

# Impact of mother-baby friendly hospital initiative in a tertiary hospital on success of breastfeeding: A prospective cohort study\*

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## ABSTRACT

**Objective:** To determine the impact of Mother-Baby Friendly Hospital Initiative (MBFHI) implementation on the success of breastfeeding practices among patients who gave birth in a tertiary hospital.

**Methodology:** Seventy-one postpartum patients who have no contraindications to breastfeeding were recruited from September-November 2017. Outcome variables regarding on the success of breastfeeding initiation on the first hour postpartum and hospital stay were measured. Participants were followed-up by phone call at 3 and 6-months postpartum to determine their practice on exclusive breastfeeding.

**Results:** The exclusive breastfeeding (EBF) rates at first hour postpartum, during hospital stay, 3 and 6 months were 91.5%, 81.7%, 65.9%, and 45.5%, respectively. The participants who had cesarean delivery and vaginal delivery were 19 (26.8%) and 52 (73.2%) respectively. There was no significant association between the route of delivery and successful breastfeeding at first hour ( $p = 0.179$ ). At first hour postpartum, majority of the infants who did not initiate breastfeeding was due to respiratory distress. At 6 months, only 39% (26 out of 66) did proper breastfeeding. There were 26 out of 66 (39%) subjects who have work at 6 months, and among these, 12 subjects were not able to collect and store milk due to unavailability of lactation clinic at their workplace. Overall, approximately half of the subjects who initiated EBF were not able to continue EBF until 6 months due to inadequate milk production and resumption of work.

**Conclusion:** Half of mothers exclusively breastfed up to 6 months, regardless of age, parity and route of delivery. The main determinants of EBF cessation at 6-month postpartum include inadequate milk production, resumption of work and inability to collect milk. To promote successful EBF among mothers in the Philippines, interventions should focus on strengthening the breastfeeding policy implementation in the workplace and communities to promote, protect and maintain breastfeeding.

*Keywords:*

**Exclusive breastfeeding-** feeding of infants of pure human breast milk without introduction of water or complementary food within the first 6 months of life.

**Exclusively breastfeeding working mothers-** mothers who resumed work but continue to observe exclusive breastfeeding by proper milk collection and storage which can be given to their infants by cup feeding while they are at work.

**Proper breastfeeding-** adequate duration and frequency of breastfeeding (breastfeeding on demand) defined as nursing approximately 8 to 12 times (10-15 minutes on each breast) within 24 hours until satiety.

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## INTRODUCTION

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**H**uman milk is the preferred feeding for all infants, including premature and sick newborns. Exclusive breastfeeding (EBF) for the first 6 months is considered one of the most effective preventive health measures to reduce child morbidity and mortality. It provides advantages to the newborn by promoting general health, growth, and development and the risk reduction of acquiring acute and chronic illnesses. It also provides maternal benefits such as decreasing risk of postpartum hemorrhage, rapid uterine involution, lactation amenorrhea as a form of natural family planning, earlier return to pre-pregnant weight, and improved bone mineralization<sup>1</sup>.

The World Health Organization (WHO) recommends timely initiation of breastfeeding within the first hour of birth, EBF for the first 6 months of life, followed by timely, adequate, safe, and appropriate complementary feeding, while continuing breastfeeding for 2 years and beyond<sup>2</sup>.

Mother-Baby Friendly Hospital Initiative (MBFHI) was launched in 1996 by the United Nations Children's Fund (UNICEF) and WHO to protect, promote, and support breastfeeding. This strategy is one effective way to reduce infant morbidity and mortality by determining and removing the hindrances to breastfeeding within the health care system, at the workplace, and in the community<sup>3</sup>. This hospital policy increased breastfeeding rates by helping women to achieve their breastfeeding intentions, reduced complications, and improved mother's health care experiences<sup>4</sup>. The Essential Intrapartum Newborn Care (EINC) protocol is part of the implementation of MBFHI, which is mandated by Administrative Order 2009-025. This essential newborn care protocol is a series of time bound, chronologically-ordered standard procedures that a baby receives after birth, which are needed to ensure the survival of the newborn. Rooming-in is also a policy mandated by Republic Act 7600 "Rooming in and Breastfeeding Act of 1992" wherein the infant will be placed in the same room as the mother after delivery to facilitate mother-infant bonding and to initiate breastfeeding.

The Philippine Health Insurance Corporation Circular No. 26 s. 2005 states that MBFHI is part of the accreditation of hospitals. The tertiary institution in which this study was conducted fully supports and upholds the MBFHI of the WHO, UNICEF, and Department of Health since 2015. All hospital staff supports, promotes, and protects breastfeeding by ensuring implementation of the policies according to the 10 steps to successful breastfeeding. The hospital staff educates the mothers on the importance and benefits of exclusive breastfeeding on the first 6 months of life.

Problems on continuing EBF within 6 months should be addressed to provide the wanted benefits on both

the mother and the infants. High rate of breastfeeding discontinuation on the first 6 months of life was attributed to resumption of their work. Lack of breastfeeding support that will help mothers to gain confidence and overcome breastfeeding challenges is another factor of failure<sup>5</sup>.

The Centers for Disease Control and Prevention suggests that education about breastfeeding is the most effective single intervention to promote EBF. Repetitive, well structured, brief, and illustrative prenatal education that extends into the postnatal period has been reported to be effective in increasing EBF rates and duration<sup>6</sup>.

## OBJECTIVE OF THE STUDY

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**General Objective:** To determine the impact of Mother-Baby Friendly Hospital Initiative (MBFHI) implementation on success of breastfeeding practices among patients who gave birth in a tertiary hospital.

### **Specific Objective:**

1. To determine success of appropriate initiation of breastfeeding on the first hour post-partum and determine factors that cause its delay
2. To determine the success of exclusive breastfeeding during hospital stay and determine the factors that hinder it
3. To evaluate practice of exclusive breastfeeding at 3 and 6 months post- partum and determine frequency and duration of breastfeeding every 24-hour period
4. To determine compliance on proper milk collection and storage among working mothers (based on Center for Disease Control and Prevention (CDC) and The Philippines Human Milk Banking Guidelines).
5. To determine the factors preventing the mothers from fulfilling the 6 months of exclusive breastfeeding

## METHODOLOGY

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This prospective cohort study was done in a tertiary hospital and was approved by the Institutional Review Board. This study included 71 post-partum patients based on 95% confidence level. Participants included in the study were seen in the ambulatory care services (Out-patient department) of a tertiary hospital with at least 1 prenatal check-up and attended at least 1 breastfeeding module being conducted in the ambulatory care services. Patients who have contraindications to breastfeeding were excluded from the study. A written informed consent was obtained from all subjects.

The hospital staff except the principal investigator provided education to the enrolled patients regarding the legal mandates of the Department of Health on the EINC, Rooming-in, and EBF upon admission to the labor room, delivery, and entire length of hospital stay.

The success of appropriate initiation of breastfeeding on the first hour postpartum was determined as having at least 1 attempt to breastfeeding on the first hour of life and the non-separation of the newborn from the mother at the recovery room. Appropriate initiation of EBF is facilitated by continuous rooming-in and the success of EBF during the entire length of hospital stay. Participants were followed by phone call (telephone at home or cellphone) and the following outcome variables were determined: successful EBF, proper breastfeeding, and milk collection and storage practices among working mothers. The principal investigator used pre-determined questions in doing follow-up calls on the 3<sup>rd</sup> and 6<sup>th</sup> month postpartum to ensure consistency of the information asked to the subjects.

All data were collated using Microsoft Excel 2013, and all statistical calculation were performed using the Statistical Package for Social Science (SPSS) Version 20. The frequencies and percentages were calculated for the the general and clinical characteristics of the subjects and other categorical data. The Chi square test was used to compare outcomes between categorical variables. All drop out subjects and missing values were not analyzed.

## RESULTS

Seventy-one subjects who delivered at this tertiary hospital from September to November 2017 met the inclusion criteria and were included in this study after signing the informed consent form. All 71 subjects were analyzed at first hour postpartum and during hospital stay; however, 5 subjects were excluded from the analyses at 3<sup>rd</sup> and 6<sup>th</sup> month postpartum because the principal investigator was not able to contact the subjects.

Most of the subjects were aged from 21 to 30 years old, primigravid, and had an age of gestation of 38 to 39 weeks. Sixty-nine percent of these subjects underwent normal spontaneous delivery, 26.8% delivered via cesarean section, and 4.2% delivered by assisted vaginal delivery. Only 3 out of 71 subjects attended 3 classes of breastfeeding modules during their early pregnancy conducted in the ambulatory care services of this tertiary hospital. Majority (80.3%) attended only 1 breastfeeding module throughout their prenatal check-ups.

Table 1 shows the summary of outcomes for the MBFHI in this tertiary hospital. There were 65 out of 71 (91.5%) subjects initiated breastfeeding at first hour postpartum and 58 out of 71 (81.7%) of the subjects

were able to successfully observe EBF during their entire hospital stay. There were 62 out of 71 (87.3%) subjects roomed-in with their infants after delivery. Moreover, less than half of the subjects were able to observe EBF (46.9%) and proper breastfeeding (39.4%) within 6 months.

The outcomes at first hour postpartum of the subjects are shown in Table 2. Sixty-five out of 71 subjects (91.5%) initiated breastfeeding on their first hour postpartum while 6 subjects (8.5%) did not. The major factor that caused the delay of breastfeeding initiation within the first hour of birth was the need to bring the infants immediately to the newborn care unit for observation because they developed respiratory distress (4 out of 6 subjects).

It is presented in Table 3 that 49 out of 52 (94%) infants delivered vaginally (spontaneous delivery or assisted vaginal delivery) and 16 out of 19 (84%) infants delivered by cesarean section were breastfed within the first hour of birth. A Chi square test was performed, and no significant relationship was found between the route of delivery and EBF within the first hour of birth ( $\chi^2 [1, N = 71] = 1.806, p = 0.179$ ). This means, infants delivered vaginally and by cesarean section were equally breastfed at first hour postpartum.

It was observed that there were 62 out of 71 (87.3%) subjects roomed-in with their newborn and 9 subjects (12.7%) were not. The following were the reasons of 9 subjects who were not roomed in with their newborn: 4 infants experienced respiratory distress during the first 2 hours of life; 2 subjects had their infants admitted in the newborn services for phototherapy; 1 subject developed fever; 1 infant developed fever and required work-up; and 1 infant had a low apgar score and needed further observation in the newborn care unit. Also, there was still no association between mode of birth and success of breastfeeding during hospital stay ( $p = 0.718$ ). However, among the roomed-in infants, 11.3% (7 out of 62) were not successfully breastfed due to inadequate milk production of their mothers.

During the 3<sup>rd</sup> and 6<sup>th</sup>-month postpartum, only 66 subjects were analyzed since the principal investigator was not able to contact the 5 subjects. It is shown in Table 4 that 39 out of 66 (59%) subjects were able to observe EBF at 3 months postpartum. Of these, there were 8 subjects, despite EBF observed, did not meet the criteria of proper breastfeeding. These 8 subjects decreased the frequency of breastfeeding (less than 8 to 12 times a day) because they resumed work. These 8 subjects observed EBF because they did breast milk collection and storage and infants were fed thru cups by the stored mother's milk. Moreover, almost half (47%) of the subjects observed exclusive and proper breastfeeding at 3rd month postpartum since common reason was that, these mothers have not resumed their work or not working at all. There were

**Table 1.** Summary of Outcomes

	Able to initiate EBF n/N (%)	Number of subjects with newborns who were roomed-in n/N (%)	Successful EBF n/N (%)	Subjects resumed work n/N (%)	Observed proper breastfeeding n/N (%)
<b>First hour postpartum</b>	65/71 (91.5)				
<b>During hospital stay</b>		62/71 (87.3)	58/71 (81.7)		
<b>3 months postpartum</b>			39/66 (59.0)	23/66 (34.9)	31/66 (47.0)
<b>6 months postpartum</b>			31/66 (47.0)	13/66 (19.7)	26/66 (39.4)

**Note:** Outcomes indicated with “\*” used N=66 as denominator in getting the percentages since 5 subjects were lost to follow up at 3rd and 6th month postpartum.

**Table 2.** Outcomes at first hour postpartum

Outcomes	n (%)
Number of subjects able to initiate breastfeeding on 1st hour postpartum	65 (91.5)
Number of subjects were NOT able to initiate breastfeeding on 1st hour postpartum	6 (8.5)
Factors that caused delay of breastfeeding initiation at first hour postpartum	
Baby developed gasping and retractions	4
Hypothermia of the infant	1
Low Apgar score of the infant	1

**Table 3.** EBF and Route of Delivery Crosstabulation at First Hour Postpartum

Outcomes		EBF, n(%)		TOTAL
		Yes	No	
Route of Delivery, n(%)	Vaginal delivery	49	3	52 (73.2)
	Cesarean section	16	3	19 (26.8)
	TOTAL	65 (91.5)	6 (8.5)	66 (100.0)

Abbreviation: EBF=exclusive breastfeeding; n=number of subjects.

**Table 4.** Exclusive and Proper Breastfeeding Crosstabulation at 3rd and 6-month Postpartum

Outcomes		Proper Breastfeeding, n(%)		TOTAL
		Yes	No	
<b>3rd Month Post-partum</b>				
EBF, n(%)	Yes	31	8	39 (59)
	No	0	27	27 (41)
	TOTAL	31 (47.0)	35 (53.0)	66 (100.0)
<b>6th Month Post-partum</b>				
EBF, n(%)	Yes	26	4	30 (45.5)
	No	0	36	36 (54.5)
	TOTAL	26 (39.4)	40 (60.6)	66 (100)

Abbreviation: EBF=exclusive breastfeeding; n=number of subjects.

26 out of 66 (39.4%) subjects who did not continue EBF because they started mixed feeding or pure milk formula due to the following reasons: inadequate milk production, resumed work and unable to collect breast milk at work, or encountered difficulty in breastfeeding hence chose to stop breastfeeding.

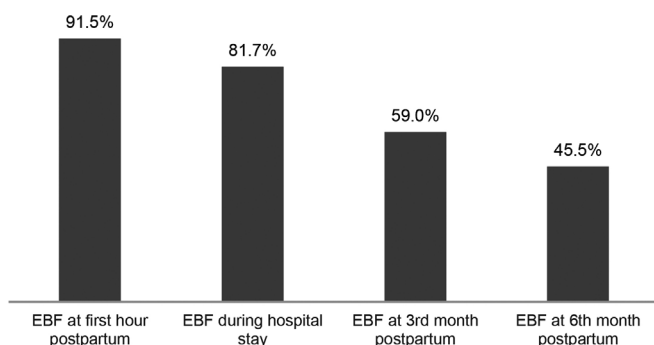
Based on the study, 23 out of 66 (34.9%) subjects were already working within 3 months postpartum. Among working subjects, only 12 of them did breast milk collection and storing. Most of these 12 subjects did proper milk storing, except for 1 subject who did milk storing but was not able to comply on the given guidelines of proper storing (did not label the containers properly with date and time of collection). Moreover, there were 11 subjects who were working but did not collect and store milk at work, because there is no lactation clinic available in their workplace.

In Table 4, it was found that 30 out of 66 (45.5%) of the subjects observed EBF at 6<sup>th</sup> month postpartum. Among these 30 subjects, there were 26 (39.4%) subjects who did proper breastfeeding. Furthermore, there were more than half (54.5%) who did not continue EBF after the 6<sup>th</sup> month postpartum.

There were 26 out of 66 (39.4%) subjects who have work 6 months after delivery. Among these 26 subjects, only 14 did breast milk collection and storing. Of these who did milk collection and storing, 12 subjects were not able to collect and store milk while working because they have no lactation clinic at their workplace, 1 subject was working abroad hence not collecting and storing milk at workplace, and 1 subject had her infant on formula due to inadequate milk production.

As observed in Figure 1, there was a decrease of 49%, approximately half, in the number of subjects who observed EBF from their first hour postpartum up to their 6th month postpartum. The major reasons that inhibit them to observe EBF were inadequate milk production and resumption of work. There was more than one-fourth of the subjects [10 out of 36 subjects (27.8%)] specifically

**Figure 1.** EBF at different timepoints



Abbreviation: EBF= exclusive breastfeeding

mentioned that they started mix feeding and were unable to collect and store milk at workplace due to lack of lactation clinic.

## DISCUSSION

Breastfeeding is the best form of feeding during the first 6 months of infancy because of its health and economic advantages, and this institution fully supported the MBFHI of the WHO, UNICEF, and Department of Health. Early initiation of breastfeeding, specifically within first hour of life, refers to the best practice recommendation by the WHO. It promotes bonding between the mother and the child and provides advantages like thermoregulation and enabling the colonization of infant's gut with the mother's normal body bacteria. Our study clearly shows that breastfeeding practices after delivery in this tertiary hospital is successful. We revealed that 91.5% of the infants were given breastfed within 1 hour of birth, which is almost doubled the percentages of last-born infants nationwide (49.7% and 49%) who were delivered in health facilities and started breastfeeding within first hour after delivery according to the Philippine National Demographic and Health Survey (NDHS) in 2008 and in 2017, respectively<sup>7,8</sup>. Moreover, our study has shown that 4 in 5 infants were breastfed successfully during their hospital stay.

In addition, our study has shown that 3 out of 5 infants were exclusively breastfed at 3 months postpartum and 1 in 2 infants was EBF at 6 months postpartum. Our results are comparable with data from the 2003 NDHS where 1 in 3 infants and 1 in 5 infants is EBF at age 2 to 3 months and 4 to 5 months, respectively<sup>8</sup>.

Many studies demonstrated association between route of delivery and early breastfeeding cessation primarily due to anesthesia used or the pain and comfort of the mother during postpartum. Contrary to the literature<sup>9</sup>, our study shows no significant relationship between the route of delivery and successful breastfeeding initiation within first hour of birth and during hospital stay. That is, infants delivered vaginally and by cesarean section had equal chance of EBF, without any additional food or water, at first hour. This contradiction could be due to the large (78.9%) number of multiparous subjects who had cesarean delivery. Additionally, all mothers, regardless of mode of delivery, should be supported and encouraged to initiate breastfeeding promptly.

In our study, it was observed that 1 in 3 subjects who exclusively breastfed their infant within first hour of delivery did not continue breastfeeding until their infants were 3 months old and 1 in 2 subjects did not continue breastfeeding until their infants were 6 months old due to inadequate of milk and resumption of work.

This means, younger infants <3 months of age were more to be exclusively breastfed than infants aged ≥3 months. This result is similar with the study conducted by Asemahagn (2016) in Northwest Ethiopia<sup>11</sup>. The logical explanation could be the commitment of mothers to their work, either at home or at office, hence introduction of supplementary feedings. Finally, fulltime employees stop earlier breastfeeding than unemployed mothers. Our study presented that working mothers started mixed feeding and were unable to collect and store milk at workplace due to lack of lactation clinic. It is shown in this study, that breastfeeding support within at home, community and workplace plays a great role in success of exclusive breastfeeding. Resumption of work should not be a hindrance in continuing breastfeeding if there is a strong support shown to lactating working mothers from the employer or colleagues at work.

## **CONCLUSION**

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In this study, almost half of mothers exclusively breastfed up to 6 months, regardless of age, parity, number of classes attended and route of delivery. The main determinants of EBF cessation at 6-month postpartum include inadequate milk production and initiated mixed feeding due to resumption of work and inability to collect milk at work. To promote successful EBF among mothers in the Philippines, interventions should focus on strengthening the breastfeeding policy implementation in the workplace and communities to promote, protect and maintain breastfeeding.

## **LIMITATION**

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This study contains some potential limitations. With the limitation, the recall bias and participants' variable reliability to answer the questions were not completely avoided. In addition, this study did not include the assessment of proper breastfeeding position as a criterion of overall proper breastfeeding.

## **RECOMMENDATION**

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Research on impact evaluation or assessment of MBFHI is still in its early stage, and available breastfeeding data from private health facilities in the country is limited. This kind of study is distinctive because it contributes to national health knowledge related to exclusive and proper breastfeeding within first hour after delivery until infants' 6 months of aged. Nevertheless, studies related to these areas need to be continued.

A larger sample size and longer duration of subject recruitment are desirable to be able to capture involvement through the whole research process from initial design through to dissemination. In addition, aside from success of breastfeeding, it would be equally important to look on the emotional aspect of breastfeeding on the mothers and the emotional support given by the hospital staff and family members.

Based on the results of the study, it is also recommended to further investigate the reasons for lower results on EINC on first hour in subjects who underwent cesarean section.

Equally important is to investigate further on the reasons of discontinuation of exclusive breastfeeding during the first 6 months after delivery. Emphasis should be made on the effect of work in the mother's decision on breastfeeding. It also better to investigate the nature of work of the mother as well as the support they get in the workplace which may explain further the lower rates of EBF among working mothers. ■

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