Maternity Care Practices That Support Breastfeeding: CDC Efforts to Encourage Quality Improvement

Laurence M. Grummer-Strawn, PhD, Katherine R. Shealy, MPH, Cria G. Perrine, PhD, Carol MacGowan, MPH, Daurice A. Grossniklaus, PhD, Kelley S. Scanlon, PhD, and Paulette E. Murphy, MLIS

Abstract

Breastfeeding has important consequences for women’s health, including lower risk of breast and ovarian cancers as well as type 2 diabetes. Although most pregnant women want to breastfeed, a majority encounter difficulties and are not able to breastfeed as long as they want. Routine maternity care practices can pose significant barriers to successful breastfeeding. To address these practices, CDC has taken on a number of initiatives to promote hospital quality improvements in how new mothers are supported to start breastfeeding. The CDC survey on Maternity Practices in Infant Nutrition and Care is a tool to educate hospitals on how their current practices compare to recommended standards. The Best Fed Beginnings program is working with 90 hospitals across the United States to achieve optimal care and create tools for future hospital changes. CDC-funded programs in numerous state health departments have created programs to instigate improvements across the state. These efforts have begun to show success, with significant hospital quality score increases seen between 2009 and 2011. In 2011, more hospitals were designated as Baby-Friendly than in any previous year.

Introduction

Breastfeeding has long been recognized for its benefits to infant and child health. Babies who are not breastfed are at increased risk of acute otitis media, gastrointestinal infections, necrotizing enterocolitis, hospitalization for lower respiratory infections, sudden infant death syndrome (SIDS), leukemia, and obesity.1 Growing evidence also confirms the importance of breastfeeding for the mother’s own health. A meta-analysis performed using six published studies concluded that breastfeeding for at least a full year over the course of a woman’s lifetime is associated with a 28% reduction in her risk of ovarian cancer.2 Breast cancer has also been found to be lower the longer a woman breastfeeds.2 Analyses of the Nurses’ Health Study have demonstrated a significant reduction in type 2 diabetes risk with each additional year of lifetime duration of breastfeeding.3 Breastfeeding is also associated with a reduced risk of postpartum depression, although the direction of causality is still not clear.3

Women in the United States overwhelmingly want to breastfeed. In the Food and Drug Administration’s (FDA) national longitudinal Infant Feeding Practices Study II, 82% of pregnant women reported that they intended to breastfeed their babies. About a year later, however, when these women were asked about how long they actually had breastfed, 60% said that they did not breastfeed as long as they wanted. They cited numerous problems with breastfeeding, such as poor latch, problems with milk flow, poor infant weight gain, and pain, problems that can generally be prevented and eliminated with timely and adequate support and management.4 Another study on this dataset showed that among mothers who intend to exclusively breastfeed 3–4 months, only about half are exclusively breastfeeding at 1 month postpartum.5 Nationally, 76.9% of women do initiate breastfeeding, but by 6 months postpartum, only 16.3% are exclusively breastfeeding,6 as recommended by the American College of Obstetricians and Gynecologists (ACOG).7 One reason for the sharp decline in breastfeeding over the first 6 months is that women are not receiving the help they need with breastfeeding early on.

Maternity Care Practices That Support Breastfeeding

Immediate postpartum care has long-lasting effects on breastfeeding outcomes. DiGirolamo et al.8 examined six maternity care practices thought to be supportive of breastfeeding: early breastfeeding initiation, no formula supplementation during the hospital stay, rooming-in, on-demand feedings, no pacifiers, and provision of information about breastfeeding upon discharge. Among women who intended
to breastfeed for at least 2 months, the authors found that 30% had stopped breastfeeding before 6 weeks postpartum if they did not experience these six practices during their hospital stay, whereas if they experienced all six practices, only 3% stopped before this time. Murray et al.9 found differences in continuation of breastfeeding to 8 weeks postpartum based on these practices, with particularly large differences if breastfeeding was supplemented in the hospital with infant formula. After a hospital intervention to increase early, frequent, and unsupplemented breastfeeding, Nylander et al.10 found significantly increased percentages of continued breastfeeding and exclusive breastfeeding at 9 months and exclusive breastfeeding at 6 months.

United Nations Children’s Fund (UNICEF) and the World Health Organization (WHO) have identified Ten Steps to Successful Breastfeeding that delineate the basic elements of optimal maternity care for breastfeeding support (Table 1).11

The first two steps (1 and 2) relate to systematic support for breastfeeding in terms of hospital policy and staff training. Six of the remaining steps (4–9) describe the clinical care mothers and babies receive while in the maternity unit. Finally, steps 3 and 10 describe the kind of care and education women need during pregnancy and upon discharge, laying out the responsibilities hospitals have to ensure optimal continuity of care. The Baby-Friendly Hospital Initiative is a worldwide program that recognizes hospitals that demonstrate adherence to these Ten Steps as well as the International Code of Marketing of Breast Milk Substitutes. In the United States, the initiative is managed by Baby-Friendly, USA. The specific evaluation criteria to become designated as a Baby-Friendly Hospital in the United States are available online.12

National Policy Statements or Recommendations in Support of Improved Maternity Care

In the last several years, numerous national policy statements or recommendations have highlighted the importance of maternity care practices as a critical part of providing support for breastfeeding (Table 2). Although policies on breastfeeding routinely recognize the critical role of maternity care practices,13,14 broader policy statements, such as the National Prevention Strategy15 and the Healthy People 202016 objectives that make general health recommendations across a wide variety of sectors and pertain to various health conditions have also recognized the importance of improving maternity care in this country. Several policies are related to obesity prevention, recognizing the important role breastfeeding plays in the prevention of childhood obesity.17–20

<table>
<thead>
<tr>
<th>Table 1. The Ten Steps to Successful Breastfeeding</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Have a written breastfeeding policy that is routinely communicated to all healthcare staff.</td>
</tr>
<tr>
<td>2. Train all healthcare staff in skills necessary to implement this policy.</td>
</tr>
<tr>
<td>3. Inform all pregnant women about the benefits and management of breastfeeding.</td>
</tr>
<tr>
<td>4. Help mothers initiate breastfeeding within an hour of birth.</td>
</tr>
<tr>
<td>5. Show mothers how to breastfeed and how to maintain lactation even if they should be separated from their infants.</td>
</tr>
<tr>
<td>6. Give breastfeeding newborn infants no food or drink other than breast milk unless medically indicated.</td>
</tr>
<tr>
<td>7. Practice rooming-in, that is, allow mothers and infants to remain together 24 hours per day.</td>
</tr>
<tr>
<td>8. Encourage breastfeeding on demand.</td>
</tr>
<tr>
<td>9. Give no artificial teats or pacifiers to breastfeeding infants.</td>
</tr>
<tr>
<td>10. Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or clinic.</td>
</tr>
</tbody>
</table>

Baby-Friendly USA.11

CDC Survey on Maternity Practices in Infant Nutrition and Care

Since 2003, the CDC has actively worked to encourage adoption of the Ten Steps to Successful Breastfeeding in U.S. hospitals. One key activity has been the development and implementation of the Maternity Practices in Infant Nutrition and Care (mPINC) survey. This survey collects information on maternity practices from all facilities across the United States with registered maternity beds. It is completed by the hospital staff member identified via a screening interview as best suited to address a series of questions about the care and feeding of newborns, but this person is encouraged to consult with other staff members as needed. The survey has been carried out biennially since 2007. In 2011, 2742 facilities completed the survey, with a response rate of 83%.

Individualized benchmark reports are provided to all respondent facilities, documenting how their policies and practices compare to recommended standards. Scores are assigned from 0 to 100 on 36 different items, which are categorized into seven dimensions of maternity care. These dimensions of care include indicators of the Ten Steps to Successful Breastfeeding.

Labor and delivery care (step 4)
Postpartum care
Feeding of breastfed infants (step 6)
Breastfeeding assistance (steps 5, 8, and 9)
Contact between mother and infant (step 7)
Discharge care (step 10)
Staff training (step 2)
Structural and organizational aspects of care delivery (steps 1 and 3)

The report explains why the recommended practices are important for optimal care of mothers and babies and provide citations for further information on each recommendation. The report also includes a total overall score and seven subscores for each of the dimensions of care; for each of these scores, facilities are provided percentiles to show how their scores compare to scores at other facilities across the nation and in their state and to facilities of a similar size.

In addition to providing feedback to the participating facilities, CDC publishes state reports and other aggregated results of the survey to drive public health action. Basic tabulations of the results are available for each year of the survey at www.cdc.gov/mPINC. Published reports have highlighted state-to-state variation in average scores.21 A CDC Vital Signs report on specific practices22 gained substantial media attention.23 The mPINC survey has served to increase awareness of the need for quality improvement in maternity care practices across state health departments as well as within individual facilities.
Table 2. National Policy Statements or Recommendations in Support of the Improvements to Maternity Care Practices that Support Breastfeeding

<table>
<thead>
<tr>
<th>Policy</th>
<th>Quotation</th>
</tr>
</thead>
<tbody>
<tr>
<td>National Prevention Strategy&lt;sup&gt;15&lt;/sup&gt;</td>
<td>“Support policies and programs that promote breastfeeding...Institutional changes in maternity care practices (e.g., helping mothers initiate breastfeeding within one hour of birth, referring mothers to breastfeeding support groups) increase breastfeeding initiation and duration rates.”</td>
</tr>
<tr>
<td>Healthy People 2020&lt;sup&gt;16&lt;/sup&gt;</td>
<td>“Reduce the proportion of breastfed newborns who receive formula supplementation within the first 2 days of life” and “Increase the proportion of live births that occur in facilities that provide recommended care for lactating mothers and their babies.”</td>
</tr>
<tr>
<td>White House Task Force on Childhood Obesity Report to the President&lt;sup&gt;17&lt;/sup&gt;</td>
<td>“Hospitals and health care providers should use maternity care practices that empower new mothers to breastfeed, such as the Baby-Friendly hospital standards.”</td>
</tr>
<tr>
<td>Institute of Medicine (IOM) Early Childhood Obesity Prevention Policies&lt;sup&gt;18&lt;/sup&gt;</td>
<td>“Adults who work with infants and their families should promote and support exclusive breastfeeding for six months and continuation of breastfeeding in conjunction with complementary foods for 1 year or more. Potential actions include: Hospitals and other health care delivery settings improving access to and availability of lactation care and support by implementing the steps outlined in the Baby-Friendly Hospital Initiative.”</td>
</tr>
<tr>
<td>IOM Accelerating Progress in Obesity Prevention&lt;sup&gt;19&lt;/sup&gt;</td>
<td>“Encourage healthy weight gain during pregnancy and breastfeeding, and promote breastfeeding-friendly environments. Potential actions include: medical facilities, prenatal services, and community clinics adopting policies consistent with the Baby-Friendly Hospital Initiative.”</td>
</tr>
<tr>
<td>Bipartisan Policy Center: Lots to Lose: How America’s Health and Obesity Crisis Threatens our Economic Future&lt;sup&gt;20&lt;/sup&gt;</td>
<td>“Hospitals should follow “baby friendly” practices. This includes discouraging the use of formula except where medically necessary, tracking and reporting their maternity care practices, and providing follow-up support for breastfeeding after new mothers leave the hospital. Hospitals and the federal WIC program should follow the World Health Organization’s Code of Marketing of Breast Milk Substitutes.”</td>
</tr>
<tr>
<td>The Surgeon General’s Call to Action to Support Breastfeeding&lt;sup&gt;13&lt;/sup&gt;</td>
<td>“Ensure that maternity care practices throughout the United States are fully supportive of breastfeeding. Accelerate implementation of the Baby-Friendly Hospital Initiative.”</td>
</tr>
<tr>
<td>American Academy of Pediatrics (AAP) Breastfeeding and the Use of Human Milk&lt;sup&gt;14&lt;/sup&gt;</td>
<td>“Peripartum policies and practices that optimize breastfeeding initiation and maintenance should be compatible with the AAP and Academy of Breastfeeding Medicine Model Hospital Policy....In 2009, the AAP endorsed the Ten Steps program....Adherence to these 10 steps has been demonstrated to increase rates of breastfeeding initiation, duration, and exclusivity.”</td>
</tr>
</tbody>
</table>

WIC, Women, Infants, and Children.

**Best Fed Beginnings**

In 2011, CDC announced the availability of funds to help hospitals nationwide make quality improvements in maternity care practices to optimally support breastfeeding and to accelerate the number of U.S. Baby-Friendly hospitals. The National Initiative for Children’s Healthcare Quality (NICHQ) was awarded a 3-year cooperative agreement to assist 90 hospitals through the change processes needed to become designated as Baby-Friendly. The program, Best Fed Beginnings, was officially kicked off in June 2012.<sup>24</sup>

The project uses a change model,<sup>25</sup> developed by the Associates in Process Improvement, and a learning module, created by the Institute for Healthcare Improvement (IHI).<sup>26</sup> In this approach to healthcare quality improvement, teams comprising senior hospital leadership and staff from each facility along with stakeholders from the local community work together to develop and carry out small changes in maternity care practices in their facility. They receive training and ongoing technical assistance from breastfeeding experts and quality improvement advisors throughout a 2-year process. In addition, teams across multiple facilities participate in Learning Collaboratives of about 30 hospital teams each, in which they learn from each other during in-person learning sessions, action periods, regular conference calls, webinars, and an online learning laboratory.

In addition to working directly with the 90 selected hospitals, the project is creating materials that can be used by other hospitals wishing to make similar changes using the Learning Collaborative approach in the future. Through the project, partnerships have been built with Baby-Friendly USA, the American Hospital Association, the Joint Commission, the Association of Women’s Health, Obstetric, and Neonatal Nurses, and the American Academy of Pediatrics. The support of these organizations will be important to the ongoing expansion of the Baby-Friendly Hospital Initiative.

**State Health Department Initiatives**

CDC supports the work of state health departments through funding agreements and technical assistance (www.cdc.gov/obesity/stateprograms/cdc.html). Under the Nutrition, Physical Activity, and Obesity Cooperative Agreement, states are expected to build and implement a state plan of action that includes activities to increase the initiation, duration, or exclusivity of breastfeeding. The Communities
Putting Prevention to Work (CPPW) State and Territorial Initiative provided funds to all state health departments and listed support for breastfeeding among the menu of options for state action. Subsequently, the Community Transformation Grants have continued and expanded the work of the CPPW initiative in selected states and communities. Projects focused on maternity practice changes were undertaken in Arizona, Hawaii, Iowa, Colorado, Connecticut, Montana, New Jersey, and New York.

A variety of models for catalyzing statewide hospital change have been implemented. A number of states have hosted hospital summits. These high-profile workshops for hospital leaders focus attention on the changes that are needed in maternity care across the state. They encourage sharing of solutions from one hospital to another. Other states have hired trainers to visit hospitals individually to identify opportunities for improvement unique to each facility. Connecticut, Montana, New Jersey, and New York each recruited a group of 10–12 hospitals to work collaboratively toward Baby-Friendly designation. Aware of the fact that Baby-Friendly designation can be viewed as a daunting goal for some hospitals, several states have created their own recognition programs that acknowledge smaller steps in hospital quality improvement. The Colorado Can Do Five, Arizona Baby Steps, Texas Ten Step, and the North Carolina Five Star program are examples of such recognition programs.

The Carolina Global Breastfeeding Institute at the University of North Carolina has created an Interstate Collaborative for Widespread Implementation of the Ten Steps. With funding from CDC, the Kellogg Foundation, and various other organizations, this initiative connects state health departments across the country to brainstorm solutions and share success stories. State breastfeeding coalitions use the interstate collaborative to coordinate their activities in promoting adoption of the Ten Steps.

Progress to Date

Although improvement of maternity practices has only recently received concentrated attention in the United States, there are already signs of substantial improvement. In 2007, the national average score across all items in the mPINC survey for hospitals across the country was 63 out of 100. This number barely changed in 2009, rising to only 65, but in 2011, the mean score had risen to 70, suggesting substantial changes in individual practices. In fact, mean scores for all seven dimensions of the mPINC score improved between 2009 and 2011 (Fig. 1).27 Gains were particularly large for labor and delivery care, discharge support, and staff training.

The Baby-Friendly Hospital Initiative was launched in the United States in 1996, but a decade later, <2% of U.S. births occurred in facilities that had been designated as Baby-Friendly (Fig. 2).28 In 2008, however, the pace of the initiative began to accelerate. In 2011, more hospitals were designated Baby-Friendly than in any previous year, bringing the percent of deliveries occurring in these facilities to 6.2% in 2012. Over 20% of births in Alaska, California, Maine, and New Hampshire now are in Baby-Friendly facilities.

Conclusions

A woman’s health as well as her satisfaction with the healthy choices she makes can be enhanced through quality improvement in maternity care. The Ten Steps to Successful Breastfeeding set a model for optimal care. Numerous CDC efforts are underway to catalyze hospital change. Although the substantial gains made in the last few years are worthy of celebration, considerable work is still needed to guarantee quality breastfeeding support for all women.

Acknowledgments

Numerous individuals have contributed to the success of these efforts and to improving women’s access to quality maternity care. Karin Cadwell’s tireless efforts made possible the implementation of the Baby-Friendly Hospital Initiative in the United States, and leadership from Cynthia Turner-Maffei and Patricia McEnroe, among others, gave it concrete structure. Insight and expertise from Elizabeth Adams, Mary Applegate, Deborah Dee, Andrea Crivelli-Kovach, Eugene DeClercq, Jennifer Dellaport, Ann DiGirolamo, Paula Meier,
Anne Merewood, Barbara Philipp, Ken Rosenberg, Laurie Tiffin, and Nancy Wight have been instrumental in the development of the mPINC survey structure, questionnaires, analyses, and reporting. Charles Homer and the entire NICHQ team built the Baby-Friendly change package and measurement strategies used in Best Fed Beginnings. Karen Peters, Miriam Labbo, Emily Taylor, Lori Feldman-Winter, and Jennifer Matrenga have helped define steps that states and communities can take. The findings and conclusions in this article are those of the authors and do not necessarily represent the official position of the Centers for Disease Control and Prevention.

Disclosure Statement

The authors have no conflicts of interest to report.

References


