

# Hospital Breastfeeding Policies and Practices in South Korea: A Comparison with the WHO/UNICEF Ten Steps

*Andrea Crivelli Kovach<sup>1</sup> · Heasook Kim<sup>2</sup>*

## **Abstract**

**Background:** The purpose of this study was to describe breastfeeding policies and practices among hospitals in South Korea and the degree to which the hospitals are implementing the WHO/UNICEF Baby Friendly Hospital Initiative. **Methods:** A cross-sectional survey of 34 hospitals was used to collect data. Quantitative and qualitative information and insights into current breastfeeding policies and practices were derived from responses of maternal and child health personnel at each hospital. One questionnaire per hospital was completed with personnel from all sections of maternity services, labor and delivery, nursery, and postpartum, contributing information needed to create a composite picture of the hospital's breastfeeding policies and practices.

**Results:** Most hospitals were classified as either high or moderately high implementers on four of the Ten Steps: printed information distributed to breastfeeding mothers, oral breastfeeding instruction given to mothers, infant supplementation, and infant feeding schedules. The remaining steps, including key practices like staff instruction, breastfeeding initiation, rooming-in, and hospital postpartum support are being partially implemented by the majority of hospitals in this study.

**Conclusions:** Areas identified as needing the greatest attention by hospitals were health care staff training, breastfeeding initiation, supplementation, rooming-in, breastfeeding policy, and postpartum support for the breastfeeding mother.

*Key words : Health promotion, Rheumatoid arthritis, Health promoting strategies, Nursing intervention, Health education*

## **Introduction**

Epidemiological evidence has shown that breastfeeding is the optimal form of infant nutrition for the first 12 months of life and is currently endorsed by the World Health Organization (WHO), the American Academy of

Pediatrics, the American Dietetic Association, the American Medical Association, the American Public Health Association, and the U.S. Department of Health and Human Services (American Academy of Pediatrics, 1997; World Health Organization, 1989; World Health Organization, 1990).

---

1. PhD., CHES Assistant Professor, Arcadia University, U.S.A.

2. R.N., EdD., Visiting Professor, Georgia College & State University, U.S.A.

Received 18 September 2000; Accepted 21 November 2000.

One of the Healthy People 2010 Health Objectives for the United States is to increase to 75 percent the number of mothers who initiate breastfeeding in the hospital, 50 percent who breastfeed their infants until 6 months postpartum, and 25 percent who continue breastfeeding until 12 months of age (U.S. Department of Health and Human Services, Public Health Services, 2000). Breastfeeding rates have fluctuated worldwide during the past century and current rates remain below the projected Health Objectives.

Throughout the twentieth century breastfeeding rates have consistently declined. In the United States, breastfeeding was at an all time high in 1922 when 90 percent of all infants were breastfed at 12 months of age (Woodbury, 1922). This reached a low in 1968 when only 18 percent of all infants were breastfed at hospital discharge (Meyer, 1968). In 1997, approximately 62 percent of all infants in the U.S. were breastfed in the hospital (46 % exclusively) (Mother's Survey, 1997). Despite a resurgence of breastfeeding in the United States in the 1980s, formula feeding remains a cultural norm today (Ryan, 1997). This trend is also being seen in other countries worldwide. In a recent study comparing mothering behaviors in Korean versus American mothers, researchers found that among the Korean mothers, most mothers were bottle feeding (67%), while only 17 percent were exclusively breastfeeding and 14 percent were both breast and bottle feeding. This is a dramatic departure from the traditional custom in Korea of breastfeeding an infant on demand for as long as three years (Choi, 1995).

Does bottle feeding as a cultural norm really matter in industrialized countries where formula is plentiful and women work outside the home? The answer is yes, for two reasons. First, breastfeeding is the final stage in the birthing process. It provides health benefits to the baby and mother, fertility control, and psychological benefits for both mother and baby. Second, breastfeeding decreases infant mortality rates.

According to Miriam Labbock (Labbock, 1993), there are 39,000 infant deaths per year in the United States. Within the neonatal period, congenital anomalies and preterm neonates represent two-thirds of the deaths. Breast milk

has been shown to be particularly beneficial for premature infants. Within the postneonatal period, about one-third of all deaths are due to sudden infant death syndrome (SIDS), respiratory illnesses, and low-birth weight. An estimated 3,000 to 5,000 infant deaths each year from SIDS, respiratory illnesses, and low-birth weight might be reduced if all women optimally breastfed (Brennan, 1993; Meier & Anderson, 1987; Labbock, 1993; Bernshaw, 1991).

In response to global breastfeeding promotion efforts, professional organizations and maternal and child health advocacy groups are conducting action-based and participatory community research and exploring innovative ways of increasing breastfeeding rates in South Korea. A baseline-evaluation of hospital breastfeeding policies was conducted in Seoul, South Korea was conducted under the auspices of the National Lactation Consultants Association and the National Childbirth Association. The purpose of this study was to describe breastfeeding policies and practices among hospitals in South Korea and the degree to which the hospitals are implementing the WHO/UNICEF Baby Friendly Hospital Initiative.

## Literature Review

The benefits of breastmilk for infants are well documented and can be classified according to nutritional, immunological, physiological, and psychological benefits. Nutritional benefits encompass not only the provision of essential vitamins and minerals for optimal growth and development but also the proper balance of macro nutrients in forms that are easily digested and absorbed. Immunological benefits include the short-term immunity passed on to the infant, the anti-infective properties of breastmilk that protects infants against microbial agents in the gastrointestinal tract, and long-term immunological development that may protect against auto-immune diseases later in life. Physiological benefits include proper jaw development through suckling at the breast and gut closure. In addition, breastmilk is particularly beneficial for preterm infants. The nutritional needs of preterm infants are different from those of full term

infants. Preterm milk is uniquely suited to the increased caloric needs and growth rates seen in preterm infants. Psychological benefits are derived from the skin-to-skin contact between mother and infant that encourages bonding (Neifert, 1998; Cunningham, 1986; Cunningham, Jelliffe & Jelliffe, 1991; Fomon, Filer, Anderson & Ziegler, 1979; Howell, Morriss & Pickering, 1986; U.S. Department of Health Services, 1994; Wilson, Forsyth, Greene, Irvine, Hau & Howie, 1998; Walker, 1993; Walker, 1992; Walker, 1985; Kretchmer, 1985; Lauwers & Woessner, 1983; Hamosh, Bitman, Wood, Hamosh & Mehta, 1985; Hanson, Ahlstedt, Andersson, Carlsson, Fallstrom, Mellander, Porras, Soderstrom & Eden, 1985; Infant Feeding Action Coalition, 1991; International Lactation Consultant Association, 1991).

In 1991, UNICEF and WHO launched the Baby Friendly Hospital Initiative (BFHI). This initiative is a global effort to protect the lives and futures of babies by making health care professionals "the prime movers in re-creating a world environment that supports, protects, and promotes the practice of breastfeeding--a world environment that is friendly to babies and their mothers" (Kyenya-Isabirye, 1992).

WHO defines a baby friendly hospital as one that focuses on the baby's needs and empowers mothers to believe in their own ability to care for

and nurture their infants. A baby-friendly hospital adapts its routines to support the mother-infant dyad. The WHO BFHI is operationalized in the Ten Steps to successful breastfeeding (Table 1). These steps were developed to assist hospitals in adapting present maternal and newborn policies to include specific policies that encourage breastfeeding (World Health Organization, 1990; United Nations Children's Fund, 1992; Kyenya-Isabirye, 1992; World Health Organization, 1989; United Nations Children's Fund, 1992).

Factors affecting a woman's decision to breastfeed and her subsequent breastfeeding success or failure are vastly different. Social/cultural, demographic, and economic factors that directly affect an individual woman's choice of breast versus bottle represent factors that are relatively stable and difficult to change. These factors, including income group, age, marital status, ethnicity, and education level affect a woman's behavior regarding both the infant feeding choice and breastfeeding duration. In contrast, structural characteristics of hospitals represent factors that encourage or discourage, promote or impede a woman's actual breastfeeding attempts. For example, staff education and attitudes can directly affect a woman's breastfeeding experience. In an examination of the

**Table 1.** TEN STEPS TO SUCCESSFUL BREASTFEEDING WHO/UNICEF Baby Friendly Hospital Initiative

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

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

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

obstacles to breastfeeding in a large metropolitan hospital (Grant, 1992), results showed that repeated and extensive professional education helps to create the context within which hospital policies and practices can be reassessed. The Executive Director of UNICEF (Winikoff, Myers, Laukaren & Stone, 1987) concurred that health personnel play a special role in promoting and protecting breastfeeding and that training is a key factor in changing attitudes and practices.

By examining hospital policies, we explore not only how specific practices either encourage or discourage a woman in her decision to breastfeed, but also how medical policies shape behavior associated with breastfeeding success.

Hospitals worldwide need to examine existing breastfeeding policies and practices in order to identify strategies to implement the WHO/UNICEF BFHI. In Korea, twelve hospitals have been awarded Baby Friendly status from the Korean Committee for UNICEF. These hospitals have met the majority of the criteria described in the Ten Steps and 28 additional hospitals have expressed a desire to attain Baby Friendly status. Collecting data on implementation levels of the Ten Steps for hospitals in South Korea will establish a baseline measure, which can be used for guiding breastfeeding promotion efforts and comparing changes in hospital policies and practices over time.

## Methods

**Subjects.** The selection of hospitals for this study included hospitals from the cities of Seoul, Busan, and Daegu in South Korea. Fifty hospitals offering maternity services were invited to participate in the study. Thirty-four hospitals completed surveys giving a response rate of 68 percent. Researchers identified a maternal and child health administrative contact at each hospital and sent a letter to inform them of the study and request participation. Surveys were mailed to the director of maternity services. The survey was designed to explore each hospital's breastfeeding policies and practices.

**Design.** A cross-sectional survey of 34 hospitals was used to collect data. Quantitative

and qualitative information and insights into current breastfeeding policies and practices were derived from responses of maternal and child health personnel at each hospital. To that extent, one questionnaire per hospital was completed with personnel from all sections of maternity services--labor and delivery, nursery, and postpartum--contributing information needed to create a composite picture of the hospital's breastfeeding policies and practices.

**Measures.** A questionnaire was developed to measure the dimensions identified by WHO and UNICEF as key to each of the Ten Steps to Successful Breastfeeding. This questionnaire was developed in 1994 as an assessment tool for hospitals in the Southeastern Pennsylvania Delaware Valley, USA, to measure their level of implementation of the Ten Steps (Kovach, 1995; Kovach, 1996; Kovach, 1997). The questionnaire was revised in 1999 to reflect changes in policies over the past 5 years and to include questions that measure hospitals practices not covered in the Ten Steps. The questionnaire was translated into Korean for use in the current study.

Ten index variables, representing the Ten Steps, were used to classify the hospitals' level of implementation of the Ten Steps and in data analyses. Hospitals were classified as high, moderate, partial, or low implementers by level of implementation on each of the Ten Steps and by overall implementation of the Ten Steps. Questions were designed to reflect the degree to which a practice was being done (eg. all or most of the time, some of the time, seldom or not at all). Answers were assigned numerical ratings and an average rating for each step obtained. The system used to classify hospitals by level of implementation of the Ten Steps is described elsewhere (Kovach, 1996).

## Results

Socio-demographic characteristics of the hospitals are shown in (Table 2). Of the 34 participating hospitals, 3 (9%) were classified as community hospitals, 4 (12%) as teaching hospitals, 19 (56%) as hospitals associated with a medical school, and 8 (24%) as clinics.

**Table 2.** Demographic Characteristics of Surveyed Hospitals (South Korea 2000)

Characteristics	N (n=34)	%**
<b>Hospital Type</b>		
Community	3	8.8
Teaching	4	11.8
Medical School	19	55.9
Other (Clinic)	8	23.5
<b>NICU Classification</b>		
No NICU	8	25.0
Level I NICU	7	21.9
Level II NICU	8	25.0
Level III NICU	9	28.1
<b>Total Bed Capacity</b>		
Under 250 beds	4	11.8
250-500	14	41.2
501-750	5	14.7
751-999	8	23.5
1000 and over	3	8.8
<b>Deliveries/Year</b>		
Under 500	2	5.3
501-1000	12	31.5
1001-2500	20	53.0
2501-3500	3	7.9
Over 3500	1	2.6
<b>Number of Mothers BF*</b>		
0-20%	2	6.7
21-40%	3	10.0
41-60%	6	20.0
61-80%	8	26.6
81-100%	11	36.7
<b>Hospital Stay</b>		
Normal Deliveries		
Up to 25 hours	2	5.9
26-48 hours	17	50.0
over 48 hours	15	44.1
<b>Caesarean Deliveries</b>		
49-72 hours	1	2.9
Over 72 hours	33	97.1

\* Breastfeeding at Discharge

\*\* valid percents reported based on the number of hospitals answering each question

Breastfeeding rates at the time of discharge were collected. For those hospitals who recorded the number of mothers breastfeeding at discharge (6/18%), self-reported breastfeeding rates were

collected. For those hospitals who did not track or record the number of mothers breastfeeding at discharge (28/82%), self-reported estimates of breastfeeding rates were obtained, based on the observations of either the lactation consultant or nursing staff. Breastfeeding rates ranged from 5 percent to 90 percent with 19 (64%) of the hospitals reporting hospital breastfeeding discharge rates over 60 percent.

#### Hospital Practices Related to the Ten Steps

The Ten Steps are grouped by category: formal policy, education and support and nursing protocols, such as breastfeeding initiation and supplementation, to facilitate discussion of the results.

#### Formal policy, education, and support

The steps addressing policy, education, and support include: (a) formal policy (Step 1), (b) health care professional education (Step 2), (c) breastfeeding information given to mothers (Step 3), (d) information given to mothers who are separated from their babies (Step 5), and (e) hospital discharge practices (Step 10).

Step 1: Have a written breastfeeding policy that is routinely communicated to all health care staff. A key component in the movement to promote breastfeeding is changing hospital policies and practices to create atmospheres that not only promote breastfeeding but also support a mother from prenatal through post-discharge care. The existence and content of a formal written breastfeeding policy were examined to understand each hospital's commitment to complying with the Ten Steps recommendations. Twelve (35%) hospitals reported having formal breastfeeding policies (Table 3). Of the 12 hospitals reporting having formal policies, over 50 percent reported including a) formal inservices for staff, b) prenatal classes, c) initiating breastfeeding within 1 hour following delivery, d) procedures to help mothers pump milk when separated from their babies, e) rooming-in, f) demand feeding, g) restricting the use of pacifiers, and h) referring mothers to community resources.

Support of the policy was examined in terms of physician and nursing support as separate components. Less than 50 percent of these hospitals reported having physician support of the policy. However, positive nursing support for

**Table 3.** Proportion of Surveyed Hospitals Reporting Formal Breastfeeding Policies (South Korea 2000) (Step 1)

Formal Policy Issues	N (n=34)	% Yes
Formal Policy		
Have a formal policy	12	35.3
Policy calls for:		
a. formal in-service for staff	11	32.4
b. prenatal classes	11	32.4
c. initiate breastfeeding within 1 hour	8	23.5
d. procedures to maintain lactation	9	26.5
e. restrict infant supplementation	5	14.7
f. encourage 24-hour rooming-in	7	20.6
g. encourage demand feeding	10	29.4
h. restrict the use of pacifiers	8	23.5
i. refer mothers to community resources	11	32.4
j. refer problems to appropriate resource	12	35.3
Support of the policy		
a. physician support	6	18.2
all/most of the physicians	4	12.1
some of the physicians	2	6.1
b. nursing support	10	30.3
all/most of the nurses on staff	8	24.2
some of the nurses on staff	2	6.1
Availability of Policy		
Policy available for referral by staff	8	23.5
Policy posted in maternal/child unit	12	35.3
Policy Evaluation		
Mechanism to evaluate the policy	1	2.9

the breastfeeding policy was reported in 10 (83%) out of 12 hospitals with formal policies. All (100%) of the hospitals having policies reported posting the policy so that mothers and staff could refer to it. In some cases, the Ten Steps to Successful Breastfeeding were adopted as the hospital's policy and a large poster of the Ten Steps was displayed on the wall in the maternity unit. Only one hospital reported having a mechanism in place to evaluate the effectiveness of the hospital's policy.

#### Step 2: Physician/Nurse Training in Breastfeeding.

Training health care professionals in the skills necessary to promote breastfeeding encompasses increasing the current level of knowledge along with changing attitudes. Three dimensions were identified as components of this step including: a) proportion of the staff informed of the policy or breastfeeding protocol, b) formal in-services for

physicians and nurses, and c) basic breastfeeding training for physicians and nurses (Table 4). Approximately one-third (32%) of the hospitals reported that all or most of the physicians and nurses were informed of the policy and 14 (41%) hospitals reported some of the nurses and physicians were informed.

**Table 4.** Proportion of Hospitals Reporting Physician/Nurse Training in Breastfeeding (South Korea 2000) (Step 2)

Staff Education	N (n=34)	%
Staff informed of the policy		
All/most of the staff	11	32.4
Some of the staff	14	41.2
Formal in-services		
Physicians and nurses	1	2.9
Nurses only	7	20.6
No Program	26	76.5
Frequency of Programs		
Monthly/quarterly/semi-annual	1	2.9
Annually/as needed	7	20.6
No program	26	76.5
Basic breastfeeding training		
a. physicians		
9-17 hours	0	
3-8 hours	4	11.8
Less than 3 hours/no training	30	88.3
b. nurses		
18+ hours	1	2.9
9-17 hours	2	5.9
3-8 hours	3	8.8
Less than 3 hours/no training	28	82.4
Training Received Outside Hospital		
Yes	20	58.8
Percent of Nurses on Staff Attending Outside Training		
> 50%	1	2.9
< 50%	19	74.0

Formal inservices for physicians and nurses are offered in only 1 (3%) hospital while inservices for nurses only are offered in 7 (21%) hospitals. Only 1 (3%) hospital offered formal breastfeeding inservices either monthly or quarterly, while 7 (21%) hospitals offered inservices annually or on an as needed basis. Twenty-six (77%) have no formal programs at all. Basic

breastfeeding education and training was assessed for physicians and nurses separately. In 30 (88%) hospitals, physicians reportedly receive either no breastfeeding education training or less than three hours while 4 (12%) hospitals reported that physicians receive 3 to 8 hours of breastfeeding training. For nurses, 28 (82%) hospitals reported either no breastfeeding education training or less than three hours. Three (9%) hospitals offered three to eight hours of breastfeeding education training, two (6%) offered 9 to 17 hours, and one (3%) offered over 18 hours of training for their nurses. Twenty (59%) hospitals reported having nurses receive training outside the hospital. Several breastfeeding management courses are offered throughout South Korea to prepare nurses for the International Lactation Consultant Board Examination. Within the past year, over 140 nurses completed the required training and sat for the exam.

Step 3: Informing Mothers about Breastfeeding Benefits and Management. The WHO initiative gives health care professionals the directive to inform mothers about the benefits and management of breastfeeding. Mother/client education in the prenatal and postpartum setting as defined in this step include prenatal classes and information given to mothers on the postpartum floor. Twenty hospitals (59%) offer prenatal classes and 13 (38%) reported including 30 minutes or more of breastfeeding instruction within the classes. Some hospitals (19/56%) did not offer breastfeeding as part of a class or series of classes but offered a separate breastfeeding class for interested mothers.

Twenty-six (79%) hospitals gave mothers printed information on the postpartum floor. Twenty-five (76%) of the hospitals distributed only in-house generated information, and childbirth/breastfeeding organization pamphlets. Three (9%) hospitals distributed a combination of breastfeeding information and formula company pamphlets. In five (15%) hospitals, only formula company produced information was distributed.

Step 5: Breastfeeding Instruction and Special Care. Promoting and supporting mothers of premature, low-birth weight, and small for gestational age infants who choose to breastfeed is a key part of the BFHI. The WHO/UNICEF

initiative advises health care practitioners to encourage and support mothers whose newborns are separated from them at birth and placed in the NICU. Embedded in this step is the presence of knowledgeable staff and one-to-one breastfeeding instruction given to mothers on the postpartum floor (Table 5).

**Table 5.** Proportion of Hospitals Reporting Instruction Given to All Breastfeeding Mothers and Mothers With Babies in Special Care (South Korea 2000) (Step 5)

Breastfeeding Instruction Issues	N	%
	(N=34)	Seoul
Presence of a Lactation Consultant (LC)		
Yes (full-time LC--7-8 hrs/day)	4	11.8
Yes (active part-time LC--2-6 hrs/day)	6	17.6
No (limited part-time/no LC--<2 hrs/day)	24	70.6
Breastfeeding mothers receive instruction		
All/most of the time	19	55.9
Some of the time	8	23.5
Seldom/if any	7	20.6
When does instruction occur		
With the first feeding	26	78.8
Within 12 hours after delivery	4	12.1
Breastfeeding mothers shown how to express breastmilk		
All/most of the time	14	41.2
Some of the time	15	44.1
Seldom/Not at all	5	14.7
Mothers of babies in special care helped to establish and maintain lactation		
All/most of the time	19	55.9
Some of the time	10	29.4
Seldom/if any	5	14.7

The presence of knowledgeable staff was divided into three categories--full-time, part-time, and limited part-time or no lactation consultant on staff. Several hospitals reported having nurses on staff that are trained in breastfeeding management. Ten (29%) hospitals reported having a full-time (7-8 hours/day) lactation consultant on staff or part-time coverage (2-6 hours/day). In hospitals where there is limited coverage or no lactation consultant on staff, it appears that many

mothers may not be receiving the one-to-one counseling that they need to develop good feeding techniques, establish a good milk supply, and avoid potential feeding problems after discharge. Nineteen (56%) hospitals reported giving their mothers breastfeeding instruction all or most of the time, while eight (24%) counseled mothers some of the time.

A key issue for staff, in promoting and supporting mothers who choose to breastfeed, is the added support and guidance needed by mothers whose babies are placed in the NICU. Additional support in terms of demonstrating breast pumping techniques to establish and maintain a milk supply and making the transition from gavage/tube feedings to breastfeeding for the baby takes time and patience. Nineteen (56%) hospitals reported helping mothers separated from their babies to establish and maintain lactation by expressing milk at least 6 to 8 times/day all or most of the time and an additional 10 (29%) hospitals reported doing this some of the time. Only 14 (41%) hospitals reported showing all or most breastfeeding mothers how to express their milk by any method (hand, manual pump, electric pump) while another 15 (44%) hospitals demonstrated pumping sometimes.

Step 10: Hospital Discharge Practices. Postpartum support for new breastfeeding mothers encompasses multiple dimensions, each having a positive effect on breastfeeding duration. Four ways hospitals provide support for the breastfeeding mother following discharge include a) making follow-up phone calls, b) referring mothers to community resources, c) providing postpartum breastfeeding classes, and d) conducting breastfeeding support groups on the hospital premises and/or using peer counselors (Table 6).

Few hospitals (6/18%) referred breastfeeding mothers to community resources for support after discharge. Community breastfeeding support groups are not commonplace in South Korea.

Rather, support for the new mother generally comes from her family and outside lactation consultants. Only 12 (35%) hospitals reported giving follow-up support after discharge to all or most of their breastfeeding mothers. Eleven (33%) hospitals reported having post-discharge breastfeeding classes, five (15%) utilized trained

**Table 6.** Proportion of Hospital Reporting Hospital Discharge/Post-discharge Follow-Up, Support, and Education (South Korea 2000) (Step 10)

Hospital Discharge/Postpartum Support Issues	N	%
(n=34)		
Referral of Mothers to Community Resources		
Breastfeeding mothers referred to support groups at discharge		
All/most of the time	4	12.1
Some of the time	2	6.1
Seldom/not at all	27	81.8
Post-discharge Follow-up Support		
Breastfeeding mothers given follow-up support after discharge		
All/most of the time	12	35.3
Some of the time	2	5.9
Seldom/not at all	20	58.8
Post-discharge Breastfeeding Classes		
Hospitals provide postpartum breastfeeding classes/support groups following discharge		
Yes	11	33.3
No	22	66.7
Hospitals encourage family participation		
Yes	14	43.8
No	18	56.3
Use of Trained Peer Counselors		
Hospital utilize trained peer counselors		
Yes	5	15.2
No	28	84.8
Breastfeeding support groups conducted on hospital premises		
Yes	6	18.2
No	27	81.8

peer counselors, and 6 (18%) conducted breastfeeding support groups on the hospital premises.

#### Nursing protocols

The remaining 5 steps focus on nursing practices that influence breastfeeding. These include: (a) breastfeeding initiation (step 4), (b) infant supplementation (step 6), (c) rooming-in (step 7), (d) feeding schedules (step 8), and (e) pacifier use (step 9).

**Step 4: Initiating breastfeeding.** Three dimensions of breastfeeding initiation were identified including contact time after delivery, breastfeeding initiation, and nursery stays. Within each of these dimensions distinctions were made for normal vaginal deliveries and cesarean births (Table 7).

Differences were noted between vaginal-birth mothers and cesarean-birth mothers for contact following delivery and nursery stays. Fourteen (42%) hospitals encouraged vaginal-birth mothers to hold their babies within a half hour following delivery while only 2 (6%) reported encouraging cesarean-birth mothers to do the same. Most hospitals (27/84% vaginal, 30/88% cesarean) reported less than 15 minutes contact time following delivery. Additionally, the majority of hospitals reported all or most of the mothers initiating breastfeeding over two hours after delivery for both vaginal-birth mothers (25/74%) and cesarean-birth mothers (32/94%). While 14 (41%) hospitals reported not separating mothers and babies, infant nursery stays were structured and closely regulated at 15 (44%) hospitals for vaginal-birth mothers and 33 (97%) hospitals for cesarean-birth mothers. This directly affects the timing of the first breastfeeding for mothers who do not initiate breastfeeding shortly after delivery. Additionally, cultural perceptions of the quality of colostrum for newborns may also impact timing of the first feeding. Cultural perceptions regarding breastfeeding will be explored in a future study. Most hospital identified breastfeeding babies either on the crib card or in the baby's hospital record. One hospital reported only identifying formula-fed babies on the crib card because they want all babies to be viewed as breastfed babies.

**Step 6: Infant supplementation.** Supplementation of breastfed infants encompasses prelacteal feedings and supplementary/complementary feedings. Prelacteal feedings generally consist of bottle feedings of sterile water or a five percent glucose water during the first 12 hours of an infant's life.

Supplementary and complementary feedings interfere with breastfeeding by reducing suckling at the breast, increasing infant weight loss, increasing serum bilirubin levels, and interfering with proper suckling technique.

Over half of the hospitals reported supplementing breastfed babies through prelacteal

**Table 7.** Proportion of Hospitals Reporting Practices That Influence Breastfeeding Initiation(South Korea 2000) (Step 4)

Breastfeeding Initiation	Normal Birth N (n=34)	Cesarean Birth N (%)
<b>Contact after Delivery/Contact Time</b>		
Mothers encouraged to hold babies within half-hour of birth		
All/most of the time	14 (42.4)	2 ( 5.9)
Some of the time	5 (15.2)	4 (11.8)
Seldom/if ever	14 (42.4)	28 (82.4)
Length of contact		
Over 30 minutes	3 ( 9.4)	3 ( 8.8)
15-30 minutes	2 ( 6.3)	1 ( 2.9)
Up to 15 minutes	27 (84.4)	30 (88.2)
<b>First Breastfeeding</b>		
Baby first put to breast		
Within 1st hour after delivery	7 (20.6)	1 ( 2.9)
1-2 hours after delivery	2 ( 5.9)	1 ( 2.9+)
Over 2 hours after delivery	25 (73.5)	32 (94.1++)
Help initiating breastfeeding		
All/most of the mothers	26 (76.5)	26 (76.5)
Some of the mothers	5 (14.7)	5 (14.7)
Few/if any	3 ( 8.8)	3 ( 8.8)
<b>Nursery Stay</b>		
Mothers/babies not separated	14 (41.2)	0
Up to 2 hours	5 (14.7)	1 ( 2.9)
2-4 hours/3-8 hours+	15 (44.1)	17 (49.9)
>8 hours	16 (47.1)	

+ 1-2 hours after recovery from a cesarean birth  
++ 3-8 hours after recovery from a cesarean birth

feeds, test feedings, or supplementary and/or complementary feedings. However, 30 (88%) hospitals reported not receiving free supplies of infant formula. In addition, few hospitals reported displaying promotional materials for infant formula (7/20%), distributing printed information on bottlefeeding to breastfeeding mothers (13/39%), or giving mothers discharge packs containing powdered formula and coupons (4/12%).

**Step 7: Rooming-in.** Rooming-in, as defined by WHO and UNICEF, means allowing mothers and babies to remain together at least 23 hours a day. Thirteen (38%) hospitals reported having

24-hour rooming-in available (Table 8). Of these, 7 (21%) hospitals reported most or some of the mothers requested 24 hour rooming-in while only 6 (18%) hospitals reported encouraging mothers to room-in with their babies. Seven (21%) hospitals reported having criteria that mothers must meet before they could begin rooming-in. Several hospitals reported that rooming-in is not allowed in rooms that have more than four mothers because of the increased risk of infection for the newborns.

Five (15%) hospitals reported rooming-in started within an hour of delivery for vaginal-birth mothers and that mothers spend over 16 hours a day with their babies. The remaining hospitals reported mothers spending anywhere from 8 hours or less to 16 hours with their infants. Most hospital with rooming-in policies do not separate the mothers and babies for routine procedures such as, pediatric rounds, shift changes, visiting hours, and infant photos. Babies are, however, removed for laboratory procedures and phototherapy.

The impact of early breastfeeding initiation and infant supplementation need to be considered when examining rooming-in practices.

**Step 8: Infant feeding schedules.** Demand feeding refers to feeding infants whenever they wake and cry without restriction on the timing and duration of each feeding. Most hospitals reported not putting babies on a fixed feeding schedule (19/56%), encouraging the mother to feed her baby on cue (25/74%), and not limiting the length of suckling at each feeding (22/65%). Only 8 (24%) hospitals reported bringing babies out for night feedings. Several hospitals reported routinely keeping babies in the nursery at night and if a mother want to breastfeed her baby, she must go to the nursery to do so. Limiting suckling time at the breast and contact between the mother-infant dyad are practices that are widely recognized as reducing the likelihood of establishing breastfeeding.

**Step 9: Pacifier use.** The early use of rubber nipples (bottles and/or pacifiers) interferes with breastfeeding by decreasing the frequency of suckling thereby decreasing a mother's milk supply and her confidence. Clinicians differ regarding the appropriate use of bottles and/or

**Table 8.** Proportion of Hospitals Reporting Practices That Influence Rooming-In (South Korea 2000) (Step 7)

Rooming In Practices	N	%
	(n=34)	
Rooming-In (24-hours)		
24-hour/day rooming-in available	13	38.2
Mothers requesting 24-hour rooming-in:		
All/most of the mothers	1	2.9
Some of the mothers	6	17.6
Few/if any of the mothers	6	17.6
24 hour roomin-in not available	21	61.9
Mothers encouraged to room-in (24-hrs)		
All/most of the mothers	6	17.6
Some of the mothers	3	8.8
Few/if any of the mothers	4	11.7
24 hour rooming-in not available	21	61.9
Criteria for 24-hour rooming-in		
Yes	7	20.5
No	6	17.6
No 24-hour rooming-in available	21	61.9
Hours mothers/babies normally spend together		
Over 16 hours/day	5	15.2
9-16 hours/day	5	15.2
0- 8 hours/day	23	63.9
Rooming-In (Start time)		
Within an hour of delivery/recovery		
Normal Birth		
All/most of the time	5	15.2
Some of the time	4	12.1
Seldom/not at all	3	8.8
24 hour rooming-in not available	21	61.9
Cesarean Birth		
All/most of the time	1	3.0
Some of the time	6	18.2
Seldom/not at all	5	15.2
24 hour rooming-in not available	21	61.9

pacifiers and their overall effect on breastfeeding success. Twenty-six (76%) hospitals reported using pacifiers between feedings and 20 (59%) hospitals reported receiving free infant supplies (pacifiers and water bottles).

#### Hospital Level of Implementation on the Ten Steps

The classification of hospitals on each of the Ten Steps and overall is summarized in Table 9.

**Table 9.** Hospital Implementation Level of the 10 Steps (South Korea 2000)

Step	Title	N/ (% High)	N/ (% Moderate) (n=34)*	N/ (% Partial)	N/ (% Low)
1	Policy	1 ( 2.9)	5 (14.7)	5 (14.7)	23 (67.6)
2	Staff Instruction	0	4 (11.8)	14 (41.2)	16 (47.1)
3	Mother's Instruction	15 (45.5)	7 (21.2)	8 (24.2)	3 ( 9.1)
4	Initiating Breastfeeding	0	1 ( 3.0)	3 ( 9.1)	29 (87.9)
5	Breastfeeding Instruction	4 (11.8)	16 (47.1)	10 (29.4)	4 (11.8)
6	Infant Supplementation	7 (20.6)	11 (32.4)	14 (41.2)	2 (5.9)
7	Rooming-in	2 ( 6.1)	2 (6.1)	6 (18.2)	23 (69.7)
8	Feeding Schedules	6 (17.6)	13 (38.2)	9 (26.5)	6 (17.6)
9	Pacifiers	2 ( 5.9)	6 (17.6)	12 (35.3)	14 (41.2)
10	Hospital	3 ( 9.1)	5 (15.2)	8 (24.2)	17 (51.5)
Ten Steps	Overall Rating (n=33)	0	8 (24.2)	14 (42.4)	11 (33.3)

\* Number of hospitals reporting each step varies; valid percents used

When hospitals were classified by their overall level of implementation on the 10 Steps, 8 (24%) hospitals were classified as high/moderately high implementers and 25 (76%) as partial/low implementers. The majority of the hospitals were classified as either high or moderately high implementers on 4 of the Ten Steps--printed information distributed to breastfeeding mothers (Step 3) (22/67%), oral breastfeeding instruction given to mothers (Step 5) (20/59%), infant supplementation (Step 6) (18/53%), and infant feeding schedules (Step 8) (19/56%). The remaining steps, including key practices like staff instruction, breastfeeding initiation, rooming-in, and hospital postpartum support are being

partially implemented by the majority of hospitals in this study.

Beyond the Ten Steps. A series of questions were added to the original questionnaire examining hospital practices that may support or discourage successful breastfeeding (Table 10). Most hospitals reported allowing mothers to breastfeed when they have a fever (24/70%), if they are taking magnesium sulfate (19/58%), when the baby has low blood glucose levels (22/69%), and to regulate a baby's temperature with skin-to-skin contact (28/90%). Additionally, 17 (57%) hospitals reported mothers having skin-to-skin contact with their babies after delivery all or most of the time and 10 (40%)

**Table 10.** Beyond the Ten Steps (South Korea 2000)

Question	N* (n=34)	%
Breastfeeding with fever		
Yes	20	58.8
Sometimes	4	11.8
No	10	29.4
NICU Breastpump		
Yes	8	23.5
Sometimes	7	20.6
No	19	55.9
Breastfeeding with magnesium sulfate		
Yes	16	48.5
Sometimes	3	9.1
No	14	42.4
Breastfeeding with flagyl		
Yes	11	36.7
Sometimes	2	6.7
No	17	56.7
Breastfeeding with low blood glucose		
Yes	21	65.6
Sometimes	1	3.1
No	10	31.2
Regulating babys temperature skin-to-skin		
Yes	23	74.2
Sometimes	5	16.1
No	3	9.7
Treatment with bili lights in mothers room		
Yes	3	8.8
Sometimes	2	5.9
No	29	85.3
Skin-to-skin contact after delivery		
All/most of the time	17	56.7
Sometimes	5	16.7
Seldom/if ever	12	26.6
Assessment of baby done during skin-to-skin contact		
All/most of the time	6	24.0
Sometimes	4	16.0
Seldom/if ever	24	60.0

\* not all hospitals responded to each question

hospitals reported doing the baby's assessment during skin-to-skin contact with the mother all or some of the time.

## Discussion

Changing hospital policies and practices to create an environment that not only promotes breastfeeding but also supports the new mother-infant dyad is an integral component in the movement to increase breastfeeding initiation and duration rates worldwide. Several researchers have examined hospital policies and organizational change in the United States (37-45).

Health care staff training, breastfeeding initiation, supplementation, rooming-in, breastfeeding policy, and hospital postpartum follow-up are critical areas to be addressed in Korean hospitals.

Staff and Physician Training. Training health care professionals in breastfeeding management is a critical step in increasing breastfeeding initiation rates within the hospital setting and supporting mothers during the early postpartum period. The WHO/UNICEF BFHI recommends 18 hours of formal training for physicians and staff. Most hospitals today are not providing this training. The majority of the hospitals (80%) reported offering no formal breastfeeding inservices for nurses and physicians. Among those who do offer programs, only three hospitals offer from 9 to 18 hours of training recommended by the WHO/UNICEF Initiative. As a result, breastfeeding management courses are being offered outside the hospital setting. The availability of these courses has enabled health care professionals to gain the training needed to successfully work with lactating mothers. However, hospitals need to become proactive in creating policies that provide educational programs for both the staff and mothers. Research has demonstrated that knowledge of breastfeeding management along with positive attitudes can influence a woman's infant feeding decision and support her experience while inconsistent information can undermine successful breastfeeding (46-55). Increasing knowledge of breastfeeding management can influence professional attitudes which, in turn, can positively affect information given to mothers both prenatally and postpartum.

Breastfeeding Initiation and Supplementation. *Research points to mother-infant separation as being the most important barrier to breast-*

*feeding and has demonstrated that hospital routines that separate mother and infant, delay nursing after birth, and supply supplementary bottles are associated with breastfeeding for shorter periods of time.* (56-59). Results of this study indicate that the majority of hospitals reported delayed first feedings, required nursery stays, and supplementing breastfed infants. In some cases, babies are routinely kept in the nursery and, if a mother wants to breastfeed, she must go to the nursery to feed her baby. Practices like this are barriers to successful breastfeeding and require organizational commitment to create the supportive environments needed to promote breastfeeding.

Despite, the high level of supplementation, most hospitals purchase infant formula, do not display promotional materials for formula, and do not send mothers home with gift packs containing powdered formula and coupons. Delayed first feedings and supplementation may be related to the cultural beliefs concerning feeding colostrum to infants.

**Rooming-in.** Rooming-in facilitates breastfeeding initiation, demand feeding, and infant weight gain (60-65). The majority of hospitals reported not having 24-hour rooming-in and that mothers and babies spend less than 8 hours a day together. In hospitals where mothers share larger rooms (at least four mothers to a room), rooming-in is not available and babies often stay in the nursery to protect them from infections.

**Hospital Postpartum Support.** Referring mothers to community resources and providing postpartum support and follow-up are positive steps in supporting the mother-infant nursing couple. In Korea, there are no community breastfeeding support groups like those found in the United States. Instead, new mothers generally receive follow-up support from their close-knit families. Few hospitals reported providing any formal postpartum follow-up programs for new mothers. Research has shown that each dimension of postpartum follow-up and support has a positive effect on breastfeeding duration (63-65). Cultural beliefs and practices surrounding postpartum support for the nursing mother need to be explored further.

## Conclusions and Recommendations

Results of this study indicated that South Korean hospitals were highly implementing four steps, including breastfeeding education given to mother's and counseling for breastfeeding mothers, infant supplementation, and feeding schedules. In contrast, the hospitals were found to be partially implementing five key steps in supporting breastfeeding mothers: (a) having a formal breastfeeding policy, (b) health care staff training in breastfeeding management, (c) breastfeeding initiation, (d) rooming-in, and (e) hospital postpartum follow-up and support for new mothers. It is recommended that South Korean hospitals focus their breastfeeding promotion efforts on key areas, such as adopting a formal hospital breastfeeding policy, breastfeeding initiation, rooming-in, and postpartum support and follow-up. These initiatives may help create positive changes in other areas. Developing a hospital breastfeeding policy is a key step in providing a supportive environment for new mothers. An environment in which both physicians and staff work together to promote breastfeeding within the hospital setting. Addressing the barriers that limit staff education may help remove the barriers associated with breastfeeding initiation. In this way, the relationship between the Ten Steps and their significance in creating positive structural supports in the hospital setting become apparent. Barriers addressing organizational structure and staff attitudes are discussed in a recent U.S. Committee for UNICEF report (66).

Hospital maternity units are the critical environments within which the goals of the WHO/UNICEF Baby-Friendly Hospital Initiative (BFHI) can be realized. Successful implementation needs administrative support and staff commitment within the hospital setting. Maternal and child health organizations in South Korea have targeted professional education, breastfeeding initiation, and postpartum support as key areas of intervention.

## References

American Academy of Pediatrics (1997). Breast-

- feeding and the use of human milk. Pediatrics, 100, 1035-1039.
- World Health Organization (1989). Protecting, promoting and supporting breast-feeding: The special role of maternity services. Geneva, Switzerland: World Health Organization.
- World Health Organization (1990). Innocenti declaration: On the protection, promotion, and support of breastfeeding. Geneva, Switzerland: World Health Organization.
- Neifert, M.R. (1998). The optimization of breast-feeding in the perinatal period. Clinics in Perinatology, 25, 303-327.
- Cunningham A.S. (1988). Breastfeeding, bottle feeding and illness: An annotated bibliography, In: Jelliffe DB, Jelliffe EF, eds. Programmes to promote breastfeeding, New York: Oxford University Press, 448-469.
- Cunningham A.S, Jelliffe D.B, Jelliffe E.F. (1991). Breast-feeding and health in the 1980s: A global epidemiologic review. The Journal of Pediatrics, 118, 659-666.
- Fomon S, Filer L, Anderson T, & Ziegler E. (1979). Recommendations for feeding normal infants. Pediatrics, 63, 52-59.
- Howell R.R, Morriss F.H, & Pickering L.K (1986). Human milk in infant nutrition and health. Illinois: Charles C. Thomas.
- U.S. Department of Health and Human Services (1994). Child Health USA '93. (Publication No.HRSA-MCH-94-1). Washington: US Department of Health and Human Services.
- Wilson, A.C., Forsyth, J.S., Greene, S.A., Irvine, L, Hau C, Howie P.W. (1998) Relation of infant diet to childhood health: Seven year follow up of cohort of children in Dundee infant feeding study. British Medical Journal, 316, 21-25.
- Walker M. (1993) A fresh look at the risks of artificial infant feeding. Journal of Human Lactation, 9, 97-107.
- Walker, M. (1992). The hazards of infant formula: What you don't know can hurt you and your baby. Paper presented at the 1992 International Lactation Consultant Association Conference.
- Walker, W.A. (1985) Feeding the normal infant: Absorption of protein and protein fragments in the developing intestine: Role in immunologic/ allergic reactions. Pediatrics, 75, 167-171.
- Kretchmer, N. (1985) Feeding the normal infant: Gastrointestinal and immunologic development. Pediatrics, 75, 187-188.
- Lauwers, J., & Woessner C. (1983) Examining human breastmilk In: Childbirth Education Association of Greater Philadelphia. Counseling the Nursing Mother: A Reference Handbook for Healthcare Providers and Lay Counselors. NJ: Wayne. Avery Publishing Group, Inc., 133-145.
- Hamosh, M., Bitman, J., Wood, L., Hamosh, P., & Mehta, N.R. (1985). Feeding the normal infant: Lipids in milk and the first steps in their digestion. Pediatrics, 75, 146-151.
- Hanson, L.A, Ahlstedt, S., Andersson, B., Carlsson, B., Fallstrom, S., Mellander, L., Porras, O., Soderstrom, T., & Eden, C. (1985) Feeding the normal infant: Protective factors in milk and the development of the immune system. Pediatrics, 75, 172-175.
- Infant Feeding Action Coalition (1991). Infant formula: Lacking important fats. INFACT Canada Newsletter, Winter, 1-2.
- International Lactation Consultant Association (1991). Position paper on infant feeding. International Lactation Consultant Association.
- Woodbury R.M. (1922). The relation between breast and artificial feeding and infant mortality. American Journal of Hygiene, 2, 668-687.
- Meyer H.F. (1968). Breastfeeding in the United States. Clinical Pediatrics, 7, 708-712.
- Ryan, A.S. (1997). The resurgence of breastfeeding in the United States. Pediatrics, 99(4), URL:<http://www.pediatrics.org/cgi/content/full/99/4/e12>.
- Choi, E.C. (1995). A contrast of mothering behaviors in women from Korea and the United States. Journal of Gynecologic and Neonatal Nursing, 24, 363-369.
- Brennan, R. (1993). UNICEF and the baby friendly hospital initiative. Paper presented at the Baby Friendly Hospital Initiative conference sponsored by Georgetown University, February 8; Washington (DC).
- Meier, P. & Anderson, G.C. (1987) Responses of small preterm infants to bottle-and breast-

- feeding. Maternal Child Nursing, 12, 97-105.
- Labbock, M. (1993). Breastfeeding: Creating supportive environments. Paper presented at the Baby Friendly Hospital Initiative Conference sponsored by Georgetown University, February 8, Washington, DC.
- Bernshaw, N.J. (1991). Does breastfeeding protect against sudden infant death syndrome? Journal of Human Lactation, 7, 73-79.
- World Health Organization (1990). Innocenti Declaration: On the Protection Promotion, and Support of Breastfeeding. Geneva: World Health Organization.
- United Nations Children's Fund. UNICEF Guidelines: (1992). Baby Friendly Hospital Initiative. Washington: U.S. Committee for UNICEF.
- Kyenya-Isabirye M. (1992). UNICEF launches the Baby-Friendly Hospital Initiative. Maternal and Child Nursing Journal, 17, 177-179.
- World Health Organization (1989). Protecting, Promoting and Supporting Breast-Feeding: The Special Role of Maternity Services. Geneva: World Health Organization, 3-32.
- United Nations Children's Fund (1992). Take the Baby-Friendly Initiative! A global effort with hospitals, health services, and parents to breastfeed babies for the best start in life. New York: U.S. Committee for UNICEF.
- Kovach, A.C. (1995). An Evaluation of Current Hospital Breastfeeding Policies in the Southeastern Pennsylvania Delaware Valley. (Dissertation, Temple University, Philadelphia, PA).
- Kovach, A.C. (1997). Hospital breastfeeding policies in the Philadelphia Area: A comparison with the WHO/UNICEF Ten Steps. Birth, 24, 41-48.
- Kovach, AC. (1996). An assessment tool for evaluating hospital breastfeeding policies and practices. Journal of Human Lactation, 12, 41-45.
- Grant, J. (1992). The special role of health personnel in protecting and promoting breast-feeding. World Health Organization. Geneva, Switzerland.
- Winikoff B, Myers M.S, Laukaren V.H, & Stone R. (1987). Overcoming obstacles to breastfeeding in a large municipal hospital: Applications of lessons learned. Pediatrics, 80, 423-433.
- Houston, M. JR, Field P.A. (1988). Practices and policies in the initiation of breastfeeding. Journal of Obstetric, Gynecological, and Neonatal Nursing, 17, 418-424.
- Freeman, C.K, Lowe, N.K. (1993). Breastfeeding care in Ohio hospitals: A gap between research and practice. Journal of Obstetric, Gynecological, and Neonatal Nursing, 22, 447-454.
- Karra, M.V, Auerbach, K.G, Olson, L., Binghay, E.P. (1993). Hospital infant feeding practices in metropolitan Chicago: An evaluation of five of the Ten Steps to Successful Breastfeeding. Journal of the American Dietetic Association, 93, 1437-1439.
- Strembel, S., Cole, G., Hartner, J., Fischer, C. (1991). Breast-feeding policies and routines among Arizona hospitals and nursery staff: Results and implications of a descriptive study. Journal of the American Dietetic Association, 91, 923-925.
- Levitt, C.A., Kaczorowski, J., Hanvey, L., Avard, D., Chance, G.W. (1996). Breast-feeding policies and practices in Canadian hospitals providing maternity care. Canadian Medical Association Journal, 155, 181-188.
- Wright, A., Rice, S., Wells, S. (1996). Changing hospital practices to increase duration of breastfeeding. Pediatrics, 97, 669-675.
- Clarke, L.I, Deutsch, M.J. (1997). Becoming baby-friendly. Lifelines, December, 30-37.
- Rosenberg, K.D, McMurtrie, C., Kerker, B.D., Na, Y., Graham, E.H. (1998). Breast-feeding initiation in New York City, 1979 to 1996. American Journal of Public Health, 88, 1850-1852.
- Perez-Escamilla, R., Pollitt, E., Lonnerdal, B., Dewey K.G. (1997.) Infant feeding policies in maternity wards and their effect on breastfeeding success: An analytical overview. American Journal of Public Health, 1994, 84, 89-97.
- Bagwell, J.E, Kendrick, O.W., Stitt, K.R., Leeper, J.D. (1993). Knowledge and attitudes toward breastfeeding: Differences among dietitians, nurses, and physicians working with WIC

- clients. Journal of the American Dietetic Association, 93, 801-804.
- Lewinski, C.A. (1992). Nurses' knowledge of breastfeeding in a clinical setting. Journal of Human Lactation, 8, 143-148.
- Lawrence, R.A. (1982). Practices and attitudes toward breastfeeding among medical professionals. Pediatrics, 70, 912-920.
- Michelman, D.F, Faden, R.R, Gielen, A.C, Buxton K.S. (1990). Pediatricians and breastfeeding promotion: Attitudes, beliefs, and practices. American Journal of Health Promotion, 4, 181-186.
- Williams, E.L., Hamme,r D.L. (1995). Breastfeeding attitudes and knowledge of pediatricians-in-training. American Journal of Preventive Medicine, 11, 26-33.
- Freed, G.L, Clark, S.J., Cefalo, R.C., Sorenson, J.R. (1995). Breastfeeding education of obstetrics-gynecology residents and practitioners. American Journal of Obstetrics and Gynecology, 173, 1607-1613.
- Freed, G.L, Clark, S.J, Curtis, P., Sorenson, J.R. (1995). Breastfeeding education and practice in family medicine. Journal of Family Practice, 40, 263-269.
- Freed, G.L, Clark, S.J., Sorenson, J.R., Lohr, J.A., Curtis, P. (1995). National assessment of physicians' breastfeeding knowledge, attitudes, training, and experience. Journal of the American Medical Association, 273, 472-476.
- Freed, G.L., Jones, T.M., Fraley, J.K. (1993). Attitudes and education of pediatric house staff concerning breastfeeding. Southern Medical Journal, 85, 483-485.
- Kurini, N., & Shiono, P.H. (1991). Early formula supplementation of breast-feeding. Pediatrics, 88, 745-750.
- Salariya, E.M, Easton, P.M, Cater, J.I. (1978). Duration of breastfeeding after early initiation and frequent feeding. The Lancet, 1141-1143.
- Schubiger, G., Schwarz, U., Tonz, O. (1997). UNICEF/ WHO baby-friendly hospital initiative: Does the use of bottles and pacifiers in the neonatal nursery prevent successful breastfeeding. European Journal of Pediatrics, 156, 874-877.
- Jenner, S. (1988). The influence of additional information, advice and support on the success of breastfeeding in working-class primiparae. Child Care Health Developments, 14, 319-328.
- Strachan, Lindenberg, C., Cabrera Artola, R., Jimenez, V. (1990). The effect of early postpartum mother-infant contact and breastfeeding promotion on the incidence and continuation of breastfeeding. International Journal of Nursing Studies, 27, 179-186.
- Elander, G., Lindberg, T. (1984). Short mother-infant separation during first week of life influences the duration of breastfeeding. Acta Paediatr Scand., 73, 237-240.
- Yamauchi, Y., Yamanouchi, I. (1990). The relationship between rooming-in/not rooming-in and breastfeeding variables. Acta Paediatr Scand, 79, 1017-1022.
- Barron, S.P., Lane, H.W., Hannan, T.E., Struempfer, B., Williams, J.C. (1988). Factors influencing duration of breastfeeding among low-income women. Journal of the American Dietetic Association, 88, 1557-1561.
- Norr, K.F., Roberts, J.E., Freese, U. (1989). Early postpartum rooming-in and maternal attachment behaviors in a group of medically indigent primiparas. Journal of Nurse Midwifery, 34(2), 85-91.
- Saunders, S.E., Carroll, J. (1988). Post-partum breastfeeding support: Impact on duration. Journal of the American Dietetic Association, 88, 213-215.
- U.S. Committee for UNICEF (1994). Barriers and solutions to the global Ten Steps to Successful Breastfeeding. Washington: U.S. Committee for UNICEF.
- U.S. Department of Health and Human Services (2000). Public Health Services. Healthy People 2010: National Health Promotion and Disease Prevention Objectives. Washington: US Department of Health and Human Services, 2000.
- Mother's Survey (1997). Updated breastfeeding trends 1987-1997. Ross Products Division, Abbott Laboratories, Ohio: Columbus.