HHS Public Access

Author manuscript

Pediatrics. Author manuscript; available in PMC 2016 June 01.

Published in final edited form as:

Pediatrics. 2015 June ; 135(6): 1051–1056. doi:10.1542/peds.2015-0093.

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

Jennifer M. Nelson, MD, MPH[1,2], **Ruowei Li, MD, PhD**[2], and **Cria G. Perrine, PhD**[2]

[1]Epidemic Intelligence Service, Division of Scientific Education and Professional Development, Center for Surveillance, Epidemiology, and Laboratory Services, Centers for Disease Control and Prevention, Atlanta, GA

[2]Division of Nutrition, Physical Activity, and Obesity, Center for Chronic Disease Prevention and Health Promotion, Centers for Disease Control and Prevention, Atlanta, GA

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 (mPINC) survey is administered every 2 years to all hospitals with registered maternity beds in the United States. Either a web- or paper-based questionnaire was distributed and completed by the person(s) 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 vs. non-teaching, 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

Address correspondence to: Jennifer M. Nelson, Division of Nutrition, Physical Activity, and Obesity, Centers for Disease Control and Prevention, 4770 Buford Hwy NE, Mailstop F-77, Atlanta, GA 30341. jmnelson@cdc.gov.

Financial Disclosure: The authors have no financial relationships relevant to this article.

Conflict of Interests: The authors have no conflicts of interests to disclose.

Contributor's Statements:
Jennifer M. Nelson: Dr. Nelson drafted the initial manuscript, revised the manuscript, and approved the final manuscript as submitted.
Ruowei Li: Dr. Li revised the manuscript and approved the final manuscript as submitted.
Cria G. Perrine: Dr. Perrine conceptualized and designed the study, reviewed and revised the manuscript, and approved the final manuscript as submitted.
All authors approved the final manuscript as submitted and agree to be accountable for all aspects of the work.

The findings and conclusions in this report are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

discharge packs is a part of optimal, evidence-based maternity care to support mothers who want to breastfeed.

Keywords

infant formula; discharge packs; maternity practices; mPINC

Background

Breast milk is the optimal source of nutrition for infants and provides immunological protection. The American Academy of Pediatrics recommends that mothers exclusively breastfeed their infants for about 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 following 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 al. reported in 2007 that 91% of hospitals in the United States distributed a "formula company-sponsored diaper discharge bag" to new mothers.[8] 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 in evaluation of hospital maternity care practices and stakeholders' needs. In addition, relevant literature and pilot surveys were used to develop

the questionnaire in order to reflect maternity care practices that are known to affect breastfeeding outcomes. Either a web- or paper-based questionnaire was completed by the person(s) 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 which contains a total score and individual scores for seven sub-areas (e.g., labor and delivery, staff training, etc.) 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 vs. non-teaching, 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, while in 30 states, more than 75% of hospitals distributed discharge packs (Figure 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.

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 non-teaching 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 2000–4999 annual births from 67.9% in 2007 to 18.1% in 2013 and among hospitals with 1000–1999 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 showing these products have detrimental effects on breastfeeding. One meta-analysis looking at distribution of hospital discharge packs reviewed nine randomized control trials and found that the duration of exclusive breastfeeding was reduced 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 towards 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. Further, 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]

Feedback on maternity care practices from the mPINC survey received by the individual facilities may also be contributing to the decline in infant formula discharge pack distribution. Hospital-specific benchmark reports containing a total mPINC score for

maternity practices as well as individual scores for seven 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 to non-teaching 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 after this, the Institute of Medicine published a report on Conflicts 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 free-standing 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 free-standing birth centers. Though 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 2000–4999 births annually (67.9% to 18.1%, a decrease of 50 percentage points). While not specific to discharge packs, many large hospitals are likely modifying their maternity care practices and policies to align with The Joint Commission’s new Perinatal Care (PC) core measures, which includes an overall

rate for all newborns which were exclusively fed breast milk during the entire hospitalization (measure: PC-05).[27] In 2012, The Joint Commission announced that these measures would be mandatory for all hospitals with 1,100 or more births per year, effective January 2014. Thus, implementation of these new measures will disproportionately affect larger facilities. It is not known if these efforts will be expanded to smaller hospitals. Further, 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. Since it is administered every 2 years, it allows for 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. Further, 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.

Conclusion

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. Further progress in eliminating the distribution of infant formula discharge packs could improve the initiation and duration of successful breastfeeding.

Acknowledgments

Funding source: No external funding

Abbreviations

BFHI	Baby-Friendly Hospital Initiative
CDC	Centers for Disease Control and Prevention
mPINC	Maternity Practices in Infant Nutrition and Care
U.S	United States
WHO	World Health Organization

References

1. American Academy of Pediatrics. Breastfeeding and the use of human milk. Pediatrics. 2012; 129(3):e827–841. [PubMed: 22371471]

2. Centers for Disease Control and Prevention. [Accessed: August 15, 2014] Breastfeeding Report Card. 2014. Available: http://www.cdc.gov/breastfeeding/data/reportcard.htm

3. Kramer MS, Chalmers B, Hodnett ED, Sevkovskaya Z, Dzikovich I, Shapiro S, et al. Promotion of Breastfeeding Intervention Trial (PROBIT): a randomized trial in the Republic of Belarus. JAMA : the Journal of the American Medical Association. 2001; 285(4):413–420. [PubMed: 11242425]

4. DiGirolamo AM, Grummer-Strawn LM, Fein SB. Effect of maternity-care practices on breastfeeding. Pediatrics. 2008; 122 (Suppl 2):S43–49. [PubMed: 18829830]

5. Moore ER, Anderson GC, Bergman N, Dowswell T. Early skin-to-skin contact for mothers and their healthy newborn infants. The Cochrane Database of Systematic Reviews. 2012; 5:CD003519. [PubMed: 22592691]

6. Sadacharan R, Grossman X, Matlak S, Merewood A. Hospital discharge bags and breastfeeding at 6 months: data from the Infant Feeding Practices Study II. Journal of Human Lactation: Official Journal of International Lactation Consultant Association. 2014; 30(1):73–79. [PubMed: 24305594]

7. Murray EK, Ricketts S, Dellaport J. Hospital practices that increase breastfeeding duration: results from a population-based study. Birth. 2007; 34(3):202–211. [PubMed: 17718870]

8. Merewood A, Grossman X, Cook J, Sadacharan R, Singleton M, Peters K, et al. US hospitals violate WHO policy on the distribution of formula sample packs: results of a national survey. Journal of Human Lactation: Official Journal of International Lactation Consultant Association. 2010; 26(4): 363–367. [PubMed: 20871089]

9. Donnelly A, Snowden HM, Renfrew MJ, Woolridge MW. Commercial hospital discharge packs for breastfeeding women. The Cochrane Database of Systematic Reviews. 2000; (2):CD002075. [PubMed: 10796281]

10. Rosenberg KD, Eastham CA, Kasehagen LJ, Sandoval AP. Marketing infant formula through hospitals: the impact of commercial hospital discharge packs on breastfeeding. American Journal of Public Health. 2008; 98(2):290–295. [PubMed: 18172152]

11. Sadacharan R, Grossman X, Sanchez E, Merewood A. Trends in US hospital distribution of industry-sponsored infant formula sample packs. Pediatrics. 2011; 128(4):702–705. [PubMed: 21949146]

12. Centers for Disease Control and Prevention. [Accessed: February 11, 2015] Maternity Practices in Infant Nutrition and Care (mPINC) Survey. Available: http://www.cdc.gov/breastfeeding/data/mpinc/index.htm

13. Edwards RA, Philipp BL. Using maternity practices in infant nutrition and care (mPINC) survey results as a catalyst for change. Journal of Human Lactation: Official Journal of International Lactation Consultant Association. 2010; 26(4):399–404. [PubMed: 20876345]

14. Edwards RA, Dee D, Umer A, Perrine CG, Shealy KR, Grummer-Strawn LM. Using benchmarking techniques and the 2011 maternity practices infant nutrition and care (mPINC) survey to improve performance among peer groups across the United States. Journal of Human Lactation: Official Journal of International Lactation Consultant Association. 2014; 30(1):31–40. [PubMed: 24394963]

15. Centers for Disease Control and Prevention. [Accessed: February 27, 2015] How are mPINC scores calculated?. Available: http://www.cdc.gov/breastfeeding/data/mpinc/scoring.htm

16. Centers for Disease Control and Prevention. [Accessed: February 27, 2015] Breastfeeding Report Card. 2012. Available: http://www.cdc.gov/breastfeeding/pdf/2012breastfeedingreportcard.pdf

17. World Health Organization and UNICEF. [Accessed: February 27, 2015] Baby-Friendly Hospital Initiative. Revised, updated, and expandes for integrated care. Available: http://whqlibdoc.who.int/publications/2009/9789241594967_eng.pdf

18. World Health Organization. [Accessed: February 27, 2015] International Code of Marketing of Breast-milk Substitutes. Available: http://www.who.int/nutrition/publications/code_english.pdf

19. Revai K, Huston R. Hospital distribution of formula discharge bags: opinions of Texas pediatricians. Breastfeeding Medicine: the Official Journal of the Academy of Breastfeeding Medicine. 2009; 4(3):157–160. [PubMed: 19243260]

20. Philipp BL, Frank DA, Humphreys RJ, Jean-Marie S. Distribution of industry-sponsored diaper bags from maternity facilities in Massachusetts. Breastfeeding Medicine: the Official Journal of the Academy of Breastfeeding Medicine. 2007; 2(4):255–260. [PubMed: 18081464]

21. Zimmerman, R. [Accessed: August 15, 2014] Baby Goody Bags May Be On the Way Out. The Wall Street Journal 2007. Feb 27. 2007 Available: http://online.wsj.com/news/articles/SB117254916033220353

22. Makrigiorgos G, Santana S, Sanchez E, Sadacharan R, Stuebe A, Merewood A. A national website to track hospital discontinuation of formula sample pack distribution: accuracy of self-report. Journal of Human Lactation: Official Journal of International Lactation Consultant Association. 2011; 27(2):113–114. [PubMed: 21527795]

23. Brennan TA, Rothman DJ, Blank L, Blumenthal D, Chimonas SC, Cohen JJ, et al. Health industry practices that create conflicts of interest: a policy proposal for academic medical centers. JAMA: the Journal of the American Medical Association. 2006; 295(4):429–433. [PubMed: 16434633]

24. Association of American Medical Colleges. [Accessed: February 12, 2015] Industry Funding of Medical Education: Report of an AAMC Task Force. Available: https://members.aamc.org/eweb/upload/Industry%20Funding%20of%20Medical%20Education.pdf

25. Lo, B.; Field, MJ., editors. Conflict of Interest in Medical Research, Education, and Practice. Washington (DC): 2009.

26. Centers for Disease Control and Prevention. [Accessed: November 19, 2014] mPINC Results. 2013. Available: http://www.cdc.gov/breastfeeding/data/mpinc/data/2013/tables3_1a-3_7a.htm

27. The Joint Commission. [Accessed: February 12, 2015] Specifications Manual for Joint Commission National Quality Measures (v2015A1). Available: https://manual.jointcommission.org/releases/TJC2015A1/MIF0170.html

28. U.S. Department of Health and Human Services. [Accessed: August 22, 2014] Healthy People 2020: Maternal, Infant, and Child Health. Available: http://www.healthypeople.gov/2020/topicsobjectives2020/objectiveslist.aspx?topicId=26

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.

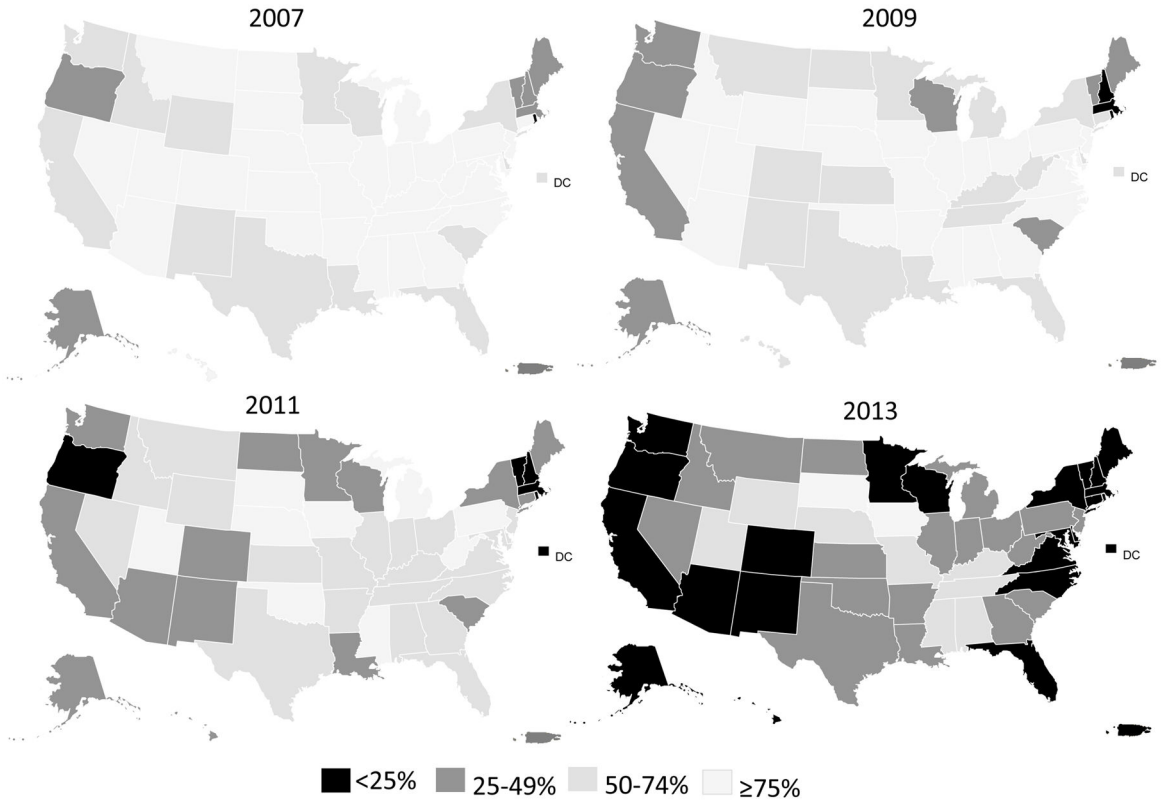

Figure 1.

Percentage of hospitals distributing infant formula discharge packs to breastfeeding mothers, by state, Maternity Practices in Infant Nutrition and Care (mPINC), 2007–2013

Table 1

Characteristics of hospitals distributing infant formula discharge packs to breastfeeding mothers, Maternity Practices in Infant Nutrition and Care (mPINC) survey, 2007–2013

Hospital characteristic	Number of Hospitals (4-year range)	% of hospitals distributing packs				% 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
Non-profit 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