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Promoting Breastfeeding:

A Guide for Health Professionals Working in the WIC and CSF Programs

Contents

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Introduction

The purpose of this guide is to provide a variety of ideas and successful approaches to help health providers be more effective in their efforts to promote breastfeeding among low-income women. It is based on the premise that breastfeeding is the best method for feeding infants in the early months of life. There is currently an abundance of information and materials that describe the advantages and techniques of breastfeeding. However, there is a lack of information on how best to promote it. This guide attempts to partially fill this gap by providing examples of approaches and techniques that other health professionals have found successful in their work with pregnant and breastfeeding women.

This guide is designed for all health providers who work in perinatal health care systems. It is designed especially for use with low-income women, since research has shown that they are more likely to lack motivation to nurse their infants or to be overcome by difficulties they encounter in the first few weeks following delivery. The reasons for these difficulties may include lack of knowledge and social support, poor previous experiences, and confusion or misinformation due to language or cultural differences(1).

Other reasons may include the late initiation of prenatal care and lack of support by health providers for breastfeeding. Consequently, the level of breastfeeding within this group as a whole has continued to trail that of the higher income groups.

The first section of the guide provides background information on various aspects of breastfeeding, with specific reference to the needs of low-income women. The second section offers a variety of approaches to breastfeeding education, with reference to the specific educational needs at each of four distinct phases of the prenatal and postpartum periods. It also offers suggestions on working with and conducting in-service education for health personnel, both in health clinics and in hospitals; developing and using support systems; and evaluating breastfeeding promotion efforts. The third section includes sample lesson plans that may be used flexibly by either health professionals or paraprofessionals in individual or group sessions. The final section of the guide offers a variety of references and resources for health professionals to use in their promotion efforts.

I. Background Information

Benefits of Breastfeeding

The health and psychological benefits of breastfeeding for both mother and infant are widely recognized and have been extensively documented in the scientific and popular literature (2, 3). These benefits include:

- ideal nutritional composition of breast milk
- immunological properties: prevention of a variety of digestive and other diseases and allergic reactions
- psychological benefits in terms of enhanced mother-child bonding and potential for subsequent improved parenting
- ease and convenience of breastfeeding versus preparation of bottles and formula
- better control of caloric intake by the infant (possible)
- more rapid uterine involution
- monetary benefits from lower food costs for the infant (possible)
- use of stored fat as an energy source during lactation, leading to more rapid postpartum weight loss

Nutritional Benefits

The nutrient content of breast milk is uniquely suited for the infant (2, 3). Infant formulas that are currently available provide many of the nutritional and physiological characteristics of breast milk. The following represents the major characteristics of breast milk:

- Human milk has a high lactalbumin and low casein content, producing a low curd tension in the infant's stomach. This allows the milk to be digested easily.
- The total protein content of breast milk is low. Thus, little nitrogen has to be removed by the newborn's immature liver and kidneys.
- The concentration and types of protein in human milk are ideal for infant growth and are not likely to cause allergic reactions.
- Human milk is high in cholesterol, which is needed for myelinization of nervous tissue and synthesis of steroid hormones and bile acids. Exposure to high levels of cholesterol may be important during infancy to develop controls for internal synthesis and degradation of this sterol.
- Human milk lipids are easily digested, due to the high oleic acid content and the position of the palmitate residue on the glycerol molecule.
- Human milk has a low iron content, but the iron is absorbed to a large extent. This may be due to the low content of protein and phosphorus and the high levels of lactose and vitamin C in human milk.

Immunological Benefits

Breast milk contains a variety of components that may protect the infant from certain diseases (2, 3). These components include immunoglobulins, lactoferrin, bifidus factor, bacterial lysozymes, lymphocytes, motile macrophages, complement (C3 and C4), and a thermostable antistaphylococcal factor. The immunoglobulins IgA, IgG, IgD, IgM, and IgE are present in human milk. IgA may protect the infant from allergic reactions by preventing microorganisms or other harmful substances from passing through the gut wall into the infant's system. Lactoferrin binds the iron in the breast milk, thereby making it unavailable for growth of such microorganisms as Staphylococci, Escherichia coli, and yeast. The bifidus factor in human milk promotes an intestinal flora of bifidobacteria. This flora protects against the growth of Shigella, Escherichia coli, and yeast.

Although much remains to be learned about the role of the secretory immunoglobulin system in the early months of life, the evidence suggests that human milk may help in preventing the following diseases:

- gastroenteritis
- respiratory infections
- meningitis
- Gram-negative sepsis
- chronic otitis media
- necrotizing enterocolitis
- allergic reactions (e.g., cow's milk allergy, eczema, rhinitis, and asthma)

Psychological Benefits

Breastfeeding provides potential psychological benefits for the mother and infant (2, 3). It is natural and pleasurable. It aids the infant in developing a sense of trust. Breastfeeding provides the infant with maximum sensory stimulation from the touch and smell of the mother's body, taste of her milk, and the sound of her rhythmic heartbeat. Breastfeeding also offers an excellent opportunity for the mother to develop a stable, affectionate relationship with her child. This is fostered by physical interaction and caressing.

Other Benefits

Since breastfeeding requires no buying, mixing, or preparation, it may be more convenient than formula feeding. It is not subject to incorrect mixing. It is clean and is not easily contaminated. Therefore, breastfeeding may be safer than bottlefeeding when environmental conditions are poor.

There is some evidence that breastfed babies tend to consume fewer calories than babies who are bottlefed (2, 3). Bottlefed infants may consume more milk than they desire or need if the mother encourages her infant to drain the last drop from the bottle. In contrast, the breastfeeding mother does not know the volume of milk her infant is consuming. Rather, increases in fat and protein content of the milk as the feeding period progresses may serve as appetite cues for the infant to stop suckling.

Uterine involution is more rapid in breastfeeding mothers due to the repeated release of oxytocin throughout suckling (13). Many mothers can feel these contractions, particularly in the first few days following delivery.

The cost of breastfeeding depends on the mother's diet (13). If the family food budget is "thrifty," the mother's increased diet may cost less than the price of infant formula. However, on a "liberal" family food budget, her diet may cost more than formula.

Breastfeeding requires an additional 600 to 800 kilocalories/day in energy cost over the needs of the nonbreastfeeding postpartum woman. Approximately one-third of the additional kilocalories needed daily for the production of breast milk come from the extra weight put on during pregnancy. The breastfeeding mother must then choose the additional kilocalories from a variety of foods. If the breastfeeding mother consumes the recommended dietary allowance for kilocalories, she should be able to gradually lose weight over a period of several months (13).

Support for Breastfeeding

Due to the extensive research and documentation of the benefits of breastfeeding in recent years, support and reaffirmation of its importance have come from many national and international organizations. Those that have always supported it include the World Health Organization, the International Pediatrics Association, the American Medical Association, the American Academy of Pediatrics, the American College of Obstetricians and Gynecologists, the American Dietetic Association, and the American Public Health Association. Recent policy statements made by the U.S. Surgeon General and the U.S. Department of Agriculture have also reaffirmed the importance of breastfeeding.

Trends in Breastfeeding Among Low-Income Groups

Two major trends have occurred in breastfeeding patterns in the United States and other industrialized countries in the last 50 years. The first was a dramatic decline in breastfeeding during the 1930's and 1940's, lasting through the 1960's. In 1948, 65 percent of mothers were breastfeeding their infants at discharge from the hospital (including breast only or breast and bottle) (4). In 1956, this proportion had declined to 37 percent (5) and, in 1966, it had declined again to 27 percent (6).

In the past decade, though, a second trend toward increased breastfeeding appears to have occurred. In 1980, the proportion of infants breastfed (including breast only or breast and bottle) in the United States was 57.6 percent at birth, 42.2 percent at 2 months, 35.2

percent at 3 to 4 months, and 26.8 percent at 6 months (7).

While findings show a marked increase in breastfeeding for the U.S. population as a whole, data on breastfeeding among low-income women present a slightly different picture. A national marketing research study of breastfeeding among WIC participants found that in 1980 the proportion of infants who were breastfed was 40 percent at birth, 28.5 percent at 2 months, 20 percent at 3 to 4 months, and 14 percent at 5 to 6 months (8). While this is a larger percentage than in previous years, it is clear that low-income mothers still lag considerably behind upper-income mothers both in initiation and duration of breastfeeding.

Racial and Ethnic Trends

Trends in breastfeeding among various racial and ethnic groups are also revealing. The 1973 National Survey of Family Growth illustrates that before 1950, black women were more likely to breastfeed than were white women (73 percent for blacks compared to 56 percent for whites) (9). Between 1956 and 1960, the rates for blacks and whites were similar (42 percent). From 1971 to 1973, though, blacks were one-third as likely to breastfeed as whites (11 percent compared to 30 percent). This ratio improved slightly from 1973 to 1975, when 15 percent of black women breastfed their infants compared to 33 percent of white women (10).

On the other hand, the trends in breastfeeding for women of Hispanic origin nationwide have shown a steady decline for all years since 1950. Before 1950, 73 percent of Hispanic women breastfed their infants. From 1971 to 1973, this number had declined to 19 percent (9). Data for Hispanics of Mexican origin living on the U.S.—Mexico border showed a similar steady decline from 1971 through 1979 (11).

Although very little data exist for trends in breastfeeding among American Indian mothers, it appears that breastfeeding also declined for this group. There is evidence, though, that this trend is now reversing. Data collected by the Indian Health Service indicate that the overall incidence of breastfeeding at hospital discharge was 75 percent in 1982. However, a sharp decline to 20 to 25 percent occurred in the 6-week to 6-month postpartum period during the same year (12).

Other Trends

Other trends in breastfeeding patterns have been observed based on a number of other variables: religion, farm background, geographic region, education, occupation, poverty level, and employment between first and second births (9). Of all the variables, education and occupation appear to most significantly influence the practice of breastfeeding. Among women with college degrees and in white-collar occupations in the early 1970's, about one-half breastfed their first baby and almost one-fifth continued for 3 months or more. On the other hand, among women with 8 years or less of elementary school, only 18 percent breastfed their first baby and only 2 percent breastfed for 3 months or more (9).

Among major religious groups, Protestants are somewhat more likely to breastfeed than Catholic women, and Jewish women are least likely (9). Women with farm background are less likely than other women to breastfeed their children. Over 50 percent of women living in the western region of the country breastfed their first baby in the early 1970's, which is at least twice the proportions in other regions of the country.

Before 1960, poor and near-poor women were more likely than other women to breastfeed babies. But this is no longer true (9). During the early 1970's women who were employed between the birth of their first and second babies were more likely to breastfeed than women not employed. However, women who did not work were generally more likely than working women to breastfeed their babies for more than 3 months.

Factors Influencing the Decision to Breastfeed

A mother's decision to breastfeed is based on a large variety of factors in her life. These factors relate to her knowledge, attitudes, and experience in breastfeeding; the presence or absence of support from family, friends, or health providers; and her current lifestyle and needs. However, there is evidence that many women have already decided on the method of infant feeding before they become pregnant, and nearly all have made their decision by the last trimester of pregnancy. This clearly points to the importance of information given before and during the prenatal period rather than during the early postpartum period (15).

Reasons for Breastfeeding

Mothers who choose to begin breastfeeding do so for several reasons, e.g., the health benefits for the baby, the possible closeness felt between mother and child, and the belief that breastfeeding is "the natural thing" to do. Other reasons given are that it is easy to do and that it is supported by family members. Studies also show that women who decide to breastfeed display significantly more knowledge about breastfeeding and its benefits, and that they also receive more family support to breastfeed than women who decide to bottlefeed their infants (1, 15).

Reasons for Bottlefeeding

There are many reasons given by mothers who choose to bottlefeed their babies (16). Some of the more common reasons given are that bottlefeeding is more convenient and better for them, that formula is as nutritious as breast milk, and that bottlefeeding will not interfere with the taking of birth control pills or going to work. Other reasons given are that breastfeeding does not appeal to the mother, that it is annoying to her and makes her breasts big, or that it ties her down. Some of these mothers also feel that they are too nervous to breastfeed, or that breastfed babies will not sleep through the night.

Some studies also cite shame and embarrassment about exposing the breasts during breastfeeding as major reasons why women choose to bottlefeed (17, 18). This shame is the result of relating the breast to concepts of sexuality. The mother may also experience shame and anxiety from her neurohormonal and sexual responses to the infant's suckling.

Recent studies show that more women might breastfeed if they received adequate information about breastfeeding and its benefits. There is also a need to address women's fears and feelings of embarrassment about it and to encourage support from family and medical providers (1, 15).

Reasons for Early Weaning

Mothers who do decide to breastfeed but terminate before 6-months postpartum give many reasons for their decisions. One study cited such major reasons as the baby had to stay in the hospital, the baby did not take to the mother's breast, or the mother developed breast problems (1). Another study found that the most common reason for terminating breastfeeding was that the "milk dried up" (19). Anxiety of all kinds, lack of motivation, stress, tiredness, and work outside the home were more precise reasons commonly mentioned.

However, in a followup study using a prospective approach researchers were able to more easily identify the true or immediate reasons for curtailing breastfeeding. When they interviewed mothers at the exact time of the lactation crisis, researchers discovered that emotional strains and problems connected with the child (such as vomiting, refusing to suck, or crying) were frequently the causative factors for early weaning. Whatever the cause, though, simple advice and general support could prevent weaning (20).

Nutritional Requirements of Breastfeeding Women

The Committee on Recommended Dietary Allowances of the Food and Nutrition Board, National Academy of Sciences, considers the optimal diet for the breastfeeding woman to be one that supplies somewhat more of each nutrient than that recommended for the nonpregnant, postpartum woman (14) (see table 1). The most significant increases are those recommended for protein and calories.

Caloric Requirement

Approximately 900 kilocalories of energy are required to produce 1 liter of milk (13, 14). During pregnancy most women store from 2 to 4 kilograms (4.5 to 9 pounds) of body fat that the body can use to supply a portion of the additional energy needed for breastfeeding. Research shows that the stored fat will provide 200 to 300 kilocalories each day during the first 3 months of lactation. This is about one-third of the energy required to produce sufficient milk. The caloric recommendations for nonpregnant women, plus an additional 500 kilocalories in the daily diet during the first 3 months, will meet the remainder of the energy needs for lactation. This level of caloric intake will allow successful breastfeeding, as well as a gradual reduction of maternal fat stores. However, women should increase their caloric intake above this level if:

- breastfeeding continues beyond the initial 3 months;
- maternal weight falls below the ideal weight for height;
- prenatal weight gain was below normal; or
- breastfeeding more than one infant.

Requirement for Other Nutrients

Along with the recommended increase in calories, the Committee on Recommended Dietary Allowances advises lactating women to increase their daily protein intake by 20 grams. Increases are also recommended for vitamins A, D, E, C, B-6, and B-12; thiamin, riboflavin, niacin, folacin; calcium, phosphorus, magnesium, zinc, and iodine (14).

Although breastfeeding increases a woman's requirement for nearly all nutrients, a well-balanced diet can meet most of these increased needs. A daily food guide for lactation (see table 2) is included in this chapter. This guide indicates the foods and the quantities that breastfeeding women should eat on a daily basis to supply the needed nutrients. Sufficient fluid intake (2 to 3 quarts daily) is also important.

Use of Supplements

A breastfeeding woman may need nutritional supplements when her diet is low in one or more key nutrients, such as calcium. Iron supplementation during the first 2 to 3 months of lactation is advisable to replenish depleted iron stores after pregnancy. There is no increased need for iron during lactation. However, supplements cannot provide all the nutrients that may be missing in the diet. This is particularly true of the trace minerals. Therefore, health professionals should make every effort to encourage lactating mothers to eat an adequate diet.

Postpartum Weight Loss

Many women are concerned with rapidly losing the extra weight they gained during pregnancy. However, if a breastfeeding mother severely restricts her caloric intake, she may produce less milk and tire quickly (13). This is particularly true in the early weeks of breastfeeding, before the milk supply has been firmly established. For these reasons, health professionals should encourage mothers to lose weight gradually and to eat the recommended foods, especially during the first few weeks of breastfeeding.

Table 1. Recommended daily dietary allowances for lactation*

	Age (yr)			
	11–14	15–18	19–22	23–50
Body size				
Weight (kg)	46	55	55	55
(lb)	101	120	120	120
Height (cm)	157	163	163	163
(in)	62	64	64	64
Nutrients				
Energy (kcal)	2700	2600	2600	2500
Protein (g)	66	66	64	64
Vitamin A (RE)	1200	1200	1200	1200
(IU)	6000	6000	6000	6000
Vitamin D (IU)	600	600	500	400
Vitamin E activity (mg a-TE)	11	11	11	11
Ascorbic Acid (mg)	90	100	100	100
Folacin (mcg)	500	500	500	500
Niacin (mg)	20	19	19	18
Riboflavin (mg)	1.8	1.8	1.8	1.7
Thiamin (mg)	1.6	1.6	1.6	1.5
Vitamin B-6 (mg)	2.3	2.5	2.5	2.5
Vitamin B-12 (mcg)	4.0	4.0	4.0	4.0
Calcium (mg)	1600	1600	1200	1200
Phosphorus (mg)	1600	1600	1200	1200
Iodine (mcg)	200	200	200	200
Iron (mg)	18	18	18	18
Magnesium (mg)	450	450	450	450
Zinc (mg)	25	25	25	25

*Modified from Food and Nutrition Board, National Research Council, National Academy of Sciences: Recommended Dietary Allowances, ed. 9, Washington, D.C., 1980, Government Printing Office.

RE—Retinol equivalent; IU—international unit
a - TE—alpha - tocopherol equivalents

Table 2. Daily food guide for breastfeeding women

Food Group	Number of Servings
Milk, yogurt, and cheese	3 (4 if teenager)
Whole-grain and enriched breads and cereals	8 or more
Fruits	2 to 4
Vegetables	3 to 5
Dark green leafy/deep yellow	1 or more
Starchy, including dried beans and peas	1 or more
Other	1 or more
Lean meat, fish, poultry, and eggs	6 to 7 oz
Fat and sugar	Use in moderate amounts

Select whole-grain breads and cereals for at least one-half of the servings of breads and cereals. Choose dark-green leafy vegetables several times a week. Include dried beans and peas several times a week as a starchy vegetable. Also use dried beans and peas or nuts as alternates for meat, fish, poultry, and eggs. Be sure to drink lots of fluids as well i.e., from 2 to 3 quarts a day.

Table 3. Food sources of nutrients

Milk, yogurt, and cheese are good sources of protein, calcium, riboflavin, vitamin B-12, magnesium, vitamin A, thiamin, and, if fortified, vitamin D.

Whole grains contribute folacin, vitamin E, magnesium, zinc, and dietary fiber. Enriched grain products contribute thiamin, niacin, and iron.

Dark-green leafy vegetables, such as broccoli, spinach, or other greens, are excellent sources of vitamins A and C, riboflavin, folacin, iron, and magnesium. **Deep-yellow vegetables**, such as carrots, winter squash, and sweet potatoes, are excellent sources of vitamin A.

Starchy vegetables, such as corn, green peas, lima beans, potatoes, and dried beans and peas, contribute vitamins B-6 and folacin, iron, magnesium, potassium, phosphorus, starch, and fiber. **Dried beans and peas** are also important sources of zinc.

Other vegetables contribute different amounts of the vitamins and minerals found in dark-green, deep-yellow, or starchy vegetables. Some, like brussels sprouts, cabbage, tomatoes, and green peppers, are good sources of vitamin C.

Fruits contain varying amounts of nutrients. Whole raw fruits, particularly those with edible skins or seeds, are good sources of dietary fiber. Citrus, melon, and berries are excellent sources of vitamin C. Deep-yellow fruits, such as peaches, are important sources of vitamin A.

Meat, fish, poultry, and eggs are good sources of protein, phosphorus, niacin, iron, zinc, and vitamins B-6 and B-12. Meat, fish, and poultry are sources of the most absorbable form of iron.

Because individual food items within food groups vary in nutrient content, it is important to vary choices within the food groups and to eat the suggested number of servings from each food group every day.

Table 4. Examples of foods and serving sizes in each food group

MILK, YOGURT, AND CHEESE

A serving from this group is equal to 1 cup of milk.

Low-Fat Milk Products

Some low-fat milk products should be included daily.

Examples:

- Buttermilk
- Low-fat milk (1% and 2%)
- Low-fat yogurt, plain
- Skim milk

Other Milk Products

These products contribute the same nutrients but contain more fat and/or added sugar than low-fat milk products. Thus they have more calories.

Examples:

- American cheese
- Cheddar cheese
- Chocolate milk
- Flavored yogurt
- Fruit yogurt
- Processed cheeses
- Swiss cheese
- Whole milk
- Other cheeses

Cottage cheese has considerably less calcium than other cheeses. One-half cup of cottage cheese contains only as much calcium as found in ¼ cup of milk, while providing considerably more calories and sodium.

GRAINS, BREADS, AND CEREALS

A serving from the grains, breads, and cereals group is a slice of bread; 2 large or 4 small crackers; ½ cup of cooked cereal, rice, or pasta; 1 ounce of ready-to-eat cereal; or a small roll, muffin, or biscuit. Medium-size rolls and muffins are equal to about 1-½ servings. Whole English muffins, bagels, hamburger buns, and large rolls equal about 2 servings.

Whole Grain Products

Examples:

- Brown rice
- Buckwheat groats
- Bulgur
- Graham crackers
- Granola
- Oatmeal
- Pumpernickel bread
- Rye crackers
- Whole wheat bread and rolls
- Whole wheat crackers
- Whole wheat pasta
- Other whole-grain products

Enriched Grain Products

Examples:

- Bagels
- Barley
- Biscuits
- Crackers
- English muffins
- Farina
- French bread
- Grits
- Hamburger buns
- Italian bread
- Macaroni
- Corn bread
- Corn muffins
- Cornmeal
- Muffins
- Noodles
- Pancakes
- Pasta
- Ready-to-eat cereal (see the label, some are fortified)
- Rice
- Other enriched-grain products

FRUITS

Count as a serving an average-size piece of whole fruit, a melon wedge, 6 ounces of fruit juice, ½ cup of berries, ½ cup of sliced or cooked fruit, or ¼ cup of dried fruit.

Citrus, Melon, Berries

Examples:

- Blueberries
- Grapefruit
- Grapefruit juice
- Cantaloupe
- Honeydew melon
- Lemon
- Orange juice
- Raspberries
- Strawberries
- Tangerine
- Watermelon
- Other berries, melons, and citrus fruits and juices

Other Fruits:

Examples:

Apple	Peach
Apricot	Pear
Banana	Pineapple
Cherries	Plum
Fig	Prune
Grapes	Raisins
Nectarine	Other fruit and fruit juices

VEGETABLES

A serving is ½ cup (1 cup raw leafy) vegetables.
Dark green and deep yellow

Examples of dark green vegetables:

Beet greens	Escarole
Broccoli	Kale
Chard	Mustard greens
Chicory	Romaine lettuce
Collard greens	Spinach
Dandelion greens	Turnip greens
Endive	Watercress

Examples of deep yellow vegetables:

Carrots	Sweet potatoes
Pumpkin	Winter squash

Other Vegetables

Examples:

Artichokes	Green beans
Asparagus	Lettuce
Beans and alfalfa sprouts	Mushroom
	Okra
Beets	Onions (mature and green)
Brussels sprouts	Radishes
Cabbage	Summer squash
Cauliflower	Tomatoes
Celery	Tomato juice
Chinese cabbage	Turnips
Cucumbers	Vegetable juices
Eggplant	Zucchini

Starchy Vegetables, Including Dried Beans and Peas

Examples of starchy vegetables:

Corn	Potatoes (white)
Green peas	Rutabaga
Lima beans (baby)	Sweet potatoes

Examples of dried beans and peas:

Black beans	Lima beans (mature)
Black-eyed peas	Navy beans
Chick peas, or garbanzos	Pinto beans
	Split peas
Kidney beans	Other types of dried beans and peas
Lentils	

MEAT, FISH, POULTRY, AND EGGS

A serving of meat, fish, or poultry is 2-4 ounces of meat, fish, or poultry trimmed of visible fat. The fat content of poultry is lower if the skin is removed. An egg can be used as 1 ounce of meat.

Examples:

Beef	Organ meats, such as liver
Chicken	Pork
Eggs	Shellfish
Fish	Turkey
Ham	Veal
Lamb	

Luncheon meats, sausages, and frankfurters are much higher in fat than lean meat, fish, or poultry. Preparation techniques can also increase the calorie content of various meat, fish, and poultry items.

Dried beans and peas (listed above with starchy vegetables), as well as nuts and seeds, can be used as an alternate for meat, fish, poultry, and eggs. These foods contribute protein and many of the nutrients found in lean meats, fish, poultry, and eggs. However, there are some important differences. The alternates do not contain vitamin B-12. The nuts and seeds are significantly higher in fat than lean meat. Dried beans and peas contain carbohydrate, which is not found in foods in the meat group.

FATS AND SWEETS

Use in moderation.

Fats

Examples:

- Bacon
- Butter
- Cream (dairy and nondairy)
- Cream cheese
- Margarine (hard and soft)
- Mayonnaise
- Mayonnaise-type salad dressing
- Salad dressing
- Sour cream
- Vegetable oil

Sweets

Examples:

- Candy (some contain fat)
- Corn syrup
- Fruit drinks, ades
- Frosting
- Honey
- Gelatin desserts
- Jam
- Jelly
- Maple syrup
- Marmalade
- Ices
- Sherbet
- Soft drinks or colas
- Sugar syrup (such as in canned or frozen fruits)
- Sugar (white or brown)

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II. Implementing the Promotion Effort

Approaches to Breastfeeding Education

Breastfeeding education is essential to breastfeeding promotion. However, there are many different approaches, locations, and forms for this education. Ideally the content of breastfeeding education should be consistent among all health providers, and there should be varied opportunities for disseminating information.

Attitudes of health providers toward breastfeeding can strongly influence the outcome of educational efforts. Health providers who convey a neutral attitude toward breastfeeding and bottlefeeding leave the choice strictly to the mother, and are not likely to encourage breastfeeding. On the other hand, health providers who convey an enthusiastic attitude toward breastfeeding are likely to be far more effective in their promotion efforts. Health professionals who feel uncomfortable in talking about or teaching breastfeeding (perhaps because they have never breastfed a child or have not had sufficient training or contact with breastfeeding mothers) should increase their knowledge and experience. A health provider who really wants to learn should seek information from mothers who have successfully breastfed their infants, from local support and education groups, and from the many available printed resources. Inservice education can be an excellent way for health providers to increase their knowledge about breastfeeding.

Breastfeeding education can be divided into four distinct phases: prenatal, delivery/hospital, early postpartum, and followup. Educational needs during each of these phases are quite different and approaches should strongly reflect these differences.

Prenatal Education Strategies

The first step in promoting breastfeeding is motivating women to try it. Some women will require little encouragement to try breastfeeding. These women most likely will have already been positively influenced through information and support from family or friends, reading magazine articles or attending classes, previous breastfeeding experience or watching a breastfeeding family member or friend, or from exposure to health providers who support it. Other women who have not been so influenced need to be motivated. Motivation involves discussing breastfeeding, including the mother's thoughts and feelings and those of other people in her life.

Motivational Techniques

Health providers can use a waiting area to advantage in motivating women to try breastfeeding. Using attractive pictures or posters of breastfeeding mothers and infants is one way to create interest in the subject. Making available a variety of pamphlets and reading materials on the advantages and techniques of breastfeeding will also stimulate some women who previously had not considered it. Posting current articles on breastfeeding, schedules of upcoming classes, and information on breastfeeding support groups will also motivate women to try breastfeeding. If available, set up videotapes on nursing techniques and other breastfeeding topics for interested prenatal patients. Finally, health providers can use waiting areas for informal discussions with patients on a variety of breastfeeding concerns. Many women who would hesitate to respond or ask questions in a formal setting can be approached successfully in this less-structured manner.

Another way for health providers to start a discussion on infant feeding is administering a one-page questionnaire exploring the woman's plans, attitudes, and knowledge of breastfeeding (1). (See page 32.) After the mother-to-be completes the questionnaire, the health provider reviews it immediately and then uses the information to tailor education to the particular concerns of that individual.

Despite enthusiastic promotion by the health provider, some women will have already definitely decided that they want to bottlefeed their infant and do not wish to consider breastfeeding (2). In these cases, health providers should see that her decision is supported, and that she is not made to feel guilty about it.

Many women will be uncertain about or cautiously interested in breastfeeding. For these women, the most appropriate approach may be to have an unhurried discussion of the woman's knowledge and concerns about breastfeeding (3). The health provider can explain the function of the breast as a nutritive organ, and attempt to resolve any misconceptions or perceived barriers to breastfeeding. Ideally, health providers should involve the father in these discussions, as his attitudes and knowledge can be a strong determinant in the outcome.

Preparing for Breastfeeding

Once a decision to breastfeed has been made, preparation and education can begin in more detail. The first step is for the medical provider to examine the nipples for signs of inversion or flatness that could inhibit a

proper grasp by the baby. Guidance and techniques for prenatal breast and nipple preparation have been developed by the Children's Nutrition Research Center at Baylor College of Medicine. They are as follows (4):

"Preparation of the breasts for breastfeeding may be started during the prenatal period, although it is not absolutely mandatory. Many mothers do not prepare their breasts and breastfeed successfully. On the other hand, mothers who have had trouble previously with sore, cracked nipples may avoid problems with prenatal preparation of the breasts. The reason for predisposition in some women to develop sore, cracked nipples is unclear. The most important aspect of prenatal preparation may be that the mother who develops skills and obtains information either may avoid the practical problems encountered during the first few weeks of lactation or may manage them successfully."

Preparing the Breasts

"The breast should be bathed in the usual manner with no soap or alcohol placed directly on the nipples. After bathing, rinse thoroughly. The use of soap removes part of the outer horny layer of protective cells and the alkaline solution causes the outer epidermal layer to swell and become edematous. This condition is followed by drying and flaking of the outer layer of cells. The normal acidic pH of the skin is altered and becomes more alkaline with an accompanying increase in bacterial flora. Soap also removes the secretions of the sebaceous glands and the sweat glands. These secretions, which increase during pregnancy and act as a natural lubricant, also have bactericidal properties. Newly secreted human milk and colostrum also have antibacterial properties, and by cleansing the nipple with soap and water before and after feedings, these properties are eliminated."

"Drying agents, such as tincture of benzoin, alcohol, and others should not be applied to the breast. These agents accelerate evaporation that results in maceration of the skin and causes nipple pain. The breastfeeding mother should be advised to wear a brassiere to protect the nipples from friction due to contact with loose clothing."

Preparing the Nipples

"The breastfeeding mother should be counseled to do some prenatal conditioning of the nipples during the last several weeks of pregnancy, particularly if she has flat or inverted nipples. Flat nipples require a consistent program of stretching. The stretching can be accomplished by supporting the breast gently with the fingers while grasping nipples with thumb and index finger. The nipple should be drawn out to a point of discomfort and then released. This exercise should be repeated five or six times, several times each day."

"Inverted nipples are unusual and can be diagnosed by pressing the areola between the thumb and the forefinger. A flat or normal nipple will protrude; a truly inverted nipple will retract. Inverted nipples can be treated with exercise as described for flat nipples, but will respond more effectively if a nipple cup is used. The constant pressure applied by the cup will cause the nipple to evert. The cup should be worn only for a few hours at a time because it traps moisture around the nipple and areola. The cup works well for women who find nipple manipulation particularly uncomfortable. Manipulation alone may not be sufficient to correct inverted nipples. The nipple cup achieves the correction more effectively. Inverted nipples, however, do not preclude breastfeeding."

"In addition, women with flat or inverted nipples should be advised to practice Hoffman's exercise several times a day for a few minutes at a time. These are done by placing a finger on either side of the areola, pushing inward to establish a hold and then stretching sideways."

Common Questions

All health professionals working with new mothers should be prepared to answer, and should encourage their patients to ask, questions of concern regarding breastfeeding. Some of the most common questions and their answers are (5, 6):

- Do I need to eat a lot more food while I am breastfeeding?

The nursing mother only needs about 500 kilocalories more per day during the first 3 months of lactation than the nonbreastfeeding woman. It is important that these calories come from foods that will give you the additional protein, vitamins, and minerals you need.

- Do I need to drink a lot of milk when I am nursing?

You will need to eat or drink three servings of milk or milk products each day when you are nursing. A woman who doesn't like milk can get the calcium her body needs to make milk from cheese, yogurt, or other foods made with milk.

- Should I be concerned about chemical pollutants such as DDT and PCBs in my breast milk?

In a statement on PCBs (polychlorinated biphenyls) in breast milk, the Committee on Environmental Hazards of the American Academy of Pediatrics said, "There are no known effects in children at levels found in people in the United States." However, the academy does urge all women who have worked with the chemical or have eaten large amounts of sport fish from PCB-contaminated waters (such as the St. Lawrence Waterway) to have PCB levels in their milk measured. If high levels are found, the academy recommends that women ask the advice of their state health department.

- Can I breastfeed if my baby is born by cesarean section?

Yes. The milk comes in just as quickly after a cesarean operation as after a vaginal delivery. The cesarean mother is apt to feel more tired and may not feel up to nursing soon after delivery, but she can and should breastfeed as soon as possible. She can also ask the nurse for help in positioning the baby for nursing so that its weight is not on the abdomen.

- Does it take longer for the breastfeeding mother to become slim after childbirth?

On the contrary, the uterus of the breastfeeding mother shrinks more quickly, returning to the size it was prior to pregnancy. During the early days of nursing women often experience "after pains," mild to severe menstrual-like cramps, while the baby nurses. These cramps are caused by contractions of the uterus. Also, women who breastfeed lose most of the extra weight they gained during pregnancy, due to their greater caloric needs while nursing.

- My family has a lot of allergies. Will breastfeeding help my baby to avoid some of these allergies?

Yes. Cow's milk protein is the most common food allergen in infancy. Breastfeeding during the first year can help to avoid exposure to cow's milk for those babies who may be sensitive to it. Breastfeeding may even prevent other allergies as well. There are some studies that show that breastfed babies develop fewer cases of eczema, rhinitis, and asthma.

- If I need to take medication while I am breastfeeding, will it affect my baby?

Virtually every food and drug the mother takes appears in the milk. While most medicines have no effect, a nursing mother should check with her pediatrician before she takes medicines. Ask the doctor to prescribe only those medicines that will not affect the milk. Also ask when and how to take medicine. For most medicines, it's better to take your daily dosage at night right after the last nursing and—if needed more often—during the day after nursing.

- Will breastfeeding make my breasts sag?

Changes in the breasts after childbirth are due to pregnancy, weight gain, heredity, and maturity—not lactation. The breasts of most women become less firm and less erect after childbirth, whether or not they breastfeed.

- I am small-breasted. Will I be able to produce enough milk for my baby?

Yes. The breasts are composed of a combination of glandular tissue, supporting connective tissue, and protective fatty tissue that determines their size. But it is the glandular tissue that produces the milk and this functions just as well in the small-breasted woman as in the more abundantly endowed one.

- My mother didn't have enough milk to nurse me. How do I know I will be able to nurse?

Given the proper encouragement, more than 90 out of 100 women can successfully breastfeed. If your mother wasn't able to nurse you, chances are that she failed to receive the necessary help from her doctors, nurses, family, and friends.

- Are fair-skinned women more likely to develop sore nipples than dark-skinned women?

Some people believe that this is true. However, to prevent this problem a pregnant woman can toughen her nipples by rubbing them briskly in the shower with a rough cloth, uncovering them daily to expose them to the air, and letting them rub against her clothing. After delivery, the nursing mother should continue to expose her nipples to the air and to very moderate amounts of sunlight, and she should avoid using drying agents such as soap on the nipples.

- How can I breastfeed if I go out in public?

Many mothers are able to nurse in public by doing it discreetly. If you are wearing a loose blouse that pulls up from the waist, the baby usually covers any exposed skin. Nursing while wearing a blouse that unbuttons or folds down from the top can be made less noticeable by draping a diaper or blanket over the shoulder.

- If I breastfeed, how can I be away from my baby for more than 3 hours at a time?

Once a mother's milk supply is well established—by 6 to 8 weeks after birth—she can leave an occasional or even daily bottle. The bottle can contain her own milk which was previously expressed and either frozen or refrigerated, or a prepared infant formula.

- To be sure my baby is getting enough nourishment from nursing, should I weigh the baby before and after every feeding?

No. Babies eat irregularly, and too frequent weighing will tend to upset you more than reassure you. A baby is probably getting enough to eat if he or she has bright eyes, an alert manner, and good skin tone; if there are six or more wet diapers a day with pale yellow urine and regular bowel movements (can be after every feeding or once every 2 to 4 days); and if there is a weight gain of 4-6 ounces a week in the first month and 6-8 ounces a week during the next 3 months.

- Can I smoke cigarettes and drink alcoholic beverages during the months I nurse my baby?

Both smoking cigarettes and drinking alcoholic beverages affect your milk. It's better to avoid or cut down on smoking and drinking as long as you nurse.

- I'm worried that the father will feel left out when I nurse or spend time with the baby. What can I do?

Let the father give the baby a bath; or set aside a play time that is just for father and baby. Emphasize how important the father's support is to you and the baby.

Many of these questions may be answered quickly and easily as they come up during an examination or during individual counseling. However, others could encompass more detailed answers and might best be addressed in a group session. An advantage of group sessions is that new mothers may interact with each other and also with formerly or currently breastfeeding mothers to share advice and experiences. Additional questions or problems and techniques for coping with them may also be brought up informally so that all group members may benefit.

Group Education

Extensive education and preparation for breastfeeding can take place in many different settings, and should include the father whenever possible. One popular setting is as part of a childbirth and parenthood preparation course, usually offered during the third trimester. Another setting is a series of classes during the routine prenatal clinic. While breastfeeding classes can fit into a busy prenatal clinic schedule, ideally there should be no time constraints. Relaxing the group members is important to the learning process; rushing through a session may teach techniques, but may not develop the self-confidence which is essential to success in breastfeeding. However, if prenatal clinic sessions are determined to be the most feasible, class topics can be shortened to include fewer concepts and activities per session. This will then allow for greater mastery of at least a few concepts and techniques.

There are many topics that can be taught and/or discussed in breastfeeding preparation groups. It is generally agreed, though, that the essentials include:

- A review of the physical structure and function of the breast, the let-down reflex, and the functions and appearance of colostrum.

- A demonstration of breastfeeding techniques through diagrams, slides or films, or by a breastfeeding mother if available. Techniques demonstrated should include the various positions and holds for the baby, triggering the rooting reflex, position of the baby's mouth on the breast and areola, breaking suction, and burping the baby before offering the second breast.

- A discussion of the use of both breasts at each feeding, length of feedings, feeding on demand, and appearance and number of infant stools.

- A discussion of common breastfeeding problems and how they may be prevented or resolved: sore or cracked nipples, engorged breasts, infected breasts, not enough milk, leaking of milk, plugged ducts, and problems with the let-down reflex.

- An overview of nutrition for the breastfeeding woman. This discussion should include the recommended servings from each food group; need for extra calories, protein, vitamins and minerals; use of supplements; and need for gradual postpartum weight loss, if appropriate.

- A discussion of support persons or groups who can provide advice or assistance if a problem develops.

If additional time is available for discussing other issues, these topics may include:

- the technique of hand milk expression, use of breast pumps, and procedures necessary to insure safety of expressed milk;

- the difference between true, fore, and hind milk (see page 33);

- the role of the father in infant care and feeding;

- what to expect at the hospital (feeding schedules, rooming-in, effects of anesthesia on the infant, etc.);

- increasing the milk supply to meet the infant's needs during growth spurts;

- coping with night feedings;

- returning to work: breastfeeding part-time, avoiding engorgement, using supplementary bottles;

- coping with special problems: twins, jaundice, congenital defects, cesarean birth, premature infant, and maternal drug therapy or postpartum surgery;

- traveling with the infant;

- handling well-meaning relatives and friends;

- preventing pregnancy while breastfeeding; and

- weaning the infant.

Refer to the "References and Resources for Health Professionals" chapter for sources of information on these topics.

Delivery/Hospital Education Strategies

If a woman is adequately prepared and educated to breastfeed prenatally, she is much more likely to be successful. However, her experiences immediately following delivery and in the hospital recovery period can also markedly influence her success in starting and maintaining lactation. This will be especially true if she received little or no preparation prenatally.

The importance of the hospital period in starting and maintaining successful lactation has been strongly recognized by the American Academy of Pediatrics and other professional associations (7). Studies have indicated that the routine in many hospitals makes breastfeeding difficult, and that changes may be needed in the obstetrical ward and neonatal unit practices to increase the opportunity for successful lactation. These changes may include:

1. Decreasing the amount of sedation and/or anesthesia given to the mother during labor and delivery, because large amounts can impair suckling in the infant.

2. Avoiding separation of the mother from her infant during the first 24 hours.

3. Breastfeeding infants on an "on demand" schedule rather than a rigid 3- to 4-hour schedule, and discouraging routine supplementary formula feedings.

4. Reappraising physical facilities to provide easy access of the mother to her infant. Rooming-in of mother and infant is important to successful lactation.

The basic elements of a successful breastfeeding program have been identified as the following (8):

1. A well-defined program that is an integral part of the comprehensive maternity program.

2. Acceptance of the program by all hospital personnel.

3. Knowledge of breastfeeding techniques and counseling by all hospital personnel.

"All personnel" includes all maternity nurses—nurse practitioners, nurse-midwives, and office nurses both at the hospital and in the doctors' offices—who give primary care prior to and following hospitalization. It

also includes the many physicians who care for mothers and infants after discharge—obstetricians, pediatricians, and general practitioners. Finally, it includes administrative nurses and physicians—the nursing supervisor, clinical nursing specialist, head nurse, chairman of the obstetrics and gynecology department, and director of the newborn service.

One of many successful breastfeeding promotion programs is that of the George Washington University Hospital in Washington, D.C. (8). A description of the various components of this program follows.

Intrapartum Program

In the George Washington University Hospital program, the nursing staff facilitate nursing the baby very soon after delivery (8). The mother who delivers vaginally may breastfeed either on the delivery room table or in the recovery room. The babies of some of the cesarean-section mothers may also remain in the delivery room for nursing. The father may remain at the mother's side and participate in the experience.

The nurse helps the mother with this early breastfeeding experience by providing knowledgeable support and a positive attitude. The nurse also helps the mother get into a comfortable position, and shows her how to use the rooting reflex and how to compress the areola so that the baby can get the nipple. If the baby does not get the nipple immediately, the nurse reassures the mother that many babies need several tries to learn how to do it properly. The nurse allows the mother and father some time alone with their baby, but checks with them often.

Nursing Rounds

The nursing staff use their rounds to further assess the care, support, and teaching needs of each breastfeeding mother (8). Rounds are made daily by the nurse clinician or an experienced staff nurse.

The first question the nurse asks the mother is what exposure she has had to breastfeeding, including her own previous experience. She is also asked what kind of experience it was, what problems she encountered, what classes or groups she has attended on breastfeeding, and what she has read about breastfeeding.

The nurse then examines the mother's breasts, and notes the nipple size, nipple structure, and protractility. The mother is shown how to examine herself and how to check for signs of nipple or breast damage. This includes changes in breast size, tenderness, firmness, color, and temperature. She is also shown how to check for possible cracks in the nipple and lumps in the breast.

Next, the nurse watches the mother breastfeed her baby, and notes the dynamics between them. Things to note are how the mother interacts with the baby, how interested the infant is in feeding, whether the mother can awaken or soothe her infant, how well the infant sucks at the breast, how self-confident the mother appears to be, and in what areas she may need help. On subsequent visits, the nurse gives further guidance and support, and communicates those observations to the mother and to the staff member giving primary care.

Management of Breastfeeding

Other aspects of postpartum breastfeeding management are also important to successful breastfeeding (8). One of these aspects is encouraging demand feeding. The nursing staff suggest that mothers offer the breast every 2–3 hours while they are awake. This insures frequent maternal breast stimulation and therefore earlier lactation. Frequent feeding also reduces damage to the mother's nipples, and provides more learning experiences for mother and baby.

Another aspect of breastfeeding management is flexible feeding. The nursing staff returns the infants to the central nursery at night, but asks each breastfeeding mother about her wishes for night feeding. The nurses encourage the mother to feed on the demand of the baby during the night. However, if she is ill and wishes to sleep through the night, the baby will be fed in the nursery.

Group Education

Group instruction by nursery personnel is another integral part of the breastfeeding program (8). A breastfeeding film on techniques is shown, followed by a discussion. Common topics usually discussed include infant sucking needs, engorgement, management of sore nipples and milk supply, and adequacy of breast milk for the first 4–6 months of life. Other areas of interest for the class include the management of siblings or other family members, and the common male and female attitudes about breastfeeding.

Diet and nutrition education should always be a component of breastfeeding education for postpartum mothers. It may be included as one of many topics, or may be taught separately by a hospital dietitian at a

time that allows for more indepth coverage of issues. The increased nutritional needs of the lactating woman should always be included, as well as information on gradual weight loss, supplements, and substances that can pass through breast milk to the baby.

Postdischarge Followup

One final area of need identified by the maternity staff is to have a postdischarge telephone counseling service (8). This would allow the new mother to consult the nurses with whom she has established a relationship when questions arise in the first few weeks at home. This type of service would also ease the transition from hospital guidance to the guidance of those in community support groups, physicians' offices, and clinics.

Early Postpartum Education Strategies

Many mothers begin breastfeeding in the hospital recovery period and appear to be doing well; however, 2-6 weeks later, some women are beginning to wean the baby or have stopped breastfeeding altogether. The reasons for early weaning are many and varied; but if the health professional can give reassurance and support, and detect and resolve problems during the first weeks of nursing, the chances for a successful breastfeeding experience are markedly increased.

Mothers may experience several problems in the early postpartum period. These include: breast engorgement, nipple problems, mastitis, abscesses, fatigue, and anxiety. Descriptions of these problems and methods of dealing with them have been developed by the Children's Nutrition Research Center at Baylor College of Medicine (4). They are as follows:

Breast Engorgement

"Engorgement is fullness of the breast caused by inadequate drainage of milk from the milk ducts. Engorgement often occurs in the hospital if the breasts have been primed during pregnancy for milk production. If the hospital routine does not allow the infant to nurse for several hours after birth and then maintains a four-hour schedule that does not permit the infant time to stimulate the breasts adequately, poor drainage results, milk production decreases or is never established fully and the mother is uncomfortable from full breasts."

"In dealing with engorgement, the mother should:

1. Nurse the infant more frequently.
2. Nurse the infant in different positions.
3. Massage the breasts beginning at the axilla and chest wall and work downward toward the nipple.
4. Apply clean, warm cloths to the engorged breast.
5. If breasts are large or feel painfully heavy, provide support for the breast by wearing a bra."

Nipple Problems

"Nipple pain in response to the baby's initial grasp is common during the early days of nursing. Pain or tenderness, however, should not persist. If the discomfort continues, the baby's nursing behavior must be observed to be certain that he has a correct grasp on the nipple. An incorrect grasp not only causes discomfort at the moment, but also may result in irritation and fissures. To prevent soreness, the nurse can help the baby get an adequate grasp on the nipple. She should rotate the position of the baby's mouth so that minimal stress is applied to the sore area. Remember that maximal stress is located in line with the baby's nose and chin. In general, the mother will be able to indicate which position feels most comfortable after several have been tried."

"The nipple should be examined for irritation under a good light. Small cracks or fissures may be visible, but sometimes the first signs of irritation are minute blisters or small petechial spots. Abrasions may become extensive enough to bleed. Even a fissure that barely is visible may be deep enough to bleed, and sometimes the baby swallows blood while nursing. Measures must be taken to prevent increased irritation and to encourage healing. Small cracks not only cause the mother much discomfort, but also provide an entrance for bacteria."

"To prevent continuing nipple irritation, the duration of nursing may be reduced and the frequency increased, depending on the extent of the irritation. When nursing is discontinued, the breast should be emptied by one of the artificial methods."

"A nipple shield has been recommended as temporary protection for tender nipples during nursing. It sometimes is not useful for the protection of cracked nipples, because the mother's nipple may be drawn into the shield to a considerable extent as the baby sucks. The nipple then is not rested and may be traumatized further. The shield also is unsatisfactory if the baby cannot empty the breast adequately, because breast engorgement adds to the discomfort."

"In dealing with sore nipples, the mother should:

1. Reposition the infant on the breast so that:
   a) As much of the area behind the nipple as possible enters the baby's mouth.
   b) The baby's head is rotated to allow minimal stress on the most tender area.
2. Expose her breasts to air by removing her bra once or twice a day or by lowering the flaps on her nursing bra. A shirt or blouse still can be worn.
3. Use no soap, alcohol, or other drying agent to cleanse breast before nursing.
4. Apply ice cube (wrapped in cloth) to nipple a few minutes before nursing. Ice should not be applied directly to nipple.
5. Nurse infant more frequently, but less than 10 minutes from each breast.
6. Dry nipples thoroughly with clean cloth after nursing."

Mastitis

"Mastitis is an infectious process in the breast that produces localized tenderness, redness, heat, and may cause fever, malaise, and sometimes nausea and vomiting. Mastitis is not uncommon; however, it is seen rarely in the hospital. It usually does not occur until several weeks postpartum and is the result when a duct becomes plugged, let-down is incomplete for a few feedings, or for other reasons the milk fails to flow from one section of the breast. Stasis then sets in, the milk flow is blocked, the area becomes tender to the touch or slightly reddened, and infection develops. Often, the mother's first clue is that she feels sick and feverish. The following regimen has been successful for the management of mastitis:

1. Continue to nurse the infant from both breasts beginning on the affected side to promote maximal drainage by taking advantage of infant's hunger. Rotate the infant so that the chin is as close as possible to the tender area. Others find it preferable to begin on the unaffected side and to switch the infant to the painful breast as soon as let-down occurs.
2. Apply moist heat and massage before nursing and continue to massage the area during nursing to promote drainage.
3. Bed rest is mandatory for the mother. Because mastitis usually occurs during the postpartum (at home) period, the mother will require assistance in caring for the rest of the family.

4. Administer antibiotics as ordered.

5. Apply ice packs or warm packs to the breasts, whichever provides the most comfort. Experience indicates that moist heat is better. In addition, it promotes let-down and hence drainage of the breast.

6. Provide plenty of fluids for the mother.

7. The mother may wear a supporting brassiere that does not cause painful pressure."

Abscesses

"Breast abscesses usually occur as a result of inappropriately treated mastitis. The abscess exhibits symptoms similar to mastitis with the possible addition of a localized pustule and possible pustular drainage from the affected side. Since staphylococcus is the most commonly isolated organism in breast infections, a staphylococcus-effective antibiotic should be administered. Cloxacillin or dicloxacillin are possible drugs of choice. The treatment is administration of antibiotics, careful drainage of the breast by massage or pump at intervals, and drainage of the abscess when surgically indicated. The infant may be breastfed when a therapeutic level of medication has been established for 12 hours."

Fatigue

"Sufficient rest and relaxation are necessary for adequate lactation. The need for rest should be emphasized both during hospitalization and when the mother returns home. Encouragement by an understanding person and assistance with household work are desirable if they can be arranged."

"The amount of breast milk often increases satisfactorily after the mother leaves the hospital because of the more natural surroundings at home, provided that she rests sufficiently, eats adequately, drinks plenty of fluids, and does not have too many social obligations or family concerns. If, however, the mother becomes too tired or worried, the milk supply may decrease temporarily for the first few days at home. During these few days of adjustment the baby may be satisfied with the breastfeeding alone if he is nursed frequently or nursed from both breasts. If he is not satisfied or if the breasts do not produce an adequate supply quickly enough, the infant may require complementary feedings. If this occurs, the mother should increase milk production by following the appropriate procedures. . ."

"If the mother is unable to relax at nursing time, the baby may not receive an adequate amount of milk at an individual feeding. The mother may find it easier to relax if she lies down while nursing her baby, but if she has a tendency to fall asleep it may be better for her to sit in a chair. This is true especially during the night feedings."

Anxiety

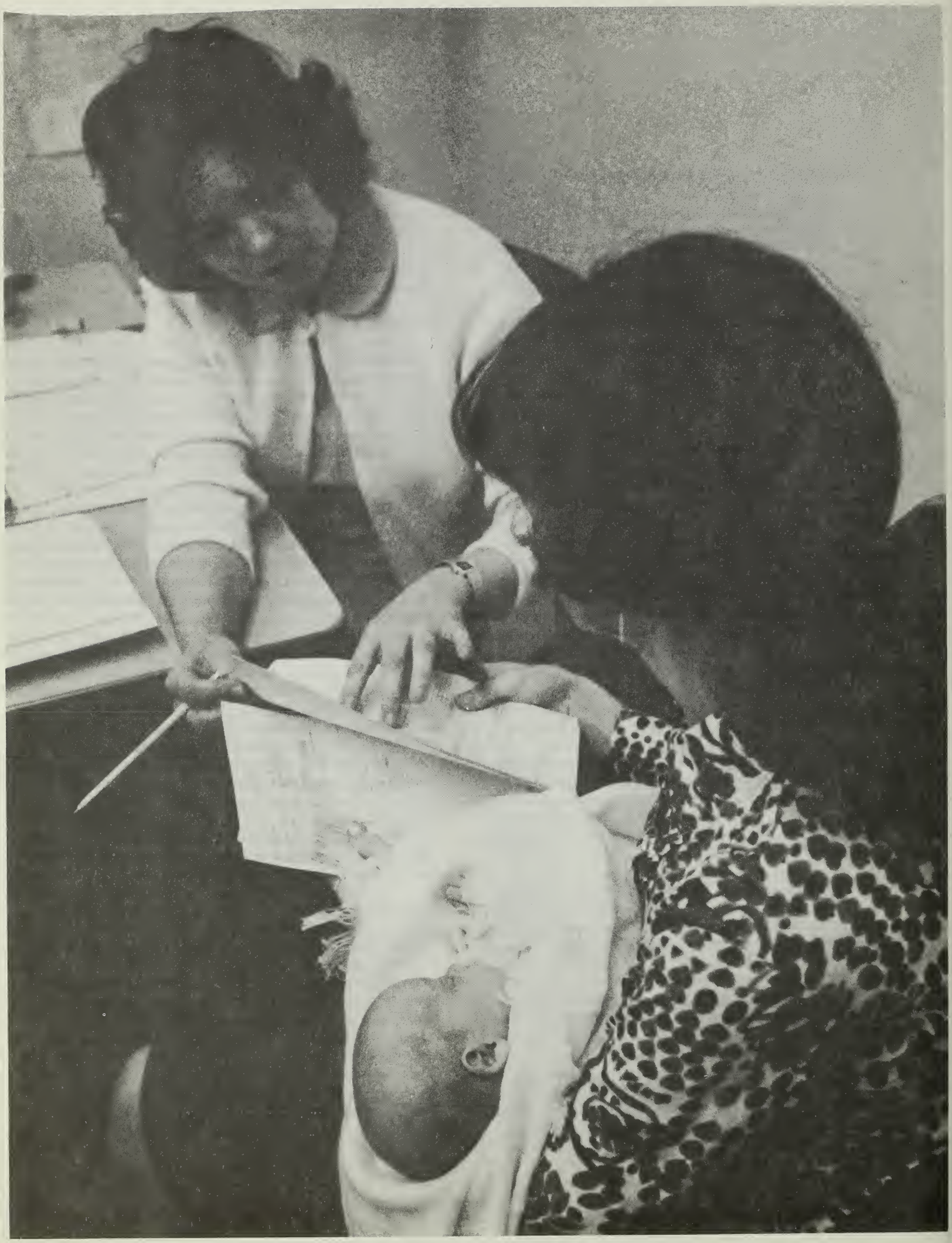
"Doubts concerning her ability to provide sufficient milk for her infant may result in a level of anxiety in the mother that inhibits the let-down reflex and thereby diminishes the supply of milk. Although the infant nurses frequently and for prolonged periods of time, he may not be satisfied and may not gain weight. Although the possibility of organic illness in the infant and mother shoud be evaluated, the common contributor to this problem is the mother's anxiety. Antianxiety medications often are administered to permit the mother to relax and allow her let-down reflex to be established. The provision of information and support so that the mother can approach lactation in a skillful manner is more appropriate. Drug use should not be encouraged."

Followup Education Strategies

A mother who breastfeeds successfully during the first few weeks postpartum has an excellent chance of continuing to breastfeed as long as she desires. However, it is during this late postpartum period that many mothers abandon successful breastfeeding in favor of bottlefeeding. While the reasons are not always apparent to the health professional, there are often a number of influences at work. If health professionals can identify influences on a mother's decision to wean her infant, and work with her to address them, they can help her prolong the breastfeeding period.

Returning to Work

Returning to work can be one such influence, especially if the mother returns during the first 6 months postpartum. Some mothers believe that working and breastfeeding are not compatible; thus weaning must occur. These mothers believe that it is just too difficult to continue breastfeeding, due to the problems of engorgement, the need to continually pump the breasts and store milk for the baby, the gradual reduction in milk supply, and the physical strain on the mother. Bottlefeeding may appear to be the far easier option.



With help and advice, though, many of these problems can be overcome or lessened. In general, nursing mothers who return to work need three types of help: 1) encouragement to continue nursing as long as they want, 2) information on what changes to expect, both in themselves and in their infants, and on how these changes may influence continued lactation, and 3) advice on coping with problems and situations that may arise.

The following advice and tips for working mothers have been prepared by the La Leche League and are found in their pamphlet, *Working and Breastfeeding* (Publication No. 58). This advice may be helpful for health professionals in counseling the breastfeeding mother who is returning to work (9):

"The key to being able to breastfeed and work is learning how to express your milk. The milk you collect at work can be given to your baby by the sitter, and, of course, no other milk or formula is as good as yours for your baby. Expressing milk also keeps your breasts from becoming overly full. By regularly taking milk out, you'll maintain your milk supply, as well as your poise while you're on the job. (Overfull breasts might tend to leak when you least expect it!)"

"Another thing to be careful about is the possibility of a breast infection. You are—at least for a while—in a much more susceptible situation in that regard. The added stress of working, and the uneven nursing schedule, make it more likely that you'll get a breast infection if you don't take really good care of yourself. Keeping the breasts emptied regularly will help to avoid this problem. Extra rest is also essential, and so is a good diet."

"Any effort to remove milk from the breast must attempt to duplicate what takes place when baby is nursing at the breast. Thinking about your baby, or, if possible, holding and/or nursing him while you pump will help stimulate the let-down."

"Hand-expressing your milk is convenient, economical, and clean—not at all difficult once you get the hang of it. Don't worry if nothing comes out the first few times. You will soon get the knack. Watching someone else do it may help you understand how to hand-express but you will eventually learn on your own exactly what technique works best for you."

"Several of the hand breast pumps are quite effective and convenient. . .Of the many types of hand breast pumps available, the least effective and least comfortable is the type with the little glass jar and a rubber bulb which you must squeeze."

"Most mothers take advantage of their breaks at work to express milk. If you make it a point to nurse the baby just before you leave home, the chances are the baby will not be hungry again for a while, and your breasts will not be overly full before your break. But anytime your breasts are getting uncomfortably full, take a few minutes off and express just enough milk to relieve the fullness. Under the circumstances, you may not be able to save the milk, but your first concern is to avoid a plugged milk duct."

"For your regular milk-collection session, try to locate a spot where you can relax and have privacy. . .At first you may not be able to express a great deal of milk, but the amount usually increases quickly as you become more adept with the procedure."

"Any sterile container can be used to hold your milk, although those made of hard plastic are considered better than glass bottles. The sterile plastic bags that fit into nursing bottles are convenient since they're ready to use, and it's a simple matter to take a fresh one each time you express milk."

"The milk that you express must be kept cold at all times. If no refrigeration is available, you can do as many resourceful working mothers do and bring a large thermos jug filled with ice from home in which to store your container of milk. . .If you want to store milk more than a week or two, it must be quick-frozen and kept at 0 degrees Fahrenheit."

"Is there a chance that you can nurse the baby during your lunch hour? Some mothers are able to go to the baby, while in other instances the sitter brings baby to mother."

"Mothers usually instruct the sitter to give the baby breast milk if it is available and supplement, if needed, with whatever the doctor has prescribed, only after the supply of mother's milk is gone. You'll be better off if the sitter gives the fewest number of bottles possible. Juice, when it is introduced, can be given by spoon or cup. As much as possible, you'll want to satisfy baby's sucking needs at the breast."

"As you prepare for going back to work, estimate the amount of milk to collect by checking on a container of formula for the recommended amount for a baby of the same age and weight as your own."

"When you have a day off work, nurse your baby on demand. Many mothers tell us that it is "only mother" on weekends—no bottles or supplements, even though these may be used when mother is at work. A great deal depends on the baby's age, the length of time the mother has been working, and the extent to which milk, juice, or solids replace breast milk at other times.

Weaning

Once the mother decides to begin weaning, the health professional can provide support and advice that will make the process easier for both mother and baby.

The following guidelines have been prepared by the Children's Nutrition Research Center at the Baylor College of Medicine (4):

"The infant may be weaned when the mother and/or infant decide to stop breastfeeding. Usually the process is gradual and is begun by skipping one feeding at a time. The noon feeding usually is omitted first and is replaced by a feeding from a bottle or a cup. If the infant is 12 months or older, homogenized milk may be given. If the infant is younger than 6 months, a vitamin reinforced formula should be used. The noon feeding should be omitted for approximately 3-7 days and then another feeding may be skipped. Each feeding that is omitted should be replaced with a bottle or cup feeding. The last to be replaced should be either the late evening or early morning feeding."

"Weaning that is spaced over a long period allows the mother's milk supply to decrease gradually and she will not experience engorgement difficulties. Should the mother have to wean the infant suddenly or experience engorgement in spite of gradual weaning, she should hand express milk or let the infant nurse 1-2 minutes on each breast to relieve the pressure."

Breastfeeding Education For Health Personnel

An educational program for health care providers is fundamental to the success of other breastfeeding promotion efforts. While each health professional can promote breastfeeding in his or her own way, all health professionals in a community ultimately depend on one another for continuity of information, services, and support to the mothers they serve. Additionally, while a problem or situation may seem difficult for one or another health provider to solve, it might be successfully tackled by a group. Thus, a breastfeeding education program geared to the needs and interests of all health professionals in a community can open the door to future cooperation.

The form and audience of in-service education will depend on the needs and resources of the health facility. It can involve an entire clinic staff or only a subgroup of a large hospital maternity unit. It may last an hour or a whole day. Final decisions may depend on a variety of factors, such as cost, staffing patterns and schedules, availability of presenters, number of participants, and location.

Multidisciplinary Approach

It does appear, though, that one format has advantages over many others. This format involves a multidisciplinary group of health professionals from the planning stage through implementation and evaluation. Ideally, it should include obstetricians and pediatricians, maternity and pediatric nursing specialists, and nuritionists/dietitians. Other health professionals involved in prenatal care also play valuable roles, social workers and health educators in particular. Representatives of local breastfeeding support groups can also enhance the program.

There are several reasons for the success of the multidisciplinary approach. First and foremost, each health discipline brings with it a different perspective, knowledge base, and experience which can contribute to a better group understanding of breastfeeding issues and problems. Secondly, representation and participation by all relevant health disciplines can greatly enhance the commitment of those involved. All members of the health team need to feel a part of the effort, and that their particular concerns have been recognized and accepted. It should be remembered that breastfeeding support must be practiced at each stage of the perinatal cycle in order to be effective: from prenatal care through delivery and postpartum follow-up. Unless each of the many health professionals pro-

viding care during this cycle participates in the promotion effort, it may not be successful.

Topics for In-Service Education

Health professionals enter a breastfeeding education program with many different levels of knowledge and experience. Some may be highly knowledgeable and have worked extensively with breastfeeding mothers (and may have nursed their own children). Others may have practically no knowledge or experience with breastfeeding mothers. Many will be somewhere in between. For these reasons, it is generally important to bring all program participants up to some basic level of knowledge. These basic areas generally include the following:

1. Advantages of breastfeeding to both mother and infant;
2. Anatomy and physiology of the breasts and techniques of nipple preparation;
3. Techniques of breastfeeding and common concerns of nursing mothers;
4. Recommended dietary intake to support lactation;
5. Normal growth and development of the newborn and indicators of a "thriving" infant;
6. Diagnosis and treatment of breast problems; and
7. Drugs and chemicals that can pass into breast milk and their potential significance.

Depending on the needs of the group and the time available, additional topics can be included:

8. Adjustments at home, focusing on ways to anticipate and avoid problems and stressing the importance of support by family members;
9. Abrupt versus gradual weaning;
10. Relactation after weaning;
11. Psychological and sexual aspects of breastfeeding;
12. Using breastfeeding aids and devices;
13. Developing and using referral networks and support groups for breastfeeding mothers; and
14. Helping breastfeeding mothers under special situations.

An in-service education session can also be an ideal time for health professionals to learn more about breastfeeding techniques. This is done by including a nursing mother on the program who is willing to demonstrate techniques to the group, while a knowledgeable health provider provides appropriate explanations.

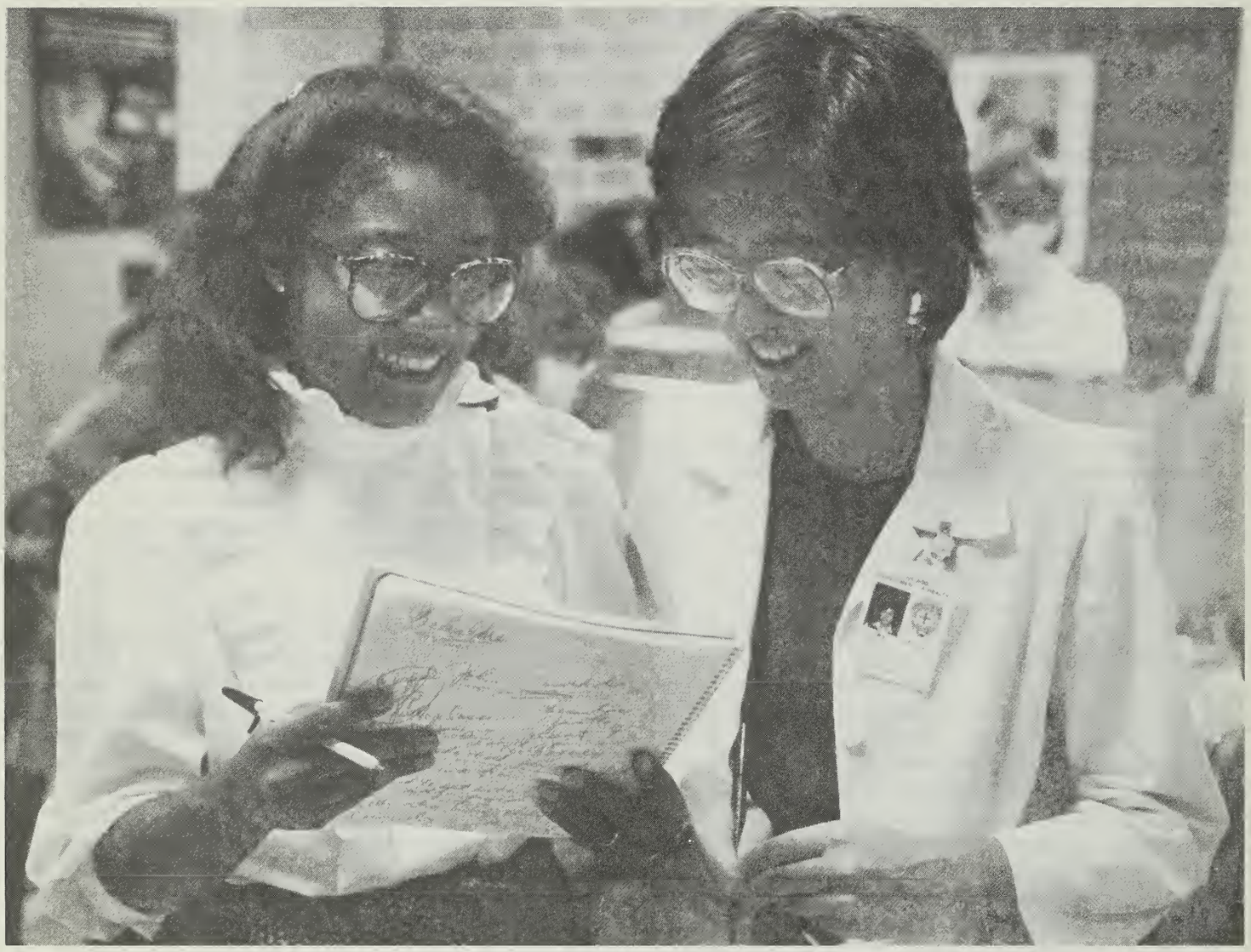
Since it may be difficult to locate such a willing mother for demonstration purposes, providers could also use slides of the various nursing positions and techniques. These may be enhanced by using a doll, again with appropriate explanations. Other visual aids or audiovisuals may be helpful in conveying information. The use of a motivational film, while intended for parents, may have the same effect on health providers. Many such films also provide excellent demonstrations of techniques and discussions of common concerns and problems.

Support Systems For Breastfeeding Women

The presence or absence of a support system for breastfeeding women can often be the single most important determinant of the success of a promotion effort. Education alone may allow the most highly motivated mothers to nurse successfully. However, the vast majority of mothers need some level of support from others who are significant in their lives, as well as from those who are knowledgeable and concerned about their efforts to breastfeed. Health professionals can play a key role in developing and implementing such a support system. In so doing, they will likely increase both the number of women beginning to breastfeed and the length of time they are able to sustain it.

Types of Support Systems

The concept of a support system can be very broadly defined. It may include supportive family members (especially the father), relatives, and friends who advise and encourage the new mother to nurse her baby. It may include another breastfeeding mother who gives the needed advice and encouragement to overcome obstacles during the difficult first weeks. It may also include a health professional who visits the new mother periodically in her home and/or maintains telephone contact with her to give advice and encouragement and to resolve problems before they become causes for weaning. Health professionals may also provide important support through their counseling and education contacts with the new mother, both in clinic and hospital settings.



Support can also include the process of developing systems, policies, and procedures which help to make the entire perinatal environment conducive to beginning and continuing to breastfeed. This can include:

- Setting up a task force to review hospital maternity unit procedures (this would need to be a community effort, with significant representation from the hospitals concerned);
- Setting up a communications network among local health care centers servicing maternity patients in order to coordinate care and education;
- Developing and implementing guidelines for handling breastfeeding mothers and standards for their care;
- Developing a reference library or clearinghouse of breastfeeding materials;
- Setting up a telephone hotline for counseling new mothers;
- Establishing a routine followup system of postcards, phone calls, or visits;
- Clarifying roles of, and perceptions about, breastfeeding support among the various health providers in the support system;
- Developing a referral network for new mothers to refer them to local breastfeeding support groups;

- Devising a system to make available breastfeeding aids and devices on a loan or rental basis;
- Initiating case conferences on nursing mothers;
- Developing culturally or ethnically oriented group sessions for new mothers to facilitate mother-to-mother support;
- Developing foreign language education materials for breastfeeding mothers and providing bilingual counseling;
- Providing in-service education for maternity and pediatric staffs.

All of these activities together could, if implemented, constitute a comprehensive and integrated support system. However, few health facilities possess either staff time or resources to implement such a program. Thus, it is necessary for each health provider and health facility to examine where its strengths and weaknesses lie in the area of breastfeeding support and to choose those activities that will provide the greatest benefits within those constraints.

Developing Appropriate Support Systems

In developing support systems for breastfeeding mothers, a program plan can provide valuable direction and control to activities, as well as a foundation on which to build future programs.

There are seven steps to take in developing a program plan, each building on the previous one (10). These are:

1. Determine the need (also referred to as "community diagnosis" or "needs assessment").
    a) Identify the problem or need.
    b) Describe clearly the problem or need.
2. Develop a precise plan.
    a) Determine what the program will accomplish.
    b) State the goal of the program.
    c) Develop specific objectives in precise terms.
3. Develop priorities for the plan.
    a) Is the service needed?
    b) Can it be done?
    c) Is it affordable?
4. Develop an action plan or method to achieve objectives.
    a) State each specific objective.
    b) State the systems to accomplish the plan and the dates to be met.
    c) Estimate and confirm resources and manpower needs
    d) State the criteria for meeting each objective.
5. Consider participatory management to avoid personal conflicts and insecurity among staff members.
    a) Involve your subordinates.
    b) Keep them informed.
6. Anticipate your critics.
    a) Consider who they are.
    b) Plan your defensive strategy, and consider what supportive evidence you will need.
7. Manage your data well in planning, running, and evaluating the program.
    a) Carefully design data recording and reporting procedures.
    b) Use the data to find how to use your resources most effectively.
    c) Prepare and present reports on the data clearly and concisely.
    d) Do a cost-benefit or cost-effectiveness analysis.

Adapted from Frankle, Reva T., and Owen, Anita Yanochik: *Nutrition in the Community*, St. Louis, 1978, The C.V. Mosby Co.

An example of this type of approach can be found in the breastfeeding promotion efforts of a health center in Jamaica Plain, Massachusetts (11). There, a breastfeeding task force was established to plan a program that would meet the needs of the community. At the initial meeting of the task force, members established goals and objectives and outlined a plan of action. The task force identified several activities as priorities to serve the needs of patients: developing a support network by starting separate breastfeeding groups in English and Spanish; developing a phone call system; increasing communication between hospitals and postnatal breastfeeding women; creating an understandable bilingual breastfeeding handbook; and arranging to sell breast pumps and milk cups.

Activities were also identified for the breastfeeding task force itself: initiating case conferences; defining the roles of providers through bimonthly task force

meetings; developing a breastfeeding reference system with books, pamphlets, and media reviews; establishing clinic policies; providing health center in-service training; creating a communications network with other health care centers servicing the same patient population; and developing a practical breastfeeding pamphlet for quick reference.

Although activities are still being implemented, early evaluation efforts indicate areas of success. In its analysis of the factors which have led to successful promotion of breastfeeding, the task force highlights as essential components a strong multidisciplinary approach, the consideration of both cultural and individual sensitivities, elaboration of goals and objectives, and group perseverence.

Other Considerations

In implementing support activities, health providers should keep in mind the needs of the nursing mother. Her needs for support begin early in the prenatal period, when she is deciding whether to attempt breastfeeding or not. If family, friends, and health providers are not supportive during this time, efforts geared to the delivery or postpartum period will not benefit her. In the absence of prenatal support, the first efforts might be to develop a staff in-service education program, and to begin individual or group counseling sessions that would include the father or other significant persons in the mother's life.

On the other hand, if many mothers start breastfeeding at delivery, but fail to maintain it during the first 2 weeks postpartum, health providers could focus efforts on developing a followup system of calls or visits and referrals to local breastfeeding support groups, or on establishing a telephone hotline counseling service. Cultural or ethnic factors may also be deterrents to breastfeeding success. These factors may include language and literacy barriers, as well as a lack of support from family and friends. In this case, the focus may need to include culturally or ethnically oriented mother-to-mother support groups, as well as the father or other significant persons in the mother's life.

Many other possible situations can occur, each influencing the specific activities needed to address them. There is no foolproof way of predicting which activities will produce the desired results; it is essentially a trial and error process. However, the most important step is determining where the barriers lie to successful breastfeeding in one's own health care center or community. One can begin to assess where changes can be made and activities begun by determining at what point mothers decide to not attempt breastfeeding or to wean the infant to a bottle.

Evaluating Breastfeeding Promotion Efforts

Evaluation of breastfeeding promotion efforts is essential for several reasons:

1. It enables one to know whether progress has been made toward the identified goal;

2. It may enable one to determine which activities were more successful than others and, thus, where to concentrate future efforts;

3. It can allow those involved in implementing the activities to know that progress is being made (if it is), and thereby provide an incentive to continue participating in them;

4. It can provide documentation of efforts and results, which can be used to justify expenditures of staff time and resources on the promotion activities.

It is important to keep in mind the audience for whom the evaluation is being performed, the purpose of the evaluation, and how the results will be presented and used. The following is an outline of key considerations in designing and carrying out an evaluation.

Evaluation Planning Sheet

(Adapted from the Food and Nutrition Service Southeastern Regional Office)

Decision Situation:	What category of evaluation will be conducted?
Purpose:	What will the evaluation achieve?
Audience:	For whom is the evaluation?
Issues:	What do you want to find out? What decisions are to be made?
Evidence:	What information will be needed?
Data Gathering:	How will information be collected?

a. Will it be collected through instrument, task force, interview, committees, computer programs? What questions will be asked to get information?

b. From whom: Source of information?

c. Time schedule: When?

d. Information to be collected by whom?

Analysis: What does the data mean?

a. Instructions for editing, coding, and tabulating.

b. Relationships, correlations, and comparisons to be made.

c. Statistical analysis to be used.

d. Analysis and interpretation to be done by whom? When?

e. Conclusion and recommendation to be developed by whom?

Reporting: How can the evaluation findings be reported?

a. Means of presenting the findings.

b. Format of the report.

c. Date for reporting the findings.

Resources:

a. Personnel requirements: staff time.

b. Budget: money.

Categories of Evaluation

In performing an evaluation, it is useful to break the program into its various aspects, or categories, and then to measure the success or failure in each (10). One thus gains a more complete understanding of all factors which came together to produce the outcome, and builds a basis for its interpretation.

According to Suchman (1967, cited by Frankle and Owen 1978) there are five categories of criteria by which the success or failure of a program may be evaluated: (1) effort, (2) performance, (3) adequacy of performance, (4) efficiency, and (5) process.

Effort (or activity) "is measured in terms of the quantity and quality of activity that is occurring. It is concerned with the input of energy rather than output or result. The evaluation should answer the following questions: What did you do? How well did you do it?" Examples of evaluation of effort can be the number of visits made to clients, the number of patients seen in a specific clinic, the number of educational sessions delivered, and the amount of money spent for a given health program.

Performance or accomplishment reflects "the results of the effort more than the amount of effort. The results must be assessed according to one's objectives in terms of what kind of change has been effected, if any, and whether certain intermediary goals have been achieved."

Adequacy of performance or impact reflects "the total effective performance relative to the total amount of need." To do this, it is "necessary to have some idea of unmet needs, an awareness of what is possible in terms of resources, and how progress and expansion toward the objective might be built into the program."

Efficiency (output relative to input) "refers to the ratio between effort and performance, or output divided by input. Input is the cost in terms of time, money, personnel, and public convenience. To be efficient, the results of a program ought to be in good proportion to the efforts made." In making this evaluation, the questions to ask are: Does the program work? Is there a better (or more efficient) way to get results?

Process or specification of conditions of effectiveness is "an analysis of the processes involved in a program." It "is particularly necessary if a program has failed to achieve its goals." If a weakness can be located, it might be rectifiable. "According to James [1961, cited by Frankle and Owen. ibid.] the analysis should look at the following aspects of the program:

1. The specific causes of success or failure within the program.

2. The recipients of the program, including the amount of the population reached, and the part of the population most beneficially affected.

3. The conditions under which the program operates or its context, including its location, public attitudes, and time allotment.

4. The effects of the program, including the major or primary effects, unintentional or side effects, the duration of effects, and the kind of effects. The kind may refer to changes in attitude, behavior, or knowledge."

Above material quoted and otherwise adapted from Frankle, Reva T., and Owen, Anita Yanochik: *Nutrition in the Community,* St. Louis, 1978, The C.V. Mosby Co.

Conducting an Evaluation

"There are five procedures that will help answer the question: To what extent is the program reaching its goals?" (10). It is important to note that evaluation must be planned for at the same time that program planning is done.

1. "Design a needs assessment through community diagnosis."

    a. Gather data for as complete a profile as possible.

    b. Compare all data with a standard norm to establish the community's need.

    c. Be sure that standards are realistic, so that realistic objectives and goals can be set.

2. "Set program goals and objectives."

    a. Goals and objectives should be based on the information collected for the needs assessment.

    b. Objectives must be clear, specific, and measurable.

    c. Both short-term and long-term goals should be considered.

    d. Progress should be evaluated according to how much has been accomplished toward meeting the goal.

3. "Translate goals and objectives into indicators (measurable) of goal and objective achievement."

    a. "Indicators of program outcome are the *dependent* variables of the study."

    b. "The evaluator must also be concerned with the description and measurement of other factors, the inputs, which are the *independent* variables of the study."

    c. "There may also be *intervening* variables—factors that mediate between inputs and outcomes."

        1) "Program operation variables are concerned with the implementation of the program—how it actually operates."

        2) "Bridging variables are concerned with the attainment of intermediate milestones."

4. "Collect data on the indicators for those who participate in the program." Data may come from:

    a. Interviews and questionnaires.

    b. Observation.

    c. Program records.

    d. Government records.

    e. Government and statistical series.

5. "Compare the data on participants with the goal criteria."

    a. This step "is the key point and purpose of an evaluation. It is up to the evaluator to determine statistically what portion of the program's goals have been achieved and how much of the achievement was actually because of the program."

    b. The comparison can be based on several different types of goals.

        1) "Immediate goals can be based on increments in knowledge. . . or improving the attitude toward the adoption of recommended health practices. . ."

        2) "Intermediate goals concentrate on the early benefits that are supposed to be derived from the recommended health practices."

3) "Long-range goals focus on the eventual reduction of liability [susceptibility to disease] and death."

Above material quoted and otherwise adapted from Frankle, Reva T., and Owen, Anita Yanochik: *Nutrition in the Community*, St. Louis, 1978, the C.V. Mosby Co.

Evaluation Designs

Designing the evaluation is the next step in the evaluation process (10). This involves developing a plan to select the people to be studied, setting the timing of the investigation, and establishing procedures for collecting the data. The evaluator must choose the type of design which will be most appropriate to his or her needs. The following are the most commonly used evaluation designs:

Experimental Model

The experimental model "uses both experimental and control groups. The target population units (individuals, work teams, precincts, students, cities) are randomly chosen to be either the group that gets the program or the control group that does not. Differences are computed, and the program is deemed a success if the experimental group has improved more than the control group." The problem with this model is that "the controlled experiment is often impossible in action settings."

Quasi-Experimental Design

"Quasi-experimental designs are those that do not meet all the strict requirements of the experiment but nevertheless can be satisfactory. . . The best designs are those which control relevant outside effects and lead to valid inferences about the effects of the program." These designs "have the advantage of being practical when conditions prevent true experimentation." The following two quasi-experimental designs may be most useful:

1. *Time series design*—"involves a series of measurements at periodic intervals before the program begins and a continuation after the program ends. It is possible to see whether the measurements taken immediately before and after the program are a continuation of previous patterns or whether they indicate a noteworthy change."

2. *Multiple time series design*—involves finding a similar group and taking "the same periodic measurements during the same time span. . . as for the group in the program. Thus there is a control group to take care of any effects resulting naturally from the elapse of time."

Nonequivalent Control Groups

With nonequivalent control groups there is no random assignment to program and control; rather, available individuals or intact groups, such as clinic patients with similar characteristics, are used as controls. The before and after measures of these controls are then compared with the measures of the program group.

The problem with this type of design is in making the control group as similar to the experimental group as possible. Matching the members of each group for certain characteristics may help to do this. However, "the characteristics on which people should be matched are difficult to determine, because the characteristics that will really affect the change are not known." This can then produce regression effects, and measurements may not lead to a valid interpretation of results.

Basing the study on self-selected subjects, or ones who join a program that is being studied, may be a problem: "people who choose to enter a program are likely to be different from those who do not." The problem of self-selections sometimes can be overcome if both experimentals and controls are selected from volunteers, and if the volunteers are randomly assigned to either group."

Nonexperimental Designs

There are three common nonexperimental designs:

1. "a "before-and-after" study of a single person;

2. an "after-only" study of a program participant;

3. an "after-only" study of participants and nonrandom controls."

Nonexperimental designs are generally used when none of the other designs is feasible, or when an evaluator wants to get a preliminary look at the effectiveness of a program. "The inherent weakness of these designs is that they fail to control many of the factors which might explain how observed changes were caused by something other than the program." However, if the

data are collected systematically and with care, these designs can offer more information than would have been possible without any study at all.

Above material quoted and otherwise adapted from Frankle, Reva T., and Owen, Anita Yanochik: *Nutrition in the Community,* St. Louis, 1978, The C.V. Mosby Co.

Questions to Consider

In evaluating breastfeeding promotion efforts, the central questions to be answered may include:

1. Is the promotion effort increasing the number of women who start breastfeeding?

2. Is the promotion effort increasing the length of time that mothers maintain their breastfeeding?

3. What components of the promotion program are of greatest help to mothers?

4. Are there other activities not in the current promotion program that would be of help to mothers?

Data Gathering

In order to address these questions, it is first necessary to establish baseline data on the numbers of women starting breastfeeding, and the average length of time they maintain it, before the promotion program begins. This requires a system of identifying those women who start breastfeeding and also a means of determining when they stop it. A timeframe for collecting data should also be established.

Ideally, the data gathered would go beyond the length of breastfeeding to include more revealing information, such as the amount, type, and source of information and support each mother received during pregnancy and while breastfeeding. This information can then be correlated with the length of time she breastfed her infant. It may prove useful to develop a questionnaire for this purpose, which could either be administered orally or in writing, and to make the information easily retrievable.

One also must know the background characteristics of the women being studied, which may influence the likelihood that they will breastfeed. Educational level, prior breastfeeding experience, and ethnic group are a few of these possibly influential characteristics. One must then assess whether the clinic population has changed in regard to these characteristics since the baseline data were collected.

During the data gathering process, quality control is very important. The same types of information must be collected for each participant, and the same manner of collection should be used throughout the study.

Sample Size

The sample size should be decided before the evaluation takes place. The sample size chosen should be large enough to reflect reliable trends in breastfeeding patterns that can be correlated with the activities of the promotion program. For example, if the program consists of increased distribution of printed information and a telephone followup system, the sample size should be large enough to differentiate which of the two components most strongly influenced length of breastfeeding, or if it was a combination of the two.

The sample size should also be large enough to allow for a 10- to 20-percent dropout rate. The larger the sample size, the more likely the findings will be accurate. Money (i.e., staff time) is usually the limitation on sample size.

Another consideration is whether the clinic population contains key background variables, such as race, educational level, or income. If it does, then a larger sample size is needed than for a clinic with a homogeneous population.

There also needs to be a systematic way to select women into the sample to be studied, in order to avoid bias. One method would be to sample women at set intervals by admission number, i.e., every Xth woman. This method would work especially well in a clinic with a very large client caseload. In a clinic with a small caseload, perhaps every woman could be included in the sample.

Data Analysis and Interpretation

It may be that distribution of printed information can be correlated with an average duration of breastfeeding of 2 weeks, while a telephone followup at 1 week postpartum can be correlated with an average duration of breastfeeding of 6 weeks. If this trend is consistent for a large number of mothers, it may then show a need to focus more on the telephone followup system and less on the distribution of printed information., However, if a combination of printed information and telephone followup was one of the program activities, it may show yet another trend worth analyzing.

To help analyze and interpret data, one could also include additional questions on a questionnaire, asking each mother's opinion of which activities not included would also be useful. Although this type of information is subjective, it could prove quite valuable. It may also point out possible program components not previously considered, or confirm trends that were revealed by the data. This could, in turn, lead to a reassessment of program objectives and of the activities chosen to accomplish them.

It is possible that promotional activities might not correlate with increased numbers of women starting breastfeeding or in the length of time they maintain it. This lack of correlation might be due to any number of factors, including characteristics of the population itself or the design of the evaluation study. In either case, all components of the study should be reassessed. It may be only that not enough time has elapsed for changes in behavior to be observed. Also, performance is but one criterion by which to evaluate success or failure of a program. The other four criteria can and should be applied (effort, adequacy of performance, efficiency, and process).

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Sample Questionnaire

Infant Feeding Survey
(Adapted from Vermont Department of Health)

Section 1.

Your name _____

Your birth date _____

How many children do you have? _____

How old are they? _____

Section 2

	Breast	Formula	Don't Know
1. How do you want to feed your new baby?			
2. Which method does the baby's father prefer?			
3. What method of feeding did you use with previous children?			
4. How were you fed as an infant?			
5. How was the baby's father fed as an infant?			

Section 3

Which of the following will be most helpful when you decide to breastfeed or formula-feed your new baby? (Check as many as apply.)

1. _____ Obstetrician
2. _____ Pediatrician
3. _____ Baby's father
4. _____ Relatives
5. _____ Public health nurse
6. _____ WIC information
7. _____ Friends
8. _____ Magazine articles
9. _____ Hospital nurses
10. _____ Books
11. _____ Own ideas
12. _____ Other _____

Section 4

Do you agree or disagree with the following statements about infant feeding?

	Agree	Disagree	Don't Know
1. It is easier to bottle-feed than breastfeed.			
2. Formula is as good as breast milk for your baby.			
3. If you breastfeed, your baby may not get enough to eat.			
4. Fathers are closer to babies if they can bottle-feed them.			
5. Breastfeeding can help you lose weight after the baby is born.			
6. Breastfeeding provides a closer emotional bond between mother and child than bottlefeeding does.			
7. Your breasts will return to their prepregnancy size soon after you stop breastfeeding, regardless of how long you breastfeed.			
8. Any woman can breastfeed.			
9. The best way to calm a baby is to let him or her nurse.			
10. You are tied down if you decide to breastfeed.			

Section 5

How many years of school have you completed? _____

Do you plan to continue your schooling? _____

How many years of school has the baby's father completed? _____

Does he plan to continue his schooling? _____

Glossary of Terms

Areola—the darkened area around the nipple of the breast.

Breast pump—a device to help in expressing milk from the breasts.

Colostrum—thick, yellowish, transparent fluid that contains more protein, less sugar, and much less fat than later milk; it is secreted during the third trimester of pregnancy and the first 10 days postpartum.

Engorgement—a fullness of the breast caused by inadequate drainage of milk from the milk ducts. This condition makes it difficult for the baby to draw the nipple and areola into its mouth.

Feeding on demand—feeding the baby whenever he or she appears to want it, not following any particular schedule.

Football hold—a position for holding the baby while nursing in which the baby's body extends backward under the mother's arm; especially useful for mothers who are nursing twins or who had cesarean deliveries.

Foremilk—the first milk to be expressed during a nursing period; it has a low fat and high water content.

Hand expression of milk—a technique for expressing milk using only the hands; involves massaging the breast, pressing and squeezing with the fingers to release the milk.

Hindmilk—the last milk to be expressed during a nursing period; it has a high fat content.

Hoffman technique—a method of preparing the nipples for breastfeeding when they are flat or inverted, to help bring them out; involves placing the thumbs opposite each other on the areola, then drawing the thumbs farther away from the base of the nipple.

Infant growth spurts—periods of rapid growth by the infant; usually occurring at 3 weeks, 6 weeks, 3 months, and 6 months of age.

La Leche League—a mother-to-mother support organization for breastfeeding mothers; available in most communities in the United States.

Let-down reflex—a reflex that begins the flow of milk from the breast. When it occurs, most women experience a tingling sensation in the breast, and milk may begin to drip from one or both breasts. It is very sensitive to the mother's mood, and can be impaired by anxiety, fear, and distraction.

Nipple inversion—a condition in which the nipple extends inward, rather than outward; this inhibits a proper grasp by the baby.

Nipple rolling—a nipple exercise to prepare the nipples for breastfeeding; involves grasping the nipple gently but firmly between the thumb and index finger and rolling it back and forth between them. The fingers are then repositioned at a different location and the exercise is repeated.

Rooting reflex—a reflex that each infant has at birth, which causes the head to turn in the direction of any touch on the cheek or lips. Mothers use the rooting reflex to prepare the baby for feeding.

Theory of "supply and demand"—as applied to breastfeeding, this theory is that the breasts will produce as much milk as they are "asked" to by the baby. More frequent feedings will build up a larger supply of milk.

True milk—also called "mature" milk, is produced by the end of the first month of lactation; it has less protein and more fat and lactose than colostrum.

III. Sample Lesson Plans

The sample lesson plans that follow are designed for use in a group setting, but they could also be used in individual counseling sessions with a few minor modifications. Individual counseling sessions may be most appropriate for women who consider breastfeeding a very private affair, and who would be embarrassed to discuss the subject in a group setting. Some women also might need the high degree of interaction and personal attention from the educator that is possible through individual counseling. However, for many women group sessions are most appropriate and offer incentives to attend that might not otherwise be present. These incentives include an opportunity to socialize with other breastfeeding mothers and to develop an informal support group as they are gaining new skills and knowledge. Also, for some women who have not yet decided to breastfeed, a group setting can provide the interaction and experience necessary to make a positive decision.

The following topics are included in the sample lesson plans:

- attitudes, beliefs, and anticipated problems;
- techniques of breastfeeding;
- common problems: their prevention and resolution;
- diet and nutrition while breastfeeding.

These plans can be used flexibly by either a health professional or paraprofessional. Each lesson should take approximately 1 hour to complete. If time is limited, the instructor may choose to shorten the lesson plans by conducting fewer activities in one session or by showing an audiovisual in two sessions.

Lesson 1: Attitudes, Beliefs, and Anticipated Problems

Target Group:

Prenatal women who are undecided about breastfeeding.

Objectives:

1. Participants will demonstrate the understanding that their attitudes, beliefs, and fears about breastfeeding are normal, and are the product of their knowledge and life experiences.
2. Participants will demonstrate the understanding that many attitudes and beliefs can be changed and fears dispelled by increasing their knowledge and experience in breastfeeding.
3. Participants will be able to identify at least one advantage of breastfeeding for either the mother or baby.

Materials:

Pens or pencils and paper
Poster paper and marking pen

Audiovisuals on breastfeeding that are motivational, such as:

"Breastfeeding: A Special Closeness" Purchase: $285.00 Rental: $40.00 16 mm, sound, color 23 minutes	Features parents of different ethnic and economic groups and explores the issues and concerns of expectant parents regarding breastfeeding. Motion, Inc. 4437 Klingle Street, N.W., Washington, D.C. 20016.

or

"Talking About Breastfeeding Purchase: $295.00 Rental: $400.00 16 mm, sound, color 17 minutes	A number of women discuss the value of breastfeeding in their lives and in the lives of their families, and how they managed to breastfeed despite obstacles. Polymorph Films 118 South Street Boston, Massachusetts 02111.

Learning Activities:

1. After the audiovisual is shown, ask each participant to state or write down one attitude or belief, and one advantage of breastfeeding that she thought of while watching the audiovisual.

2. Go around the group or ask for volunteers to explain each of the items they stated or wrote down. Record responses on poster paper for the group to see, under appropriate headings.

3. If possible, include a breastfeeding mother in the group. At this point, ask her to relate some of her former beliefs and fears about breastfeeding to the group, and how she now views her breastfeeding experience. This may allow the group to begin an open discussion and/or question-and-answer session that can bring up additional issues. Each additional issue should also be recorded.

4. The group leader can now go over those items listed on the poster paper under each heading and make appropriate comments and suggestions.

   a) The group leader should explain that all attitudes, beliefs, and fears about breastfeeding are normal, and are the product of each woman's knowledge and life experiences. Explain that breastfeeding can be a very enjoyable and satisfying experience for both mother and baby, but the decision should be based on what each woman believes is best. She should not feel guilty for deciding not to breastfeed.

   b) The group leader can dispel any obvious misconceptions by explaining why something is not true; and can discuss problems as they are brought up. The group leader can also offer ways of coping with problems used by other mothers, including the possibility of discreet nursing.

   c) Explain fully the advantages of breastfeeding to both mother and baby, supplementing those cited by the group.

Evaluation:

1. Oral or written quiz on common facts and fallacies of breastfeeding. (Example below)

	True	False	Breastfeeding: Fact or Fallacy
1.	T	F	Breast milk is the perfect food for my baby.
2.	T	F	If I breastfeed, my breasts will lose their shape.
3.	T	F	Breastfeeding can help me feel closer to my baby.
4.	T	F	Only women with large breasts can produce enough milk for their babies.
5.	T	F	Women who work can't breastfeed their babies.
6.	T	F	Breast milk can help to protect my baby against illness.
7.	T	F	Bottlefed babies need to eat more often than breastfed babies.
8.	T	F	Breastfeeding may cost less than bottlefeeding.
9.	T	F	Breastfeeding is convenient because the milk is always at the right temperature.
10.	T	F	If I breastfeed, I'll never know if my baby is getting enough milk.
11.	T	F	I can only breastfeed if I stay at home.
12.	T	F	Breastfeeding can help me get my weight back to what it was before pregnancy.

Answer key: (1) T, (2) F, (3) T, (4) F, (5) F, (6) T, (7) F, (8) T, (9) T, (10) F, (11) F, (12) T

2. Ask participants how they feel about breastfeeding and how they think their attitudes, beliefs, and fears have been influenced by their level of knowledge and experience.

3. For further evaluation, follow up with class attendees to see who decided to breastfeed.

Lesson 2: Techniques of Breastfeeding

Target Group:

Prenatal women who have decided to breastfeed.

Objectives:

1. Participants will be able to describe the "let-down reflex" and how the baby's sucking and mother's relaxation influences the release of milk.

2. Participants will be able to demonstrate one correct position and hold for breastfeeding, and how to break suction after nursing.

3. Participants will be able to describe how the frequency of feedings influences the amount of milk produced by the breasts.

Materials:

Diagrams explaining the components of the lactating breast and the "let-down reflex" (from a textbook)

Doll (to demonstrate correct breastfeeding positions)

Flip chart describing and illustrating techniques of breastfeeding, such as:

"Breastfeeding Your Baby" Available free from Ross representative	Ross Laboratories Columbus, Ohio 43216

or

"Feeding Your Baby" Purchase: $7.50	Cornell University Mailing Room 7 Research Park Ithaca, New York 14853

or

Audiovisuals on breastfeeding that describe techniques, such as:

"Learning to Breastfeed" Purchase: $395.00 Rental: $40.00 16 mm, sound, color 22 minutes	Deals with initial nursing experiences; provides a wide range of information and solutions to common problems. Polymorph Films 118 South Street Boston, Massachusetts 02111

or

"Breastfeeding: The Natural Way" Available free on loan (English or Spanish) 16 mm, sound, color 25 minutes Also, slide/cassette program 16 minutes	Covers breast development during pregnancy, prenatal breast preparation, breastfeeding techniques, and diet. Ross Laboratories 585 Cleveland Avenue Columbus, Ohio 43216

Learning Activities:

1. Review the physical structure and functions of the breast, so that participants will understand how milk is produced.

2. Explain that milk is released from the breasts by means of the "let-down reflex". This reflex occurs when two hormones are produced by the pituitary gland. This can happen by touching the infant, hearing the infant cry, and suckling the infant at the breast. The reflex can be inhibited by stress, anxiety, severe cold, pain, and emotional conflict. For these reasons, it is important to relax while breastfeeding. Signs of a good let-down reflex are: tenderness in the nipple area, uterine contractions, and increased thirst during nursing.

3. After the audiovisual or flipchart on breastfeeding techniques has been shown, demonstrate the various positions and holds for nursing, using a doll (or baby if possible). Describe how to trigger the rooting reflex, by touching the baby's cheek on the side closest to the breast. Explain that the mother should place the nipple and as much of the areola as possible into the infant's mouth. Describe how to break suction after nursing, by gently pushing on the top of the breast or by inserting the tip of the

mother's finger into the corner of the infant's mouth. Then burp the baby before offering the second breast.

4. Mention that it is important to use both breasts at each feeding, and to begin the next feeding with the last breast used at the previous feeding. Feedings should only last 5 to 10 minutes on each breast during the first few days, but can be gradually extended up to 15 or 20 minutes over several days or weeks.

5. Explain that the amount of milk produced by the breasts is related to how often the baby nurses. The more often the baby nurses, the more milk the breasts will produce. Feeding the baby whenever it seems to want it, instead of following a schedule, is important to successful breastfeeding. Also, many mothers comfort their crying babies by nursing them at these times.

6. Address any problems or questions participants may have or are anticipating regarding techniques of breastfeeding.

Evaluation:

1. Ask for volunteers to describe the "let-down reflex" and how the baby's sucking and mother's relaxation influences the release of milk.

2. Ask one or more participants to demonstrate a correct position and hold for breastfeeding, and how to break suction after nursing.

3. Ask one or more participants to describe how the frequency of feedings influences the amount of milk produced by the breasts.

4. Ask participants if they think it will be easy or difficult to breastfeed and why.

5. For further evaluation, follow up class attendees at 1 week postpartum to see whether their initial breastfeeding experiences went smoothly or with difficulty, and help them with any problems or concerns they may have.

Lesson 3: Common Problems: Their Prevention and Resolution

Target Group:

Prenatal or early postpartum women who have decided to breastfeed.

Objectives:

1. At the end of the session, participants will be able to describe one common problem of breastfeeding and how to prevent or treat it.

2. Participants will be able to identify two people or groups whom they can contact for help with a problem or for support and encouragement while breastfeeding.

Materials Needed:

Pens and pencils and paper
Diagram of correct position for infant's mouth on the areola and nipple (from a text book)

Learning Activities:

1. Ask each participant to write down on a slip of paper one problem of breastfeeding that she has heard about or experienced herself. Place all slips of paper in a container. Some common problems may include soreness or nipple pain, engorgement, not enough milk, leaking breasts, and breast infection.

2. Have each participant draw a slip of paper from the container, read the problem described, and suggest a solution if she can. Ask the rest of the group for more suggestions as to treatment or solutions to the problem. Repeat the procedure with each participant.

3. Explain to the group that many potential problems, such as sore nipples, can be prevented or minimized by nursing on demand about every 2 to 3 hours during the first few weeks. It is also important to start out nursing for only 5 to 10 minutes on each breast, and gradually extend the length of each nursing over a period of days and weeks. If the mother's nipples start to become sore, she should reposition the infant on the breast, nurse the infant more frequently, and dry the nipples thoroughly after nursing. It will also help to expose her breasts

to air, use no soap or other drying agents on the breasts, and apply ice to the nipple area a few minutes before nursing.

4. Show the diagram of the correct position for the infant's mouth on the nipple and areola. Explain that the infant's mouth needs to have a good grasp on the areola in order to press down on the milk ducts. The infant's tongue then strokes the milk out. If the infant's mouth is not positioned properly, not enough milk may be expressed, and the infant may chew at the nipple. This can then cause breast soreness and poor weight gain by the infant.

5. Explain that once a problem occurs, it is important not only to treat it but also to identify the cause so it may not recur again. Problems not properly diagnosed and treated can result in early weaning. Support people or groups can be essential to solving problems in the early days and weeks of breastfeeding.

6. Discuss types of support people and groups available to breastfeeding mothers. Examples are the La Leche League, mothers or grandmothers, husbands, friends, and health professionals. Point out the need for and advantages of identifying and selecting support people before problems occur.

7. Ask each participant to write down the names of two people or groups whom they could contact for help with a problem or for support and encouragement while breastfeeding.

8. Discuss the choices of participants and assist them in contacting the chosen people or groups.

Evaluation

1. Oral or written quiz on techniques for prevention of common problems. (Example below)

2. Ask participants how they feel about contacting and using support people or groups to help them overcome difficulties.

3. For further evaluation, follow up class attendees at 1 week and 6 weeks postpartum to see whether they have experienced problems, and also whether they were able to resolve them with the help of the designated support people or groups. Offer help with any problems or concerns they may have.

	True	False	Prevention of Common Breastfeeding Problems
1.	T	F	There is nothing I can do to keep from getting sore nipples or engorged breasts.
2.	T	F	Nursing my baby every 3 or 4 hours at the beginning will help to prevent engorged breasts.
3.	T	F	Even though one nursing position may feel comfortable, I should change positions often to prevent nipple soreness.
4.	T	F	I should breastfeed only 5 to 10 minutes on each breast to begin with, then gradually increase the time over several days or weeks.
5.	T	F	It does not matter how the baby grasps the nipple, as long as it is in its mouth.
6.	T	F	If one of my breasts becomes sore, I should just nurse on the other breast until it heals.
7.	T	F	Allowing my baby to nurse frequently will help prevent engorged breasts and other problems.
8.	T	F	It is best to know beforehand who I can call or visit if I have a problem or want to talk to someone.

Answer key: (1) F, (2) F, (3) T, (4) T, (5) F, (6) F, (7) T, (8) T

Lesson 4: Diet and Nutrition While Breastfeeding

Target Group:

Prenatal or early postpartum women who have decided to breastfeed.

Objectives:

1. At the end of the session, participants will be able to state the recommended number of daily servings from each of the food groups and the recommended daily fluid intake.

2. Participants will be able to state the reasons for adequate calorie and fluid intake while breastfeeding and why postpartum weight loss should be gradual.

3. Participants will be able to state that drugs and other substances are secreted in breast milk, and that they should consult their medical providers before taking any medications while breastfeeding.

Materials Needed:

Poster: Food groups
Pamphlet: Daily food guide (with recommended servings for lactation)
Poster paper and marking pen

Learning Activities:

1. Review food groupings with participants (what foods belong in what groups and the number of servings from each group recommended for the breastfeeding woman). Discuss the nutrients provided by the food groups, and why those nutrients are important during lactation. (See tables 1 through 4 in the "Background Information" section.)

2. Discuss the issue of supplements for the mother (e.g., iron is often recommended for several months postpartum) and for the baby (e.g., vitamin D and fluoride). Some medical providers suggest continuing the prenatal vitamin/mineral supplement throughout the breastfeeding period.

3. Ask participants to tell why they think adequate calorie intake of the nursing mother influences the volume of milk produced for the baby. Explain that weight loss postpartum should be gradual, over a period of several months. If a breastfeeding mother severely restricts her caloric intake, she may produce less milk and tire quickly.

4. Explain the importance of adequate fluid intake during lactation (i.e., the equivalent of 2 to 3 quarts daily). While inadequate fluid intake will not affect the amount of milk produced (unless it is very inadequate), it will decrease the amount of urine excreted by the mother and may limit the ability of her kidneys to excrete waste materials.

5. Ask the participants to tell why it may be a good idea to avoid drugs, alcohol, caffeine, and nicotine while they are breastfeeding. Explain that these substances are secreted in breast milk and may be harmful to the baby. Discuss the need to consult with a medical provider before taking any medications, even common ones available over the counter.

6. Mention that certain foods eaten by the mother may affect the flavor of the milk or cause gastrointestinal problems in the infant. Not all infants are affected by the same foods. If a mother suspects that a particular food is causing a problem, she should try eliminating that food from her diet for a few days to see if the problem disappears.

Evaluation:

1. Ask participants to write down what they have eaten in the last 24 hours (breakfast, lunch, dinner, and snacks); ask each participant to evaluate it according to the food groups. Then ask them to think about how they could change their daily diets to improve their food choices for breastfeeding. Have a volunteer discuss her diet and the changes she would make.

2. Have one or more participants state the reasons why it is important to eat enough nutritious food and drink enough fluids while breastfeeding.

3. Ask one or more participants to state why they should avoid drugs, alcohol, caffeine, and nicotine while breastfeeding; and why they should consult their medical providers before taking any medications.

4. Ask participants whether they think it will be easy or difficult for them to eat a good diet and to avoid the drugs and other substances named during the lesson.

Professional Resources to Aid in Learning Activities

Breast-Feeding Consultant Curriculum and Resource Guide. USDA/ARS Children's Nutrition Research Center, Department of Pediatrics, Baylor College of Medicine. Klein, E.R., editor. 1982.

Goldfarb, J. and Tibbetts, E., *Breastfeeding Handbook: A Practical Reference for Physicians, Nurses, and Other Health Professionals.* Hillside, New Jersey: Enslow Publishers. 1980.

Lawrence, R.A., *Breast-Feeding: A Guide for the Medical Professions.* St. Louis, Missouri: C.V. Mosby Co.. 1980.

Psiaki, D. and Olson, C., *Current Knowledge on Breastfeeding: A Review for Medical Practitioners.* Ithaca, New York: Division of Nutritional Sciences, Cornell University. 1980.

Symposium on Human Lactation. Program Services Branch, Bureau of Community Health Services, Department of Health and Human Services. 1979.

Worthington-Roberts, B.S., Vermeersch, J. and Williams, S.R., *Nutrition in Pregnancy and Lactation.* St. Louis, Missouri: C.V. Mosby Co.. 1977.

IV. References and Resources for Health Professionals

The references and resources which follow reflect the broad informational needs of the health professional who is concerned with promoting breastfeeding. The references and resources are not intended to be comprehensive or exhaustive in scope. Rather, they include the major sources of information on and support for breastfeeding which currently exist, and some basic references that cover a broad spectrum of issues.

Information Sources. The information sources that are listed provide services and materials on a national, rather than local, basis. Other information and support sources serving particular cities or geographic areas are available, and can be located through local directories or referral networks.

General References for Health Professionals. The general references for health professionals were selected for their broad scope and coverage of many areas and issues of breastfeeding support and promotion. The *bibliographies* contain indepth reviews of the literature on a large variety of topics, including the physiology of lactation, composition of breast milk, contraceptive effects, drug secretion, and effects on growth and health of the infant. The *books* are somewhat more practical in orientation, and are geared toward the needs of health professionals working in clinic and hospital settings. While there are many *journal articles* that we could have chosen for inclusion in this guide, those cited were chosen primarily because they address the broader aspects of planning and implementing a promotion effort. Most of those articles cited give practical ideas and suggestions for how to implement a promotion effort in the clinic, hospital, and community. The *Lactation Protocol* listed under the *guidelines* section offers a comprehensive, yet simple, guide to breastfeeding education and support in the clinical setting.

References for Special Situations. The references for special situations include particular references for managing breastfeeding mothers under various special situations. Except where indicated, the references cited were written for health professionals. *In two instances*, however, we included client publications (cesarean birth and nursing twins). In the first case, professional references could not be located on that topic. In the second case, the publications were thought to provide useful information to supplement the professional references.

Recommended Books for Nursing Mothers. The recommended books for nursing mothers are included in the guide to provide sources of information for those mothers who are motivated to read and to enhance their preparation for breastfeeding. While those books cited are definitely client-oriented publications, they may also be of interest and use to health professionals.

Audiovisual Materials. The audiovisual materials section is in two categories: informational materials and motivational materials. While most are geared to the expectant or postpartum mother, several materials are intended for training of health professionals. Within the context of this guide we could not give an extensive review of the material, nor gauge its quality. Thus, we recommend that you thoroughly screen all audiovisual materials before you present them.

Breastfeeding Aids and Devices. This final section will provide health professionals with sources of the most commonly used products that can best help breastfeeding mothers.

Note on Prices: Prices quoted in the guide were valid at the time of publication but are subject to change. Additional costs such as mailing and tax are not included in the prices given.

Information Sources

Government Agencies

1) State and county health departments (see local directories)

   They provide a broad variety of health services and health information to the public. Special programs for mothers and children are widely available. They provide health and nutrition publications on related topics, including breastfeeding.

2) Children's Nutrition Research Center
   Department of Pediatrics
   Texas Children's Hospital
   6621 Fannin
   Houston, Texas 77030
   Tel: (713) 790-6004

   As a regional research center of the U.S. Department of Agriculture, the center plans and conducts research to develop a scientific basis for standards of nutrient intake and for assessments of nutritional status. The center has conducted a demonstration training program in breastfeeding education for staff and participants in the WIC program, and has developed a human milk bank. It has also developed educational materials appropriate for WIC participants.

3) Food and Nutrition Information center
National Agricultural Library Building, Room 304
Beltsville, Maryland 20705
Tel: (301) 344-3719

The center serves the information needs of people interested in human nutrition, nutrition education, food service management, consumer education, and food technology. It acquires and lends books, journal articles, and audiovisual materials dealing with these areas of concern, including breastfeeding research and education.

4) International Nutrition Communication Service
Education Development Center
55 Chapel Street
Newton, Massachusetts 02160
Tel: (617) 969-7100

Funded by the U.S. Agency for International Development, the service provides support and assistance in designing, implementing, and evaluating nutrition training projects in Third World countries. It has also published the *Nutrition Training Manual Catalogue*, which contains reviews of 116 training manuals. The manuals focus on nutrition in developing countries. Breastfeeding training manuals are included.

5) National Health Information Clearinghouse
P.O. Box 1133
Washington D.C. 20013
Tel: (703) 522-2590 (Metro-D.C. area)
(800) 336-4797 (outside Metro-D.C. area)

They help the public locate health information by identifying health information resources. Health questions are referred to appropriate health agencies that, in turn, respond directly to inquirers.

6) World Health Organization Publications Center, USA
49 Sheridan Avenue
Albany, New York 12210
Tel: (518) 436-9686

Publications available include a statement on infant and young child feeding, a breastfeeding guide for use by community health workers, and a study on patterns of breastfeeding.

Private Educational and Support Organizations

1) Birth and Life Bookstore, Inc.
P.O. Box 70625
Seattle, Washington 98107
Tel: (206) 789-4444

They make available a large selection of books and pamphlets on breastfeeding, childbirth, and parenting for mothers and health professionals. A 24-page newsletter (published quarterly), *Imprint*, is available free to customers. It contains a review of new publications and a catalog of publications that are currently available. A sample newsletter can be obtained on request.

2) Clearinghouse on Infant Feeding and Maternal Nutrition
American Public Health Association
1015 Fifteenth Street, N.W.
Washington, D.C. 20005
Tel: (202) 789-5712

They serve as a resource primarily for health professional who work in Third World countries. They also respond to domestic requests as time and staffing permit. They have a large collection of materials of all types on breastfeeding. They make available bibliographies and lists of resources on a variety of topics, and refer inquiries to appropriate sources for information.

3) Health Education Associates
211 S. Easton Rd.
Glenside, Pennsylvania 19038
Tel: (215) 659-1149

They make available inexpensive pamphlets and other materials as teaching aids on breastfeeding. They sponsor training programs for breastfeeding counseling and promotion techniques.

4) International Childbirth Education Association
P.O. Box 20048
Minneapolis, Minnesota 55420
Tel: (800) 328-4815 (outside Minnesota)
(800) 752-4249 (Minnesota residents)

They have a catalogue, *Bookmarks*, that has a large selection of books and inexpensive pamphlets on breastfeeding, childbirth, and parenting. They publish *ICEA News*, with news about childbirth, prenatal, and parenting issues; and *ICEA Review*, which provides indepth review of current perinatal issues. They also have a resource committee on breastfeeding.

5) Lact-Aid, International
P.O. Box 6861
Denver, Colorado 80206
Tel: (303) 388-4600

They formerly published a quarterly journal, *Keeping Abreast, Journal of Human Nurturing*. They make available back issues of the journal and reprints of selected articles. They also produce and market the Lact-Aid Nursing Trainer, and specialize in giving information and consultation on specific breastfeeding situations. These situations include prematurity, relactation, adoptive nursing, and failure to thrive.

6) La Leche League International, Inc.
9616 Minneapolis Avenue
Franklin Park, Illinois 60131
Tel: (312) 455-7730

The publications catalogue includes a large variety and broad scope of materials for mothers and health professionals to use in promoting and supporting breastfeeding. There is also a directory of League area coordinators by State and foreign country. The coordinators can give information about local support groups.

7) Nursing Mothers Counsel, Inc.
P.O. Box 50063
Palo Alto, California 94303
Tel: (408) 272-1448

They make available a variety of publications on breastfeeding for mothers and health professionals.

Professional Organizations and Associations

1) American Academy of Pediatrics
Publications Department
P.O. Box 1034
Evanston, Illinois 60204
Tel: (312) 869-4255

Publications available include a position paper on breastfeeding, a breastfeeding pamphlet for mothers, and several committee statements and commentaries on breastfeeding issues.

2) American College of Nurse-Midwives
1522 K St., N.W., Suite 1120
Washington, D.C. 20005
Tel: (202) 347-5445

They strongly support breastfeeding. Members regularly teach breastfeeding as part of their prenatal and postpartum care services. They provide information and referral to consumers.

3) American College of Obstetricians and Gynecologists
600 Maryland Avenue, S.W.
Suite 300-East
Washignton, D.C. 20024
Tel: (202) 638-5577

They make available a variety of publications on breastfeeding, nutrition, and prenatal care topics for physicians and their patients. They also provide policy and committee statements on issues concerning breastfeeding.

4) American Dietetic Association
430 North Michigan Avenue
Chicago, Illinois 60611
Tel: (312) 280-5000

The *Journal of the American Dietetic Association* (published monthly) regularly reviews and abstracts articles from other current periodicals and describes new publications they have received. These include articles and publications on breastfeeding. Original research, features, and perspectives occasionally include topics relevant to breastfeeding education and support.

5) Nurses Association of the American College of Obstetricians and Gynecologists
600 Maryland Avenue, S.W.
Suite 200
Washington, D.C. 20024
Tel: (202) 638-0026

They make available information and resources for nursing professionals. These include statements, standards, and guidelines for childbirth education. Breastfeeding topics are incorporated into these guidance topic areas.

6) Society for Nutrition Education
1736 Franklin Street
Oakland, California 94612
Tel: (415) 548-1363

The publications available include bibliographies on infant nutrition and feeding, and on pregnancy and nutrition. They also have audiovisuals for nutrition education and nutrition information resources for professionals. These materials may provide useful references for breastfeeding promotion and education. The *Journal of Nutrition Education* (published quarterly) also reviews current educational materials and books on a variety of topics, including breastfeeding. Original research and perspectives regularly include topics relevant to breastfeeding education and support.

General References for Health Professionals

Bibliographies

1) *A Selected Annotated Bibliography on Breastfeeding, 1970-1977.* Committee on Nutrition of the Mother and Preschool Child, Food and Nutrition Board, National Research Council, National Academy of Sciences: Washington, D.C. 1978. ISBN 0-309-02796-9. 58 pages, $6.50.

2) *Bibliography on Infant Nutrition and Feeding.* Society for Nutrition Education, 1736 Franklin Street, Oakland, California 94612. 1980. 17 pages, $4.00.

3) *Breast is Best: An International Bibliography on Breastfeeding and Infant Health.* Office of International Health, Public Health Service, U.S. Department of Health and Human Services, 5600 Fishers Lane, Room 18-82, Rockville, Maryland, 20857. 1980. 144 pages.

4) *Nutrition Education Resource Guide: An Annotated Bibliography of Educational Materials for the WIC and CSF Programs.* Food and Nutrition Information Center, Human Nutrition Information Service, U.S. Department of Agriculture. 1982. Available from WIC and CSF State agencies; can also be purchased from the U.S. Government Printing Office, Stock No. 001-000-04307-2. 146 pages, $6.00.

Books

1) *Breast-Feeding Consultant Curriculum and Resource Guide.* USDA/ARS Children's Nutrition Research Center, Department of Pediatrics, Baylor College of Medicine, Houston, Texas: Klein, E. R., editor. 1982. 157 pages.

2) Goldfarb, J. and Tibbetts, E., *Breastfeeding Handbook: A Practical Reference for Physicians, Nurses, and Other Health Professionals.* Hillside, New Jersey: Enslow Publishers. 1980. 256 pages, $15.95.

3) Jelliffe, D. B. and Jelliffee, E. F. P., *Human Milk in the Modern World: Psychological, Nutritional, and Economic Significance.* New York, New York: Oxford University Press. 1978. 500 pages, $17.95.

4) Lawrence, R. A., *Breast-Feeding: A Guide For the Medical Professions.* St. Louis, Missouri: C. V. Mosby Co. 1980. 384 pages, $18.50.

5) *Symposium on Human Lactation.* Program Services Branch, Bureau of Community Health Services, Department of Health and Human Services. 1979. Available from U.S. Government Printing Office, Stock No. 017-026-00085-2. 130 pages, $3.75.

6) Worthington-Roberts, B. S., Vermeersch, J. and Williams, S. R., *Nutrition in Pregnancy and Lactation.* St. Louis, Missouri: C. V. Mosby Co. 1981. 223 pages, $11.95.

Booklets

1) *A Guide to Counseling the Breastfeeding Mother.* Ross Laboratories, 625 Cleveland Ave., Columbus, Ohio 43216. 1980. 30 pages.

2) *Counseling the Mother on Breastfeeding. Report of the 11th Ross Roundtable.* Ross Laboratories, 625 Cleveland Ave., Columbus, Ohio 43216. 1981. 86 pages.

3) Holodiloff, F. et. al. *Breastfeeding 1:1 Counseling.* Childbirth Education League of the Monterey Peninsula Inc., Box 6268, Carmel, CA 93921. 1980. 29 pages, $1.50.

4) Psiaki, D. and Olson, C., *Current Knowledge on Breastfeeding: A Review For Medical Practitioners.* Division of Nutritional Sciences, Cornell University, Ithaca, New York 14853. 1980. 22 pages, $2.50.

5) *Nutrition During Pregnancy and Lactation.* Maternal and Child Health Unit, California Department of Health, 714 P Street, Sacramento, California 95814. 1975. 108 pages, single copies are free.

Journal Articles

1) American Academy of Pediatrics, "The Promotion of Breast-Feeding." *Pediatrics* 69 (5):654-66. 1982.

2) Applebaum, R. M., "The Modern Management of Successful Breastfeeding." *Pediatric Clinics of North America* 17:203. 1970.

3) Auerbach, K. G., "The Role of the Nurse in Support of Breastfeeding." *Journal of Advanced Nursing* 4:263. 1979.

4) Beske, E. J. and Garvis, M. S., "Important Factors in Breast-Feeding Success." *American Journal of Maternal Child Nursing* 7:174-179. 1982.

5) Bird, I. S., "Breastfeeding Classes on the Postpartum Unit." *American Journal of Nursing* 75:456. 1975.

6) Farebrother, R. I., "The Practical Management and Establishment of Breastfeeding." *Journal of Human Nutrition* 30(4):256-260. 1976.

7) Hall, J. M., "Influencing Breastfeeding Success." *Journal of Obstetric, Gynecologic and Neonatal Nursing.* Nov/Dec 1978, pages 28-32.

8) Kemberling, S. R., "Supporting Breast-Feeding." *Pediatrics* 63(1):60-63. 1979.

9) Lewis, L., "Successful Breast-Feeding Programs for Low-Income, Minority Mothers." *Public Health Currents* 22(1):1-4. 1982. (Ross Laboratories).

10) Malvern, J., "The Responsibility of the Obstetrician in the Establishment of Breast Feeding." *Journal of Human Nutrition* 30(4):253-255. 1976.

11) Thompson, E. B. and Rieley, P. B., "Toward Increasing Breast-Feeding: WIC as the Coordinating Agency." *WIC Currents* 7(3):9-12. 1982. (Ross Laboratories).

12) Tibbets, E. and Cadwell, K., "Opportunities for Community Health Professionals to Support Breastfeeding." *Journal of Nutrition Education* 13(4):132-133. 1981.

13) Winikoff, B. and Baer, E. C., "The Obstetrician's Opportunity: Translating "Breast is Best" From Theory to Practice." *American Journal of Obstetrics and Gynecology* 138(1):105-117. 1980.

Guidelines

1) *Lactation Protocol.* Arizona Department of Health Services, Bureau of Nutrition Services. Prepared by State, County, and Tribal Public Health Nutritionists in Arizona. 1981.

References for Special Situations

Cesarean Birth

1) La Leche League International, Inc., "Breastfeeding After a Cesarean Birth." (Reprint No. 80). (Client publication).

2) Ross Laboratories, "Breastfeeding After a Cesarean Birth." 1980. (Client publication).

Congenital Defects

1) Beck, F., "Breastfeeding the Baby With A Cleft Lip." *Keeping Abreast, Journal of Human Nurturing* 3(2):122-124. 1978.

2) Grady, E., "Breastfeeding the Baby with a Cleft of the Soft Palate." *Keeping Abreast, Journal of Human Nurturing* 3(2):126-130. 1978.

3) Piper, M. C. and Pless, I. B., "Early Intervention for Infants with Down Syndrome." *Pediatrics* 65(3):463. 1980.

Jaundice in the Breastfed Infant

1) Arias, O. et al., "Transient Familial Neonatal Hyperbilirubinemia." *Journal of Clinical Investigation* 44:1442. 1965.

2) Gartner, L., "Unconjugated Neonatal Hyperbilirubinemia." in Rudolph, A. M., ed. *Pediatrics.* New York, New York: Appleton-Century Crofts. 1977.

3) Guthrie, R. and Drew, J. H., "Dialogue: Breastfeeding and Jaundice." *Keeping Abreast, Journal of Human Nurturing* 3(1):47-57. 1978.

Management of Maternal Drug Therapy

1) American College of Obstetricians and Gynecologists. Committee on Obstetrics: Maternal and Fetal Medicine. "Breastfeeding and Contraception." 1981.

2) Cutie, A. J., and Goldberg, R. J., "Drug Excretion into Human Milk: Part II." *Pharmacy Times.* June 1982. pages 84-95.

3) Goldberg, R. J. and Cutie, A. J., "Drug Excretion into Human Milk: Part I." *Pharmacy Times.* May 1982. pages 60-69.

4) Hecht, A., "Advice on Breast-Feeding and Drugs." *FDA Consumer.* 13(9):21-22. 1979.

5) Lonnerdal, B. et al., "Effect of Oral Contraceptives on Composition and Volume of Breast Milk." *American Journal of Clinical Nutrition* 33:816. 1980.

6) Rothermel, P. and Faber, M. M., "Drugs in Breastmilk—A Consumer's Guide." *Birth and the Family Journal* 6(3):76-88. 1975.

7) White, G. J. and White, M., "Breastfeeding and Drugs in Human Milk." La Leche League International, Inc., Franklin Park, Illinois. 1978. 48 pages.

Maternal Diabetes

1) Merkatz, I. R. and Adam, P. A. J., editors., *The Diabetic Pregnancy: A Perinatal Perspective.* New York, New York: Grune and Stratton. 1979.

2) Miller, D. L., "The Diabetic Nursing Mother." *Keeping Abreast, Journal of Human Nurturing 1* (2): 102-107. 1979.

3) Pitkin, R. M., "Nutritional Requirements in Normal Pregnancy." *Diabetic Care* 40:472-475. 1980.

Nursing Twins

1) Addy, H. A., "The Breastfeeding of Twins." *Environmental Child Health.* October 1975. pages 231-239.

2) Health Education Associates. "Breastfeeding Your Twins." 1978. (Client publication).

3) La Leche League International, Inc., "Mothering Multiples." (Publication No. 52). (Client publication).

4) Leonard, L. G., "Breastfeeding Twins: Maternal-Infant Nutrition." *Journal of Obstetric, Gynecologic, and Neonatal Nursing.* May/June 1982. pages 148-153.

Preterm Infant

1) Auerbach, K. G., "Breastfeeding the Premature Infant." *Keeping Abreast, Journal of Human Nurturing 2* (2):98. 1977.

2) Davies, D. P., "Adequacy of Expressed Milk for Early Growth of Preterm Infants." *Archives of Diseases of Children* 52:296. 1977.

3) Fomon, S. J. et al., "Human Milk and the Small Premature Infant." *American Journal of Diseases of Children* 133:464. 1977.

4) Gross, S. J. et al., "Nutritional Composition of Milk Produced by Mothers Delivering Preterm." *Journal of Pediatrics* 96(4):641. 1980.

Slow-Gaining Breastfed Infant

1) Davies, D. P. and Evants, T. J., "Failure to Thrive at the Breast." *Lancet* 2:1194. 1977.

2) Frantz, K. B., Fleiss, P. M., and Lawrence, R. A., "Management of the Slow-Gaining Breastfed Baby." *Keeping Abreast, Journal of Human Nurturing* 3(4):287-308. 1978.

3) Pfeifer, D. R. and Ayoub, C., "Nonorganic Failure to Thrive in the Breastfeeding Dyad." *Keeping Abreast, Journal of Human Nurturing* 3(4):283-286. 1978.

4) Salariya, E. et al., "Breast Feeding and Milk Supply Failure." *Journal of Maternal Child Health.* February 1980. page 38.

Teenage Mothers

1) *Working With the Pregnant Teenager: A Guide for Nutrition Educators.* U.S. Department of Agriculture, Food and Nutrition Service. Program Aid No. 1303. 1981. 34 pages.

Recommended Books for Nursing Mothers

1) Brewster, D. P., *You Can Breastfeed Your Baby... Even in Special Situations.* Emmaus, Pennsylvania: Rodale Press. 1979. 596 pages. $11.95 softcover, $15.95 hardcover.

2) Eiger, M. S. and Olds, S. W., *The Complete Book of Breastfeeding.* New York, New York: Workman Publishing Co., Inc. 1972. $3.95 softcover, $8.95 hardcover.

3) Ewy, D. and Ewy R., *Preparation for Breastfeeding.* Garden City, New York: Doubleday and Co., Inc. 1975. 125 pages. $4.50 softcover.

4) McDonald, L. *The Joy of Breastfeeding.* Pasadena, California: Oaklawn Press. 1978. 95 pages. $4.95 softcover.

5) Pryor, K., *Nursing Your Baby.* New York, New York: Pocket Book Division of Simon and Schuster. 1973. 289 pages. $2.95 softcover.

6) Raphael, D., *The Tender Gift: Breastfeeding.* Englewood Cliffs, New Jersey: Prentice Hall. 1973. $4.50 softcover.

7) *The Womanly Art of Breastfeeding.* Franklin Park, Illinois: La Leche League International. 1981. 368 pages. $7.50 softcover, $12.95 hardcover. (Also available in Spanish).

Audiovisual Materials

Informational Audiovisuals

"Breastfeeding." (14 min.) color, sound, 16 mm. or videocassette. Milner-Fenwick, Inc., 2124 Green Spring Drive, Timonium, MD 21093. Purchase: $250. Covers benefits of breastfeeding, prenatal breast preparation, when and how to start nursing, and involvement of father and siblings. Also includes how to burp the baby, how to use a breast pump, recommended diet for the mother, and a warning on the use of drugs. (Also available in Spanish).

"Breastfeeding, A Practical Guide." (15 min.) color, sound, 16 mm. video-cassette, Betamax, or VHS. Motion Incorporated, 4437 Klingle Street, N.W., Washington, DC, 20016. 1982. Purchase: $295 each part. Rental: $40 each part. A two-part presentation: Part I—preparation for breastfeeding; Part II—once home, problems that may be encountered and how to cope with them. A detailed teaching manual is also available for $6.00.

"Breastfeeding: Prenatal and Postpartal Preparation." (26 min.) color, sound. 16 mm. Polymorph Films, 118 South Street, Boston, MA 02111. Purchase: $450. Rental: $45. Designed to guide health professionals in instructing expectant and new mothers in the preparation and care of their breasts for breastfeeding.

"Breastfeeding Series." color, script, 35 mm. slides, 72 slides. Photoview Instructional Aids, 27935 Roble Alto, Los Altos Hills, CA 94022. 1975. Purchase: $26. These slides present breastfeeding and breast care techniques, and information on other aspects of the breastfeeding process.

"Breastfeeding: The Natural Way." (25 min.) color, sound. 16 mm. or (14 min.) slide/cassette program. Available on loan from local Ross representative, or from Ross Laboratories, 625 Cleveland Ave., Columbus, OH 43216. Purchase: $95 (m.p.); $50 (slides). Covers breast development during pregnancy, prenatal breast preparation, breastfeeding technique and diet. (Also available in Spanish.)

"Learning to Breastfeed." (22 min.), color, sound. 16 mm. Polymorph Films, 118 South Street, Boston, MA 02111. 1979. Purchase: $395. Rental: $40. Deals with initial nursing experiences—provides a wide range of information and solutions to common problems.

"Preparation for Breastfeeding." (10 min.) color, sound, 16 mm. Also slides and filmstrip. Educational Graphic Aids, 1315 Norwood Ave., Boulder, CO. 1976. Purchase: $130. Rental: $20. Information on breastfeeding is given as a young couple is followed through the woman's pregnancy, birth, and postpartum period. Techniques of successful nursing are discussed, as well as problems and solutions.

Motivational Audiovisuals

"Bond of Breastfeeding." (20 min), color, sound, 16 mm. Super 8 mm., video-cassette. Perennial Education, Inc., 477 Roger Williams, Highland Park, IL 60035. 1978. Purchase $300. Rental $30. Presents emotional aspects of breastfeeding and positive factors.

Breastfeeding." (4.5 min.), color, sound, 16 mm. or video-cassette. New Orleans Video Access, 2010 Magazine Street, New Orleans, LA 70130. 1981. Purchase: $195; 2-5 copies $175 each; 6 or more copies $160 each. The advantages of breastfeeding are introduced in an advertisement format. Individual women, representing a wide range of cultural and socioeconomic backgrounds, discuss their opinions and concerns about breastfeeding.

"Breastfeeding: A Special Closeness." (23 min.), color, sound, 16 mm. and 3/4 in. video-cassette. Motion, Inc., 4437 Klingle Street, N.W., Washington, D.C. 20016. 1977. Purchase: $285. Rental: $40. Preview prints available. Features parents of different ethnic and economic groups and explores the issues and concerns of expectant parents regarding breastfeeding.

"Breastfeeding: It's the Natural Thing To Do." (8.5 min.), color, sound, 16 mm. Kuona, Ltd., 1303 Spring Street, N.W., Atlanta, GA 30309. 1978. Purchase: $55. The advantages of breastfeeding are outlined. Some reasons for women deciding not to breastfeed are discussed. Also, problems to expect while breastfeeding are addressed.

"Breastfeeding for the Joy of It." (31 min.), color, sound, 16 mm. J. Hathaway Productions, P.O. Box 5224, Sherman Oaks, CA 91413. 1977. Purchase: $350. Super 8 and video-cassette $225. Rental: $35 and $5 postage. Preview available in 16 mm. format only. Includes medical and technical information about breastfeeding and presents aspects of mothering and breastfeeding from nursing women with a variety of backgrounds.

"Dar Pecho." (10 min.), color, sound, 16 mm. or video-cassette. Videograph, 2833 25th Street, San Francisco, CA 94111. 1979. Purchase: $195 (m.p.); $150 (video-cassette). Rental: $25. The advantages of breastfeeding are presented in Spanish. Other topics covered are: preparation for breastfeeding, maternal nutrition, health and hygiene, the importance of family support, and the possibilities of working while breastfeeding.

"Talking About Breastfeeding." (17 min.), color, sound, 16 mm. Polymorph Films, 118 South Street, Boston, MA 02111. 1971. Purchase: $295. Rental: $30. A number of women discuss the value of breastfeeding in their lives and in the lives of their families, and how they managed to breastfeed despite obstacles.

"The Breastfeeding Experience." (23 min.), color, sound, 16 mm. or videotape. Parenting Pictures, 121 N.W. Crystal Street, Crystal River, FL 32629. 1978. Purchase: $290. Rental: $42. Nursing families share the feelings and experiences they had in breastfeeding their infants. Mothers relate their difficulties and satisfactions of the breastfeeding experience.

Breastfeeding Aids and Devices

Breast Pumps: These are devices that allow easier and more efficient expression of breast milk. They are used under a variety of circumstances, including: working mothers, separation of mother and baby, relactation, temporary illness of mother or baby, inability of the baby to suck, or the baby is premature.

1. Davol or Faultless hand pumps are available in some pharmacies.

2. Egnell Electric Pump:
   Egnell Inc.
   412 Park Avenue
   Cary, Illinois 60013

   Egnell has local rental depots and will supply a list on request.

3. Evenflo Breast Pump:
   Evenflo Products Co.
   771 North Freedom St.
   Ravenna, Ohio 44266

   Evenflo Pump is available by mail. It is also available in most pharmacies and department stores.

4. Kaneson Expressing and Feeding Bottle:
   Happy Family Products
   1252 S. La Cienega Blvd.
   Los Angeles, California 90035

   Kaneson Expressing and Feeding Bottle is available by mail order.

5. Loyd-B Pump:
   Lopuco. Ltd.
   1615 Old Annapolis Rd.
   Woodbine, Maryland 21797

   Loyd-B Breast Pump is available by mail order.

Lact-Aid Nursing Trainer: This is a device that can help a woman nurse an adopted baby or help her return to breastfeeding once she has stopped. While nursing, the baby receives formula or donated breast milk through a tube, which connects to a plastic bag supported between the mother's breasts. Since the baby suckles the

breast and nursing tube at the same time, this stimulates the breasts to produce milk. As the mother's milk supply increases, the baby takes less supplement.

Lact-Aid Nursing Trainer:
Lact-Aid
Box 6861
Denver, Colorado 80296

Lact-Aid Nursing Trainer is available by mail order or through authorized Lact-Aid representatives. Order can be placed by phone for prompt delivery.

Milk Cups: These are clear, hard plastic devices worn during pregnancy or between nursings by women with flat, inverted, or semi-inverted nipples. They depress the area around the nipple and force it to extend forward.

1. Confi-Dri Cups:
   Childbirth Education Association of Greater Philadelphia
   814 Fayette St.
   Conshohocken, Pennsylvania 19428

2. Woolwich Shield:
   La Leche League, International
   9616 Minneapolis Ave
   Franklin Park, Illinois 60131

3. Free and Dry Cups:
   Monterey Laboratories, Inc.
   P.O. Box 15129
   Las Vegas, Nevada 89114

4. Netsy Cup:
   Netsy Co.
   34 Sunrise Ave.
   Mill Valley, California 94941

5. O-cal-ette Cup:
   Parmics, Inc.
   1878 S. Redwood Rd.
   Salt Lake City, Utah 84104

Other Products (available through pharmacies)

1. The Nuk Exercisor (pacifier) and Nuk bottle nipple: These have been designed in such a way that the infant uses the same sucking pattern as it does during breastfeeding. This helps to avoid problems which can be caused by the infant having to learn two different sucking patterns.

2. Breast shield: This is an all-rubber device that is used to draw out a flat, inverted, or semi-inverted nipple.

3. Nipple shield: This is a combination rubber and plastic device that is used to draw out a flat, inverted, or semi-inverted nipple.