

AN INTERVENTION MODEL FOR BREAST FEEDING IN MAHARAT NAKHON RATCHASIMA HOSPITAL

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Abstract. To promote breast feeding and/or prevent further decline of adverse infant feeding practices, we developed an integrated comprehensive breast feeding promotion program, and implemented it in Maharat Nakhon Ratchasima Hospital in 1987. The program provided sound knowledge and attitudes toward breast feeding to all mothers at the Antenatal Care Unit, delivery room, the Postnatal Care Unit, and the Outpatient Department. The program activities included early bonding, assistance with initiation of breast feeding, rooming-in, provision of a breast feeding corner in the special care unit, collecting breast milk for sick babies, a lactation clinic and home visits. The impact of the program was evaluated in 1992. Altogether 1,428 mothers were interviewed using structured questionnaires. The results were highly encouraging. A majority of the mothers were of low socioeconomic status, 60 percent of them worked outside the home, and 40 percent were housewives. Compared with baseline data reported in 1986, breast feeding in infants aged 0 to one month increased from 85 to 90 percent, and the practice in the nine- to 12-month old group increased from 39 to 47 percent. However, the acute drop of the practice from 90 percent at birth to 50 percent at the one- to two-month old stage observed was similar in the two studies. The main reasons given by mothers for prematurely stopping breast feeding were the mothers' working outside the home (46%), and insufficient milk (23%). Provision of breast feeding education, along with improved maternal nutrition, extension of maternity leave, and availability of nurseries at the work place, may sustain a longer period of breast feeding.

INTRODUCTION

Breast milk is the most adequate and nutritious milk for feeding infants, but studies from Thailand have shown that breast feeding practice has continuously declined for both urban and rural residents (Tontisirin *et al*, 1983). Amongst those who delivered at a university hospital, only 17.4 percent breast fed their babies at the six weeks postpartum visit (Pongthai *et al*, 1981). In its Fourth National and Social Development Plan (1977-1981), the government included the promotion of breast feeding as a priority. The Ministry of Public Health is responsible for the promotion country wide.

Maharat Nakhon Ratchasima Hospital is the largest Regional Hospital of the Ministry. The hospital has 1,000 beds and is located in Nakhon Ratchasima Province. The hospital offers medical services to both in-patients and outpatients. The daily average number of outpatients is 1,800.

Nakhon Ratchasima Province is a new industrial zone, located in the Northeast Region of Thailand about 250 km from Bangkok. It has a population of two million and is the second largest province in the country.

With the support from USAID, six physicians and seven nurses from Maharat Nakhon Ratchasima Hospital attended a course on the Wellstart Lactation Program in San Diego, California. Upon their return this core team became the trainers and developed the "integrated comprehensive breast feeding promotion program". The program was approved as hospital policy, and was chaired by the hospital director. The program was subsequently adopted by the Ministry of Public Health and used country wide in 1991.

The objective of this study was to evaluate the impact of the program by measuring the incidence of breast feeding in infants and determining factors affecting current maternal breast feeding practices.

MATERIALS AND METHODS

The integrated comprehensive breast feeding promotion program was developed during May to October 1987. The objectives of the program were to promote breast feeding and/or prevent further decline of the practice. Physicians and nurses from four departments (Pediatrics, Obstetrics and Gynecology, Social Medicine, and Nursing) held a seminar and training about the program. This included the benefits of breast feeding, rooming-in techniques, biochemistry of breast milk and physiology of lactation, keys to successful breast feeding. Knowledge and practices about breast feeding were integrated into the residency training program, and into medical student and nursing student curricula. The program was launched in the hospital in December 1987.

Activities of the program (Fig 1) could be summarized as follows. At the Antenatal Care Unit (ANC), breasts, nipples, and other physical examinations of pregnant mothers were thoroughly performed by obstetrician. One nurse gave health education about breast feeding, nutrition, and lactation to groups of mothers while they were waiting for examination. In the delivery room, the

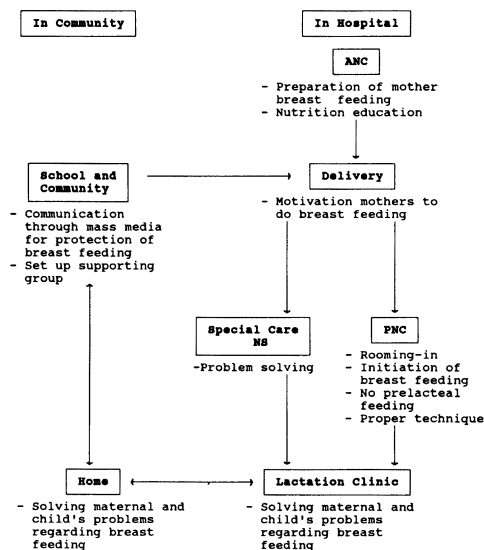


Fig 1—Diagram of the Integrated Comprehensive Breast Feeding Promotion Program, Maharat Nakhon Ratchasima Hospital ANC, Antenatal Care Unit; PNC, Post Natal Care Unit; NS, Nursery.

mother and infant were encouraged to have skin to skin contact (early bonding) immediately, the mothers were assisted to initiate breast feeding within two hours. At the Post Natal Care Unit (PNC), the mother and the baby were allowed to remain together as soon as possible (rooming-in) 24 hours a day. Partial rooming-in practices were arranged for those who delivered by caesarean section, vacuum, or forceps. Breast feeding and lactation education was again provided to groups of mothers at the PNC. A breast feeding corner was provided in the special care nursery. Newborn babies who were sick *eg* severe birth asphyxia, sepsis, respiratory distress syndrome, and low birth weight were sent to the special care nursery. Mothers were allowed to give breast feeding at the corner. Breast milk was also collected into bottles and kept refrigerated for the sick babies. The lactation clinic opened every Tuesday, and provided consultation to mothers who had breast feeding problems. The mothers were encouraged to breast feed the infants on demand and practice exclusive breast feeding during the first 3 months (not to give food or drink other than breast milk). In the community, a community outreach team from the Department of Social Medicine gave breast feeding education to students in a selected group of five schools using volunteer pupils, and to mothers in seven underserved communities using volunteer mothers.

The outcome of the program was evaluated between 1st January and 15th March 1992. 1,428 mothers, 98 percent of whom delivered babies at the hospital, were interviewed using structured questionnaires. The interviews were conducted at PNC, Well Baby Clinic, and at the Out Patient Department. The questionnaires included demographic character, socioeconomic status, feeding pattern.

RESULTS

The program had been operating well with full participation from all hospital staff concerned. However, due to a busy delivery room, early bonding was possible only in approximately 60 percent of the mothers. Very few mothers could give exclusive breast feeding, mainly because of the local tradition of early feeding of the baby with mashed banana and cooked rice.

BREAST FEEDING MODEL

Table 1 shows maternal age and socioeconomic status. Most of the mothers aged between 20 to 29 years. A majority of the mothers had low socioeconomic status : 54 of them had incomes less than 3,500 baht (140 US\$) per month. Seventeen mothers (1.19%) had no formal education, 65 percent graduated from primary school. Fifty-eight percent of them worked out side the home, these including farmers and employees. The other 42 percent were housewives.

The relation between the educational level and pattern of breast feeding showed that the higher the educational level the lower the breast feeding practice. Mothers who had no education or grad-

uated from primary school breast fed 70.6 percent. Those who graduated from secondary school breast fed 47 percent, while university graduates breast fed only 16 percent.

Approximately 60 percent of the mothers were primigravida. Three-fourths of the mothers answered that they received breast feeding education from ANC, 13 percent from PNC, 11 percent from relatives, and one percent from the community outreach team who conducted home visits.

The infants' age and breast feeding patterns are shown in Table 2. Breast feeding at birth to one month was 90 percent, but the rates were significantly reduced to 50 percent in children aged one to two months. After that there was only a minimal reduction until aged 12 months. The feeding pattern in infants aged nine to 12 months was : breast feeding alone 47 percent, mixed feeding 20 percent, bottle feeding alone 33 percent.

The problems during the breast feeding period occurred in one-third of the breast fed group. The main problem was insufficient milk (54%). Other problems included sick infants (19%), refusal of suckling (8%), breast abscess (6%), and breast engorged (5%).

The reasons given by mothers in the bottle feeding alone group for premature interruption of breast milk are shown in table 3. Mother working outside the home was the main reason (46%), followed by insufficient milk (23%), and refusal of suckling (10%).

Table 4 shows the reasons given by mothers in the mixed feeding group for adding bottle feeding. The leading reasons were the mother working outside the home (32%), insufficient milk (30%) and sick baby (10%).

Among the bottle feeding alone group, 83 infants were never breast fed. The causes of never breast feeding were insufficient milk (35%), refusal of suckling (20%), and sick baby (14%) (Table 5).

DISCUSSION

The study was conducted four years after the implementation of the program, when breast feeding practices at birth in Maharat Nakhon Ratchasima Hospital were as high as 90 percent.

Table 1

Maternal age and socioeconomic status.

Variable	Number of mothers (%)
Age (years)	
15 - 19	140 (9.80)
20 - 24	451 (31.58)
25 - 29	483 (33.82)
30 - 34	247 (17.30)
35 - 39	88 (6.16)
> 39	19 (1.33)
Income (Baht/month)	
0 - 1, 500	230 (16.10)
1,501 - 3, 500	548 (38.38)
3,501 - 5, 000	292 (20.49)
5,000 - 10, 000	243 (17.02)
10,001 - 15, 000	79 (5.53)
> 15, 000	36 (2.52)
Education	
No education	17 (1.19)
Primary school	933 (65.34)
Secondary school	245 (17.16)
Vocational school	159 (11.13)
University	74 (5.18)
Maternal occupation	
Housewife	598 (41.88)
Farmer	318 (22.27)
Employee	305 (21.36)
Officer	100 (7.00)
Others	107 (7.49)

Table 2
Infants' age and feeding pattern.

Age (months)	Breast feeding alone (%)	Mixed feeding (%)	Bottle feeding alone (%)	Total (%)
0-1	285 (90.18)	20 (6.33)	11 (3.48)	316 (22.13)
1-2	169 (50.45)	112 (33.43)	54 (16.11)	335 (23.46)
3-4	105 (50.72)	49 (23.67)	53 (25.60)	207 (14.50)
5-6	101 (42.62)	55 (23.21)	81 (34.17)	237 (16.60)
7-8	41 (46.50)	11 (12.50)	36 (40.90)	88 (6.16)
9	47 (38.84)	31 (25.61)	43 (35.57)	121 (8.47)
>9-12	58 (46.77)	25 (20.16)	41 (33.06)	124 (8.68)
	806 (56.44)	303 (21.22)	319 (22.34)	1,428 (100)

Table 3

Reasons given by mothers in the bottle feeding alone group of prematurely stopping breast feeding.

Reasons	Number of mother (%)
Working outside the home	126 (46.15)
Insufficient milk	64 (23.40)
Refused suckling	27 (9.89)
Uncomfortable	17 (6.23)
Sick baby	17 (6.23)
Abnormal nipple	5 (1.83)
Sick mother	4 (1.47)
Others	13 (4.76)
Total	273 (100)

Table 4

Reasons given by mothers in the mixed feeding group for adding bottle feeding.

Reasons	Number of mothers (%)
Working outside the home	118 (32.33)
Insufficient milk	109 (29.86)
Sick baby	35 (9.95)
Uncomfortable	26 (7.12)
Refused suckling	22 (6.03)
Sick mother	14 (3.84)
Abnormal nipple	7 (1.92)
Others	34 (9.32)
Total	365 (100)

Table 5

Reasons given by 83 mothers for never breast feeding.

Reasons	Number of mothers (%)
Insufficient milk	29 (34.93)
Refused suckling	17 (20.48)
Sick baby	12 (14.46)
Sick mother	9 (10.84)
Go to work	6 (7.22)
Uncomfortable	2 (2.41)
Abnormal nipple	4 (4.82)
Others	4 (4.82)
Total	83 (100)

Comparison between the results obtained in this study and the baseline data reported in 1986 (Pudthapongsiriporn *et al*, 1989) showed that the problems during the breast feeding period increased from 17 to 31 percent. However, breast feeding practices in infants aged 9-12 months increased from 39 percent to 47 percent. Without the program the breast feeding practices may have progressively declined. The results of the program thus are considered highly satisfactory.

In the last three years Nakhon Ratchasima Province has changed tremendously, hundreds of industrial factories have been installed. In government and private sectors mothers are allowed 30 consecutive days maternity leave after delivery. In large industries, mothers are eligible for depen-

dents' benefits, but jobs are guaranteed for only 30 days. It is because people are obligated to fulfill their social responsibilities that compelled the mothers to seek work outside the home and therefore these mothers cannot breast-feed their infants. In this report 21 percent of the mothers were factory employees. The approximately 40 percent drop of breast feeding practices in children aged one- to two-month observed from this report is similar to other study in urban areas in Thailand (Tontisirin *et al*, 1983). The major cause of the prematurely stopped breast feeding found in this study is the mother working outside the home (46%). Provision of longer maternity leave and of nurseries at the work place might sustain the duration of breast feeding.

Milk insufficiency is one of the most common reasons for mothers failing to initiate breast feeding and interrupting it prematurely. Maternal milk insufficiency is most likely related to maternal malnutrition status in many cases. The quantity and quality of breast milk produced from malnourished mothers are inadequate for the growing needs of infants (Tontisirin *et al*, 1983). Strengthening of breast feeding and lactation education

along with improved maternal nutrition for adequate production of breast milk may lead to more successful breast-feeding.

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