香 港 大 學
THE UNIVERSITY OF HONG KONG

Impact of Baby-friendly Hospital Practices on Breastfeeding in Hong Kong

Marie Tarrant RN MPH PhD
and
Kendra M. Wu BSc MSc MMedSc; Daniel Y. T. Fong PhD;
Irene L. Y. Lee RN RM MHA MPHC; Emmy M. Y. Wong RN MN PhD;
Alice Sham RN RM MSc MBA; Christine Lam RN RM MMW IBCLC;
Joan E. Dodgson RN MPH PhD

Presenter Disclosures

- The authors declare that they have no competing interests.

香 港 大 學
THE UNIVERSITY OF HONG KONG

2

Background

- Approximately 15,000 hospitals worldwide have received BFHI status (>6,000 in Mainland China).
- No hospital in Hong Kong has yet received this designation.
- One barrier to baby-friendly status in HK is continued acceptance of free infant formula.
- Recent efforts to discontinue this practice but still continues.

香 港 大 學
THE UNIVERSITY OF HONG KONG
3

Background

- In Hong Kong, >70% of all women now initiate breastfeeding.
- By 3 months, only 1/3 are still breastfeeding and only one-half of those still breastfeeding are doing so exclusively.
- No study in HK has looked at impact of hospital practices on breastfeeding.

香 港 大 學
THE UNIVERSITY OF HONG KONG
4

Research Aims

- Assess exposure to baby-friendly practices among mothers delivering in public hospitals in Hong Kong.
- Assess the impact of individual and cumulative baby-friendly hospital practices on breastfeeding duration.

香 港 大 學
THE UNIVERSITY OF HONG KONG

5

Methods

- Prospective longitudinal cohort study design
- Data collection:
  - In hospital
    - Maternal and Family Demographic Data
    - Maternal and Infant Birth Data
    - Exposure to baby-friendly practices
    - Infant Feeding Data
  - Telephone follow-up of participants at 1, 2, 3, 6, 9 & 12 months or until weaned.
    - Follow-up Infant Feeding Data
    - Final weaning survey

香 港 大 學
THE UNIVERSITY OF HONG KONG

6

Selection Criteria

Maternal:

- Singleton pregnancies
- Cantonese speaking
- Hong Kong residents for more than one year
- No serious medical or obstetrical complications.

Infant:

- At least 37 wks GA
- Apgar Score of at least 8 at 5 min
- Birthweight > 2500 gms
- No severe medical conditions or congenital abnormalities
- Cared for on ward or SCN for not more than 48 hours after birth

香 港 大 學
THE UNIVERSITY OF HONG KONG

7

Recruitment

- Four study sites.
- Recruited 1,417 subjects from 4 sites
  - 8 (0.6%) participants excluded after recruitment
  - 87 participants (6.2%) no follow-up after hospitalization
  - 80 participants excluded because of missing data
    - 43 missing baby-friendly variables
    - 37 missing demographic data
- 1,242 participants for this analysis (87.6%)

香 港 大 學
THE UNIVERSITY OF HONG KONG

8

Variables Studied

Outcomes:

- Breastfeeding ≤ 8 weeks
  - median duration of breastfeeding in sample
  - coincides with time most women return to work

Independent Variables:

- 6 out of 10 baby-friendly practices
- Cumulative no. of baby-friendly practices

香 港 大 學
THE UNIVERSITY OF HONG KONG

9

Data Analysis

- Bivariable and multivariable logistic regression analyses to assess associations between baby friendly practices and breastfeeding.
- Hierarchical models adding confounders in turn based on subject matter relevance.
- Sensitivity analysis, with restricted subset of first-time mothers only (n=818), repeating our main analysis.
- All analyses conducted using Stata 9.2.

香 港 大 學
THE UNIVERSITY OF HONG KONG

10

Table 1. The Baby-Friendly Hospital Initiative's 10 Steps to Successful Breastfeeding and Prevalence of Practices Experienced by Breastfeeding Participants (N = 1242)

"Baby-Friendly" Practice	Prevalence (%)
Have a written breastfeeding policy that is routinely communicated to all health care staff	NM
Train all health care staff in skills necessary to implement this policy	NM
Inform all pregnant women about the benefits and management of breastfeeding	NM
Help mothers initiate breastfeeding within 1 h of birth	28.5
Show mothers how to breastfeed and how to maintain lactation, even if they should be separated from their infants	NM
Give newborn infants no food or drink other than breast milk unless medically indicated	17.3
Practice "rooming in" by allowing mothers and infants to remain together 24 h/d	65.4
Encourage breastfeeding on demand	75.6
Give no artificial teats, pacifiers, dummies, or soothers to breastfeeding infants	58.0
Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital	76.2

11

Table 2. Baseline Characteristics of Participants According to Breastfeeding Duration (N = 1242)

Demographic Variable	**Breastfed for ≤8 wk (n= 663) %**	**Breastfed for >8 wk (n= 579) %**	**χ^2 p-value**
Age of mother			<.01
18 – 24 years	8.5	4.5	
25 – 29 years	24.9	20.0	
30 – 34 years	44.6	48.0	
≥ 35 years	21.7	27.5	
Maternal education			<.001
Primary School	2.6	4.7	
Compulsory Secondary	20.1	20.0	
Upper Secondary	45.0	29.9	
University Degree	29.7	41.5	
Postgraduate Degree	2.7	4.0	
Family income			<.001
Less than $10,000	6.8	11.1	
$10,000-$14,999	11.8	15.4	
$15,000-$19,999	11.9	9.7	
$20,000-$24,999	14.6	8.5	
$25,000-$29,999	12.2	9.3	
$30,000 or more	42.7	46.1	
Previous children			<.001
0	67.8	48.9	
≥ 1	32.4	51.1	

12

Table 2. Baseline Characteristics of Participants According to Breastfeeding Duration (N = 1242)

Demographic Variable	Breastfed for ≤8 wk (n= 663) %	Breastfed for >8 wk (n= 579) %	χ^2 p-value
Emergency cesarean			.02
Yes	13.4	9.3	
No	86.6	90.7	
Mother will return to work			<.001
≤ 6 months after birth	82.1	64.4	
> 6 months after birth	18.0	35.6	
Mother breastfed as a child			<.001
Yes	38.3	52.2	
No	61.7	47.8	
Husband's feeding preference			<.001
Breastfeeding	54.8	70.1	
Infant formula or mix	25.9	11.2	
No preference	19.3	18.7	
Previous BF experience			<.001
Yes	24.7	45.4	
No	75.3	54.6	

13

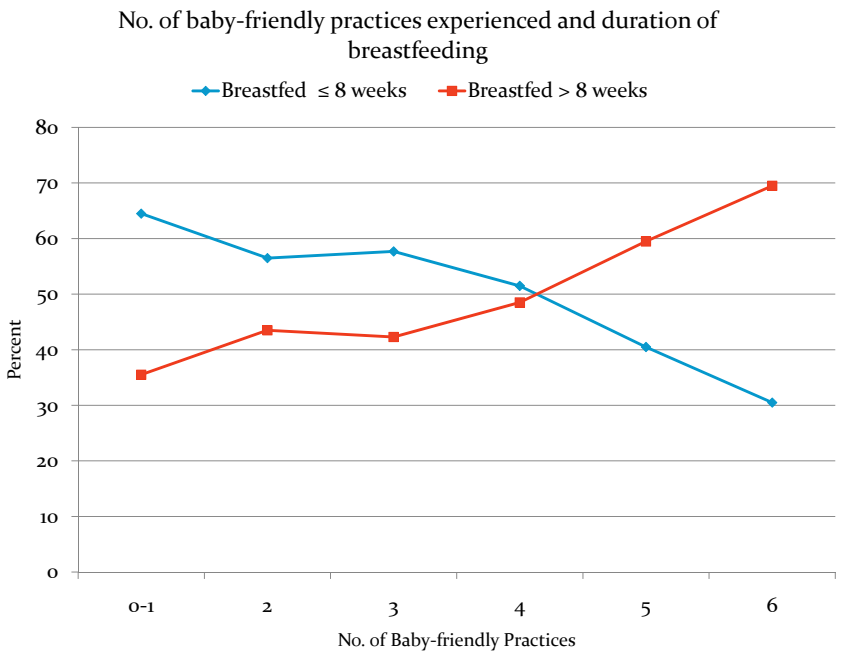

Table 3. Unadjusted aORs of Stopping Breastfeeding ≤8 Weeks According to Individual Baby-Friendly Hospital Practices (N = 1242)

"Baby-Friendly" Practice	n	Breastfed for ≤8 wk, %	OR (95% CI)
Step 4: breastfeeding initiation within 1 h			
Yes	352	45.7	**0.65 (0.51-0.83)**
No	890	56.4	1
Step 6: only breast milk given			
Yes	216	38.0	**0.47 (0.35-0.63)**
No	1026	56.6	1
Step 7: rooming in			
Yes	810	54.4	1.13 (0.89-1.43)
No	432	51.4	1
Step 8: breastfeeding on demand			
Yes	939	53.5	1.01 (0.78-1.31)
No	303	53.1	1
Step 9: no artificial nipple			
Yes	726	49.2	**0.66 (0.53-0.83)**
No	516	59.3	1
Step 10: provide information on breastfeeding support			
Yes	944	51.1	**0.67 (0.52-0.88)**
No	298	60.7	1

Table 4. Association Between Type of Baby-Friendly Hospital Practice Experienced and Breastfeeding for ≤8 Weeks Adjusted Hierarchically (N=1242)

"Baby-Friendly" Practice	Model 1, aOR (95% CI)[a]	Model 5, aOR (95% CI)[b]
Breastfeeding initiation within 1 h	**0.73 (0.56-0.96)**	0.83 (0.62-1.11)
Only breast milk given	**0.55 (0.39-0.77)**	**0.61 (0.42-0.88)**
Rooming in	1.17 (0.91-1.52)	1.14 (0.86-1.52)
Breastfeeding on demand	0.97 (0.74-1.27)	1.13 (0.85-1.53)
No artificial nipple	0.84 (0.65-1.10)	0.96 (0.72-1.29)
Provide information on breastfeeding support	**0.75 (0.57-0.98)**	0.74 (0.55-1.00)

[a] Model 1 adjusted for other "Baby-Friendly" hospital practices only.

[b] Model 5 adjusted for maternal age, maternal education, household income, emergency c-section, return to work, and breastfeeding support variables (i.e., whether mother was breastfed as a child, mother's previous breastfeeding experience, husband's feeding preference).

16

Table 5. Association Between Number of "Baby-Friendly" Hospital Practices Experienced and Breastfeeding for ≤ 8 Weeks Adjusted Hierarchically (N=1242)

No. of Practices Experienced	Prevalence % (n)	Model 1 aOR (CI)[a]	Model 5 aOR (CI)[b]
0-1	6.1 (76)	**4.13 (2.00-8.55)**	**3.13 (1.41-6.95)**
2	24.1 (299)	**2.96 (1.63-5.39)**	**2.03 (1.05-3.94)**
3	31.0 (385)	**3.10 (1.72-5.60)**	**2.31 (1.21-4.42)**
4	24.7 (307)	**2.42 (1.33-4.39)**	**2.08 (1.08-4.00)**
5	9.3 (116)	1.55 (0.80-3.02)	1.45 (0.70-2.99)
6	4.8 (59)	1.00	1.00

[a] Model 1 adjusted for other "Baby-Friendly" hospital practices only.

[b] Model 5 adjusted for maternal age, maternal education, household income, emergency c-section, return to work, and breastfeeding support variables (i.e., whether mother was breastfed as a child, mother's previous breastfeeding experience, husband's feeding preference).

17

Table 6. Multivariate Models Predicting Breastfeeding for ≤ 8 Weeks According to Type of "Baby-Friendly" Hospital Practice Experienced Among Mothers with no Previous Breastfeeding Experience (N = 818)

"Baby-Friendly" Practice	Model 1, aOR (95% CI)[a]	Model 5, aOR (95% CI)[b]
Breastfeeding initiation within 1 h	0.84 (0.60-1.17)	0.94 (0.66-1.35)
Only breast milk given	**0.42 (0.27-0.65)**	**0.47 (0.29-0.75)**
Rooming in	1.23 (0.90-1.71)	1.33 (0.93-1.91)
Breastfeeding on demand	1.21 (0.86-1.69)	1.31 (0.92-1.88)
No artificial nipple	1.14 (0.81-1.60)	1.28 (0.89-1.84)
Provide information on breastfeeding support	**0.69 (0.49-0.98)**	**0.68 (0.47-0.97)**

[a] Model 1 adjusted for other "Baby-Friendly" hospital practices only.

[b] Model 5 adjusted for maternal age, maternal education, household income, emergency c-section, return to work, and breastfeeding support variables (i.e., whether mother was breastfed as a child, mother's previous breastfeeding experience, husband's feeding preference).

18

Discussion

- First study to report on hospital practices and breastfeeding outcomes in HK and one of the first prospective studies on this topic.
- Exposure to some baby-friendly practices substantially lower than reported elsewhere (DiGirolamo et al., 2001 & 2009).
- Our findings on the overall impact of baby-friendly practices on breastfeeding outcomes highly consistent with previous studies by DiGirolamo et al., 2001 & 2009.

香 港 大 學
THE UNIVERSITY OF HONG KONG

19

Discussion

- In-hospital formula supplementation of full-term healthy newborns is unacceptably high and significantly increases early weaning.
- Not all steps significantly associated with breastfeeding outcomes but there was a clear dose-response effect for cumulative exposure to the steps.
- Among first-time mothers, providing information about breastfeeding support appears to be beneficial in reducing early weaning.

香 港 大 學
THE UNIVERSITY OF HONG KONG

20

Acknowledgements

Funded by:

- Health and Health Care Services Research Fund: Health and Food Bureau, Government of the Hong Kong SAR

Ethical Approval by:

- HKU/HKW Cluster IRB & Research Ethics Committees at all hospital sites where data were collected

香 港 大 學
THE UNIVERSITY OF HONG KONG

21