

Baby-Friendly Hospital Initiative and Breastfeeding Among WIC-Participating Infants in Los Angeles County

Journal of Human Lactation

1–7

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DOI: 10.1177/0890334417716118

journals.sagepub.com/home/jhl



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Abstract

Background: Breastfeeding rates among low-income infants lag behind national rates. Policies such as the Baby-Friendly Hospital Initiative (BFHI) improve breastfeeding and may benefit low-income populations such as those who participate in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC). A recent effort exists to increase the number of Baby-Friendly designated hospitals in Los Angeles County (LAC).

Research aim: This study aimed to determine whether the BFHI effort has had a beneficial effect on Baby-Friendly hospital practices in LAC hospitals and to determine if birthing hospitals' Baby-Friendly designation status is associated with breastfeeding outcomes among WIC-participating children in LAC.

Methods: Data came from the Los Angeles County WIC Survey (2008, 2011, 2014), which is conducted on a random sample of approximately 5,000 WIC families living in LAC. The prevalence of three Baby-Friendly hospital practices was examined between 2008 and 2014. Logistic regression was used to examine the association of birthing hospitals' Baby-Friendly designation status with any breastfeeding and exclusive breastfeeding at 1, 3, and 6 months.

Results: The rates of Baby-Friendly hospital practices have improved since 2008. Although no association existed with rates of any breastfeeding, being born in a hospital designated Baby-Friendly or in the process of obtaining this designation was significantly associated with an increased odds of exclusive breastfeeding at 1 and 3 months.

Conclusion: The BFHI may help achieve recommended exclusive breastfeeding rates, especially for low-income populations. Additional strategies are needed to support low-income mothers in LAC with all levels of breastfeeding.

Keywords

Baby-Friendly Hospital Initiative, breastfeeding, breastfeeding duration, breastfeeding practices, exclusive breastfeeding, Special Supplemental Nutrition Program for Women, Infants, and Children

Background

Breastfeeding provides health benefits for both mother and child. The American Academy of Pediatrics (2012) recommends exclusively breastfeeding newborns for the first 6 months of life. However, breastfeeding continuation rates and exclusive breastfeeding rates remain low in the United States. Among infants born in the United States in 2013, 31% were breastfed at 1 year, and 22% were exclusively breastfed through 6 months (Centers for Disease Control and Prevention [CDC], 2016a). Although the cause of low breastfeeding rates is multifactorial, *The Surgeon General's Call to Action to Support Breastfeeding* lists hospital practices and policies in maternity settings as a barrier to successful breastfeeding initiation and continuation (U.S. Department of Health & Human Services [HHS], 2011) and recommends the Baby-Friendly Hospital Initiative (BFHI) to improve breastfeeding rates.

The BFHI was created by the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF) in 1991 to increase breastfeeding rates worldwide (WHO & UNICEF, 1989, 2009). Baby-Friendly designated hospitals comply with the Ten Steps to Successful Breastfeeding, which summarizes evidence-based standards of care such as helping mothers initiate breastfeeding within the first hour of birth (WHO & UNICEF, 1989, 2009). Research shows that

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Date submitted: September 30, 2016; Date accepted: May 28, 2017.

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infants born at hospitals exposed to the BFHI benefit from increased breastfeeding initiation and duration (Howe-Heyman & Lutembacher, 2016; Pérez-Escamilla, Martinez, & Segura-Pérez, 2016). However, less research has been conducted in the United States, especially examining exclusive breastfeeding (Howe-Heyman & Lutembacher, 2016; Pérez-Escamilla et al., 2016).

Few studies in the United States have also examined the effect of the BFHI among low-income children (Munn, Newman, Mueller, Phillips, & Taylor, 2016; Pérez-Escamilla et al., 2016) who experience lower breastfeeding rates. Whereas 52% of children in the United States born in 2013 breastfed at 6 months, less than 40% of poor children and children participating in the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) breastfed at 6 months (CDC, 2016b). The Special Supplemental Nutrition Program for Women, Infants, and Children provides breastfeeding support, nutrition education, and food assistance to low-income and nutritionally-at-risk pregnant, breastfeeding, and postpartum women, infants, and children younger than 5 years old. Despite this support, WIC participants experience lower rates of breastfeeding (CDC, 2016b). In Los Angeles County (LAC), where two-thirds of infants participate in WIC (Public Health Foundation Enterprises-WIC & First 5 LA, 2015), the push for Baby-Friendly designated hospitals is recent.

Although there are nearly 60 birthing hospitals in LAC, by 2010 only 4 of them were designated Baby-Friendly. It is of concern that LAC is ranked 43rd out of the 58 counties in California for exclusive breastfeeding (BreastfeedLA, 2014). In the past few years, successful statewide and local efforts have been directed at supporting hospitals in California to become Baby-Friendly (CA SB 402, 2013-2014; First 5 LA, 2011; Los Angeles County Department of Public Health, 2014). Indeed, by 2025, all hospitals in California must be designated Baby-Friendly or have comparable policies (CA SB 402, 2013-2014). Consequently, the number of LAC Baby-Friendly designated hospitals increased (Los Angeles County Department of Public Health, 2014). At the time that data for this study were collected (August 2014), 16 hospitals had obtained the designation. Sixteen months later (December 2015), another 11 joined the ranks, bringing the total number of Baby-Friendly designated hospitals in LAC to 27. With such a drastically changing scene in birthing hospitals, it is important to document whether there have been corresponding increases in Baby-Friendly hospital practices in LAC and whether being born in a Baby-Friendly designated hospital is associated with improved breastfeeding outcomes in the low-income population in the county.

Methods

Design

We conducted an observational, cross-sectional study of the WIC-participating children born in LAC hospitals to examine

Key Messages

- The Baby-Friendly Hospital Initiative's effect on breastfeeding outcomes among low-income mothers in the United States has not been fully examined.
- Since 2008, Los Angeles County birthing hospitals have seen a surge in Baby-Friendly hospital practices.
- Being born in a hospital designated Baby-Friendly or in the process of obtaining designation was associated with increased exclusive breastfeeding.
- The Baby-Friendly Hospital Initiative may help achieve recommended exclusive breastfeeding rates among low-income populations in the United States.

(a) changes in three Baby-Friendly hospital practices between 2008 and 2014 and (b) the association of birthing hospitals' Baby-Friendly designation status and breastfeeding outcomes in 2014. Data came from the Los Angeles County WIC Survey and the Ethical and Independent Review Services provided institutional review board approval for the survey.

Setting

The Los Angeles County WIC Survey is a parent-reported phone survey conducted every 3 years on a random cross-sectional sample of approximately 5,000 WIC families living in LAC (lawicdata.org/survey). A family was eligible to participate in the survey if the mother was pregnant and enrolled in WIC or had a child younger than 5 years who was enrolled in WIC. The survey asked questions about one child from each family. Interviews were conducted in the spring and summer months of each survey year and data for this study came from the 2008, 2011, and 2014 survey years.

Sample

The sample was restricted to children who were born in LAC hospitals, who were no older than 2 years at the time of the survey, who were not missing on any of the measures, and whose biological mothers were interviewed. Multiple births, birth weight, diseases influencing breastfeeding, or difficulties during the neonatal period were not criteria for exclusion. The final sample size was 4,873 (1,451 for 2008, 1,723 for 2011, and 1,699 for 2014). To examine the association of hospitals' Baby-Friendly designation status with breastfeeding outcomes, the sample was further restricted to children whose mothers participated in the 2014 survey and who were not missing on any additional covariates. These children ($n = 1,661$) were born between March 2012 and June 2014.

Measurements

Any breastfeeding was determined by whether the mother had ever breastfed the child, including in the hospital, and the child's age when she stopped breastfeeding. *Exclusive breastfeeding* was defined as the child consuming only human milk without any supplemental food or drink and was determined by whether the child was fed only human milk in the hospital and the age at which the child was given anything besides human milk.

The main independent variable was the birthing hospital's Baby-Friendly designation status. Whether the hospital had obtained this designation and the date of designation were obtained from the Baby-Friendly USA website (www.babyfriendlyusa.org). Infants who were born in a hospital at or after the time of designation were considered to have been born in a Baby-Friendly designated hospital. Infants who were born in a hospital that became Baby-Friendly after the infant's birth were considered to have been born in an *in-process* hospital. Hospitals that did not receive designation as of January 2017 were considered to not be Baby-Friendly hospitals. The majority of in-process hospitals became designated within 2 years of the child's birth.

Three hospital practices related to the Ten Steps to Successful Breastfeeding and that were asked of the mother in all 3 survey years were examined: child was "fed only [human milk] at the hospital" (Step 6), "the hospital staff gave . . . formula to take home" (Step 6), and "the hospital [gave] a telephone number to call for help with breastfeeding" (Step 10).

Sociodemographic characteristics included child's gender and age and mother's age, education, Hispanic ethnicity, and foreign-born status. Other variables were child's preterm birth (≤ 36 weeks of pregnancy), mother's breastfeeding intent, and whether the father lives in the household, since these can influence breastfeeding (Colaizy, Saftlas, & Morriss, 2012; HHS, 2011; Langellier, Chaparro, & Whaley, 2012).

Data Collection

Los Angeles County WIC Survey interviews were conducted in English or Spanish, based on the participant's preferred language. Data collected included the family's demographic characteristics, child's birthing hospital, and mother's breastfeeding practices. Computer-assisted telephone interviewing was used by Field Research Corporation, an independent public opinion research organization, to conduct the interviews. The complete survey methodology has been published elsewhere (Langellier et al., 2012).

Data Analysis

Chi-square tests were used to assess changes in the three Baby-Friendly hospital practices between 2008 and 2014. Using the 2014 survey, descriptive statistics were obtained

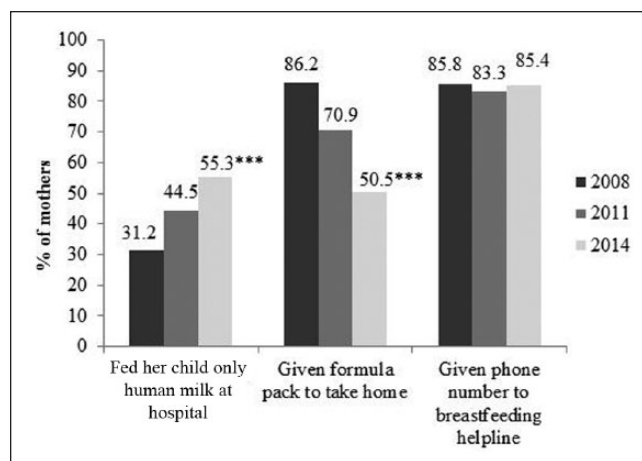


Figure 1. Baby-Friendly hospital practices related to Steps 6 and 10 reported by mothers of children ≤ 2 years participating in the Special Supplemental Nutrition Program for Women, Infants, and Children in Los Angeles County: 2008 to 2014. Chi-square test of differences: * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

and multivariable logistic regression was used to examine the associations between hospitals' Baby-Friendly designation status and each breastfeeding outcome. The models were adjusted for possible confounders of these associations (the sociodemographic characteristics, preterm birth, mother's breastfeeding intent, and father's presence in the household). Since breastfeeding outcomes at various ages of the children were examined, children had to be at least the age of interest to be included in the subsample. Ninety-five percent confidence intervals were obtained for the odds ratios. Analyses were conducted using SAS 9.4 (SAS Institute, Cary, NC).

Results

Changes in LAC Baby-Friendly Hospital Practices Between 2008 and 2014

The percentage of mothers who reported Baby-Friendly hospital practices increased in recent years (see Figure 1). The majority of mothers surveyed reported being given a phone number to a breastfeeding helpline. Between 2008 and 2014, hospitals significantly cut down the practice of giving mothers formula to take home. The percentage of infants fed only human milk at the hospital increased 77% during this time.

Hospital's Baby-Friendly Designation Status and Breastfeeding

Children's mean (*SD*) age at the time of the 2014 survey was 12.3 (6.6) months. The majority of children had mothers who were Hispanic (82%) and nearly 70% had mothers with at least a high school education. Seventy percent of children

lived with both parents. Eighteen percent of the children were born in Baby-Friendly designated hospitals and 46% were born in Baby-Friendly in-process hospitals. Whereas 84% of children were breastfed at 1 month, 66% were breastfed at 3 months, and 48% at 6 months. Approximately 30% of children were exclusively breastfed at 1 month, 20% at 3 months, and only 8% at 6 months.

Children born in Baby-Friendly designated hospitals and in-process hospitals were significantly more likely to be exclusively breastfed at 1 and 3 months, adjusting for covariates (see Table 1). Mother's intention to breastfeed was the strongest predictor of breastfeeding duration (see Table 1). Having a father living in the household was also associated with improved breastfeeding outcomes (see Table 1). Children born in Baby-Friendly designated or in-process hospitals did not differ significantly on *any breastfeeding* from children born in non-Baby-Friendly designated hospitals.

Discussion

Consistent with the increase in LAC birthing hospitals becoming Baby-Friendly, Baby-Friendly hospital practices in the county increased dramatically since 2008. In addition, low-income infants born in LAC Baby-Friendly designated hospitals or ones in the process of obtaining designation were more likely to exclusively breastfeed at 1 and 3 months than those born in non-Baby-Friendly designated hospitals. Findings from other studies on exclusive breastfeeding are mixed and depend on the geographic location of the study and the measures of exclusivity and exposure examined (Howe-Heyman & Lutenbacher, 2016). Using PRAMS data, Hawkins, Stern, Baum, and Gillman (2015) did not find Baby-Friendly designated hospitals to be associated with increased exclusivity at more than 4 weeks. Differences in study population and analytic models may account for the difference in findings. It is interesting that they found a positive association among mothers with lower education. Baby-Friendly designated hospitals may be more important among mothers of lower socioeconomic status, which may explain why we found an association among the WIC population. Low socioeconomic status mothers may be more likely to experience insufficient social support and role modeling, or issues with lactation, which are all barriers to breastfeeding duration (HHS, 2011; Odom, Li, Scanlon, Perrine, & Grummer-Strawn, 2013). These barriers may be addressed by the Ten Steps implemented by Baby-Friendly designated hospitals. Steps such as helping mothers breastfeed in the first hour, exclusive breastfeeding in the hospital, and putting them in touch with support groups have been found to increase breastfeeding duration (Nickel, Labbok, Hudgens, & Daniels, 2013; Pérez-Escamilla et al., 2016).

Certain practices, such as not giving babies human milk substitutes in the hospital, may be more important for exclusive breastfeeding (Pérez-Escamilla et al., 2016). In our sample, children born in Baby-Friendly designated hospitals and

in-process hospitals were significantly more likely to have been breastfed only at the hospital (58% and 57%, respectively, vs. 51%; $p < .001$) and less likely to have been given formula when leaving (39% and 48%, respectively, vs. 65%; $p < .001$) than children born in non-Baby-Friendly hospitals. As suggested by Pérez-Escamilla et al. (2016), these practices might be an indicator of how well the other steps are executed. The lack of an association with exclusive breastfeeding at 6 months could be due to the small number of children exclusively breastfeeding at that age, or it could be that factors besides hospital practices such as family and community support become more important to sustain exclusive breastfeeding.

The similar effect size for exclusive breastfeeding found for Baby-Friendly designated hospitals and hospitals in the process of obtaining designation could be due to the extent that Baby-Friendly practices are implemented in the latter. In our sample, in-process hospitals had rates of exclusive in-hospital breastfeeding and breastfeeding in the first hour that were similar to those of Baby-Friendly designated hospitals. However, in-process hospitals were more likely to give formula packs to take home and less likely to give phone numbers to breastfeeding helplines than Baby-Friendly designated hospitals (data not shown). Since sociopolitical and organizational barriers to obtaining designation, such as marketing by infant formula companies and not enough funding and trained staff (Semenic, Childerhose, Lauzière, & Groleau, 2012), exist, continued effort is needed to help these in-process hospitals obtain designation. This is important as we found that these hospitals were more likely to serve less-educated mothers than Baby-Friendly designated and non-Baby-Friendly designated hospitals (data not shown).

Contrary to other studies (Pérez-Escamilla et al., 2016), we did not find being born in a hospital designated Baby-Friendly or in the process of obtaining designation to be associated with duration of any breastfeeding. This might be due to the extent of Baby-Friendly hospital practices implemented in non-Baby-Friendly hospitals as discussed above and to the high rates of any breastfeeding in the sample.

Our findings highlight the importance of the child's father living in the household on breastfeeding duration and are consistent with other studies that have found the father's presence to be beneficial (Emmott & Mace, 2015; Langellier et al., 2012). Consistent with the literature, mother's intent to breastfeed prior to childbirth is a strong determinant of breastfeeding success in the first 6 months after birth (Colaizy et al., 2012; Langellier et al., 2012). The large effect that we found with exclusivity at 6 months could indicate the importance of mother's intent or it could be due to the small number of children ($n = 1$) who exclusively breastfed at 6 months and whose mother did not intend to breastfeed.

One of this study's strengths is that we examined exclusive and any breastfeeding over three time periods. Few U.S. studies have examined exclusivity beyond a month (Howe-Heyman & Lutenbacher, 2016). Furthermore, we used

Table 1 Logistic Regression Models of Breastfeeding Outcomes Among WIC-Participating Children ≤ 2 Years

Variable	Any breastfeeding at 1 month (n = 1,661)	Any breastfeeding at 3 months (n = 1,537)	Any breastfeeding at 6 months (n = 1,353)	Exclusive breastfeeding at 1 month (n = 1,658)	Exclusive breastfeeding at 3 months (n = 1,534)	Exclusive breastfeeding at 6 months (n = 1,351)
Hospital's Baby-Friendly designation status (ref = not Baby-Friendly)						
Baby-Friendly designated	1.32 [0.87, 2.00]	0.97 [0.71, 1.34]	0.73 [0.53, 1.02]	1.49 [1.09, 2.03]	1.50 [1.04, 2.17]	0.79 [0.44, 1.43]
In process ^a	1.05 [0.78, 1.43]	1.17 [0.91, 1.50]	1.12 [0.87, 1.45]	1.47 [1.15, 1.87]	1.38 [1.03, 1.85]	0.82 [0.52, 1.27]
Child's age (months)	1.03 [1.01, 1.05]	1.04 [1.02, 1.06]	1.02 [1.00, 1.04]	1.03 [1.02, 1.05]	1.03 [1.01, 1.05]	1.03 [0.99, 1.07]
Child's gender (ref = male)	1.13 [0.86, 1.50]	1.33 [1.06, 1.67]	1.16 [0.93, 1.46]	1.27 [1.02, 1.57]	1.08 [0.84, 1.40]	0.92 [0.61, 1.38]
Child preterm birth (ref = not preterm)	0.93 [0.58, 1.49]	0.75 [0.51, 1.11]	0.94 [0.63, 1.40]	0.67 [0.44, 1.00]	0.60 [0.36, 1.01]	0.51 [0.20, 1.29]
Mother's Hispanic ethnicity	0.86 [0.59, 1.25]	1.09 [0.81, 1.48]	1.02 [0.74, 1.39]	0.68 [0.51, 0.91]	0.68 [0.49, 0.96]	0.82 [0.48, 1.40]
Mother has at least a HS education (ref = less than HS)	1.48 [1.08, 2.04]	1.32 [1.02, 1.72]	0.95 [0.73, 1.24]	1.23 [0.96, 1.60]	1.29 [0.95, 1.75]	1.37 [0.84, 2.23]
U.S.-born mother	0.49 [0.35, 0.69]	0.63 [0.49, 0.83]	0.57 [0.44, 0.73]	0.99 [0.77, 1.28]	0.96 [0.71, 1.28]	0.94 [0.59, 1.49]
Mother's age (years)	1.00 [0.98, 1.03]	1.03 [1.01, 1.05]	1.02 [1.00, 1.04]	0.99 [0.97, 1.00]	0.99 [0.96, 1.01]	1.01 [0.97, 1.04]
Mother's intent to breastfeed	5.73 [4.09, 8.02]	4.54 [3.22, 6.42]	5.64 [3.63, 8.78]	4.32 [2.64, 7.06]	4.50 [2.34, 8.67]	14.01 [1.94, 101.24]^b
Father lives in household	1.19 [0.88, 1.60]	1.50 [1.18, 1.92]	1.52 [1.17, 1.96]	1.50 [1.17, 1.92]	1.89 [1.39, 2.58]	1.61 [0.98, 2.64]

Note. Data are given as odds ratio [95% confidence interval]. Statistically significant odds ratios are in bold. ref = reference; HS = high school. ^aIn-process hospitals are those that obtained Baby-Friendly designation after the child's birth. ^bUnstable estimate due to small sample size.

information from Baby-Friendly USA to determine Baby-Friendly designation status. Mother's report of exposure to Baby-Friendly practices is sometimes used (Nickel et al., 2013) but it is susceptible to recall bias. To reduce the potential for recall bias of breastfeeding outcomes, we restricted the sample to children younger than 2 years. Moreover, our sample consisted of only WIC-participating children. Participation in WIC is often examined as a confounder (Hawkins et al., 2015; Nickel et al., 2013). Additional strengths include the large sample size and use of a random sample.

Limitations

We do not know the specific practices that in-process hospitals had in place at the time of the child's birth. A greater number of steps can influence breastfeeding duration (Nickel et al., 2013). The majority of the WIC population in LAC is Hispanic and differences may exist by race or ethnicity (Ahluwalia, Morrow, D'Angelo, & Li, 2012). Since WIC participants receive breastfeeding education and support, findings may not be generalizable to other low-income populations.

Conclusion

Since 2008, LAC hospitals are more likely to engage in Baby-Friendly practices. Infants born in hospitals designated Baby-Friendly or in the process of obtaining this designation were more likely than infants born at non-Baby-Friendly hospitals to be exclusively breastfed. This is encouraging evidence that the BFHI is an effective strategy to promote breastfeeding continuation rates among low-income children. Although it is also hopeful that in-process hospitals are practicing some of the Baby-Friendly steps and have a beneficial influence on exclusive breastfeeding, continued effort is needed to help these hospitals obtain Baby-Friendly designation. Future research should examine whether hospital breastfeeding practices and breastfeeding rates improve as more LAC birthing hospitals become Baby-Friendly.

Acknowledgments

The authors gratefully acknowledge Alison Wu for her significant contribution to the research. They also thank Kiran Saluja, Judy Gomez, Mike Whaley, and Armando Jimenez for their contributions to this work and the participants for their willingness to complete the survey.

Declaration of Conflicting Interests

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

The authors disclosed receipt of the following financial support for the research, authorship, and/or publication of this article: Funding for this study was provided by First 5 LA, a child advocacy and grant-making organization created by California voters to invest

Proposition 10 tobacco taxes to improve the lives of children from prenatal to age 5 in Los Angeles County.

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