

# Evidence-based Interventions to Support Breastfeeding

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## KEYWORDS

• Breastfeeding • Pregnant • Lactation • Postpartum • Breastfeeding support

## KEY POINTS

- Considerable progress has been made in the past decade in developing comprehensive support systems to enable more women to reach their breastfeeding goals.
- Given that most women in the United States participate in some breastfeeding, it is essential that each of these support systems be rigorously tested and if effective replicated.
- Additional research is needed to determine the best methods of support during the preconception period to prepare women to exclusively breastfeed as a cultural norm.

## INTRODUCTION

Breastfeeding is arguably one of the most important decisions a mother can make after making the decision to have children. The decision to breastfeed, as opposed to formula feed, has the potential to influence numerous health outcomes for mother, child, and society.<sup>1,2</sup> Promoting breastfeeding has been the focus of public health campaigns during the last several decades, and these campaigns and a shifting of the cultural norm have resulted in a dramatic increase in the overall incidence of breastfeeding. Although some women cannot breastfeed or choose to not breastfeed, most in the United States do breastfeed, at least to some extent. In 2010, more than 75% of US mothers started breastfeeding in the early postpartum period, according to data collected as part of the Centers for Disease Control and Prevention National Immunization Survey (NIS) (**Fig. 1**). However, most women in the United States do not breastfeed either exclusively or long enough to meet the American Academy of Pediatrics (AAP) recommendations for breastfeeding. According to data from the NIS, merely 14.8% of women exclusively breastfed to 6 months in 2008. Furthermore, multiple significant disparities continue to exist, and many Americans lose the potential to realize optimal health and wellness. Therefore, focusing on the decision to breastfeed is not sufficient, and a newer public health priority has instead focused on protection and support of breastfeeding.

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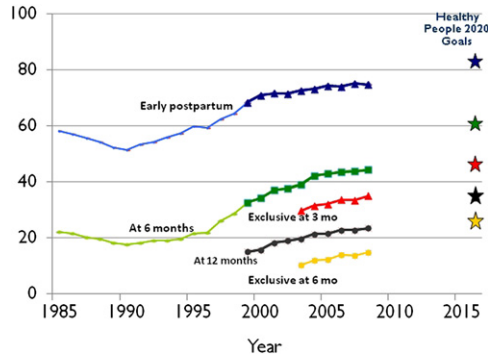


Fig. 1. Centers for Disease Control and Prevention NIS on breastfeeding.

When one considers a mother's experience from the time she becomes pregnant to her child's first birthday and beyond, it is not surprising that most women end up breastfeeding partially, combining infant formula with breastfeeding, and weaning sooner than intended or recommended. Beginning with the first visit to the physician, nurse midwife, or nurse practitioner or the first visit to a local store to order newborn infant products, attending newborn classes, and touring the maternity care facility, families are bombarded with messages, both obvious and subtle, that influence infant feeding decisions. Some of the bias about infant feeding, specifically about exclusive breastfeeding and timing of the introduction of complementary solid food, comes from messages seen even before entering the childbearing years. The decisions about feeding, however, are flexible, may change from one birth to the next, and can be optimized with good support.<sup>3</sup> Mothers and families continue to be affected by environmental support or barriers in the intrapartum and postpartum periods. Availability of community support for breastfeeding varies widely, such that breastfeeding support "deserts (areas that are barren in breastfeeding support services)" exist in communities that are least likely to breastfeed. This review is intended to follow how a family may experience breastfeeding through their life cycle and describe evidence-based practices that have been established to support breastfeeding. Barriers and challenges to breastfeeding support will also be described in light of persistent disparities. Some specific support strategies affect the life cycle and will be addressed separately. Finally, implications for future research to continue expansion and impact of breastfeeding support will be identified.

## SUPPORT FOR PREGNANT WOMEN

Given the time most women have with their prenatal health care practitioner, there is potentially ample opportunity for breastfeeding support to be provided while women are pregnant and during their prenatal care visits. The types of messages and education and the methods of delivering this information have been studied extensively, yet results have been mixed. It seems that peer counseling, formal lactation consultations, and breastfeeding education result in increased initiation of breastfeeding. Results of prenatal education on long-term breastfeeding continuation and exclusivity are mixed and more limited.<sup>4</sup> Furthermore, studies of peer counseling and lactation support programs often include a time-frame not only focused on the prenatal period but also transcending the prenatal, in-hospital, and postpartum periods, so the effect of the prenatal component is difficult to decipher.

Mothers with targeted need, or who are at high risk of not breastfeeding, may have more to gain from prenatal support; conversely, minority women may be more at risk

for not having received breastfeeding advice.<sup>5</sup> Consistent prenatal education that addresses the benefits of breastfeeding, the management of breastfeeding including positioning and latch, feeding on cue, the importance of skin-to-skin contact after delivery, rooming-in, and the importance of exclusive breastfeeding and risks of supplementing within the first 6 months are elements of Step 3 of the Baby-Friendly Hospital Initiative (BFHI). Hospitals designated as part of the BFHI and that have their own prenatal services are responsible for delivering prenatal education that meets these requirements. The requirement includes education about breastfeeding for all women, not only those who specifically intend to breastfeed. Hospitals that do not have affiliated prenatal clinics are responsible for either offering this education in prenatal or birth classes or helping to foster community-based programs that offer prenatal classes providing comprehensive breastfeeding education and support.<sup>6</sup> These strategies underscore that infant feeding decisions are often changing, not fixed, and may be influenced by support at any time.

Prenatal clinical education about the techniques and management of breastfeeding produce the most significant change in postnatal breastfeeding, especially when combined with postnatal support.<sup>7</sup> These interventions increase breastfeeding initiation, duration, and exclusivity. Educational programs conducted by nurses or lactation specialists in the antenatal setting may increase breastfeeding initiation and short-term duration. Additional support offered by peers provided modest effects when combined with formal education.<sup>8</sup> Content of effective sessions included the benefits of breastfeeding, principles of lactation, myths, common problems, solutions, and skills training. In a number-needed-to-treat analysis, it was estimated that for every 3 to 5 women receiving education, 1 woman would breastfeed for up to 3 months.<sup>7,9</sup>

Prenatal breastfeeding education delivered in a workshop format has been shown to increase self-efficacy, a potential mechanism for increasing breastfeeding initiation and continuation.<sup>10</sup> Prenatal clinics with teaching devices such as model infants and breasts and videos and visual displays will be more successful in delivering hands-on education. Using the primary care setting is reasonable, especially if the primary care practitioners are trained in delivering education about breastfeeding benefits and techniques.<sup>11</sup> Group prenatal instruction, breastfeeding-specific clinic appointments, and peer counseling were among the interventions that were especially effective among minority women and increased breastfeeding initiation, duration, and exclusivity.<sup>12</sup> Further consideration needs to be given to support women at higher risk of breastfeeding problems. One growing problem is the impact of the obesity epidemic. Obesity complicates fertility and delivery and makes breastfeeding problems more likely. Obese women are more likely to have delayed lactogenesis and reduced lactation<sup>13</sup>; therefore, weight-control strategies should be offered both before gestation and throughout the prenatal period.

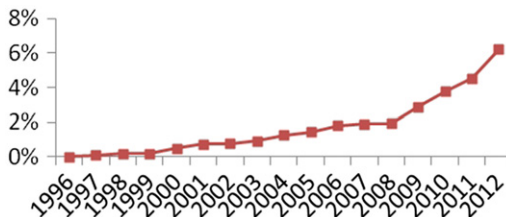
Considering the positive effect of prenatal education and support programs on breastfeeding, one must also consider the potential negative effect of infant formula company marketing on breastfeeding initiation, duration, and exclusivity. In a randomized trial of formula-marketing educational materials versus noncommercial educational materials, the industry materials resulted in increased breastfeeding cessation during the first 2 weeks after delivery.<sup>14</sup> Although additional marketing strategies have not been systematically studied, it is not difficult to imagine the negative effects of multiple outlets for direct-to-consumer formula marketing. Beginning with the first trip to the infant furniture store or choosing a layette, families are bombarded with advertising of infant formula, bottles, teats, and pacifiers. Purchase of baby products or registering for prenatal classes may result in shipments of infant formula or related marketing materials directly to the home. Prenatal care offices may be stocked with

diaper bags containing formula samples and marketing brochures, the ones that used to be given out free in most hospitals. During the past few years the practice of giving commercial sample packs at the time of hospital discharge has changed,<sup>15,16</sup> and companies have shifted their efforts to ambulatory settings and the Internet. Health care practitioners should be aware that breastfeeding support, beginning with the prenatal period, is most effective when combined with the elimination of infant formula marketing. International evidence suggests maternal care practitioners may need further education about the effects of industry marketing and may not be aware of how their practice contributes to the marketing of infant formula.<sup>17</sup> Furthermore, one study suggests that mothers cared for by midwives and family physicians are more likely than mothers cared for by obstetricians to exclusively breastfeed at hospital discharge.<sup>18</sup> This may reflect differences in training (addressed later) or more attention to eliminating the negative influences of industry marketing. For mothers who intend to exclusively formula feed, it is important to deliver individualized education about formula preparation as opposed to group sessions, minimizing the perception by potential breastfeeding patients that using infant formula is a social norm.

### SUPPORT FOR WOMEN IN THE PERIPARTUM SETTING

The World Health Organization/United Nations Children's Fund BFHI, a program launched in 1991, has largely shaped improvements in breastfeeding support within the peripartum setting,<sup>19</sup> yet the number of US hospitals that have achieved designation remains low. With national funding and organized initiatives, more hospitals than ever have been entering the pipeline to become designated as Baby-Friendly hospitals, and more deliveries than ever are occurring in US designated facilities (**Fig. 2**). The BFHI, which is based on the Ten Steps to Successful Breastfeeding, provides support by providing optimal evidence-based practices in the hospital and extending support through continuity of care in Steps 3 and 10 prenatally and postpartum (**Box 1**). The BFHI has been shown to increase breastfeeding initiation, continuation, and exclusivity, which are all sustainable over time.<sup>20–23</sup> The Ten Steps seem to have a dose-dependent effect, such that the more steps that are in place, the less likely a mother is to stop breastfeeding during the 2 months following hospital discharge.<sup>24</sup> Given the dose effect, many delivery hospitals are improving the support of breastfeeding women by adopting some, if not all, of the Ten Steps without pursuing Baby-Friendly designation. One of the ways the Ten Steps increase breastfeeding exclusivity is by training the staff and developing evidence-based protocols. Maternity care staff who were adequately trained in effective breastfeeding support led to more nighttime breastfeeding, decreased supplementation especially at night, and more effective breastfeeding assessments.<sup>25</sup>

The BFHI has also been applied globally to sick and premature newborns,<sup>26–28</sup> and the focus has extended beyond the immediate peripartum period to the concept of



**Fig. 2.** Rate of deliveries occurring in US designated facilities, 1996–2012.

**Box 1****The WHO/UNICEF Ten Steps to Successful Breastfeeding with author's summary of the US Baby-Friendly Guidelines and Evaluation Criteria**

Step 1: Have a written infant feeding policy that is routinely communicated to all health care staff (policy includes the International Code of Marketing of Breast Milk Substitutes, being readily available, and having effectiveness monitored regularly).

Step 2: Train all health care staff on the policy (including 20 hours for nursing staff according to 15 lessons, 5 hours of supervised experience, and demonstrating 4 competencies; physicians and advanced practice nurses will be trained with a minimum of 3 hours and achieve similar competencies).

Step 3: Inform all pregnant women on the benefits and management of breastfeeding (beginning preferably in the first trimester, and including education on elements of the Ten Steps including skin-to-skin care, rooming-in, cue-based feedings, and the risks of supplementation in the first 6 months).

Step 4: Help mothers initiate breastfeeding within the first hour after birth: (1) step now interpreted as placing babies in skin-to-skin contact with their mothers immediately following birth for at least an hour and encouraging mothers to recognize when their babies are ready to breastfeed, offering help if needed, (2) this step now applies to all mothers regardless of feeding method.

Step 5: Show mothers how to breastfeed and how to maintain lactation even if they are separated from their infants: (1) education and assistance: (i) the importance of exclusive breastfeeding, (ii) how to maintain lactation for exclusive breastfeeding for about 6 months, (iii) criteria to assess if the baby is getting enough breast milk, (iv) how to express, handle, and store breast milk, including manual expression, and (v) how to sustain lactation if the mother is separated from her infant or will not be exclusively breastfeeding after discharge; (2) if mothers and infants are separated: (i) ensure that milk expression is begun within 6 hours of birth, (ii) expressed milk is given to the baby as soon as the baby is medically ready, (iii) the mother's expressed milk is used before any supplementation with breastmilk substitutes when medically appropriate; and (3) mothers who are formula feeding should receive: (i) individualized written instruction, (ii) not specific to a particular brand, (iii) verbal information about safe preparation, handling, storage and feeding of infant formula, and (iv) this advice should be documented.

Step 6: Give infants no food or drink other than breastmilk unless medically indicated: (1) understanding the rationale for medical contraindications to breastfeed and the acceptable medical indications to supplement breastfeeding, (2) the facility will track exclusive breastfeeding according to The Joint Commission definition for the Perinatal Care Core Measure, (3) track supplemented breastfeeding and compare with the Centers for Disease Control and Prevention NIS rate of supplementation, (4) if a mother requests supplementation of her breastfeeding infant, before this request is granted and documented the health care staff should first explore the reasons for this request, address the concerns raised and educate her about the possible consequences to the health of her baby and/or the success of breastfeeding.

Step 7: Practice rooming-in; allow mothers and infants to remain together 24 hours per day (applies to all infants regardless of feeding method; infants stay with their mothers throughout the day and night except for up to 1 hour for facility procedures or for as long as medically necessary).

Step 8: Encourage breastfeeding on demand [now interpreted for all newborns regardless of feeding method as "encourage feeding on cue" with the following guidelines: (1) understand that no restrictions should be placed on the frequency or length of feeding, (2) understand that newborns usually feed a minimum of 8 times in 24 hours, (3) recognize cues that infants use to signal readiness to begin and end feeds, and (4) understand that physical contact and nourishment are both important].

Step 9: Give no pacifiers or artificial nipples to breastfeeding infants: (1) applies to any fluid supplementation, whether medically indicated or following informed decision of the mothers should be given by tube, syringe, spoon, or cup in preference to an artificial nipple or bottle; and (2) staff should educate all breastfeeding mothers about how the use of bottles and artificial nipples may interfere with the development of optimal breastfeeding.

Step 10: Foster the establishment of breastfeeding support groups and refer mothers to them on discharge from the hospital or birth center (the facility should establish in-house breastfeeding support services if no adequate source of support is available for referral (eg, support group, lactation clinic, home health services, help line, etc).

*Adapted from* the Baby-Friendly USA, Inc. Guidelines and Evaluation Criteria. For more information please see the Guidelines and Evaluation Criteria found at <http://www.babyfriendlyusa.org/get-started/the-guidelines-evaluation-criteria>.

Baby-Friendly office practices.<sup>29</sup> Changes and improvements to the Ten Steps during the past 20 years have shifted attention from breastfeeding mothers to all mothers. Now, all mothers have an opportunity to access optimal evidence based maternity care practices, such as skin-to-skin and rooming-in, and have the potential to breastfeed. But even if the mother is not breastfeeding, the benefits of optimal peripartum care support are provided. Furthermore, the BFHI partially offsets the negative impact of marketing of breastmilk substitutes, bottles, teats, and pacifiers by implementing the International Code of Marketing of Breast Milk Substitutes in hospitals and associated prenatal clinics. Several studies have demonstrated the negative effect of specific marketing tactics such as discharge bags and free formula distribution on the initiation, duration, and exclusivity of breastfeeding.<sup>30-32</sup> One additional study demonstrated that eliminating the distribution of sample packs alone was less effective in preserving exclusive breastfeeding than was combining these activities with breastfeeding support policies, staff training, and the restricted availability of infant formula on the postpartum ward.<sup>33</sup>

Additional support in the peripartum period may include individuals who provide patient-focused care such as doula and peer counselors. Although the evidence on doula care is limited, one prospective cohort study demonstrated that doula care resulted in earlier timing of lactogenesis II and increased prevalence of 6-week duration of breastfeeding in mothers with and without prenatal stressors.<sup>34</sup> Doula may also be beneficial in high-risk or underserved mothers, as one study suggested doula care improved exclusive breastfeeding outcomes among Latina women.<sup>35</sup> Doula may also improve the birth experience, result in fewer interventions, and promote more natural childbirth, all secondarily increasing breastfeeding outcomes.<sup>36</sup> The doula is traditionally a nonmedical person who assists a woman before, during, or after childbirth by providing information, physical assistance, and emotional support. Therefore, this type of breastfeeding support transcends the peripartum period and affects prenatal and postpartum periods.<sup>37</sup>

Peer counselors have also been used in the hospital to provide support and a secure link to community based care. Peer support provided consistently throughout the perinatal period improves breastfeeding initiation and duration.<sup>38,39</sup> The combination of peer support and skilled professional support was most effective in enhancing breastfeeding outcomes and may offset the lack of available professional support services.<sup>40</sup> Peers may be hired as components of hospital-based breastfeeding support systems or may be available for in-hospital support from the local Special Supplemental Nutrition Program for Women, Infants and Children (WIC) program for women who qualify and in states that permit coordination of WIC services with delivery of hospital care. Peer support offered through the WIC program has been successful, and is cost effective, despite national efforts to eliminate this component of the program altogether in proposed budget cuts.<sup>41</sup>

## SUPPORT FOR POSTPARTUM WOMEN IN THE COMMUNITY

As previously mentioned, many of the support services available in the community to postpartum breastfeeding women have played a role in prenatal promotion and

support, and some have affected the peripartum period. The care provided in the postpartum setting can be categorized as professional and nonprofessional support services.<sup>42</sup> The best outcomes occur when nonprofessional support is combined with effective professional support. Mechanisms of delivery vary and may be in the home, at local agencies, or by telephone, yet all seem to be effective in supporting continuation of exclusive breastfeeding.<sup>43,44</sup>

## SUPPORT BY PHYSICIANS AND ADVANCED PRACTICE NURSES

Professional support services include those provided in a clinical setting such as the offices of an obstetrician, family physician, pediatrician, or nurse midwife. One key paradigm shift to the delivery of clinical care is that the provider addresses the mother–infant dyad as a unit. This requires a shift in the usual approach of the pediatrician, obstetrician, and nurse midwife but may be more standard of care for the family practitioner and includes implications for coding and billing. The AAP Section on Breastfeeding has developed a guide for coding and billing as one way to encourage continuity of breastfeeding care.<sup>45</sup> Nevertheless, breastfeeding care delivered by physicians and advanced practice nurses in the clinical setting is often limited by the lack of knowledge, skills, time, and cultural sensitivity.<sup>46–51</sup>

## PHYSICIAN EDUCATION

Physicians often lack the necessary education and training and may have insufficient attitudes to provide optimal breastfeeding care.<sup>46</sup> Although attitudes among some physicians seem to be more positive toward breastfeeding than in the past<sup>52</sup> and most maternal care and pediatric care practitioners consider breastfeeding counseling to be an important part of their care, preparation to provide skilled support is lacking.<sup>53</sup> A residency curriculum developed for pediatricians, obstetricians, and family physicians was shown to be effective in increasing knowledge, confidence, and practice patterns among those trained.<sup>54</sup> Training residents in breastfeeding care affected breastfeeding outcomes including increased exclusive breastfeeding for as long as 6 months postpartum. However, the integration into primary care training programs is variable, and there is a need for faculty development and clinician leaders to champion the integration of such curriculum. In a randomized controlled trial of physician education, merely 5 hours of education resulted in improved practices and support, exclusive breastfeeding at 4 weeks, continued breastfeeding for 18 versus 13 weeks, and fewer breastfeeding problems compared with the situation in mothers seen by untrained physicians.<sup>55</sup>

Continuing education courses on breastfeeding for practicing physicians have been offered by a variety of sources. One Web-based curriculum has been shown to increase physician knowledge about breastfeeding.<sup>56</sup> Other opportunities offered at programs sponsored by physician organizations, such as the AAP, Section on Breastfeeding, the combined AAP La Leche League Physician's Seminar, AAP chapter meetings, the Breastfeeding Promotion in Physicians' Office Practices Programs, and the annual meeting of the Academy of Breastfeeding Medicine, including the "What Every Physician Needs to Know About Breastfeeding" precourse, have presumably increased knowledge and improved practice, yet none have been rigorously tested. Now that many physicians, particularly pediatricians, must complete a quality improvement project as part of Maintenance of Certification, several programs have become available on breastfeeding to help physicians comply with this newer requirement. There are online options offered by the University of Virginia Health System and Virginia Department of Health,<sup>57</sup> the American Board of Pediatrics, and the AAP EQIPP

Module: Safe and Health Beginnings.<sup>58</sup> Recognizing the role of health care professionals in supporting breastfeeding throughout the life cycle, core competencies were developed by the United States Breastfeeding Committee (**Box 2**) and endorsed by the AAP.<sup>59</sup> Physicians can also become experts in breastfeeding care and serve as consultants to their colleagues. Experts may be identified as being fellows of the Academy of Breastfeeding Medicine or Chapter Breastfeeding coordinators of the AAP, and they may be board certified as lactation consultants. Some physicians have limited the scope of their practice to breastfeeding care.<sup>60</sup> They often provide online support and consultative services for colleagues with less training and expertise.<sup>61</sup> Given the growing knowledge and sophistication of breastfeeding care, breastfeeding medicine as a specialty has evolved over recent years and in the future may become recognized as a uniquely defined medical specialty.

### PROFESSIONAL SUPPORT BY OTHER (NONPHYSICIAN) HEALTH CARE PROFESSIONALS

Another level of professional support is health care nurse support in the postpartum setting. Adequately trained community health workers can deliver breastfeeding support to at-risk inner-city mothers in the home environment and have a unique opportunity to offset multiple challenges and positively influence the lives of their clients.<sup>62</sup> Yet, many community health workers have had their own, personal problems

#### Box 2

##### United States Breastfeeding Committee core competencies

At a minimum, every health professional should understand the role of lactation, human milk, and breastfeeding in:

- The optimal feeding of infants and young children
- Enhancing health and reducing
  - Long-term morbidities in infants and young children
  - Morbidities in women

All health professionals should be able to facilitate the breastfeeding care process by:

- Preparing families for realistic expectations
- Communicating pertinent information to the lactation care team
- Following up with the family, when appropriate, in a culturally competent manner after breastfeeding care and services have been provided

The United States Breastfeeding Committee proposes to accomplish this by recommending that health professional organizations:

- Understand and act on the importance of protecting, promoting, and supporting breastfeeding as a public health priority
- Educate their practitioners to
  - Appreciate the limitations of their breastfeeding care expertise
  - Know when and how to make a referral to a lactation care professional
- Regularly examine the care practices of their practitioners and establish core competencies related to breastfeeding care and services

*Adapted from* United States Breastfeeding Committee. Core competencies in breastfeeding care and services for all health professionals. Revised edition. Washington, DC: United States Breastfeeding Committee; 2010.



with breastfeeding and/or have not been adequately trained. In a well-designed randomized controlled trial of home nursing visits compared with traditional office-based postpartum care for healthy mother–infant dyads, the intervention group was more likely to continue breastfeeding for up to 2 months and had a better reported self-efficacy in parenting skills.<sup>43</sup>

Skilled lactation support by internationally board-certified lactation consultants is another form of postpartum support that may be delivered in a variety of settings. Lactation consultants may operate a hospital-based breastfeeding clinic, they may be in a fee-for-service private practice or independent practice, they may be hired as part of the team in an inpatient maternity setting or an ambulatory physician practice, they may be hired by WIC, or they may be available for telephone consultations in any of these settings. Many lactation consultants are also nurses with the ability to make clinical decisions and may already function in an ambulatory office setting performing triage duties. Proactive telephone follow-up support is effective in increasing breastfeeding exclusivity and duration.<sup>44</sup>

Lactation consulting as a profession grew largely out of the need for professional level support during a time when physician and nursing support was generally lacking.<sup>63</sup> More recently, with the advent of more breastfeeding curricula during health professional training, along with training incorporated as part of the BFHI, the lactation consultant professional has assumed different roles that include managerial tasks, health education, curriculum development, and direct breastfeeding care for difficult or complex cases. Serving as a senior manager or consultant to nurses or physicians requires similar referral patterns to other consultants using the 3 “Rs.” The consult must be referred by the primary care team, care must be rendered by the consultant, and a letter of care must be sent back in reply. Given new proposals to include lactation consultation services as a component of health reform, lactation consultants may need to develop a new set of skills including documentation and communication with primary care providers. Office practices that coordinate the pediatric office visit with direct lactation consultation may provide the best long-term support with effects on exclusivity and duration of breastfeeding to 9 months postpartum.<sup>64</sup> In the absence of such arrangements, coordination of care will likely produce better outcomes.

Additional health care professionals who have an opportunity to provide support, particularly in complex situations and for vulnerable infants and their mothers, include dietitians,<sup>65</sup> speech pathologists,<sup>66</sup> social workers, and psychologists.<sup>42</sup> Although studies on outcomes from these forms of professional support are limited, it is clear that preprofessional education and training should be considered in a wide variety of health profession curricula.

## PEER (LAY) SUPPORT

Continued support for postpartum women requires more than professional care. Support groups such as La Leche League, Baby Cafés, text messages on mobile devices (such as text-for-baby), hospital led support groups, and other community-based support programs all offer added support for the mother, the father, and other family members. Modifiable factors that affect continuation of breastfeeding include breastfeeding intent, self-efficacy, and social support.<sup>67</sup> The last 2 issues are positively affected by lay support. However, many of the support systems identified by mothers are not available to them for a long enough time postpartum and mothers eventually rely on their partners and family members to fill the gap.<sup>68</sup> Several strategies for enhancement of social support have been tried. These include programs to improve the father’s self-efficacy in parenting and supporting the mother,<sup>69</sup> those

emphasizing person-centered communication skills and ongoing relationships with community support persons,<sup>70</sup> and breast pump information being delivered in classes, support groups, or by relatives or friends (as opposed to by physicians/physicians assistants).<sup>71</sup> Vulnerable mothers and families, particularly those served by WIC, identify numerous reasons for early cessation of breastfeeding: return to work or school, sore nipples, lack of access to breast pumps, and free formula provided by WIC.<sup>72</sup> Finally, timing of peer support is critical for WIC participants, and the sooner the peer counselors can provide services, the more likely the mother is to breastfeed at all in addition to exclusively.<sup>73</sup>

## EMPLOYMENT

Many more workplaces now than 25 years ago offer accommodations to breastfeeding employees. These patterns were evolving even before health reform and the Patient Protection and Affordable Care Act (ACA) of 2010, which includes the requirement for workplaces to provide appropriate space and reasonable break time to breastfeed or express milk. It has been estimated that, annually, 165,000 new mothers continue to breastfeed beyond 6 months directly as a result of the provisions set forth in the ACA.<sup>74</sup> To facilitate employer compliance with the law, the Maternal and Child Health Bureau in collaboration with the Department of Health and Human Services Office on Women's Health developed the "Business Case for Breastfeeding" toolkit with brochures, policies, and recommendations on implementing workplace support for lactation.<sup>75</sup> Despite such progress, there are still many employees who cannot access these accommodations, such as teachers, fast food workers, and toll booth operators, to name a few. The US Department of Labor regularly monitors telephone calls to track types of employment and anecdotes of employees who cannot access appropriate accommodations.

Studies have shown part-time employment may be as supportive of an environment as not working at all, and both are more supportive toward sustaining breastfeeding than full-time employment.<sup>76</sup> Furthermore, professionals have a greater likelihood of sustaining breastfeeding than managers or other positions, because they may be more in control of their workplace environment with potential availability of direct breastfeeding and contact with their child. With the digital age, many women have options such as telecommuting, working from home, and flexible hours. Paid maternity leave and consideration of mother's "work" as part of the gross national productivity are considerations for enhancements to breastfeeding support.

## CHILD CARE

The First Lady's Let's Move! Campaign to prevent obesity in the United States includes a program called Let's Move Child Care. In addition to strategies targeted at physical exercise and proper nutrition, there are provisions to increase breastfeeding and breast milk feeding among child care attendees. Education of child care workers on methods of being supportive to breastfeeding mothers and the proper storage, handling, and feeding of breastmilk is now being conducted routinely. Many states have received grants to educate child care workers, revise child care regulations, and update child care facilities to meet these guidelines. On-site and nearby child care arrangements facilitate direct breastfeeding and, combined with effective workplace support, may be more effective in supporting the continuation of breastfeeding after return to work.<sup>77</sup> Evidence to support child care interventions is accumulating and should provide guidance for national policy and local strategies.

## SCHOOLS AND PRECONCEPTION EDUCATION

Schools serve as an important environment to potentially support breastfeeding. As mentioned earlier, school teachers have some of the worst employment provisions regarding their own breastfeeding support. Schools must also change to accommodate adolescents who return to school breastfeeding. Finally, schools play an important role in educating youth about breastfeeding. School nurses and teachers generally agree that inclusion of breastfeeding into school curricula for middle and high school students is appropriate<sup>78</sup>; however, the efficacy of this education on future breastfeeding experiences has not been studied.

## FOUNDATIONAL SUPPORT TRANSCENDING THE TIMELINE

### *Support for Adolescent Mothers*

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Given that adolescents have the lowest reported rates of breastfeeding in the United States, support for breastfeeding among adolescents requires special attention. Social supports for the adolescent must be tailored to the developmental and individual needs of the mother and potentially the father or identified peer support person.<sup>79</sup> Breastfeeding adolescents may benefit most from emotional, self-esteem, and network support.<sup>80</sup> Furthermore, adolescents have a demonstrated need for information about breastfeeding, have limited knowledge about breastfeeding, and may have opportunities to access breastfeeding information in prenatal classes. Similar to adult women, adolescents need instrumental or practical advice on how to breastfeed. Finally, adolescents may respond to support for autonomy and privacy. In one trial of telephone contact with adolescents, the peer support offered by telephone resulted in increased exclusivity of breastfeeding but not increased duration of breastfeeding.<sup>81</sup> Assessment of adolescents' social support needs may be ascertained using a new instrument providing the opportunity to facilitate optimal care in the early postpartum period.<sup>82</sup>

### *Culturally and Linguistically Sensitive Support*

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Given the growing diversity among Americans, there have been multiple studies examining the cultural influences and culturally sensitive provision of breastfeeding care. Certain cultures adhere to specific rituals, practices, and diets in the peripartum period; however, it is important to remember there may be variations on how a particular family interprets or practices these cultural practices. One example is in the Cambodian population. In one delivery hospital, mothers did not breastfeed because of the lack of culturally appropriate food available in the postpartum period. Cultural beliefs required these mothers to eat certain foods to breastfeed and provide their colostrum. Once the hospital adapted menu options that included foods often consumed by this population, these mothers went on to exclusively breastfeed.<sup>83</sup> The mechanism used to understand cultural beliefs and preferences involve asking open-ended questions, validating feelings, and providing education and guidance that is tailored to the individual needs of the patient and family. Linguistic support is a federal requirement, yet implementation with communities that speak multiple languages can be challenging. Trained and certified interpreters either in-person or via the telephone should be used in all cases, as opposed to using family members or other parts of the health care team not directly involved in the care. Educational materials produced by hospitals, offices, and other programs should be translated into commonly spoken languages at a literacy level of about 5th grade. Health care professionals need to recognize that language barriers are often compounded by literacy issues.

## GOVERNMENT AND LEGISLATION

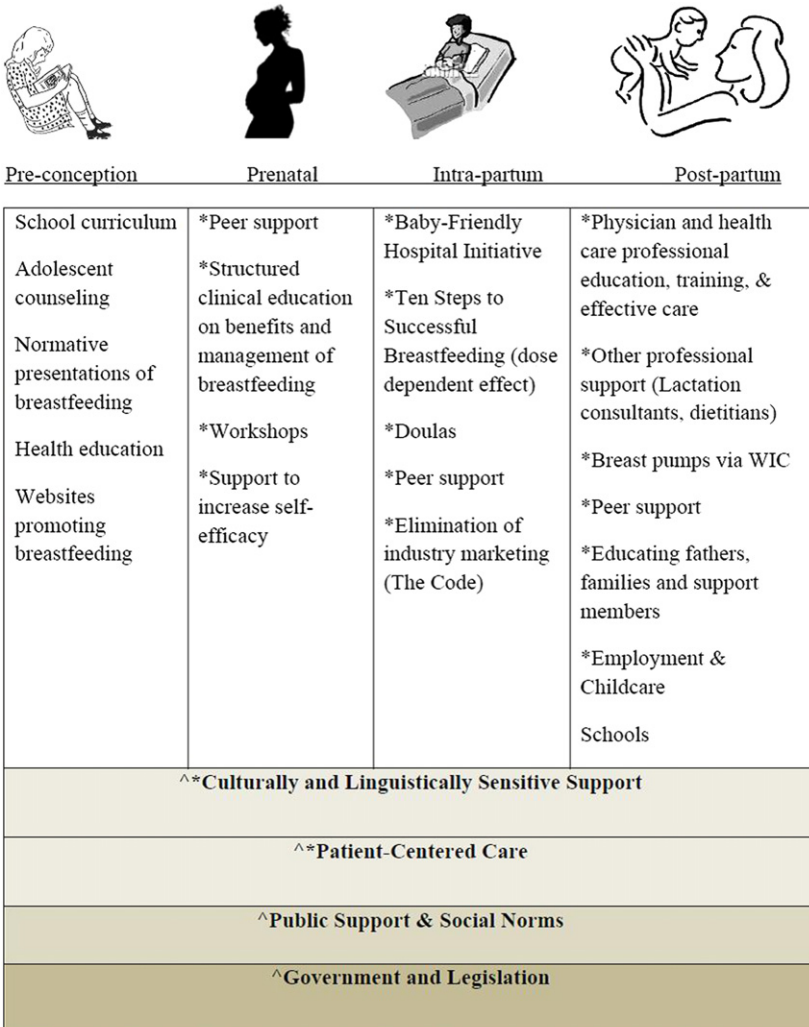
There have been multiple developments during the past several years to increase public support for breastfeeding encompassing multiple federal agencies and departments. Laying the groundwork was the 2011 Surgeon General's Call to Action to Support Breastfeeding (SGCTA).<sup>84</sup> As the highest ranking health official in the United States, Dr Regina Benjamin outlined 20 action steps to support breastfeeding. These action steps should be performed in 6 domains: mothers and families, communities, health care, employment, research, and public health infrastructure. The SGCTA has sparked numerous additional federal activities with additional funding, manpower, and coordination of federal agencies to support breastfeeding at multiple levels. Soon after the launch of the SGCTA, the First Lady Michelle Obama's Let's Move! Campaign outlined provisions to support breastfeeding as a strategy to combat childhood obesity. She announced the importance of breastfeeding support to thousands of pediatricians at a plenary session at the AAP annual meeting in 2011, raising awareness of the pediatrician's role in supporting breastfeeding. During the same period, the *Healthy People 2020* goals were released, and for the first time since breastfeeding targets were first set in 1979, the targets were raised for initiation and 6-month and 12-month duration. Additional targets were set for exclusive breastfeeding at 3 and 6 months, and goals were added for decreasing the supplementation of breastfed newborns in the early postpartum period, and increasing the number of newborns delivered at hospitals that implement the Ten Steps to Successful Breastfeeding. The Centers for Disease Control and Prevention followed with grant support to fund the National Initiative for Children's Healthcare Quality in the Best Fed Beginning project with an aim to add 90 new hospitals to the already 143 designated Baby-Friendly hospitals in the United States (as of May 2012). Additional encouragement came from The Joint Commissions Perinatal Care Core Measure (PC-05), which measures the rate of exclusive breast milk feeding within the delivery hospital. Furthermore, recent changes to the WIC package were developed to encourage exclusive breastfeeding and decrease the incentive to supplement with infant formula. However, with all of these new and exciting federal strategies to increase support for breastfeeding comes an even more urgent need to measure the evidence.<sup>85</sup>

In the near future there will be 2 additional federal campaigns to increase awareness and support for breastfeeding. The US Department of Agriculture has commissioned the Institute of Medicine to determine the best social marketing campaign to follow up on the prior WIC "Loving Support Makes Breastfeeding Work campaign." The Office of Women's Health has been developing another campaign targeting African American women in an attempt to decrease racial disparities in breastfeeding initiation and continuation. Similarly, rigorous evaluations must be part of these plans to determine the most effective method of messaging and using social media.

Finally, there are several legislative strategies undertaken by states to protect a woman's right to breastfeed in public and to provide support in the workplace. Federally, the ACA law provides further support in the workplace, but there are still a few provisions lacking. These are proposed as the Breastfeeding Promotion Act (BPA) of 2011. The BPA of 2011 has been proposed in the House as H. R. 2758 and Senate as S. 1463 to amend the Civil Rights Act of 1964 to protect new breastfeeding mothers from being fired or discriminated in the workplace and to provide reasonable break time for nursing mothers. Despite many states having laws to protect breastfeeding mothers' rights, the effects of these laws on overall support and breastfeeding exclusivity and duration have yet to be determined.<sup>86</sup>

**FUTURE RESEARCH**

As many more US hospitals seek Baby-Friendly designation, breastfeeding will become more apparent in the community. Additional research is needed to determine the best methods of support during the preconception period to prepare women to exclusively breastfeed as a cultural norm and to enter pregnancy with the intent to breastfeed according to public health recommendations. In addition to outcomes-focused research, studies are needed to determine the cost-benefit analyses of breastfeeding support programs and interventions in various health care settings. Rigorous evaluation of government activities and programs aimed at supporting



(\* denotes quality evidence; ^elements of foundational support; WIC= Special Supplemental Nutrition Program for Women, Infants, and Children)

**Fig. 3.** Schematic approach using a life cycle timeline to identify potential evidence-based opportunities for interventions.

breastfeeding must also be conducted to determine the most effective strategies. For programs that involve multiple dimensions of support, research study designs should allow for evaluation of individual components. Finally, it is important to determine ways to create public support for women to exclusively breastfeed for 6 months and continue to breastfeed for at least 1 year, so that the nation can reach *Healthy People 2020* goals for breastfeeding.

## SUMMARY

Considerable progress has been made in the past decade in developing comprehensive support systems to enable more women to reach their breastfeeding goals. Given that most women in the United States participate in some breastfeeding, it is essential that each of these support systems be rigorously tested and, if effective, replicated. To summarize the domains of support, **Fig. 3** provides a schematic approach using a life cycle timeline to identify potential evidence-based opportunities for interventions.

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