

## Vital Signs: Hospital Practices to Support Breastfeeding — United States, 2007 and 2009

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### Abstract

**Background:** Childhood obesity is a national epidemic in the United States. Increasing the proportion of mothers who breastfeed is one important public health strategy for preventing childhood obesity. The World Health Organization and United Nations Children's Fund (UNICEF) Baby-Friendly Hospital Initiative specifies Ten Steps to Successful Breastfeeding that delineate evidence-based hospital practices to improve breastfeeding initiation, duration, and exclusivity.

**Methods:** In 2007 and 2009, CDC conducted a national survey of U.S. obstetric hospitals and birth centers. CDC analyzed these data to describe the prevalence of facilities using maternity care practices consistent with the Ten Steps to Successful Breastfeeding.

**Results:** In 2009, staff members at most hospitals provide prenatal breastfeeding education (93%) and teach mothers breastfeeding techniques (89%) and feeding cues (82%). However, few hospitals have model breastfeeding policies (14%), limit breastfeeding supplement use (22%), or support mothers postdischarge (27%). From 2007 to 2009, the percentage of hospitals with recommended practices covering at least nine of 10 indicators increased only slightly, from 2.4% to 3.5%. Recommended maternity care practices vary by region and facility size.

**Conclusion:** Most U.S. hospitals have policies and practices that do not conform to international recommendations for best practices in maternity care and interfere with mothers' abilities to breastfeed.

**Implications for Public Health Practice:** Hospitals providing maternity care should adopt evidence-based practices to support breastfeeding. Public health agencies can set quality standards for maternity care and help hospitals achieve Baby-Friendly designation. Because nearly all births in the United States occur in hospitals, improvements in hospital policies and practices could increase rates of exclusive and continued breastfeeding nationwide, contributing to improved child health, including lower rates of obesity.

### Introduction

Obesity is a national epidemic in the United States, and children are not exempt. Currently, 21% of children aged 2–5 years are at least overweight, and half of those children are obese (1). Obese children and adolescents are more likely to have elevated cholesterol and blood pressure levels, breathing and joint problems, and to become obese adults (2). Substantial epidemiologic evidence now establishes breastfeeding as an important public health strategy for preventing childhood obesity (3). In a meta-analysis, children who were breastfed had reduced odds for obesity at various ages compared with those who were formula fed (4). In a separate meta-analysis, children breastfed for 9 months had a more than 30% reduced odds of becoming overweight compared with children never breastfed,

and the two studies that examined exclusive breastfeeding showed a stronger effect (5). Breastfeeding affords infants and mothers additional benefits. When mothers formula feed or discontinue breastfeeding early, the risk for infectious illnesses in their children is increased, as is the mother's risk for developing breast and ovarian cancer (6).

The American Academy of Pediatrics recommends exclusive breastfeeding (breast milk with no solids or other liquids except vitamin/mineral supplements or medications) for about the first 6 months of infancy, and then continued breastfeeding, along with the introduction of iron-rich foods, for at least the first year of an infant's life (7). Although approximately 80% of women in the United States indicate before delivery that they intend to breastfeed (8), and 75% initiate breastfeeding, at

1 week half of women have already given their infant formula, and only 31% are breastfeeding to any extent at 9 months (9).

For women who plan to breastfeed, experiences and support during the first hours and days after birth influence their later ability to continue breastfeeding. Because nearly all U.S. births occur in hospitals, policies that determine hospital practices can influence the feeding behaviors of more than 11,000 infants born each day.\* In 1991, the World Health Organization (WHO) and United Nations Children's Fund (UNICEF) developed the Baby-Friendly Hospital Initiative,† the core of which is the Ten Steps to Successful Breastfeeding. These evidence-based steps outline best practices in hospital settings to help mothers initiate and continue breastfeeding, thus increasing exclusivity and duration of breastfeeding well beyond the hospital stay (10). In one study of women who intended to breastfeed for longer than 2 months, 30% of them stopped breastfeeding early if they experienced none of the Ten Steps to Successful Breastfeeding in the hospital, compared with only 3% who experienced six steps (11). The American Academy of Pediatrics endorsed the Ten Steps to Successful Breastfeeding in 2009 and the White House Task Force on Childhood Obesity Report to the President recommended improving maternity care practices in 2010 (3). This report uses data from the national Maternity Practices in Infant Nutrition and Care (mPINC) survey to describe maternity care practices in the United States.§

## Methods

In 2007, CDC began the biennial mPINC survey to characterize U.S. maternity practices related to breastfeeding. The mPINC is a census survey, assessing practices at all facilities in all states, the District of Columbia, and four U.S. territories that provide maternity services. In 2007, a total of 2,690 facilities participated, and 2,672 facilities participated in 2009; the response rate each time was 82%. Because 96% of respondents in both survey years were hospitals, with the remaining respondents being free-standing birth centers, in this report the term "hospital" refers to all respondents. The mPINC survey is mailed to each hospital and completed by a key informant identified in advance via a screening telephone call as the person best able to answer questions about infant feeding routines. Data from 2007 and 2009 were analyzed for 10 indicators consistent with WHO/UNICEF's Ten Steps to Successful Breastfeeding: 1) existence of a model

breastfeeding policy,¶ 2) staff competency assessment, 3) prenatal breastfeeding education, 4) early initiation of breastfeeding, 5) teaching breastfeeding techniques, 6) limited supplementation of breastfeeding infants, 7) rooming-in, 8) teaching feeding cues, 9) limited use of pacifiers, and 10) post-discharge support.\*\* The prevalence of hospitals with recommended policies and practices in 2007 and 2009 for each of the 10 indicators were assessed. Data for 2009 were analyzed to describe variations by geographic area and hospital annual number of births. Because the mPINC survey is a census rather than a sample, no statistical tests were conducted.

## Results

In 2009, most hospitals reported providing prenatal breastfeeding education (92.8%), teaching women breastfeeding techniques (89.1%), and teaching women how to recognize and respond to infant feeding cues (81.8%) (Table 1). For all other indicators, half or fewer hospitals followed recommended practices. The lowest prevalence of recommended practices related to having a model breastfeeding policy (14.4%); limiting use of formula, water, or glucose supplements for healthy, full-term breastfed infants (21.5%); and providing adequate breastfeeding support to breastfeeding mothers at hospital discharge (26.8%). From 2007 to 2009, the percent of hospitals implementing recommended practices improved at least 1 percentage point for seven indicators, but less than 1 percentage point for three indicators. The majority of hospitals were implementing three to five recommended practices (60.5% in 2007 and 54.3% in 2009), with only 2.4% of hospitals implementing at least nine recommended practices in 2007, and 3.5% in 2009 (Figure). Fewer than 1% of hospitals implemented all 10 policies and practices either year.

The Northeast had the highest prevalence of hospitals with recommended practice for most indicators (Table 2). However, even in the Northeast, the prevalence of recommended practice

¶ A model breastfeeding policy includes all of the following elements: 1) in-service training, 2) prenatal breastfeeding classes, 3) asking about mothers' feeding plans, 4) initiating breastfeeding within 1 hour of uncomplicated vaginal birth, 5) initiating breastfeeding after recovery for uncomplicated cesarean deliveries and/or showing mothers how to express milk and maintain lactation if separated from infant, 6) giving only breast milk to breastfed infants, 7) rooming-in 24 hours/day, 8) breastfeeding on demand, 9) no pacifier use by breastfed infants, and 10) referral of mothers with breastfeeding problems and/or referral of mothers to appropriate breastfeeding resources at discharge. Inclusion of these elements was derived from the Academy of Breastfeeding Medicine's Model Breastfeeding Policy. Additional information available at <http://www.bfmed.org/Media/Files/Protocols/English%20Protocol%207%20Model%20Hospital%20Policy.pdf>.

\*\* Strategies include home visit and hospital postpartum follow-up visit (physical contact); follow-up telephone call after discharge (reaching out); and hospital telephone number to call, hospital-based support group, other breastfeeding support group, lactation consultant, etc. (referrals).

\* National Vital Statistics System birth data available at <http://www.cdc.gov/nchs/births.htm>.

† Additional information available at <http://www.babyfriendlyusa.org/eng/03.html>.

§ Additional information available at <http://www.cdc.gov/breastfeeding/data/mpinc/index.htm>.

**TABLE 1. The Ten Steps to Successful Breastfeeding\* and national prevalence of hospitals with corresponding recommended practices, as measured by indicators consistent with the Ten Steps — Maternity Practices in Infant Nutrition and Care (mPINC), United States, 2007 and 2009**

| Ten Steps to Successful Breastfeeding*  | mPINC indicator   | 2007 (%) <sup>†</sup> | 2009 (%) <sup>†</sup> |
|---|---|-----------------------|-----------------------|
| 1. Have a written breastfeeding policy that is routinely communicated to all health care staff                                  | Model breastfeeding policy: hospital has a written breastfeeding policy that includes 10 model policy elements <sup>‡</sup>   | 11.7                  | 14.4                  |
| 2. Train all health care staff in skills necessary to implement this policy   | Staff competency assessment: nurses/birth attendants are assessed for competency in basic breastfeeding management and support at least once per year                                 | 44.6                  | 49.7                  |
| 3. Inform all pregnant women about the benefits and management of breastfeeding   | Prenatal breastfeeding education: breastfeeding education is included as a routine element of prenatal classes  | 92.5                  | 92.8                  |
| 4. Help mothers initiate breastfeeding within an hour of birth  | Early initiation of breastfeeding: ≥90% of healthy full-term breastfed infants initiate breastfeeding within one hour of uncomplicated vaginal birth                                  | 43.5                  | 50.9                  |
| 5. Show mothers how to breastfeed, and how to maintain lactation even if they should be separated from their infants            | Teach breastfeeding techniques: ≥90% of mothers who are breastfeeding or intend to breastfeed are taught breastfeeding techniques (e.g., positioning, how to express milk, etc.)      | 87.8                  | 89.1                  |
| 6. Give breastfeeding newborn infants no food or drink other than breast milk unless medically indicated                        | Limited use of breastfeeding supplements: <10% of healthy full-term breastfed infants are supplemented with formula, glucose water, or water  | 20.6                  | 21.5                  |
| 7. Practice rooming in - that is, allow mothers and infants to remain together 24 hours per day                                 | Rooming-in: ≥90% of healthy full-term infants, regardless of feeding method, remain with their mother for at least 23 hours per day during the hospital stay                          | 30.8                  | 33.2                  |
| 8. Encourage breastfeeding on demand  | Teach feeding cues: ≥90% of mothers are taught to recognize and respond to infant feeding cues instead of feeding on a set schedule   | 77.0                  | 81.8                  |
| 9. Give no artificial teats or pacifiers to breastfeeding infants   | Limited use of pacifiers: <10% of healthy full-term breastfed infants are given pacifiers by maternity care staff members   | 25.3                  | 30.1                  |
| 10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic | Post-discharge support: hospital routinely provides three modes of post-discharge support to breastfeeding mothers: physical contact, active reaching out, and referrals <sup>¶</sup> | 26.8                  | 26.8                  |

\* As designated by Baby-Friendly USA. The U.S. steps are the same as those recommended by the World Health Organization/UNICEF, except for step 4, which in the United States recommends that mothers should initiate breastfeeding within 1 hour of birth, compared with 30 minutes elsewhere.

<sup>†</sup> Number responding varied slightly from totals (2007 = 2,679, 2009 = 2,665) for each of the prevalence estimates.

<sup>‡</sup> Model policy elements are 1) in-service training, 2) prenatal breastfeeding classes, 3) asking about mothers' feeding plans, 4) initiating breastfeeding within 1 hour of uncomplicated vaginal birth, 5) initiating breastfeeding after recovery for uncomplicated cesarean delivery and/or showing mothers how to express milk and maintain lactation if separated from infant, 6) giving only breast milk to breastfed infants, 7) rooming-in 24 hours/day, 8) breastfeeding on demand, 9) no pacifier use by breastfed infants, 10) referral of mothers with breastfeeding problems and/or referral of mothers to appropriate breastfeeding resources at discharge.

<sup>¶</sup> Physical contact = home visit, hospital postpartum follow-up visit; active reaching out = follow-up telephone call to patient after discharge; referrals = hospital phone number to call, hospital-based support group, other breastfeeding support group, lactation consultant/specialist, outpatient clinic.

exceeded 50% for only six indicators, and only 32% of hospitals had a model breastfeeding policy. Although the Mountain Plains and Southwest regions each had the lowest prevalence of recommended practice on each of several indicators, no specific region was consistently the lowest across all indicators.

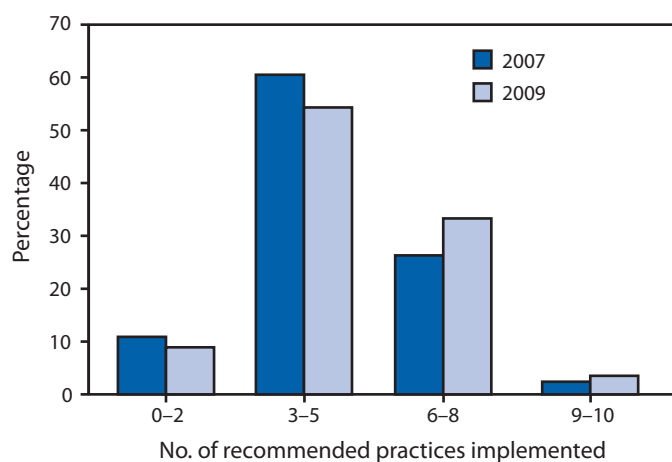
Larger hospitals were more likely to have model breastfeeding policies. Despite such policies, the largest hospitals (≥5,000 births annually) had the lowest prevalence of recommended practice on each of several indicators, including only 7.9% with limited hospital use of breastfeeding supplements (Table 2). The prevalence of recommended practice on institutional indicators, including having a model policy, assessing staff breastfeeding competency, and providing prenatal breastfeeding education, was lower among smaller hospitals. However, smaller hospitals had a higher prevalence

of adherence to recommended practice on other indicators, including early initiation of breastfeeding, limited use of supplements, rooming-in, and providing discharge care.

## Conclusions and Comment

Improving breastfeeding rates is one strategy to address childhood obesity. For women who intend to breastfeed, the hospital experience is critical. These data illustrate the persistent use of practices that are inconsistent with best-practice standards and do not support breastfeeding. To give infants the best start in achieving a healthy life, including reduced obesity, mothers must be supported immediately after birth to establish breastfeeding. Suboptimal breastfeeding in the United States annually results in an estimated \$2.2 billion in additional direct medical costs (12). Recognizing the important

**FIGURE. Percentage of hospitals that implemented recommended maternity care practices related to breastfeeding\* — Maternity Practices in Infant Nutrition and Care Survey (mPINC), United States, 2007 and 2009**



\* Recommended maternity care practices are indicators of the Ten Steps to Successful Breastfeeding (available at <http://www.babyfriendlyusa.org/eng/10steps.html>), as measured in the mPINC survey.

role of hospitals in helping women begin breastfeeding, *Healthy People 2020* added two objectives related to breastfeeding and maternity care: reducing the proportion of breastfed newborns who receive formula supplementation within the first 2 days of life (MICH-23), and increasing the proportion of live births that occur in facilities that provide recommended care for lactating mothers and their babies (MICH-24) (13). Even infants of mothers who choose to feed their infants both breast milk and formula should not be given formula in the hospital unless medically indicated, as hospital supplementation is associated with early discontinuation of breastfeeding (14). Recognizing exclusive breastfeeding as a quality-of-care issue, the Joint Commission, the organization that accredits and certifies U.S. hospitals, added exclusive breast milk feeding in the hospital as a new quality of care measure in 2010 (15).

The Baby-Friendly Hospital Initiative recognizes hospitals with best practices in supporting breastfeeding. To be designated as Baby-Friendly, a hospital must implement the WHO/UNICEF Ten Steps to Successful Breastfeeding and comply with the *International Code of Marketing of Breast-milk Substitutes*, which requires hospitals to pay fair market value for infant formula and not promote items detrimental to breastfeeding, including discharge bags that contain formula (16). The percent of U.S. infants born at Baby-Friendly hospitals increased from 1.8% in 2007 to 4.5% in 2011 (17).

The mPINC survey assesses the Ten Steps to Successful Breastfeeding using a key informant interview, a methodology that is not directly comparable to the Baby-Friendly designation process, which incorporates direct observation and interviews

### Key Points

- Breastfeeding for 9 months reduces a child's odds of becoming overweight by more than 30%.
- Although 75% of U.S. women begin breastfeeding, only 31% are still breastfeeding at 9 months.
- Suboptimal breastfeeding in the United States results in an estimated \$2.2 billion annually in additional direct medical costs.
- Hospital policies and practices to support breastfeeding are critical for improving breastfeeding rates. However, in 2009 only 3.5% of U.S. hospitals were following at least nine of the 10 practices consistent with the Baby-Friendly Ten Steps to Successful Breastfeeding.
- Facilities providing maternity care need to adopt evidence-based practices to support breastfeeding. Government and public health agencies can help by working with hospitals to achieve Baby-Friendly designation.
- Additional information is available at <http://www.cdc.gov/vitalsigns>.

with mothers. However, reports from the mPINC survey provide all hospitals an opportunity to identify practices that inhibit mothers' abilities to breastfeed. Every hospital that participates in the mPINC survey receives a report of its own results showing how its practices compare with recommended practices and with practices of hospitals around the country. These reports can help hospitals develop and implement a plan to improve care to better support breastfeeding, with the goal of preparing hospitals to move more quickly toward Baby-Friendly designation.

A strong breastfeeding policy is the foundation of quality hospital breastfeeding support and sets standards for the remaining nine steps. These data illustrate that in most states few hospitals have established breastfeeding policies that fully support and encourage mothers to breastfeed. The Northeast had the highest prevalence of having a model policy and also the highest prevalence of recommended practice on many indicators. However, policy does not necessarily indicate practice. To improve practice, hospitals will need to ensure that staff members are sufficiently trained to carry out strong breastfeeding policies, and routinely assess adherence.

Although hospital support is critical for helping mothers establish breastfeeding, it is not the only support needed to help them continue breastfeeding. As documented in the *Surgeon General's Call to Action to Support Breastfeeding*, families, communities, employers, health-care providers, and government and nonprofit agencies all have critical roles to play

**TABLE 2. Percentage of hospitals that had implemented recommended practices on indicators consistent with the Ten Steps to Successful Breastfeeding,\* by region and hospital annual births — Maternity Practices in Infant Nutrition and Care (mPINC) Survey, United States, 2009**

| Hospital location/<br>births | Participants<br>(%) | Steps implemented                            |   |   |   |  |   |                      |                                 |  |  |
|------------------------------|---------------------|--|---|---|---|--|---|----------------------|---------------------------------|--|--|
|                              |                     | 1. Model<br>breast-<br>feeding<br>policy (%) | 2. Staff<br>competency<br>assessment<br>(%) | 3. Prenatal<br>breast-<br>feeding<br>education<br>(%) | 4. Early<br>initiation of<br>breast-<br>feeding (%) | 5. Teach<br>breast-<br>feeding<br>technique<br>(%) | 6. Limited use<br>of breast-<br>feeding<br>supplements<br>(%) | 7. Rooming-in<br>(%) | 8. Teach<br>feeding cues<br>(%) | 9. Limited<br>use of<br>pacifiers<br>(%) | 10. Post-<br>discharge<br>support<br>(%) |
| <b>Region†</b>               |                     |  |   |   |   |  |   |                      |                                 |  |  |
| Western                      | 16.4                | 15.7   | 49.4  | 90.4  | 59.1  | 87.4   | 26.8  | 67.9                 | 81.7                            | 42.8                                     | 26.7                                     |
| Southwest                    | 13.0                | 11.9   | 48.0  | 82.4  | 39.1  | 84.9   | 17.5  | 40.1                 | 77.9                            | 29.2                                     | 20.4                                     |
| Southeast                    | 16.6                | 10.3   | 55.1  | 93.6  | 42.6  | 89.0   | 12.7  | 26.8                 | 80.3                            | 23.3                                     | 21.7                                     |
| Northeast                    | 9.2                 | 31.8   | 64.8  | 97.6  | 58.5  | 93.1   | 27.3  | 23.7                 | 91.1                            | 51.2                                     | 34.0                                     |
| Mountain Plains              | 14.9                | 8.1  | 38.1  | 92.6  | 55.6  | 87.3   | 23.4  | 28.5                 | 75.8                            | 18.2                                     | 31.7                                     |
| Midwest                      | 20.2                | 15.4   | 45.6  | 97.7  | 51.7  | 91.4   | 22.6  | 20.3                 | 84.3                            | 24.4                                     | 31.2                                     |
| Mid-Atlantic                 | 9.8                 | 13.0   | 54.7  | 94.1  | 50.6  | 92.3   | 21.7  | 19.5                 | 84.9                            | 32.1                                     | 20.8                                     |
| <b>Annual births</b>         |                     |  |   |   |   |  |   |                      |                                 |  |  |
| <250                         | 22.5                | 7.0  | 33.2  | 83.7  | 61.6  | 85.7   | 38.7  | 47.0                 | 77.9                            | 40.7                                     | 34.6                                     |
| 250–499                      | 17.2                | 11.6   | 41.8  | 90.4  | 54.1  | 89.4   | 21.1  | 27.2                 | 83.0                            | 23.4                                     | 27.5                                     |
| 500–999                      | 20.8                | 11.8   | 51.6  | 95.4  | 49.2  | 88.8   | 17.5  | 29.9                 | 79.8                            | 25.0                                     | 23.8                                     |
| 1,000–1,999                  | 19.9                | 19.2   | 61.6  | 97.5  | 49.1  | 91.5   | 16.7  | 27.1                 | 86.3                            | 26.7                                     | 27.3                                     |
| 2,000–4,999                  | 17.4                | 22.7   | 60.8  | 97.2  | 39.7  | 90.7   | 11.5  | 32.7                 | 83.1                            | 31.9                                     | 20.3                                     |
| ≥5,000                       | 2.4                 | 25.0   | 63.5  | 100.0   | 38.7  | 90.5   | 7.9   | 30.7                 | 82.5                            | 41.3                                     | 17.5                                     |

\* Recommended maternity care practices are indicators of the Ten Steps to Successful Breastfeeding (available at <http://www.babyfriendlyusa.org/eng/10steps.html>), as measured in the mPINC survey.

† Western = Alaska, American Samoa, Arizona, California, Guam, Hawaii, Idaho, Nevada, Oregon, Washington; Southwest = Arkansas, Louisiana, New Mexico, Oklahoma, Texas; Southeast = Alabama, Florida, Georgia, Kentucky, Mississippi, North Carolina, South Carolina, Tennessee; Northeast = Connecticut, Maine, Massachusetts, New Hampshire, New York, Rhode Island, Vermont; Mountain Plains = Colorado, Iowa, Kansas, Missouri, Montana, Nebraska, North Dakota, South Dakota, Utah, Wyoming; Midwest = Illinois, Indiana, Michigan, Minnesota, Ohio, Wisconsin; Mid-Atlantic = Delaware, District of Columbia, Maryland, New Jersey, Pennsylvania, Puerto Rico, Virginia, U.S. Virgin Islands, West Virginia.

(18). Ongoing efforts and initiatives in these areas include the Affordable Care Act, which amended the Fair Labor Standards Act to require employers with more than 50 employees to provide reasonable break time and a private location (other than a bathroom) for breastfeeding mothers to express milk.<sup>††</sup> Additionally, the U.S. Department of Agriculture's Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), which supports approximately 50% of all infants born in the United States, recently revised its program to support breastfeeding more effectively by modifying the mother's food package to be more supportive of women who are breastfeeding, and increasing peer counseling support for breastfeeding.<sup>§§</sup> CDC produces an annual Breastfeeding Report Card, which provides state-level data on breastfeeding rates and key types of community breastfeeding support, showing where states have been successful and where more work is needed to promote and support breastfeeding.<sup>¶¶</sup>

The findings in this report are subject to at least two limitations. The survey was completed by one key informant at each hospital and might not accurately reflect actual hospital practices. To ensure data were as valid as possible, CDC requested that the survey be completed by the person most knowledgeable

of the hospital's maternity practices, in consultation with other knowledgeable persons, as needed. Second, although more than 80% of hospitals participated in each survey, practices in those that participated and those that did not might differ.

Hospitals provide care to nearly all women giving birth in the United States; however, in most hospitals, this care falls short of evidence-based best practices that fully support mothers to be able to breastfeed. Systematically improving maternity care practices, including increased adherence to the Ten Steps to Successful Breastfeeding, will help women who intend to breastfeed get the support they need to be able to start and continue breastfeeding, and by so doing, reduce child obesity and improve other aspects of child health.

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†† Patient Protection and Affordable Care Act (as amended through May 1, 2010). Pub. L. No. 114–48. Available at <http://docs.house.gov/energycommerce/ppacacon.pdf>.

§§ Additional information available at <http://www.fns.usda.gov/wic/breastfeeding/mainpage.htm>.

¶¶ Additional information available at <http://www.cdc.gov/breastfeeding/data/reportcard.htm>.

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