

Trends of US Hospitals Distributing Infant Formula Packs to Breastfeeding Mothers, 2007 to 2013

Jennifer M. Nelson, MD, MPH^{a,b}, Ruowei Li, MD, PhD^b, Cria G. Perrine, PhD^b

abstract

OBJECTIVE: To examine trends in the prevalence of hospitals and birth centers (hereafter, hospitals) distributing infant formula discharge packs to breastfeeding mothers in the United States from 2007 to 2013.

METHODS: The Maternity Practices in Infant Nutrition and Care survey is administered every 2 years to all hospitals with registered maternity beds in the United States. A Web- or paper-based questionnaire was distributed and completed by the people most knowledgeable about breastfeeding-related hospital practices. We examined the distribution of infant formula discharge packs to breastfeeding mothers from 2007 to 2013 by state and hospital characteristics.

RESULTS: The percentage of hospitals distributing infant formula discharge packs to breastfeeding mothers was 72.6% in 2007 and 31.6% in 2013, a decrease of 41 percentage points. In 2007, there was only 1 state (Rhode Island) in which <25% of hospitals distributed infant formula discharge packs to breastfeeding mothers, whereas in 2013 there were 24 such states and territories. Distribution declined across all hospital characteristics examined, including facility type, teaching versus nonteaching, and size (annual number of births).

CONCLUSIONS: The distribution of infant formula discharge packs to breastfeeding mothers declined markedly from 2007 to 2013. Discontinuing the practice of distributing infant formula discharge packs is a part of optimal, evidence-based maternity care to support mothers who want to breastfeed.

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Dr Nelson drafted the initial manuscript and revised the manuscript; Dr Li revised the manuscript; Dr Perrine conceptualized and designed the study and reviewed and revised the manuscript; and all authors approved the final manuscript as submitted.

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WHAT'S KNOWN ON THIS SUBJECT: Distribution of infant formula discharge packs to breastfeeding mothers is common practice in maternity care facilities in the United States. Receiving discharge packs is associated with shortened exclusive breastfeeding duration. Many efforts have been made to discourage this practice.

WHAT THIS STUDY ADDS: From 2007 to 2013, there has been a marked reduction in distribution of discharge packs containing infant formula to breastfeeding mothers in hospitals and birth centers in the United States.

Breast milk is the optimal source of nutrition for infants and provides immunologic protection. The American Academy of Pediatrics recommends that mothers exclusively breastfeed their infants for the first ~6 months of life.¹ Despite this recommendation, only 19% of infants in the United States are being exclusively breastfed at 6 months.² Duration of breastfeeding depends on successful establishment of breastfeeding during the first days of a newborn's life.³ Many environmental factors at maternity care facilities contribute to successful breastfeeding, including skin-to-skin contact immediately after delivery, initiating breastfeeding within 1 hour of birth, not using pacifiers, frequent and exclusive breastfeeding, mother–infant rooming-in, lactation support services after discharge, and not distributing infant formula discharge packs.^{4–7}

Successful breastfeeding is hampered by distribution of infant formula discharge packs,⁶ which is a common practice in the United States.⁸ These packs provide new mothers with infant formula samples, infant formula coupons, advertising materials, and other baby products. Several studies have shown a decrease in duration of exclusive breastfeeding when breastfeeding mothers are given infant formula discharge packs.^{6,9,10} Previous studies have demonstrated a trend toward eliminating the distribution of infant formula discharge packs.^{8,11} Merewood et al⁸ reported in 2007 that 91% of hospitals in the United States distributed a “formula company–sponsored diaper discharge bag” to new mothers. A follow-up study in 2010 surveyed the 10 “best-record” and 10 “worst-record” states with regard to the proportion of hospitals distributing formula discharge packs in 2007.¹¹ Across the 20 states, there was a significant reduction in the proportion of hospitals distributing formula

discharge packs. Whereas these studies examined the distribution of discharge packs given to all new mothers, we questioned the experiences of breastfeeding mothers. Thus, the purpose of our study is to report national trends in the distribution of infant formula discharge packs to breastfeeding mothers in hospitals and birth centers in the United States from 2007 to 2013.

METHODS

In 2007, the Centers for Disease Control and Prevention launched Maternity Practices in Infant Nutrition and Care (mPINC), a survey of maternity care practices and policies administered every 2 years to all hospitals and birth centers (hereafter referred to as hospitals unless otherwise specified) with registered maternity beds in the United States and territories. Detailed methods of the mPINC survey have been described elsewhere.^{12–14} Briefly, the survey implementation plan and questionnaire were developed with input from an expert panel with knowledge about evaluation of hospital maternity care practices and stakeholders' needs. In addition, relevant literature and pilot surveys were used to develop the questionnaire to reflect maternity care practices that are known to affect breastfeeding outcomes. A Web- or paper-based questionnaire was completed by the people most knowledgeable about breastfeeding-related hospital practices, with input from other staff as needed. Data provide surveillance for maternity care practices in the United States. Additionally, each facility receives a benchmark report that contains a total score and individual scores for 7 subareas (eg, labor and delivery, staff training) for their facility, their state, and the nation. This feedback allows facilities to compare the performance of their maternity care practices to their peers and allows

facilities to identify areas for improvement.¹⁵

For this analysis, we examined the question, “Are discharge packs/bags containing infant formula samples given to breastfeeding mothers?” (yes/no). The overall survey response rate was >80%, and the response rate for this question was >98% for all 4 survey cycles. We examined the percentage of hospitals distributing discharge packs containing infant formula to breastfeeding mothers from 2007 to 2013 by hospital characteristic, including facility type (private hospital, government hospital, nonprofit hospital, military hospital, birth center), teaching versus nonteaching, and facility size (annual number of births). All analyses were conducted in SAS 9.3 (SAS Institute, Inc, Cary, NC). Because mPINC is a census of hospitals providing maternity care and not a sample of all hospitals, there is no sampling error, and therefore no statistical tests were performed.

RESULTS

The percentage of hospitals distributing infant formula discharge packs to breastfeeding mothers was 72.6% in 2007, 65.8% in 2009, 54.5% in 2011, and 31.6% in 2013, an overall decrease of 41 percentage points from 2007 to 2013 (Table 1). In 2007, there was only 1 state (Rhode Island) in which <25% of hospitals distributed discharge packs to breastfeeding mothers, whereas in 30 states >75% of hospitals distributed discharge packs (Fig 1). Massachusetts and New Hampshire joined Rhode Island in 2009 with <25% of all hospitals distributing packs. These 3 states were joined by Oregon, Vermont, and the District of Columbia in the 2011 survey. By 2013, there were 24 states and territories where <25% of hospitals distributed infant formula discharge packs to breastfeeding mothers and only 2 states (Iowa and South Dakota) where >75% of hospitals distributed these packs.

TABLE 1 Characteristics of Hospitals Distributing Infant Formula Discharge Packs to Breastfeeding Mothers, mPINC Survey, 2007 to 2013

Hospital Characteristic	Number of Hospitals (4-y range)	Percentage of Hospitals Distributing Packs				Percentage Point Change (2007–2013)
		2007	2009	2011	2013	
Total	2629–2720	72.6	65.8	54.5	31.6	–41.0
Type						
Private hospital	304–343	82.6	73.9	67.6	42.7	–39.9
Government hospital	480–530	78.7	72.0	60.7	42.7	–36.0
Nonprofit hospital	1615–1695	73.6	66.5	54.3	29.2	–44.4
Military hospital	18–26	61.5	52.4	38.9	19.2	–42.3
Birth center	117–166	9.2	8.5	4.9	1.8	–7.4
Teaching hospital						
Yes	176–209	62.5	56.8	37.3	5.5	–57.0
No	2280–2369	76.6	69.3	59.0	35.9	–40.7
Size (annual number of births)						
1–249	587–622	68.5	64.6	54.1	38.0	–30.5
250–499	444–471	77.9	70.7	64.1	41.0	–36.9
500–999	545–570	78.5	69.5	59.8	37.2	–41.3
1000–1999	515–562	72.0	67.7	51.6	23.3	–48.7
2000–4999	427–461	67.9	58.1	44.0	18.1	–49.8
≥5000	60–71	63.4	57.1	42.6	11.7	–51.7

There was also a consistent decline from 2007 to 2013 in the distribution of infant formula discharge packs across all hospital characteristics examined (Table 1). In 2013, 42.7% of private and 42.7% of government hospitals were distributing discharge packs, a decline from 82.6% and 78.7%, respectively, in 2007. Only 1.8% of birth centers distributed packs in 2013, a decline from 9.2% in 2007. Distribution of discharge packs in teaching hospitals declined from 62.5% in 2007 to 5.5% in 2013, whereas distribution of packs in nonteaching hospitals declined from 76.6% to 35.9%. Similar downward trends were observed in hospitals of all sizes examined. In 2013, 11.7% of hospitals with ≥5000 births annually were distributing discharge packs, down from 63.4% in 2007. There was also a notable decline among hospitals with 2000 to 4999 annual births, from 67.9% in 2007 to 18.1% in 2013 and among hospitals with 1000 to 1999 births from 72.0% in 2007 to 23.3% in 2013.

DISCUSSION

The distribution of infant formula discharge packs to breastfeeding mothers declined markedly, from

72.6% in 2007 to 31.6% in 2013. Some of the most substantial decreases were observed among teaching hospitals and facilities with ≥5000 births annually. In both groups, <12% of hospitals distributed packs with infant formula to breastfeeding mothers in 2013. Other studies have reported similar recent trends in the discontinuation of distributing discharge packs.^{8,11} These observations may reflect increased participation in the Baby-Friendly Hospital Initiative (BFHI), as measured by the increased number of births occurring at facilities that have achieved this designation.¹⁶ The BFHI was launched by the World Health Organization (WHO) and the United Nations Children’s Fund in 1991 as a global effort to promote and support breastfeeding.¹⁷ Maternity care facilities with the “Baby-Friendly” designation have implemented the “Ten Steps to Successful Breastfeeding,” which are hospital practices and policies designed to provide optimal support for infant feeding, and abide by WHO’s International Code of Marketing of Breast-milk Substitutes (the Code).¹⁸

The Code was adopted in 1981 by the WHO Health Assembly to protect and promote breastfeeding in all

countries and recognizes that governments of all states have a responsibility to protect and support breastfeeding. It discourages marketing practices for breast milk substitutes, such as providing infant formula discharge packs, which undermine successful breastfeeding. Thus, maternity care facilities that distribute infant formula discharge packs are not following the Code. Marketing of breast milk substitutes, such as distribution of infant formula discharge packs, is included in the Code because there is evidence that these products have detrimental effects on breastfeeding rates. One meta-analysis looking at distribution of hospital discharge packs reviewed 9 randomized controlled trials and found that the duration of exclusive breastfeeding was shorter at all time points if women received infant formula discharge packs.⁹ Subsequent studies have demonstrated similar results.^{6,10}

Legislative efforts in the United States to ban infant formula discharge packs have not passed,^{19,20} but many maternity care facilities have voluntarily discontinued their distribution.^{11,20,21} Many facilities are recognizing the importance of breastfeeding and are striving toward improving their maternity care practices to support breastfeeding. Some facilities have initiated the BFHI process but have not received the full designation, which can take several years. These facilities may have already discontinued distribution of infant formula discharge packs but are not considered Baby-Friendly hospitals. There are also several state programs, which work with maternity care facilities in their respective states to implement evidence-based maternity care practices. Furthermore, a national campaign, “Ban the Bag,” was launched in 2006 by the Massachusetts Breastfeeding Coalition to provide hospitals with the information and resources to support eliminating distribution of discharge packs containing infant formula.²²

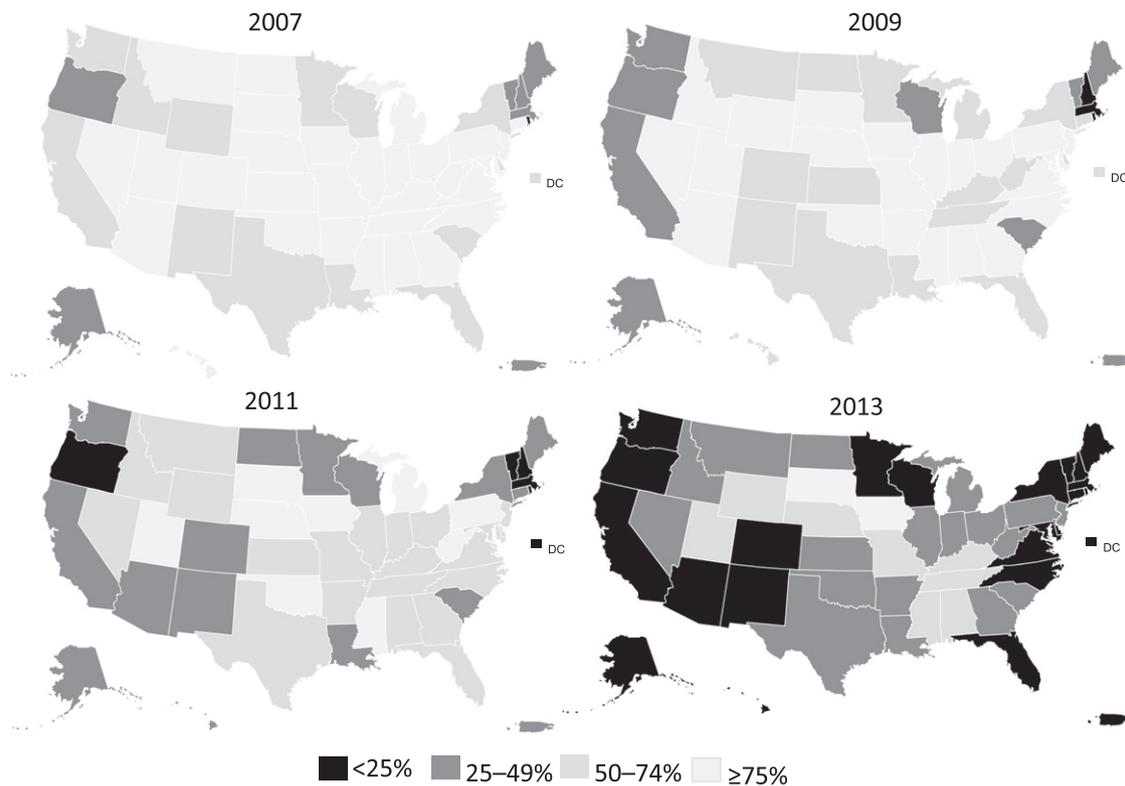


FIGURE 1 Percentage of hospitals distributing infant formula discharge packs to breastfeeding mothers, by state, according to the mPINC survey, 2007 to 2013.

Feedback on maternity care practices from the mPINC survey received by the individual facilities may also contribute to the decline in infant formula discharge pack distribution. Hospital-specific benchmark reports containing a total mPINC score for maternity practices and individual scores for 7 specific areas, including discharge care, are provided for each mPINC survey. One component of the discharge care score includes distribution of infant formula discharge packs. Providing hospital-specific feedback educates these facilities on their strengths and weaknesses and may drive hospitals to modify their maternity practices. States in the New England and Pacific regions were the first with a majority of hospitals not distributing discharge packs, but other regions have made marked progress. Despite this progress, there is still room for improvement; a majority of hospitals in several states, particularly in the South and Midwest, continue to

distribute discharge packs. States in these regions also have lower-than-average breastfeeding rates.² Thus, continued efforts to provide optimal support for infant feeding, such as eliminating distribution of infant formula discharge packs, are needed, especially in areas with lower-than-average breastfeeding rates.

Many facilities cite ethical conflicts of interest to explain why they have discontinued providing new mothers with discharge packs.²⁰ In our study, fewer teaching hospitals were distributing infant formula discharge packs compared with nonteaching hospitals (5.5% vs 35.9%, respectively, in 2013). We also observed a marked decline in distribution of packs in teaching hospitals, from 62.5% in 2007 to 5.5% in 2013. This decline occurred during a period when the medical profession was critically evaluating the impact of commercial influences on professionalism and scientific integrity. In 2006, there was a call

from leaders in the profession for teaching hospitals to take leadership in reforms that would eliminate these conflicts of interest.²³ The Association for American Medical Colleges echoed this recommendation, urging teaching hospitals to accelerate their adoption of more stringent policies regarding commercial influences.²⁴ Shortly thereafter, the Institute of Medicine published a report called *Conflict of Interest in Medical Research, Education, and Practice*.²⁵ These efforts may have influenced the teaching facilities to evaluate commercial influences on practices in their facilities, including the distribution of infant formula discharge packs.

Only 1.8% of freestanding birth centers in 2013 distributed infant formula discharge packs to breastfeeding mothers. These facilities typically have maternity care practices and policies that support breastfeeding, as demonstrated by their higher scores on mPINC survey

items.²⁶ These breastfeeding-friendly maternity care practices may explain why birth centers infrequently distribute discharge packs; however, this observation may simply reflect the expectations and lack of demand for such products from women who choose to deliver at freestanding birth centers. Although private and government hospitals continue to be the facilities that distribute the most discharge packs (42.7% each in 2013), they are also making progress, as seen by a reduction in pack distribution of 40 percentage points and 36 percentage points, respectively.

We noted a downward trend in infant formula pack distribution among hospitals of all sizes. The most notable decline was in hospitals with ≥ 5000 births annually (63.4% in 2007 to 11.7% in 2013, a decrease of 52 percentage points) and 2000 to 4999 births annually (67.9% to 18.1%, a decrease of 50 percentage points). Though not specific to discharge packs, many large hospitals are probably modifying their maternity care practices and policies to align with The Joint Commission's new Perinatal Care core measures, which includes an overall rate for all newborns who were exclusively fed breast milk during the entire hospitalization (measure number PC-05).²⁷ In 2012, The Joint Commission announced that these measures would be mandatory for all hospitals with ≥ 1100 births per year, effective January 2014. Thus, implementation of these new measures will disproportionately affect larger facilities. It is not known whether these efforts will be expanded to smaller hospitals. Furthermore, many hospitals may strive to adopt practices consistent with the Healthy People 2020 Maternal, Infant, and Child Health objectives, which include increasing the proportion of births occurring at facilities that provide optimal care for lactating mothers and their babies.²⁸

This study has several strengths and limitations. The mPINC survey is

a census of all hospitals in the United States with registered maternity beds and therefore provides a representative picture of maternity care practices in the United States. Because it is administered every 2 years, it allows monitoring of trends in maternity care practices that support breastfeeding mothers. Each questionnaire is sent to a single respondent identified as the person most knowledgeable about breastfeeding-related hospital practice. It is possible that responses provided may not reflect true maternity care practices occurring at the hospital. Furthermore, our questionnaire asks about distribution of infant formula discharge packs to breastfeeding mothers and does not collect information on practices related to formula-feeding mothers, which would provide a more comprehensive picture of hospital practices.

CONCLUSIONS

Hospitals have made much progress in reducing the distribution of infant formula discharge packs to breastfeeding mothers, in alignment with the Baby-Friendly Hospital Initiative, the International Code of Marketing of Breast-milk Substitutes, and The Joint Commission's Perinatal Care core measures, among other initiatives. Additional progress in eliminating the distribution of infant formula discharge packs could improve the initiation and duration of successful breastfeeding.

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A DREAM JOB: *Last week I was at a meeting in New Orleans with a colleague. As we walked out the door of the hotel we saw a white Ferrari 458 Spider (yes, it really was white) pull up to the front of the hotel. Of course, my friend and I stopped to ogle the car. Low to the ground, sleek, and with a beautiful low rumble as it idled in front of the hotel, the car certainly looked and sounded beautiful. While we both agreed that the car would not make much sense for someone living in Vermont, we thought it would be fun to test drive one. As it turns out, someone makes a living test driving Ferraris. As reported in The Wall Street Journal (What's News: March 2, 2015), Ferrari employs a head test driver. His job is to ensure that the drive, technology, handling, and even the sounds each new model makes meet expectations. A former race car driver, he puts the car through its paces on a test track close to the Ferrari factory in Maranello, Italy. Based on his suggestions, engineers may change the shifting or the RPM in different gears. Ferrari aficionados expect a specific rumble from their car, much the way Harley Davidson riders expect a specific sound from their motorcycle, and his job is to make sure the engineers maintain that sound. If the sound is not quite right, he will have them adjust the engine or tailpipe to ensure the correct sound is maintained. As each car costs more than \$200,000, Ferrari has a keen interest in keeping their customers happy. While I certainly think it would be fun to tool around a race track in a brand new (or even old) Ferrari, I remain happy with my 1988 SAAB 900T (red, of course) and my current job, so I think I will stay where I am.*

Noted by WVR, MD

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