before use in a larger sample project. Secondly, a question about the woman's smoking status should be on the postpartal data questionnaire. A clearer link between early termination and smoking could be identified. Thirdly, an experimental study of breastfeeding success needs a larger population before a definite inference can be made. A small rural community does not provide the population size necessary to meet

adequacy of sample size. With a larger size other statistical measures could also be employed such as chi-square analysis.

Duplicating this study with a larger population could provide more statistical data on the knowledge variable. A more practical and realistic recommendation would be a project involving the reconstruction of the Structured Breastfeeding Teaching Plan to provide a more comprehensive means of delivering the content. The structured format of this teaching plan presents the information but a more appropriate method of delivery could be devised. An example of another method of delivery could be a group discussion format, spread over a period of time with follow-up sessions after the woman gave birth. This method would provide for both the knowledge variable and the support variable. It is unrealistic in a comprehensive teaching plan to separate the two variables.

Another recommendation for further study would be to analyze in greater detail the common factors observed with women who terminated breastfeeding. An entire research project could be devoted to identifying reasons women terminated breastfeeding and analyzing those reasons for common factors. All but one of the factors in this study had been reported in the literature. Of the nine women who terminated breastfeeding, seven gave birth to male infants. Further study could support or negate the possibility that the sex of the infant impacted negatively on the outcome of breastfeeding.

In conclusion, determination of factors that impact negatively or positively on breastfeeding outcome is important for nurses in

community and maternal-child health settings. Revising the teaching plan is needed to place more emphasis on the process of teaching and learning rather than only content of the teaching plan.

APPENDIX A

STRUCTURED BREASTFEEDING TEACHING PLAN OUTLINE

STRUCTURED BREASTFEEDING TEACHING PLAN OUTLINE

1) Prenatal Breast Preparation

Types of nipples (Cadwell, 1981: 277)

- erect everted nipple
- flat nipple-does not evert in response to cold or sexual excitement.
- inverted nipple-may disappear inside the overlying skin.

Prenatal nipple and breast care

- shower or bath without soap to nipples, daily (Dutton, 1979: 152)
rationale-soap causes excessive drying and removes natural oils supplied by Montgomery glands.
- regime to toughen nipples (Atkinson, 1979: 268)
 - gentle nipple rubbing with a wash cloth daily X 15 seconds.
 - nipple rolling BID X 2 minutes
take nipple between the thumb and forefinger and pull it out firmly, then roll nipple between fingers.
 - airing the nipple, daily X 2 hours
leave bra flap down and allow outer clothes to rub against the nipple.
Expose the breast to air and sun (Riordan, 1980: 279)
- oral and manual stimulation of nipples during lovemaking (Riordan, 1980: 279)
- breast massage and hand expression of colostrum BID (Neifert, 1978: 276)
 - breast massage-place right hand flat on chest at midline between breasts, place left hand at side of chest wall, with moderate and even pressure slide hands toward the breast. (Riordan, 1980: 212)
 - hand expression-cup breasts in hands with thumb above and forefinger below the nipple on the areola. Thumb and forefinger are gently squeezed together, then released, repeat, rotating the hand so all milk sinuses are reached. (Nichols, 1978: 28)

-rationale: minimizes engorgement, facilitating baby's grasp of the nipple and making later expression of milk easier, make mothers more comfortable handling their breasts and generate a more positive attitude toward nursing. (Neifert, 1978: 276)

-a supporting nursing bra (Pyle, 1982: 3)

-special care of everted or flat nipples (Cadwell, 1981: 278)

-Hoffman technique: place forefingers or thumbs opposite each other at the edge of the areola. Gently stretch the nipple skin by drawing forefinger or thumb farther away from the base of the nipple. Reposition and repeat.

-Woolich breast shield: plastic shield applies gentle pressure around the nipple and encourages it to become erect and protrude through a round hole into the dome.

2) Basic Physiological Aspects of Breastfeeding

-Anatomy and physiology of breasts (Jelliffe & Jelliffe, 1978: 9)

-anatomy

-breasts-glandular tissue surround by fat

-nipple-15 to 20 openings

-areola-dark area around nipple

-Montgomery glands-glands, secrete fat believed to lubricate the nipple.

-ducts-15 to 20 carry milk to nipple

-sinuses-stored milk, foremilk compressed by infants jaw. Small volume of milk.

-milk glands-thousands of sac-like milk-secreting cells (alveoli)

-physiology

-growth takes place both during puberty and pregnancy.

-no one breast size is best

-breastfeeding stimulates secretion of two hormones; prolactin and oxytocin. Prolactin stimulates production of milk by milk glands. Oxytocin causes let-down reflex, which causes contraction of milk glands to squeeze milk through ducts and out nipple. Oxytocin also contracts the uterus to decrease bleeding after delivery and gives "after-birth" pains (not noticable with first pregnancy) and returns uterus to pre-pregnant size.

-letdown reflex-milk ejection reflex facilitated or initiated by physiological and psychological factors.
response to infant at breast
triggered by sight or sound or thought of mother's infant.
Anxiety or tiredness interferes with let-down.

3) Benefits of Breastfeeding

-benefits to infant

-"species-specific" (Gaul, 1979: 227) made for human babies by human mothers (not cows).

-the most perfect food for your newborn. Breast milk contains the correct proportions of all the necessary nutrients for your baby.

-anti-infective properties (Riordan, 1980: 276.)
protection against infections like diarrhea, stomach problems, respiratory infections, ear infections.
Human milk antibodies protect the infant against infection.

-anti-allergic properties (Pitt. 1979: 230)
far less food and other allergies

-statically less illnesses than bottle fed babies.

-closeness and attachment between mother and infant (Sosa et. al., 1976: 187)

-benefits to mother

-convenient, exact right ingredients at right temperature.
No formula to prepare

-economical, cheaper than formula
increase 500 cal. in your diet

-decreased fertility period (Short. 1976: 80)

- aids in returning uterus (therefore shape) to non-pregnant size.

4) Breastfeeding technique

- help mother into comfortable position
 - side-lying position
 - sitting position
- place infant in mother's arm., prop with pillow esp. C-section
- turn infant onto his/her side with head cradled in arm
- tuck infant's arm around mother's waist or under breast
- teach mother to manipulate her breast
 - her fingers placed underneath breast and thumb above--this hold is better than cigarette hold with a newborn, as infant gets older the cigarette hold may be better.
 - mother can direct nipple easier
 - fingers and thumb are 1-2 inches away from nipple
- tickle infant's mouth lightly with nipple
- pull infant close:
 - so open mouth bypasses the nipple and manipulates only the areola.
 - the infant compresses the sinuses with his/her jaws foremilk.
 - sometimes mother can express couples of drops of foremilk to stimulate the infant to take hold of breast.
- the mother's thumb can be used to prevent the infant's nose from occluding with the breast. Infants are nose breathers.
- do not set a time limit on breastfeeding. Explain that infants receive 90% of breast milk within five to ten minutes (after let-down)
- remove infant from breast by gently pressing mother's finger into the breast at the corner of the baby's mouth to release suction.
- burp infant by gently patting or rubbing infant's back
 - hold infant against mother's chest with head on shoulder
 - or, support baby in sitting position, or
 - lay baby across mother's lap.
- repeat on opposite breast. Helps to increase milk supply
- alternate breast first offered to baby at successive feedings (Frantz, 1979 & 1982)

5) Treatment of common breastfeeding problems

- care of sore or tender nipples (Nichols, 1978: 27)
 - exposing the nipple to air
 - exposing the nipple to sunlight
 - light application of lanolin or A & D ointment
 - avoidance of engorgement with short frequent feedings
 - changing position at each feeding
 - sitting position
 - side-lying position
 - football hold
 - application of ice
 - use of sunlamp (Riordan, 1978: 362)
 - if using sunlamp, sit approx. 4 feet from lamp X 30 sec. first day, 1 min. 2nd & 3rd day BID NEVER beyond 3 min.
 - use of heat and massage (Neifert, 1978: 276)
 - air dry nipples (Riordan, 1980: 363)
 - wire tea-strainer inside bra
 - plastic nipple shield, remove freq.
 - prevent and/or treat engorgement (L'Esperance, 1980: 25)
 - know self-limiting nature of sore nipples (Nichols, 1978: 27)
- engorgement, overfull breasts (Neifert, 1978: 277)
 - manual (hand expression) or pump expression of milk until infant can grasp the nipple
 - pump expression-have available for demo.
 - avoid bulb "hand pump"-suction bulb cannot be sterilized. (Cadwell, 1980: 264)
 - more frequent and longer feedings
 - heat prior to nursing, like tub, shower, compresses.
 - to enhance milk "let down"
 - cold compresses between feedings to reduce vascular congestion

- care of plugged duct (Applebaum, 1976: 74)
 - nurse in different positions
 - massage the blocked area gently toward the nipple
 - hot shower and massage followed by breastfeeding (Riordan, 1980: 361)

- care of breast infection (Applebaum, 1976: 73)
 - localized redness
 - report to doctor immediately
 - heat, 2 to 3 hot wash cloths on breast, cover with plastic wrap, lie down. (pos. heating pad on low)
 - frequent nursing, do not wean
feed twice as much on affected side
 - if fever and malaise
cont. frequent feedings
antibiotics may be ordered, such as erythromycin,
amphicillin or doxycycling are OK for baby.

- insufficient milk
 - cause-reduced nipple stimulation (Greiner, 1981: 235)
 - treatment- increase production by putting infant to breast more often and having confidence that this will succeed. (p. 240)
 - cause-blocked let-down reflex (Arafat, 1981: 91)
as a result of tension, anxiety or fatigue, resulting in frustrating and negative experience causing discouragement and self-doubt.
 - cause-poor let-down (Applebaum, 1976: 72)
 - treatment-correct flat or inverted nipple problem.
 - start breastfeeding as soon after birth as possible.
 - practice demand feeding (every 2-3 hours)
 - avoid fear, tension, anxiety
 - avoid medication that might pass to baby in the milk and cause poor sucking
 - avoid early introduction of supplementary bottles of any kind.
 - ways to stimulate let-down reflex:
 - warm shower before breastfeeding
 - drinking warm milk, tea, or beer before breastfeeding
 - nursing in a darkened, quiet room in a comfortable chair.

- cause-growth spurts (Neifert, 1978: 280)
changes in feeding pattern and baby appears hungry.
occurs at 3 weeks, 6 weeks, 3 months, 6 months
- treatment-increase nursing two to three day;
do not start supplements
- cause-returning to work (Broome, 1981: 201)
resulting in inadequate rest, inadequate fluids
and tension
- treatment-treat causes
- criteria for knowing if you have enough milk (Grassley,
1978: 72)
4-6 wet diapers every day,
sleeping adequately,
gaining at a steady rate, and
normal stool - usually looser and more frequent
- returning to work (Broome, 1981: 202)
- alternatives available to help facilitate continuation of
breastfeeding
 - hand expression of breast milk
 - only few drops to one ounce at first, but
will increase with practice
 - it takes about 10-15 minutes
 - use sterile bottle and refrigerate & keep
refrigerated (ex. ice chest) while transporting
 - freeze for 1-2 weeks (Neifert, 1978: 278)
 - thaw under cold running water. Do not heat.
 - breast pump expression (Broome, 1981: 202)
 - display one and give purchasing price and
availability
 - refrigerate and freeze
 - formula supplementation with self-regulation of
milk production by her breasts.
 - decrease in over-all milk production
 - discomfort for one to two weeks until breasts
become used to not producing a large quantity
of milk
- have baby brought to you or return home for lunch

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APPENDIX B
PHYSICIAN CONSENT FORM

PHYSICIAN CONSENT FORM

Rose Marie Atencio is a registered nurse and a student in the graduate program at the University of Arizona in Tucson, Arizona. She is currently working on a Masters Degree in Maternal-Infant Nursing. Mrs. Atencio is conducting a study involving mothers who plan to breastfeed their infants for the first time. The purpose of the study is to determine if breastfeeding information presented to pregnant women at 35-36 weeks gestation will improve the outcome of breastfeeding success. Each mother will be randomly assigned to one of two groups at 35-36 weeks gestation, according to the recorded EDC. Both groups will be asked to take a 10 item multiple choice questionnaire, and the experimental group will receive detailed breastfeeding information. Both groups will be contacted one month after delivery to establish breastfeeding outcome.

We have been informed of the research project Mrs. Atencio will be utilizing, and have been provided with copies of the information she will be giving those mothers consenting to participate in the study.

We give our permission for Mrs. Atencio to contact any of the mothers presently under our care, who meet her criteria, in order to solicit their participation in her study.

Doctor's Signature and Date

Investigator's Signature and Date

APPENDIX C

MATERNITY POPULATION WORK SHEET

MATERNITY POPULATION WORK SHEET

Woman's Name	EDC	Doctor's Name	First Time Breast Feeder	Verbal Consent		Sequence No.	Random Table No.	Group		Home Visit (Date & Time)		
				yes	no			Exptl.	Control	Before Del	Exptl. Group 2nd Visit	After Del.

APPENDIX D

SCRIPT FOR INITIAL TELEPHONE CONTACT

SCRIPT FOR INITIAL TELEPHONE CONTACT

"Hello, Mrs./Miss _____. My name is Rose Marie Atencio. I am a registered nurse and currently a student at the University of Arizona in Tucson. I am working on my masters degree in Maternity Nursing. Your doctor, (name of dr) Dr. _____, has given me permission to contact you. I am working on my thesis and will be studying mothers who are planning to breastfeed for the first time. I understand you are planning to breastfeed."

Response: yes ___ no ___

(If yes) "Do you have other children?"

Response: yes ___ no ___

(If yes) "Did you breastfeed your other child/children?"

Response: yes ___ no ___ attempted ___

(If yes) "Thank you for permitting me to talk to you, but I am looking for women who have not breastfed previously."

(If no, or unsuccessful attempt) "Let me tell you a little about what I am planning so you can decide if you want to be a part of it. I would like to come to your house and ask you a few questions about breastfeeding. Then, about a month after you deliver your baby, I would like to ask you some questions about breastfeeding and some questions about your delivery. Would you be interested in participating?" You may quit at any time and your participation is strictly voluntarily.

Response: yes ___ no ___ undecided ___

(If yes) Make an appointment for a home visit and obtain address.

(If no) "Thank you for your time."

(If undecided) Make an appointment to call back at prescribed day and time. "Have you make a decision about participating in the study on breastfeeding?"

Response: yes ___ no ___

APPENDIX E

RANDOM NUMBER TABLE

RANDOM NUMBER TABLE

```
5 DIM N(30)
20 RANDOMIZE
30 FOR I=1 TO 30
40 LET X = INT(30*RND +1)
50 FOR J=1 TO I
60 IF N(J) = X GOTO 40
70 NEXT J
80 LET N(I) = X
90 LPRINT "N(";I;")="N(I)
100 NEXT I
110 END
```

```
N( 1 ) = 17
N( 2 ) = 26
N( 3 ) = 13
N( 4 ) = 20
N( 5 ) = 6
N( 6 ) = 28
N( 7 ) = 23
N( 8 ) = 14
N( 9 ) = 15
N( 10 ) = 21
N( 11 ) = 27
N( 12 ) = 24
N( 13 ) = 3
N( 14 ) = 4
N( 15 ) = 30
N( 16 ) = 16
N( 17 ) = 1
N( 18 ) = 5
N( 19 ) = 25
N( 20 ) = 11
N( 21 ) = 19
N( 22 ) = 18
N( 23 ) = 22
N( 24 ) = 12
N( 25 ) = 2
N( 26 ) = 10
N( 27 ) = 29
N( 28 ) = 7
N( 29 ) = 9
N( 30 ) = 8
```


APPENDIX F

SUBJECT'S DISCLAIMER FORM

SUBJECT'S DISCLAIMER FORM

Title of Project: The Effects of a Structured Breastfeeding Teaching Plan on the Outcome of Breastfeeding Success

Rose Marie Atencio is a registered nurse and a student in the graduate program at the University of Arizona in Tucson Arizona. She is working on a Masters Degree in Maternal-Newborn Nursing. Dr. _____ has given her permission to contact you regarding a study she will be conducting as part of her thesis requirements.

Mrs. Atencio is conducting a study involving mothers who plan to breastfeed their babies for the first time. The purpose of the study is to determine if breastfeeding information will improve the outcome of breastfeeding success. All women will be asked to respond to a questionnaire about breastfeeding. During this time some women will be viewing a program on breastfeeding. In order to obtain the information needed for this study you will be visited one to two times before your delivery and one visit a month after delivery.

If you choose to participate, there will be no cost to you, nor will there be any monetary payment. There are no known risks to you.

If you consent to participate in the study, all identifying information, such as names and telephone numbers, will be kept strictly confidential. Such information will not be given to any third party. You will not be identified on the questionnaire by name or descriptive information, and analysis of the results will refer only to the group, not to an individual. The information gained will be used only for research and educational purposes, but may be published in professional literature at a later date.

Participation is voluntary; you are free to not participate, and you are free to withdraw at anytime. You have the right to not answer questions. Your choice to participate, not participate, or to withdraw will not affect the care given you. If you participate, any questions you have about the study will be answered.

Rose Marie Atencio

APPENDIX G

ANTEPARTAL DATA QUESTIONNAIRE

ANTEPARTAL DATA QUESTIONNAIRE

Name _____ Address _____

Phone No. _____ EDC _____ Age _____

Ethnic Background _____ Marital Status _____

Years of Education _____ Gravida _____ Para _____

Significant Other _____ Age _____

Ethnic Background _____ Years of Education _____

Sequence No. _____ Random Table No. _____ Experiment _____ Control _____

Home Visit: Date and Time _____

Describe your reason for wanting to breastfeed.

Describe how you arrived at the decision to breastfeed.

How long do you plan to breastfeed?

Describe your reason for that time span.

Do You have a family member or close friend who has breastfed a baby?

Yes _____ No _____

If yes, is she your: Mother _____ Sister _____ Aunt _____ Friend _____

Mother-in-law _____ Sister-in-law _____ Other (describe) _____

Do you have someone who will give you help and encouragement with breastfeeding? Yes _____ No _____

Are you, or have you, attended childbirth classes? Yes _____ No _____

If you are or have attended childbirth classes, did you discuss breastfeeding? Yes _____ No _____

Describe

Do you smoke? Yes _____ No _____

What is the predominate language spoken in the household?

What other ways have you learned about breastfeeding? Please, describe.

APPENDIX H

PRE-TEST

PRE-TEST

The following 10 questions are about breastfeeding. Read the questions and select and circle the letter before the one best answer.

1. Advantages of human milk over formula for the infant include all of the following except
 - A. easier digested
 - B. less chance of gastro-intestinal infection
 - C. less chance of developing allergies
 - D. more rapid weight gain
 - E. contains right amount of needed nutrients

2. Which of the following statements will best help the mother establish an ample milk supply?
 - A. begin expressing milk from the breasts one week before the expected delivery date
 - B. begin breastfeeding immediately or soon as possible after delivery of the baby
 - C. nurse the baby every 1-2 hours
 - D. nurse the baby every 2-3 hours
 - E. nurse the baby whenever he/she cries

3. The best way to get the baby to begin sucking is
 - A. hold the baby's head and guide his face toward the nipple
 - B. touch the corner of baby's mouth with your nipple
 - C. open the baby's mouth by pressing in on both of his cheeks
 - D. press down on his chin to open his mouth
 - E. when the baby cries, quick pop in the nipple

4. The best way to remove the baby from the nipple and breast is to
 - A. grasp baby's head and gently push away from the breast
 - B. gently pull your breast away from the baby
 - C. tickle his feet
 - D. tickle his chin and cheek
 - E. insert your finger inside his mouth to break suction

5. The best time to burp the baby to remove any air that he may have swallowed is
 - A. midway through each breastfeeding session
 - B. after he finishes nursing from one breast
 - C. after every two minutes of sucking
 - D. after every five minutes of sucking
 - E. breastfed babies don't need burping

6. The nursing mother can avoid sore nipples by doing any of the following actions except
- A. keeping nipples clean by daily bathing with soap and water
 - B. applying pure lanoline after each feeding
 - C. exposing nipples to sun light or sun lamp several times a day
 - D. using manual expression at the start of feeding to stimulate milk let-down
 - E. limiting initial sucking during each feeding to five minutes for each breast
7. The most important factor which determines the amount of milk that the mother produces is
- A. the amount of milk that the baby demands
 - B. the amount of fluid the mother drinks
 - C. the amount of rest and sleep the mother gets
 - D. the amount of exercise the mother gets
 - E. how adequate the mother's diet is
8. The most important action a mother can do to prevent or control the development of breast engorgement is
- A. wear a tight bra
 - B. restrict the amount of fluid that she drinks
 - C. have the baby nurse more frequently or manually express some of the milk
 - D. ask for medicine to control milk production
 - E. do nothing because it is only temporary
9. In subsequent breastfeeding the mother should
- A. begin feeding with the same breast that she started with at the last feeding
 - B. begin feeding with the breast she ended with at the last feeding
 - C. it doesn't matter which breast you begin feeding with
 - D. begin feeding with the breast which baby likes best
 - E. begin feeding with the breast which is most convenient for the mother
10. You can be confident that baby gets enough milk if
- A. you weigh him each morning and find a daily weight gain
 - B. he gains the same weight as your friend's baby who is bottle fed
 - C. he gains the same weight as your friend's baby who is breastfed
 - D. your baby cries for feedings, appears contented after feedings and has 4 to 5 wet diapers
 - E. the baby sleeps for long periods and rarely cries

APPENDIX I

BREASTFEEDING AUDIO-VISUAL NARRATIVE

BREASTFEEDING

MARJORIE PYLE, R.N.C.
September, 1980
Copyright LIFECIRCLE

1. LIFECIRCLE LOGO
2. Breast feeding, the "natural way" is nutritionally best and has practiced since the beginning of time.
3. Yet it is an art and technique which each mother and baby will learn together.
4. Nursing is a special experience in love for mother and baby and not simply the mechanical process of giving good nutrition. There is the warm skin to skin contact, a sense of security in being held close and the perfect temperature of the milk--all of which are loving, satisfying sensations to a baby which help him to sleep, eat better and grow physically as well as emotionally.
5. Yet, there is no evidence that a closely held bottle-fed baby has a less satisfying experience. Skin contact, the temperature of the milk and being held close can be achieved in either way. The difference rests with the mother and the way in which the feeding is given.
6. Human milk is the best nutritional product available for the newborn thru his first year of life. Breast fed babies are healthier. They are less likely to develop respiratory infections, intestinal disorders and skin problems because of the immunological factors which are passed to the infant thru the breast milk. There is a lower incidence of allergies. Sucking helps to build strong, healthy bones, gums and teeth. Nursing right after birth stimulates the flow of oxytocin which contracts the uterus and helps to control blood loss. The process of lactation continues to contract the uterus and return it to its prepregnant state faster. It has been said that breast feeding was the original "convenience food". It is easily available, the right temperature and economical. There is no chance of preparation error or contamination.
7. Above all, the nursing mother has a chance to relax, enjoy and get to know her baby while the powerful bonds of trust and love develop and are nurtured through breast feeding. A mother planning to breast feed needs a positive attitude about herself,

the hospital. She needs knowledge about the lactation process and how to prepare her breasts and nipples before birth for nursing.

8. For some mothers, there are advantages to bottle feeding. She can leave the baby for longer periods of time, but today's breast feeding mother can pump, store and freeze breast milk ahead of time. Father can help with the feedings--especially with the night feedings. Whether the baby is breast or bottle fed, Dad can get up to change the baby while Mom goes to the bathroom, gets something to drink and they can all return to bed for the feeding.
9. At puberty the breasts begin to enlarge. At the onset of pregnancy and again as lactation begins, the size will increase. Nipples may become larger, more erect and darker in color. During pregnancy both nipples and breasts are very sensitive. The breast consists of connective and fatty tissue for support and protection of the glandular tissue called the alveoli where the milk is produced. Milk ducts carry the milk to the lactiferous sinus's or reservoirs which are located just behind the areola.
10. The nipple is made of smooth, erectile tissue. On contact, temperature change or sexual stimulation, the nipple becomes firm and larger. Each nipple has 15 to 20 openings through which the milk is excreted. The area surrounding the nipple is called the areola and is a pinkish color prior to pregnancy. This darker color that comes with pregnancy may assist the infant in latching onto a portion of the areola and not just the nipple.
11. The areola also contains Montgomery Glands which enlarge during pregnancy and look like small bumps. They secrete a substance that lubricates and protects the nipples during pregnancy and lactation.
12. As the alveoli (milk producing glands) develop during pregnancy, they begin to produce colostrum which may leak prior to birth. Colostrum is a yellowish color and thicker than the mature milk. It is a combination of materials present in the mammary glands and ducts which then begins to mix with the new milk being secreted by the milk ducts. The mother who has nursed other babies will usually have a greater volume of colostrum at birth. Colostrum, the transitional milk and the mature milk are quite different and are significant for the newborn infant and his adaptation to life. Colostrum helps to establish important bacterial flora in the digestive tract and acts as a laxative to help move and expel the meconium. It provides antibodies that give immunity and protection against certain infections. Colostrum is high in protein and lower in fat and sugar which meets the specific needs of a newborn.
13. Handwashing is essential before touching the breasts or nursing.
14. Breast preparation for nursing should begin during the prenatal period. Bathe or shower daily with little or no soap to the nipple area. Soap is drying and removes the normal lubrication of the

Montgomery Glands. Rinse well and air dry thoroughly for 15 to 20 minutes.

15. Wear a good supporting bra with wide, non-elastic shoulder straps and a big enough cup size to hold all of the breast tissue--especially that which is under the arms. Breasts usually enlarge several sizes early in pregnancy and most women find comfort in a supportive, larger size bra. It is usually best to wait and buy the nursing bras near the end of the pregnancy. Wear and washing lessens support which is needed most right after delivery.
16. Nursing bras are adjustable in both size and cup. Most women prefer the cup which opens from the top down, rather than from the middle. Do not use bras that have plastic inserts. This keeps the moisture in and softens the nipple tissue which can cause sore or cracked nipples. Some women prefer to wear their bra at night for comfort and support. Others feel more comfortable when not wearing a bra.
17. Babies look very loving, sweet and gentle--until the first time that they latch on well to your nipple. At that time you realize the strength of those jaws and gums and the fragility of your nipples.
18. Nipples can be toughened ahead of time. A dry, coarse wash cloth rubbed, at first, gently across the nipple while supporting the breast with the other hand and then more briskly every day for six weeks prior to birth will help to toughen nipples. Another trick is to cut a hole out of an old bra for the nipple to stick through or if you are wearing a nursing bra, open and leave the flaps down. Put on a coarse shirt or rough sweater and let it rub back and forth over the exposed nipple as you move about. This exposure and friction toughens the nipple. A few minutes of sun to the nipples each day will also help to toughen the nipple skin.
19. Nipple rolling or pulling is done to improve the erectility of the nipple. Gently roll the nipple back and forth between the thumb and forefinger and then pull outward. Do this exercise 5 times several times a day. If your nipples are flat or inverted, you may want to wear a special nipple shield that helps to pull the nipple out. Start by wearing it for a few hours each day.
20. Breast massage increases blood circulation to the breast tissue, tends to decrease engorgement and assists in the let-down reflex. It also helps you to learn how to handle your breasts--an art necessary to achieve successful breast feeding. Stand in front of the mirror, use some type of non-drying body lotion on your hands. Massage each breast, starting from the outside and stroking toward the areola. Do several times a day. Apply nipple cream such as Masse Cream or Lanolin to the nipple area being careful not to cover the Montgomery Glands.

21. The birth of the baby, along with suckling, initiates the milk production and ejection process. Nursing should be initiated as soon as possible after birth---hopefully within the first hour if both mother and baby are ready. Get into a comfortable position that provides eye-to-eye contact with the baby--either in a slightly elevated position
22. or lie on your side with your bottom arm extended. Assistance from your nurse or husband is helpful. With your fingers, gently squeeze your breast just outside the areola and touch the baby's mouth with the nipple. Some babies will open their mouth, take the nipple in and eagerly begin to nurse. Others may need to be coaxed. Some mothers find it helpful to put their little finger in the baby's mouth until they appear to "catch on" to sucking and then switch to the nipple.
23. The first two hours after birth are a very special time for the new infant and his parents. The baby is usually in the wide awake, alert state with his sucking reflex at its strongest. Mothers are on an emotional high. This very sensitive period coupled with the interaction between the new baby and his mother during breast feeding involves all the infant's senses. However, if either mother or baby are not ready because of a difficult birth, the opportunity to be together can be provided at a more appropriate time.
24. Start by nursing on one side for 7 to 10 minutes and then switch to the other side for the same length of time. encourage nursing about every 3 hours and increase the nursing time by a few minutes each day. Some babies show little interest in nursing during the first couple of days. Many mothers are concerned because they have only the colostrum does provide all the baby's nutritional needs during this period and the licking or suckling is what brings the milk in.
25. In preparation for nursing, go to the bathroom, wash your hands well and have something to eat and drink. You will notice that when you start to nurse, you will become very thirsty.
26. Not only do you need to prepare yourself physically, but also psychologically. Relax for a few minutes and think about your baby, and the love and closeness that you share through the breast feeding. Do not try to nurse immediately after a hectic hospital visiting hour!
27. Do breast massage.
28. Enlarge your nipple by rolling and pulling it out. An erect, large nipple is easier and more interesting for the infant to grasp. Express some milk out for him to taste and smell.

29. Utilize the rooting reflex by placing the baby's cheek up against the breast.
30. Hopefully, he will turn toward the breast and nipple and open his mouth. Stroke only the cheek next to the breast to avoid confusion with his rooting reflex.
31. Help the baby to latch on properly.
32. Get him to take some of the areola into his mouth. Avoid just "chewing" on the nipple. There is no flow of milk and nipples will become sore. Keep in mind that the milk sinuses are in the areola and pressure of the jaws must be exerted against this area for the milk to be released.
33. Provide an air pocket for the baby by depressing the breast tissue with your finger near his nose.
34. When ready to change breasts or to stop for burping, insert your finger at the corner of the baby's mouth to break the suction and then gently remove your nipple. Notice how the sucking elongates the nipple.
35. Burp when changing breasts and at the end of the feeding. Place a cloth diaper over your shoulder or under his chin. Gently pat until you get a bubble up. Breast fed babies do not swallow as much air as bottle fed babies. Also, there will be little burping until the milk comes in. If the baby has been crying just prior to feeding, nurse for a short time. Then stop and burp before continuing the feeding.
36. Some doctors advise that water be given after the breast feeding to decrease weight loss and possibly lessen the newborn physiological jaundice. If this supplement is to be given, it should be immediately after the nursing rather than as a pacifier to "settle" the baby down until the next breast feeding. Mothers need to know that weight loss occurs with all newborns and that it may take several weeks for the infant to return to his birth weight. Babies will need extra fluids if they are under phototherapy lights for jaundice or have other medical problems.
37. Mothers who have given Birth by Cesarean can and should nurse shortly after birth with mother and baby's conditions permitting. The Cesarean Birth does not affect the lactation process--just your mobility. Mothers who have had regional anesthesia can nurse by laying the baby up over the breast and nipple area. As the feeling begins to return to her legs, she can turn to the side, but continuing to remain flat and utilizing the arm above the head position.
38. Later, the raised position using a pillow across the abdomen to support the baby and protect the incisional area works well.

39. It is helpful to have Dad nearby for assistance in turning and positioning the baby.
40. Have the side rails up to help with turning and keeping the pillow in place when using the football hold for nursing. Ask for your pain medication prior to nursing so that you will be comfortable. Your doctor will prescribe medications that will not affect the baby.
41. Soon, all mothers may find that sitting in a rocking chair gives you more flexibility in positioning the baby. A small pillow to sit on and another one under the baby and your arm is helpful.
42. Nursing signals the hypothalamus which stimulates the Pituitary Gland to secrete oxytocin which causes the uterus to contract--especially in the mother who has had several babies. Oxytocin also stimulates the milk ducts to contract and eject the milk from the milk glands. Prolactin is also released and it is the hormone responsible for milk production. Two functions for successful breast feeding are needed. First, the milk has to be produced, but even more important, it must be excreted or available to the infant. The fore milk is the milk which is made continuously and constitutes about 1/3 of the total milk available to the infant. It is not as rich in fat and protein as the hind milk which is produced with the let-down reflex.
43. After the milk is in, the new mother may experience a fullness or tensing in her breasts, then a tingling--pins and needles sensation and a feeling as though the breasts drop and the milk begins to flow. This "feeling" or let down reflex may occur when she knows that it is about time to feed the infant, or she hears her baby cry. It may not occur until she begins to nurse. The infant is nursing at one breast, she feels the let-down and the other breast begins to leak. This let-down reflex can be enhanced by rest and relaxation just prior to nursing, being in a comfortable position, emotionally calm and supported by the people around her.
44. The hormones produced with the let-down reflex and nursing often give mothers a very warm, relaxed, motherly feeling which is beneficial to both mother and baby. Distractions such as sore nipple, embarrassment, stress, being tired and disparaging, negative remarks from relatives or others may interfere with the let-down process. Smoking also adversely affects this reflex.
45. Sometimes the let-down reflex occurs when you aren't ready for it. Place the heel of your hand over the nipple area and press until the flow stops. Another method is the "prayer". Fold your arms with the forearm over the nipple area. Apply pressure and pray that no one will notice your let-down.
46. Infants differ in their nursing and can be classified by their patterns. The barracuda or "Jaws" latches on promptly, sucks

vigorously for 15 to 20 minutes with no stopping. The mother of this infant may experience some sore nipples.

47. On the other end is the infant who gently nurses for a few minutes, pauses, rests, nurses and rests. He cannot be hurried and although he nurses well, a great deal of time is spent in nursing.
48. There is also the "Licky Lou" who licks, tastes, and mouths the nipple before settling in to nurse effectively.
49. or gets so excited that they grasp, lose the nipple, start screaming and have to be gently calmed down before they can start to nurse.
50. Some babies show little interest in nursing and fall asleep after a few sucks during the first few days. They show little enthusiasm until the milk comes in. If a bottle is offered, they suck readily. Don't become disillusioned. They do well once the milk comes in.
51. If nipples become sore, begin the nursing with the breast massage and expression. Then start with the least sore nipple while the other one is exposed to air. This will promote the let-down reflex and start the milk flowing from the other breast, relieving some of the fullness before the infant starts on the sore side. This also makes it easier for him to latch on. Once on correctly, the nipple is pulled well back into his mouth lessening the discomfort. After the feeding, air dry at least 20 minutes and then apply your nipple cream. It is helpful to leave your bra flaps down, continuing to air dry and expose the nipples as much as possible.
52. The plastic shield can also be used to continuously expose the nipple to air. This shield is also helpful if you are having leakage of milk. Make sure the air hole is placed at the top. These shields worn prior to birth help to pull out a flat or inverted nipple.
53. Another helpful trick for tender nipples is to lightly apply an ice cube to the nipple just before nursing. Rinse the ice cube off with water so that it will not stick. The cold will draw a flat nipple out, making it easier for the infant to latch on and also provides a numbing effect which will relieve a tender nipple. Do not stop nursing because of sore nipples. Instead, nurse more frequently and for shorter periods.
54. Vigorous sucking on the same area can cause bruises or blisters. Change your nursing positions frequently. Lie down, sit up, use the football position or the reverse, as seen here, and rotate these positions.
55. As the milk begins to come in during the 2nd or 3rd day, the breasts may become hard, hot and uncomfortable. This engorgement

is a combination of congestion due to the increased blood supply and accumulation of milk. It usually involves the entire breast from the shoulder blade to the underarm and to the breast bone. A good, supportive bra, a comfortable position, a mild analgesic and perhaps ice packs under the arm pits may help. In addition to being uncomfortable, engorgement makes it difficult and frustrating for the infant to grasp the nipple and nurse. This engorgement may last for several days.

56. Some preparation before putting the baby to breast is needed. A warm shower with the water directed to the breasts or hot packs to the breast area along with breast massage will help to promote milk flow. For hot packs, use small hand towels or wash rags wrung out of hot water. Place these over the breast area
57. and cover with some type of plastic to keep the moist heat in and leave for 15 to 20 minutes just before nursing.
58. Begin breast massage by placing one hand over the other above the breast.
59. Gently, but firmly exert pressure evenly with the thumbs across the top and fingers underneath the breast.
60. Come together with the heel of the hand on each side and release at the areola being careful not to touch the areola and nipple. Then gently lift the breast from beneath and drop lightly.
61. After massaging both sides, support the breast from below with your hand. Place your thumb on top of the breast at the edge of the areola and your forefinger at the bottom.
62. Compress the areola a few times--not the nipple--until some milk is expressed or until there is enough nipple for the infant to latch on.
63. If nipples are flat or inverted, sore or engorgement cannot be relieved by these measures, some type of shield may be necessary. The breast shield shown on the left is one type, but often a regular nipple from a bottle works better.
64. Position the bottle nipple over your nipple and place in baby's mouth. As he begins to suck, it will draw your nipple into the nipple and create a suction which will start the milk flow as well as causing your nipple to elongate. After a few minutes, remove the bottle nipple and introduce your nipple. Some babies will latch right on and continue sucking.
65. Others may have to be switched back to the nipple shield for awhile longer. Be patient and keep offering your nipple until he grasps and accepts it. Notice how this mother's right nipple was drawn out by the nipple and the infant's sucking.

66. Some mothers are concerned about "nipple" confusion and are hesitant to use a shield or nipple when it could benefit flat, inverted, cracked nipples or engorgement. Most babies suck on anything which is put near or into their mouths as this hour old baby does.
67. Some babies will want to suck all the time, even when not hungry. Parents sometimes find that a pacifier will help to soothe these babies. Some babies need more holding and closeness. Nursing is a very special way of comforting your baby.
68. You will find that once home, you are more relaxed and nursing will be much easier. By the second week, both of you will have learned the art and techniques of nursing. Supply and demand will be established. Baby is eager, nurses well and has, perhaps, settled into a pattern of nursing. Nipple tenderness and engorgement is past.
69. An awake, eager baby nurses best. During the daytime, awaken and feed the infant so that he is not sleeping more than 3 to 4 hours at a time. At night, let him sleep and awaken himself for the feeding. Make the night feedings very business-like. Keep the lights low and do not socialize as much so that he learns that nights are not play time. In the beginning, most mothers prefer to take the baby to bed to nurse. Mothers also find that baby will sleep better if laid across her chest so that he hears her heart beat and has the warm, body contact.
70. Check the diaper and change if needed before and after feeding. Breastfed babies usually have frequent stools and almost always have a bowel movement during the feeding. It may only be a stain, but appears and sounds like a big production. Some babies go a week without a stool. New babies experience a lot of gas. This is all normal.
71. A stool placed next to the changing table enables Ryan to be involved in his sister's care. Notice how Sondra imitates her brother by sticking out her tongue.
72. A comfortable rocking chair--a must for the nursing mother, breast massage, nipple rolling, expression of some milk
73. and guidance of the nipple to Sondra's mouth using the 2 finger V-sign and the baby eagerly begins to nurse. A vigorously sucking infant can empty a breast in about 15 minutes.
74. Burping should be done midway through the feeding. Always have a burp cloth under the mouth and pat gently until you get a burp. Most babies tend to spit up some with the burp or at a later time.
75. New babies will often be satisfied with one breast and probably fall asleep after "topping off" the second breast. Nursing at both

breasts provides comfort for the mother and helps build the milk supply. At the next feeding, start with the breast that was nursed last, since it may not have completely emptied. Babies who fall asleep before completing their nursing will awaken $\frac{1}{2}$ hour later and come back for "dessert". Mothers often wonder how they are going to nurse with a toddler. Have a rocking chair, a doll and bottle or a special book or game that can only be used when mother is nursing. If special attention is given in the beginning, problems can often be averted.

76. During the feeding, help the infant to completely empty the breast by pulling the breast tissue up from underneath the arm. Then apply some pressure or massage from the top and side.
77. When nursing is completed, break the suction gently by inserting your finger. Burp the baby.
78. Mothers may wonder if the baby is getting enough milk since she can't measure it like a bottle of formula. If after the feeding, baby is sleeping or appears satisfied, sleeps for several hours and has 6 or more wet diapers a day that are light colored with no strong odor and gains weight, his nutritional needs are being met.
79. Some mothers prefer this position for burping. Babies should always be laid on their or tummy after feeding in case they have another burp or should spit up. Place a blanket roll behind them to keep them from rolling onto their back.
80. After breast feeding, air dry nipples for at least 10 to 15 minutes. Note the glistening sheen on the nipple and areola. The combination of the baby's saliva and the colostrum or milk form a natural protective coating which should not be washed off.
81. After air drying, apply your breast cream. Use a very small amount which should be absorbed by the next feeding. If cream remains, gently wipe off excess.
82. Apply breast pads or shields as needed or desired. Some mothers prefer to use clean, white men's hankies which can be washed and reused.
83. Nursing can be done very inconspicuously by placing a blanket or diaper over the nursing infant.
84. A sweater or blouse that can be unbuttoned or pulled up from the bottom also works well. The first time you nurse with people around may affect your milk flow. Nurse more frequently for the next couple of feedings to improve your supply. Today, a mother and baby nursing is not an unusual sight because more and more mothers are nursing.

85. Dads are a vital part of a positive nursing experience. During pregnancy he can encourage her to make the decision to breast feed. His support during the hospital stay with positioning of the baby for nursing and his positive attitude will be greatly appreciated and provide the moral support that the nursing mother needs. At home, he can help with the other children, the housework, protect Mom from too many visitors and their sometimes negative remarks.
86. Most of all he can give his companionship, his physical closeness and positive strokes. Most babies have a fussy spell each day--usually the evening. Often, it is Dad who can calm the baby best. These fussy periods will go away in a few weeks, but the relationship that Dad and baby establish will continue to grow for a lifetime.
87. After the milk is in, the infant does not usually need additional water. When the milk supply is established, an occasional bottle will not affect the nursing and may sometimes be beneficial if a mother is tired or has planned an evening out. It is best if someone else such as Dad, grandmother or the sitter gives the bottle. Breast fed babies often do not accept the bottle if given by mother.
88. The new mother may find that her appetite is decreased right after birth and this may last for several days or she may be famished. Small amounts taken more frequently are beneficial. Chose a variety of foods from the Basic Four Food Groups. You will probably find that your food intake will increase slightly over what you needed during pregnancy. Breast feeding makes you very thirsty. Drink enough fluids to satisfy your thirst--usually between 8 and 12 glasses of fluid per day. Water is the basis for breast milk and the carrier for all of the nutrients as well as carrying out your wastes and regulating your body while breast feeding. Most medications can be safely taken but should be checked with your physician first. Oral contraceptives cannot be taken during lactation.
89. Babies in the Intensive Care Nursery, such as a premature infant, an infant with respiratory distress or other medical-surgical problems can be successfully nursed. Mothers of these babies should be encouraged to continue with their breast feeding plans. Breast milk may save their baby's life.
90. Mothers can stimulate their breasts by manual expression or with a hand pump to bring in their milk. The colostrum and milk can be carefully collected and transported to the Special Care Unit by Dad if this is in another hospital. The breast milk is given by gavage (a small tube) or a special nipple until the infant can nurse.
91. The electric Egnell pump is useful to initiate lactation when a baby is not able to nurse or if pumping is necessary for an extended period of time. It applies gentle intermittent suction.

92. The colostrum or milk is collected in a plastic container and given directly to the baby or chilled and frozen for later use. Some hospitals and La Leche League Groups have these pumps available.
93. Twins can also be breast fed. Some supplementing may be necessary but the milk supply ordinarily parallels the demand.
94. With some practice and cooperative babies, both can be fed at once using the football hold and saving precious time. Additional information can be sought from the Mother's of Twins Club and the La Leche League.
95. Sore, tender lumps in the breasts without other symptoms are due to plugged ducts and usually result from incomplete emptying of one or more ducts. Continue with frequent nursing, using different positions. Use hot packs and breast massage prior to nursing. As a preventive measure, remember to use your hand or arm on the side that you are nursing, to pull the breast tissue forward from under your arm, down from the top and other side. This added pressure will help to empty the peripheral milk ducts.
96. Mastitis is a breast infection. You will notice a hard, reddened and hot area and usually have a fever. Call your physician. You will usually be started on antibiotics and some type of pain medication if needed. Nursing can usually be continued. Nurse on the unaffected side first, but make sure that the affected side is emptied by feeding or pumping. Bed rest is absolutely essential. Let someone else take care of the rest of the family and the housework. Use ice packs or heat--whichever provides the best pain relief. Drink plenty of fluids. A good supporting bra may provide additional comfort. For others, going without a bra may be more comfortable.
97. Mothers may desire to express and freeze milk for use when they are away from their infant for a feeding. Those having an abundant milk supply may wish to collect and donate to hospitals that have Breast Milk Banks. Milk can be expressed by hand into a sterile, wide mouthed jar or one of the hand pumps may be utilized. Note the elastic top this mother is wearing. This may be a very comfortable, supportive alternative to a bra. It provides some support, holds breast pads in place and is convenient.
98. The milk is then transferred to a sterile plastic bottle or baggie from a nursing bottle and chilled immediately in the refrigerator. Use this milk within 24 hours. If you desire to freeze the milk for later use, chill first in a plastic bottle or baggie. Allow for expansion which will occur with freezing. When ready to use, take the container from the freezer and hold under cold, running water and then warmer water. Shake gently to mix and warm to desired temperature by placing the bottle in a pan of warm water. Do not save or refreeze unused milk.

99. Growth spurts, experienced by all infants are often confusing to the nursing mother. The infant suddenly wants more often and longer. This may continue for several days. It is his signal to the mother's body that he needs more milk. This extra nursing will bring in more milk to meet his growth needs. Often, mothers believe or their well-meaning friends and relatives suggest her milk is not "rich" enough. She may often resort to a bottle which cuts down on her milk supply which would be increased with additional sucking. These growth spurts usually occur when the infant is a few days old, at about 2 and 6 weeks and again at 3 and 6 months.
100. Weaning involves the separation of the baby or mother from a special experience that they have both loved. Graduating to a cup and solid food signals the start of growing up. Some mothers choose to nurse for a few weeks or several months and then wean to a bottle. Some babies lose interest in nursing between 6 and 9 months when solids, a bottle or cup are introduced. Babies take large volumes of milk in the first 12 to 15 months. It would be ideal for a mother and baby to continue with breast feeding during this period.
101. Sondra and Judy enjoyed their breast feeding experience and hope that you will too.
102. Mothers who breast feed their baby provide special nutrition and love for a healthy beginning.
103. With Special Appreciation to the many Mothers and Babies who shared their Breast Feeding Experiences.

APPENDIX J

BOOKLET - BREASTFEEDING--A FAMILY AFFAIR

Breast Feeding

A Family Affair

by

Marjorie M. Pyle, R.N.C.

Edited by Margaret Chamberlain
Illustrations by Carl Glassford

*With special appreciation to the many
mothers and babies who shared their
breast feeding experiences*

*Dedicated to two nursing mothers who became
my very special friends, Judy LeBaron and
Georgiana Moore, who provided the inspiration
that enabled me to pursue and enhance my
knowledge of breast feeding and to share it
with others.*

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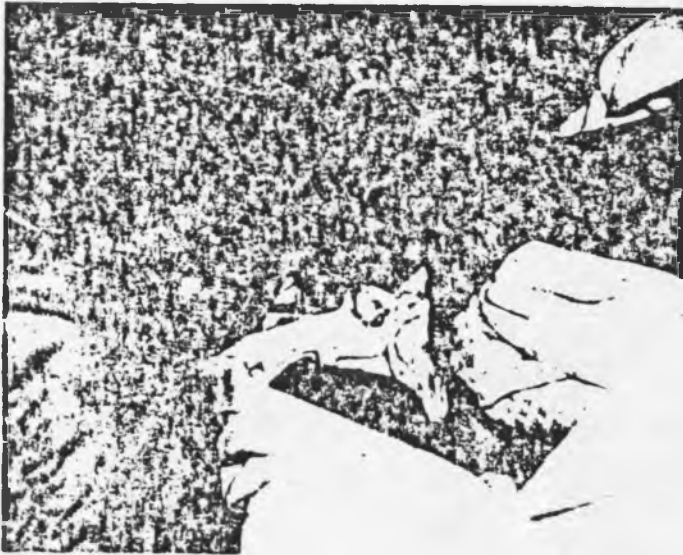
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Breast Feeding



A Family Affair

Breast feeding, the "natural way," is nutritionally best and has been practiced since the beginning of time. Yet it is an art and technique which mother and baby will learn together. Nursing is a special experience in love for mother and baby and not simply the mechanical process of giving good nutrition. There is the warm skin-to-skin contact, a sense of security in being held close, the perfect temperature of the milk — all of which are loving, satisfying sensations to a baby, which help him to sleep, eat better and grow physically as well as emotionally. Yet, there is no evidence that a closely held, bottle-fed baby has a less satisfying experience. Skin contact, the temperature of the milk and being held close can be achieved in either way. The difference rests with the mother and the way in which the feeding is given. A hurried breast feeding from a tired, distracted or disinterested mother is not better mothering even though it is from the breast.

Advantages of Breast Feeding

Human milk is the best nutritional product available for the newborn through his first year of life. Breast-fed babies are healthier. They are less likely to develop respiratory infections, intestinal disorders and skin problems, such as exzema, because of the immunological factors which are passed to the infant through the breast milk. There is a lower incidence of allergies in breast-fed infants. Nursing the infant is a must if there is any history of allergies within the family. Breast-fed babies are less likely to be fat in infancy, as well as in later life. The sucking exercise required with breast feeding builds strong healthy bones, gums and teeth necessary for good facial development. Nursing also provides benefits to the mother. Nursing right after birth stimulates the flow of oxytocin, which contracts the uterus and helps to control blood loss. The process of lactation continues to contract the uterus and returns it to its pre-pregnant state faster. Total nourishment of the infant

for the first 4 to 6 months of life provides a decreased fertility period — thus a natural but not totally reliable, contraceptive. It has been said that breast feeding was the original "convenience food." It is easily available with no preparation needed. It is naturally the right temperature and there is no chance of preparation error or contamination. It is very economical and, speaking ecologically, breast milk is a very valuable natural resource. Above all, the nursing mother has a chance to relax and enjoy her baby while the powerful bonds of trust and love develop and are nurtured through the breast-feeding experience.

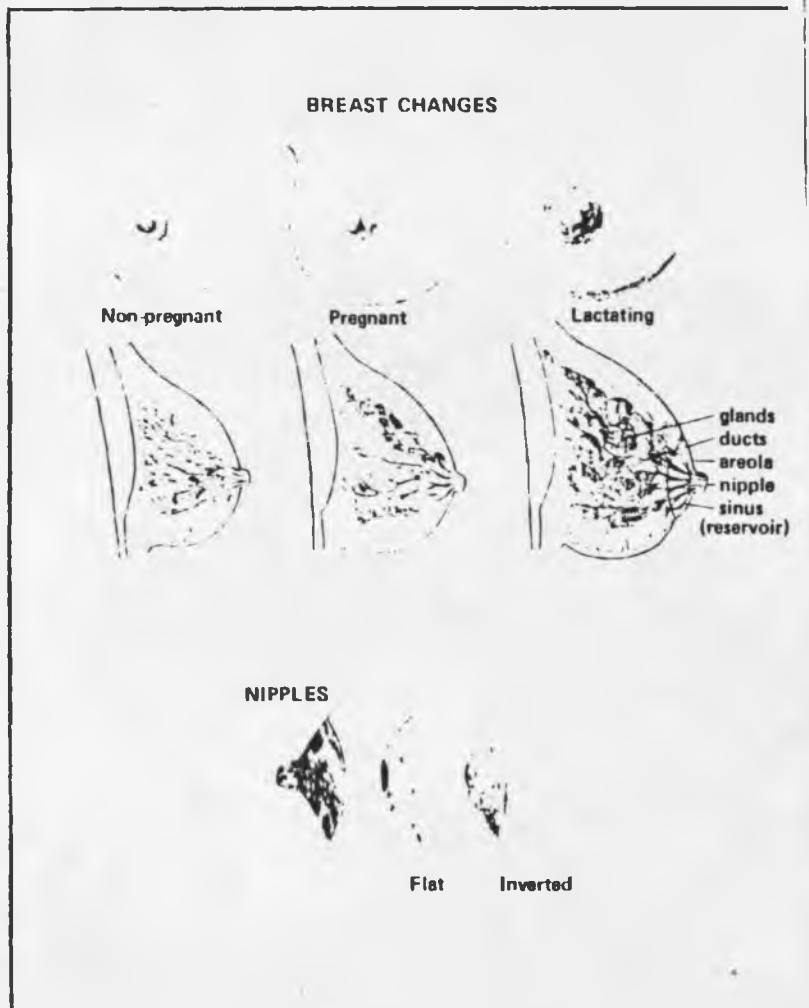
A mother planning to breast feed her baby needs a positive attitude about herself, pregnancy, birth and breast feeding. She needs positive encouragement and moral support from her husband, family, doctor and the nursing staff at the hospital. She needs knowledge about the lactation process and how to prepare her breasts and nipples before birth for nursing.

Advantages of Bottle Feeding

For some mothers, there are advantages to bottle feeding. The mother can leave the baby for longer periods of time, and today's breast-feeding mother can pump, store and freeze breast milk ahead of time. Father can help with the feedings—especially with the night feedings. Whether the baby is breast or bottle fed, Dad can get up to change the baby while Mom goes to the bathroom and gets something to drink, and they can all return to bed for the feeding.

Anatomy and Physiology of the Breasts and Nipples

At puberty, the breasts enlarge to their adult size. At the onset of pregnancy and again as lactation begins, the size will increase. Nipples may become larger, more erect and



darker in color. During pregnancy, both nipples and breasts are very sensitive.

The breast consists of connective and fatty tissue for support and protection of the glandular tissue, called the alveoli, where the milk is produced. Milk ducts carry the milk to the lactiferous sinuses (reservoirs), which are located just behind the areola. The nipple is made of smooth, erectile tissue. On contact, temperature change or sexual stimulation, it becomes firm and larger. Each nipple has 15 to 20 openings, through which the milk is excreted. The area surrounding the nipple is called the areola and is a pinkish color prior to pregnancy. This darker color that comes with pregnancy may assist the infant in latching onto a portion of the areola and not just the nipple. Pressure of the jaws over the milk sinuses is necessary for the expression of the milk. The areola also contains Montgomery Glands, which enlarge during pregnancy and look like small bumps. They secrete a substance that lubricates and protects the nipples during pregnancy and lactation.

As the alveoli (milk producing glands) develop during pregnancy, they begin to produce colostrum, which may even leak prior to birth. Colostrum is a yellowish color and thicker than the mature milk. It is a combination of materials, present in the mammary glands and ducts, which then begins to mix with the new milk being secreted by the milk ducts. The mother who has nursed other babies will usually have a greater volume of colostrum at birth.

Colostrum, the transitional milk (mixture of colostrum and milk) and the mature milk are quite different and are significant for the newborn infant and his adaption to life. Colostrum helps to establish important bacterial flora in the digestive tract and acts as a laxative to help move and expel the meconium. It provides antibodies and globulin that give immunity and protect

against certain infections. Colostrum is high in protein and lower in fat and sugar, which meets the specific needs of a newborn.

Care and Preparation of the Breasts during Pregnancy

Breast preparation for nursing should begin during the prenatal period. Handwashing is essential before touching the breasts or nursing. Bathe or shower daily, with little or no soap to the nipple area. Soap is drying and removes the normal lubrication from the Montgomery Glands. Rinse well and air dry thoroughly for 15 to 20 minutes. A dry, coarse wash cloth rubbed, at first, gently, across the nipple while supporting the breast with the other hand and then more briskly every day for six weeks prior to birth will help to toughen nipples. There is also the bra trick. Cut a hole out of an old bra for the nipple to stick through or, if you are wearing a nursing bra, open and leave the flaps down. Put on a coarse shirt or rough sweater and let it rub back and forth over the exposed nipple as you move about. This exposure and friction toughens the nipple. A few minutes of sun to the nipples each day will also help to toughen the nipple skin.

Wear a good supporting bra which has wide, non-elastic shoulder straps and big enough cup size to hold all of the breast tissue — especially that which is under the arms. Breasts usually enlarge several sizes early in pregnancy, and most women find comfort in a supportive, larger-size bra. It is usually best to wait and buy the nursing bras near the end of the pregnancy. Breast size will be about the same. Wear and washing lessens support which is needed most right after delivery. Nursing bras are adjustable in both size and cups. Most women prefer the cup which opens from the top down, rather than from the middle. Do not use bras that have plastic inserts. This keeps moisture in and softens the nipple tissue, which can cause

sore or cracked nipples. Some women may prefer to wear their bra at night for comfort and support. Others feel more comfortable when not wearing a bra. Nursing does not cause sagging breasts, but poor support of breast tissue during pregnancy and lactation may result in stretching of the breast ligaments and sagging breasts.



Nipple rolling/pulling exercise

Nipple rolling or pulling is done to improve the erectility of the nipple. Gently roll the nipple back and forth between the thumb and forefinger and then pull outward. Do 5 times, several times a day. If your nipples are flat or inverted you may want to wear a special nipple shield that helps to pull the nipple out. Start by wearing it for a few hours each day.

Breast massage increases blood circulation to the breast tissue, tends to decrease engorgement and assists in the let-down reflex. It also helps you to learn how to handle your breasts — an art necessary to achieve successful breast feeding. Stand in front of the mirror, use some type of non-



Nursing Bra and Netsy Cup

drying body lotion (containing no alcohol) on your hands and do massage as shown.* Massage each breast 5 times and do twice a day. Apply nipple cream such as Masse Cream or Lanolin to the nipple area, being careful not to cover the Montgomery Glands. (Do not use Lanolin if you are allergic to wool.)

After Birth

The birth of the baby, along with suckling, initiates the milk production and ejection process. Nursing should be initiated as soon as possible after birth — hopefully within the first hour if both mother and baby are ready. Get into a comfortable position — either in a raised position that provides eye-to-eye contact with the baby, or lie on your side with the bottom arm extended. Assistance from your nurse or husband is helpful. With your fingers, gently squeeze your breast just outside the areola and touch the baby's mouth with the nipple. Some babies will open their mouth, take the nipple in and eagerly begin to nurse. Others may need to

*For illustration, please see pages 12-13.



Nursing—side position

be coaxed. Some mothers find it helpful to put their little finger in the baby's mouth until they appear to "catch on" to sucking and then switch to the nipple. For some babies, it takes several days for them to really latch on and nurse well. It is important to remember that even just the licking of the nipples is stimulation to the milk producing process. This early nursing provides the infant with the colostrum, but it is also a time of learning the art. Early and frequent nursing helps to toughen and prevent soreness of nipples and, hopefully, prevents or lessens engorgement.

The first two hours after birth are a very special time for the new infant and his parents. The baby is usually in the wide awake, alert state with his suckling reflex at its strongest, and very responsive to his parents and environment. This is also the time when new mothers are on an emotional high. This very sensitive period coupled with the interaction between the new infant and mother during breast feeding involves all of the infant's senses. The touching or skin-to-skin contact also provides warmth

He can see objects best that are 12 to 18 inches from him — the distance to his mother's face when held at the breast. He can smell and taste. All of these sensations are pleasant as well as stimulating and with each breast feeding are renewed. In order to nurture the feeling of closeness between parents and baby, this very sensitive period of nursing should be done in privacy, if at all possible. However, if either mother or baby are not ready because of a difficult birth or other problem, they should be given the opportunity to be together to develop their own special closeness at a more appropriate time.

After this awake, alert period of several hours and the first nursing, the infant is usually ready to sleep for the next 3 to 6 hours. He may awaken to nurse or suck briefly and then return to sleeping. Many mothers are concerned because they have only the colostrum during the first days and are afraid that the baby will not have enough to eat. Some babies show little interest in eating and sleep for long periods during the first couple of days. Colostrum provides all of the baby's nutritional needs at this time. His suckling is what helps to bring the milk in. The baby may not be very hungry during this time, but some babies enjoy sucking and will suck on anything that is close to their mouth. Sucking releases tension and provides a relaxing effect.

Crying is a means of communication and can occur for a lot of different reasons than for hunger. Remember that first of all, he has to get used to a totally different world. All his needs — warmth, food and closeness were provided in the uterus. Keep him wrapped lightly in a blanket — swaddled — and keep him close. Lay him across your chest so that he can hear your heart beat. Some babies will want to suck all the time and even when not hungry. Mothers sometimes find that a pacifier will help to soothe these babies.

Some babies need more holding and closeness and nursing is a very special way of comforting your baby.

Most breast fed babies will want to eat every 2 to 3 hours. The protein molecules in breast milk are digested more quickly than other kinds of milk proteins. It is easy to see why breast-fed babies cannot be put on "schedules." It is important to have rooming-in while in the hospital so that you can feed your baby when he is awake and wants to nurse. This is "demand" feeding and has benefits for both mother and infant. It tends to lessen engorgement, prevent sore nipples and promote milk production.

Nursing

In preparation for nursing, go to the bathroom, wash your hands well and have something to eat and drink. You will notice that when you start to nurse, you will become very thirsty. Not only do you need to prepare yourself physically, but also psychologically. Relax for a few minutes and think about your baby, and the love and closeness that you share through the breast feeding. Do not try to nurse immediately after a hectic hospital visiting hour! Check your baby's diaper and change if wet or dirty. Cuddle your baby closely. Establish eye-to-eye contact and talk to him.

The most comfortable position for beginning nursing is the side-lying position, with the bottom arm extended or with the bed slightly raised. Soon you may find that sitting up in the bed or in a rocking chair gives you more flexibility in positioning the baby. If your sutures or hemorrhoids cause discomfort, squeeze your buttocks together before you sit. You may find that a small pillow to sit on and another one under the baby and your arm is helpful. Do breast massage. Enlarge your nipple by rolling and pulling it out. An erect, large nipple is easier



V sign compression of areola

and more interesting for the infant to grasp. Express some milk out for him to taste and smell. This makes him more eager to nurse. Utilize the rooting reflex by placing the baby's cheek up against the breast. Hopefully, he will turn toward the breast and nipple and open his mouth. Stroke only the



Position of mouth

cheek next to the breast to avoid confusion with this rooting reflex. Help the baby to latch on properly. Get him to take some of the areola into his mouth. Avoid just "chewing" on the nipple. There is no flow of milk and nipples will become sore. Keep in mind that the milk sinuses are in the areola and pressure of the jaws must be exerted against this area for the milk to be released.



Nipple placement/action of jaws

Provide an air pocket for the baby by depressing the breast tissue with your finger near his nose. When ready to change breasts or to stop for burping, insert your finger at the corner of the baby's mouth to break the suction and then gently remove your nipple.

Burp when changing breasts and at the end of the feeding. Place a cloth diaper over your shoulder or under his chin. Gently pat until you get a bubble up. Breast-fed babies do not swallow as much air as bottle fed babies. Also, there will be little burping until the milk comes in. If the baby has been crying just prior to feeding, nurse for a short time.



Air pocket



Reverse position

Then stop and burp before continuing the feeding. Alternate the position of the baby's jaws to prevent pressure areas. Vigorous sucking on the same area can cause bruises and blisters. Lie down, sit up, use the football position or the reverse and rotate these positions.



Positions for burping

In the beginning, start with nursing on both sides at each feeding for 7 to 10 minutes. Encourage nursing about every 3 hours and increase the nursing time by a few minutes each day until you are nursing for 20 to 25 minutes or as the baby desires. Keep in mind that the breast empties in about 12 to 15

minutes if the infant is vigorously nursing. If nipples are tender, decrease this additional nursing time. Some doctors advise that some water be given after the breast feeding until the milk comes in to decrease weight loss and possibly to lessen the effects of newborn physiological jaundice. If this

water supplement is to be given, it should be immediately after the nursing rather than as a pacifier to "settle" the baby down until the next breast feeding. Mothers need to know that weight loss occurs with all newborns and that it may take several weeks for the infant to return to his birth weight. Babies will need extra fluids if they are under the phototherapy lights for jaundice or have other medical problems.

After nursing is completed, expose nipples and air dry by leaving the "flaps" of your bra down. Apply nipple cream — nipples only — and clean, dry breast pads if needed. Clean, white men's hankies also work very well and are much cheaper, as they can be washed and reused. Some mothers use the plastic shield. It keeps the nipple dry, aired and collects leakage. Make sure that you keep the air hole at the top and the milk collected should not be used. Wash the cups in hot soapy water and dry well before reusing.

Nursing after Cesarean Birth

Mothers who have given birth by Cesarean can and should nurse shortly after birth — with the mother's and baby's conditions permitting. The Cesarean birth does not affect the lactation process — just your mobility. If a general anesthesia has been used, mother may be sleepy and the first breast feeding may need to wait for awhile. If breast feeding has to be postponed for a few hours, because of the baby's condition, mothers can stimulate their breasts through massage and expression, in preparation for breast feeding.

Mother's who have had regional anesthesia, such as a spinal or epidural block, can nurse by laying the baby up over the breast and nipple area. Dad or a nurse can help with the positioning of the baby. As the feeling begins to return to her legs, the mother can turn to the side but continue to remain flat,

utilizing the arm-above-the-head position. Later the raised position using the football hold with a pillow to support the baby is especially comfortable for the Cesarean mother. Have the side rails up to keep the pillow in place and for support in turning or changing baby to the other breast. Ask for your pain medication prior to nursing so



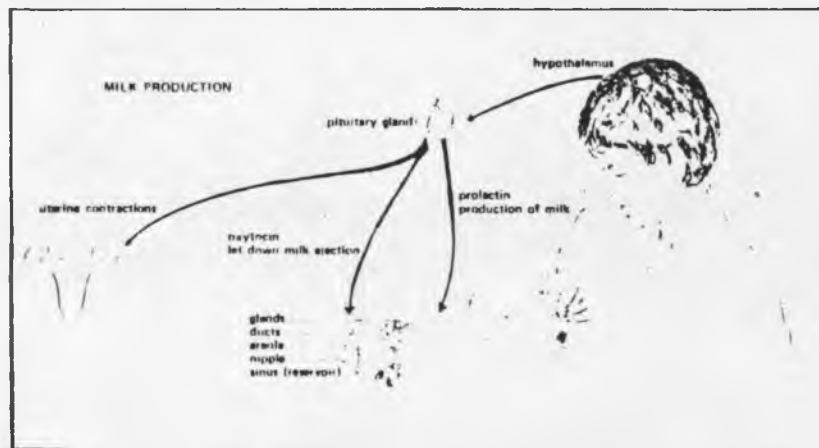
Pillow over abdominal incision (Cesarean birth)



Football hold

that you will comfortable. Your doctor will prescribe medications that will not affect the baby. It is especially reassuring to have Dad's help and support with turning, positioning the baby and burping. (Caesarean babies often have more mucous.) The raised bed position or the rocking chair can also be used comfortably for nursing. Place a small pillow over the incisional area and keep baby on top of the pillow.

At home, rest and be good to yourself. Let someone else take over the housework and other children for that first week. Not only are you learning to be a new mother, but you are also recovering from a surgical birth. Dad's support, help and understanding can be of great assistance at this time.



Milk Production

Nursing signals the hypothalamus (an area of the brain), which stimulates the Pituitary Gland to secrete oxytocin, which causes the uterus to contract — especially in the mother who has had several babies. Oxytocin also stimulates the milk ducts to

contract and eject the milk from the milk glands. Prolactin is also released and it is the hormone responsible for milk production. Two functions for successful breast feeding are needed. First, the milk has to be produced, but even more important — it must be excreted or available to the infant. The fore milk is the milk secretion which is made continuously and constitutes about 1/3 of the total milk available to the infant. It is not as rich in fat and protein as the hind milk, which is produced with the let-down reflex. This let-down reflex is essential to excretion of the hind milk. The new mother may experience a fullness or tensing in her breasts, then a tingling — pins and needles sensation — and a feeling as though the breasts drop and

the milk begins to flow. This "feeling" or let-down reflex may occur when she knows that it is about time to feed the infant, or she hears her baby cry. It may not occur until she begins to nurse. The infant is nursing at one breast, she feels the let-down and the other breast begins to leak.

This let-down reflex can be enhanced by rest and relaxation just prior to nursing, being emotionally calm, in a comfortable position and confident, with the support of the people around her. Sexual stimulation or excitement can also trigger the let-down reflex. The hormones produced with the let-down, along with having the baby sucking at her breast, often give mothers a very warm, relaxed, motherly feeling and some even experience sexual sensations. Distractions such as sore nipples, lack of privacy, embarrassment, stress, tension, being tired, lack of sleep and disparaging, negative remarks from relatives or others may interfere with the let-down process. Smoking also adversely affects this reflex.



Press or pray

Sometimes the let-down reflex occurs when you aren't ready for it. Place the heel of your hand over the nipple area and press until the flow stops. Another method is the "prayer." Fold your arms with the forearm over the nipple area. Apply pressure and pray that no one will notice your let-down.

When the Milk Comes In

The milk usually comes in during the second or third day. This can vary depending on the birth and recovery of the mother, the number of babies which have been nursed and the preparation of the breast for nursing. It can also depend on how well the infant has nursed during the initial period.

Infants differ greatly in their nursing and can be classified by their patterns. The barracuda or "Jaws" latches on promptly, sucks vigorously for 15 to 20 minutes with no stopping. The mother of this infant may experience some sore nipples. On the other end is the infant who gently nurses for a few minutes, pauses, rests, nurses and rests. He cannot be hurried and although he nurses well, a great deal of time is spent in nursing. There is also the "Licky Lou" who licks, tastes, and mouths the nipple before settling in to nurse effectively. Others get so excited that they grasp, lose the nipple, start screaming and have to be gently calmed down before they can start to nurse. Some babies show little interest in nursing and fall asleep after a few sucks during the first few days. They may suck a little but show no real enthusiasm until the milk comes in. If a bottle is offered, they suck readily. Don't become disillusioned. They do well once the milk comes in.

Tender Nipples

If nipples become sore, begin the nursing with breast massage and expression. Then start with the least sore nipple while the other one is exposed to air. This will promote the let-down reflex and start the milk flowing from the other breast, relieving some of the fullness before the infant nurses from the sore side. This will make it easier for him to latch on well. Discomfort often comes when the baby is first latching on.

Once he has latched on well, the nipple is pulled well back into his mouth, lessening the discomfort. After the feeding, air dry at least 20 minutes and then apply your nipple cream. Some mothers find it helpful to leave the bra flaps down, continuing to air dry and expose the nipples as much as possible. The plastic shields can also be used, which continuously expose the nipple to air. Another helpful trick is to lightly apply an ice cube to the nipple just before nursing. (Rinse the ice cube off with water so that it will not stick.) The cold will draw a flat nipple out, making it easier for the infant to latch on, and causes a numbing effect, which will relieve a sore or tender nipple. Do not stop nursing because of sore nipples. Instead, nurse more frequently and for shorter periods.

Engorgement

As the milk begins to come in, the breasts may become hard, hot and uncomfortable. Engorgement is a combination of congestion due to the increased blood supply and accumulation of milk. It may be



A. Begin by placing one hand over the other above the breast.

just around the areolar area, making it difficult for the infant to grasp the nipple, but it usually involves the entire breast, from the clavicle (shoulder blade) to the underarm and to the breast bone.

A good, supportive bra, a comfortable position, a mild analgesic and perhaps ice packs under the arm pits may help. In addition to being uncomfortable, engorgement makes it difficult and frustrating for the infant to nurse. This engorgement may last several days.

Some preparation before putting the baby to breast is needed. A warm shower with the water directed to the breasts or hot packs to the breast area, along with breast massage, will help to promote milk flow. For hot packs, use small hand towels or wash cloths wrung out of hot water. Place these over the breast area and cover with some type of plastic to keep the moist heat in and leave for 15 to 20 minutes just before nursing. Then, massage your breasts. Next, express some of the areolar milk out by placing one hand under the breast for support and, with



B. Gently, but firmly, exert pressure evenly with the thumbs across the top and fingers underneath the breast.

the other hand, place your thumb on top of the breast at the edge of the areola and the fingers below. Gently compress the areola a few times — not the nipple — until some milk is expressed. Move your thumb and forefinger in a clockwise pattern around the areola. This will lessen the engorgement so that the infant can latch on.



C. Come together with the heel of the hand on each side and release at the areola, being careful not to touch the areola and nipple.

Occasionally, engorgement may be such that some type of shield may be necessary to help the baby latch on or to provide relief to a mother whose nipple is too sore or cracked to nurse comfortably. A shield may also be indicated for the mother who has a flat or inverted nipple. There are several different shields available, but often a



D. Then gently lift the breast from beneath and drop lightly. Repeat 4 to 5 times with each breast.



Manual expression A. Position of fingers



B. Squeeze / loosen



Nipple over nipple

regular nipple from a bottle works best. Position the bottle nipple over your nipple and place in the baby's mouth. As he begins to suck, it will draw your nipple into the nipple and create a suction which will start the milk flow as well as causing your nipple to elongate. After a few minutes, remove the



Infant nursing with nipple

bottle nipple and introduce your nipple. Some babies will latch right on and continue sucking. Others may have to be switched back to the shield/nipple for a while longer. Be patient and keep offering your nipple until he grasps and accepts it.

Preparation of the breasts and nipples to minimize sore nipples and the mentioned techniques to relieve engorgement should be utilized to avoid having to use a nipple or shield unless absolutely necessary, and then for the shortest time possible. Flat or inverted nipples should be worked with before birth. A vigorously sucking infant can often quickly take care of a flat nipple!

Some babies have a preference to one breast or nipple. Again, use patience and continue offering. Manual stimulation and expression might be used until the baby accepts that breast or nipple.

Nursing at Home

You will find that once home, you are more relaxed and nursing will be much easier. By the second week, both of you will have learned the art and techniques of nursing. Supply and demand will be established. Baby is eager, nurses well and has, perhaps, settled into a pattern of nursing. Nipple tenderness and engorgement is past.

An awake, eager baby nurses best. During the daytime, awaken and feed the infant so that he is not sleeping more than four hours at a time. If he seems too sleepy to eat, unwrap, play and talk to him. At night, let him sleep and awaken himself for the feeding. This may help him sleep for longer periods. Make the night feeding very business like. Keep the lights low and do not socialize as much, so that he learns that nights are not play time. In the beginning, most mothers prefer to take the baby to bed

with them to nurse. Mother may find that the baby sleeps better if laid across her chest so that baby can hear Mom's heart beat and has the warm, skin-to-skin contact. If you prefer to sit in a chair (a rocking chair is a must for a new mother and baby), have a book to read and something to eat and drink. Check diaper and change, if needed, before and after nursing so that he is dry and comfortable for the feeding and will be ready for sleeping. Breast-fed babies usually have frequent stools and almost always have a bowel movement during the feeding. It may only be a stain, but it appears and sounds like a big production. Other babies may go a week without a stool. Newborn babies also have a lot of "gas." All of this is normal.

Once your milk supply is well established and you have a good let-down, breast massage prior to nursing may not be needed. Relaxation, psychological preparation and something to drink as you begin nursing may promote the let-down and create a good flow. Some mothers choose to breast feed on both sides. A vigorously sucking infant can empty a breast in 15 minutes and is then switched to the other side for "topping off." This provides comfort to a full breast and builds the milk supply. At the next feeding, start with the breast that you finished with last since it may not have completely emptied. A safety pin to the bra strap will help you remember which breast to start with. Other mothers, once their supply is established find that they prefer to use one breast at each feeding. Of course, the infant may have some definite ideas as to whether he wants one or both breasts at a feeding. During the feeding, help the infant to completely empty the breast by pulling the breast tissue up from underneath the arm. Some pressure or massage from the top and side will help to empty all of the peripheral (outlying) ducts. Often babies fall asleep after the first breast,

sleep for about 30 minutes and then awaken to have "dessert" at the other breast.

Burping should be done midway through the feeding and again at the end of the feeding. There are several positions that can be utilized, at your shoulder, across your lap or sitting. Always have a burp cloth under the mouth and pat gently until you get a burp. Most babies tend to spit up some with a burp or at a later time. After the feeding, always lay the baby on its tummy (after the cord and circumcision are completely healed) or on its side, placing a blanket roll behind him so that he will not roll onto his back. Babies should never be placed on their backs unless the head and shoulders are raised.

Mother may wonder if the baby is getting enough milk since she can't measure it like a bottle of formula. If, after the feeding, baby is sleeping or appears satisfied, sleeps for several hours, has 6 or more wet diapers a day that are light colored with no strong odor and gains weight, his nutritional needs are being met.



Hand to side and top of breast to empty all ducts

Breast Care

Hand washing prior to handling the breasts/nipples and your daily shower are adequate cleansing. Use only minimal soap during your bath or shower as it is drying and removes the natural skin oils and lubrication produced by the Montgomery Glands. After breast feeding, air dry the nipples for at least 10 to 15 minutes. Apply your nipple cream, using only a small amount that can be absorbed by the next feeding, breast pads or shields as needed or desired. If there is cream on the nipple at the next feeding, you have used too much. Gently wipe off excess. The nipples should not be washed before or after the feeding. The baby's saliva and colostrum or milk combine to form a natural coating or protection to the nipple area.

Nursing Away from Home

Nursing can be done very inconspicuously by placing a blanket or diaper over the nursing infant. A sweater or blouse that can be unbuttoned or pulled up from the bottom also works well. The first time you go out, or nurse with people around, may affect your



milk flow. Nurse more frequently for the next couple of feedings to improve your supply. Soon you'll be a pro! Today, a mother/baby nursing couple is not an unusual sight, because more and more mothers are nursing their babies.



Dad's Role in Nursing

Dads are a vital part of a positive nursing experience. His role has already been mentioned in assisting the Mom who has given birth by Cesarean. His role begins during pregnancy by encouraging her to make the decision to breast feed. Some Moms and Dads are hesitant because they are unsure how their partner will feel about breast feeding. Open communication between the couple, discussion with their health care provider, and the breast/nipple preparation (Dad can help) can overcome any doubts that might be present. A positive attitude with support from Dad will provide a positive breast feeding experience. At home, Dad can make sure that Mom gets adequate rest. Encourage her to rest just prior to nursing. Have her lie down with her

feet up and bring her a tall glass of water, juice or milk. At night, get up and change the baby while Mom goes to the bathroom and gets her drink. Then all of you can get back to bed together. Help with the other children and the housework, provide moral support, and protect Mom from too many visitors and their sometimes negative remarks about breast feeding. Give companionship and positive strokes. Give her your physical closeness.

Although sexual intercourse is usually not advised until after the postpartum check-up, even then she may not feel or have the desire, but you will both find pleasure in being close, talking and touching. It is not uncommon for women to have a lower sex drive after pregnancy. This is due to a lower estrogen level while the woman's body is recovering from pregnancy. She is also tired from being up at night. Adjustment to a new role, the change in lifestyle and wondering if things will ever be "normal" again are other contributing factors. Support from Dad can help all of these feelings. The physical closeness, "love play" and letting her know



that her body is desirable will help when it is time to make love. There is usually a lack of vaginal lubrication after birth and some type of lubrication such as K-Y jelly, bought over the counter at the drug store, will help this problem. Both parents have the fear of the baby crying during the love making. Feed the baby. This gives the advantage of him being most likely to sleep for awhile and breasts will be empty, soft and more comfortable and not as likely to leak. Still, her breasts and nipples may be tender when touched and with orgasm there is usually a let-down reflex.

The Fussy Baby

Most babies have a fussy spell each day — usually at the same time. For most, this time is early evening — just as Dad is coming home, the other children are tired and hungry, etc. This is when Dad can jump in and save the day or perhaps the evening. The fussy baby often can best be calmed down by Dad. Baby welcomes the change from Mom to Dad. Mother tends to be the caregiver — giving the physical care, food and dry clothes. Dad is the person who provides the play and entertainment. Take baby on a walk, show him things and tell him about your day at work. If it was a bad day he will be a good listener. You will have it out of your system and probably Mom doesn't need to listen to any more problems right now. Even if baby continues to fuss, he appreciates your closeness, your voice and firm touch. He will look forward to your "special time." Your reward is a calmer baby, appreciative wife and a pleasant evening. These fussy periods will go away in a few weeks, but the relationship that you establish with your baby will continue to grow for a lifetime.

Medications, Alcohol and Smoking

Most necessary medications can safely be taken during lactation, but should be

checked with your physician before using. All too often, it is recommended that breast feeding be stopped when a mother needs a certain medication, even though it is entirely safe to use during breast feeding. Oral contraceptives are usually not recommended during lactation. An occasional, mild alcoholic drink such as beer or wine by the nursing mother will probably not harm the baby, but alcohol does cross through to the breast milk and to the baby. This occasional drink, at times, may even be therapeutic for the lactating mother, who is tired or tense and trying to cope with dinner and tired children. Check with your health care provider regarding alcohol during breast feeding.

Smoking during pregnancy interferes with the oxygen-carrying capability of the blood cells and will reduce the supply of oxygen to the baby. This increases the chances for a lower birth weight infant, who is then at risk for other problems. Smoking also interferes with the let-down reflex.

Birth Control

Although breast feeding postpones the first menstrual period and ovulation is usually reduced or suppressed during lactation, pregnancy is still possible. Oral birth control medications cannot be safely taken while nursing. Therefore, some other type of birth control method such as condoms, the diaphragm, IUD, spermicidal foams and jellies which can also act as a lubricant will be recommended by your health care advisor at the time of the postpartum checkup.

Menstruation

Most women do not experience a period during the time that the baby is being totally breast fed. Periods can still occur and are likely to resume as solids are introduced to the baby. Some mothers experience

premenstrual tension and this can influence the let-down reflex. Some babies also experience some irritability on the first day of their mothers' periods. This will pass and breast feeding should continue. It is helpful to rest and nurse more frequently for several days.



Basic Four Food Groups

It is desirable to avoid spicy or gas forming foods such as pizza, onions, garlic and cabbage when first starting to breast feed. Some doctors discourage chocolate, as it may have a laxative effect on the baby. In families where there are allergies, chocolate and orange juice should be avoided, as well as any foods that cause allergies in family members. This usually includes milk and certain grain products. Families with a history of allergies need special consultation with their physician regarding their diet and the avoidance of pollens, dust, etc.

THE MILK GROUP (4 servings per day)

This includes milk and milk products, which provide calcium, protein and other nutrients that help build strong bones and teeth for your baby. However, it does not take milk to make milk. If you do not like to drink milk or it does not agree with you, there are other ways to provide adequate intake of this group. All kinds of cheese, ice cream, yogurt, cottage cheese and the milk or powdered milk used in cooking will provide the needed nutrients. In addition, a variety of foods from the other food groups also supply the nutrients in this food group.

THE MEAT GROUP (4 servings per day)

Food from this group provides protein, which is the basic structure of the body's cells, muscle, blood and bones. It supports growth and is necessary for the maintenance of healthy body tissues. The meat group also supplies iron, an important mineral found in the red blood cells, and other important vitamins. Protein comes from meat, fish, chicken, eggs, nuts, dried peas and beans (legumes) and peanut butter. Liver is an excellent source of

protein, iron and certain vitamins. Vegetable proteins or the legumes should be served with milk or cheese. The combination of the animal and vegetable products makes the protein more useful to the body. Vegetarians should have nutritional guidance during pregnancy and lactation. Butter and oil are needed to supply energy and carry the fat soluble vitamins.

THE FRUIT AND VEGETABLE GROUP (4 or more servings a day)

Use a combination and variety of fresh and, whenever possible, raw fruits and vegetables. These supply the Vitamins A and C (citric or ascorbic acid) as well as many of the essential minerals which are needed for the formation and maintenance of skin and mucous membranes that line the body cavities, provide healing of tissue, and increase the resistance to infection. Select dark, leafy green and dark yellow vegetables and include citrus fruits or other foods that are high in Vitamin C, such as tomatoes, green peppers or potatoes. Broccoli is high in both vitamins and minerals.

THE GRAIN GROUP (4 servings a day)

Grain products include all the breads, rice, oats, grits, cornbread and pastas. It is best to avoid white breads and cereals that are not made from the whole grain. From grain products the body derives vitamins and minerals as well as the carbohydrates which supply needed energy.

There are about 50 known nutrients, including water, that the body needs in order to maintain good health. Your prenatal vitamin supplement should be continued during the lactation period. However, you still need a variety of foods from the basic four, since neither a single food or a vitamin-mineral supplement can supply you with the entire 50 nutrients and

A Sample Menu for a Day

Breakfast:	Apple Juice Scrambled Eggs Toast (whole grain with fruit jelly and butter)
Morning Snack:	Glass of Milk Fruit—Banana
Lunch:	Milk Green Salad—lettuce and assorted raw vegetables Tuna Rye Bread
Afternoon Snack:	Cup of Yogurt White Grapes Choice of Beverage
Dinner:	Chicken Baked Potato with Butter Broccoli Carrot-Raisin-Apple Salad Whole Grain Roll and Butter Choice of Beverage
Bedtime Snack:	Whole Wheat Crackers Cheese Orange Milk or Beverage of choice

Fluid intake should be no less than 8 glasses of fluids—water, juices, and milk and enough to satisfy your thirst. Caffeinated or cola drinks can be used occasionally.

the trace elements — zinc, copper, manganese, cobalt and potassium. However, a diet containing a variety of foods from the basic four can provide you and your baby with all the needed nutrients.



Grandmother giving bottle

Supplemental Feedings

A water supplement given right after the breast feeding is recommended by some physicians during the first days of life. Once the milk is in, the infant does not usually need additional water loadings, unless the outside temperature is over 90°. If the baby has some jaundice, the physician may recommend continuing the water supplement for several days. An occasional bottle will not affect the nursing and may sometimes be beneficial if a mother is tired or has planned an evening out. It is best if someone else gives the bottle, such as Dad or the sitter. Breast-fed babies often do not accept the bottle if given by their mother.

Special Considerations

Babies with special needs, such as a premature infant, an infant with respiratory distress or other medical-surgical problem, can be successfully nursed. Mothers of these babies should be encouraged to continue with their breast-feeding plans. Breast milk may save their babies' lives. Mothers can stimulate their breasts by manual expression to bring in the milk. The colostrum and milk can be carefully collected and transported to the Special Care Unit by Dad — if this is in another hospital. The breast milk is given by gavage (a small tube) or special nipple until the infant can nurse.

Twins can also be breast fed. Some supplementing may be necessary, but the milk supply ordinarily parallels the demand. With some practice and cooperative babies, both can be fed at once, utilizing the football hold and saving precious time. Additional information can be sought from the Mothers of Twins Club and the LaLeche League.

Relactation

If mother and infant are separated for a long period of time, such as with a long hospitalization in the Neonatal Intensive Care Unit or an illness of the mother, relactation can be achieved with determination and continued effort on the mother's part. Women who have adopted babies have even been able to lactate. The sucking of the infant, and the positive attitude on the mother's part, can usually produce a milk flow. A device known as the Lact-aide (see address under resources) is a bag filled with formula or breast milk which hangs around the mother's neck. A small pliable tube from the bag is placed alongside the mother's nipple. As the infant



sucks the nipple, he stimulates production of the mother's milk and receives necessary nutrition from the bag at his mother's breast. This device can be used as a supplement when infants are not gaining at the breast. The infant receives needed nutrition while the sucking builds the mother's milk supply. Assistance with relactation or supplemental lactation should be sought from your physician, a Lactation Clinic or the La Leche League.

Plugged Ducts

Sore, tender lumps in the breasts, without other symptoms, are due to plugged ducts and usually result from incomplete emptying of one or more ducts. Continue with frequent nursing, using different positions. Heat packs and breast massage prior to nursing will help. Get extra rest, preferably in bed. As a preventive measure, remember to use your hand, or arm on the side that you are nursing, to pull the breast tissue forward from under your arm down from the top and other side. This added pressure will help to empty the peripheral milk ducts.

Mastitis

Mastitis is a breast infection. You will notice a hard, reddened and hot area and usually have a fever. Call your physician. You will be started on antibiotics and some type of pain medication if needed. You can usually continue to nurse. Nurse on the unaffected side first, but make sure that the affected side is emptied by feeding or pumping. Bed rest is absolutely essential. Let someone else take care of the rest of the family and the housework. Use ice packs or heat — whichever provides the best pain relief. Drink plenty of fluids. A good supporting bra may provide additional comfort.

Other Illness

Minor illnesses, such as colds or flu, should not affect nursing. By the time the mother realizes the symptoms of illness, the infant has usually already been exposed. Most infants have an immunity from the maternal antibodies and if a baby does get the mother's infection, it is usually in a mild form. He may be cranky and a stuffy nose makes it difficult to nurse. Clearing his nose with a bulb syringe just prior to nursing may help. Some babies will nurse poorly and will want extra holding and rocking. Meeting these needs will not "spoil" him but rather build his trust, because his special needs were met.

If a mother has to be hospitalized and desires to keep her infant with her, she may be able to arrange for a private room and crib for the baby. Dad or a relative should be available to care for the infant, but in many instances, nursing could be continued. If mother is having surgery, anesthesia and pain medications may affect the milk and the baby. You can temporarily express the milk and discard. This will keep up the supply and then you can continue breast feeding when it is indicated.

Growth Spurts

Growth spurts are experienced by all infants and are often confusing to the nursing mother. The infant suddenly wants to nurse more often and longer. This may continue for several days. It is his signal to the mother's body that he needs more milk. The law of supply and demand works because of the more frequent, longer sucking periods. The mother will produce more milk to meet his growth needs. Often, mothers believe, or their well-meaning friends and relatives suggest, that the baby isn't getting enough or that mother's milk is not "rich" enough. She may often resort to a bottle, which cuts down on her milk supply which would be increased with additional sucking. These growth spurts usually occur when the infant is a few days old, at about 2 and 6 weeks, and again at 3 and 6 months.

Hand Expression

Hand expression is easy to do and much more comfortable than a hand breast pump. It is used to relieve engorgement when the milk is coming in and later to relieve the full feeling in the breasts when mother has to miss a feeding or when she wants to store some breast milk for a later feeding. Working mothers find that they can pump and store milk so that their infant can continue having their breast milk as well as keeping up their supply.

It is easiest to learn this skill during a breast feeding. The let-down reflex has been triggered and there is a good milk flow. Hand expression right after a feeding with empty breasts will not be beneficial. Always wash your hands first. Do breast massage. Support your breast from below with one hand. Place the thumb and forefinger about 1 to 1½ inches back of the nipple. Press inward and toward the chest wall while squeezing the thumb and forefinger

together very gently. Loosen and squeeze again. Do not slide the thumb and finger or pull on the nipple. Continue in that position until milk flow subsides. Then move fingers a quarter turn and continue. With a good let-down reflex and full breast, once the flow starts, pressure exerted under the arm while pulling the breast tissue forward, then moving your hand to the top and other side may empty the breast without having to continue the squeeze/loosen procedure and is quite comfortable to do.



(See page 29 for information on ordering breast pumps.)

Collection and Storage of Breast Milk

A wide-mouthed plastic or glass jar works well for collection. For storage, use a plastic bottle such as a baby bottle or sterile baggie made for use in the nursing bottles. Any container or equipment which touches the breast milk should be sterilized. First, wash and rinse the containers. Then place all needed equipment into a pan and cover with water and a lid. Boil for five minutes. Using the lid, drain off water and let equipment cool in covered pan until ready for use.

When ready for expression and collection, wash your hands well with soap and water. Expose your breast and do breast massage. Hand express into the wide-mouthed jar.



Chill the breast milk immediately in the refrigerator and use within 24 hours. If you desire to freeze the milk for later use, transfer the milk to a sterile plastic bottle such as a formula bottle or a baggie from a disposable nursing bottle. Allow room at the top for expansion which will occur with freezing. Chill in refrigerator and then place in the freezer. Milk can be kept for months in the freezer. When ready to use, take the container (or amounts needed for a feeding) from the freezer and hold under cold, running water and then warmer water. Shake gently to mix and then warm the milk to body temperature by placing the bottle in a pan of warm water. Do not save or refreeze unused milk. A mother with large amounts of breast milk may express and freeze her milk for her own baby's use and some mothers donate their extra milk to hospitals that have Breast Milk Banks. Check with

your local hospital or a hospital that has an Intensive Care Unit or the La Leche League, if you would like to donate your breast milk to such a bank.

Breast Pumps

The Marshall Breast Feeding System is a new hand pump which is easy and comfortable to use. It can be used to stimulate or empty the breasts as well as for collection and feeding of breast milk. Previous pumps were inadequate for many mothers, who often resorted to hand massage and expression. The Marshall Pump is excellent, especially for working mothers. A woman can pump at work and bring that milk home for the infant's feeding the next day. Breast feeding while at home and pumping when at work or when away from the baby enable a mother to continue breast feeding for as long as she desires.

Two electric pumps, the Egnell and the Medela, are useful to initiate lactation when a baby is not able to nurse or if pumping is necessary for extended time periods. Some hospitals and La Leche League groups have these pumps available for use.

Weaning

Any amount of breast feeding is beneficial to the infant and mother. Mothers who breast feed and then stop for whatever reason should know that they have provided some special nutrition and love to their baby.

Weaning involves the separation of the baby or mother from a special experience that they have both loved. Graduating to the cup and to solid food signals the start of growing up. Some mothers choose to nurse for a few

weeks or several months and then wean to a bottle in order to resume their life style or return to work. Some babies lose interest in nursing between 6 and 9 months when solids, a bottle or cup are introduced. Babies take large volumes of milk in the first 12 to 15 months. It would be ideal for a mother and baby to continue with breast feeding during this entire period.

Weaning should be gradual and is best achieved by replacing one feeding, such as the early evening feeding for several days to a week. When this is comfortable for both mother and baby then another bottle can be substituted for another feeding at the opposite time of the day. Some mothers find that a morning and night breast feeding can be maintained for some time. This type of feeding schedule is particularly suited to the working mother. For complete weaning, continue omitting another feeding for a few days and then another. When down to one breast feeding a day, let the infant nurse

enough to keep you comfortable and soon both of you have completed the weaning.

If the baby experiences any problems such as spitting up, skin rash, or intestinal upsets, consult your physician. A change in formula or continuation of breast feeding might be necessary. When an infant is tired or not feeling well, he may find pleasure and relief in an occasional breast feeding. The breasts may contain small amounts of milk for some months. Mothers will find that they need less food when breast feeding is completed or they may experience some weight gain. Abrupt weaning should be avoided, if at all possible, because of the discomfort to the mother. In an emergency weaning, such as with an illness or separation, mother can express or pump to minimize engorgement. This mother may also experience a great deal of depression and disappointment at the sudden and premature loss of her nursing experience. Gradual weaning is much more pleasant for mother and infant.





A MOTHER'S THOUGHT

*When I nurse my baby at my breast
There is no question—this way's best;
It's the natural way the Lord designed
With baby and mother both in mind.*

*It's the right amount, the proper degree;
It's as perfect for baby as it is for me!
For I have no bottles to scrub and boil,
No stirring or mixing or needless toil.*

*When baby is hungry, he's not only fed,
But feels closeness and warmth from his toes to his head.
So breast or bottle? You know what I'd say—
To me, breast feeding is the only way.*

— Mary Rickles

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- Handbook of Maternity Care, A Guide for Nursing Practice.* Jensen and Bobak. St. Louis: C.V. Mosby Company, 1980.
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"Basics of Breastfeeding"
- Maternal Child Nursing (MCN)*, November/December 1978, pp. 340-356.
"Breast-feeding: A Means of Imparting Immunity?"
"Is Breast-feeding Still Safe for Babies?"
"Common Concerns of Mothers Who Breast-Feed"
"Helping Nursing Mothers Maintain Lactation while Separated from Their Infants"
- Maternal Child Nursing (MCN)*, July/August 1980 (Vol. 5), pp. 262-264.
"Selecting the Right Breast Pump"
- Nutrition in Pregnancy and Lactation.* Worthington, Vermeersch, and Williams. St. Louis: C.V. Mosby Company, 1977.

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- Childbearing, Physiology, Experiences, Needs.* Jayne Declue Wiggins. St. Louis: C.V. Mosby Company, 1979.
- The Experience of Breastfeeding.* Sheila Kitzinger. Penguin Books, 1979.
- Nursing Your Baby.* Karen Pryor. Revised Edition. New York: Harper and Row, 1973.
- Please Breast Feed Your Baby.* Alice Gerard. New American Library, Inc., 1970.
- The Womanly Art of Breastfeeding.* Franklin Park, Illinois: La Leche League International.

ADDITIONAL RESOURCES/BROCHURES

American Academy of Pediatrics
P.O. Box 1034
Evanston, IL 60204

American National Red Cross
17th and D. Streets, N.W.
Washington, D.C. 20006

C-Birth, Inc.
P.O. Box 6512
Orange, CA 92667

Cesarean/Support, Education and Concern
(C/Sec.)
c/o Pat Erickson
23 Cedar Street
Cambridge, MA 02140

ICEA Bookcenter
Box 20048
8060 26th Ave. So.
Minneapolis, MN 55420

ICEA Supplies Center
P.O. Box 70258
Seattle, WA 98107

Keeping Abreast Journal (for reprints:
Box 6459 Cherry Creek Station
Denver, CO 80206

La Leche League International, Inc.
9616 Minneapolis Ave.
Franklin Park, IL 60131

Maternity Center Association, Inc.
48 East 92nd Street
New York, NY 10028

National Foundation - March of Dimes
1275 Mamaroneck Avenue
White Plains, NY 10028

SUPPLIES

Egnell, Inc.
412 Park Avenue
Cary, IL 60013

Lact-Aid
Box 6861, 3885 Forest Street
Denver, CO 80206
Phone: (303) 388-4600

Marshall Breast Pump
17375 El Cajon Avenue
Yorba Linda, CA 92686
Phone (714) 524-6614

COST: \$23.00 plus \$2.00 postage
California residents add \$1.38 sales tax

Medela, Inc.
457 Dartmoor Drive / P.O. Box 386
Crystal Lake, IL 60014
Phone (815) 455-6920 or (800) 435-8316

Mothercraft Birth Supplies
Box 62A
R. D. 1
Elverson, PA 19520
(for the Kaneson Expressing and Feeding Bottle)

"Netsy" Nursing Cups
34 Sunrise Avenue
Mill Valley, CA 94941
Phone (415) 388-3660

APPENDIX K

POST-TEST I

POST-TEST I

The following 10 questions are about breastfeeding. Read the question and select and circle the letter before the one best answer.

1. Benefits of breastfeeding over bottle feeding for the mother include all of the following except
 - A. prevents further pregnancy
 - B. good for the figure
 - C. convenience
 - D. economical
 - E. enjoyment

2. Toughening the nipples during the last 6 to 8 weeks of pregnancy can be accomplished by all of the following ways except
 - A. rub nipples briskly with a rough towel or washcloth following the shower
 - B. expose nipples to direct sun or sun lamp in increasing safe doses
 - C. daily applications of alcohol
 - D. nipple-rolling once or twice a day
 - E. allow nipples to rub against clothing by removing bra or cut small hole in bra over nipple area

3. The most important factor in producing breast milk is
 - A. drinking at least 1 quart of milk every day
 - B. getting extra sleep
 - C. infant sucking at the breast
 - D. restricting the number of visitors
 - E. receiving help from others with routine housework

4. Which of the following is not true about the expectant mother who wants to breastfeed her baby but finds that she has a tendency for inverted nipples?
 - A. should forget about wanting to breastfeed
 - B. the nipples may work themselves out without any special attention
 - C. should start nipple-rolling exercises
 - D. should start nipple-pulling exercises
 - E. try wearing special breast shields for inverted nipples

5. Breast changes occurring during pregnancy include all of the following except
 - A. growth of the milk duct system
 - B. development of milk sacs
 - C. development of mature milk
 - D. development of colostrum
 - E. increase in breast size

6. Which of the following statements does not characterize a correct infant sucking action?
- A. the baby's lips fall on the dark area (areola) around the nipple
 - B. the nipple rests between the upper tongue surface and roof of his mouth
 - C. rapid, short chewing motions occur at the beginning of the feeding
 - D. slow, rhythmical up and down jaw motions occur during active nursing
 - E. a satisfied sound accompanies infant nursing
7. If a breast feeding mother has difficulty in establishing milk let-down she could try any of the following actions except
- A. taking an occasional glass of beer or wine before the feeding
 - B. taking a tranquilizer just before the feeding
 - C. taking a hot shower shortly before the feeding
 - D. eating a healthful snack just before feeding
 - E. lying down a few minutes before the feeding and continue to nurse while lying down
8. Bowel movements of a breastfed baby are
- A. the same as the formula fed baby
 - B. usually more constipated than formula fed
 - C. usually looser and more frequent than formula fed
 - D. brown in color
 - E. foul smelling
9. Supplementing breastfeeding with artificial formula
- A. is a good idea the first few days following delivery or until mother's milk is well established
 - B. is a good way to involve the baby's father in infant care
 - C. should be encouraged during the first month
 - D. should be discouraged during the first month
 - E. has no effect on the baby or mother
10. During the first few weeks the baby will probably want to nurse
- A. every two hours
 - B. every two to three hours
 - C. every four hours
 - D. every four to five hours
 - E. every five to six hours.

APPENDIX L

SCRIPT FOR POST-PARTUM TELEPHONE CONTACT

SCRIPT FOR POST-PARTUM TELEPHONE CONTACT:

"Hello, Mrs./Miss _____. This is Rose Marie Atencio, the graduate student who is working on the Breastfeeding study. Did you have your baby?"

Response: yes___ no___

"When did you have your baby?"

Response: _____

"What did you have?"

Response: girl___ boy___

"Congratulations!"

"May I set up a visit with you?"

Response: yes___ no___

"Is it OK if I visit you in your home or would you like to meet somewhere else?"

Response: yes___ no___ other___

"How about _____ day?"
(one month + 3 days)

Response: yes___ no___

"What time would be convenient for you?"

"Thank you. See you on _____ at _____."

APPENDIX M

POST-PARTAL EVALUATION GUIDE FOR
BREASTFEEDING SUCCESS

POST-PARTAL EVALUATION GUIDE FOR BREASTFEEDING SUCCESS

Name _____ Date _____

Delivery Date _____ Sex _____ Weight _____

Type of Delivery: Vaginal _____ Cesarean _____

Length of Labor _____

Who was present at delivery _____

Describe your labor and delivery experience

Describe your feelings of your birthing experience

Rate your birthing experience from 1 to 10 (1=poor, 10=excellent)

1 2 3 4 5 6 7 8 9 10

Explain

While you were in the hospital recall:

1. How soon after delivery did you first breastfeed your baby?
2. Describe how often you breastfed your baby.
3. Describe how often you fed your baby a bottle.
4. Describe your breastfeeding experience.

Since you left the hospital, describe how you handled any of the following breastfeeding problems:

sore or tender nipples

engorgement

plugged duct

not enough milk

baby wouldn't suck

other problems

Are you still breastfeeding? Yes _____ No _____
If no, when did your stop?

Describe your reasons for stopping?

Describe how often you are breastfeeding your baby.

Describe your breastfeeding experience.

Describe your feelings about your breastfeeding experience.

Rate your breastfeeding experience from 1 to 10 (1=poor, 10=excellent)

1 2 3 4 5 6 7 8 9 10

Explain

How long do you plan to breastfeed?

Explain your reason.

APPENDIX N

POST-TEST II

POST-TEST II

The following 10 questions are about breastfeeding. Read the questions and select and circle the letter before the one best answer.

1. Advantages of human milk over formula for the infant include all of the following except
 - A. easier digested
 - B. less chance of gastro-intestinal infection
 - C. less chance of developing allergies
 - D. more rapid weight gain
 - E. contains right amount of needed nutrients
2. Which of the following statements will best help the mother establish an ample milk supply?
 - A. begin expressing milk from the breasts one week before the expected delivery date
 - B. begin breastfeeding immediately or soon as possible after delivery of the baby
 - C. nurse the baby every 1-2 hours
 - D. nurse the baby every 2-3 hours
 - E. nurse the baby whenever he/she cries
3. The best way to get the baby to begin sucking is
 - A. hold the baby's head and guide his face toward the nipple
 - B. touch the corner of baby's mouth with your nipple
 - C. open the baby's mouth by pressing in on both of his cheeks
 - D. press down on his chin to open his mouth
 - E. when the baby cries, quick pop in the nipple
4. The best way to remove the baby from the nipple and breast is to
 - A. grasp baby's head and gently push away from the breast
 - B. gently pull your breast away from the baby
 - C. tickle his feet
 - D. tickle his chin and cheek
 - E. insert your finger inside his mouth to break suction
5. The best time to burp the baby to remove any air that he may have swallowed is
 - A. midway through each breastfeeding session
 - B. after he finishes nursing from one breast
 - C. after every two minutes of sucking
 - D. after every five minutes of sucking
 - E. breastfed babies don't need burping

6. The nursing mother can avoid sore nipples by doing any of the following actions except
 - A. keeping nipples clean by daily bathing with soap and water
 - B. applying pure lanoline after each feeding
 - C. exposing nipples to sun light or sun lamp several times a day
 - D. using manual expression at the start of feeding to stimulate milk let-down
 - E. limiting initial sucking during each feeding to five minutes for each breast

7. The most important factor which determines the amount of milk that the mother produces is
 - A. the amount of milk that the baby demands
 - B. the amount of fluid the mother drinks
 - C. the amount of rest and sleep the mother gets
 - D. the amount of exercise the mother gets
 - E. how adequate the mother's diet is

8. The most important action a mother can do to prevent or control the development of breast engorgement is
 - A. wear a tight bra
 - B. restrict the amount of fluid that she drinks
 - C. have the baby nurse more frequently or manually express some of the milk
 - D. ask for medicine to control milk production
 - E. do nothing because it is only temporary

9. In subsequent breastfeeding the mother should
 - A. begin feeding with the same breast that she started with at the last feeding
 - B. begin feeding with the breast she ended with at the last feeding
 - C. it doesn't matter which breast you begin feeding with
 - D. begin feeding with the breast which baby likes best
 - E. begin feeding with the breast which is most convenient for the mother

10. You can be confident that baby gets enough milk if
 - A. you weigh him each morning and find a daily weight gain
 - B. he gains the same weight as your friend's baby who is bottle fed
 - C. he gains the same weight as your friend's baby who is breastfed
 - D. your baby cries for feedings, appears contented after feedings and has 4 to 5 wet diapers
 - E. the baby sleeps for long periods and rarely cries

APPENDIX O
EVALUATION FORM

EVALUATION FORM

DIRECTIONS: after viewing the slide-tape on "Breast Feeding", circle the number that indicates your response from Agree to Disagree. Make any additional comments at the end of this page or on the back of the paper.

	<u>Agree</u>				<u>Disagree</u>		
	1	2	3	4	5	6	7
1. The slide-tape clearly identifies the benefits of breastfeeding for mother and infant.	1	2	3	4	5	6	7
2. the physiological aspects of breast-feeding are vague and hard to understand.	1	2	3	4	5	6	7
3. A mother can easily understand how to prepare her breasts for breastfeeding.	1	2	3	4	5	6	7
4. A new mother will not know "how-to" breastfeed after watching this film.	1	2	3	4	5	6	7
5. A woman will have a clear understanding about how to care for common problems such as sore or tender nipples.	1	2	3	4	5	6	7
6. The slide-tape does not describe the advantage of breastfeeding adequately.	1	2	3	4	5	6	7
7. Breast preparation is difficult to understand in the film.	1	2	3	4	5	6	7
8. The physiological mechanisms of breast-feeding are clearly explained.	1	2	3	4	5	6	7
9. I believe a first-time breastfeeder will have a clear understanding on how to breastfeed after viewing this film.	1	2	3	4	5	6	7
10. A new mother will not know what to do about sore nipples or breast engorgement.	1	2	3	4	5	6	7

Comments:

APPENDIX P

INFORMATION ON BREASTFEEDING QUESTIONNAIRE

INFORMATION ON BREASTFEEDING QUESTIONNAIRE*

ID NUMBER _____

The following 26 questions are about breastfeeding. They include: (1) what some people think are advantages or disadvantages of breastfeeding, (2) activities that an expectant mother might do during pregnancy in order to prepare for breastfeeding and (3) actions which occur between the mother and infant related to breastfeeding

Read the question and select and circle the letter before the one best answer.

1. Advantages of human milk over formula for infant include all of the following except
 - A. easier digested
 - B. less chance of gastro-intestinal infection
 - C. less chance of developing allergies
 - D. more rapid weight gain
 - E. contains right amount of needed nutrients.

2. Benefits of breastfeeding over bottle feeding for the mother include all of the following except
 - A. prevents further pregnancy
 - B. good for the figure
 - C. convenience
 - D. economical
 - E. enjoyment

3. The best breast size for a mother to be successful in nursing her baby is
 - A. even size
 - B. small breasts
 - C. average size breasts
 - D. large breasts
 - E. no particular size

4. Which of the following is not true about the expectant mother who wants to breastfeed her baby but finds that she has a tendency for inverted nipples?
 - A. should forget about wanting to breastfeed
 - B. the nipples may work themselves out without any special attention
 - C. should start nipple-rolling exercises
 - D. should start nipple-pulling exercises
 - E. try wearing special breast shields for inverted nipples.

5. Breast changes occurring during pregnancy include all of the following except
- A. growth of the milk duct system
 - B. development of milk sacs
 - C. development of mature milk
 - D. development of colostrum
 - E. increase in breast size
6. Toughening the nipples during the 1st 6 to 8 weeks of pregnancy can be accomplished by all of the following ways except
- A. rub nipples briskly with a rough towel or washcloth following the shower
 - B. expose nipples to direct sun or sun lamp in increasing safe doses
 - C. daily applications of alcohol
 - D. nipple-rolling once or twice a day
 - E. allow nipples to rub against clothing by removing bra or cut small hole in bra over nipple area
7. The best way to get the baby to begin sucking is
- A. hold the baby's head and guide his face toward the nipple
 - B. touch the corner of baby's mouth with your nipple
 - C. open the baby's mouth by pressing in on both of his cheeks
 - D. press down on his chin to open his mouth
 - E. when the baby cries quick pop in the nipple
8. Which of the following statements does not characterize a correct infant sucking action?
- A. the baby's lips fall on the dark area (areola) around the nipple
 - B. the nipple rests between the upper tongue surface and roof of his mouth
 - C. rapid, short chewing motions occur at the beginning of the feeding
 - D. slow, rhythmical up and down jaw motions occur during active nursing
 - E. a satisfied sound accompanies infant nursing
9. The length of time the baby should be permitted to nurse at each breast during each feeding the first day is
- A. no more than 2 minutes
 - B. approximately 5 minutes
 - C. approximately 10 minutes
 - D. approximately 15 minutes
 - E. as long as baby wishes

10. The best way to remove the baby from the nipple and breast is to
- A. grasp baby's head and gently push away from the breast
 - B. gently pull your breast away from the baby
 - C. tickle his feet
 - D. tickle his chin and cheek
 - E. insert your finger inside his mouth to break suction
11. The best time to burp the baby to remove any air that he may have swallowed is
- A. midway through each breastfeeding session
 - B. after he finishes nursing from one breast
 - C. after every two minutes of sucking
 - D. after every five minutes of sucking
 - E. breastfed babies don't need burping
12. Which of the following actions should the mother avoid in dealing with a sleepy baby who isn't interested in nursing?
- A. let him sleep as long as he wishes
 - B. loosen his blankets and clothes
 - C. change his diaper
 - D. rub his tummy and pat his feet
 - E. talk and play with him
13. The most important factor in producing breast milk is
- A. drinking at least 1 quart of milk every day
 - B. getting extra sleep
 - C. infant sucking at the breast
 - D. restricting the number of visitors
 - E. receiving help from others with routine housework
14. The nursing mother can avoid sore nipples by doing any of the following actions except
- A. keeping nipples clean by daily bathing with soap and water
 - B. applying pure lanolin after each feedings
 - C. exposing nipples to sun light or sun lamp several times a day
 - D. using manual expression at the start of feeding to stimulate milk let-down
 - E. limiting initial sucking during each feeding to five minutes for each breast

15. If a breastfeeding mother has difficulty in establishing milk letdown she could try any of the following actions except
- A. taking an occasional glass of beer or wine before the feeding
 - B. taking a tranquilizer just before the feeding
 - C. taking a hot shower shortly before the feeding
 - D. eating a healthful snack just before a feeding
 - E. lying down a few minutes before the feeding and continue to nurse while lying down
16. Which of the following statements will best help the mother establish an ample milk supply?
- A. begin expressing milk from the breasts one week before the expected delivery date
 - B. begin breastfeeding immediately or soon as possible after delivery of the baby
 - C. nurse the baby ever 1-2 hours
 - D. nurse the baby every 2-3 hours
 - E. nurse the baby whenever he/she cries
17. The most important action a mother can do to prevent or control the development of breast engorgement is
- A. wear a tight bra
 - B. restrict the amount of fluid that she drinks
 - C. have the baby nurse more frequently or manually express some of the milk
 - D. ask for medicine to control milk production
 - E. do nothing because it is only temporary
18. The most important factor in promoting milk let down so the baby can obtain milk that is present within the breast is
- A. eating nutritious meals
 - B. drinking a glass of milk before or during the nursing period
 - C. nurse the baby frequently
 - D. continuous sucking of the baby
 - E. remaining calm, relaxed with a positive attitude
19. In subsequent breastfeedings the mother should
- A. begin feeding with the same breast that she started with at the last feeding
 - B. begin feeding with the breast she ended with at the last feeding
 - C. it doesn't matter which breast you begin feeding with
 - D. begin feeding with the breast which baby likes best
 - E. begin feeding with the breast which is most convenient for the mother

20. The most important factor which determines the amount of milk that the mother produces is
- A. the amount of milk that the baby demands
 - B. the amount of fluid the mother drinks
 - C. the amount of rest and sleep the mother gets
 - D. the amount of exercise the mother gets
 - E. how adequate the mother's diet is
21. Bowel movements of a breastfed baby are
- A. the same as the formula fed baby
 - B. usually more constipated than formula fed
 - C. usually looser and more frequent than formula fed
 - D. brown in color
 - E. foul smelling
22. Supplementing breastfeeding with artificial formula
- A. is a good idea the first few days following delivery or until mother's milk is well established
 - B. is a good way to involved the baby's father in infant care
 - C. should be encouraged during the first month
 - D. should be discouraged during the first month
 - E. has no effect on the baby or mother
23. During the first few weeks the baby will probably want to nurse
- A. every two hours
 - B. every two to three hours
 - C. every four hours
 - D. every four to five hours
 - E. every five to six hours
24. You can be confident that baby gets enough milk if
- A. You weigh him each morning and find a daily weight gain
 - B. he gains the same weight as your friend's baby who is bottle fed
 - C. he gains the same weight as your friend's baby who is breastfed
 - D. your baby cries for feedings, appears contented after feedings and has several wet diapers
 - E. the baby sleeps for long periods and rarely cries

25. Which of the following food groups should not be increased in order to meet the additional 1000 calorie intake needed by the nursing mother?
- A. milk and/or milk productts
 - B. meat, fish or poultry
 - C. fruits
 - D. vegetables
 - E. whole grain or enriched cereals, breads, macaroni
26. The relationship between sexual feelings and breastfeeding is that
- A. all mothers become sexually aroused
 - B. no mother becomes sexually aroused
 - C. some mothers may become sexually aroused
 - D. a mother doesn't become sexually aroused if she engages in sexual intercourse
 - E. nursing a baby is not related to sex

APPENDIX Q

APPROVAL LETTER FROM HUMAN
SUBJECTS COMMITTEE

THE UNIVERSITY OF ARIZONA COLLEGE OF NURSING

MEMORANDUM

TO: Rose Marie Atencio, R.N., B.S.N.
RT. 1, Box 119-a
Coolidge, Arizona 85228

FROM: Ada Sue Hinshaw, R.N., Ph.D. ASK/
Director of Research

Jan R. Atwood, R.N., Ph.D.
Chairman, Research Committee

DATE: May 13, 1983

RE: Human Subjects Review: The Effects of a Structured Breastfeeding Teaching
Plan on the Outcome of Breastfeeding Success

Your project has been reviewed and approved as exempt from University review by the College of Nursing Ethical Review Sub-committee of the Research Committee, and the Director of Research. A consent form with subject signature is not required for projects exempt from full University review. Please use only a disclaimer format for subjects to read before giving their oral consent to the research. The Human Subjects Project Approval Form is filed in the office of the Director of Research, if you need access to it.

We wish you a valuable and stimulating experience with your research.

ASH:des
4/83

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